Ganstead to Asselby Natural Gas Pipeline: Archaeological Excavations and Watching Brief
Post-Excavation Assessment of Potential for Analysis and Updated Project Design

GAA
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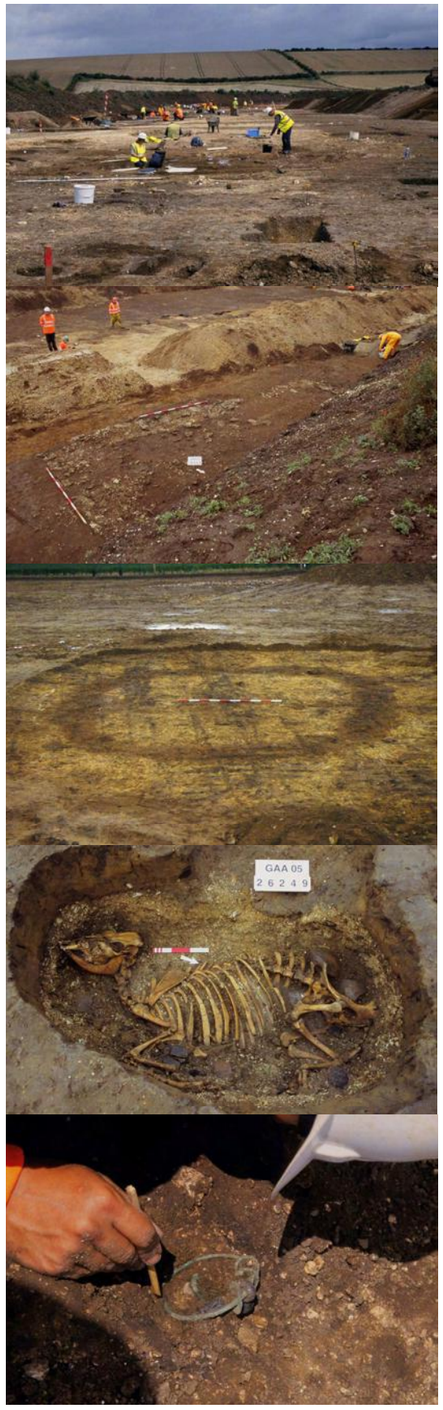
Ganstead to Asselby Natural Gas Pipeline

ARCHAEOLOGICAL EXCAVATIONS AND WATCHING BRIEF

Post-Excavation Assessment of Potential for Analysis and Updated Project Design

Volume 1: Report



Network Archaeology Ltd

for

Murphy Pipelines Ltd

on behalf of

National Grid

GANSTEAD TO ASSELBY

NATURAL GAS PIPELINE

ARCHAEOLOGICAL EXCAVATIONS AND WATCHING BRIEF

Post-excavation assessment of potential for analysis

and

updated project design

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Report no: 562

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1 SUMMARY

Nineteen archaeological sites were investigated by full open area excavation on the route of the Ganstead to Asselby gas pipeline, during its construction in the spring and summer of 2006. In addition, twenty-one sites with less significant archaeological remains were recorded during monitoring of construction works but did not warrant further excavation; isolated post-medieval, modern or undated features were recorded in evaluation trenches on nine sites; two evaluation sites produced no significant archaeological remains, and one site was recorded by topographic survey.

Of the excavation sites, Rudstone Dale, to the south of South Newbald village, was the most significant, containing the remains of a potentially nationally important Romano-British settlement beside the Roman road leading north from Brough on Humber. This site included a metalled trackway and several phases of building construction from the later Iron Age to the late Roman period, as well as over sixty neonate burials, seventeen adult burials and five cremations. Burials of animals, either whole or large articulated parts, were also a feature of this site. There was also some evidence of much earlier activity on the site, in the form of a group of pits, probably of Neolithic date.

Two small sites on the western side of the road, South Newbald and Gaylands, contained features tentatively identified as Iron Age square barrows. The pipeline also intersected a triple-ditch monument identified from cropmarks on the high chalklands of the Yorkshire Wolds, at Lion's Den. This feature is thought to be of Iron Age date but is, so far, poorly dated. Triple-ditch monuments have been rarely systematically excavated or dated in the region and this site would be of regional significance should a successful radiocarbon dating and environmental programme be undertaken.

On a high point above the western scarp of the Yorkshire Wolds, Warren Hill Spring contained several phases of overlapping Roman field systems, enclosures and several phases of buildings, as well as six adult inhumations and two neonate burials. Below the scarp, the pipeline crossed wide areas of cropmarks on Hotham and South Cave Commons. The archaeological remains on the pipeline in this area were recorded as separate sites, Carcliffe Crossroad, Snake Hall and Black Dike, but these are perhaps better regarded as part of a wide late Iron Age to Roman landscape of scattered settlement and pastoral field systems. In addition, a substantial quantity of briquetage was collected from these sites, providing regionally significant evidence for salt-making.

Two other areas of dense cropmarks on the pipeline route also proved to be settlement sites of Iron Age or Roman date. South of Beverley, at Shepherd Lane, substantial evidence for later Iron Age settlement and pastoral land-use was recorded, including several phases of ring gully structures, droveways, open fields and an iron smithing area. Thorpe Hall, a site occupying a wide area either side of the railway line to the east of Howden Station contained a sequence of Roman field systems, buildings, possible salt production areas, an adult inhumation and a cremation. Areas to the north, recorded as two separate sites, Howden Common and Wood Lane, produced evidence for late Iron Age and early Roman settlement, including pastoral field systems, a smithing area and a large collection of loomweights, overlain by a late Roman field system.

A small excavation area at Swine, in the Hull Valley, also revealed the remains of Iron Age and Roman field systems but also contained a pit dated to the early Bronze Age. The presence of early prehistoric remains on this site makes it of potential regional interest.

The other excavation sites are of little more than local interest, and the same can be said of those recorded in the evaluation trenching and during monitoring of construction.

In addition to stratigraphic descriptions of the archaeological remains recorded, and providing a full assessment of their significance, this document also includes recommendations for further work and an updated project design.

2 INTRODUCTION

The Ganstead to Asselby natural gas pipeline was constructed in the spring and summer of 2006. It forms one section of a trans-Pennine pipeline route from Easington on the east coast, south-east of Hull, to Nether Kellet, close to Carnforth on the west coast, in turn part of the National Transmission System of high-pressure gas pipelines operated by National Grid.

The pipeline connected existing gas valve compounds at Crab Tree Lane, Old Ellerby, 3km north-east of Ganstead on the outskirts of Hull (TA 1631 3684) and at Hollycroft Lane, just north of the River Ouse, 2km south-west of Asselby and a similar distance south-east of Barmby on the Marsh (SE 7007 2725). The total length of the pipeline is 52.43km.

The main contractor for the construction work was Murphy Pipelines. The archaeological contractor for all of the stages of work described in this report was Network Archaeology.

The following sections of this document outline the aims of the archaeological investigations before briefly describing the historical and archaeological background to the area crossed by the pipeline, in order to place the results of the investigations into their context. The pre-construction stages of archaeological investigations are summarised, followed by details of the intrusive fieldwork undertaken before and during the construction of the pipeline. This includes an outline of the various procedures involved in pipeline construction as they affect archaeological deposits and constrain their investigation and recording.

3 AIMS

This document forms the post-excavation assessment of archaeology found along the Ganstead to Asselby natural gas pipeline, and contains an updated project design for full post-excavation analysis. It has been designed to comply with MAP2 and MoRPHE (English Heritage 1991 and 2006).

The aims of the stage of work reported here were to:

- assess the potential of all the data collected during the fieldwork to contribute to any archaeological research priorities highlighted in current national, regional and local research agendas, and to identify any other pertinent areas of research which the results could address;
- create an updated project design consisting of fully costed proposals for further analysis, justifications for carrying out these proposals, detailed proposals for publication and dissemination of the results, and a timetable for completion of the project; and
- create a structured and accessible project archive, in accordance with current national and local guidelines.

4 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

The pipeline crosses a series of contrasting landscape forms from western Holderness, across the Hull Valley, over the high ground of the Wolds and down once again onto low-lying land, north of the River Ouse (Fig. 1). The eastern half of the route is underlain by chalk, laid down in the Lower Cretaceous period. These rocks are close to the surface in a band around seven or eight kilometres wide, between Walkington and South Cave, rising to the west to form the highest part of the Wolds, at over 160m OD. A prominent scarp slope above South Cave village marks the limit of the chalk. The underlying Upper Jurassic clays are exposed in this slope. The rocks of Lincolnshire Limestone Group and the underlying mudstones of the Lower Jurassic, form a band of relatively flat land at around 40m OD, the latter rocks forming a second prominent scarp, to the west of Hotham, marking the eastern side of the Vale of York.. Beyond this, the underlying rocks, of the Mercian Mudstone Group, are covered by thick glacial deposits.

4.1 Palaeolithic (500,000 to 10,000 BC)

The landscape of the region, especially to the east and west of the Wolds, was largely formed during successive periods of glaciation, where ice sheets spread over this part of the country carving new valleys and depositing thick layers of drift deposits over all the low-lying land.

At this time, the earliest modern humans emerged among other species of hominid. There is little surviving evidence for human activity in the region crossed by the pipeline although some occupation during the warmer interglacial periods is likely to have happened. Large mammal bones, deposited in the Wolstonian period (200,000 to 130,000 BC), have been found just north of the pipeline, in South Cliffe parish.

The final episode of glaciation, the Devensian period (110,000 to 12,000 BC), is fairly well understood. Massive ice sheets moved across Holderness and the Hull valley out of the Yorkshire Dales to the north-west and from the north-east, along the North Sea coast. These blocked the outlet to the sea, forming an immense ice-dammed lake known as Lake Humber, extending over much of the Vale of York. Lake sediments deposited at this time include the silts, sands and gravels that cover much of the western end of the pipeline route. The commercial sand and gravel quarries around North Cave exploit these deposits.

The combined effects of the quantity of water locked away in glaciers and ice sheets and the effect of the massive weight of ice depressing the land surface produced a complex pattern of changes in relative sea levels through this long glacial period. During the Devensian, sea levels were as much as 20m lower than at present, exposing much of the North Sea basin as dry land. Glaciers and glacial melt-waters would have deepened many valleys, including the Hull Valley and the Humber Estuary. It has been suggested that, as the ice barrier of Lake Humber was breached, a large waterfall would have been established close to the present site of the Humber Bridge (Van de Noort 2004, 19). In much of Holderness, the moraines of the glaciers left deep and complex deposits of boulder clays and glacial sands and gravels (Van de Noort and Ellis 1995, 19).

4.2 Mesolithic (10,000 to 4000 BC)

As the ice sheets retreated and melted, previously trapped water was released, causing rapid rises in sea-levels. During the mid-Mesolithic, from around 8500 to 5900 BC, the North Sea level rose to less than 10m below current levels (Van de Noort and Ellis 1995, 41). Rising sea levels saw the North Sea extend southwards, defining the Holderness coast by the late Mesolithic, around 5500 to 6000 BC (D'Olier 2002). The climate gradually became warmer, encouraging the growth of birch, pine, elm and lime forests and the migration of red deer, aurochs and wild pig from the diminishing land bridge with the continent. Human occupation of the landscape tended to be in based on hunter-gatherer communities living in the woodlands and alongside coastal zones and river valleys. Habitation may

have been in seasonally occupied camps, perhaps shifting to more permanent sites by the later Mesolithic.

The rising sea levels led to the deposition of deep alluvial or marine silts along valley bottoms. Palaeo-environmental studies of the Hull Valley have shown that by the late Mesolithic, around 5000 BC, the Hull Valley was dominated by fresh water wetlands, which were then subjected to sporadic intertidal flooding by the early Neolithic (Van de Noort and Davies 1993, 17).

Evidence for Mesolithic occupation in the region is limited: occasional find-spots of worked flint suggesting sporadically occupied camp-sites, a lack of permanent settlement and a low population. However, the environmental changes which have occurred across East Yorkshire will have undoubtedly affected the survival and preservation of sites. Rising sea levels and sediment deposition will have removed or buried any Mesolithic sites on the coastline of the time, and river valley sediments will mask other remains. The recovered Mesolithic data from the region must represent only a fraction of the original material, with outlying camp sites and find spots away from the more populated zones being more likely to have survived.

An assemblage of 41 worked flints was recovered from fieldwalking to the east of the River Hull as part of the Hull Valley Wetlands Survey (Pastscape 1309749). Further north along the River Hull at Stone Carr, over 750 worked flints have been recovered from a late Mesolithic flint knapping site (Chapman et al 2000). Stone Carr suggests the river valleys may have been heavily exploited during this period, utilising flint deposits washed out of glacial till and the abundant wetland resources. Analysis of peat cores and alluvium at Stone Carr has also shown that the site was overlain by rising wetland development during the Bronze Age, suggesting that other Mesolithic sites in the valley may have been buried (Lillie et al 2003). Beyond the eastern end of the pipeline, a Mesolithic flint-working area was investigated to the south of Sproatley during the construction of the Easington to Ganstead pipeline (Flintoft and Glover 2009).

4.3 Neolithic (4000 to 2500 BC)

The transition from Mesolithic to Neolithic society is marked by a shift in flint-working technology associated with the change from a hunter-gatherer lifestyle to more permanent settlement and the adoption of cultivation of cereals and rearing of domesticated livestock. Other technologies such as pottery, quern-stones and polished stone axes also appeared at this time. Continued sea-level rise in the early Neolithic would have produced an expansive intertidal environment around the Humber Estuary and estuarine insurgence into the lower Hull Valley (Dinnin 1997). Palaeo-environmental evidence from this period includes Park Grange Farm, Woodmansey, where huge oak timbers, tree-ring dated to 3891 or 3890 BC, were recovered from early Neolithic riverbed deposits (MHU6619).

Monuments known from the region include Ling Howe Long Barrow, which survives as a slight mound 800 metres to the north of the pipeline (SAM26605). Excavations on two Bronze Age barrows west of the long barrow revealed an old land surface which produced Neolithic pottery and flintwork (MHU3650).

Find-spots of early prehistoric artefacts include two flint scrapers recovered from east of Hotham Field (MHU17245) and a quartzite pestle macehead now in the Hull Museum, found at Hotham (Pastscape 64199). The extensive Dryham Lane excavations at North Cave also produced a flint scraper, an arrowhead, a chisel and a polished flint axe (MHU8231).

4.4 Bronze Age (2500 to 800 BC)

Interpretation of sediments dated to 2100 to 1500 BC at Stoneferry in Kingston upon Hull shows that sea level probably reached the equivalent of modern day levels during the Bronze Age (Van de Noort and Ellis 1995, 41). As sea levels changed, the poorly draining lower post-glacial landscape would have been subjected to flooding. Watercourses flowed through areas of marshland interspersed with wide, shallow meres, surviving from the post-glacial landscape of Holderness. Excavation of the peat

and alluvium deposits overlying the late Mesolithic site of Stone Carr revealed a small gully containing a piece of antler which was radiocarbon dated to the early Bronze Age. This suggests that early prehistoric river sites may have been re-used in later periods after environmental conditions changed (Lillie et al 2003).

As well as the development of metal-working technologies which define the age, the period also saw changes in social organisation. The development of burial monuments is particularly visible in the archaeological record, with round barrows being characteristic of the period. One site in the area has been excavated (MHU3650), to the west of the Ling Howe long barrow, revealing the remains of two round barrows, one consisting of a shallow mound, 15m in diameter, with the ditch probably ploughed away, the other a bell barrow, 21m in diameter, with a penannular ditch (MHU3651). Fieldwalking in the vicinity of the bank produced a small assemblage of late Neolithic or Early Bronze Age pottery (MHU3651). Other possible round barrows have been recorded nearby (MHU3636).

Also close to the pipeline route, a ploughed-out mound and ditch is visible on aerial photographs in Wressle parish (MHU2897). A mound has been recorded to the east of Hotham (MHU6637), and aerial photographs show a round barrow and a rectangular enclosure south of Beverley (MHU6623) and another possible round barrow within a field system in the same area (MHU3631). Other, less convincing barrows have also been noted in the Beverley area (MHU8242; Mackey 2003). The site of a possible round barrow has been identified south-east of Walkington from aerial photographs (MHU3648). In the Walkington and High Hunsley area, cropmarks of possible barrows are recorded near Samples Farm (MHU3638; MHU6613). Nearby, a Bronze Age double-ditched track or dyke extends north-eastwards from Bluestone Bottom (MHU3663).

Whether covered by a barrow mound or not, Bronze Age graves typically contained pottery vessels, serving either as cremation urns or as accessory grave goods and the succession of styles provides key dating evidence. Sherds of Beakers, Food Vessels and Collared Urns, most probably deriving from disturbed burials, are the most frequently recorded evidence of early Bronze Age activity.

Evidence of settlement from the early Bronze Age is more elusive, but by the later Bronze Age, defended or enclosed settlements, such as Grimthorpe Hillfort, Staple Howe and Devil's Hill, Heslerton, were becoming established; these sites typically continued in use into the early Iron Age. Open settlements are also likely to have been present but these are far less visible in the archaeological record and none have been recorded in the area of the pipeline.

Recorded Bronze Age find-spots are concentrated in the central section of the pipeline route, on the chalk upland of the Yorkshire Wolds and the wetland landscape to the south-west, between the Wolds and the Humber Estuary. A hoard of late Bronze Age axes was ploughed up in 1867, in the drained marshland of Hotham Carr (Manby 1980). Isolated finds include an axe found south of Beverley, near Park Grange Farm (MHU18386) and a late Bronze Age (seventh century BC) gold bracelet recovered from a field in High Hunsley (MHU3529). A bronze palstave axe, drawn by William Machin of Benningholme in 1907, is of uncertain provenance but may have been part of the Skirlaugh hoard found in 1809 in the Hull Valley (MHU17611).

The eastern end of the pipeline crosses into the western edge of Holderness, which has produced the most extensive range of bronze artefacts in Yorkshire. These artefacts include tools such as axes, along with weapon groups including rapiers and swords. Votive deposition in a wetland environment has been illustrated by five Ewart Park type swords found at Leven or Leven Carrs. Research has suggested that there may have been different perceptions of wetland zones in the Bronze Age: areas such as the margins of the Humber Estuary seem to have been exploited for resources, while the River Hull became a focus for votive deposition (Van de Noort 2003).

4.5 Iron Age (800 BC to mid-first century AD)

There was probably much continuity between the late Bronze Age and early Iron Age, but from around 500 BC, a very distinct cultural identity was established in the Wolds, and the surrounding areas to the north of the Humber Estuary. This was most clearly expressed in the use of square barrows, a form of burial monument very rare elsewhere in the country. High-status square barrows incorporated grave goods such as weapons, personal effects, pottery, chariots and ritualised deposits of animal remains. The culture takes is name from the barrow cemetery in the hamlet of Arras, but many other square-barrow cemeteries are known, such as those at Barmston, Boynton, Burton Fleming, Carnaby, Cottam, Garton Slack, Grindale, Hayton, Kilham, Kirkburn, Thwing and Wetwang (Dent 1995). Possible square barrows have been identified from aerial photographs near the east end of the pipeline route, at Long Carr (MHU18583). Later Arras Culture cemeteries are constrained within enclosures, perhaps as a consequence of more intensive use of the land. Square barrow cemeteries do not seem to have continued in use beyond the end of the first century BC.

There is a growing body of evidence that the Arras culture was linked to the growth of iron production in the valley s of the Wolds, especially the Foulness Valley (Halkon 2008). Sites in this valley have shown settlements within isolated oval enclosures being superseded fairly rapidly by agglomeration of rectangular enclosures.

Descriptions of the region survive from the second century AD, when the separate identity of the region was still recognised, with the native tribe distinguished as the *Parisi*. Brough on Humber, which later became a Roman military site, may have functioned as a tribal centre.

Evidence for early and middle Iron Age settlements is limited from the area crossed by the pipeline, the majority of known Iron Age sites in the area dating from the later period. As elsewhere in the country, it is not clear to what extent this is a consequence of there being a lower population in the earlier period, or whether the ways that the landscape was used left more limited evidence in the archaeological deposits. To the extent that this is a local phenomenon, the sea levels changes which seem to have occurred through the first millennium BC, could provide a ready explanation for why the area was not heavily settled at this time. Though the detailed pattern is complex and not well understood, the later Iron Age seems to have been a period of relatively low sea levels, when settlement of lower lying ground would have been more feasible.

Along the edges of the Humber, large areas of marsh and fenland would have been become available for exploitation, both for wetland resources and for summer stock grazing. The area of Walling Fen, in particular, probably emerged at some time in the early Iron Age. Buried peat deposits and waterlogged fenland clays elsewhere in the area have produced well preserved organic deposits, including a logboat found by drainage contractors near South Carr Farm on Walling Fen in the 1960s (MHU3432) and the 'Hasholme Boat', found 3km away in 1984 during a survey of drainage works, carried out as part of the Holme Landscape Project. The South Carr logboat was larger than that from Hasholme but typologically similar. Both boats lay in the waterway that later formed Walling Fen.

The upland areas or the Wolds would have continued to be used, as shown by Iron Age pottery found during excavations on the Neolithic and Bronze Age Ling Howe barrow site (MHU3650). Remains of an associated field system including ditch and bank boundaries were investigated in the late 1960s; Iron Age pottery was recovered from the ditch fills (MHU3651). Major land divisions across the Wolds, marked by dykes and banks, are likely to have been related to the establishment and demarcation of large areas of pasture.

The expansion of settlement across the Wolds and onto the lower-lying ground to the west can be seen in the extensive patterns of cropmark sites. Many of these are loosely attributed to the Roman period but a proportion of them will have Iron Age antecedents. Some of these sites have been previously investigated in advance of gravel quarrying. At North Cave, west of the Wolds, for example, excavation revealed an extensive enclosed settlement complex of Iron Age and Roman date

(MHU8231). The partially waterlogged conditions resulted in good preservation of organic remains including a rich assemblage of palaeo-environmental evidence and the wicker lining of a well. A spread of metal-working slag and the truncated bases of furnaces indicated metalworking. Ring gullies of roundhouses and stone scatters indicating where Roman buildings had once stood were separated from a small field system to the north by the remains of a trackway (Pastscape 883557). Cropmarks and minor excavations at neighbouring South Cave revealed further enclosed settlements, trackways and field systems believed to date to the Iron Age (Pastscape 1257909).

Rectilinear enclosures visible as cropmarks north-east of Howden (Pastscape 1221065) are believed to be Iron Age or early Roman, and aerial photographs of fields west of Hotham show extensive cropmarks of this period indicating irregularly shaped enclosures or field systems, some with double ditches, and ring gullies (MHU2838, MHU1425, MHU11041 and MHU2841). Farther east, near High Hunsley, cropmarks of conjoined rectilinear enclosures with associated linear ditch boundaries are also believed to be from this period (Pastscape 1197535).

4.6 Roman (mid-first to early fifth century AD)

Iron Age settlements and land-use gradually changed in the first century AD, as contact with Roman or Romanised people and culture became more frequent and trade in objects and materials increased. The Roman occupation north of the Humber took place in AD 71 to 72, marked by the construction of forts at the *Parisi* tribal centre of Brough (*Petuaria*) and at Hayton (Halkon and Millet 1999). The largely agricultural communities north of the Humber would increasingly have adopted Roman farming methods with the likely introduction of agricultural innovations, such as new cereal strains and animal breeds. Areas of former pasture were drained and increasingly cereal crops were grown for personal consumption and trade. Animal husbandry continued in a similar pattern to that of the later Iron Age, with sheep flocks maintained on the uplands of the Wolds and cattle predominately kept on the low-lying landscapes of the Hull Valley and the wetlands around the Humber Estuary. The range of building styles increased, with rectangular buildings appearing in addition to almost ubiquitous Iron Age roundhouse. Villas, developed within this landscape, would have provided centres of economic activity, directing the resources of smaller, surrounding farmsteads.

Iron Age routes, following river courses or along tracks, were often re-laid as metalled roads, linking urban centres and greatly increasing trade and the spread of Roman culture. The river system provided an important transport network, with Roman activity occurring all along the Humber and its tributaries. During this period, the area of Walling Fen was a tidal inlet with creeks extending far into South Cliffe parish. Settlements developed along the shores of the Humber and the Walling Fen waterway, including notable settlements at North Cave and Hotham. There is evidence of small-scale salt production in these wetland communities, with briquetage being discovered around North Cave in 2007 (Wastling *pers comm*, 2009).

On the eastern part of the pipeline route, across the Hull Valley and south of Beverley to the base of the Wolds, earthwork remains of a Roman canal have been recorded, along with scatters of pottery sherds (MHU2806). Antiquarian discoveries from this area include a Roman urn containing between 1,400 and 1,500 copper coins found to the south of Beningholme Hall (Pastscape 80619). The surviving coins were all Constantinian. Metal detecting in this area has also produced a bird's head artefact with a ring and dot eye (MHU19844) and a headstud brooch (MHU19843). Nineteenth century excavations from Grovehill, south east of Beverley, suggested a Roman landing-place (MHU13472) and mention that Roman coins and 'other antiquities' had been dug up there and on the opposite side of the River Hull, in Tickton parish (Oliver 1829). Roman coin hoards have also been found in Swine parish and an undated embanked enclosure on the northern boundary was described in the nineteenth century (Allison 1989).

South-east of Beverley, near Woodmansey, three Corieltauvian coins, were found in the same field as a Republican denarius and a silver siliqua of Antony and Cleopatra (MHU17525). The find-spot coincided with a large area of undated cropmark features (MHU1511) and lay close to Park Grange

Farm, where early Iron Age and Romano-British remains were found (MHU6619), including part of a circular feature of burnt stones that may represent a hearth. Late Iron Age and early Roman finds included samian, greywares, a Spilsby sandstone quern, a perforated boar's tusk ornament and a large quantity of animal bone. Three stacked horse mandibles point to a possible ritual element and it was observed that the site lay on gravel near an intermittent spring. Pottery evidence suggested the site fell out of use by the fourth century. Two Roman brooches have also been found north-west of Holycroft Farm south of Beverley, (MHU18166) and (MHU18516), in an area of undated cropmarks (MHU1510). South of Walkington, a Roman road is thought to have followed the course of Park Lane near Risby Park Farm (MHU8540).

Known sites within the Wolds include a substantial Romano-British settlement, overlying two Bronze Age round barrows to the west of Ling Howe long barrow. This site included large quantities of fourth-century pottery, 726 Roman coins dating from the second to fourth centuries and a number of fourth-century artefacts (MHU3650). Thirteen inhumations of young adults lying in shallow graves were also discovered at the site, with some of the backfills containing fourth-century pottery sherds. Ten of the inhumations had been decapitated and were arranged individually or in groups. Remains of an associated ditched field system of Iron Age and Roman date were also discovered during the barrow excavations (MHU3651). Nearby, an undated field boundary has also been ascribed to this period, possibly marking the limits of the settlement (Pastscape 64101).

A road from the fort at Brough ran northwards through South Cave and South Newbald to Malton (MHU4164). Its course was evidently planned to keep clear of the steep escarpment of the Wolds. The Roman road broadly followed the modern A1034, which was crossed by the pipeline route north-east of Hotham. Just to the south of South Newbald, the road branched, the more westerly branch running to York (MHU63).

Villas were built near the Brough to York road at Newbald, Welton and Brantingham and other types of settlement also grew up close by (Halkon and Millet 1999). The site of the mid-third- to fourth-century villa with stone walls, painted plaster and mosaic pavements near North Newbald was excavated in 1939 (MHU7524). The location of the site was not accurately recorded, but it was said to lie on a gentle south-west slope 'about 600 yards north-west of the junction of the roads to York and Malton from Brough'.

A possible Roman villa has been identified at the junction of Carr Lane and Cliffe Road, west of Hotham (MHU2842). The villa area has since been ploughed, but in 1969 it was observed that the building had six or more rooms and there appeared to be other, smaller buildings to the west. A Roman building found in the 1986-7 excavation at Dryham Lane Quarry, which yielded ceramic building material, window glass and iron keys (MHU8231) may have been associated with this villa. North-east of Hotham, two Roman brooches were found by metal-detectorists on the west side of the road in 1994 (MHU17571) and (MHU17578).

Most of the field system cropmarks across the Wolds area are believed to be of Roman date, although few have been formally investigated (Brigham 2003). The area around Dryham has, however, provided a number of Roman find-spots and possible settlement evidence. Roman coins, jewellery and pottery were found in a water supply trench in 1965, just to the west of Dryham (MHU3113). Roman coins and a fibula are recorded on the first edition Ordnance Survey map at the same location. A 'Romano-Celtic' dragonesque brooch and a coin of Constantine (AD 318 to 324) were recovered to the north-east of Dryham Farm by a metal-detectorist (MHU19846). Another coin of Constantine was found to the west of Dryham (MHU15507). An ornamental knife handle is also recorded as being found at Dryham in 1846 (MHU3121).

Another concentration of Roman cropmarks around High Hunsley on the western side of the Wolds includes two subdivided rectangular enclosures and a north-to-south aligned ditch (MHU7544). Roman pottery was found in this area, suggesting that the enclosures are of this period. The site may be part of a larger settlement that includes a currently undated cropmark enclosure (MHU3776).

Surface finds of Romano-British greyware, possible fourth-century iron fragments, part of a glass bracelet and a bone handle were collected in 1967 from the north side of the parish boundary between Newbald and Rowley, near High Hunsley (MHU3765). Undated, decapitated burials have also been found near High Hunsley and may relate to a late Roman, or possibly Anglo-Saxon, execution cemetery (MHU6635).

Sites from the Humber Estuary include known kilns at Hasholme and Bursea, which were particularly active during the third and fourth centuries (Corder 1930; Halkon and Millett 1999; Hicks and Wilson 1975). Their products reached a large market, presumably transported along waterways draining into the Humber.

The area around Howden has produced a number of Roman find-spots and cropmarks. Pottery sherds have been found in a field west of Howden near Barnhill Hall Lane during fieldwalking (Halkon 1987). Studies of aerial photographs for a desk-based assessment (Speed and Buglass 2003) interpreted former closes north of Howden as the site of a large courtyard villa. Other find-spots include a Roman coin and pottery sherds found south of Wholsea Farm, north of Gilberdyke, during fieldwalking (Halkon 1987).

Beyond the western end of the pipeline, a Roman villa at Drax was excavated in the 1960s. Remains here included the footings of stone-built buildings and a large spread of slag, iron and third- to fourth-century pottery (Scott 1993, 150).

4.7 Anglo-Saxon (early fifth to mid-eleventh century)

The drop in sea levels during the later Iron Age seems to have reversed during the later Roman period. This, combined with the abandonment of Roman drainage systems, would have led to an increase in wetlands, including the many meres which were formerly so much a feature of the Humber landscape. It is likely that much agricultural land was abandoned, but the general low visibility of early Anglo-Saxon settlement evidence means that this effect is difficult to detect in the archaeological record. No direct evidence of Anglo-Saxon settlement sites is known from the near vicinity of the pipeline route.

Cemetery sites from the period are much more commonly recorded. Anglo-Saxon cemeteries are often found in the vicinity of Roman roads, and two have been found near the Roman road from Brough to Malton. A large cremation cemetery was recorded at Sancton, north of Newbald (Myres and Southern 1973) and an inhumation cemetery with high status burials was discovered at Everthorpe, near North Cave. Everthorpe is thought to have been in use during the transition between paganism and Christianity in the early seventh century (Geake 1997).

Walkington may have been a place of importance in this era. Bronze bucket mounts, dating from the fourth or fifth century AD, were found during excavations on the Ling Howe barrow site, south west of Walkington (MHU3650). An execution cemetery with decapitated bodies has also been recorded near Walkington Wold. Originally thought to be of late Roman date, recent analysis of the remains by radiocarbon dating indicates the cemetery was in use over an extended period from the seventh to eighth century to at least the tenth century AD (Buckberry and Hadley 2007). The undated execution cemetery from High Hunsley, believed to be from the Roman period, may also date to the Anglo-Saxon era, although further analysis would be required on this material.

For the later Anglo-Saxon period, place names, early charters and ecclesiastical documents indicate patterns of settlement. Most of the recorded place names can be identified with modern villages, indicating a fairly high degree of continuity from the late Anglo-Saxon period onwards, although, of course, the focus of activity might well have changed within the boundaries of the present-day settlement. Place names show a mixture of Scandinavian and Anglian influences; Asselby, Risby and Dowthorpe are Old Danish in origin while The Marrs and Stone Carr have Old Norse elements. The Lambwath stream combines the Anglian word 'lamb' with the Old Scandinavian for 'ford' (Allison 1989).

Eastrington church dates from the Saxon period (Bulmer 1892). Swine had a priest at Domesday and a church is mentioned as early as around 1150 (Allison 1989). Howden had a church by the tenth century (Butler and Powls 1994) and Hotham church retains Norman fabric (Bulmer 1892).

4.8 Medieval (eleventh to mid-sixteenth century)

The medieval landscape of the area was greatly influenced by the presence of the important ecclesiastical centres of Beverley and Howden. Beverley Minster was one of several great churches in the North known as sanctuary refuges, a series of charters from the early tenth century onwards establishing its pre-eminence in the East Riding. The town of Beverley was granted to the Archbishopric of York by Edward the Confessor, the power and influence of the archbishop reaching its height in the late thirteenth century (Allison 1989). This is expressed in the landscape of the pipeline route in the Beverley Parks area, the private hunting grounds of the medieval archbishops. A more tangible remnant is provided by Bentley cross, a square stone shaft set on a rectilinear modern stone base, one of the three surviving original stones marking the limit of the Liberty and Sanctuary of Beverley Minster (MHU3528).

Howdenshire, the area around the modern town of Howden, was a manor of the Bishop of Durham at the time of Domesday Book, and, as with Beverley, subsequent bishops established a series of deer parks around the town. Newsholme Park (MHU9207), which contained a hunting lodge (MHU3493), Howden Park (MHU6684), Woodmansey (MHU697), Risby, shown on Saxton's map of 1577, and a small manorial deer park west of Bentley (MHU8799) are all crossed by, or close to the pipeline route.

The curving boundary at the north western edge of Howden Park was formerly known as Hell Parlour and followed the line of the Brind Drain. It also forms part of the parish boundary between Wressle and Howden. The curve of the boundary is shown on the first edition Ordnance Survey map continuing north westwards to the east of Prickett Hill farm and cutting across the edge of Newsholme Park; on this western side there was apparently no drainage channel. Ridge and furrow (MHU10216) is recorded respecting this boundary: the furrows within Howden Park running east to west, those to the north running north to south. Many park pales are curved, in order to save on resources for construction and maintenance and the re-use of the section at Hell Parlour would also have reduced outlay but it is also possible that the curved boundary relates to a pre-medieval estate or territory.

The natural drainage of the Hull Valley is poor, but has been improved by the construction of artificial drainage systems excavated in order to increase the agricultural potential of the land. Such systems originated in the medieval period, particularly under the direction of the monastic settlement at Meaux (Sheppard 1958), and continued through subsequent centuries. The Ash Dike, also known as the 'Monks Dike' dug in the wide marshy valley of the River Hull (MHU18518) was initially intended to provide transport but became increasingly important for drainage. Ash Dike has since been incorporated into the Holderness Drain between Meaux and Wawne (Allison 1989).

Along the pipeline route, many of the recorded archaeological sites of the period reflect the distinctive organisation of agricultural land into large open fields ploughed into strips of ridge and furrow. Medieval open field cultivation reached its zenith in the twelfth century, after which the region saw a great expansion in sheep-runs and conversion once again of much of the more marginal land to pastoral farming (Aalen 2006). There was a further retrenchment of arable cultivation with the onset of the Black Death and climatic change in the mid-fourteenth century. Many of the small nucleated villages that had grown through the earlier period of agricultural prosperity ceased to be viable and the population tended to regress back to the larger population centres.

The resulting deserted and shrunken medieval villages may be visible as earthworks on aerial photographs and, in many cases, can be identified with manors recorded in Domesday Book: examples include Cavil (MHU7760), Bentley (MHU10058) and Ringstone Hurst, near Cavil Hall (MHU17260). Other villages have considerably shrunk from their medieval extents: the settlements of Rowley, Hunsley, Riplingham and Risby, for instance, are all largely depopulated. Ridge and furrow is visible

on early aerial photographs in a number of places along the pipeline route although this has now largely been lost to modern ploughing.

Though the area would still have been predominantly agricultural, there is evidence of textile production during the period. Domesday Book mentions a watermill at Hotham and there is documentary evidence of a fulling mill operating there in the 1370s (MHU13326). Water retting, used in the production of flax, is prominent from this period. Aerial photography has revealed a series of probable retting ponds at Asselby Marsh. Immediately south of Beechtree Farm, Newsholme, cropmarks of a scattered group of retting ponds also show up on aerial photographs of the area. These ponds, alongside the former course of the Old Derwent, survived to appear on the first edition Ordnance Survey map.

Other medieval sites recorded along the pipeline route include a cropmark of a motte and bailey castle visible on aerial photographs at Warp Farm, Wressle (MHU18167). In Howden parish, a moated hermitage chapel dedicated to St. Mary Magdalen (MHU1760) was hermited between 1284 and 1494 but is now destroyed. There is no evidence for a chapel building on aerial photographs, but the arms of the moat are visible as broad, ill-defined, superficial depressions. On the island there is a fairly heavy scatter of medieval pottery. The moated manor house known as Dowthorpe Hall lies at the eastern end of the pipeline, in Ellerby parish (MHU2785). A small rectangular moated site at Howden Common was recorded in 1979 but has since been lost (MHU1761). A possible medieval moat is visible as cropmarks on air photographs north-east of Cavill Hall (MHU7689).

Medieval finds from the area include finely tooled architectural fragments, probably dated to the thirteenth century, uncovered at Beckside, midway between Low Bridge and the River Hull (MHU673). One piece bore a chiselled cross and is thought to represent the site of St. John House. Relatively few of the reported metal-detector finds date from this period. A copper alloy seal matrix (MHU19833) was recovered from fields south of Beverley in 2002 and a lead object, thought to be a pilgrim badge or hat badge, was found at Cherry Tree Cottage in 1995, within a backfilled ditch or hollow (MHU18067). A medieval clasp was found in 1994 in fields south east of South Newbald (MHU17565) and a handle or suspension point (MHU19845) was recovered at Benningholme (Fenn 2002).

4.9 Post-medieval (mid-sixteenth to early nineteenth century)

The medieval landscape would have included enclosed parks, open downland in the Wolds, agricultural land, where natural or artificial drainage was good, and grazing marshes and fen in poorly draining areas. Prior to the seventeenth century, most of the agricultural land would have been open fields. The field systems crossed by the pipeline in the parishes of Asselby and Barmby are mainly rectangular with an alignment that respects older roads, tracks and watercourses. Many of the field boundaries are likely to date from the time of enclosure, 1840 in the case of Asselby and 1853 for Barmby. The more irregular field pattern in Newsholme and Howden Parks may reflect enclosures of an earlier date and it is recorded that by 1737 Newsholme Park had been divided into fourteen closes (MHU9207).

The open fields of Woodmansey were finally enclosed by the early seventeenth century. Until this time the farmland of Woodmansey and Thearne was drained by small dykes into the River Hull. Both the surrounding farmland and the Hull-to-Beverley road were frequently flooded; in 1647 a new drain was dug through Skidby Carr to Cottingham, its upkeep entrusted to the inhabitants of Woodmansey, Thearne and Skidby. Although the Beverley and Barmston Drain, constructed in 1799, cuts through the area, it has no part in the draining of either Figham pasture or the North Carrs.

The area between Caville and Hotham was enclosed between around 1770 and 1835, much of it comprising detached portions of neighbouring parishes. Ownership was very fragmented: in the modern parishes Eastrington and Gilberdyke, with detached portions of Metham, Knedlington, Asselby, Barmby, Yokefleet, Newport, Bellasize and Newland reflecting the medieval land holdings,

particularly that of the Bishop of Durham, and the need for parishes to include different kinds of landscape for cultivation, forage, grazing and fuel. Most of the field boundaries in this area date from the late eighteenth or nineteenth centuries, but some are potentially older. To the north-east of Hotham, the fields shown on the nineteenth-century maps are less regular in form, suggesting that enclosure here began earlier. Other documentary sources confirm that former arable land between the Brough-to-North Newbald road and the beck at South Newbald was enclosed in 1630.

A few Hull valley settlements retained their open fields into the eighteenth century, but most parishes had seen at least partial enclosure of some of their lands in the late medieval to early post-medieval period, much of which passed unrecorded. For most places, recorded enclosure started in the sixteenth or seventeenth century. In Wawne, enclosure of the commons and open fields was conducted in a piecemeal fashion but was completed by the early eighteenth century. It was often the lower ground that was enclosed first, though enclosure of the wetter carrs, which depended on the implementation of drainage schemes, often took place much later. At Tickton, for example, the open fields were enclosed around 1664 and the carrs between 1790 and 1792; in Weel the commonable lands were enclosed by the mid-seventeenth century, while the carrs were not enclosed until 1786 (Allison 1989).

‘Hunsley pasture’ was mentioned around 1530 and two closes were recorded at North (High) Hunsley in 1588 (Allison 1989). Although Hunsley was enclosed early, the nineteenth-century maps show fairly regular, large, rectangular plots, normally indicative of later enclosure. This may be explained by the fact that by 1636 parts of Hunsley were devoted to rabbit-rearing and much of Hunsley was a warren in the later eighteenth century. Rowley and Risby were apparently enclosed in the seventeenth century (Allison 1989) and the field patterns shown on the mid-nineteenth-century maps support this assertion. Demesne closes at South Newbald in the seventeenth century included Coney Clappers and Park Ings, indicating that a warren and a park lay nearby (Allison 1989).

Figham pasture had been a common from the medieval period, used for summer grazing by the people of Beverley: the name is thought to derive from *fegang* meaning 'cattle track' (Allison 1989). Documentary references reveal that chalk and clay were dug and burnt on the pastures, willow loppings contributed to the income from faggots, and rushes were also cut (*ibid.*). Parts of the pastures near the beck were used as a rifle range from 1872 to 1894 and for depositing sludge from the sewage works. Ground called Lund, beside the junction of the B1230 and A1174 roads, was prone to flooding in the eighteenth century. Such were the drainage problems of the pastures, that an 'engine', probably a steam pump, was built in 1749 to facilitate the operation of Figham sluice.

Improvements to infrastructure, in the form of turnpike roads, canals and, at the end of the period, construction of rail lines, brought major changes to the area. Turnpike roads, such as those shown radiating from Beverley on Thomas Jefferys’ map of 1775, included the Hull to Beverley Turnpike, crossed by the pipeline route between Woodmansey and Beverley. This road was disturnpiked in 1871. The Beverley-to-Hessle road was turnpiked from 1769 to 1878 (Allison 1989) and is crossed by the pipeline route at Bentley. This road, known as Queensgate from medieval times, although part has been renamed Victoria Road, is the present day A164. Two minor roads run eastwards into Beverley Parks from Queensgate; Butt Lane is recorded from 1622 and forms the borough boundary, and Shepherd Lane dates from 1775 (Allison 1989). Halfpenny Gate, a former toll gate, lies on Park Lane between Walkington and Risby.

Figham Clough Bridge and Figham Bridge are both marked on the first edition Ordnance Survey map to the south-east of Beverley, where they take minor roads or tracks over the Beverley and Barmston Drain. A modern concrete road bridge now stands on the site of Figham Bridge. Mill Scut Bridge on the south side of Beverley takes Figham Road over the tail race of a former watermill.

Construction of the railways in the 1800s dramatically improved long distance haulage, with the courses of four railways located near the pipeline route. The Hull and Selby Railway running through North Howden was opened in 1840 and was the first railway link to the West Riding. Other rail lines radiated from Hull, to Doncaster, Barnsley, Scarborough and Bridlington.

Another major landscape change in this period was the construction of large scale drainage networks and waterways, particularly cut through old marsh and fenland. The route of the pipeline runs perpendicular to the Market Weighton Canal at Newport. This forms part of the River Ouse Navigation (Pastscape 1341193), designed to link the Vale of York to the Humber. Work began in 1773 with sections being opened piecemeal until its completion in 1782. The canal ended at Weighton Common, two miles from Market Weighton. From the 1860s the upper four miles were allowed to silt up and by 1894 were no longer navigable. Under the Market Weighton Drainage Act of 1900 the canal was abandoned above Sod House lock. The entrance lock was abandoned in 1971 but has since been restored, along with the stretch to Sod House.

According to Jefferys' 1775 Map of Yorkshire, the Walling Fen stretched east from the Hansardam, constructed by Sir Gilbert Haunsard, by Yokefleet Lodge in Gilberdyke, to the Ploughfurrow Drain, near South Carr Farm, in Newport parish. The Ploughfurrow Drain equates to Black Drain to the south of the farm. The fen at that time was especially marshy in the area of Hotham Carrs and was crossed by the Thornton Dam Drain and Temple Day Drain. Wash Dyke was another major drain in this area. Walling Fen was sufficiently well drained to be enclosed in 1781.

Two warping drains, used for controlled flooding of the land to increase fertility, are represented by a pair of straight parallel lines, 300m and 530m long, showing as soilmarks on Newsholme Marsh. The ditches and ponds on the Marsh were shown as water-filled features on the first and second edition Ordnance Survey maps (MHU10568).

West of the River Hull, the marshland in Thomas Jefferys' day stretched as far as the Hull Road. The two main artificial water courses are the Beverley and Barmston Drain, which runs close to the River Hull, and the Holderness Drain on the eastern edge of the valley, but there are numerous smaller channels throughout the valley floor. The Beverley and Barmston Drain, constructed in 1799, was culverted beneath Beverley Beck in 1802 and the beck was diverted to a new confluence with the River Hull (Allison 1989). South of Beverley, a drain on the east side of Park Grange Farm is shown on Jefferys' map running north-eastwards to join the Mill Dam Drain; parts of this drain, which is crossed by the pipeline, are still in use.

In 1675, Sir Joseph Ashe built banks around the low grounds to drain the west side of Wawne parish and cut new drains, Engine Drain and Stone Carr. In the eighteenth century, two wind-powered drainage engines were used to drain Stone Carr and in the 1770s, a drainage windmill stood beside the Engine Drain, to the north-west of the site of the present Kenley House Farm (Allison 1989). The Cowdike in Beningholme, crossed by the pipeline north of Fairholme, was extended by an award of 1783 (Allison 1989). Effective drainage in this area began with the cutting of a new outfall to the Humber in 1830.

Mineral extraction of clay, limestone, sand and gravel has carried out sporadically throughout the post-medieval and modern periods, particularly near North Cave and around Beverley. A brick kiln was operating at Swine in the 1860s (Allison 1989). There are several marl pits shown on the first edition Ordnance Survey map north of Hotham, although quarrying of Jurassic deposits of Lias and Oolitic limestones, does not appear to have begun until the modern period.

4.10 Modern

The pipeline route has remained largely agricultural throughout the modern period. The series of landforms crossed by the pipeline has created areas of very different character and potential for occupation down to the present day: the gently rolling landscape of Holderness, formed from glacial movement, erosion and sedimentation; the flat alluvial land of the Hull Valley; the low-lying agricultural land south of Beverley rising progressively into the chalk foothills of the Yorkshire Wolds, and the rapid descent, first onto the Jurassic mudstones and then, beyond Hotham, onto the flat landscape and huge skies of the Vale of York, on the lacustrine silts, sand and gravels left during the

last glaciation. The land is predominantly arable, on soils that are graded 2 or 3 in the DEFRA Agricultural Land Classification.

There are a few recorded monuments of the twentieth century: a cemetery on Church Lane, Hotham, opened in 1903 (MHU13327), following the enlargement of the churchyard on the opposite side of the road in 1866, a Second World War anti-aircraft battery, 350m west of Butt Farm (MHU15288), and a sewerage scheme for Thearne and Woodmansey, including a treatment works close to the river, completed in 1956.

4.11 Undated

A number of potential field systems and settlement sites, many characterised by cropmark enclosures, have been identified from aerial photographs near Howden, Gilberdyke, Hotham and Woodmansey and spanning a wide area south of Beverley. There are also cropmark enclosures, fields and a possible ring gully near Holycroft Farm, south of Beverley, all of unknown date, though a Roman brooch has been found nearby (MHU18516). While undated, these field systems and settlement sites all likely date to the later Iron Age or Roman period.

Various undated linear features close to the pipeline route have been recognised in the main from aerial photographs and are thought to be ditches or tracks. Some of the ditches visible as extant earthworks (MHU6624) most likely represent post-medieval or modern farm tracks.

An isolated burial in an oak coffin was found in 1848 during drain digging in Beverley Parks (MHU3524). The coffin was in poor condition, containing only fragments of bone, and may date from the medieval or post-medieval period. Marl pits are clustered in the area south of Beverley and near South Cave and the Humber Estuary environs. These features cannot be accurately dated and probably span the medieval to modern era.

Monitoring of the installation of the Thearne to Woodmansey sewer pipe trench across Figham Pastures near Woodmansey (MHU8202) revealed a complex system of linear, circular and irregular shaped earthworks of unknown date to the north of a possible medieval park pale. Some of the earthworks were apparently part of a small ditch system linking two circular features of approximately 20m in diameter. These circular features were similar to a 30m-wide shallow mound l00m farther north that, it was suggested, may represent a medieval or post-medieval haystack platform, although there is no documentary evidence of hay-making on Figham Pastures.

It appears that a large body of fresh water lay at the northern end of Figham Common before the cutting of the Skidby Drain. Historical documentation shows that the area was used extensively for fishing, fowling and reed cutting. Peat deposits were identified in this area during groundworks for the water pipeline (MHU8202). Three earthworks at the northern end of Figham Common appeared to be flood defences or the intentional partial infilling of the body of water that once existed in this area.

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5 PREVIOUS STAGES OF ARCHAEOLOGICAL WORK

This section briefly summarises the pre-construction stages of work. For full details of these works, the separate client reports may be consulted.

Construction of the pipeline was covered by the provisions of The Public Gas Transporter Pipe-line Works (Environmental Impact Assessment) Regulations 1996.

5.1 Stage 1: Feasibility study

An initial scoping study carried out by National Grid Transco resulted in the selection of two route corridor options, within each of which a preliminary route was identified. The principal known archaeological sites of these two route options were considered initially in a Route Corridor Investigation Study, during which a preferred corridor and, within that, a preferred route were identified (National Grid Transco 2004).

5.2 Stage 2: Desk-based assessment

Once a preferred route had been established, an archaeological desk-based assessment (DBA) was commissioned by Black and Veatch on behalf of Murphy Pipelines, the principal contractors for National Grid. The purpose of the assessment was to consider the cultural heritage implications of the proposed pipeline, and to assist in the selection of an archaeologically least damaging route during the conceptual design and subsequent detailed design stages of engineering work. An additional aim of the desk-based assessment was to provide a basis for further stages of archaeological investigation (Burton 2005a).

The desk-based assessment collated previously recorded archaeological information from national, county and local data-holding bodies within a 1km-wide study corridor, and considered aerial photographs, cartographic and documentary sources in order to assess the archaeological resource of the corridor. A total of 572 sites of archaeological importance, 16 of which are legally protected, were located within the route corridor. The study found that the pipeline would have an impact on 88 of these sites. A further 70 sites were identified where there could be possible impacts, of which 14 were judged to be regionally important. A potential indirect impact on the site of a medieval cross was also highlighted.

Recommendations made as a result of the desk-based assessment included consideration of possible re-routes and field surveys along the entire length of the proposed pipeline route, to include field reconnaissance, fieldwalking and geophysical survey. The findings of the desk-based assessment also contributed to an environmental impact assessment (Black and Veatch 2005).

5.3 Stage 3: Non-intrusive field survey

Following consultation with the planning control archaeologist for the East Riding of Yorkshire, field reconnaissance, fieldwalking and geophysical surveys were carried out.

At this early stage, the fields and other plots of land crossed by the pipeline had not been numbered by the contractor and plot numbers were allocated by Network Archaeology, specifically for referencing the results of the field surveys. These numbers, in sequence from the eastern (Ganstead) to western (Asselby) ends of the pipeline, are prefixed by 'N' in the project documentation. This numbering differs from the numbering used during construction, and in this report. A plot-number concordance is given in Appendix 19 to allow cross-referencing of this report to the reports on the earlier stages.

The purpose of the field survey was to confirm the presence and ascertain the importance of sites highlighted by the desk-based assessment, and to locate hitherto unidentified sites. This assisted in the selection of an archaeologically least damaging route, and provided a basis for further stages of

investigation. The specific objectives are presented in the individual field survey reports (Burton 2005b; Bartlett 2005).

Field reconnaissance consisted of a visual inspection of all fields crossed by the pipeline route, in order to record extant earthworks, vegetation marks, soil discoloration, structures, finds concentrations, land-use, visible geology, general topographical variations and health-and-safety concerns. The surveys were carried out between December 2004 and December 2005. In each arable field, except those with dense crop cover, fieldwalking was carried out. A team of archaeologists walked five parallel transects, spaced 10m apart, centred on the centreline of the proposed pipeline. Assuming that each walker can scan roughly one metre on either side, this resulted in 20 to 25 per cent of the ground within the 44m-wide pipeline easement being scanned. Recovered artefacts were located with hand-held GPS units and given a unique numeric reference allowing them to be directly plotted on to background mapping using MapInfo GIS software. Details of each field walked, including weather and light conditions, ground visibility, and land-use, were recorded on *pro forma* record sheets (Burton 2005b). All field boundaries were also recorded, with details of any banks, ditches, hedges, walls or fences.

The geophysical survey consisted of a gridded magnetic gradiometer survey of a 15m-wide sample strip, giving coverage of around 35 per cent of the proposed working width, and pairs of magnetic susceptibility readings taken every 12.5m along the proposed route. The survey grids were located using sub-metre accuracy GPS. Extra gradiometry grids were surveyed in plot 86 (see Section 13: Lion's Den, below), increasing the survey width to 45m along a 50m length in order to accurately locate a triple ditched feature identified from cropmarks (Bartlett 2005).

Collectively, the surveys revealed 314 sites of archaeological importance, of which eleven were considered to be of regional importance and the remainder of local importance. Following the field survey and follow-up site visits, recommendations were made for trench evaluation in 31 of the 223 plots of land crossed by the pipeline, and topographical survey of two related areas of ridge and furrow earthworks.

6 INTRUSIVE ARCHAEOLOGICAL INVESTIGATIONS

In order to fully understand the sequence of archaeological works undertaken, a broad appreciation of the stages of pipeline construction work is necessary.

6.1 Construction methods

Unlike many other kinds of development, the builders of pipelines do not generally own the land in which construction takes place. This has implications for the archaeological investigations, as no access to the land is possible until the agreement of the landowners has been obtained, often at a quite late stage of the development process. The easement, establishing rights of access to the whole pipeline route, is normally obtained by negotiation with the various landowners, although occasionally it may be necessary to use powers of compulsory purchase. Ganstead to Asselby was typical of the larger cross-country pipelines in requiring a 44m-wide working width. At road crossings and other areas of constraint, a greater width is necessary.

Once the legal easement has been obtained and the working width has been demarcated with temporary fencing, a physical right of way is established by breaking through hedges and other field boundaries and fluming or bridging ditches and small watercourses. Pre-construction drains are then installed, intercepting existing field drains to control drainage within the working width and maintain drainage of the land on either side.

To create a working surface for construction and to allow full recovery of the land after construction, the topsoil is stripped and stacked on one side of the working width, normally the right hand side, looking in the direction of construction. In the case of Ganstead to Asselby, which was constructed from east to west, the topsoil was stacked on the north side. The stripped area was 32m wide, with the topsoil stacked in a 10m-wide strip, leaving a 1m-wide baulk of undisturbed land on each side of the easement. Topsoil removal was carried out using 360° tracked excavators fitted with ditching blades to strip around one-third of the width, and bulldozers to clear the rest.

The land adjacent to the topsoil strip is maintained as a running track for construction vehicles. Alongside the running track, a strip of the easement is used for stringing out, bending and welding up the sections of pipe and carrying out all the necessary testing. Beyond that is the area where the pipe-trench itself will be excavated. The side of the working width opposite the topsoil heap is used for stacking subsoil when the pipe-trench is excavated. Excavation of the pipe-trench is normally preceded by removal of approximately 0.2m depth of oxidised subsoil, to form a 4m-wide header trench. The pipe trench is then dug using a combination of dedicated trenching machines for straight sections and 360° tracked excavators, with toothed buckets, for more complex working. The trench is at least 2.7m deep: sufficient to allow the 1.20m-diameter pipe to be buried with at least 1.5m of cover.

Roads and other obstacles are generally negotiated by boring or tunnelling beneath them; details of the methods used depend on engineering criteria, but all involve considerable ground disturbance on either side of the obstacle.

Once the welded-up sections of pipe have been lowered into the ground and tie-in welds between sections have been completed, the trench is backfilled, along with other excavated areas, such as the boring and reception pits for road crossings. The land drainage across the easement is re-established. The compacted subsoil surface of the working width is normally ripped to a depth of 0.2m to 0.3m, using a heavy-tined plough on the back of a bulldozer, before replacement of the topsoil.

6.2 Archaeological mitigation

From the summary above, it can be seen that archaeological deposits across the stripped working surface will be severely affected by construction to a depth of at least 0.3m below the base of the topsoil, and will be removed to a depth of 2.7m or more in the 2m-wide pipe-trench itself.

As all the construction activities are normally scheduled to take place in a single season, starting from when the land begins to dry out in the spring and finishing before the autumn rains, the timetable for archaeological investigation is very tightly constrained. An important objective of all the pre-construction surveys and the intrusive fieldwork is to identify significant remains as soon as possible in order to allow the maximum time to plan and implement an effective archaeological response.

6.3 Stage 4: Trench evaluation

The purpose of this stage of work was to evaluate the archaeological potential of sites revealed by the previous stages of work. As a result of the field surveys, one hundred and twenty-eight trenches were planned, in thirty-seven of the fields along the pipeline route. These were generally targeted on areas identified as having raised archaeological potential. All the trenches were 2m wide and all but ten were 20m long. The exceptions, targeted over particular features, consisted of single trenches of 30m, 35m, 50m and 100m, with three trenches of 15m and three of 25m.

Access to the pipeline route was not available prior to the construction season in 2006. The evaluation work started on 13 February but poor weather and waterlogged ground prevented access to many of the targeted plots of land until later in the year. In a few fields towards the western end of the pipeline, there was insufficient time between gaining access and the land being needed for construction and in these cases, the evaluation trenching was abandoned and any archaeological deposits were recorded during monitoring of the construction topsoil stripping. This applied to plots 134, 177, 188 and 189.

Where archaeological deposits were noted in the evaluation, these were quickly assessed. Where they did not appear to be extensive, they were recorded and the trench was then backfilled. Where more significant deposits were noted, topsoil was stripped, under the control of an experienced archaeologist, allowing full area excavation to be carried out. The evaluation followed the procedures described in the written scheme of investigation (WSI) (Network 2006a).

6.4 Stage 5: Excavation

The primary purpose of open area excavation at each site was to preserve by record the known archaeology. Specific objectives listed in the WSI were to:

- establish the form, function and date of past activity at the site through an investigation of the archaeological deposits, features and structures;
- locate, recover, identify, and conserve, as appropriate, any archaeological artefacts;
- locate, recover, assess and analyse, as appropriate, any palaeo-environmental, palaeo-economic and organic remains;
- compile an appropriate report and publication;
- produce a paper and digital archive which will be deposited with the appropriate repositories.

The excavations were carried out using standard techniques and procedures, as detailed in the WSI produced by Network Archaeology (Network 2006b).

6.5 Stage 6: Watching brief

The general aims of the watching brief, as given in the WSI (Network 2006c), were to record the presence or absence, extent, condition, character, quality and date of any archaeological remains and to assess any environmental and organic remains of potential archaeological importance should they

exist. Two suitably experienced archaeologists were permanently in attendance throughout the construction topsoil stripping and the excavation of the pipe-trench.

During topsoil stripping, particular attention was paid to the removal of the first strip, on the subsoil side of the working width, as this was carried out by 360° excavators leaving a clean surface offering the clearest view of any archaeological features. Stripping of the rest of the working width by bulldozers was also monitored; although scarring of the surface by machine tracks compromised surface visibility, the larger or clearer archaeological features would still be visible.

Where archaeological features were noted, the area was normally barricaded off to prevent any further damage, and an initial assessment made to decide a suitable course of action. Various options were available. For isolated features, the monitoring archaeologists would normally excavate, characterise and record them. For slightly more complex remains, a small excavation team could be mobilised. More significant groups of features would be treated as full area excavation sites. If these were identified early, the rest of the topsoil stripping across the site could be carried out with 360° excavators fitted with ditching blades, to prevent damage by bulldozers, or if not, the bulldozed area would be machine-cleaned, if appropriate, prior to excavation. Large excavation sites discovered at this stage can present severe problems of scheduling, and excavation strategies were implemented to minimise disruption to the construction programme.

In addition to identifying archaeological features, the monitoring archaeologists also recorded stray finds from the stripped working width and spoil-heaps. These were identified with a unique find number and located to a typical accuracy of ± 5m using hand-held GPS. All artefacts were collected, with the exception of any positively identified as modern. Larger concentrations of materials such as slag, tile and early modern pottery were sampled only.

Monitoring of excavation of the pipe-trench presents less scope for identifying sites for excavation, although the header trench can reveal features masked beneath subsoil deposits. Generally, though, the emphasis at this stage is on recording archaeological remains visible in section in the side of the pipe-trench. Where the trench is excavated by trenching machine and ground conditions do not lead to smearing, visibility of features can be very good. The presence of significant deposits buried beneath alluvium can also be noted, although opportunities for fully characterising deposits are constrained by safety concerns.

7 METHOD OF ASSESSMENT

7.1 Archive

Artefacts recovered during the project were cleaned and stabilised where necessary, weighed, quantified and catalogued according to accepted professional standards and guidelines. The artefacts were divided according to their material types. The pottery was initially spot-dated and divided into broad period groupings by Jane Young and Ian Rowlandson.

The written, drawn and photographic archives were checked for obvious omissions, errors and inconsistencies, and were corrected or clarified where necessary. Site plans were digitised using AutoCAD.

7.2 Stratigraphic assessment

A matrix of contexts was prepared for each site using the written, drawn and photographic records. Stratigraphic relationships and the preliminary pottery spot dates were used to sub-divide the matrix into phases. The phasing is not definitive and will need revising during the full analysis phase of the project.

7.3 Artefact assessments

The following specialists were commissioned to produce MAP2 assessment-level reports to establish if further study of the assemblages had the potential to address questions posed in national, regional or local research agendas. The specialists were also invited to identify other research aims to which the assemblages might contribute:

Peter Didsbury	Prehistoric to modern pottery
Jane Young	Ceramic building material
Lisa Wastling	Fired clay, daub and briquetage
Hugo Lamdin-Whymark	Worked flint
Gary Taylor	Worked stone
Jennifer Wood	Human bone
Jennifer Wood	Animal bone
Kevin Leahy	Recorded finds and metalwork
Rod McKenzie	Production waste
Rachael Hall	Glass (bulk finds)
Paul Flintoft	Wood
James Rackham	Environmental samples
James Rackham	Charcoal samples
James Rackham	Shell
Gary Taylor	Heat-affected stone
Hugo Lamdin-Whymark	Heat-affected flint
Sue White	Clay tobacco pipes

The specialists were supplied with site summaries, a context database, preliminary phasing and site plans. As additional information became available, for example spot dates, matrices and digitised site plans, it was distributed to the specialists.

7.4 Integration of data

Background information and the material provided by the specialists have been integrated into the site descriptions as appropriate. The results of the assessments and the recommendations of the specialists are incorporated into the Assessment of Potential and Recommendations, and the full specialist reports are reproduced in Appendices 1 to 13.

8 QUANTIFICATION OF THE ARCHIVE

The table below contains quantification of the documentary and finds archives.

Table 1: Quantification of the archive

Archive component	Number or (weight)
Context sheets	12436
Construction plots	219
Registered finds records	333
Sample records	1672
Evaluation records	103
Drawing sheets	1118
Colour slide and black and white print films	248
Prehistoric and Roman pottery (wt/g)	(562,262g)
Medieval and post-medieval pottery sherds	108
Ceramic small finds	1
Fired clay and briquetage fragments	20484
Ceramic building material (wt/g)	(32,540g)
Worked flint	1709
Worked stone	15
Worked bone objects	19
Human inhumations	93
Human cremations	38
Faunal remains (wt/g)	(258,382g)
Shell (wt/g)	(1180g)
Copper alloy objects	33
Iron objects (wt/g)	(2245g)
Production waste (wt/g))	(34,304g)
Glass fragments	129
Environmental samples	1747

9 RESULTS, GENERAL

The following nineteen sections of this report describe the more significant sites excavated along the pipeline route (Figs. 1 to 9). These are described in order of their location along the pipeline, starting at the eastern, Ganstead end and working westward, towards Asselby. Results of the evaluation trenching and any observations that were made while monitoring construction work on these sites have been integrated into the site descriptions.

Evaluation sites that produced post-medieval, modern or undated features and were judged not to warrant further investigation, or that contained no significant archaeological deposits, are described in Appendix 16. Similarly, isolated features recorded in the course of monitoring construction activities are described in Appendix 17.

Each plot of land along the pipeline route was recorded separately during excavation: this was a pragmatic decision, as archaeological remains were discovered at various stages during the evaluation and construction stages of work, and access to the various plots of land was dependent on the vagaries of landowner permission, weather and soil conditions. It was rarely possible to investigate adjacent fields concurrently. Clearly, archaeological sites, in the conventional sense, are no respecters of modern field division. In a number of cases, groups of features extended over two or more fields. In these cases, the remains in each field were initially recorded as separate sites. During the course of the post-excavation assessment, some of these sites in adjacent plots have been integrated and described as a single site. Plots 53 and 55 provide a good example, each containing features of an Iron Age site, separated by a modern road. There is still scope for extending this process. In particular, there is a good case for integrating plots 126 to 134 and plots 178 to 184 into larger aggregated sites, and this will be considered during the analysis stage of work.

During excavation, sites were generally referenced by their plot number. To aid readability, sites have been given names, generally taken from a nearby named feature shown on the Ordnance Survey maps.

The phasing schemes used in the site descriptions are based on a combination of recorded stratigraphic relationships, site morphology and spot dating of artefacts, but at this stage they should be regarded as a work in progress. There are still unresolved difficulties with a number of sites, especially those such as plot 123 that have suffered from erosion and plough damage, erasing stratigraphic relationships and increasing the risk of intrusive finds. A thorough review of the phasing will be carried out at an early stage in the analysis programme. As the specialist analyses are carried out, close cooperation will be maintained with the artefact specialists with the aim of resolving any remaining inconsistencies in the phasing.

In the descriptions that follow, cut numbers have been distinguished by means of **bold roman** type while deposit numbers are in *regular italic* font. All of the cut numbers should be locatable on the relevant figures, except where indicated. To aid readability, cut numbers on the figures which are not referenced in the text have been depicted in a paler font.

Throughout the text, ‘Roman’ has been used to refer to the period of the Roman occupation with ‘Romano-British’ being used only in the sense of the distinctive culture of these islands that developed during that period. ‘Anglo-Saxon’ is used as a generic term for the post-Roman period, and does not imply any cultural or ethnic affinities of the local population.

10 PLOT 14, SWINE

Central NGR TA 1305 3765
Civil Parish: Swine
Total area of excavation: 5390m^2
Figures 2, 10, 11, 12

10.1 Summary

The pottery assemblage from this site included an early Bronze Age component, although it is unclear whether any of the cut features date from this period. More intense activity occurred in the Iron Age with the establishment of a system of drainage ditches and pits. Activity ceased in the late Iron Age or early Roman period and a layer of alluvium subsequently accumulated across the site. One of the more notable of the features that can currently only be dated as earlier than the alluvial deposition episode is an adult inhumation.

10.2 Location, topography and geology

Plot 14 is a large arable field on the west side of Swine Road, a minor road 1.5km west of the A165. Benningholme Hall is one kilometre to the north of the site and the village of Skirlaugh, 2km to the north-east (Fig. 2).

The land is very low-lying, the surface being less than 2.5m OD at the western side of the excavation area, rising to just over 4m at the eastern end. The natural drainage of the land is to the west, towards the Lambwath Stream, but the area has seen extensive artificial drainage, from at least as early as the mid-twelfth-century works carried out by Meaux Abbey. The construction of the Holderness Drain in the latter part of the eighteenth century, in particular, will have considerably affected drainage patterns.

The geological deposits underlying the site are Devensian stony clay till (BGS 1995) although a patch of later glacio-fluvial sands and gravels occurs in the Sand Hill area, 400m to the west of the site. Beyond that, the woodland belt of Long Carr is on alluvial clay and silt. The soil underlying the site is classed in the Holderness Association, fine loamy surface-water gleys with only slight waterlogging, although a short distance to the south of the site, deep stoneless ground-water gleys of the Wallasea 1 Association occur (SSEW 1983: 711u and 813f).

10.3 Archaeological background

The desk-based assessment drew attention to several archaeologically significant cropmark sites in the area of the site (Burton 2005a). These include possible Iron Age square barrows, at Long Carr (MHU18583) less than 1km to the east, and a rectangular enclosure at Mony Parts (MHU2792) to the south. Find-spots include a Roman urn containing between 1,400 and 1,500 late Roman coins, found in 1826 by children playing 'in a field close to earthworks known as the Battery'. Metal-detecting in this area has produced a bird's-head artefact with a ring and dot eye (MHU19844) and a headstud brooch (MHU19843).

The area formed part of the estate of Benningholme Hall (MHU7053) and the former fish pond surviving as an earthwork within Long Carr woods (MHU1032) would presumably have supplied the forerunner of the present hall. Early Ordnance Survey maps show a number of other ponds in the area which are no longer extant; it is likely that these, for the most part, had post-medieval origins but it is possible that they were natural features, open during earlier periods. The remnants of ridge and furrow agriculture in the fields to the north and east of Plot 14 are visible on aerial photographs and probably relate to the open fields of the lost medieval settlement of East Benningholme (MHU1546).

Fieldwalking produced a small number of medieval and later finds, but these were not felt to be significant (Burton 2005b). The geophysical survey noted cluster of pit-like magnetic anomalies in the western half of the field (Bartlett 2005): these were described as rather weak, but were felt to be of sufficient potential to warrant evaluation.

Three evaluation trenches were opened in March 2006. The two easternmost trenches, Trenches 14-1 and 14-2, were archaeologically sterile, but Trench 14-3 revealed a large curvilinear ditch, **1403**. This was difficult to characterise within the limits of the trench, but was over 4m wide and at least 1.2m deep. A decision was taken initially to open a small area around this ditch, but removal of the topsoil and an underlying subsoil layer revealed a more extensive area of archaeological features, beyond and either side of the two sterile evaluation trenches. The excavation area was extended to encompass all of the visible features and the site was excavated between 11 April and 28 April 2006, an 8m-wide strip along the north side of the area being excavated first to provide a running track for construction traffic.

10.4 Site description

The underlying natural deposit, *40242*, was recorded on site as a firm orange-brown silty clay with sand and gravel inclusions. This layer was sealed by layers of alluvium: *40180* (= *40240*) and *40011* (= *40108*, *40015*, *40036*). All of the archaeological deposits were sealed by this alluvial subsoil. The topsoil, *40000*, was a brown clayey silt.

Interpretation of the stratigraphy was complicated by the presence of the alluvial layers, which varied in depth across the site and were not completely removed. Two large hollows in the western half of the site proved particularly difficult to interpret. The more easterly of these, pond **40023** (Fig. 11a), had a shallow profile, to a depth of 1.3m. It had a highly organic basal fill sealed by clean silty layers, barely distinguishable from the overlying alluvial layers covering the whole site. Its lower fills were stratigraphically earlier than the ditches to its south and east, although machining had removed this relationship prior to recording (Fig. 11a).

The western hollow, recorded as feature **40221** (Fig. 11b), was more complex and appeared to have formed over a meander in a large palaeochannel, **40193** (= **40163**) (Fig. 12d). Again, the similarity of the fills of the features with the overlying alluvium made the stratigraphy difficult to interpret but the other recorded features in this area were cut into the lower fills of feature **40221**, and were sealed by the upper fills. The fills of channel **40193**) must therefore have accumulated throughout the period of activity on the site. The feature produced a rich assemblage of both insects and botanical remains suitable for further investigation.

Phase 1: Prehistoric

The presence of probable Beaker pottery on the site implies early Bronze Age activity. Most of this early pottery was derived from the upper fill of pit **40132**. This shallow oval pit had a largely clean, silty fill, but contained bands of charcoal (Fig. 12a). In addition to the Beaker pottery, the final deposit also included six stone-tempered sherds which may be of later date (Appendix 2). Worked flint was also recovered from the fill (Appendix 1).

The location and alignment of this pit suggests that it was contemporary with ditches **40145** (= **40143**, **40141**) and **40139**, which together seemed to form the southern and western sides of a rectangular enclosure. A 0.8m-wide gap between the two ditches could have marked an entranceway through the western side of the enclosure (Fig. 10b). The enclosure ditches contained both early prehistoric pottery, including a lid-seated barrel jar, a type with fourth century BC parallels, and worked flint (Appendix 1). This dating suggests that a mid-Iron Age date would be appropriate for this phase, with the Bronze Age material being residual.

A large undated pit **40137** appears to have been respected by enclosure **40145**, and is likely to be broadly contemporary with it. Three isolated postholes, **40130**, **40128** and **40176**, may also have been

associated with the enclosure though they produced no dating evidence. Ditch **40104** (= **40171**, **40274**), which truncated a small pit, **40100**, may have marked the eastern side of the enclosure, although its slightly different alignment suggests that it was probably not a contemporary feature.

Phase 2: Mid- to late Iron Age

This phase marks the establishment of more intensive land-use, with a sequence of ditches, probably excavated for drainage, in the lower-lying western side of the site. A curving ditch in the centre of the site also seems to date from this phase.

The southern arc of curving ditch, **40074** (= **40072**, **40070**, **40068**, **40066**), was originally thought to be a segment of a nearly circular feature approximately 15m in diameter (Fig. 11a) but the subsequent discovery of a much narrower and shallower extension to its western end, **40116** (= **40118**, **40120**), was taken to imply that it surrounded an irregular enclosure open to the north or truncated away on that side. Pottery from two of the interventions in the southern arc, including a base with a distinctive raised footring, suggests a mid- to late Iron Age date (Appendix 2). The smaller extension produced no dating evidence, and the possibility that it resulted from animal activity cannot be discounted. A small pit, **40078**, adjacent to the enclosure may have been associated with it and is also provisionally included in this phase.

To the west of these features, a pair of ditches crossed the site. The earlier ditch, **40014**, positioned directly east of pond **40023**, did not produce any dating evidence. It was truncated by the similarly aligned ditch **40010** (= **1403**, **40095**, **40065**) (Fig. 11a). This was a larger feature, over 3m wide and up to 1.20m deep. It produced two pottery sherds, at least one of which was probably of pre-Iron Age date. To the south, it was cut by the terminal of Phase 3 ditch **40257**.

Grave, **40173**, near the eastern end of the site, although undated has been tentatively placed in this phase. It contained a badly degraded skeleton, **40175**, with only the long bones surviving. The body had been laid on its side in a crouched position (Figs. 10b and 12c). Crouched burials are typical of both the Bronze and Iron Age, with the practice continuing into the second century AD. Radiocarbon dating may provide a more accurate date for these remains.

Phase 3: Late Iron Age to early Roman

This phase was marked by the creation of a large ditch, **40257** (= **40039**, **40054**, **40059**, **40088**, **40112**, **40188**, **40200**, **40205**, **40244**), which truncated the silted-up southern end of Phase 2 ditch **40010** and extended for approximately 76m, terminating 8m from the western end of the site (Figs. 11a and b, 12e). This boundary was recut as ditch **40256** (= **40089**, **40113**, **40126**, **40161**, **40235**, **40248**, **40255**, **40260**) on the same alignment. Pottery from the original ditch is consistent with a late Iron Age date. Dating of the recut is more complex, with the lower fills perhaps dating from the late Iron Age or early Roman period, while the upper fill contained both hand-made wares, including a possible pre-Iron Age sherd, and one large late Roman sherd (Appendix 2). This suggests that the ditch survived as at least a shallow earthwork feature until the fourth century AD. By the later Roman period however, there is little evidence the site was actively being utilised and this stray sherd may represent casual discard from manuring washing into still partially open, but no longer maintained field boundaries.

The pottery from a large pit, **40051**, located to the north of ditch **40256**, bears similarities to that from ditch **40113**. Pit **40051** (Figs. 11b and 12b) contained a layer of heat-affected material at the base, overlain by a dump of food waste, pottery sherds and fired clay (Appendices 2, 5, 11). This feature was originally interpreted as a deep hearth, although it was more likely a pit, possibly having had waste burnt at the bottom before being backfilled.

Several boundary ditches in the eastern part of the excavation area (Fig. 10b) have been included in this phase. The easternmost ditch, **40063** (= **40178**), may belong here, as could recut **40153** (= **40167**) of ditch **40104**. This recut was on the same alignment as the original ditch, but terminated in the centre of the site, leaving the southern portion of ditch **40104** unaffected.

It is likely that the hollows in the western part of the site were both still partly open at this time, forming wide shallow ponds. The upper fills of pond **40023** produced an assemblage of 89 sherds of late Iron Age pottery. Excavated sections through the area of the western hollow recorded a number of ditches centred on this area, probably resulting from efforts to drain of this low-lying area. Ditch **40220** (= **40149**, **40046**, **40233**) curved from just east of the hollow to the south, truncating the upper fills. On the western side of the pond, two similar sized curvilinear ditches **40198** (= **40264**) and **40182** also truncated the upper fills of the hollow (Fig. 11b). All of these features were subsequently sealed below a final layer of alluvium, which filled in the remaining hollow, **40096**.

A series of sub-oval pits measuring between 0.4m and 1.6m long by 0.4m to 0.5m wide to a maximum of 0.47m deep were scattered over both the lower western side of the site and the higher ground to the east (Figs. 10b, 11a, 11b). Pits **40034**, **40008**, **40037**, **40208**, **40032**, **40004**, **40001** and **40169** all appear to have been rapidly backfilled and contained no artefactual dating and have been included in this phase although any or all of them might have had an earlier origin. In the northern corner of the site, a short length of a curvilinear ditch encroached onto the excavation area.

A short section of ditch, **40076**, in the central part of the site did not seem to align with any of the other linear features, apart from ditch **40280**, which continued the alignment to the southern edge of excavation. Ditch **40076** produced worked flints but was otherwise undated. Ditch **40280** was originally interpreted as a modern field drain, and that is quite possible, although the alignment differs from that of all the other field drains on the site, and these two features could belong to an earlier phase. Pit **40029** cut ditch **40280** and contained backfilled charcoal-rich silt, probably representing dumped hearth sweepings from a nearby fire.

Phase 4: Post-Roman

A thin layer of alluvium, *40180*, covered a large part of the site, sealing all of the archaeological features described above.

The latest deposits below the alluvium are of Roman date: this layer must have formed either during or after the later Roman period. These deposits were presumably laid down during a prolonged period of flooding, perhaps as a result of a shift in the river channel or rising sea levels. Deliberate water management measures such as warping, the deliberate flooding of agricultural land to increase soil fertility, could have also contributed to the alluvial deposition.

Phase 5: Modern

Modern features comprise a series of late nineteenth- or twentieth-century ceramic field drains cut into the underlying alluvium, probably bringing the land into cereal production. One of the field drains was recorded as feature **40018** (not on plan), and contained residual Iron Age or Roman pottery in its fill. Immediately to the east of ditch **40153**, another feature recorded as ditch **40151** (= **40081**), almost certainly included the remains of a field drain, but for at least part of its length, this might have been following the line of an earlier feature, perhaps a counterpart to ditch **40153**.

The topsoil, contexts *1400* and *40000,* produced residual material, mostly probably dating to the Iron Age but including one Roman greyware sherd.

10.5 Discussion

The excavation area occupies a low-lying site on the edge of the extended flood plain of the Humber and its tributaries. As such, it has been subject to periodic flooding. The site has produced signs of activity from the early Bronze Age to the later Iron Age and Roman period, and was largely abandoned by the early Roman period, with only sporadic activity thereafter. Bronze Age remains are mostly restricted to the higher ground to the east, and include pastoral enclosures and rubbish pits. Boundary ditches and a crouched inhumation were also revealed on the eastern side of the site and probably date from either the Bronze Age or Iron Age.

Drainage and boundary ditches originating in the Bronze Age and becoming more frequent through the Iron Age dominated the western side of the site. This suggests that drainage of the low lying, potentially seasonally flooded landscape was a priority, with abandonment of the site in the later Iron Age, and subsequent alluvial deposition indicating the site may have become untenable during the Roman period.

10.6 Potential

As the easternmost of the sites along the pipeline, this is the nearest site to the Easington to Ganstead pipeline and will be a useful comparison with the later prehistoric sites from the western end of that project. This site also contains remains potentially dating from the early Bronze Age, making it one of the few sites along the route with occupation from this period. Further study of the prehistoric remains in their regional context, particularly if they can be linked into changing sea-levels in the second and first millennium BC, would benefit understanding of the period. In this context, it would also be useful to date the burial. None of the other human remains recovered from the pipeline are earlier than late Iron Age and a potential Bronze Age or mid Iron Age burial would be a useful comparison to the late Iron Age and Roman remains.

Environmental evidence was limited, with the charred plant remains only having the potential to provide very basic data on the range of foodstuffs consumed on site; there is no definite evidence to suggest that the cereals were either cultivated close by or processed on site. Animal bones were also present in fairly low levels, suggesting either that the burial environment was not conducive to survival or that this site had a low density of occupation, being essentially pastoral in nature. The relative abundance of dung beetles in the waterlogged samples, and the low lying character of the land, suggests arable cultivation is unlikely.

10.7 Recommendations

- Documentary research into comparative sites within the lower Hull Valley.
- Comparison with sites from the western end of the Easington to Ganstead pipeline project.
- Revise provisional phasing.
- Radiocarbon dating of the crouched burial.
- Analysis of the human remains, undertaken as part of a project wide analysis.
- Additional analysis of any Bronze Age environmental samples.
- Specialist consultation on the pre-Iron Age pottery: a maximum of ten sherds to then be illustrated.
- Investigation of the possible broad contemporaneity of this site and the site at Creyke Beck, Cottingham.
- Full publication of the pottery with illustrations of fifteen to twenty Iron Age vessels.
- Full analysis of the eleven botanically rich ditch fill samples and the seven insect-rich ditch samples from features **40200**, **40235** and **40193**.
- Analysis of the lower series of pollen samples from the base of ditches **40257** and **40193**, to give the general character of the vegetation and landscape in the Iron Age and Roman periods.
- Specialist identification of the charcoal from hearth **40051**.

11 PLOT 46, BLEACH HOUSE FARM

Central NGR TA 0488 3861
Civil Parish: Woodmansey
Area of excavation: Trench 1: 41m^2, Trench 2: 71m^2
Figures 3, 13

11.1 Summary

Evaluation trenching revealed linear features, one of which was a substantial ditch, thought to be of Roman date. Elsewhere, the trenches produced negative results.

11.2 Location, topography and geology

The excavation area was located 200m west of the A1174 Hull to Beverley road and 350m to the north-west of Bleach House Farm, Woodmansey (Fig. 3). The land is low lying on the western floodplain of the River Hull, mostly around 4m OD but just rising above the 5m contour at the western edge of the field. This part of the pipeline route was tightly constrained, between Tokenspire Industrial Park, to the north of Woodmansey, and the south-eastern suburbs of Beverley. This presented engineering difficulties and several alternative routes were investigated before the route was finalised.

The site lies on a band of Flandrian alluvium, flanking a much-channelled watercourse running from the Wolds above Walkington to the west (BGS 1995). Elsewhere in the area, stony clay glacial till dominates the superficial deposits. Along with much of the Hull Valley, the land here has a long history of artificial drainage, Beverley Parks Sewer and Beverley and Skidby Drain to the east leading eastward to the river.

The soils are described in the soil survey classification as belonging to the Holderness Association, slowly permeable fine loamy soils with slight seasonal waterlogging (SSEW 1983: 711u). The land is currently designated as Grade 3 for agriculture (MAGIC). On site, a sequence of natural and cultural deposits was recorded at the eastern end of the plot. The earliest deposit was firm, brown clay sand *4624* (= *4615*) which was overlain by two layers of soft, dark peat *4604* and *4605*, sealed in turn by mid-grey brown buried soil *4603* that contained post-medieval pottery. The buried soil was overlain by mid-grey-brown subsoil *4625* (= *4627*), which was then sealed by brownish grey silty clay ploughsoil *4622* (= *4608*, *4623*, *4626*, *4628*).

11.3 Archaeological background

Most of the known sites highlighted by the desk-based assessment in the vicinity of plot 46 were medieval or post-medieval and include the bleaching grounds (MHU11491) which gave the farm its name; the Hull to Beverley Toll Road (MHU9236), the current A1174; the boundary between the historic parishes of Woodmansey, following the line of Beverley Parks Sewer (DBA:CV); and an area of ridge and furrow extending over several fields to the north of plot 46 (MHU11178). Earthworks visible on air photos in the field to the north of Tokenspire Industrial Park east (DBA:JK) were thought to include the remains of enclosures and ridge and furrow, possibly constituting a deserted medieval settlement.

At the time that fieldwalking was carried out, in early April 2005, conditions were very good as the ground had been ploughed and freshly harrowed. A single Roman pottery sherd was recovered along with several medieval sherds and large quantities of later material (Burton 2005b). The field survey also noted the possible remains of ploughed-out ridge and furrow surviving as slight earthworks in plot 47, the adjacent field to the south-west.

The geophysical survey found strong clusters of magnetic anomalies at either end of the survey transect across plot 46, together with enhanced susceptibility readings throughout. Surface finds of Roman pottery and tile were also noted during the course of this survey (Bartlett 2005).

On the strength of the geophysics results, especially the enhanced magnetic susceptibility, and the evidence for Roman and medieval pottery, it was recommended that evaluation should be carried out in this plot and nine trenches were opened in mid-February 2006. Seven of these trenches proved to be archaeologically sterile apart from modern drains, but the two easternmost trenches both revealed linear features.

Particular attention was paid to the area during the watching brief, but weather conditions and surface visibility were poor during topsoil stripping, and the continuations of the linear features noted in the evaluation trenches could not be seen.

11.4 Site description

Phase 1: Roman

A large north-west-to-south-east aligned ditch, **4606**, was located at the northern end of Trench 46.2 (Fig. 13). It measured 1.8m wide by 0.6m deep, had moderately steep sloping sides, a flat base, and its fill contained two sherds of Roman pottery including a scrap of samian (Appendix 2).

This ditch was probably a large field boundary and the apparent lack of artefacts suggests it was positioned away from any settlement, with the material probably accumulating from manuring or discarded artefacts being washed down slope and redeposited in the open ditch.

The field survey finds and two Roman pottery sherds recovered from topsoil during evaluation trenching also indicate a presence at this time.

Phase 2: Post-medieval and modern

This phase contained two plough furrows, part of a drainage ditch network and a recently backfilled pit (Fig. 13). Furrows **4601** and **4612** were oriented roughly north to south across the site and contained artefacts dating to the nineteenth and twentieth centuries. These furrows are probably the remnant of post-medieval ridge and furrow agriculture, which survived as earthwork features until relatively recently.

Ditch **4618** was aligned north to south and represents a major drainage ditch, which contained recent artefacts including plastic and tin cans, which were not collected. A smaller east-to-west-aligned ditch, **4620**, was positioned to drain into ditch **4618** and represented part of the same system. Pit **4617** was positioned in the corner of the field nearby and appeared to have been recently backfilled with loose material similar to ploughsoil.

11.5 Discussion

This small site was located on the western edge of the Hull Valley, on low-lying ground, previously subject to seasonal flooding. Archaeological remains were limited to a single Roman ditch located away from any settlement evidence.

Evidence for ridge and furrow agriculture was revealed at the site. Remnants of ridge and furrow have been recorded east of the site and indicated the landscape was likely under cultivation in the post-medieval period.

A recent drainage dyke and feeder ditch suggest the site may still be susceptible to seasonal water logging, which given its location and height above sea level is understandable. A recent pit dug near the corner of the field is of uncertain function, and may be related to a previous soil survey.

11.6 Potential

Bleach House Farm produced a possible Roman boundary ditch as well as more recent material representing post-medieval and modern drainage and cultivation practices. Further analysis of the archaeological remains would be of limited benefit beyond identifying a Roman presence within this area as part of a wider discussion of the region.

11.7 Recommendations

- The presence of a large Roman boundary ditch on the western side of the Hull Valley should be referenced as part of the wider landscape narrative.
- A sherd of samian pottery recovered from the site should be examined by a specialist as part of the total assemblage recovered from the pipeline.

12 PLOTS 53 AND 55, SHEPHERD LANE

Central NGR TA 036 374
Civil Parish: Woodmansey
Total area of excavation: 11070m^2
Figures 3, 14 to 27

12.1 Summary

Seventeen possible structures, represented by surviving ring gullies and posthole groups, indicate that the site was occupied in the late Iron Age and into the early Roman period. It is likely that the excavated area is only a small part of a much more extensive area of settlement extending northwards towards the outskirts of Beverley. A single ditch provided evidence for activity in the area in the later Roman period.

12.2 Location, topography and geology

The excavation area lay either side of Shepherd Lane, a minor road running from the southern outskirts of Beverley, past White Hall and Old Hall, to join Long Lane close to the Beverley Parks level crossing on the Hull to Scarborough railway. It was 800m to the north-east of the A1079 Market Weighton to Hull road, and 1.8km to the south of Beverley Minster.

Plot 53, to the east of Shepherd Lane, was fairly flat, rising gently from the floodplain of the Hull Valley to the east. Beyond the road crossing, the terrain in plot 55 was more rolling, the pipeline route following a slight ridge towards the high point of the field. The eastern end of the excavation area was at 8.2m OD and the western end at 12.3m (Fig. 3).

The rock-head of the Flamborough Chalk formation is at approximately zero OD at this point, and the site would have been close to the North Sea shoreline in the Ipswichian period, 125 000 years ago (BGS 1995). The drift geology of the area mainly consists of glacial stony clay till, deposited in the Devensian period, although a narrow tongue of Flandrian alluvium curving around the south edge of the excavation area marks the former course of a small tributary of the Hull. The Soil Survey classifies the local soils in the Holderness Association, slowly permeable fine loamy soils with only slight seasonally waterlogging (SSEW 1983: 711u). During excavation, the underlying natural deposits were described as mid-grey-brown sandy silt, *35001* (= *38565*), overlain by brown clay silt subsoil, *35000*, and friable sandy clay ploughsoil, *35933* (= *38564*).

12.3 Archaeological background

The desk-based assessment noted two areas of cropmarks, recorded on the SMR and extending through most of plots 52 and 53: MHU6623, and MHU1510, described as rectangular enclosures, ditches and possible barrow, and enclosures, road and hut circles respectively. In addition, a further area of cropmark enclosures was identified in the northern part of plot 53 (DBA:LS). Areas of ridge and furrow (MHU11178) were also recorded in plots 52 and 53.

In plot 55, the SMR records the former course of Shepherd Lane (MHU11478). The lane probably marks the north-eastern boundary of Beverley Parks (MHU8446), the extensive area of medieval parklands that surrounded the town and included the deer park of the Archbishop of York. The desk-based assessment also noted two infilled ponds in this field, one of which was close to the point where the pipeline route crossed the road.

Fieldwalking produced three sherds of medieval pottery towards the north-eastern end of plot 55, perhaps associated with the former course of Shepherd Lane. At least two pieces of medieval tile were also noted. Three sherds of Roman pottery and one of Iron Age pottery were recovered nearer to the

centre of the field (Burton 2005b). Ground visibility in plot 53 was very poor as there was a growing crop, and it was not fieldwalked.

In the geophysical surveys, plot 53 and the western part of plot 52 both produced strong magnetic anomalies, but these were irregular in plan and were interpreted, along with the inconsistent susceptibility response in these two fields, as being, perhaps, an example of natural magnetic effects on former marshland (Bartlett 2005). Findings from plot 55 were limited to scattered minor magnetic anomalies, with one small cluster towards the north-eastern end of the field.

Evaluation trenching was carried out in plots 53 and 55 in early April 2006, nine machine-excavated trenches being opened across the two plots. High densities of archaeological features, dated to the Iron Age and Roman periods, were revealed, and a decision was then made to fully excavate the site. This was carried out in April and May 2006. Four evaluation trenches in plot 52 revealed only modern linear features.

12.4 Site description

Seventeen probable structures were present within this site, represented by ring gullies and posthole groups. A structure number is used in the text for each potential building; contexts related to each structure are listed in Table 2.

Phase 1: Pre-Iron Age

The earliest deposits present were isolated layers of colluvium including layers *35896* and *35039*. These spreads of material were mostly located on the eastern slope of plot 53 (not on plan) and probably represent sporadic soil erosion prior to Iron Age occupation of the site. Several features truncated these layers, including Phase 2 Structure 11.

Phase 2: Late Iron Age

This phase represents the start of occupation of the landscape and includes apparent habitation on the high ground to the west of Shepherd Lane and a series of short droveways, stock pens and large ring gullies.

Structures 1, 2, 5, 7 and 8

Settlement towards the western end of the site was represented by five partial or complete penannular gullies (Structures 1, 2, 5, 7 and 8) all with entrances to the east (Figs. 21, 24, 25, 27h). These structures measured between 6.5 and 10.5m in diameter and are most likely to be the remains of a cluster of roundhouse dwellings located on the highest part of the western slope. Each structure contained internal postholes, probably used as supports for the roof. However, there is no evidence for posts outside of the ring, suggesting that the walls may have been formed by wattle or panels placed in the ring gully itself.

Only two of these structures produced significant quantities of pottery: interventions **38513** and **38515** from Structure 1 and **38313** and **38369** from Structure 5. Much of this is in undiagnostic hand-made wares but a small number of distinctive forms are sufficient to suggest a late Iron Age date (Appendix 2).

A segmented ditch, **38465** (= **38485**), **38438** and **38440**, extended for 21m from the north-western site boundary. The segments of this ditch were separated by two gaps, between 0.5 and 1m wide (Fig. 21). A 7.5m-long north-to-south aligned ditch, **38408**, located directly south of Structure 8 may have formed another minor boundary of the settlement..

A further two curving ditches were recorded against the northern site boundary in this area, **38389** and **38505** (= **38463**). These ditches may represent the southern arcs of ring gully structures; although the

evidence was insufficient to positively identify them as evidence of further structures, the pottery assemblage was similar in general and particular aspects to that from Structures 1 and 5 (Appendix 2).

Possible stock control features

North-east of these structures, a series of short linear and curving ditches and a scatter of postholes, **38552** (= **38524**), **38471** (= **38483**, **38488**), **38299** (= **38543**, **38520**, **38528**, **38526**), **38499** (= **38518**), **38496**, **38516** and **38541**, may have been the remain of stock control features, the postholes marking the positions of temporary pens and draft gates, used to separate livestock chosen for slaughter or trade from the breeding stock, or for associated husbandry tasks such as clipping wool, milking or medicinal treatment. Close proximity to the settlement is unsurprising, as most animal husbandry would have been conducted near to the main farm rather than out on the pastures away from supplies and potential help with tasks (Fig. 22).

North of this stock control area, pond **38137**, which measured approximately 6.5m in diameter and 0.4m deep, would have been active in this phase (Fig. 22). This pond, possibly a natural feature, may have provided a source of freshwater for grazing livestock in the later Iron Age, and may well have influenced the positioning of the stock control area in close proximity. A second, smaller pond, **38166**, which measured 3.5m in diameter by 0.35m deep, located directly east of the larger pond, may have been open in the same period.

Directly west of this smaller pond, Structure 9 consisted of another ring gully with an eastern entrance and internal postholes (Figs. 22, 27k and l). This penannular feature measured 10.5m in diameter and was replaced by Structure 10 (Fig. 27k), which directly overlay its footprint in the same phase.

A north-to-south aligned boundary ditch, **38371**, was located just north of Structures 9 and 10 and would have separated the structures from the larger ones directly to the east (Fig. 23). This ditch was later truncated by a Phase 3 recut, redefining the boundary. The area directly east of this boundary contained a sequence of structures, curving ditches, postholes and two short, linear ditches.

Structures 16 and 17

Further evidence for settlement is shown by Structures 16 and 17. Structure 16 was formed from two arcs, ditches **38024** (= **38041**, **38075**, **38069**, **38203**) to the north and **38253** (= **38158**, **38175**) to the south, leaving a 5m-wide entrance to the east (Fig. 23). A large pottery assemblage from the fills of this feature is not closely datable but shows that the ditches were used for the disposal of domestic refuse when they went out of use. Fragments of structural daub were also recovered. A scatter of twenty-four postholes, including features **38246**, **38231**, **38249**, **38245**, **38291** and **38288**, was enclosed within these arcs. Ditch **38189** (= **38216**), forming the north-eastern and south-eastern sides of a sub-square enclosure in the western sector of Structure 16, was probably the remnant of an earlier structure. To the immediate south-east, the truncated remains of a probable hearth, **38345**, were revealed.

An internal ditch, **38187** (= **38352**, **38257**: not on plan), followed the northern arc of Structure 16 approximately 1m inside its inner edge. It had been heavily truncated and survived to a maximum depth of 0.13m in the north. The pottery assemblage from this ditch included a rim of a distinctive late Iron Age form (Appendix 2).

To the north-east lay Structure 17, represented by ditch **38000** (= **38214**, **38195**, **38226**), enclosing an area 12m in diameter and having a 5.5m wide entrance to the east (Fig. 23). This truncated an earlier ditch curving from the west to the south-east, **38225** (= **38227**), which may have represented an earlier enclosure or heavily truncated structure. Within the eastern side of this structure, near the entranceway, two parallel ditches, **38265** and **38156** (= **38154**), approximately 1m apart, extended for 5m. These ditches may mark the positioning of internal divisions and partition walls.

Also within the area enclosed by the ring ditch, a large posthole, **38181**, and a possible fire-pit, **38563**, were positioned in the western side of the structure. Fire-pit **38563** was sub-circular, measuring 0.8m

in diameter and 0.35m deep with near vertical sides and a flat base. The primary fill of this pit was rich in charcoal and lay upon a heat-affected natural clay layer, indicating *in situ* burning. Another possible fire-pit or hearth, **38251**, was located immediately east of curving ditch **38225** (Fig. 23). This sub-square feature measured 1m wide by 1m long and was 0.12m deep. It had a scorched natural clay base and contained a charcoal-rich fill. Neither fire-pit produced datable artefacts. Intercutting ditches **38034** (= **38045**) and **38058** may be the remains of curvilinear features relating to structures, but the evidence is incomplete and less compelling than that for Structures 16 and 17. The pottery assemblage recovered from one of the fills of the earlier ditch, **38034**, included the remains of a vessel which is similar to some Arras culture vessels (Appendix 2).

Other features assigned to this phase include a 6.5m-long section of ditch, 38014, alongside the northern site boundary (Fig. 23), a curving ditch, 38111 (= 38068, 38072), adjacent to the northern site limit, a similar 5m long, curving east-to-west ditch, 38056, directly to the south, and, just south-west of this curving ditch, a 4.5m-long north-to-south aligned ditch, 38255. All of these features were probably related to short-term animal enclosures and general stock movement.

Further down slope to the east, into plot 53, the landscape was less densely occupied in this period (Fig. 15). An east-to-west curving ditch, **35786**, represented the earliest land division and drainage and was subsequently truncated by a large pit, **36005**. This pit measured over 1m in diameter and may have been used as a form of sump for the existing ditch. The pit was then truncated by a north-west-to-south-east aligned ditch **35550** (= **35511**, **35557**) which probably formed a boundary between this area and the settlement to the east.

Structure 11

A substantial penannular ditch and associated postholes, located 32m to the east of ditch **35550**, showed two distinct phases of construction (Figs. 16 and 19, Plate 1). The first phase of construction, Structure 11, formed a 10.5m diameter ring gully with an east-facing entrance. The internal space contained over one hundred individual stakeholes, postholes and small pits; it is not possible to phase these with either Structure 11 or its replacement in the succeeding phase, Structure 12. Most of these features were simple stakeholes and postholes, filled with sterile silt and containing no artefacts. This scatter of features probably represent a mixture of permanent or temporary roof supports, discrete pits, small internal partitions and possible internal furniture such as benches, tables and looms. Most notable within this scatter were potential storage pits, **35231**, **35229** and **35813**. Feature **35899** was oval with a concave profile (Fig. 27a) and showed evidence of *in situ* burning as well as being backfilled with burnt daub, and may have been the remains of a hearth.

East of Structure 11, three short lengths of ditch, **35078**, **35076** and **35011**,were similar to features found uphill to the west, suggested as being related to animal husbandry (Fig. 16).

Two short north-east-to-south-west aligned linear features, **35723** (= **35721**) and **35715** (= **35717**), which measured 2m and 4m long respectively, formed a length of segmented ditch near the northern site boundary (Fig. 17). This resembled the north-west-to-south-east boundary separating areas of the settlement on top of the slope to the west in plot 55, and may have similarly delimited an area beyond the northern site boundary. Discrete postholes or pits scattered south of this segmented ditch include features **35457**, **35462**, **35460** and **35704**.

At the eastern end of the site, a meandering ditch, **35125** (= **35030**, **35352**, **35128**, **35357**, **35364**, **35372**, **35386**, **35561**), curved from south to the east, with a distinct double curve in its northern part (Fig. 18). This curving ditch possibly respected an earlier feature that has not survived truncation. The curving ditch also truncated an earlier ditch, **35473** (= **35529**) (Fig. 27f), which appeared to have been similarly aligned.

A north-west-to-south-east aligned boundary ditch, **35107**, extended beyond the limit of excavation to the south (Fig. 18). A large east-to-west aligned Phase 5 ditch subsequently truncated this boundary, which did not extend any further north.

The easternmost features within this phase were short curving ditches, **35178** (= **35997**, **35490**) and **35374** (= **35130**), (Fig. 18). Both of these curving ditches resembled the features interpreted as pens and stock control features elsewhere on this site.

Phase 3: Late pre-Roman Iron Age: first century BC to first century AD

This phase covers the transitional period from the end of the Iron Age to the first century AD, prior to Roman occupation.

Structures 3, 4 and 6

Settlement continued on the west slope of plot 55, with the construction of Structures 3, 4 and 6 (Figs. 21, 24, 25). Structure 3 appears to have been a direct replacement for Structure 2, which had been used in the previous phase. This later structure consisted of a ring gully 10.5m in diameter (Fig. 27h) with, like its predecessor, an east-facing entrance. It contained over eighty pottery sherds, most of which were retrieved from the terminals adjacent to the entrance. Structure 4 replaced Structure 3 in the same phase, suggesting the building may have gone out of use within a short time period. Structure 4 formed a smaller ring gully superimposed over the western edge of Structure 3 and measured 8m in diameter, with an east facing entrance. This structure again produced large concentrations of pottery from the interventions adjacent to the entrance.

Two curving ditches, **38554** and **38387** (= **38461**), were located against the northern site margin directly north of Structure 4 (Fig. 21). A late pre-Roman Iron Age date would be appropriate for a Dragonby-style cordoned vessel recovered from one of the ditches while the other contained sherds that would indicate Roman influence. These two ditches truncated Phase 2 ditches **38389** and **38505** (= **38463**) and may have been the remains of the southern arcs of ring gully structures, or possibly further enclosures.

Structure 6 truncated and probably replaced Structure 5 as a much larger domestic building (Fig. 27i and j). This later ring gully measured 11.5m in diameter, and contained a large quantity of pottery sherds dumped in its fills. A cluster of postholes, including features **38401**, **38397**, **38385**, **38383**, **38395**, **38381** and **38364**, within the interior of the ring had greatly varying profiles, ranging from shallow scoops to steep-sided with flat bases. Some perhaps held posts that were subsequently deliberately removed, allowing erosion of the feature sides, while in others the post rotted *in situ*, preserving the original shape of the posthole. It is quite possible that these postholes held roof supports, internal divisions and also temporary supports used during the construction of the structure and in place for a short duration, with the support then removed and the posthole quickly backfilled.

Five metres south of Structure 6, feature **38467**, was backfilled with charcoal, fired clay and metal slag, with the underlying natural subsoil scorched by *in situ* burning, and it has been interpreted as a kiln or furnace (Fig. 21). It measured 1.1m long by 0.8m wide and was 0.53m deep, with steep, slightly concave sides and a flat base It produced a fired clay assemblage including ten pieces of possible kiln fabric, one surface, in each case, being vitrified, bubbled and vesicular (Appendix 5). The kiln would have been open to the west, as demonstrated by an irregular spread of heated clay and charcoal **38442** adjoining the western side of the feature: this is likely to have been the position of the stokehole.

Boundary ditches

East of Structure 6, a 3.2m-wide and 1m-deep, north-west-to-south-east aligned boundary ditch, **38427**, may have served to separate the domestic space from a stock control area down slope (Fig. 22). Pottery from its fill includes a possibly wheel-thrown rim sherd, indicating Romanisation. Forty-five metres further east, another north-west-to-south-east boundary, **38376** (= **38602**, **38479**, **38591**, **38163**, **38201**), truncated a Phase 2 ditch, **38371**. Ditch **38376** measured 2.2m wide and 0.8m deep, and, with ditch **38427**, probably defines a unit of land division. The boundary was truncated by curving ditch **38308** (= **38335**).

North-to-south aligned ditch **38434** (= **38100**, **38109**) positioned 3m from the eastern end of ditch **38308** may have been used for stock control, animal movement being directed through the gap created by these two features (Fig. 23).

Directly east of these features, a north-to-south aligned boundary ditch, **38003** (= **38051**, **38170**, **38149**), truncated the Phase 2 Structure 17 (Fig. 23). This ditch measured 2.6m wide and 1.1m deep, its profile closely resembling those of the north-west-to-south-east aligned boundaries described above. Further east of this boundary, two curving ditches, **38063** (= **38035**) and **38303** (= **38193**, **38210**, **38208**, **38206**), possibly represent enclosures open to the east and utilised for stock control.

Moving down slope into plot 53, a large boundary ditch, **35565** (= **35615**, **35624**, **35692**, **35555**, **35344**, **35950**, **35957**), was aligned north-west to south-east against the western edge of excavation, before turning through a right-angle to the north-east and then curving to the east, beyond the site limits (Figs. 15 and 16), a length of at least 98m. It was up to 2.2m wide and 0.9m deep and probably represents a settlement boundary surrounding Structures 12, 13 and 14 and, potentially, further settlement to the north. Structural daub recovered from intervention **35615** (Appendix 5) provides tangible evidence of the presence of wattle and daub buildings in this area, while a possible pivot stone in intervention **35957** might suggest a building with a substantial doorway.

An elongated pit, **35788**, positioned next to Phase 2 curving ditch **35786** (Fig. 15), measured 2m long by 1m wide and was 0.56m deep with steep sides and a flat base. Its position respected the curving shape of ditch **35786**.

A short length of ditch, **35105** (= **35579**), extended 4m from the south-eastern site limit, east of the possible droveway (see below), before being truncated by Phase 5 ditch **35435** (Fig. 17). Ditch **35105** measured 1.5m wide and 0.7m deep and appeared to be turning to the west, although any relationship that may have existed with ditches to the north-west was lost because of modern field drain disturbance. The fill of this ditch was, however, cut by Phase 5 pit **35099**.

A spread of dark silt and charcoal flecks, *35098*, located against the south-west edge of excavation measured approximately 8m by 3m (Fig. 15). This dark deposit may represent the truncated remains of a midden, positioned outside the main enclosure ditch.

Structures 12, 13 and 14

Structure 11 was replaced by a larger ring gully, Structure 12, superimposed over its original footprint (Figs. 16, 19, 27b). This replacement measured 13m in diameter with an north-east-facing entrance. It contained a large quantity of domestic debris, including over 250 sherds of pottery dumped into the southern ditch terminal adjacent to the entrance (Appendix 2).

Structure 13 was located 7m north of Structure 12, its relatively small size suggesting that it had a different function to the other ring gully structures (Figs. 16, 20). This penannular feature measured 5m in diameter and had a 1.5m-wide entrance to the east. Directly opposite the entrance, an east-to-west aligned ditch, **35007**, extended for 4.5m, narrowing appreciably at its eastern terminal.

East of Structure 13, a cluster of pits and postholes has been interpreted as forming Structure 14 along with associated features (Figs. 16, 20). Structure 14 was formed from six postholes, **35143**, **35148**, **35141**, **35384**, **35389** and **35429** (Fig. 27d), which created a rough circle approximately 8m in diameter. To the north-west of this structure, three further postholes, **35906**, **35431**, **35455**, and a pit, **35057**, possibly represent a fence line. Three sub-rounded, steep-sided pits, **35198**, **35047** and **35022**, east of Structure 13, have also been included in this phase; pit **35198** lay in the approximate centre of Structure 14. Feature **35022** (Fig. 27c) contained a high concentration of charcoal and exhibited evidence of *in situ* burning in its base, suggesting it may have been a simple hearth located outside of Structures 13 and 14

Possible droveway and associated enclosures

A pair of parallel ditches positioned 3.5 to 4m apart, **35738** (= **35655**, **35719**, **35735**) and **35713** (= **35470**, **35702**, **35513**, **35576**), located 20m east of Structure 13, has been interpreted as a possible droveway (Figs. 17, 27g). Two pits containing animal remains were positioned either side of the droveway: pit **35872**, directly west of the droveway, contained the disarticulated remains of a calf, while the less well preserved bones from pit **35790** could have been from a pig or sheep (Appendix 11). These pits may represent structured deposits or food waste disposal from nearby structures. Seasonal separating and slaughtering of selected animals from the herd as part of regular stock management is typical of pastoral economies and is often marked by feasting among the larger groups of people required to help, for instance, with sorting of livestock or for activities such as shearing or lambing.

North-east of the droveway, three curving ditches formed partial enclosures open to the south and resembling similar features in Phase 2 (Fig. 17). Curving ditch **35870** was positioned directly opposite the eastern entrance to the droveway and may have been used to help control stock movement. A 2.5m gap was left between the eastern edge of ditch **35870** and the much larger curving ditch **35570** (= **35545**, **35572**, **35574**, **35553**), which extended for 12m with curved 2m-long terminals at each end. Positioned in the open space between the terminals was a further short curvilinear gully, **35567** (= **35562**). Four postholes, **35594**, **35592**, **35590** and **35605**, and a sub-rectangular pit, **35550**, were distributed within this partial enclosure.

A curving ditch, **35194** (= **35150**), positioned against the north-eastern edge of excavation, truncating Phase 2 ditches, may have redefined an area used for stock husbandry. A shallow pit, **35139**, adjacent to its eastern edge (Fig. 18) is likely to have been associated with it. The ditch produced a relatively large pottery assemblage, which might date from the earlier part of the first century BC.

Phase 4: Early Roman, first to second century AD

Ditch **38083** (= **38080**, **38086**, **38092**) stretched the length of the excavation area in plot 55 (Figs. 21 to 23) and measured at least 2m wide and 0.9m deep. It extended for 54m against the southern edge of excavation and may have formed the northern boundary of a large enclosure beyond the site limits. A short length of curvilinear ditch, **38076** (= **38078**, **38141**, **38481**), ran roughly parallel to boundary ditch **38083** against the northern site boundary, but cannot be associated with any other Phase 4 feature.

Further to the east, a 2.1m-long ditch, **38012**, and associated posthole, **38574**, were positioned opposite Phase 2 curving ditch **38072** (Fig. 23). The positioning of this ditch and posthole suggests the Phase 2 ditch may still have survived in the landscape into this phase, possibly as an earthen bank and hedge created from the original upcast.

Early Roman features were more common further down slope to the east in plot 53, representing a series of field boundaries. At the western edge of the excavation area, the terminal ditch **35618** extended for 3m, truncating the large Phase 3 enclosure ditch (Fig. 15). This implies that the field systems were redefined and that the large enclosure was no longer in use.

Twenty metres further east, a north-west-to-south-east aligned boundary ditch, **35334** (= **35171**, **35690**), which measured 1.6m wide and 0.85m deep, extended across the site (Fig. 15). A similar boundary ditch, **35367** (= **35330**), was located 67m further east on the same alignment, and measured 2.3m wide and 1.1m deep and similarly extended across the site (Fig. 16). The terminal of another boundary, **35730**, was present against the southern edge of excavation, 14m further east of ditch **35367**, and measured 1.4m wide and 0.7m deep, truncating an earlier curving ditch, **35870**.

Other changes to the previous landscape use can be seen. North-east-to-south-west aligned ditch **35380** (= **35699**, **35362**, **35607**, **35377**, **35475**, **35515**, **35653**, **35649**), extended for 44m from 3m east of boundary ditch **35367**, cutting across the Phase 3 droveway (Figs. 17, 27g), and measured 1.2m

wide and 0.65m deep. It truncated a narrow north-west-to-south-east aligned ditch, **35732** (= **35391**, **35375**), which extended southwards for 13m before being truncated by the Phase 4 ditch **35404**. Ditch **35380** seemed to have been deliberately positioned across the Phase 3 droveway, indicating a definite change in land-use. The pottery from this feature suggests a date range from around AD 70 to 150 (Appendix 2). At its eastern terminal, this ditch curved to the north, leaving an entranceway 1m wide between it and ditch **35468** (= **35065**), which then extended for 12m to the northern edge of excavation. Immediately to the south of this feature, around halfway along its length, a single posthole, **35072**, was present.

Structure 15

Boundary **35380**, in plot 53, appears to represent a new enclosure, and near the northern site boundary within this newly enclosed space, Structure 15 may have been a sub-rectangular post-built building, represented by postholes **35509**, **35507**, **35548**, **35582**, **35584**, **35598**, **35145**, **35609**, **35153** and **35312** (Figs. 17, 20, 27e). In this case the structure would have measured 8.5m long by 5m wide, the postholes that would have formed the eastern corner being missing, possibly as a result of truncation. Alternatively it may have been a square structure, with posts **35582** and **35584** representing a fenceline positioned adjacent to the building.

Posthole **35145** had a notably deeper profile with almost vertical sides and a narrow rounded base, and contained an unidentified bronze object (SF 225: Appendix 3). The environmental sample from this feature produced a particularly rich assemblage of cereal grains. The remaining postholes contained no artefacts and there was no evidence of any surviving floor surfaces or occupation spreads. Posthole **35586**, positioned inside the north-western wall, may have been used as an internal support for the roof or a partition wall. Posts **35505** and **35503** were located outside of the northern wall possibly forming an associated barrier. Pit **35588** would have lain directly against the northern wall; if it was contemporary with the structure it would, perhaps, indicate that the building was partially open to the north.

In plot 55, curving ditch **35435** (= **35434**, **35404**, **35936**, **35200**, **35217**) extended from the northern edge of the excavation for at least 84m in a south-westerly direction. Various recuts were recorded in the excavated sections indicating that the ditch was maintained over an extended period, though these seem to have all been of the same broad phase. The ditch contained a sequence of silting deposits with occasional instances of waterlogged organic material noted in the lower fills. A ditch of these dimensions would have functioned effectively for drainage as well as defining a major boundary.

Curving ditch **35996** (= **35492**), located near the northern site boundary, truncated Phase 3 ditch **35194** (Figs. 17, 18). Fragments of daub with clear multiple woven wattle impressions were recovered from this ditch (Appendix 5).

Phase 5: Middle Roman, second to third century AD

Ditch **35197** (= **35433**) traversed the eastern half of the site, aligned approximately north-east to south-west across plot 53, parallel to and cutting the southern edge of Phase 4 ditch **35435**. This ditch, measuring up to 3m wide and 1.2m deep, was the latest archaeologically significant feature on the site and may have continued in some form into the later Roman period.

Directly south of this large boundary, two pits of similar size and form, **35099** and **35090**, both contained charcoal and burnt bone fragments typical of hearth sweepings and were probably used for disposal of cooking-fire waste. This may have resulted from casual waste disposal by occupants of nearby temporary camps after the landscape had reverted to pasture, or perhaps indicates that settlement continued into the later Roman period beyond the site to the south.

Phase 6: Modern

The only post-Roman features noted were several successive series of modern, ceramic field drains.

Table 2: Structures, Shepherd Lane

Structure	Cut numbers	Phase	Dimensions
1	38533, 38513, 38515	2	7.5m
2	38455, 38417, 38457	2	10.5m
3	38449, 38451, 38415, 38443,	3	9m
4	38491, 38475, 38537, 38419, 38413, 38436	3	8m
5	38405, 38313, 38369, 38362	2	6.5m
6	38332, 38330, 38393, 38399, 38358, 38342, 38340	3	11.5m
7	38367, 38315	2	6.5m
8	38380	2	7m
9	38289, 38117, 38124, 38581, 38115, 38128, 38126, 38113	2	10.5m
10	38583, 38585, 38587, 38589	2	10.5m
11	35040, 35052, 35060, 35080, 35166, 35998, 35425, 35525, 35913	2	10.5m
12	35042, 35050, 35062, 35074, 35189, 35164, 35423, 35523, 35023, 35036	3	13.5m
13	35015, 35055	3	5m
14	35143, 35148, 35141, 35384, 35389, 35429	3	8m
15	35509, 35507, 35548, 35582, 35584, 35598, 35145, 35609, 35153, 35312	4	8.5m by 5m
16	38024, 38041, 38075, 38069, 38203, 38253, 38175	2	13m
17	38000, 38214, 38195, 38226	2	12m

12.5 Discussion

The site was utilised from the later Iron Age through to the later Roman period, with a marked decline in land use after the second century AD and apparent abandonment after the fourth century AD.

Prior to Roman occupation, the site was used for domestic settlement, notably using the higher ground towards the west, where the concentration of structural remains was the highest. Assuming that the ring gullies surrounded roundhouse structures, the settlement in the western part of the site during this time consisted of roundhouses that were unenclosed but had segmented ditches, and the occasional north-to-south aligned boundaries to separate land use areas. Roundhouses were also present further downhill to the east; these, however, were enclosed within a large curving ditch.

Land use in the pre-Roman phases appeared to centre on animal husbandry, with features interpreted as droveways, stock pens and open enclosures. This would be typical of the period and would suggest the later Iron Age settlement was a farming community relying on a pastoral, probably cattle-based, economy.

During the early part of the Roman period, the site development changed markedly, with an increase in ditch systems, particularly downhill to the east, and an abandonment of previously used droveways and stock pens. The newly developed field boundaries frequently truncated earlier stock control systems and possibly indicate a shift in economy. Areas previously used for settlement were abandoned by this phase, with the only post-Iron Age structure represented by a sub-rectangular Romanised building, contained within a large enclosure. Environmental evidence is limited from this site, and is insufficient to indicate whether the abandonment of pastoral systems was accompanied by a shift to arable production.

Later Roman activity was limited to the excavation and backfilling of a large boundary ditch and two pits containing charcoal and burnt bone fragments typical of hearth sweepings. This may indicate settlement into the fourth century some distance beyond the site to the south.

Medieval and post-medieval pottery was recovered from the topsoil, presumable derived from manuring, as no later remains, other than modern field drains, were present.

12.6 Potential

This site contains the remains of late Iron Age and early Roman settlement alongside evidence for pastoral field systems overlain by later Roman fields. As a settlement on the edge of the Hull Valley, this site has potential for exploring the links between early Romano-British rural communities and exploitation of the landscape. The region south of Beverley and surrounding the site is rich in cropmarks indicating that substantial settlement and field systems once occupied this landscape on the edge of the river valley. Subsequent to the construction of the pipeline, extensive geophysical surveys of the area have been carried out in relation to the proposed southern relief road (Kirsten Holland: WYG Consulting, *pers. comm*., 2008). This adds value to the results from the pipeline as they can be placed in a wider setting. Further analysis can explore themes such as the nature and function of buildings, the rural economy, environmental change and trade links.

This site has the potential to assess the degree of Romanisation which occurred in rural Iron Age communities, through changing techniques of house construction, changing material culture usage, and potentially patterns of discard and structured deposition. Shepherd Lane may also improve our knowledge of settlement patterns, settlement forms, field systems and agricultural economies in late Iron Age and Roman East Yorkshire, addressing in particular the degree of continuity or change of settlement, land-use and social and economic organisation through the transition between the Iron Age and Roman period.

The assemblages have valuable potential to augment and illustrate our understanding of the kinds of pottery in use in the closing stages of the Iron Age and the early Roman period in the region (Peter Didsbury Appendix 2). The assemblages from the ring gully structures, in particular, have potential in this regard. Pottery fabric analysis, specifically of shell-tempered sherds, would be of benefit in sourcing the production centre for these vessels. There is good rebuilding potential within the pottery assemblage.

The site produced a moderate assemblage of animal bone. The assemblages have a good potential to provide further information on underlying animal utilisation and husbandry practices. Preliminary assessment of the abundances of species identified within the assemblage suggests an economy with a strong emphasis on cattle, with sheep or goat and pig in a lesser role.

The consistent paucity of charred botanical remains from across the entire site leaves the few relatively large charcoal-rich flots to appear almost as anomalies. This scarcity of charcoal and other charred botanical remains is rather surprising given the period of activity and the clear evidence for domestic occupation, as attested by the large volume of ceramics recovered both during hand excavation and, to a lesser extent, in the environmental samples themselves. Traces of cereal residues are scattered across the site but only one sample, from posthole **35145**, has a significant cereal assemblage and the apparent lack of accompanying cereal chaff and nominal quantities of weed seeds points to a processed assemblage of grain, principally hulled six-row barley. Otherwise the few remaining larger dry flots are dominated by comminuted charcoal.

One avenue which should be researched is determining whether the occupants were exercising differential disposal of their domestic waste, perhaps for the purposes of middening which would produce valuable material to augment and lighten the heavy clay soils, thus improving the ground for cultivation. Plotting various classes of archaeological material identified as domestic indicators, notably ceramics, weight of bone from both the samples and the hand-collected material, the volume of charcoal and presence and abundance of cereals will be a useful exercise in order to address the issue of differential disposal. Alternatively, but more difficult to investigate on the basis of this site alone, is the theory that food was prepared and consumed elsewhere, notionally beyond the limits of the excavation and, furthermore, that perhaps food was being imported onto the site which was largely pastoral in character. To demonstrate the latter proposition would necessitate a detailed analysis of numerous contemporary sites in the local area in the hopes of identifying potential trade links and arable economies that go significantly beyond mere subsistence strategies. The marked absence of

charred cereal might reflect a well-managed and careful use of the cereals, or a short-lived occupation, and this question could be addressed by comparison with contemporary sites elsewhere on the pipeline route.

A small amount of residual worked flint was recovered, mostly spanning the late Neolithic and early Bronze Age, with a single flake of possible Palaeolithic date also present. This material should be included in any discussion of the flint recovered from the pipeline landscape as it can indicate potential prehistoric occupation zones.

The fired clay with wattle impression recovered from the site is likely to represent the remains of building material for the roundhouse structures and warrants further study.

Fired clay also provides a modicum of evidence for high temperature processes, most probably metalworking, during the Iron Age or Roman period. Metallurgical analysis should be focused on specimens from selected fragments of the possible iron smithing slag from plot 55. A small number of registered finds was recovered and should be included in further analysis. A probable door pivot stone found on site should be illustrated.

12.7 Recommendations

- Documentary research into other rural settlements within the region, specifically near the Hull Valley.
- GIS mapping of known cropmarks, geophysics and excavated sites within the immediate area.
- Publication reporting of the pottery assemblage based on key groups.
- Documentary research on similar pottery assemblages from the region.
- Illustration of 60 to 100 pottery vessels, including rebuilding and illustration of a group of barrel style vessels.
- Specialist identification of one sherd of samian pottery.
- Specialist identification of two prehistoric pottery sherds.
- Thin section and chemical analysis of a selection of shell-tempered (H1) fabrics.
- Further analysis of the faunal remains and comparisons with other assemblages in the region.
- Incorporation of the flint catalogue in a wider report from the whole of the pipeline.
- Comparison of the fired clay associated with metalworking with other sites in the region.
- Measurement of wattle impressions on fired clay from structure.
- Illustration of four fragments of fired clay.
- Illustration of the door pivot stone and description of it in the publication.
- Cleaning, description and illustrated, if warranted, of bronze object, SF 225.
- Illustration and description of bronze brooch, SF 223.
- Illustration and description of iron bar from deposit *38082*.
- Inclusion of coin SF 222 in overall coin catalogue.
- Identification of iron concretion from deposit *5334* by a metallurgical specialist.
- Analysis of the insect remains from the three organic samples: 1802, 1826 and 1853.
- Analysis of other palaeo-environmental indicators including suitable snail assemblages, water-logged seed assemblages and possibly some of the charcoal, to further elaborate on any characterisations of the local environment.

- Investigation of evidence for metal-working activity, possibly including further processing of samples within the proximity of hammerscale-rich fill *35169* of ditch **35168** and full metallurgical analysis of the iron smithing waste from plot 55.
- Investigation of evidence, if any, for differential disposal of domestic waste.
- Detailed analysis of the grain-rich sample (1464) and quantified analysis of the richer charred plant assemblages, twelve in total.
- Processing and analysis of additional environmental samples: seven from contexts to the west of Structure 11; five samples from the vicinity of grain-rich sample 1464 in plot 53; one sample near pottery-rich sample 1855 in plot 53; five samples near hammerscale-rich samples in plot 53; eight samples near to organic ditch deposits in plot 53.
- Spatial analysis of all material from the samples from Structure 11 to investigate the possibility that these will reveal functional divisions inside the building.

13 PLOT 86, LION'S DEN

Central NGR SE 9715 3549
Civil Parish: Walkington
Total area of excavation: 2504m^2
Figures 4, 28

13.1 Summary

A prehistoric triple-ditched feature, (MHU3666), known from cropmarks and part of an extensive series of similar features crossing the higher slopes of the Wolds, was investigated. Material retrieved from its fills has the potential to provide scientific dating for this excavated example of a widespread, significant but poorly understood monument type.

13.2 Location, topography and geology

Plot 86 was centred on NGR SE 971 354 and lies approximately 600m south of the B1230 road, 3km west of Walkington village. Little Weighton lies just over 2km to the south-east. The excavation area was roughly midway between the farms of Lion's Den and Sample's Farm (Fig. 4).

The site was on the eastern slopes of the Yorkshire Wolds on the side of a steeply sloping dry valley. In the excavation area, the land dropped from over 111m OD in the north-western corner to 108.3m OD at the south-eastern extremity. The landscape continues to rise sharply up to 162m OD at High Hunsley, 2km to the west, and falls to under 60m OD a similar distance to the east. The site overlies Lower Cretaceous chalk of the Welton or Bunham Formations (BGS 1995). Soils, of the Panholes Association, are described as well-drained fine silty soils over chalk (SSEW 1983; 511c). Despite the elevation, soil quality is high, designated as Grade 2 for agriculture (MAGIC). The chalk was recorded on site as layer *28002* overlain by silty clay subsoil, *28001*, and a thin layer of ploughsoil, *28000*.

13.3 Archaeological background

The desk-based assessment drew attention to the cropmark triple linear feature crossing the site (MHU3666) and the prehistoric landscape features which form the archaeological context for this monument. A kilometre to the south-east, in Rowley parish, another double ditch (MHU3537) is believed to be prehistoric or Roman. It was originally recorded as an earthwork, but is no longer extant, although it is visible as a cropmark on air photographs. Another set of parallel ditches associated with Bronze Age round barrows has been identified 800m to the east of this, near Common Road (MHU6613) and nearby a Bronze Age double ditch extends north-eastwards from Bluestone Bottom (MHU3663).

Cropmarks of barrows are well known in the area, in addition to round barrows near Common Road (MHU6613). A field system and probable Bronze Age round barrow were recorded from aerial photographs taken just north of the site (MHU3631). Ling Howe Neolithic Long Barrow survives as a slight mound 800m to the north-west of the site, and is still visible as a cropmark on aerial photographs (SAM26605). Greatly altered and reduced in height by ploughing, its northern end is overlain by a modern road.

Other prehistoric remains include another ring ditch (MHU3636) recorded east of the Ling Howe barrows and two early Bronze Age barrows on Littlewood Farm near Walkington, which were excavated by J.E. Bartlett and R.W. Mackey between 1967 and 1969, and revealed evidence of activity from the Neolithic or early Bronze Age until the Anglo-Saxon period (MHU3650) and (MHU3651). Excavations on the two barrows west of the Ling Howe long barrow revealed earlier occupation in the area (MHU3650). Soil from the old land surface produced a quantity of late Neolithic or early Bronze Age material including Neolithic and Beaker sherds; leaf, transverse, and barbed and tanged arrowheads, and a plano-convex knife of flint.

One barrow consisted of a low mound, 15m in diameter, without a ditch. The primary burial was an inhumation in a central shallow grave, with a complete but crushed Food Vessel of Early Bronze Age date. The other was a bell barrow, 21m in diameter, with a penannular ditch. A primary flexed burial was found in the central shallow grave; there were no grave goods but two sherds of pottery, classed as Food Vessel, were found in the lower fill. A satellite burial was discovered lying on the old land surface, 2m south-east of the central grave. Part of an oval of small chalk cobbles surrounded the body. A secondary burial, consisting of several large fragments of an early or middle Bronze Age cinerary urn with minute traces of burnt human bone, was found in the lower fill of the ditch on the north-east side of the barrow. Additional finds included jet beads, and a fragment of a middle Bronze Age dirk or rapier was found beneath an Iron Age bank nearby (MHU3651). Fieldwalking in the vicinity of the bank produced a small assemblage of late Neolithic or early Bronze Age pottery (MHU3651).

Remains that are more recent include a medieval road (MHU3660), less than 1km north-west of the site, a post-medieval milestone near Ling Howe (MHU12442) and a well at Lion's Den Farm (MHU12762).

Conditions were good when the fieldwalking was carried out, with the field recently harrowed, but there were few finds, other than two pieces of struck flint. The geophysical survey clearly showed the three ditches as parallel curvilinear anomalies corresponding to the position of the cropmarks.

Because of the possibility that there may have been other parallel features, a single 100m-long evaluation trench was opened along the proposed centreline of the pipe along with a second 20m-long trench on a perpendicular orientation. The three parallel ditches were located in the long trench and the topsoil was then stripped from the working width to allow excavation of the features in advance of construction.

13.4 Site description

Phase 1: Prehistoric

Three large, parallel ditches were positioned curving to the north-east from the southern edge of site, and were cut deep into the chalk bedrock. The three ditches, **28008** (= **28039**, **28061**, **28072**, **28054**, **8601**, **8616**), **28003** (= **28080**, **28028**, **8602**, **8614**) and **28005** (= **28093**, **28026**, **28056**, **8603**, **8612**), were positioned between 7 and 10m apart, roughly following the natural curve of the hillside. Each ditch had a similar, steep-sided profile and measured at least 3m wide by over 1m deep (Figs. 28 and 29; Plate 2). All three of the ditches had similar fills apparently resulting from natural accumulation, with occasional slump deposits. The slumping may have been caused by erosion from banks positioned between the ditches.

Triple ditch monuments are widely distributed in similar landscapes elsewhere in the country are are generally thought to date from the early Iron Age period. However, the only finds from the lower fills of the ditches were small quantities of flint debitage, broadly dated to the Mesolithic to early Bronze Age and probably residual (Appendix 1). Later fills contained sherds of pottery dating from the Roman, medieval and post-medieval periods (Appendix 2), indicating that the ditches survived as earthworks in the landscape for a considerable period, probably not finally disappearing until the nineteenth or early twentieth century. The various fills of the excavated section of the three ditches produced a range of material suitable for radiocarbon dating, including hazelnut shells, charcoal and animal bone.

A large north-to-south aligned ditch, **8604**, was revealed during the watching brief located just outside the western margin of the excavation area. This ditch had a similar profile and deposition sequence to those of the triple ditches and may have been a feature from broadly the same period.

Phase 2: Medieval and later

In the western part of the site, an east-to-west aligned ditch, **28091**, was recorded (Fig 28). The relationship between this feature and the triple ditch alignment lay beyond the limit of excavation. However, this ditch resembled a deep furrow remaining from ridge and furrow agriculture, and was on the same alignment as other linear features which were recorded on the geophysics survey and interpreted as cultivation marks (Bartlett 2005, fig 79).

13.5 Discussion

The Lion's Den site lies on the slope of a dry valley on the eastern side of the Yorkshire Wolds in an area of known prehistoric activity and the significance of the recorded ditches is considerably enhanced by being part of the rich archaeological landscape.

The three ditches would have made a substantial landmark, with each ditch being over 3m wide and having a surviving depth of over 1m, with a probable bank positioned between the ditches. Dating these features is problematic, with few artefacts recovered and the size of the ditches allowing gradual infilling from natural erosion to have occurred over centuries. The flint debitage recovered from lower deposits is almost certainly residual. Later ditch fills contained occasional sherds of Roman, medieval and post-medieval pottery, indicating this was a very long-lived monument, remaining as a landscape feature until modern-day ploughing removed any remaining banks and completed the infilling of the ditches.

13.6 Potential

The triple ditch monument has been extensively excavated and sampled. These features are well-known from the region, but have been rarely so thoroughly excavated or produced definitive dates for their construction. This site has the potential to produce scientific dating for this form of monument, and the potential, through environmental analysis, to interpret the changing landscape through the period when the features were extant. Radiocarbon dating of the charred nuts, charcoal or bone will be essential in dating and understanding the significance of this monument, while the snail assemblage may be able to indicate the changing local environment through time. The quantity of material available for dating from the lower fills of the three ditches is limited, but it should be possible to obtain a stratified sequence of dates which would constrain the possible range of dates for each of the fills.

The central ditch provides the best potential for a robust radiocarbon dating sequence, providing up to four samples from the primary and lower fills, in addition to flint and pottery dates. Unfortunately both the flanking ditches have less material suitable for dating, with the charred grain from the eastern ditch unlikely to provide a useful date for the ditch construction and use as it is so far up in the sequence. The western ditch could provide two samples of hazelnut shell from the middle fills which may also be worth targeting.

Re-consideration of the physical characteristics of the various ditch fills in the light of the radiocarbon dates should allow a more detailed understanding of the sequence of events leading to the re-filling of the ditches.

Triple ditches across East Yorkshire have been generally dated to the late Bronze Age or early Iron Age and a robust scientific date for the construction of this monument could be usefully compared to this existing model, aiding our understanding of regional patterns of land use in this period.

13.7 Recommendations

- Documentary research on other excavated triple- and double-ditch monuments in the area.
- Samian ware recovered from the site should be examined by a specialist as part of the assemblage from the pipeline.

- Radiocarbon dating of up to six samples of charred nutshell, charcoal and animal bone from the triple ditches.
- Consideration of site-formation processes and the taphonomy of the artefacts and environmental remains recovered from the ditches.
- The worked flint assemblage to be included as part of a report on the entire pipeline.
- Analysis of the snail assemblage from each of the ditches to enable a palaeo-environmental sequence for the changing landscape to be developed.

14 PLOTS 103 AND 104, RUDSTONE DALE

Central NGR: SE 9135 3480
Civil Parish: Newbald
Total area of excavation: 8436m^2
Figures 5, 30 to 50

14.1 Summary

This site, alongside the Roman road from Brough-on-Humber to York, was the largest and most significant excavation along the pipeline. A sequence of later Iron Age and Roman deposits included evidence for up to eleven buildings, a metalled road surface, seventeen adult inhumations, fifty-six neonate burials and five cremations. The site has significant parallels with the previously excavated large Roman sites at Shiptonthorpe and Hayton.

14.2 Location, topography and geology

This site was located beneath the scarp slope of the Wolds and the eastern side of the A1034 South Cave to Market Weighton Road. St Nicholas's Church, North Newbald is 1.7km to the north, beyond the hamlet of South Newbald. Plot 104 was a rectangular field running eastward from the road; plot 103 was originally the more easterly of a pair of squarish fields to the south, but the field boundary between the two plots had been lost, forming a single reverse-L-shaped field.

The chalk scarp of the Wolds is deeply cut by dry valleys in this area, the high ground backing the site forming a broad spur between Wye Dale to the north and Rudstone Dale to the south. The excavation area itself occupied a slight dip, probably a continuation of Rudstone Dale swinging to the north before heading eastward towards Hotham Beck, 1.5km away.

The eastern end of the excavation area was at a height of 53.4m OD, the height dropping fairly steadily to 49.9m at the bend in the pipeline route and to 45.5m OD at the western end, closest to the road. The top of Bunker's Hill, 1.2km beyond the eastern end of the site, is at 136m OD, providing an indication of the steepness of the scarp, while Hotham Beck, to the west, is at 24m OD (Fig. 5).

The eastern end of the site overlay narrow bands of Jurassic Oxford and Kellaways Clays, briefly exposed beneath the chalk scarp. Closer to the road, bands of Glentham Sandstone and Cave Oolites of the Lincolnshire Limestone group are overlain by patches of glacio-fluvial sands and gravels (BGS 1995). Soils, of the Aberford Association, are described as shallow, locally brashy, well-drained calcareous fine loams (SSEW 1983: 511a). Soil quality is high, designated as Grade 2 for agriculture (MAGIC).

During excavation, the earliest recorded deposit was grey chalk brash, *25083*, overlain by a sequence of yellow brown alluvial layers, *53003*, which measured up to 0.5m thick and were thought to have been deposited by flooding from a palaeochannel which formed a broad natural feature through the site. The alluvium was subsequently overlain by red brown silty colluvium, *25036*, washed down slope from the north-east, and which reached a thickness of 0.8m in places. The 0.4m-thick topsoil, *25035*, was a dark brown silty clay.

14.3 Archaeological background

Desk-based assessment

Prehistoric sites and find-spots from the vicinity of the excavation area include a quartzite pestle macehead of Neolithic date found 800m to the south-west of the site, two Neolithic flint scrapers found 1.2km to the north-west (MHU17245), and cropmarks of possible Iron Age field systems in Rudstone Vale, 400m to the south-east of the site (MHU6634). The South Newbald (plot 106) and

Gaylands (plot 107) sites, described below, also formed part of the archaeological context for the site, especially when considering the Iron Age phases.

Nearby sites from the Roman period are, however, of greater significance. The Rudstone Dale site lies 150m to the south of the likely site of a junction in the Roman road system, where the road running north from the Humber, at Brough, forks, the westerly branch running towards York (MHU63) and the easterly branch (MHU4164) maintaining a general northward direction. The present day A1034 road towards Market Weighton closely follows the course of the Roman road as it passes the site. The road to York shows as a line across the fields and in favourable conditions appears as a distinct band of metalling. At some points, a slight agger appears as a low swelling in the ground and may be accompanied by a hedgerow. Although the road from Brough continues the general line of Ermine Street over the Humber, the name does not appear to have become attached to this length (Margary 1973).

A mid-third- to fourth-century villa with stone walls, painted plaster and mosaic pavements was discovered near North Newbald and excavated in 1939 (MHU7524), approximately 1km north-west of the site. The buildings apparently extended 'at least 65 feet south of Hotham Lane and 95 feet north of it'. The excavation for a pipe trench on Hotham Lane, to the north of Southfold Farm, monitored by the East Riding Archaeological Society in 1973, revealed stone-walls, robber trenches, painted plaster, a pitched stone hearth and pebbled floors, along with substantial quantities of mid-third- to fourth-century pottery. The farmer recalled mosaics in the field 'towards the beck' being uncovered and reburied in the 1970s and observed that metal detectorists had found numerous coins in this area. Undated inhumations found nearby (MHU13855) may represent a Romano-British cemetery, 1.2km north-west of the site.

Roman roadside settlements with associated buildings and neonate burials are also known from both Shiptonthorpe (Millett 2006) and Hayton (Millett *pers. comm*., 2009). These sites lie 10km and 14km to the north-west respectively, adjacent to the A1079, which follows the branch of the Roman Road to York.

The area of the site itself corresponded closely with a cropmark site listed on the SMR as consisting of possible ditches (MHU4754). Study of the air photographs showing the cropmarks gave little indication of the complexity of the archaeology subsequently revealed, the most prominent cropmark being interpreted, correctly, as a natural palaeochannel. The possibility of re-routing the pipeline away from this site was explored, but engineering constraints were very tight in this area and a viable alternative route could not be found.

Field surveys

Fieldwalking recovered two sherds of Roman pottery, six medieval sherds and four pieces of worked flint, along with more recent finds. The geophysical survey noted that the plots contained a strongly detected group of linear features and other magnetic anomalies, which together suggested a well-preserved settlement site near to the adjacent Roman road. Both plots gave raised magnetic susceptibility values, though it was thought that this may have been in part be a natural effect of the Jurassic bedrock outcropping at this point on the route (Bartlett 2005). Evaluation trenching throughout both plots was recommended.

Evaluation

Five evaluation trenches were opened in plot 103 and nine in plot 104, in late February 2006. It quickly became apparent that there was a significant and large Roman site extending throughout plot 104 and into plot 103. The archaeological features were masked by a layer of colluvium and a hand-auger survey was carried out in mid-March to determine the depth of this layer throughout the two plots to inform decision-making about the strategy for excavating the site. This showed that the colluvium depth varied from 0.1m on the north, running-track side of the site to up to 0.8m on the south, subsoil-stack side.

It was agreed that a 23m-wide area should be stripped of topsoil and subsoil followed by full area excavation, with the 10m-wide strip along the northern side of the working width being protected and used as subsoil storage area. This was carried out in early April, interrupted by heavy rain.

Excavation

Hand excavation of the open area followed the stripping, concentrating on the areas needed for the farmer's access. Work on this site was then suspended in early May as it became clear that it could not be fully excavated within the normal construction timetable. Instead, the construction programme was revised so that these two plots could be treated as a 'special section' to be completed towards the end of the construction process. The detailed pipeline route was also modified so that it ran along the northern side of the working width to minimise its impact.

Excavation recommenced in mid-July, and concentrated on clearing the topsoil-side of the working width. Work was again suspended for a week in mid-August to allow the pipe-trench to be excavated and the welded-up pipe to be ditched. The area beneath the subsoil stack was generally not excavated but in the course of reinstating the subsoil, the opportunity was taken to extend the site to the north to expose a greater proportion of the stone foundations of one of the buildings. The excavation of the site was completed by the end of August.

14.4 Site description

During post-excavation work, the east-to west aligned part of the site was arbitrarily designated as plot 104 and the north-west-to-south-east section as plot 103. This convention has been followed in the descriptions below, although the more easterly part of the excavation area was largely within plot 104, only encroaching into plot 103 at its southern end.

Phase 1: Pre-Iron Age

For much of its length, the site was dominated by a large palaeochannel, **27789** (= **27792**, **53020**, **10264**, **10256**, **34060**), which ran from the western edge of excavation to the south-east, before curving into the southern limit of excavation (Figs. 34 to 36, 49a, 50e). The various interventions through this feature revealed complex sequences of multiple cuts formed by successive periods of silting and redefinition along its length during this phase, and show that at any one time it was up to 5m wide, and 1m or more deep. Correlation of deposits and cuts between the various recorded sections has proved difficult and the precise history of the feature is not recoverable but in broad outline it is likely that it existed as a water channel, perhaps only seasonally or spasmodically active, throughout the post-glacial period at least until the Iron Age. It is likely that its continuing presence throughout the early phases of the site would have been a determining factor in the choice of location. However, Roman features cut into its upper fills demonstrate that it had silted up completely by the end of the Iron Age.

The earliest dated remains were a cluster of pits located towards the eastern end of plot 104, against the northern limit of excavation (Fig. 35). Pits **25808**, **25818**, **25824** (= **25828**), **25846**, **25854** and **25864** were of similar profiles and dimensions, being approximately 0.5m in diameter and 0.4m deep with slightly irregular, steep sides and flat bases (Fig. 50a, b, c and d). Between them, these pits produced the largest assemblage of worked flint from any of the sites on the pipeline, forming a fairly consistent group typical of the early Neolithic period. This would imply either that the flint work is contemporary with the pits or is residual from a nearby working area (Appendix 1). Pit **25808** produced a fragment of Roman shell-tempered ware, small enough to be intrusive, but the other pits together yielded 479 sherds of prehistoric pottery, provisionally dated to the Bronze Age rather than the Neolithic period (Appendix 2). One of these pits, **25818**, also contained fragments of human remains (Appendix 10) which may suggest that this area was used for ritualised deposition at an early prehistoric date.

Near to the western edge of excavation, two neighbouring pits, **26732** and pit **26734**, and pit **26392**, some 6m to the south, were all simple scoops cut into the natural silts and backfilled with similar

material. No artefactual dating has been possible, but an alluvial layer, presumably deposited by the nearby palaeochannel flooding the area, sealed the pits. Phase 2 features then cut through these alluvial layers, dating the flood event to some time before the later Iron Age.

Another thin spread of alluvium, *26929* (= *31012*, *31136*, *26910*, *26929*, *27851*, *31174*, *25471*, *26098*), was recorded to the north of the palaeochannel sealing a buried soil *25742* (= *25679)*, which may have represented a prehistoric land surface (fig. 49a). This alluvium was then truncated by early Roman remains and again probably resulted from flooding from the palaeochannel. Roman period finds incorporated into the layer of alluvium included the top-stone from a rotary quern (Appendix 8).

Phase 2: Late Iron Age to early Roman pastoral land-use and settlement

The palaeochannel, which had remained open in the early prehistoric period, was silting up by this phase and may have been little more than a linear hollow by the late Iron Age. It is possible, given the presence of the later metalled surface that an Iron Age trackway may have developed against the previous channel bank, following its route across the site towards Hotham Beck and then south to the Humber.

A group of pits, **25874**, **25876**, **25890**, **25625**, **25640**, **25452**, **25817**, **25456**, **25441**, **25434**, **25465**, **25439** and **25847**, located 20m to the west of the Phase 1 cluster of possible Neolithic or Bronze Age pits, varied in size from 0.3m to 0.6m in diameter, with concave profiles and depths up to 0.5m (Fig. 34). Although their spatial clustering suggests that these pits may have formed a coherent group, the dating evidence from them is sparse and the inclusion of all of them in this phase may need to be reconsidered during the analysis stage of work. Pit **25874**, for instance, had a pottery assemblage akin to the material from the Phase 1 pits and may be better regarded as an outlier of that group. Several of these pits contained burnt bone and there was a placed cremation vessel in pit **25817**. Artefactual dating suggests that the burnt bone was first deposited here in the Iron Age, and deposition may have continued into the late first or early second century AD in pit **25465** (Appendix 2).

Other late Iron Age features present included a large rubbish pits, **25057**, positioned near the western end of the site and a fully articulated cow, buried near the northern edge in the centre of the excavation area (Plate 3). This animal burial, **26250**, truncated an earlier, large, Iron Age pit, **25929**, which in turn truncated two postholes, **26613** and **26609**, also dating to the Iron Age.

Many of the features on the site were within tight clusters: in some cases clearly the remains of buildings and in other instances being more speculatively so. Where there is a reasonable suspicion that cluster of features may have marked the footprints of buildings, they are described below as structures.

Structure 1

This same area also contained a cluster of postholes forming Structure 1 (Figs. 34 and 37). The postholes formed a loose pattern around a cluster of ten neonate burials, **25574**, **25596**, **25727**, **25599**, **25571**, **25545**, **25920**, **26614** and **25568**, and a possible hearth, **25699**. The postholes may represent more than one phase of a timber-built building, probably deliberately placed over the neonate burials, with the hearth positioned centrally. In addition to the human burials, there were two animal burials, **25618** and **25660**, a calf and a lamb. The presence of these two articulated animal burials may be related to the neonate graves, as part of a burial rite or tribute.

Pottery dating for these features suggests that they spanned the transition from the later Iron Age to the early Roman period. These late Iron Age and early Roman structures were bounded to the west by a large north-to-south linear boundary ditch, **25704**, which also dated to the early Roman period.

Structure 2

This pattern of timber-built structures was repeated 20m further west, where another loose group of postholes formed Structure 2 (Figs. 33 and 38). Pit cluster **31235**, **31233**, **31237** and **27898**, neonate

burials **31090**, **31119**, **27872**, **31176** and **26938** and animal burials **25784** and **25781** were located in and around this structure (Appendices 10 and 11). These features largely date from the early Roman period with finds confined to the first and second centuries AD. As with Structure 1, the neonate and animal inhumations appear to have preceded construction of the building, which may have been deliberately positioned over the remains.

Structure 3 and associated features

Another cluster of late Iron Age features towards the eastern end of the excavation area, directly north of the furthest south-eastward extent of the palaeochannel traversing the site, consisted of thirty-eight postholes and associated pits (Figs. 36 and 39). These possibly formed a circular structure with an entrance to the south-east and included two internal ovens, **10387** and **10399**, the latter truncated by pit **10200**. Both ovens were elongated pits containing heated clay linings and pieces of fired clay, including possible kiln supports. A clay support was also recovered from pit **10200**, almost certainly redeposited from oven **10399** (Appendix 5). The backfill of oven **10387** produced 24 sherds of pottery, for which a first century AD date is most likely (Appendix 2), and a bone comb (SF 532: Appendix 3).

Internal postholes included features **10287**, **34011**, **10547**, **10557**, **10293**, **34029**, **10279**, **10575**, **10539**, **10291**, **10555**, **35035**, **10209**, **10515** and **10513**. These posts may have held partitions dividing the building into areas for such activities as cooking and eating, storage and sleeping. Several pits, **10587**, **10339**, **10529**, **10527**, **10544** and **10549**, were also located within the structure, and produced a small pottery assemblage suggesting a Roman rather than Iron Age date.

A curved line of pits, **10585**, **10276**, **10379**, **10594**, **10330**, and probably including the larger pit **10337**, respected the south-west side of Structure 3.

Directly south-east of Structure 3, a crouched burial of a young adult, **10306**, was positioned just to the north of the palaeochannel (Appendix 10). Numerous fragments of soft and crumbly pottery, including a distinctive rim sherd, found associated with this burial, are probably the remains of a single vessel (Appendix 2). A fully articulated cow was buried in pit **10250**, directly north-west of the structure (Appendix 11; Plate 4).

The area around Structure 3 was bounded by ditches **10316** (= **10318**), **10308** (= **34007**) and **10333** (= **10341**, **10335**), which would have served to drain the area. The recovered artefacts indicate that the area was utilised from the later Iron Age into the early Roman period, and appears to have fallen out of use by the second century AD. One of the early Roman boundary ditches, **10344** (= **10300**, **10216**, **10205**), positioned approximately 10m south-east of Structure 3, contained a large quantity of metal smithing slag (Appendix 7). There is no evidence for a smithy within this area of the site, but the volume of processing waste suggests that one may have been located beyond the limit of excavation in the vicinity of Structure 3.

Structure 4 and other features to the south of the palaeochannel

A group of three small pits, **27153**, **27088** and **27080**, and a sub-rectangular north-to-south aligned pit **27265**, were located just to the south of the palaeochannel in the centre of the site (Fig. 32). Pit **27265** was steep-sided and of similar dimensions to the adult inhumation graves present on the site. It contained an important find of a first century AD chatelaine: a collection of personal hygiene tools and a pendant suspended on a metal ring (SF 578: Appendix 3; Plate 5). This artefact may have been buried as a replacement for a missing body as the grave-shaped pit seems to have been backfilled shortly after the deposition of it. The associated pits contained various quantities of medium-sized mammal remains, probably sheep, and may have represented disposal of food waste associated with the burial rites (Appendix 11).

Approximately 40m west of the pit containing the chatelaine, the remnants of the foundations of two stone built buildings were associated with a group of large pits, postholes and human burials. (Figs. 31 and 40). The earlier of these two buildings, Structure 4, dated to the first to second century AD, consisted of the remnant of a north-west-to-south-east aligned stone-filled footing, 0.4m wide by

0.25m deep. Adjacent to this was a sub-square stone pad or wall remnant, **25152**, approximately 1.2m wide, aligned north-east to south-west and extending for 3m. This thicker wall contained a narrow slot purposely built into the interior of the wall, 0.3m wide by 0.8m deep, and was originally identified as being a furnace, as it was truncated by an ash-filled pit, **25094** (Fig. 50g). It is more likely that this slot was part of a support for a now-removed internal wall, and the placement of the pit may have been coincidental.

The entire northern and eastern sides of this building are missing, and there is no evidence for any internal surfaces. However, the level of truncation suggests that only the deeper foundations would have survived: the remaining wall foundation to the south is only two courses of stone deep. A cluster of undated postholes, **25161**, **25101**, **25269**, **25268**, **25267**, **26852** and **27283**, and an animal burial, **25264**, were located around the building remnant and have been ascribed to Phase 2 by association. These had no clear stratigraphic relationships, though it is likely that the building would have overlain the animal burial, as was the case with other structures on the site (Appendix 11). The crouched burial of a young woman, **25065**, was located approximately 7m north-east of the building (Appendix 10).

Possible droveway

At the western end of the site, parallel ditches **26456** (= **26450**, **26452**) and **26480** (= **26407**, **26478**) 1.4m apart, could have bounded a droveway. A cluster of postholes, **25287**, **26343**, **26446**, **26365**, **26369** and **26361**, apparently associated with it, may have held the posts for draft gates and pens (Fig. 31). Pottery recovered from the features probably dates from the second century AD (Appendix 2) by which time the features must have fallen out of use. If the interpretation of these features is correct, the narrow width of the droveway would suggest it was utilised for sheep rather than cattle. This area was truncated in a later phase by a series of large late Roman rubbish pits.

At the western limit of excavation, an Iron Age boundary ditch, **26722**, extended for 13.5m in a north-to-south alignment and was cut by two pits, **26482** and **26496**, also probably broadly dating to this phase. Two inhumations were revealed directly west of ditch **26722**: a neonate, **25370**, and a crouched young adult, **26468**, positioned against the northern limit of excavation (Figs. 31 and 41).

Short curving ditches occur in this phase, and probably represent a series of animal enclosures. Notable examples include ditches **27331** (= **27355**, **27585**), **27234** (= **27368**, **27366**) and **27011**, all located south-east of Structure 4 (Fig. 32). A bronze brooch was recovered from the fill of ditch **27234** (SF 577: Appendix 3).

Phase 3: Roman settlement and trackway, second to early fourth century

By the mid-Roman period, the palaeochannel, which had once divided the site, had become completely silted up and was sufficiently dry to allow construction of a metalled trackway alongside and on top of the channel fills. Drainage ditches became more common in this phase, while building styles appear to show a change from largely roundhouse structures to rectangular buildings.

Metalled trackway

Trackway **26585** (= **26697**, **27791**, **33018**), along the northern edge of the palaeochannel, may have superseded a previous prehistoric route which had followed the watercourse, before it silted up. This trackway measured up to 2.4m wide, where it survived as a compacted gravel and chalk surface up to 0.3m thick (Figs. 32, 33, 49a). This trackway would have linked to the Roman road from Brough on Humber to York, just to the west of the site. The track appeared to have been abandoned by the fourth century AD, presumably after it ceased to be economically viable to maintain. Later Roman features in Phase 4, most notably human and animal burials, were cut into the track, as were several unusual deposits of disarticulated animal bone dumped into large pits.

The area previously occupied by Structure 2 was truncated in this phase by a small enclosure ditch, **26994**¸ which extended from the north before turning eastward and terminating Fig. 33). To the east, a series of linear north-to-south aligned ditches, **25970** (= **25747**, **31029**, **31044**), **25787** (= **25794**,

27873), **31067**, **27888** and **27847**, seem to mark a re-ordering of the landscape for agriculture in this phase, though this area was once again built on in Phase 4.

Corn dryer

An east-to-west aligned corn dryer, **27399**, with a stone-lined warm box, **32019**, was located just to the south of the metalled trackway in the western part of the site (Figs. 32, 49d, Plate 6). A north-to-south aligned dryer, **32000**, subsequently truncated the earlier feature, with the previous warm box being re-lined and re-used. The later corn-dryer was in use in the third century, and, although there is no direct dating for its precursor, it would fit this phase of land-use on the site.

Structure 5

Structure 5, 25m to the west of the corn-dryers, consisted of a group of postholes in a rough circle with a deliberate opening to the south-east, together with a possible foundation trench (Figs. 32 and 42). A second, internal line of posts was formed from postholes **27097**, **27064**, **27020**, **27018**, **27413** and **27022**. This may have represented either an earlier structure or perhaps internal supports for the roof. As an alternative, this structure group may represent a sub-rounded enclosure, with no surviving building footprint. A burial of a sheep or goat, **27086**, and a human cremation buried in a discrete pit, **27047**, were both within the central area of the structure while a neonate burial, **27743**, was within the north-west curve of its putative wall (Appendices 10 and 11). The base and body of a ceramic vessel were recovered from a small feature, **27120** (Fig. 32). This was thought to be the remains of a cremation urn but sieving of the contents failed to produce any human bone. In the absence of a rim, the vessel is not easily datable. All of these features can be broadly dated to the Roman period, with those on the south-west truncating an occupation spread, *27821*, more firmly dated to the second century (Appendix 2). Structure 5 was replaced by Structure 10, in the subsequent phase (Fig. 32).

Two further burials were located at the western end of the site (Figs. 31 and 41). A poorly preserved, north-to-south aligned supine adult burial, **26388**, lay within a group of roughly east-to-west aligned Phase 3 ditches, while a neonate burial, **25234**, was positioned just to the south of a line of postholes, **26730**, **26700**, **26749** and **26755**, dated to the second to third centuries (Appendix 10). The postholes in this line have been heavily truncated as the overlying colluvium was much thinner at this point. They may be the remains of the southern side of another rectangular building, with the northern side lying beyond the northern limit of excavation. Any floors or hearths will have been removed by the level of truncation.

Phase 4: Roman buildings and burials, second to fourth century

The middle to later Roman periods were characterised by an expansion in settlement along either side of the new metalled road. The mix of roundhouse and rectangular buildings of the previous phase had now been completely superseded by Romanised rectangular houses. These buildings typically incorporated neonate burials under the walls or floors, with animal burials also common within or near footprints of the buildings.

Structure 6 and associated well

In the central area of the site, just north of the metalled trackway and directly east of Structure 2, Structure 6 was a rectangular stone-built building with areas of surviving rammed chalk surfaces, *25521*, *25904* and *25605*, and a possible stone flag floor, *26946* (Figs. 33, 43, 49b and c; Plate 7). This building was in use in the later third and fourth centuries and directly overlay several of the neonate burials, which would have been covered by its internal floor. These included burials **26932** and **26936**, located at the southern end of the building. Another neonate was interred alongside the eastern wall of the building, **31062**, with animal burial **31058** further to the north. Finds from the foundation trenches of Structure 6 included a bronze ring (SF 591: Appendix 3) and a fragment of a second- or third-century glass vessel (Appendix 4), while the rubble spreads to the east of the building produced a pyramidal loomweight (Appendix 5).

The building was either deliberately demolished or abandoned and subsequently collapsed at the end of the fourth century, as the foundations of the structure were overlain by a spread of domestic waste and rubble, *27862* (= *26952*, *26945*, *26901*, *27856*, *25520*, *25677*) (Figs. 33 and 49a), dated by a large assemblage of pottery typical of the late fourth century (Appendix 2), when the site of the structure was abandoned (Appendices 2 and 6). The top and bottom stones of a rotary quern were also recovered from this layer (Appendix 8).

Subsequent to the discovery of Structure 6, a resistivity survey was carried out in the area just to the north of the pipeline easement, to test whether the excavated remains formed part of a larger structure continuing for any distance beyond the limit of excavation (Bartlett 2006). However, none of the resistance anomalies visible in the survey plots suggested the presence of structural remains. The survey concluded that any surviving remains are too damaged or dispersed, or too deeply buried, to be detected by this technique.

Directly to the south of Structures 2 and 6, and north of the metalled trackway, well **25969** was a sub-rounded feature measuring 2.4m in diameter. It was at least 2.36m deep, with near-vertical sides for the first metre below the machined surface, after which it shelved and narrowed to a vertical shaft approximately 0.5m wide (Figs. 33, 49e). There was evidence for a possible wattle support in the upper part of the well; the lower shaft may also have been revetted, given that it was cut through loose alluvial sands and silts, although no material was recovered. The well contained refuse material including animal bone (Appendix 11) in its upper fills, with food waste and pottery including large joining sherds of later third- or early fourth-century mortarium and a third- or fourth-century biconical carinated bowl (Appendix 2). This indicates that the well would have been open at the same time as the nearby stone building, but it may have been originally used much earlier in the Roman period, only falling out of use and filling with refuse in the fourth century.

Structure 7 and nearby burials

Another potential building was located against the southern margin of the site, west of the well and south of the metalled trackway (Figs. 33 and 44). This structure survived as a group of crushed stone post pads, *27001*, *27002* and *27003*, approximately 0.5m in diameter and resting on the underlying alluvium, *27307*. These post pads were positioned between 1m to 1.5m apart and probably formed a square shape, although the south-eastern end of the building lay beyond the limit of excavation. A spread of crushed chalk and fractured stone, *27000*, within the footprint of the possible building and overlying the post pads, indicated the demolition of the building but produced no datable material. Nearby occupation spreads, possibly associated with occupation of the structure, indicate a third-century date, although the apparently associated burials (below) seem to be significantly earlier. The building may, of course, have replaced an earlier post-built structure, constructed in a similar style, with the stone post pads and an internal compacted chalk floor surface incorporated into its replacement.

Three adult crouched burials, **27293**, **27296** and **27388**, were located 5m north of Structure 7 (Figs. 44 and 50h; Plate 9). All three burials were cut into a spread layer, *25624*, and also appeared to post-date the metalled trackway, or at least the upper fills of the palaeochannel over which the trackway was laid. However, layer *25624* produced only two late Iron Age pottery sherds (Appendix 2) and the only finds from the graves were three rather undiagnostic sherds of Iron Age or Roman pottery from grave **27388** (Appendix 2). Crouched inhumations would be very unusual in a later Roman context and the stratigraphic relationships of these graves with the other features in this phase need to be carefully examined and re-evaluated during the analysis stage of work. The burials include a woman who was older than fifty at the time of death, **27388**, a man similarly older than fifty, **27296**, and a young woman, **27293**. The male burial was added later on to the side of the younger woman's grave (Appendix 10). This may indicate that they were a family group, possibly the inhabitants of Structure 7.

A cluster of neonate burials, **27656**, **27937**, **27770**, **27773**, **27934** and **27926**, located 15m west of the potential building near the southern margin of the site and just south of the metalled trackway (Figs.

32 and 45: Appendix 10) produced no artefactual dating evidence, but they were all cut into the alluvial deposits formed from the pre-Roman palaeochannel and were sealed beneath the colluvium deposits, which formed over the site in the post-Roman period. This implies a date between the later Iron Age and late Roman period. Proximity to the metalled track and to the third-to-fourth century Structure 7 may suggest that a later Roman date would be most likely. Unlike most of the other neonate remains on site, there is no evidence that these burials were associated with a building; perhaps they were associated with a shallow walled structure, subsequently removed, or perhaps a different burial practice applied in these cases.

Two adult crouched inhumations, of a young woman, **25793**, and of a young adult whose sex could not be determined, **25325**, were located 16m north-east of this cluster of neonate burials (Figs. 33 and 45; Plate 10; Appendix 10), directly north of the metalled trackway. Two 0.5m-diameter, sub-square, stone packed postholes, **25347** and **25357**, were located directly east of the two graves, straddling the adjacent enclosure ditch of the same phase, and stratigraphically dating from the fourth century. Three smaller postholes positioned around the two burials were not fully recorded because of the tight time constraints during the excavation but may date from the same period. However, no definite structure seemed to be present.

Structure 8

West of Structure 7 and near the southern edge of excavation, Structure 8 (Figs. 32 and 46) was composed of postholes forming a rough rectangle, aligned parallel to the metalled trackway. A deposit of fractured stone and domestic artefacts, *27209*, which could be identified as Roman but was otherwise undiagnostic, overlay the centre of the footprint of the structure. This probably resulted from the demolition or collapse of the structure when the site was abandoned (Appendix 2). Within the eastern wall of the building, a discrete pit, **27146**, containing butchered animal bone may relate to some form of feasting to mark the raising of the building (Appendix 11). A loomweight was retrieved from feature **27477**, just to the east of Structure 8 (Appendix 5).

Structure 9

South-west of Structure 8, another possible rectangular posthole building, Structure 9, was formed from a similar arrangement of postholes, with the southern side of the building extending beyond the excavation limits (Figs. 32 and 46). There was no evidence for demolition rubble from this building, suggesting it may have been methodically stripped and re-used.

Two neonate burials, **27969** and **27629**, (Appendix 10) were located between the two structures and in a rough alignment with three postholes, **27195**, **27118** and **27345**, which may have represented a short fence line between the buildings.

Structure 10

Further to the west of Structure 9 and directly south of the metalled trackway, the north and east sides of a further possible stone-built building survived only as foundation trenches. There was no surviving evidence for western and southern sides, which may have been removed by subsequent truncation as the ground rises subtly to the west at this point (Figs 32 and 47). These foundation trenches overlay the western side of Structure 5 and were themselves truncated by a fourth-century robber trench, **27297**, suggesting the putative building was probably constructed in the third or fourth century AD. This would accord with the proposed dates for the other rectangular buildings on the site. The robber trench produced an oval-section hone with flattened edges (Appendix 8).

Associated with Structure 10 was a neonate burial, **27448**, positioned within the southern half of the footprint of the structure (Appendix 10). This produced sherds of a fineware carinated bowl of likely third-century date. Another neonate burial, **27390**, and an animal burial, **27395**, both truncated the northern foundation trench (Appendix 11). An animal burial pit, **27348**, in the northern half of the building is not securely dated. As with many other features on the site, this structure and all the burials were sealed under colluvium, which formed after the fourth century AD. Directly north of Structure

10, four more inhumations, **25176** (Plate 11), **25145**, **25166** and **25153**, aligned approximately east-to-west alongside the metalled track, also date from this phase (Appendix 10).

Structure 11

A poorly preserved sub-rectangular building footprint truncating the western side of Structure 4 (Figs. 31 and 48) was marked on its northern edge by a 0.4m-wide and 0.11m-deep foundation trench filled with fragmented limestone, while a remnant of a western foundation survived as a single, ill-defined line of stones. There was no surviving evidence of southern or eastern walls. A short length of internal wall, approximately 1.3m long by 0.4m wide and 0.2m deep, was also present, perpendicular to the north wall and positioned in the south-west corner of the structure. This internal wall was surrounded by an irregular spread of compacted chalk and mortar, which probably represented the remains of a floor surface, *26565*. Directly west of this internal wall and spreading over the western side of the building was a layer of demolition material *25117* (= *25125*, *25069*, *25938*, *25520*), which probably resulted from the final destruction or abandonment of the building in the fourth century. Finds from this layer included a fragment of a blue-green bottle of second or third century date (Appendix 4).

Structure 11 was associated with a cluster of neonate and animal burials. Neonate burials **26837**, **26829**, **25299**, **25223**, **26821**, **26844**, **26854**, **25243**, **25237** (Plate 12) and **25271** (Plate 13), as well as animal burial **25194**, would have been positioned under either the floor or walls of this building (Appendices 10 and 11). Directly north of the northern footing a further five neonate burials, **25148**, **25163**, **25231** (Plate 14), **25210** and **25200**, would have been placed directly outside the building. Burials **25231** and **25210** both had associated pottery, provisionally dated to the second and the third or fourth centuries respectively.

Rubbish pits

Late Roman rubbish pits were located across the site. Rubbish pits **26498**, **26454**, **26473**, **25284** and **27800** truncated the Phase 2 droveway at the western end of site and contained a mixture of discarded domestic waste and backfilled silt. They were located to the south of the metalled track and westwards of any of the recorded structures. This suggests that this area may have reverted to waste ground on the settlement fringe, and was either not suitable or desirable as agricultural land.

Large pit **27377** was located on the southern side of the trackway and probably represents casual waste disposal. An unusual pit, **27224** located directly south of Structure 6 (Figs. 33 and 45, Plate 8) measured over 4.9m long by just under 1m wide and 0.35m deep, and was cut into the metalled surface of the trackway, possibly as a deliberate trench to put the track out of use. The pit contained a large quantity of animal bone including cattle and horse (Appendix 11), some displaying evidence of skinning or butchery. The large assemblage of pottery dates the fill to the late fourth century AD (Appendix 2) and excavation of this feature may have been one of the last acts of the Roman settlement, effectively putting the trackway out of use.

Phase 5: Post-Roman colluvium development

The site appears to have been abandoned during the latter half of the fourth century AD, with the buildings either demolished or allowed to collapse. This abandonment was closely followed by a gradual build-up of colluvium washed downhill from the north and east and sealing the Roman remains. Colluvial layer *25042* (= *26944*, *26945*, *26959*) formed directly over the Roman settlement and incorporated many Roman artefacts, including an enamelled bronze brooch (SF 68), a bronze infuser (SF 70) and a bronze buckle (SF 115) a glass *tessera* (SF 63: Appendix 3) and a fragment of a glass beaker (Appendix 4). This first layer was then sealed by a second, thicker deposit of colluvium *25036* (= *53002*) measuring between 0.25m and 0.8m thick, with the layer thickest to the south and west. This layer also contained archaeological artefacts dating from the Roman period through to recent times, indicating a prolonged period of soil build-up.

Phase 6: Modern

Plots 103 and 104 were in an area known as Low South Field, presumably one of the open fields of medieval South Newbald. However, any evidence for medieval agriculture, such as ridge and furrow, would have been unlikely to have been preserved in the accumulating colluvial layers or to have survived modern cultivation and it is hardly surprising that none was recorded. The only features post-dating the colluvial deposition were modern field drains and plough scars.

Table 3: Structures, Rudstone Dale

Structure.	Cut numbers	Phase	Dimensions	Comments
1	26119, 25789, 25739, 25737, 25714, 25712, 26609, 26613, 29030	2	7m diameter	Roundhouse
2	31228, 31141, 31183, 31166, 31188, 31169, 31177	2	5.8m diameter	Roundhouse
3	34023, 34002, 34020, 10553, 10573, 10520, 10320, 10235, 34034, 10377	2	7m diameter	Roundhouse
4	25152	2	5.5m by 8m	Rectangular Foundation trench built, NW-SE
5	27403, 27346, 27478, 27462, 27053, 27496, 27090, 27120	3	9.4m diameter	Roundhouse
6	31008, 27852, 27888, 27849, 27824, 27828, 26906, 26905, 26902, 26947, 31007	4	8m by 11.5m	Rectangular, stone walled NE-SW
7	27000, 27001, 27002, 27003	4	3.6m by 4.9m	Rectangular post pads, NE-SW extends to south
8	27107, 27109, 27101, 27105, 27103, 27601, 27318, 27316, 27370, 27372, 27191, 27052	4	5.5m by 3.6m	Rectangular post holes, east-west
9	27193, 27163, 27070, 27165	4	3.5m by 11m	Rectangular post holes, east-west
10	53047, 27226	4	5.5m by 7m	Rectangular foundation trenches N-S
11	25217, 25212, 25215, 53021, 25084	4	7.5m by 8.5m	Rectangular foundation trench E-W

14.5 Discussion

Prior to the construction of the pipeline, the Rudstone Dale site was recorded as cropmark site (MHU4754), but the cropmarks were dominated by the palaeochannel and gave little inkling of the size and complexity of the site. This was the largest excavation site along the route of the pipeline and by far the most significant, containing remains certainly of regional and potentially national significance.

The site was first briefly utilised in the Neolithic period before being settled in the later Iron Age and continuously occupied throughout most of the Roman period, becoming an established roadside settlement similar to Shiptonthorpe (Millett 2006) and Hayton (Millett *pers. comm.,* 2009), further to the north. After the fourth century, the site was abandoned and colluvium deposited over the remains, probably from a combination of localised flash-flooding and the erosion of agricultural land higher up on the chalk scarp. The landscape appeared to have then remained relatively unchanged, probably reverting to pasture for much of the intervening time, although it is likely to have been part of the medieval field system of South Newbald. The current arable use of the land is likely to be a comparatively recent development.

Throughout the period of occupation of the site, environmental factors and transport networks appear to have been a major influence. An old streambed transects the site and may well have been an active water channel through the early prehistoric to Iron Age periods. The route of this channel was to influence all subsequent site development and could have been utilised as part of a network of watercourses linking the western side of the Wolds down to the Humber estuary.

In the earliest phase of activity, provisionally dated to the Neolithic or Bronze Age, a cluster of pits were excavated and backfilled near the northern edge of the site, just north of the channel. These pits contained large quantities of knapped flint and fragmented pre-Iron Age pottery. In addition, one of the pits also produced fragments of human bone, which may indicate a religious or ritualistic function.

No further early prehistoric features were present on the site, with the next phase of archaeological deposition occurring in the later Iron Age. By this period, the palaeochannel had probably mostly silted up, but would still have existed as a landscape feature. There are no distinctive early or mid-Iron Age remains present, and there seems to have been continuity of land use from the later Iron Age through into the early Roman period. This phase of occupation included linear boundary divisions, typically aligned north to south and respecting the alignment of the old stream bed. Curving enclosures were sporadically positioned along the site, and a droveway utilised near the western end of the site. This suggests a settlement with a pastoral based economy. Clusters of refuse pits were scattered within the enclosures, possibly marking domestic zones and disposal of food waste areas.

At the western end of the site a droveway, postholes and associated enclosures provide confirmatory evidence for the pastoral land use at this time. Isolated human burials near this droveway appear to be unrelated to any structures.

An unusual grave-shaped feature and three associated pits are also dated to this phase, positioned in the western side of the site. The grave-shaped pit contained an important find of a first century AD chatelaine, and had been rapidly backfilled, while the pits contained food waste and may relate to some form of replacement burial rite.

The first buildings and burials are noted in this phase, including several phases of roundhouse-style buildings, one of which included a central hearth, and associated pits. Human neonate and animal burials near the northern limit of excavation probably date from this phase. The human burials were located in or around the posthole structures and may well have been deliberately positioned under the structures, while the animal burials may result from some form of funeral rite associated with the human burials. There are three distinct groups of multi-phase posthole structures, burials and pits, which may demark the edge of a more substantial settlement north of the limit of excavation. All of these structures were in the eastern half of the site, north of the stream channel.

The first stone-built building was revealed further west of the posthole structures. Unlike the post-built roundhouses on site, this building had no associated neonate burials. However, an animal burial was located within the footprint of the building and an adult inhumation, probably from the same period, was revealed nearby.

A large quantity of metal-smithing slag was dumped into a boundary ditch in this phase, and while there is no evidence for a smithy on site, it may well have been located beyond the limit of excavation. It is likely that a settlement of this size would have had a capability to make and repair the tools and equipment necessary for the routine activities of the community.

By the second to third century AD, the track following the course of the silted-up channel now had a metalled surface. This track would have joined onto the major Roman road linking Brough on Humber to York, directly west of the site. To the east, this track would have probably followed the old stream course up through Rudstone Dale onto the higher ground of the Wolds.

Further land division took place in this phase, redefining the pattern to produce smaller enclosures. Corn dryers were first constructed on site at this time; an east-to-west aligned dryer being subsequently replaced by a north-to-south version, re-using the former stone-lined warming box. Approximately ten partial quern stones were retrieved either from features dating to this phase or to the third to fourth century; there were none from earlier deposits, suggesting food grinding and cereal processing was not a major activity on site until this period.

Another circular posthole structure was built in this period, positioned away from earlier buildings. This structure once again seemed to be associated with human and animal burials, including a cremation. Other discrete burials have also been provisionally dated to this phase, including a neonate and an adult burial placed near a line of postholes adjacent to the southern boundary of the metalled track. This may have represented part of a short fence line with the bodies placed deliberately alongside the trackway.

The later Roman period represents the most intensive development on the site, with an apparent linear settlement pattern developed over existing boundaries and enclosures, implying an intensification of land division. A series of narrow drains, positioned near the northern site boundary, may indicate the need for increased drainage of the site in the later Roman period.

This phase was dominated by building construction, with five further structures identified, positioned either side of the metalled trackway, three of them replacing earlier buildings. Building styles varied from post-built to stone-walled structures, with compacted chalk floors all typically sub-square. All of the buildings were associated with burials, with neonate burials typically positioned within the footprints of the buildings, or next to the walls. Adult burials were much rarer, and were deposited in a variety of positions including prone, supine and crouched. Animal burials also present near the buildings included lambs and cows and may have been related to the other burial acts. Several of the buildings had been robbed out after use, with only the foundation trenches remaining, and others showed evidence of demolition spreads, which may indicate deliberate destruction and removal of useful material at the end of the fourth century AD.

Also in this phase, a well near the centre of the site may have contained a wattle framework to support the upper part of its shaft. The well contained refuse from the third and fourth century in its upper fills, but may have been in use much earlier and deliberately put out of use in this later period.

The metalled trackway appears to have gone out of use by the fourth century, when a large trench was cut into it before being back-filled with butchered cattle and horse bones. This trench was positioned near one of the buildings and may have been related to the abandonment of the site.

The site appears to have been abandoned at the end of the fourth century AD, the act of abandonment possibly including the deliberate robbing out and destruction of any remaining buildings. Subsequent colluvium deposition suggests a change in the local environmental conditions and may indicate previously maintained agricultural land to the north-east was eroding down the hillside and covering the site. Later use of the site was limited and restricted to pastoral and arable agriculture.

14.6 Potential

Roman roadside settlements are well documented in Britain, including two located within 25km of the site at Shiptonthorpe (Millett 2006) and Hayton (Millett forthcoming). The site contains at least one phase of metalled road, the remains of eleven structures, seventeen burials of adults and children, fifty-six neonate burials and three cremations. In addition there are several features containing articulated animal remains, which may represent ritualised burial of animals such as lambs, cows and horses. Research and analysis into these key deposits is essential in understanding the site phasing and how this development compares with other roadside settlements in the region. Shiptonthorpe offers the most direct, nearby and published comparison to Rudstone Dale. Lying on the western edge of the Wolds in the eastern side of the Vale of York and adjacent to the Roman road from Brough-on-Humber to York, Shiptonthorpe is a well-documented Roman roadside settlement with strong agricultural ties and as with Rudstone Dale lies adjacent to now extinct water courses. The settlement patterns are also broadly similar with the Roman remains aligned roughly along a linear route with branching enclosures containing buildings, wells and notably burials, adult, neonate and animal. It is the large numbers of neonate burials associated with buildings which perhaps best illustrates the similarity between the two sites and the usefulness in comparing the datasets. Whilst Hayton is yet to

be published, early indications are that it will provide a similar settlement pattern and related burials (Millett *pers comm*. 2010).

In addition to the concentration of Roman material, there was a cluster of prehistoric pits present on site, tentatively dated to the early Neolithic based on worked flint, which may represent a temporary camp site near the palaeochannel which bisects the site. Analysis of the prehistoric pottery recovered from these features will refine the phasing and may indicate a Bronze Age date, which may be more expected than Neolithic. Evidence for early prehistoric land-use is limited from the rest of the pipeline, making this aspect of the site worthy of further study.

The local environment played a major role in the development of the site and later abandonment. A large palaeochannel traversed the length of the site, forming a natural boundary and routeway in prehistory. Accurately dating when this channel was active will be important in understanding whether the channel was still open in the later Iron Age or whether it had already silted up.

The fired clay assemblage has the potential to add to the interpretation of the site by providing evidence for textile-working, and for possible domestic ovens associated with the structures. In order to obtain the optimum information, further stratigraphic analysis with relation to the fired clay assemblage from these sites is necessary. For example the fired clay from kiln or oven **10200** was retrieved from two separate samples, 451 and 466. Should these indicate that they come from distinct areas of the structure, it would supply further information about the form and mode of operation of the oven. Part of a loomweight was recovered from a floor surface, which is of interest as this may represent primary deposition, with the object potentially abandoned within its last place of usage. Additional information regarding site formation processes may also be gleaned by examining the contextual distribution of re-fitting loomweight sherds.

The Roman tile and brick from this site merits further work and the resulting archive should be fully integrated with the pottery and fired clay reports as well as the final phased site report. Further fabric identification of the Roman tile and brick should enable a cross-site comparison to take place, as well as providing the means to compare the assemblage to other settlements in the area and the potential production site on the nearby Easington to Paull pipeline (Allen Archaeological Associates 2008).

The site seems to have had access to fully Romanised wares in varying amounts from soon after the Roman conquest of the north, around AD 71. The most eloquent illustration of this is the presence of rusticated ware, which is not only closely datable, to around AD 70 to 130, but which usually suggests early contact with Roman institutions such as the army. Some twenty-nine sherds of this ware were present in the site assemblage. By and large, the assemblage suggests a site enjoying access to good quality Roman ceramics by virtue of its roadside location in the hinterland of Brough. Much material is local and regional, especially in the third and fourth centuries, with coarsewares supplied largely by the Holme upon Spalding Moor industries, though vessels from South Yorkshire and Lincolnshire are also noted. Further study, especially of the mortaria and colour-coated wares, has the potential to refine this picture and to suggest more distant sources of material. The site has the potential, perhaps together with closely adjacent sites 106 and 107, to provide a 'key' pottery sequence to represent those from roadside settlements in the south of eastern Yorkshire, and to provide useful comparison with those from sites further north at Hayton and Shiptonthorpe (Didsbury, Appendix 2).

Plots 103 and 104 produced two-thirds of the animal bone assemblage recovered from the entire pipeline. Initial observations of the abundances of identified taxa suggest that the site was predominantly based upon a sheep or goat economy. Cattle were well represented, while pig, domestic fowl and several wild species also contributed. The assemblage contained a large number of articulated skeletons, some in formal burials. Further analysis of the depositional contexts and associated artefacts may provide further information on the underlying activity, perhaps an unusual farming practice or a ritual activity such as funerary feasting.

Apart from sheep, cattle and pig, there is very little evidence for the exploitation of other animals, with minimal numbers of chicken, wild bird, fish and shellfish among the remains. The preservation conditions may be a factor from some of the contexts, but many contexts have bone in good condition so the absence of these groups cannot be entirely attributed to preservation.

A large number of the context groups recovered from plots 103 and 104 appear to represent large butchery and food waste dumps, such as the butchery dump from pit **27333**, represented by a large quantity of disarticulated cattle and equid remains, including approximately ten cattle skulls.

Apart from the animal burials, the assemblage appears to represent domestic food and butchery waste. Analysis by phase would allow any striking variation within the remains to be assessed. The remains should also be analysed in accordance to spatial arrangement and feature type to assess the potential for activity zones.

There is a dearth of studied skeletal remains in the area for the period, and the quantity of remains recovered from the Ganstead to Asselby Pipeline provides an excellent opportunity to further our understanding of the late Iron Age and Romano-British rural populations of East Yorkshire. This also provides an additional opportunity to analyse inter-site variability between contemporary sites along the route of the pipeline. Most contemporary animal studies within the area are from relatively small samples from multi- period sites, such as the sites at Ferrybridge (Brown et al 2007), Melton and Easington (Richardson 2007). This scarcity of larger assemblages renders more valuable the information on the range and proportions of species exploited by the contemporary population which analysis should provide.

A variety of burial practices were used on the site; further studies of the variation of burial position, with any evidence of ritual and the apparent associations with buildings and roads, may help provide further information on the funerary practices undertaken. Refinement of the phasing and, where necessary, radiocarbon dating should show whether differences in burial practice changed through time. Further examination of the skeletal material has the potential to provide information on demography and health of the late Iron Age to Roman rural population of East Yorkshire.

It is unusual for such a large assemblage of well-preserved neonate burials to be recovered outside of a formal cemetery, or indeed at all, because small, not yet fully calcified infant bones, often in shallow burials, normally deteriorate quickly. The size and preservation of this assemblage allows the hitherto unique opportunity to study infant mortality in a late Iron Age to Roman rural context. The burial of neonates in such large numbers raises questions about funerary practices, infant mortality and the suggestion of possible infanticide, which is often considered to have been commonly practised in the Roman period (Mays 1993, Watts 1989).

The size and preservation of the neonate assemblage makes it ideal for DNA analysis, the main focus of which would be to assess sex bias in the neonatal population, sex selection having often been suggested as a motive in infanticide. DNA studies have not as yet, been well utilised in British archaeological material. Currently, only two site assemblages have been completed on Romano-British neonatal material, focusing on small sample sizes, with limited success (Mays and Faerman 2001). Recent advances in DNA studies are continually increasing the success rate of DNA extraction (Dr R. Dixon, *pers. comm.*). Successful DNA extraction would also provide the possibility for establishing kinship among the Rudstone Dale population.

In addition, the good survival of unerupted tooth crowns provides an excellent opportunity to look for the neonatal line within the teeth. Studies by Smith and Avishai (2005) have shown that hiatus in growth of the tooth crown occurs due to the trauma of birth, which forms a discernable line in thin section, referred to as the neonatal line. The study of the presence or absence of the neonatal line in this large population of neonates might provide further evidence as to whether the deaths occurred through natural causes or the practice of infanticide.

It is recommended that the dates of the early prehistoric pits are carefully considered, including radiocarbon dating to determine if they are early Neolithic, as seems likely. However, if these pits are later in date it will still be necessary to consider where the flintwork originated, as this area of the site clearly represents a significant focus of early prehistoric activity.

There is good botanical data for investigating the economic basis of the settlement with the charred plant remains having the potential for the investigation of various aspects of crop husbandry and the nature of crop-processing activities taking place on the site and the possible areas within the site of such activities. It may also be possible to examine changes in crop husbandry over time between the pre-Roman and Roman periods and also within the Roman period itself. The economic data may be usefully compared with other sites along the pipeline.

The three large charcoal assemblages may provide background information on the range of species being exploited as fuel in the late Iron Age to early Roman period and in the Roman period. The charcoal from the third- or fourth-century corn-dryer may provide additional data on the range of woodland taxa exploited in the later Roman period and specifically as fuel for the corn-dryer; this evidence may also contribute to landscape reconstruction over time.

The small mammalian bone assemblage recovered from environmental samples is interesting in that it shows a relatively high number of house mice and the occurrence of black rats. Both these species tend to live in buildings in this country, although the climate in the Roman period is believed to have been milder than today. Their high density suggests a settlement of several buildings, possibly in fairly close proximity to each other. The consistent occurrence of hammerscale in most samples might support the suggestion of a relatively high density settlement, with craft or industrial activities perhaps on a permanent rather than itinerant basis. Finally the occurrence of charred cereal grain in 94 per cent of the samples is a high incidence on a rural site, further supporting the suggestion of a relatively high settlement density. A relatively substantial roadside settlement might be proposed on this evidence.

The site has yielded a number of human and animal burials and cremations. Apart from the obvious implications of the spatial consideration of these finds, the cremated and inhumed animal burials need to be considered as a possible expression of ritual behaviour, and the animal remains from the samples re-united with any bone material hand-recovered from the same features.

There has been very limited survival of evidence that can be used to reconstruct the local environment. The snail assemblages have given an indication of an open grassland environment around the settlement, with the incidence of field vole supporting this, but apart from this and what the charcoal and perhaps some of the charred weed seeds might reveal, evidence is absent. The snail fauna do vary slightly across the few samples worthy of study and may expand the current interpretation with quantified assemblages.

Several sites along the pipeline route lie on quite different terrains and soils. A number of these sites date to the Roman period and afford an opportunity to compare the agriculture of a series of contemporary sites in the same region but lying on different soils. Plot 104 is one of the richest of these and will give a good body of data for comparison with other sites on the route.

Consideration of the distribution of hammerscale, prill and metalworking slag across the site shows at least two foci of activity. Spatial analysis of this distribution and scientific analysis of the metalworking debris could identify the locations of smithies and help in the understanding of the nature of metalworking technology applied on site.

The site produced the largest assemblage of registered finds, including a number of personal effects such as glass bangles, bronze brooches, bronze rings and jet pendants. Interesting discoveries from this site were two artefacts typically associated with the Roman military; a bronze belt slider and a bronze military belt buckle. A bronze chatelaine recovered from an apparently empty grave is also of interest, containing a mixture of personal hygiene tools, such as tweezers, and decorative items including a

pendant, glass bead, brooch and dangler, attached to a suspension ring. Fragments of bronze plate recovered with the chatelaine may be part of a corroded implement formerly attached to the ring. In addition to providing information on the date and nature of their archaeological contexts, these finds are of intrinsic interest and their full description and illustration will contribute to studies of the development of the various artefact types.

The remainder of the registered finds assemblage included a variety of less important artefacts typically found on Roman sites: nails, tacks, bars, fragments of metal plates, sheets, and low quantities of casting waste from on-site metalworking.

This site also produced by far the majority of the Roman coins recovered along the pipeline route. With the exception of one second century coin, the assemblage is entirely composed of relatively low value bronze coinage dating to the third and fourth century AD, corresponding to the floruit of habitation along the Roman road.

As with every other Roman site uncovered along the route, there is no evidence for continuation of the settlement after the fourth century. Indeed, the apparent deliberate destruction of the metalled road surface in the fourth century suggests a degree of isolation was being sought by removing a viable transport link. Further study of why these sites decline and appear to have been abandoned after the fourth century is essential in understanding the wider context of the late Roman period in East Yorkshire and beyond.

14.7 Recommendations

- Documentary research into Roman roadside settlements in the East Yorkshire region and nationwide, with particular comparisons with Shiptonthorpe and Hayton.
- Comparison of this site with other rural settlements along the pipeline and within the region.
- Documentary research into prehistoric pit clusters within east Yorkshire.
- Radiocarbon dating of hazel nutshells and spelt wheat grains from the prehistoric pit cluster.
- Inclusion of an analysis of the flint from site within the publication text.
- Scientific dating of the sediments within the palaeochannel to understand its sequence.
- Analysis of the in-death age profile of the adult human remains to provide demographic data.
- Analysis of pathology prevalence rates for the human remains in comparison with known data for the period.
- Analysis of human remains in context with associated artefacts and archaeological features to try to establish possible ritual behaviour, including the potential association of neonates and infants with domestic buildings.
- Analysis of cremated human remains in context with associated artefacts and environmental evidence to try to establish possible ritual behaviour.
- Comparison of the results of the analysis of human remains with contemporary local and national examples where possible.
- A study of infant mortality utilising age at death profiles, DNA analysis, natal line presence or absence and possible further avenues for kinship studies, depending on the success of initial analysis.
- Radiocarbon dating of selected human remains to confirm dating of burials
- Analysis and discussion of key pottery groups.
- Integration of pottery data with fired clay assemblage.
- Specialist identification of six sherds of amphora.

- Specialist identification of forty-three sherds of mortarium.
- Specialist identification of 746 sherds of prehistoric pottery.
- Specialist identification of seventy-eight sherds of samian ware.
- Illustration of up to 350 pottery vessels.
- Analysis of animal remains by phase, spatial arrangement and feature type.
- Integration of the animal remains from possible feasting deposits and ritual burials with other artefact evidence, particularly registered finds, pottery and human remains.
- Identification, assessment and integration of faunal remains recovered from environmental samples.
- Illustration, study and discussion of twenty-five registered finds of regional or national interest, including a possible iron brooch, an iron fitting, a possible iron scabbard slider, an iron flesh hook, a copper alloy infuser, a copper alloy military buckle, a copper alloy decorative plate, a copper alloy earring, three copper alloy bracelets, two copper alloy brooches, a copper alloy fastener, two jet pendants, a possible jet spindle whorl, two bone combs, a bone dress pin, a glass bracelet, a glass tessera, a glass bead and two glass vessels.
- Conservation, cleaning, illustration, study and discussion of nine registered finds of regional or national interest. These include the copper allow chatelaine from unused grave **27265**, comprising suspension ring, tweezers, pendant and dangler along with a copper alloy penannular brooch, assemblage of copper alloy sheet fragments and a glass bead, from the same feature, as well as a copper alloy plate and an iron tool.
- Illustration and discussion of 26 registered finds of local or regional interest.
- Discussion, in short notes, of 116 registered finds of local interest.
- Specialist identification of ten registered finds of processing waste by a metallurgist.
- Tabulation and referencing of 51 registered finds, including all of the coins.
- Documentary research into Roman rural ovens and craft sites.
- Publication of the fired clay assemblage including oven fragments and loomweights.
- Illustration of ten fired clay objects.
- Fabric identification of selected brick and tiles and comparison with known sites.
- Integration of CBM data with pottery and fired clay assemblages.
- Scientific analysis on the metal working debris and integration with data from other known sites.
- Sorting and identification of the cereal and weed seed assemblages from the oven or kiln fill *10315* and pit fill *10389*.
- Basic recording of other samples for basic data on crop husbandry and for comparisons with other sites.
- Identification of suitable charcoal fragments from fill *10315* in oven or kiln **10200** and two other charcoal-rich assemblages from fills *10388* and *10389* in pit **10387** and fill *10204* in ditch **10205** for information on the local woodland habitat and the range of species used as fuel for the oven.
- Further study of the snail assemblages from the Iron Age and Roman ditches.
- Specialist identification to species of the probable rat bones, to include comparison with post-cranial remains of juvenile black rats and water voles.

- Processing of an additional twelve samples located near cereal-rich features with any resulting important assemblages recovered to be analysed along with those discussed below.
- Full analysis of the charred plant assemblages from 26 samples containing high item frequency of identifiable remains, together with a record of species presence from the assessments of the other flots containing smaller amounts of material.
- Spatial analysis of the charred plant remains in order to try and recognise any structure or pattern of use across the settlement.
- Identification of the charcoal fragments from three charcoal-rich assemblages, samples 1042, 1076 and 1321; the charcoal from the corn-dryer backfill, which contained a large cereal assemblage, and any charcoal from the unwashed corn-dryer samples 913 and 1316.
- Specialist identification of the cremated human bone assemblages and any individual fragments recovered from samples, and their inclusion with the human remains analysis.
- Integration of the animal burials and possibly cremated animal bone with the hand-collected material.
- Specialist identification of a single unidentified fish vertebra.
- Specialist identification and analysis of the snail shells from twelve samples.
- Spatial analysis of hammerscale density in all the samples combined with the plotting of the slag to assess the likely location of any smithies on the site.

15 PLOT 106, SOUTH NEWBALD

Central NGR: SE 9094 3490
Civil Parish: Newbald
Total area of excavation: 2298m^2
Figures 5, 51, 52

15.1 Summary

Two possible square barrows, one wholly within the excavation area, and a second partially exposed, were investigates along with a group of pits, possibly of prehistoric date. The fully exposed square barrow truncated earlier linear features. A Roman pit and a possible post-built structure were also revealed.

15.2 Location, topography and geology

Plot 106 was a rectangular field running along the western side of the A1034 South Cave to Market Weighton Road, 800m to the south of the hamlet of South Newbald (Fig. 5). The plot is on the other side of the road from plot 104, described in the previous section.

Although the general trend of the land is dropping down from the chalk scarp of the Wolds towards Hotham Beck, the pipeline route rises to the west across this field as it obliquely traverses the gentle northern slope of the dry valley of the lower part of Rudstone Dale. The eastern side of the field, adjacent to the road, is at a height of 45.5m OD, while the ground surface of the excavation area, after removal of topsoil, rose from 49.7m at its eastern limit to 53.50m at its western end. The chalk scarp of the Wolds starts to rise steeply 700m to the east of the site, with the land reaching a height of 136m OD within 1.5km.

Rocks of the Lincolnshire Limestone group underlie this area: oolites of the Cave series with possible siltstones of the underlying Raventhorpe Beds and Kirton Cementstones in the lower parts of the site. There may also be patches of glacio-fluvial sands and gravels (BGS 1995). The soils are classified in the Aberford Association: shallow, locally brashy, well-drained calcareous fine loams (SSEW 1983: 511a). The present day soil quality is high, designated as Grade 2 for agriculture (MAGIC).

In the excavation area, the features were cut into a natural deposit described as yellow coarse sand, with ironstone chalk grits, *10632*, directly underlying the greyish chalky silt ploughsoil, *10633*. In the evaluation trenches and in subsequent machine-dug sections, this could be seen to be overlain at the eastern end of the site by light brown chalky silt colluvium, *10631*, consisting of a paler upper layer, *10637*, and darker lower layer, *10638*, together up to 1.5m thick. Underlying this in the centre of the plot, a 0.2m-thick dark brownish grey silt layer, *10678*, was seen in the pipe-trench but could not be excavated because of its depth. It was seen to contain at least one snail shell and may have been a relict soil horizon.

15.3 Archaeological background

The excavation area was around 300m to the west of plot 104, which revealed a major Roman roadside settlement and burial groups, and the archaeological background described in the previous chapter applies equally to this site. Perhaps more relevant to this site, and to the Gaylands site in the adjacent field to the west, the SMR lists a possible Bronze Age round barrow (MHU8242), 200m to the north-west in the northern part of plot 106.

Conditions for fieldwalking, undertaken in early April 2005, were good, with a germinating crop barely impeding ground visibility. Three sherds of medieval pottery were recovered from the eastern half of the plot and a single struck flint from close to the western field boundary, along with quantities

of post-medieval and modern finds (Burton 2005b). The geophysical survey detected only a few inconclusive magnetic anomalies in this plot (Bartlett 2005).

Two evaluation trenches were opened, in the second week of March 2006, positioned close to the eastern side of the plot, to investigate the possibility of development alongside the Roman road (MHU63). Both trenches were archaeologically sterile.

In early April, the watching brief on topsoil stripping located two possible barrows in the western half of the plot. This part of the site was stripped of topsoil under close archaeological supervision, and the site was excavated between 16 May and 4 June 2006.

By the time that the excavation was underway, the importance of the site across the road, in plot 104, had become clear. Investigation of the colluvial layers, previously noted in the evaluation trenches, was therefore undertaken to determine if there were archaeological deposits buried beneath them. A machine-dug sondage was opened in the eastern part of the field on 2 June 2006 and subsequently an 83m-long, 5m-wide and 2m-deep stepped trench was opened along the pipe centreline. These, along with the watching brief on the excavation of the pipe-trench itself in late June, confirmed the presence of deep colluvial deposits overlying the limestone bedrock in the eastern half of the field, but did not reveal any archaeological remains.

15.4 Site description

The bulk of the archaeological remains were located on the higher ground near the western field boundary, with a single large Roman pit at the eastern end of the excavation area.

Phase 1: Prehistoric

Two small linear features, gully **10667** (= **10653**), which curved gently from the north-west to the south-east, and gully **10629** (= **10640**, **10655** and **10657**), a more sinuous feature running from the southern site margin to the north-east, terminating next to a small posthole, **10643** formed a broad Y-shape, meeting at the point where gully **10629** turned sharply to the north-east (Figs. 51 and 52). Both were shallow, with irregularly cut sides, and were filled with a sterile natural silt. Although undated, they were stratigraphically earlier than the probable square barrow in Phase 2.

Pit **10645** was an irregular feature near the southern edge of excavation and contained a single sherd of pre-Iron Age pottery (Appendix 2).

Phase 2: Mid- to late Iron Age

Structure 1

The most notable feature in this phase was a 0.7m-wide, 0.4m-deep ditch completely enclosing a sub-square, seemingly blank space (Figs. 51 and 52; Plate 15). This feature resembles a truncated square barrow. If this interpretation is correct, the mound and likely central inhumation would presumably have been lost to ploughing in the intervening centuries. Artefacts recovered from the ditch include twenty-eight worked flints dating from the Neolithic to early Bronze Age and handmade pottery of a probable Iron Age date, with one sherd of late Bronze Age to early Iron Age pottery also present (Appendices 1 and 2).

Structure 2

North-west of the possible square barrow, the southern arc of a probable annular or penannular ditch, **10600**, extended from the limit of excavation (Figs. 51 and 52). This ditch was 0.9m wide but only 0.26m deep, again suggesting a high degree of truncation. The ditch would be very wide for a roundhouse structure, and is more likely to represent a small enclosure or another truncated barrow.

Phase 3: Medieval

A single medieval pit, **10659**, was located between Structures 1 and 2 (Figs. 51 and 52). This pit was cut from a higher level than any of the other features on the site, which were sealed beneath a thin layer of subsoil. It had irregular sides and contained backfilled loose natural silt, which included a sherd of twelfth- to thirteenth-century pottery (Appendix 2) and a sherd of post-Roman glass (Appendix 4).

Unphased Features

Structure 3

A group of postholes, **10671**, **10651**, **10649**, **10661** and **10669**, located near the southern edge of excavation, appeared to form a rectangular structure (Figs. 51 and 52). This structure would have incorporated the Phase 1 pit **10645** within its footprint. The rectangular form is reminiscent of a later Roman post-built building and two sherds of third- to fourth-century pottery, *10675* (Appendix 2), were recovered during topsoil stripping in this area of the site but it is otherwise undated.

Two discrete postholes, **10663** and **10665**, were positioned approximately 5m apart in a north-west by south-east alignment between Structures 1 and 2 and may represent the truncated remnant of a fence line. Other unphased features included a scatter of sub-square and sub-rounded pits all located near the structures. These pits included **10602**, **10604**, **10607**, **10609**, **10647** and **10677**. All contained fills of natural chalk fragments and silt, suggesting that they were rapidly backfilled, and produced no evidence for domestic waste disposal. The northern terminal of a ditch, **10673**, protruding from the southern edge of excavation was similarly filled by a mixture of naturally accumulated silt and redeposited chalk fragments.

A very large, square, pit, **10634**, was located at the eastern end of the excavation area, within 140m of the Roman road (Figs. 51 and 52). This pit measured 3.7m by 2.8m and was 0.82m deep. It was backfilled with silt and chalk fragments. The pit contained worked flints of broadly Neolithic to early Bronze Age date (Appendix 1); however, two sherds of late Roman pottery and an iron nail were also recovered suggesting the pit was a later feature incorporated intrusive material.

Table 4: Structures, South Newbald

Structure	Cut numbers	Phase	Dimensions
1	10610, 10619, 10615, 10622, 10613, 10617, 10624, 10611, 10626	2	6.6m by 7.2m
2	10629, 10667, 10653, 10657, 10640, 10643, 10600	2	*9m by 9.2m* (extrapolated)
3	10671, 10651, 10649, 10661, 10669		8m by 4.4m

15.5 Discussion

The most important features from this site were the two ditched structures. Structure 1 was positioned wholly within the stripped area and was therefore subject to the more detailed excavation. This feature contained worked flint dated to the Neolithic to early Bronze Age as well as pottery sherds dating from the late Bronze Age to Iron Age, providing a broad date range.

Both of these features resemble square-barrow ditches, with the central mound and associated inhumations missing. Dent's study of Iron Age cemeteries in the Yorkshire Wolds (1982, 446) indicated that early square barrows tended to be over 5m in size with a shallow central burial, while later barrows were smaller than 5m with a much deeper central burial. On this basis, both of the features at South Newbald would fit Dent's early square barrow development and would broadly date from around 500 BC to 100 BC. The relative shallowness of the ditch probably indicates a high level of truncation, which would have removed the mound, associated shallow burials and any votive deposits through centuries of ploughing. Radiocarbon dating of material derived from the square ditches will be essential for characterising these features and understanding their development.

Features of the earlier phase include two gullies which could, perhaps, form part of an early field system, suggested as dating to the Bronze Age to early Iron Age. This field system would likely have involved ditch and low bank boundaries, possibly with a hedgerow or fence positioned on the bank. They would have defined areas of pasture and settlement boundaries as well as acting as surface drains.

Pit digging was common, and while pit form varied, they were almost uniformly backfilled with natural silt and clay and few artefacts, perhaps indicating placement of organic material, which has not survived in the archaeological record.

Roman remains are surprisingly sparse given the proximity to the Roman road just to the east of the site and the roadside settlement and burial groups on plots 103 and 104 beyond the road, but it is possible that the post-built rectangular building against the southern site margin may date from this period. A single medieval pit does not suggest major land-use at this time and perhaps represented casual waste disposal in an open field. The nearby Roman road would still have been in use at the time.

15.6 Potential

The South Newbald site contains a number of features believed to date to the prehistoric era, including two potential square barrows and possible fragments of field systems. One of the barrows contained worked flint, pre-Roman pottery and a well preserved snail assemblage. Square barrows are typical of the Wolds region, and generally date to the mid- to late Iron Age. Further investigation of this form of monument would allow an informed narrative to be undertaken as part of the analysis and publication. The predominantly calcareous soils in this area have preserved an important snail assemblage that, if securely dated, could provide information on the local landscape in the Iron Age and Roman periods.

15.7 Recommendations

- Documentary research on Iron Age and earlier field systems within East Yorkshire, including examination of aerial photographs to try and identify any further fragments of the field system pre-dating the barrows.
- Documentary research on comparative square barrows within the region.
- Radiocarbon dating of three samples from the more complete square barrow.
- Detailed analysis of the snail assemblage from both the square barrow and late Roman pit **10634** to provide evidence for the changing local environment.
- Specialist examination of the prehistoric pottery from the square barrow and prehistoric pit **10645**.
- Analysis and discussion of the flint assemblage with illustrated examples.

16 PLOT 107, GAYLANDS

Central NGR: SE 9082 3493
Civil Parish: Newbald
Total area of excavation: 1928m^2
Figures 5, 51 to 53

16.1 Summary

The most significant feature on this site was a possible Iron Age square barrow, which truncated an earlier linear feature. Numerous solution hollows were also noted, some of which produced useful evidence of the post-glacial environment.

16.2 Location, topography and geology

The pipeline route crossed the southern part of plot 107, a large irregular field created by amalgamation of smaller units, so that it borders both the A1034 south of South Newbald and the minor road between South Newbald and Hotham, between Gaylands Farm and Southfield Farm (Fig. 5).

The eastern part of the pipeline route through the plot was on fairly level ground at around 53.5m OD, but the land then sloped gently to the west, to around 46m OD at the boundary to plot 108. The higher land overlies Cave Oolites of the Linclolnshire Limestone group, while the western part of the field is on siltstones of the Ravensthorpe Beds or Kirton Cementstones (BGS 1995). The soils in the area are described as shallow, locally brashy, well-drained fine calcareous loam soils, of the Aberford Association (SSEW 1983: 511a). Soil quality is high, designated as Grade 2 for agriculture (MAGIC).

During excavations, the underlying solid geology was described as cornbrash and was sealed by glacial grey clay with occasional calcareous inclusions, *52002*. This layer was overlain by a subsoil of pale orange-brown fine silt with chalk inclusions, *52001*, which sealed the archaeological deposits, with the exception of ditch *50232*. The ploughsoil was friable mid-brown silt, *52000*, up to 0.45m thick.

16.3 Archaeological background

The excavation area was in the eastern part of the plot, adjacent to the plot 106 excavation area described in the previous section, and the two excavation areas could be considered as part of a single site. However, the circumstances of their discovery and excavation were different and the distinction between them made during the fieldwork stages has been maintained through the assessment stage of work. The archaeological context of the two sites is, however, similar.

Fieldwalking was carried out in early April 2005, when the eastern half of the field was newly ploughed and the western side had a germinating crop; ground visibility was described as being good in both parts, but it is notable that there was a higher concentration of finds recovered from the western half, and it is likely that harrowing and weathering had increased the visibility of finds in this part of the field. A single piece of struck flint was recovered from the centre of the plot, but otherwise the finds were post-medieval, modern or undated.

The geophysical survey noted a possible curving ditch near the eastern edge of the plot, forming, with an adjacent anomaly, an almost complete ring. There was raised magnetic susceptibility throughout the plot.

A single evaluation trench, 20m long by 8m wide, was opened, in early March 2006, positioned over the geophysical anomaly, and it quickly became apparent that significant archaeological deposits were

present. A controlled strip of the eastern part of the pipeline easement was then carried out, followed by full area excavation.

16.4 Site description

The excavation area for plot 107 was 93m long by 20.5m wide, but the significant archaeological remains were largely limited to the eastern end of this area.

Phase 1: Prehistoric

Solution hollows were recorded throughout the site. These hollows probably formed prior to human occupation of the landscape, although they may well have existed as natural depressions into the prehistoric period and have therefore been placed in this phase. A selection of hollows were excavated and sampled: **50464**, **50319**, **50160**, **50021**, **10785**, **50448**, **50452**, **10779**, **50416**, **50450**, **50502**, **50494**, **50496**, **50408**, **50410**, **50438**, **50440**, **52005**, **50454** and **50394** (none shown on plan). Artefacts were only recovered from hollows **50448** and **50454**, which both contained single worked flints (Appendix 1) and hollow **52005**, which contained a single sherd of Roman pottery (Appendix 2). However, a well-preserved land snail assemblage was recovered from samples from the hollows, which indicated they were still open after the last Ice Age (Appendix 13).

Other features placed in this phase included ditch **10732** (= **10734**, **10728**), which was located near the eastern site margin and contained a sequence of naturally accumulated deposits (Figs. 51 and 52). These were largely devoid of artefacts, but small quantities of fragmented daub and a fragment of unidentified heated residue were recovered from an environmental sample. These small fragments do not aid in dating the feature and may have been no more than waste from a small fire. This ditch was subsequently truncated by Structure 1, positioned directly over it. As structure 1 represents a probable square barrow, this would suggest ditch **10732** is likely to be no later in date than mid-Iron Age.

Pit **10724**, directly to the east of ditch **10732** (= **10734**, **10728**) was also truncated by Structure 1 (Figs. 51 and 52). This large, deep pit contained a backfill of loose silt and medium to large sub-rounded stones. None of the stones had been heated or displayed any sign of being altered, and may have been the remnant of previous land clearance, stone being dumped in a convenient open feature. A small pit, **10706**, located just to the east of Structure 1, had a shallow, scooped profile. This pit was backfilled with mid-brown sandy silt with frequent stones, a similar fill to that of pit **10724**.

Phase 2: Mid- to late Iron Age

Structure 1 was a sub-square ditched feature located near the eastern side of the site. This large feature was formed from a wide, shallow ditch and had no internal features (Figs. 51 to 53). The ditch fill appeared to be a natural accumulation of silt with few artefacts. Recovered finds included twenty-nine pieces of worked flint broadly dated to the Neolithic or early Bronze Age and four small sherds of hand-made pottery, likely dating to the Iron Age (Appendices 1 and 2). If this feature was a square barrow ditch, its shallow depth would imply a high level of truncation that would have removed any associated mound and burials.

Phase 3: Medieval and later

The corner of a narrow, rectilinear ditch, **50232**, visible against the southern edge of excavation, contained a loose fill of silt and clay. Pottery, including thirteenth- to fourteenth-century orange ware, post-medieval clay pipe and discarded animal bone were all recovered from it.

Table 5: Structures, Gaylands

Structure	Cut numbers	Phase	Dimensions
1	10720, 10714, 10722, 10716, 10700, 10702, 10704, 10730, 10708, 10710, 10712, 10714	3	11m by 11.2m

16.5 Discussion

The presence of the snail shell assemblage suggests that the solution hollows may still have been open in the post-glacial period. Two of the hollows contained worked flint, which indicates a low level of Mesolithic activity on the site. If these natural features were still open at this time, they may well have been used as working hollows. The single Roman sherd is likely to have been intrusive, introduced into the fills of feature **52005** as a result of animal disturbance.

The earliest anthropogenic features were a ditch and two pits positioned near the eastern side of the site. These showed no evidence for nearby domestic occupation and they may represent a prehistoric boundary, with pits dug close by. The large quantity of unmodified stone dumped in these pits may well be the result of disposing of unwanted stone from land clearance, typically heaped against the field margin. The orientation of this boundary was very similar to that of gully **10667** in plot 106 and it is likely that they were part of the same system of land division.

The most significant feature was the sub-square structure. It is a very similar feature to Structure 1 on plot 106, immediately to the east. At over 11m across, it would similarly fit into Dent's earlier phase of barrow building, assuming that it had been heavily truncated by ploughing and soil erosion. This phase of barrow construction is thought to date from the period after 600 BC (Dent 1982, 446). The finds, worked flint as well as hand-made Iron Age pottery sherds, would be consistent with this date. The earlier phase of square barrows tended to be larger, with shallow central inhumations, leaving them more vulnerable to truncation from subsequent agricultural practices, and modern deep ploughing in particular likely to have removed any remaining traces of mound and burials.

A curving ditch near the southern margin contained material from both the medieval and post-medieval periods and possibly represents a minor agricultural feature. A drainage gully around the site of a hayrick was suggested by the excavators as a likely interpretation of this feature.

16.6 Potential

Further analysis of the flintwork and snail assemblage from the solution hollows would clarify when these are likely to have been active features and would provide an insight into the local early prehistoric landscape. Fragments of a field system were present, which may be related to those discovered on plot 106. The dumped stone within the fills of the prehistoric features may be related to field clearance, and further research on prehistoric field clearance in East Yorkshire would allow for a more comprehensive synthesis of the prehistoric remains from the pipeline.

Radiocarbon dating of samples from the potential square-barrow would contribute significantly to a wider study of such features along the pipeline route and, more generally, to an enhanced knowledge of the distribution, development and morphology of this regionally important monument type.

16.7 Recommendations

- Documentary research on prehistoric field systems and land clearance in East Yorkshire.
- Examination of aerial photographs to try to identify any further fragments of the field system which predates the barrows
- Documentary research into square barrows within the region.
- A review of all apparently natural features, currently recorded as glacial.
- Analysis of the snail assemblages from the glacial features open in the early prehistoric period and from the potential square barrow.
- Radiocarbon dating of up to three samples: two from the potential square barrow and one from the underlying ditch.
- Analysis and discussion of the flint assemblage with illustrated examples.

17 PLOT 117, HOTHAM BECK

Central NGR: SE 8962 3504
Civil Parish: Hotham
Total area of excavation: 35m^2
Figures 5, 54

17.1 Summary

Excavation of a reception pit for a bored section of the pipe revealed several linear features and pits dated to the Roman period, masked by superficial deposits.

17.2 Location, topography and geology

Plot 117 lay to the west of Twin Beck and a 35m-wide belt of woodland, drained by several small rills, on the western bank of the beck. The excavation area was 500m north of St Oswald's Church, Hotham (Fig. 5).

The small excavation area was located at the eastern boundary of the plot, a rectangular pasture field between the beck and Denton Lane, the bridleway which runs north from the church. The land rises from around 26m OD to 36m OD along the length of the field.

The site overlies drift deposits of Devensian and Flandrian blown sands over Lower Jurassic deposits of the Redcar Mudstone Formation (BGS 1995). The soils are described as deep, stoneless, permeable fine sandy soils with ground-water controlled by ditches and are classed in the Everingham Association (SSEW 1983: 821a). The land is designated as Grade 2 for agriculture (MAGIC).

The earliest deposit recorded during the excavation was yellowish brown sandy silt, *11719*. This was overlain by coarse-textured grey sandy subsoil, *11706*, and dark brown silt clay topsoil, *11720*. All of the archaeological features on this site were sealed below subsoil *11706*.

17.3 Archaeological background

Although the desk-based assessment drew attention to a number of recorded sites and find-spots in the general area, perhaps the most pertinent elements of the archaeological context of this site are provided by other sites from the pipeline, the cluster of prehistoric and Roman remains either side of the Brough-to-York Roman road, 1.5km to the east, and especially the large, ploughed-out Roman settlement in plot 123, which lies within 1km to the south-west. Other known Roman remains from the area include a mid-third- to fourth-century villa with stone walls, painted plaster and mosaic pavements, located 1.2km to the north-east (MHU7524).

The nearby village of Hotham existed at the time of the Domesday Book as a small settlement with a watermill. By the early twelfth century the Church of St. Oswald had been built (MHU6405), and there is also documentary evidence of a fulling mill operating there in the 1370s (MHU13326), probably located at the site of Mill Farm, 350m south of the excavation area.

At the time that the desk-based assessment was carried out, the proposed route crossed Hotham Beck and Twin Beck 250m further to the north, and the engineering decision to bore beneath the woodland belt alongside Twin Beck was taken at a later date. The field survey recorded little of note in the field, though a single stray sherd of medieval pottery was recovered from the closely grazed ground surface.

The geophysical survey noted two parallel linear features, 65m to the west of the subsequent excavation area. It was thought that these may have been minor or recent, but could also perhaps be a double-ditched dyke (Bartlett 2005). The site was not recommended for evaluation trenching.

During the watching brief on stripping of the topsoil for construction, in the first week of May 2006, several sherds of unstratified Roman pottery were recovered from the stripped surface, *11720*, but no features were visible. However, during removal of the upper subsoil layer for the excavation of the reception pit for the auger bore, at the end of June 2006, linear features, originally interpreted as the foundation trenches for a Roman building, were revealed. A small area, approximately 6m square, around these features was then machine-cleaned and excavated.

17.4 Site description

The excavation area provided a small window on rectilinear group of ditches with associated pits. With the exception of one pit and one of the ditch interventions, finds were sparse.

Phase 1: Roman

The stratigraphically earliest features were a pair of parallel ditches, ditch **11704**, which produced a single sherd of undiagnostic Roman pottery, and ditch **11728**, which had no dating evidence (Fig. 54). Just to the north of ditch **11728**, a large pit, **11709**, had been disrupted, especially along its northern edge, by excavation of the header trench, surviving to a depth of no more than 0.07m. It was nevertheless found to contain 110 pottery sherds, for which a date in the late second to early third century AD could be assigned. These ditches had generally similar concave profiles: wide and fairly shallow, less than 0.4m deep, and filled with naturally accumulated silts.

Phase 2: Late Roman

Ditch **11728** was cut by a large ditch, **11700** (= **11702**), at right angles to it (Fig. 54). This was probably a recut of a smaller ditch, **11723**. The relationship of ditch **11700** to ditch **11704** was less clear, and it is possible that ditch **11704** originally formed a junction with ditch **11723** before that feature was recut. Ditch **11700** produced an assemblage of pottery including forms that could be confidently dated to the period after the mid-third century.

Ditch **11700** had a parallel counterpart to the east, although this was only partly visible within the excavation area. Recorded in section at the northern edge of excavation, this could also be seen to consist of an original ditch, **11721**, and a recut, **11717**, though at the southern edge, only a single cut, **11711**, was present. Presumably, this was the same feature as the recut, having completely removed the earlier feature at this point. A single large fragment of a broad flint blade was recovered from intervention **11711**. The flint exhibits considerable modern damage, but the form suggests a Mesolithic date. The Phase 2 ditches were deeper and wider than those of the earlier phase and contained naturally accumulated silts in the lower fills, overlain by dark organic layers (Appendix 2).

The southern intervention revealed a large feature, **11713**, interpreted as the terminal of an east-to-west aligned ditch cut into the fills of ditch **11711**. The upper fill of ditch **11713** produced non-diagnostic sherds of calcareously tempered wares and greyware.

Two large pits, **11715** and **11707**, just to the west of the intersection of ditches **11700** and **11704**, produced no datable finds but were sealed beneath the colluvial layer *11706*. Their silty fills were generally similar in appearance to that of pit **11709**.

Phase 3: Late Roman or post-Roman

All of the features described above were sealed beneath a thick layer of colluvium, *11706*. Finds from this layer included the remains of two Roman rotary querns (Appendix 8).

17.5 Discussion

The site is on low-lying land, but has free-draining soils that would have been cultivable and fertile when artificially drained. The river and stream valleys of the Wolds were extensively exploited during the Roman period, with settlements, villas and metalled roads all found within 2km of the site. The

settlement of Hotham lies just to the south of the site, and medieval land-use of this area may have been expected.

Archaeological remains all lie firmly in the Roman period and represent part of a ditch system extending on both sides of the pipeline route. Continual redefinition and cleaning out of ditches suggests both that flooding was a recurring problem and that the land was valuable enough to warrant extensively maintained drainage. This may suggest that a settlement was located just beyond the limits of excavation. An expanding population within the area perhaps resulted in land previously farmed being settled more intensively. As with other sites along the pipeline, Hotham Beck was abandoned during the fourth century with no later remains recovered. Given the proximity to Hotham village, it is perhaps surprising that few medieval remains were recovered. This would indicate that the stream-side site was used as meadow or pasture at this time.

17.6 Potential

The data from this site, though limited, has the potential to contribute to an understanding of the development of agricultural land-use in the region. The artefact assemblages are fairly small by themselves. However, when added to and compared with the data from the rest of the pipeline, they can provide some useful information regarding probable site economy and land-use.

17.7 Recommendations

- Documentary research into Roman field systems within the local area and wider region.
- Comparison of the site data with known cropmarks and geophysics, using GIS mapping.
- Comparison of the small animal bone assemblage with other sites along the pipeline.
- Re-examination of the apparent Mesolithic flint from the site.
- Preparation of a brief pottery report.
- Illustration of up to six pottery vessels.

18 PLOT 121, HARDMOOR LANE

Central NGR: SE 8893 3466
Civil Parish: Hotham
Total area of excavation: 946m^2
Figures 6, 55, 56

18.1 Summary

The heavily truncated remains of two post-built Iron Age roundhouses were recorded in this small excavation area, together with evidence of medieval and later cultivation.

18.2 Location, topography and geology

The excavation area was 500m to the west of St Oswald's Church, Hotham, on the eastern side of Hardmoor Lane, 400m north of its junction with Common Hill (Fig. 6).

The site is close to the top of the western ridge of the Wolds, the scarp slope being just over 500m away to the west. The land sloped down gently from north-west to south-east; the stripped surface was at 39.7m OD in the western corner of the excavation area and up to 39.1 OD in the eastern corner. Further to the east, the land continues to slope down toward Hotham Beck.

The solid geology in the area is composed of Lower Jurassic Redcar Mudstones, but these are overlain by aeolian drift deposits, blown sands from the Devensian and Flandrian glacial periods (BGS 1995). The soils are described as deep, well-drained, sandy coarse loams classified in the Newport 1 Association (SSEW 1983: 551d)). Soil quality is high, designated as Grade 2 for agriculture (MAGIC).

During the excavation, the underlying drift geology was characterised as yellow brown silty clay with occasional chalk outcrops, context *12186*. This was overlain by friable silty clay ploughsoil, *12100*. Ploughsoil varied in depth across the site. There was no cultural subsoil. Modern agriculture had affected buried remains, with frequent plough scarring and modern truncation visible in the stripped surface.

18.3 Archaeological background

The desk-base assessment recorded few prehistoric sites in this area. An area of cropmarks 500m to the north (MHU2846) has been interpreted as field systems around a possible settlement site, perhaps dating to the Roman period. A possible Roman villa has also been identified 1km to the south-west (MHU2842). The cropmark showed the outline of a building with six or more rooms, and there appeared to be other, smaller buildings to the west. The other sites excavated along the pipeline include several that are close enough to provide an immediate context for the Hardmoor Lane site, especially those in plots 123, 126, 132, 133 and 134, all within 1km to the south-west.

The area to the north-west of St Oswald's Church shows evidence of earlier settlement (MHU9625) and it is likely that the village extended closer to the site in the medieval and early post-medieval periods. Ridge and furrow is recorded to the north-east of the village and 400m north-east of the site. Marl pits near to the site (DBA:FS; DBA:FT, Burton 2005a) are probably the product of post-medieval agricultural improvement. In addition to the church and village, the desk-based assessment also noted post-medieval buildings at Hotham Grange 100m to the south-east of the site and at Hard Moor Farm (MHU13322), just east of the site.

The fieldwalking survey, carried out in mid-April 2006, recovered seven sherds of medieval pottery and one piece of worked flint from this plot. The soil surface had been harrowed and was weathered, producing good ground visibility. The geophysical survey showed probable cultivation effects, likely

to have been the remains of ridge and furrow, together with some isolated pit-like and other features in the south-western half of the plot. There were also raised magnetic susceptibility levels in this part of the plot.

Three evaluation trenches were opened in the last week of February 2006, one positioned to intersect the most prominent of the geophysical linear anomalies and one to each side. The two southernmost trenches produced evidence of Iron Age features and the area around these features was stripped of topsoil. Excavation started in early March and was completed on 18 March 2006.

18.4 Site description

Plot 121 lies near several other excavated Roman sites along the pipeline, including the large site in plot 123. The archaeological remains from this site suggest a small settlement site, possibly originally extending to the south-west, beneath the modern road. Modern deep ploughing has heavily truncated the site, with only the deepest cut features surviving in any detail.

Two probable structures were present within this site, represented by posthole groups. A structure number is used in the text for each potential building; a full list of contexts related to each structure is given in Table 6 below.

Phase 1: Late Iron Age

A cluster of postholes and pits in the south-east corner of the excavation area probably represented at least two phases of construction (Figs. 55 and 56). Various possible groupings of the postholes could be suggested, but that outlined here seems the most convincing.

Structure 1 consists of an arc of postholes, possibly the south-western side of a post-built building. This structure may have had an east-facing entranceway but the degree of truncation by ploughing makes this speculative, while the northern side of the structure may have been lost to a later furrow. However, it possible that the structure was deliberately open to the north, in which case an interpretation as a field barn or a fenced enclosure, rather than a domestic dwelling, might be more appropriate.

Structure 2 had a possible south-east-facing entrance formed by a large and a small posthole on each side of a 3.7m-wide gap: **12150** and **12149**; **12165** and **12173**, respectively. These two pairs of postholes could have supported door posts or jambs, with a lintel above. Posthole **12120**, on the external side of posthole **12150**, may have also been part of the door. As with Structure 1, the northern arc of expected posts is missing; this may again indicate a structure deliberately left open to the north.

The common internal area of these two structures contained several postholes: **12141**, **12135**, **12161**, **12159**, **12129**, **12117**, **12171**, **12179**, **12192** and **12163**, which may have held posts for internal partitions, roof supports or permanent furniture, or for temporary support used during construction. A large pit, **12181**, truncated a shallow sub-rectangular feature, **12103**, which contained scraps of fired clay (Appendix 5) and may have been the remains of a hearth. Two further postholes, **12139**, **12132**, and a pit, **12147**, were internal to Structure 2, but external to Structure 1. Posthole **12139** produced two joining sherds from a jar with decorative finger-tipping on the upper face of the rim, probably dating from the late Iron Age (Appendix 2).

Overlying some of the postholes were two shallow spreads of material, *12155* and *12154*, which included unidentifiable fragments of pottery (Appendix 2). These spreads probably developed as the buildings collapsed following abandonment, with the organic walls and roof rotting over the remains of the post settings. Alternatively, these spreads may represent trample created by human or animal movement and activity within the enclosed areas.

Phase 2: Medieval or post-medieval

A shallow furrow crossed the site, truncating the northern sides of the two structures. This feature was not excavated, but is presumed to be a remnant furrow from the fields surrounding Hotham village. It matches one of the linear anomalies described as 'probable cultivation effects' in the pre-construction geophysical survey. However, no pottery was recovered during excavation to add to the seven sherds derived from fieldwalking.

Phase 3: Modern

Modern deposits included several furrows, cut through the shallow ploughsoil and deep into the underlying natural geology. These included features **12153**, **12127**, **12126** and **12124** (= **12115**).

Also within this phase, the backfill of a burial of a domestic cat, **12190**, within the area previously occupied by late Iron Age structures, included pieces of rotted cardboard indicating that this was a very recent feature.

Table 6: Structures, Hardmoor Lane

Structure	Cut numbers	Phase	Diameter
1	12137, 12105, 12113, 12101, 12157, 12185, 12183	1	10.5m
2	12109, 12169, 12143, 12167, 12165, 12173, 12149, 12150, 12111	1	11.5m

18.5 Discussion

The Hardmoor Lane site was probably part of a late Iron Age farmstead or settlement, perhaps extending further to the south with much of it lost beneath the lane itself. The area was widely settled in the later Iron Age and Roman period and these remains add to the overall image of farming communities settling in the valleys of the Wolds at the end of the first millennium BC. A lack of Roman remains is slightly surprising given the number of nearby sites, including plot 123, Warren Hill Spring, 150m to the west. It may be notable that the large site of Warren Hill Spring to the west had no definite late Iron Age presence, perhaps suggesting that the area around plot 121 was utilised in this period, before settlement moved further to the west in the first century AD.

As with plot 123, the site was cultivated in the medieval period and later as part of the expanding settlement of Hotham. Subsequent deep ploughing has effectively removed any shallow features, with only the more deeply cut remains surviving.

18.6 Potential

Hardmoor Lane includes two phases of roundhouse construction. Artefacts from these features can contribute to an overview of the material from features of this period and type along the pipeline route. The details of the buildings themselves can add to a wider understanding of changing building traditions and settlement locations along the pipeline route.

18.7 Recommendations

- Documentary research into late Iron Age rural settlements and farmsteads within East Yorkshire.
- Two sherds of prehistoric pottery to be submitted to an appropriate specialist.
- Illustration of up to four late Iron Age pottery vessels.
- Inclusion of the worked flint in a wider study of the flint from the pipeline.

19 PLOT 123, WARREN HILL SPRING

Central NGR: SE 8876 3450
Civil Parish: Hotham
Total area of excavation: 3487m^2
Figures 6, 57 to 62

19.1 Summary

This site was occupied throughout the Roman period as a settlement with associated stock enclosures, a droveway and fields. A series of small enclosures, probably used for stock management, first developed in the first century AD and was expanded in the second. The most intensive land use was in the late Roman period, when the landscape was realigned to form a number of large fields or enclosures. A small ring gully and at least three groups of postholes provide evidence of possible structures. Nine human burials were recorded on the site. The later Roman period in particular produced a significant pottery assemblage.

19.2 Location, topography and geology

Plot 123 occupies a dramatic location at a local high point of the Wolds, 650m to the west of Hotham village (Fig. 6). The stripped surface in the centre of the excavation area was as a height of 40.9m OD, from where the ground dropped gently to the east, south and west so that both the eastern and western ends of the excavation area were at 40.5m OD. Further to the east, the land continues to drop gently towards Hotham Beck. To the north, the Jurassic ridge to rises to over 50m, while to the south it drops down towards North Cave and the Humber flood plain. The western boundary of the field, 130m beyond the excavation area, is on the top of the scarp slope and the land drops by over 30m in a distance of 250m, so that the site commands wide views over the southern Vale of York.

The ridge and scarp slope are composed of Lower Jurassic Redcar Mudstones with few overlying drift deposits (BGS 1995). The soils developed over these rocks are deep well-drained sandy coarse loams of the Newport 1 Association (SSEW 1983: 551d). Soil quality is high, designated as Grade 2 for agriculture (MAGIC).

During excavation, the underlying geology was recorded as yellow brown silty clay with occasional chalk outcrops, *23039*. This was overlain by mid-orange brown silty clay subsoil, *22001*, and friable silty clay ploughsoil *22000*. The ploughsoil was shallow and modern agriculture had badly affected the buried remains, with frequent plough-scarring and modern truncation visible in the stripped surface.

19.3 Archaeological background

A potential field system and settlement site has been recorded from cropmarks, 400m further north along the Jurassic ridge (MHU2846); this is undated but a late Iron Age or Roman provenance is very plausible. The group of sites excavated on the pipeline route to the west, below the scarp slope in plots 132, 133 and 134, also provide evidence of the extensive settlement and exploitation of the area in the Roman period.

Other nearby sites identified in the desk-based assessment include post-medieval buildings at Hotham Grange, 350m to the south (DBA:FR) and Hard Moor Farm (MHU13322), 250m to the south-east

At the time of the fieldwalking, in early April 2005, the northern half of the field had a germinating crop, while the southern half was unploughed stubble, ground visibility in both parts being compromised. Nevertheless, fifty-six sherds of Roman pottery were recovered, strongly concentrated around the high point of the pipeline route in the centre of the field. Nine pieces of struck flint and sixteen sherds of medieval pottery were also recovered, more evenly distributed.

At the time that the geophysics survey was carried out, a growing sugar beet crop prevented survey in the southern half of the field. Linear anomalies thought to be the result of ridge and furrow cultivation were recorded towards the eastern part of the field, with weak, less distinctive clusters of magnetic anomalies towards the centre of the field, perhaps, indicating a former occupation site.

One 50m-long evaluation trench, encompassing the densest part of the Roman pottery scatter, and seven 20m-long trenches were opened in mid-February 2006. It quickly became apparent that there was a dense grouping of archaeological features in the centre of the field; this area was then stripped of topsoil and formal excavation began on 6 March 2006, continuing, with an interruption between mid-April and early May after heavy rain, until 3 June.

19.4 Site description

The archaeological remains from this site suggest a medium-sized settlement with associated enclosures, isolated burials and a droveway. The dating of this site has proved difficult. Much of the pottery, even from features that are stratigraphically earlier, seems to originate from the later Roman period, but there is also a component in the assemblage that dates from around the time of the Roman conquest. This early pottery was largely recovered as unstratified finds from the ploughsoil or subsoil. The location of the site, on the crest of the eroding mudstone ridge has compounded the effect of ploughing to produce a high degree of truncation, with only the deepest cut features surviving in any detail. It seems likely that any features from the peri-conquest activity on the site have been largely ploughed away, leaving the unstratified finds as evidence of their former presence. The pottery assemblage from this site includes a high degree of mixed material suggesting a strong risk of both residual earlier Roman pottery and intrusive later material across the site, effectively blurring the ceramic and stratigraphic phases. The phases described below are the best case interpretation of the site at this stage, though may be subject to revision during analysis. Phases are based on marked changes in the way the site was utilised and occupied.

Four probable structures were present within this site, represented by posthole groups. A structure number is used in the text for each potential building; a full list of contexts related to each structure is shown in Table 7.

Phase 1: Earliest Roman land division

The earliest features present were ditches, defining the first fields or enclosures across the site, along with clusters of pits, mainly located just north of the central area. Ditch **22651** (= **22479**, **23046**), the westernmost feature of this phase, formed one side of a pair of enclosures (Fig. 58), and ditch **22439** (= **23048**, **22408**, **22167**) formed the eastern side. The division into two enclosures was supplied by ditch **23044**, which connected to the western ditch, **22651**, but terminated 2.5m short of ditch **22439**, as though access was required from one area to the other. Within this system, ditches **22116** and **22159** (= **22155**, **22157**) were 1.3m apart and both were less than 5m long. They could represent a stock control feature such as a short ‘crush’ or ‘race’.

Ten metres to the east of this field system, a loose group of features included elongated pits **22713**, **22685**, **22893**, **22709**, **22673** and ditch **22703** (Fig. 58). These features appear to respect the alignment of ditch systems in this period and possibly represent localised waste disposal away from the main fields. A small volume of pottery wasters and a kiln bar were also recovered from this area (Appendix 2). This may suggest that a small-scale kiln was once located here away from the main fields. Rural kilns often leave only a shallow base and flue, typically less than 0.5m deep, and the apparent truncation within this area of the site may have entirely removed such a feature and any associated spreads of pottery wasters. The pottery from pits **22893** and **22673** probably dates to no earlier than the early to mid-third century (Appendix 2).

The dimensions of ditch **22703**, 3m long by only 0.15m deep, suggest it may represent the remains of a heavily truncated field boundary, with the associated deeper-cut pits being better preserved.

To the east of these pits, ditch **22098** (= **22042**, **22100**, **22045**, **22047**, **22079**) formed the eastern and southern arms of another enclosure unit (Fig. 59). The western arm was formed from ditch **22068** (= **22050**, **22701**), which cut an earlier ditch **22699** (Fig. 62a); the pottery assemblage from the earlier ditch included later third- or fourth-century fabrics. The northern side of the enclosure is likely to have been lost in the realignment of boundaries in Phase 2. This enclosure measured 8.5m by 7.7m, with apparent entranceways to the south and west. A short spur of ditch, **22677**, extended north for 2m, and may have represented the remnants of another enclosed field, subsequently truncated in later phases.

Directly south-west of the southern field entrance, an irregular curved ditch, **22008** (= **22010**), created an apparent semicircular enclosure, with a diameter of around 3m. This may, perhaps, mark the position of a temporary pen or small structure, which did not survive truncation (Fig. 59). This small, enclosed space was re-used in Phase 3 as the location for an adult inhumation, which suggests the area may have retained a special significance into the later period.

To the north-east, pits **22074** (Fig. 59) and **22907**, 3m to the north-east and obscured on plan by later features, appeared to be similar and probably contemporary. Pit **22907** produced a mixed pottery assemblage, possibly with two chronological components, fourth-century material providing an incongruous presence alongside vessels thought to date to the first century AD. It is likely that the later material was intrusive from unrecognised features such as deep plough scars, or was misattributed to this feature rather than a context higher in the sequence.

Beyond these pits, a curving ditch, **22825** (= **22868**, **22824**, **22783**), was from a stratigraphically early phase but does not easily fit the pattern of the other Phase 1 features. The same is true of a wide curving ditch, **23099** (= **22594**), forming the southern and western arcs of an open enclosure (Fig. 59), to the north-west of the same field. Directly to the east of this enclosure, a segmented ditch, **22507** and **22188**, was positioned approximately in line with ditch **22677**. It is likely that these features originally formed a continuous ditch, possibly separating enclosure **23099** from land to the east; their relatively shallow depths, typically less than 0.3m in the remaining ditch segments, making them vulnerable to truncation by ploughing. Specialist examination of samian pottery from ditch **22188** may provide a *terminus post quem* for the backfilling of this feature.

The central area of the site contained a cluster of intercutting pits, **22356**, **22350**, **22354** and **22370**, all dug into the underlying glacial clay (Fig. 59). These sub-rounded pits measured a maximum of 1.8m in diameter and 0.4m deep with concave profiles. This pit cluster may represent intensive clay extraction, with the pits subsequently abandoned. Pit **22372**, directly west of the main cluster, contained a partially articulated sheep skeleton. Another pit in this phase, **22779**, was located approximately 5m further south-east, and had a similar form.

North of the cluster of pits, a right-angled ditch, **22560** (= **22287**), extended to the north and east for approximately 3m in each direction (Fig. 59). Ditch **23005** (= **22315**) was positioned directly east of this right-angled ditch and extended for 12m, before turning south for a further 8m. This formed a large boundary with deliberate entranceways, approximately 2m wide, between the right-angled ditch and the longer boundary. A further east-to-west aligned ditch, **22311**, was positioned directly south of the main boundary, perhaps used as an additional drain or boundary for this part of the site.

Fragments of ditches and potential enclosures included ditch **22638** (= **22642**, **22640**) near Structure 2 from Phase 2 (Fig 59) and ditch **23021** (= **22876**) which lay directly to the east.

Phase 2: Roman droveway and associated enclosures

This phase marks a noticeable increase in land division and occupation of the landscape, with the positioning of a predominantly east-to-west aligned droveway and the earliest surviving domestic structure positioned to the north-west. A new settlement pattern based along the droveway and structures contained within associated enclosures was laid out. Several burials have been ascribed to this phase, largely by association with nearby features, but their dating is generally not secure and they could properly belong to an earlier phase. They show variations in the burial positions, including

crouched and partially extended; crouched burials are generally typical of the late Iron Age or early Roman period. The range of burial position may suggest that they are not all contemporary, or may indicate that these were not buried according to a strict customary rite.

An enclosure dominates the centre of the site in this phase. This enclosure was open to the south and was formed from ditch **22900** (= **22485**, **22264**, **22252**, **22302**, **22960**, **22911**, **22940**, **22961**, **22963**) (Fig. 59). The pottery assemblage indicates that deposition of the final fills of this feature occurred after AD 355. Structure 4, another rectangular post-built building, was located in the north-western corner of this enclosure. This building contained a small area of compressed chalk fragments at its western end that may represent the remains of a compacted floor surface. A range of pottery was recovered from the postholes assigned to this structure, possibly signalling that they were not all contemporary, and the phasing of the features in this part of the site would repay re-examination. Posthole **22344** contained a flagon rim which compares to mid-second- to mid-third-century types (Appendix 2) and a hand-made disc, possibly a lid, in a groggy clay fabric, decorated with concentric cordons, grooves and short stabbed strokes.

Grave **22217** lay to the north of this building and contained a skeleton of a middle-aged adult (Fig. 61b; Plate 16). An iron tack nail was recovered from the fill around this burial and may have been used to pin a shroud around the body (Appendix 3). A large pit, **22664**, was positioned just north of Structure 4. This pit had been rapidly backfilled and a grave, **22668,** cut for a neonate burial.

A large quarry pit, **22491**, located north-east of Structure 4, may have been excavated within the previous phase and infilled in this period as a convenient dump for domestic waste.

Grave **22706** was located towards the south-west of the enclosure, near Structure 2. This grave contained a burial of a young adult, next to a pit, **22894**, containing part of a pottery vessel and possible cremation (Fig. 61g). Another possible disturbed grave, **22739**, containing disarticulated bone, along with pottery of possible late fourth-century date, was located approximately 7m south-east of grave **22706** (Figs. 59 and 61j).

Over forty scattered postholes, including features **22862**, **22483**, **22476**, **22454**, **22469**, **22471**, **22498**, **22798**, **22753**, **22772**, **22658**, **22731** (Fig. 62d), **22872** and **22737**, were located in the central area of this third enclosure, east of burial **22706**. No obvious building form was visible within this scatter of postholes, but it is likely that at least one and probably several phases of structures were once located in this area. Truncation by plough furrows has unfortunately disturbed much of this area and almost certainly removed postholes and possible surfaces related to these features.

Structure 2, a small ring gully, possibly with an east-facing entrance, was located north of the second enclosure. At less than 4m in diameter, this feature probably enclosed or supported a small hut rather than a domestic structure, and was located near two inhumations and an animal burial. Grave **22617** was a heavily disturbed crouched burial of an adolescent to the north-east of Structure 2, while grave **22803** was a crouched burial of a young man located just east of the structure (Fig. 59). An animal burial, **22806**, was positioned immediately south-east of grave **22803** (Fig. 61f).

Grave **22091**, which contained a crouched burial of a middle-aged adult, with the remains in poor condition, was located south of the central enclosure lying between the lines of the droveway (Fig. 61c and d). This grave was later truncated by a Phase 3 enclosure ditch.

Ditch **22477** (= **22481**, **22410**) extended from the western edge of excavation for 10m, cutting away the south side of Phase 1 ditch **23044**, before turning south and continuing for a further 3m. The alignment of this ditch was continued by ditch **22400** (= **23050**, **22619**, **22629**, **22625**, **22281**, **22891**, **22889**, **22729**, **22669**, **22671**, **22066**, **22004**, **22031**, **22711**, **22043**, **22040**), which extended east across the length of the site leaving a 1m-wide entranceway to the west (Fig. 58). The pottery finds from the ditch indicate a later third- or fourth-century date, although there are earlier components within the

assemblage. A Roman coin blank (SF 138: Appendix 3) was recovered from intervention **22669** and a worked stone block from intervention **22629**.

Ditch **22112** (= **22109**, **22149**) lay 3m to the north-west of ditch **22477** but did not quite mirror it, as it had a curving return to the north at its eastern end. The 3m-wide gap between these two ditches suggested that they respected a droveway. Curving ditch **22202** (= **22236**, **22235**), was located directly north of ditch **22112** (= **22109**, **22149**) and may have once been connected.

Directly east of this curving ditch, a hearth or potential kiln, **22390** (= **22392**), was a sub-rounded feature measuring 2.1m long by 0.9m wide and 0.2m deep (Fig. 58). It contained a clay lining 0.2 to 0.3m thick, overlain by a single layer of limestone forming the remains of a rough wall. There is no evidence for a flue, and truncation by a later ditch and recent ploughing will have removed any remaining superstructure.

Further to the north-east, the same alignment was continued by ditch **22854** (= **22874**, **22058**, **22938**, **22675**, **22696**, **22081**, **22830**, **22905**, **22938**), which was parallel to major field boundary **22400** and extended for at least 30m, continuing beyond the south-eastern limit of excavation (Figs. 58 and 59). Like its counterpart, this ditch produced a varied pottery assemblage, indicating a date range from the first or second through to the later third or early fourth centuries, and a small assemblage of human bone was retrieved from ditch 22938 (Fig. 61h). These two parallel ditches created a linear space, approximately 5m wide, continuing the line of the rather narrower droveway between ditches **22112** and **22477**.

This main field alignment is typical of Roman ladder systems; ditches branching off the main axis, such as ditches **22083**, **22085**, **22846** and **22943** (= **22856**), would have defined minor boundaries, while ditches parallel to the main boundary would have further sub-divided the enclosures. These included ditches **22014**, **22089**, **22850** (= **22870**, **22848**), **22982** (= **23007**) and **22679** (Fig. 59). There were few artefacts recovered from these smaller ditches and had been filled by natural silting.

Further land division was created by the positioning of ditch **22828** (= **22770**, **22776**) north of the main east-to-west enclosures, extending east to west for 5m before turning through a right angle and continuing for 13m, becoming less clearly defined (Fig. 59). Near the possible north-east terminal of this ditch, its approximate original line was continued by irregular linear feature **22289** (= **22291**, **22293**).

The central area of the site was again subjected to pit digging in this phase, presumably again for clay extraction. Pits **22227**, **22461**, **22564**, **22579**, **22342**, **22340**, **22358**, **22422**, **22458**, **22416** and **22418** were all located within this area. A semicircular ditch, **22858** (= **22788**, **22860**), was also located in the central area. It was open to the south, and had a wide, shallow pit, **22743**, located just to the east. It is not clear if this is a truncated ring gully or simply a curved ditch that might, for instance, have supported a structure such as a windbreak.

Further to the west, running from the north-western limit of excavation, ditch **22200** (= **22196**, **22161**) was another fragment of a field system ditch. On its south-east side and aligned parallel to it, Structure 1 was a rectangular post-built building, its northern side probably lost to a later ditch and a recent plough furrow. No floor surfaces or demolition rubble were present; possibly indicating that the building was robbed of re-usable material to make later structures, while truncation has almost certainly removed any preserved floors. Traces of heat-affected natural clay were revealed in the north-west corner of the building and may represent the location of a truncated hearth.

A narrow ditch, **22934** (= **22957**, **23104**, **23009**, **23016**), and a possible subdivision, **22956**, extending from it, indicated the presence of enclosures to the south of ditch **23051**, but no subdividing ditches extending from its northern side were encountered (Figs. 59 and 60). A short length of ditch, **22504** (= **22492**) ran parallel to the southern side of boundary ditch **23051**, its western end truncated by a Phase 3 feature. The positioning of a small pit, **22970**, midway between the eastern terminal of ditch **22054**

and the junction of possible subdivisions **22934** and **22956** may form part of the pattern of enclosure boundaries.

Phase 3: Roman: post-droveway

Remains from this phase included two large enclosures, both relating to settlement. Specifically late fourth-century pottery vessels become apparent in the feature assemblages from this phase.

The westernmost of these enclosures was formed from curving ditches **22270** (= **22268**, **22274**, **22276**) and **22435** (= **22364**, **22360**, **22402**, **22388**, **22110**, **23093**), which stopped short of one another leaving a 4m-wide entrance to the south (Fig. 58). Within this enclosure were two large pits, **22443** and **22406**, were positioned close to the eastern ditch. Pit **22406** produced pottery including the remains of a wheel-thrown greyware vessel indicating a later third- or fourth-century date. An adult inhumation, **22612**, was positioned within the enclosure directly opposite the entranceway (Fig. 61e). This burial had been disturbed by ploughing and was in such poor condition that only fragmentary remains could be lifted and further identification was rendered impossible (Appendix 10). The grave was surrounded by eighteen stakeholes, of which a sample specimen, **22615**, was recorded as being 0.06m in diameter and 0.09m deep. No dating evidence was retrieved, but the likelihood of these features being associated with the grave is compelling.

A second enclosure to the east of the first enclosure was formed by curving ditches **22621** (= **22623**, **22648**, **22283**, **22689**, **22749**) and **22002** (= **23041**). It was open to the west and possibly also to the east (Fig. 58). There are clear indications that the pottery assemblage from this feature dates to the period after AD 360 (Appendix 2). A prone inhumation in grave **22036** was positioned within this enclosure, aligned north-west by south-east and positioned close to the eastern ditch.

Just to the east of the first enclosure, Structure 3 was represented only by the truncated remains of a foundation trench with evidence of a robber cut, **22246** (Figs. 58 and 62b). This remains of rough stone foundations, as well as a large volume of pottery (Appendix 2), were present. The potential building may have extended to the east and south, where later furrows will have removed any remaining traces. Alternatively, Structure 3 may represent a substantial free-standing wall rather than a building.

Later Roman pits were also found in the eastern side of the site, including features **23011**, **22993** and **22967** (Fig. 60). Pit **22967** produced seven sherds of greyware, probably dating to the later third or fourth century (Appendix 2), while pit **22967** was cut into Phase 2 ditch **22934**; pit **23011** is tentatively ascribed to the same phase as all three features were similar, truncated and containing sterile silt and clay backfills.

Fragments of ditch systems recorded in this phase include ditch **22198** (= **22163**) and **22141** (= **22165**) (Fig. 62c), which together form a right-angle, possibly the corner of a field. The south-east terminal of a large boundary ditch, **23029** (= **23107**), cut Phase 2 boundary ditch **23051** on a slightly different, more northerly alignment, but could not be traced to the north beyond that ditch, as it was truncated by the medieval ditch **22531** (Fig. 60).

Phase 4: Late Roman

Phases 3 and 4 are stratigraphically separate, but there is likely to be a certain amount of chronological overlap. This phase contained a small number of ditches, often redefining existing systems, and a large number of pits.

These systems included ditch **22114** (= **22108**, **22151**), located in the western side of the site (Fig. 58), and ditch **22490** (= **22573**, **22592**, **22573**, **23033**), which appeared to continue the alignment of part of the Phase 3 field system (Fig. 59). Just to the south of this feature, curving ditch **22096** (= **22063**, **22056**, **22025**, **22029**, **22061**, **22016**, **22020**) recut an existing Phase 3 enclosure, possibly modifying it so that it was no longer open to the east, only the west. A glass bead was recovered from this recut

enclosure ditch (SF 48: Appendix 3). The terminals of ditches **22490** and **22096** form a narrow entrance. A short length of ditch, **22916** (= **22751**), was also dug just outside the western ditch of this enclosure and may represent an additional barrier for the enclosure. Another fragment of a ditch, **22441** (= **22362**), was located next to the westernmost Phase 3 enclosure: it was perpendicular to ditch **22114**, but there was no demonstrable connection.

A notable feature in this phase was a large, extremely shallow, stone-filled pit, **22511**, located just west of Structure 2 (Fig. 58). This feature measured over 4m long by 2m wide and may represent the remnant of a sunken, compacted stone floor for another structure, with the rest of the putative building having been truncated by furrows on either side. Feature **22511** contained fragments of pottery and food waste, in addition to a ferrous metal ring, dated to the late fourth century, and a possible smithing bar (Appendices 2, 11, 3).

Pit digging was common in this phase and included a broad scatter across the entire site, varying in size and form. Pits include features **22102** (= **22104**), **22127**, **22496** (all Fig. 58), **22898**, **22976**, **22509**, **22525**, **22072**, **22280** (all Fig. 59) and **22949** (Fig. 60). Pit **22525** was utilised for domestic waste disposal and contained fragments of at least one bronze bracelet (SF 113, 134: Appendix 3). A closely packed cluster of smaller pits, located in the central area of the site near to other episodes of pit digging, included features **22920**, **22928**, **22627**, **22812**, **22810**, **22936**, **22327** and **22331** (Fig. 59).

These pits appear to have been dug primarily for clay extraction, and were subsequently infilled with natural silts and clays with occasional artefacts. The pits may not have all originated in the Roman period, as marl pits were dug through this area in more recent times and could have incorporated residual Roman artefacts within their backfills.

Phase 5: Medieval and post-medieval

Ditch **22531** has been dated to the thirteenth to fourteenth century (Appendix 2) and truncated several Roman features as it crossed the site (Fig. 60). This ditch is possibly related to medieval field management.

A series of north-west to south-east aligned wide, shallow furrows, which have truncated the upper surface of archaeological deposits and the underlying natural subsoil, were revealed across the site. A selection of these features were excavated where they intersected with earlier remains. The furrows produced a variety of artefacts, some of which were residual from Roman deposits and some likely derived from medieval and post-medieval manuring. Furrows were typically between 1.5 and 3m apart, which would suggest they represent later ridge and furrow agriculture, as medieval furrows were typically further apart. Those recorded include furrows **22746** (= **22808**, **22781**, **22816**, **22792**, **22796**), **22153** (= **22262**), **22386** (= **22366**), **22437** and **23051** (= **22324**, **22735**).

Phase 6: Modern

This phase contained a sequence of modern, ceramic field drains. The degree of truncation suggested that deep ploughing or 'subsoiling' had been used in the field, ploughing deeper than the existing ploughsoil in order to break up any mineral pan or underlying clay that is causing problems with drainage.

An unusual sinuous feature, **22954** (= **22931**, **23000**, **22947**, **23013**), with irregular sides and base, truncated Roman ditches in the eastern end of the site. This feature contained a loose fill of natural silt and occasional artefacts. However, the irregularity of its form and the loose fill indicates that this is a modern burrow, which had been dug through the soft fills of Roman deposits and later furrows.

Table 7: Structures, Warren Hill Spring

Structure	Cut numbers	Phase	Dimensions	Comments
1	22129, 22131, 22133, 22185, 22179, 22177, 22175, 22191, 22135	2	7.3m by 2.7m	Rectangular post-built building, truncated by later ditch

Structure	Cut numbers	Phase	Dimensions	Comments
2	22583, 22587, 22494, 22552, 22569,	3	3.9m diam	Ring gully, east-facing entrance
3	22446	3	5.1m by 3m	Foundation trench, mostly ploughed out
4	22414, 22412, 22429, 22420, 22394, 22344, 22577, 22575, 22596, 22222, 22212, 22214, 22204, 22207	3	9m by 3m	Rectangular post-built building, ploughed out most of northern side

19.5 Discussion

Although this site was occupied throughout the Roman period, there was little direct evidence for Iron Age settlement. This would fit the pattern for this part of the western Wolds, which appears to have been largely settled after the conquest, suggesting the landscape was little used except for open grazing in the Iron Age. Chronological phasing is problematic with already intercutting features disturbed by a high degree of truncation and deep ploughing. This has created a large artefact assemblage exhibiting signs of residuality and intrusion across the site, with early and later Roman pottery often mixed across features and phases. The stratigraphy therefore offers little help for close dating of the site and an approach based on broad phases of archaeological activity may be the best that can be achieved.

The site itself appears to have been first utilised for stock husbandry and settlement, with features typical of pastoral farming. This first phase of activity on site may date to the earlier Roman period. The settlement layout was then reorganised around a droveway with large enclosures branching off to the sides. These enclosures contained structures, burials and domestic debris indicating settlement. The first evidence for structures emerges in this phase with a post-built rectangular building. This was broadly similar to the Roman buildings found in plot 104. Directly to the south of this building, the truncated remains of a kiln, along with fragments of kiln furniture recovered from nearby ditches, suggests that small-scale production of ceramic goods was taking place, perhaps to service the growing settlement.

At least three structures were present in this phase, including another post-built building. Two neonate burials and an adult inhumation were associated with this building. The other structural remains consisted of the partially ploughed out foundation trench of a rectangular building and the ring gully of a small circular structure, possibly a storage hut. The remains of a possible compacted floor surface, probably from another rectangular building, were also found in this phase. A scatter of postholes in the most complete of the enclosed fields probably resulted from several phases of post-built structures but disruption of this area by later furrows has probably precluded the possibility of discerning clear patterns.

Subsequently, the droveway settlement was replaced by a second sequence of enclosures, possibly formed in the third to fourth centuries AD. These enclosures truncate the droveway alignment and suggest a deliberate alteration of the settlement layout.

The final Roman phase of activity was limited to pit digging and redefining enclosures and existing boundaries. This may indicate a mature settlement with no further changes required to the settlement layout. It is also noticeable that as with other sites along the pipeline, there is no direct evidence for the settlement continuing into the fifth century AD.

Pit digging occurred in every phase, with an increase in final phases of the site. Clay extraction could have been used for daub for wattle structures or floors, the manufacture of artefacts such as loomweights and spindle whorls, or small-scale pottery and tile production. Alternatively, the pits could have been dug for marl, with the clay extracted being mixed with the ploughsoil to improve both water retention and drainage. Some of the later pits may have been post-Roman, incorporating residual Roman artefacts.

Faunal remains indicate a mixed sheep- and cattle-based economy, with occasional pig consumption throughout all phases; domestic animals were represented by low numbers of cat and dog bones. By contrast with plots 103 and 104, there was no evidence for poultry, but this could be the result of poor preservation conditions of the site.

Evidence for the potential status of the settlement in its later phases can be found in metalwork recovered from late, stratified deposits, including a finger ring, a brooch, a bracelet, three fourth-century coins and a coin blank, several fragments and sheets of bronze, and a glass bead. Metal detecting of the stripped subsoil produced further bronze artefacts: two brooches, six third- to fourth-century coins and several more fragments and sheets.

During the medieval and later periods, the site was cultivated, forming part of the open field system of the settlement of Hotham. Subsequent deep ploughing has badly damaged the buried archaeological deposits, with many of the features truncated and entire areas represented only by furrows and plough scars. Any shallow features will have been removed over the centuries, with only the deeper cut remains surviving.

19.6 Potential

This site can provide important information on the rural Roman settlements on the western side of the Wolds and their relationships to settlements in the Vale of York. Close proximity to the roadside settlement in plot 104 and a series of smaller sites with field systems and farmsteads, including plots 117, 121, 126, 128 and 129, allows for inter-site comparison and integration of the data.

The enclosure systems identified suggest a pastoral economy; further study of the fields, enclosures and pens and the faunal remains recovered will contribute to a wider understanding of land-use, economy and rural subsistence in this region. Plot 123 produced a moderately sized animal bone assemblage: the relative proportions of the identified taxa suggest that the site had a mixed economy with an equal emphasis on both cattle and sheep or goat. Further analysis by splitting the assemblage by phase will help in understanding the development of the site.

Four potential buildings were recorded: one roundhouse and three rectangular ‘Romanised’ buildings. Further study of these structures and comparisons with other buildings will indicate the degree to which they conform to expected typology for the region. Analysis of the environmental samples from these structures may also indicate what construction materials were used and indicate if they were abandoned or destroyed as well as providing information on their functions. Seven adult burials and two neonates, as well as the disarticulated remains of at least twenty-three other individuals, were present within the site. The identified graves were mostly discrete features and there was no indication that these burials formed part of a coherent cemetery. Scientific dating of the remains will provide information on the development of burial practices and the burial data, in conjunction with that from the nearby site at plots 103 and 104 and other known examples in the region, will contribute towards a regional population model.

The practice of pit-digging, occurring throughout the history of the site, suggests that intermittent clay extraction was part of the economy of the site. Through documentary research into Roman and later marl pits in the area, it may be possible to identify any later features containing residual Roman artefacts which can be re-phased.

The greater part of the pottery assemblage dates to the later third and fourth centuries AD, though activity resulting in ceramic deposition on site seems to commence in the very late Iron Age or early post-conquest period. There are numerous reflections of this, including the presence of unstratified rusticated ware, dated to around AD 70 to 130, from subsoil *22001*. There is some potential for refining the chronology of the site through further integration of the dating evidence from the pottery.

The pottery assemblage as a whole is fairly typical of rural assemblages in the period from the East Riding. There is a smattering of colour-coated wares and samian, and a reasonable number of

mortaria, but nothing to suggest a high degree of Romanisation of the artefactual culture of the community. Refining of the phasing of the site would allow a better understanding of the types of pottery in use. Some of the pieces, such as the disc from feature **22344**, are of intrinsic interest and warrant further research.

Other finds that are of intrinsic interest as well as providing information on the function of the site include a worked stone block from ditch **22400** and fifteen joining fragments of a fired clay loomweight or block; however, since the latter were recovered from the topsoil, they are of little use for further study. Processing waste, including small quantities of undiagnostic or fuel ash slag, also provide evidence the activities that took place on the site.

The environmental samples revealed evidence for intense episodes of activity, including smithing and possible crop-processing. The central area could have been a focus for these activities, but it should be considered that any spatial and temporal patterns may show bias resulting from the distribution of samples; possible contamination from intercutting features and from modern ploughing also need to be taken into account. There is potential for a programme of radiocarbon dating, if appropriate, using charred cereal grain from grain-rich and stratigraphically secure deposits.

Following refinement of the phasing of the site, it should be possible to comment on the diet and economy of the inhabitants over the periods of activity identified, as well as on the selection and utilisation of wild resources for domestic and craft or industrial purposes and to characterise the local environs. It is hoped that in conducting further analyses of the economic and craft evidence, it will be possible to chart the potential changing use and character of the site over time and in doing so, gain a better insight into how the site developed, as well as for the wider implications for the nature and scale of the occupation activity in this locality.

19.7 Recommendations

- Re-examination of the stratigraphy and phasing, incorporating all of the specialist assessment data, to resolve remaining inconsistencies.
- Documentary research into rural Roman settlements between the western side of the Wolds and the Vale of York.
- Documentary research into Roman pastoral husbandry in the local area.
- Documentary research into Roman building styles within the local area and wider region.
- Documentary research into historical marl pits with the results plotted by GIS over the local area.
- Documentary research of medieval land-use and known field systems in the local area.
- Analysis of the faunal remains by phase.
- Further identification of the human remains.
- Comparison of the human remains with other Roman burials from this area.
- Radiocarbon dating of selected human remains to confirm dating of burials.
- Research, description and illustration of six registered finds of regional to national interest, consisting of a glass bead, a copper alloy finger ring and four copper alloy bracelets.
- Description and illustration of twelve registered finds of local to regional interest, comprising three copper alloy brooches including a trumpet brooch and a disc brooch, two copper alloy fragments and two sheet fragments, a copper alloy coin blank, four iron nails.
- Description of nineteen registered finds of local interest.
- Specialist identification of four registered finds associated with metal working.
- Cataloguing of nine Roman coins with reference to specialist texts

- Further analysis of the pottery key groups and comparison with regional examples.
- Illustration of up to one hundred pottery vessels.
- Preparation of a short publication description on the fired clay, with illustration of the loomweight.
- Preparation of a short description on the worked stone for publication.
- Specialist identification of the processing waste recovered from environmental samples.
- Specialist identification of twenty-two sherds of samian pottery.
- Specialist identification of nineteen sherds of mortaria.
- Specialist identification of twenty sherds of prehistoric pottery.
- Consideration of the distribution of hand-collected iron objects and slag and their relationship to the concentrations of hammerscale.
- Analysis of the charcoal assemblages from up to twelve samples from domestic and potential industrial contexts to ascertain whether there is any fuel selection, and through the phases to determine whether the fuel resource changes.
- Analysis of the charred plant assemblages to identify potential evidence for crop processing activities, domestic food preparation, the importance of the different crop types and, through analysis of the weed seed assemblages, the ecology of the fields in which the crops were cultivated and any seasonal information on crop husbandry.
- Establish whether any food preparation waste or consumption area, or potential crop processing activities can be identified from the distribution of the charred plant assemblages around the site.
- Establish whether the distribution of the environmental evidence for iron-smithing can identify industrial areas on the site.

20 PLOT 126, CARRCLIFFE CROSSROAD

Central NGR: SE 8792 3398
Civil Parish: Hotham
Total area of excavation: 7570m^2
Figures 6, 63 to 68.

20.1 Summary

This site, on the low-lying land beyond the western scarp slope of the Wolds, consisted mainly of enclosures and boundary ditches, along with the remains of a small ring gully. Pottery dates suggest a late Iron Age to early Roman date for all the features, although unstratified late Roman material was also present. There was evidence for industrial activity at the site, including salt-making and some metal-working.

20.2 Location, topography and geology

The site lies in the angle made by Carr Lane and Cliffe Road, beneath the western scarp slope of the Wolds. The village of Hotham is 1.5km to the east. Windy Acres Farm is opposite the site on the south side of Carr Lane (Fig. 6).

The scarp slope, which rises steeply to the east of Cliffe Road, had largely flattened out by this point and the land lay on gently sloping land dropping from just over 7m OD at the eastern end of the excavation area, to 5.5m OD at the western end. A spring line near the base of the scarp slope gives rise to a number of streams, those close to the site channelled into Hushcush Drain, 300m to the north, and thence into the lower, heavily canalised reaches of the Foulness River.

This scarp of the Wolds formed the eastern shoreline of a large lake occupying the Vale of York during the Devensian glaciation, and the site was located on 'the 25-Foot Drift' deposits of sands and gravels laid down by this lake. These overlie Upper Triassic mudstones of the Penarth and Mercian Mudstone groups (BGS 1995). Where the land has been drained, deep fine sandy soils of the Everingham Association (SSEW 1983: 821a) have developed over the drift deposits. The land is currently designated as Grade 3 for agriculture (MAGIC).

The earliest layer recorded during the excavation was reddish clay silt, *30883*, which was overlain by a thin layer of humic ploughsoil, *30882*. Frequent plough scars visible in the stripped surface after removal of the topsoil imply that the land has been heavily truncated by deep ploughing.

20.3 Archaeological background

The site lies near the southern limits of an area of known cropmarks showing Romano-British enclosures and a probable road (MHU11041). The sand and gravel quarry on Dryham Lane, 700m south of the site, revealed an extensive settlement complex of Iron Age and Roman date (MHU8231) including a number of roundhouses surrounded by an enclosure ditch. The fills of many of the settlement features were below the water table and were rich in palaeo-environmental remains. Two shallow wells were found, one lined with wickerwork, and a spread of slag over the site indicated metal-working. The bases of the furnaces were identified downwind from the roundhouses and a source of ironstone was found just east of the site. The traditional roundhouses went out of use in the later part of the first century AD, but the settlement remained in use and the system of tracks and enclosures continued to evolve until the fourth century. Few traces of the Roman buildings had survived later ploughing, though stone scatters indicated where they once stood. Several small circular ditched enclosures were excavated and were thought to represent stands for hayricks. A broadly east-to-west trackway divided the main settlement from small fields to the north, and connected to a second, parallel trackway further south. Evidence for a more substantial Roman building was also found in the 1986-7 excavations, including ceramic building material, window glass and iron keys.

Evaluation trenching has also been carried out to the north of the quarry, showing that the remains extend closer to plot 126, and also revealing palaeochannels from the natural drainage of the area.

Further cropmarks of enclosures and field systems lie directly north of the site, beyond Carr Lane (MHU2838 and MHU2841). Cropmarks near the junction of Carr Lane and Cliffe Road, 300m east of the site, have been interpreted as a possible villa (MHU2842).

The field was meadow, being mown for silage when the fieldwalking survey was carried out in mid-March 2005, so was not walked. The geophysical survey noted a cluster of strong magnetic anomalies. These were in the vicinity of a visible mound, the result of recent disturbance, and it was thought that this disturbance might have caused the magnetic anomalies. The magnetic susceptibility was high in several places, including the area around the anomalies (Bartlett 2005).

Two evaluation trenches were opened in late early March 2006. In poor weather conditions, the only feature noted was a modern drain and no further work was carried out at this stage. However, monitoring of topsoil stripping in early May 2006 revealed linear features, and formal excavation was carried out from mid-May to the first week of June.

20.4 Site description

The site has been divided stratigraphically and morphologically into phases. However, the artefactual evidence cannot resolve Phases 2 to 4 into separate date ranges, the pottery assemblages all seeming to fit within the first to early second century AD.

Phase 1: Prehistoric

The earliest features present on site date to the prehistoric period and include a palaeochannel recorded to the north of the excavation area in the course of the watching brief and a natural pond (Fig. 66). Areas of tree-root disturbance were also present in this phase, suggesting that the site was partially wooded, perhaps as late as the Iron Age.

Palaeochannel **12628** was a relatively narrow and deep channel, measuring 1.5m wide by at least 1.36m deep and filled with a sequence of waterlogged clay and silt deposits. A layer of reddish brown sand, *12698*, at least 0.40m thick sealed this channel, and probably represented a localised flooding event after the channel had almost completely silted up. Following deposition of this layer, the palaeochannel was re-established and silted up on at least three occasions, giving rise to channels **12632**, **12630**, and **12629**. This pattern would suggest that periodic floodwaters from the Wolds scoured new channels across this flat landscape that otherwise would have had a quiescent hydrological regime. Pond **30805** (= **30807**) can also be included in this phase, dating from a time when the landscape was periodically flooded (Fig. 66). There is no evidence for the continuation of this pond in the later phases, suggesting it had also silted up by the later Iron Age.

Tree throws and other areas of root disturbance were scattered throughout the site; for the most part these were stratigraphically and artefactually undated but one of these features, tree throw **12695** (not on plan), was truncated by a Roman ditch.

Phase 2: Late Iron Age to early Roman

The first permanent occupation and division of the landscape into field systems and enclosures occurred in this period. The focus of activity was in the eastern side of the site. Ditches **30588** (= **30610**, **30660**, **30626**) and **30524** (= **30723**, **30726**) formed a segmented boundary, truncated by a sub-rounded enclosure, **30571** (= **30555**, **30573**, **30559**, **30529**, **30586**, **30638**, **30891**). This feature enclosed an open area with a north-east facing entranceway 2.5m wide (Fig. 67). Several of the interventions through this feature produced pottery, the largest assemblage, from intervention **30529**, providing a likely peri-conquest date. Intervention **30610** also contained a small assemblage of briquetage (fired clay objects associated with the manufacture of salt), including the rim of a container and fragments of hand-formed rods or pedestals (Appendix 5).

To the east of the entranceway, a cluster of pits, **30605**, **30601**, **30603**, surrounded a larger sub-rectangular pit, **30594** (Fig. 67). All of these pits contained charcoal and large quantities of burnt flint fragments. Pit 30594 also contained fuel ash and burnt clay.

The same area of the site also contained ditches **30593**, **30663** (= **30634**), **30656** and **30627** (= **12684**), which re-cut the earlier segmented boundary. The complexity of the area of intercutting ditches near the eastern end of the site perhaps suggests that they were short-term features, perhaps rapidly excavated to solve minor drainage problems and then abandoned. Part of the rim of a briquetage container, recovered from fill *12686* in intervention **12684**, provides further evidence for salt-making in the vicinity of the site.

Other ditches in this phase form more recognisable field systems, together with another potential enclosure. From the northern limit of excavation, ditch **12601** (= **30613**) extended for 23m, curving gently northward at each end, and may have formed the southern side of an enclosure. Ditch **30821** (= **30810**) formed a boundary just to the west of this enclosure.

Further to the west, a pair of parallel ditches, **30837** (= **30757**) and **30790** (= **30787**, **30915**), were positioned 2.7m apart; both ditches contained slump deposits, such as might have been produced by erosion of a bank positioned between them. Directly to the east of these paired ditches, the truncated remains of a large sub-rectangular enclosure, **12604** (= **30854**, **30863**, **30919**, **30780**), enclosed an area of at least 1400m^2 (Figs. 65 and 68).

A small ring gully, Structure 1, near the southern excavation limit, was open to the north-west (Fig. 66). This feature truncated feature **30926**, which may have been an earlier phase of the structure. It was heavily truncated in turn by both a large area of bioturbation, *30925* (= *30842*), and a modern drainage ditch. Two postholes were associated with the structure, one positioned to the south-east, **30850**, and another just outside the entrance, **30844**.

Phase 3: Late Iron Age to early Roman

This phase includes fragments of field systems and redefinitions of earlier boundaries. In the western part of the excavation area, two narrow ditches, **30766** (= **30851**, **30833**) and **30859** (= **30923**, **30840**), were positioned to recut the earlier paired ditches and the western side of the large enclosure (Fig. 65). Notably, the central area between the ditches was respected, suggesting that the probable bank and hedge between them were maintained while the ditches were cleaned out to aid drainage. The eastern side of the large enclosure was also truncated by ditch **30754** (= **30796**).

Towards the eastern end of the excavation area, ditches **12687** (= **30734**, **30637**) and **30614** (= **30644**, **12689**) were positioned 1.5m apart, suggesting another double ditch and bank boundary. This truncated the earlier enclosure (Fig. 67). Directly to the north of this boundary, two short ditches, **30608** and **30662** (= **12624**), were 5m apart, with a large posthole, **30659**, roughly central between them. These features may have been elements of an additional segmented boundary, possibly with a fence or gate arrangement in the gap between the ditches.

Other field boundaries included ditch **30817** (= **30812**), which recut the Phase 2 ditch, **30821**, and fragments of shorter ditches to the west of the enclosure. Ditches **30539** (= **30549**, **30715**, **30550**, **30567**) and **30741** (= **30714**, **30669**, **30544**, **30901**) appeared to define two sides of an enclosure.

Phase 4: Late Iron Age to early Roman

Evidence for later features was limited and, with no late Roman artefacts recovered from stratified contexts, it is likely that the few ditches in this phase dated to a later phase of the early Roman period. However, the presence of late Roman pottery in the ploughsoil indicates continuing activity on the site throughout the Roman period, but with any dated deposits likely to have been lost to truncation.

The large sub-rectangular enclosure developed in Phase 2 was re-established in this phase by ditch **30754** (= **30914**, **30746**, **30772**, **30839**, **30865**, **30858**), respecting the edge of the Phase 3 boundary ditch (Figs. 65 and 68).

Further east, a short ditch, **30802** (= **30803**), parallel with the eastern arm of the enclosure, terminated at junctions with two earlier ditches, probably utilising them as existing drains.

Another enclosure ditch, **30667** (= **30739**, **30619**, **30579**, **30887**, **30541**), extended south from the northern baulk, turning east to truncate earlier field system fragments and a possible enclosure defined by the Phase 3 ditch **30549** (Fig. 67).

Phase 5: Post-medieval and modern

The site was criss-crossed with plough scars and furrows, varying in alignment and depth. The relatively fertile but shallow ploughsoil has encouraged cultivation and left the site heavily truncated by modern agriculture, with no visible subsoil remaining. The presence of over 100 sherds of pottery, spanning the late Iron Age to fourth century AD, recovered from the ploughsoil provides an indication of the degree of disturbance of archaeological deposits that has occurred. Selected plough scars were excavated where they intersected archaeological features; these included features **30901**, **30643**, **30712**, **30527**, **30575**, **30825** and **30629** (not on plan).

Other features in this period include drainage ditches **30824** (= **30871**) and **30869**, separated by a stone-lined culvert, **30868** (= **30862**, **30867**), which may have marked a previous field entrance (Fig. 64). Two recent pits were revealed near the centre of the site, **30813** and **30815**. Both features contained loose, humic backfills and possibly represent part of a now removed hedgerow, with the plants positioned in spade-cut pits. Other modern remains included a network of ceramic field drains.

Table 8: Structure, Carrcliffe Crossroad

Structure	Cut numbers	Phase	Dimensions
1	30846, 30789, 30848	2	3.3m

20.5 Discussion

The Carrcliffe Crossroad site lies on the edge of an area of fertile soil developed on low-lying prehistoric wetland. As such, the site has been heavily plough-damaged, with no discernable subsoil surviving and a thin layer of humic topsoil overlying layers of clay silt developed from past wetlands. The variation in size, depth and alignment of the plough-scars that were visible across the site, particularly as the ground rises to the east and the topsoil thins, indicates many years of intrusive agriculture. There is little evidence of any medieval agricultural land-use, and it is likely that the area was used for common grazing or meadowland for the village of Hotham, on the high ground to the east, at this time. Intensive agricultural land-use would have followed subsequent drainage and enclosure of the land.

The earliest evidence of activity dates, perhaps, from the late Iron Age, with single-ditch boundaries and heavily truncated fragments of field systems. Around the time of the Roman Conquest, enclosures and double-ditch-and-bank boundaries were being developed, suggesting enclosed settlement similar to that recorded in previous excavations to the south (MHU8231). A cluster of pits just outside the smaller enclosure contained fuel-ash, heated clay and, curiously, small fragments of burnt flint. It is unclear as to what process produced this evidence of heating but it seems to have been deliberately positioned outside the enclosure.

There is no evidence of domestic habitation on the site, with the only structure present appearing to be a small, isolated hut away from the enclosed areas. Truncation by ploughing has likely removed any evidence of shallow roundhouse-type structures that may have been present, with only the deeper enclosure ditches surviving.

By the early Roman period, both of the enclosed areas had gone out of use, with no obvious replacements within the site. Instead, this period witnessed renewed boundary formation, both by cleaning out the ditches of an existing double-ditch and bank boundary in the western part of the site, and the formation of a new boundary in the south-east. This new boundary appeared to be another double-ditch and bank, with an additional segmented ditch and a post positioned just to the north. This may indicate that the main focus of the site shifted in this period to the area beyond the northern limit of excavation, further into the area of known cropmarks to the north (MHU11041). Later development within the excavation area was then limited to re-defining existing boundaries and re-establishing the sub-rectangular enclosure.

Artefactual evidence suggests that the stratified deposits date from a single ceramic phase typical of the late Iron Age to earliest Roman period (Appendix 2). As the stratigraphy indicates several phases of land-use, this would suggest either that the phases occurred within a few generations, or that later settlement relocated away from the excavation area. Faunal remains were limited from the site, but suggest that sheep were part of the diet and may have been an important element of the economy of the site. Environmental samples have not revealed the presence of any cultivated crops, again suggesting that the site economy was largely pastoral.

20.6 Potential

The site provides an opportunity to study rural settlement, land-division and economy on the low-lying land around the Humber Estuary in the later Iron Age and early Roman period. The site has only one possible structure, but there is evidence for salt-making.

The peri-conquest pottery assemblage warrants further study and comparison with other work from the region. The presence of almost entirely late Roman pottery from the topsoil indicates a missing phase of the site and suggests ploughing may have removed later deposits. Further study of the unstratified assemblage may refine the date of these ploughed remains. Further analysis of the animal bone assemblage and comparison with other lowland sites from this period could contribute to understanding of the local early Roman economy of the area. Although only a small quantity of material was recovered, the fired clay assemblage contains briquetage, augmenting the growing evidence for the production of salt in the area of upper Walling Fen and Hotham Carrs. The processing waste recovered by hand was undiagnostic slag or fuel ash; the environmental sample residues produced insufficient hammerscale to reliably imply the presence of metal-working on site.

The results of environmental sampling suggest a focus of settlement activity at the eastern end of the site, with the assemblages likely to reflect the later stages of crop processing and food preparation rather than the agricultural production stages. In general, these charred plant assemblages are not in good condition, but weed species and several of the charred cereal grain and chaff fragments will be identifiable to species.

The charcoal assemblages include samples with abundant small twiggy material which, when identified to species and in association with the richer cereal samples, may reflect some specific use of local fuel resources.

20.7 Recommendations

- Documentary research into rural settlements and salt-making on the lowlands around the Humber Estuary.
- Comparison of the briquetage with material from the pipeline and the region.
- Illustration of up to six pieces of briquetage.
- Further analysis of the pottery assemblage and comparison with other sites in the region.
- Specialist identification of a single sherd of samian ware.

- Illustration of up to thirty-one pottery vessels.
- Further species identification of all sorted flots.
- Quantification of a representative sample of the charcoal from samples 357, 359, 360, 361, 363, 367 and 368, to include both late Bronze Age and Iron Age samples and to indicate what local tree and shrub species were available for food production and fuel use.

21 PLOTS 128 AND 129, SNAKE HALL

Central NGR: plot 128: SE 8769 3371 and plot 129: SE 8757 3357
Civil Parish: Hotham
Area of excavation: plot 128: 7600m^2, plot 129: 962m^2, total: 8562m^2
Figures 6, 69, 70

21.1 Summary

Archaeological remains included field systems, two possible enclosures, droveways, a small ring gully and an alignment of pits. The artefactual evidence suggests that the site dates largely to the late Iron Age and early Roman period, but with some activity in the later Roman period.

21.2 Location, topography and geology

Plots 128 and 129 lay to the south of Carr Lane on Hotham Common, the low-lying area beneath the western scarp slope of the Wolds, 2km west of Hotham village. Snake Hall South farmhouse is 400m to the west (Fig. 6). The land sloped very gently down to the west, the ground surface in the north-east end of the excavation area in plot 128 being around 6.3m OD, dropping to 5.0m OD in plot 129.

The site lies on glacial lacustrine sands and gravels of the Vale of York 25-Foot Drift group. These overlie Upper Triassic clays of the Mercian Mudstone group (BGS 1995). The soils to the east of the site are described as permeable calcareous coarse loams of the Landbeach Association, which give way to the west to deep fine sandy ground-water gleys of the Everingham Association (SSEW 1983: 512b and 821a). The land is designated as Grade 3 for agriculture (MAGIC).

The earliest layer recorded during excavation was loose yellow silt, *30497*, overlain by silty subsoil, *30496* and a thin layer of silty ploughsoil, *30495*. All of the archaeological features on this site were cut into silts and were sealed below the subsoil layer.

21.3 Archaeological background

The north-eastern end of the excavation area was less than 150m from the Carrcliffe Crossroads site described above, and the archaeological and landscape context of the two sites is very similar. Both lie within an extensive area of cropmarks, those in the area of the Snake Hall site showing enclosures, believed to be of Roman date, and a probable road (MHU2838).The group of sites in plots 132 to 134, described below, also lie within the same cropmark-rich landscape.

At the time that the field survey was carried out, plot 128 was meadow, in the process of being mown for silage, and was not fieldwalked. Plot 129 was arable, with a seedling crop, affording fairly good ground visibility. However, the finds were very sparse: a single piece of struck flint and three sherds of post-medieval or modern pottery.

The geophysical survey showed few magnetic anomalies in plot 128, but at the north-eastern end of plot 129 there was a group of strong and distinct anomalies, as might be expected in the presence of industrial debris. These anomalies were irregular, with no identifiable linear features, and the possibility that they were of natural origin could not therefore be excluded without further investigation (Bartlett 2005).

Four evaluation trenches were opened in plot 129 at the end of February 2006. The three southernmost trenches proved sterile, but the most northerly trench, positioned over the strong geophysical anomalies, revealed the presence of Iron Age or Roman ditches. A controlled topsoil strip of this area was carried out in late April.

Before excavation could be time-tabled, the construction topsoil strip had reached this part of the

pipeline route in the first week of May, and it quickly became apparent that there were further archaeological remains throughout much of plot 128. The scope of the excavation was then expanded to encompass this plot as well as the small area at the north-east end of plot 129. At this late stage in the construction process, complete excavation of the features in plot 128 would have caused severe delays; it was agreed that excavation should concentrate on the running track and then on the subsoil side of the working width. Subsequently, archaeological monitoring of the excavation of the pipe-trench allowed for some additional recording of features in the unexcavated central strip.

21.4 Site description

Phase 1: Late Iron Age to early Roman

The earliest deposits on site included field boundaries, a droveway, a large enclosure and a small structure.

Two parallel ditches, **12953** (= **12986**, **12982**) and **12950** (= **12985**, **12973**), were positioned 3m apart in plot 129 (Fig. 70a). The more northerly of the pair terminated opposite a narrow linear feature, **12971** (= **12992**), on a perpendicular alignment, creating a 2.5m wide entranceway. A short length of ditch, **12961**, running into the eastern limit of excavation, also seems to be of this phase. All of these ditches had gentle concave profiles and contained a sequence of silt deposits, often showing laminated lenses indicating rapid deposition in moving water. Ditch **12986** produced a block of fired clay, probably a piece of briquetage from salt-making (Appendix 5). Ditch **12959** (= **12968**) recut the earlier ditches (Fig. 70a) and probably resulted from a redefinition of an older boundary.

Within plot 128 the ditches of this phase formed a rectilinear system of enclosures or small fields. these included the stratigraphically early ditches **30372** (= **30426**), **30236** and **30377** (= **30417**, **30249**) (Figs. 70a and b). Other ditches in this same rectilinear pattern and include features **30245** (= **30363**) and **30306** (= **30316**) (Figs. 70a and b). Other fragments of ditch systems in this phase included features **30445** (= **30382**), **30466**, **30247** and **30303**, and a sinuous feature **30437** (= **30446**, **30444**, **30324**, **30311**), which ran roughly parallel to the western side of enclosure **30225**. These ditches lacked the laminated sediments found in plot 129, suggesting there was less rapid deposition within the boundary features here.

Ditch **30261** (= **30259**, **30439**, **30368**, **30355**) included an obtuse-angled bend before running under the north-western limit of excavation. This ditch produced a fairly sizable pottery assemblage, almost all consistent with a late Iron Age date. The lower fill of this ditch were waterlogged and produced rich assemblages of charred plant and insect remains from the bulk samples taken. This angled ditch, together with ditch **30245**, enclosed a narrow ditch **30435** (= **30427**, **30415**, **30349**, **30479**). Both the enclosing ditch and the internal curving feature had been truncated by modern ploughing, which is would have removed any shallow internal structures in the area enclosed by ditch **30435**.

A small ring gully, Structure 1, was located against the eastern site margin of plot 129 (Fig. 70a; Plate 17). This had no apparent entranceway and was less than the expected size for a domestic structure. However, it contained small quantities of pottery, as well as pieces of burnt clay and heated stone. The burnt clay includes a loomweight and a possible briquetage slab (Appendix 5).

Two corners of the remains of a possible second sub-rectangular enclosure ditch, **30225** (= **30283**, **30288**, **30300**, **30276**), lay within the limits of the site (Fig. 70b). A line of pits, **30215**, **30217**, **30219**, **30221** and **30223**, followed the outer curve of the south-west corner of the enclosure. All of the pits had been heavily truncated and appeared to have rapidly filled with redeposited silt. A similar pattern was revealed at the northern corner, with pits **30461** and **30464** inside the enclosure, and pits **30451** and **30453** located just outside. Again, these pits had clean silty fills, possibly the original upcast from their excavation.

The remaining features of this phase were paired parallel ditches located at either end of the site. At the north-eastern end of the site, ditches **30212** and **30233** (= **30270**, **30329**), positioned 4m apart and

running parallel to the northern side of an enclosure, were possibly roadside ditches of a droveway or the remains of a double-ditch and bank boundary with the bank now removed by truncation. Ditch **30329** produced an assemblage of pottery dated to the mid-Roman period; however this material was all recovered from an intervention where the ditch was truncated by phase 2 ditch **30210** (= **30273**, **30339**), and the material has likely been derived from mixing during excavation. Towards the south-western end of the site, ditches **30411** (= **30424**, **30251**) and **30419** (= **30387**, **30374**) were positioned 3.5m apart and could have performed similar functions, marking either a droveway or a truncated ditch and bank boundary (Figs. 70a and b).

Finally within this phase, a large pit, **30367**, was positioned near the western limit of excavation and contained dumped domestic material including pottery sherds and animal bone (Appendices 2, 11).

Phase 2: Roman

Several of the linear features in plot 128 (Figs. 70a and b) formed a distinct phase, truncating the Phase 1 ditches. They produced few datable artefacts but they represent a redefinition of the Phase 1 enclosures and must therefore have followed fairly closely. At the south-western end of the site, roughly parallel ditches **30398** (= **30432**, **30434**, **30265**) and **30263** (= **30388**) truncated the previous parallel features either as a new droveway or, perhaps more likely, another ditch and bank boundary (Fig 128).

Similarly, at the north-eastern end of the site, ditch **30210** (= **30273**, **30339**) recut one of the previous parallel ditches, **30233**, perhaps to redefine the boundary. Ditch **30309** (= **30293**, **30469**, **30296**, **30382**, **30381**) may have represented a minor alteration to the existing field systems, although it is noteworthy that it serves as a partial recut of Phase 2 feature **30437** and appears to respect the position of the Phase 2 enclosure. It was probably broadly contemporary with ditch **30313** (= **30351**, **30232**) and also ditch **30210**, though this relationship was beyond the excavation limits.

Phase 3: Modern

Pit **30267**, near the south-eastern edge of excavation (Fig. 70b), appeared to have been machine-dug and contained an articulated sheep skeleton, presumably buried rapidly after it had died in the field. Other modern remains included a network of ceramic field drains.

Table 9: Structure, Snake Hall

Structure	Cut numbers	Phase	Dimensions
1	12977	1	3m

21.5 Discussion

The main phases of occupation at the site were during the late Iron Age and early Roman period, with limited evidence for later Roman land-use, restricted to recutting previous field systems. While the site can be split into more than two stratigraphic phases, the pottery assemblage shows only two main chronological components: a late Iron Age to early Roman phase and a distinct mid-Roman phase.

The earliest phase included droveways, rectangular enclosures and a small structure. There is limited evidence for domestic habitation, with the two large rectangular enclosures largely lacking internal features. However, the enclosure ditches themselves have suffered considerable truncation, which would have removed shallow roundhouse ring gullies. A nearby excavation (MHU8231) found surviving roundhouses with enclosures, suggesting enclosed settlement may have been the common practice at this time.

One of the rectangular enclosures had two associated alignments of pits, all largely containing sterile silts and few artefacts. Pits in single alignments are typical of the later Iron Age and have been suggested as a form of boundary, perhaps in agricultural areas (Harding 2004, 75).

A small surviving structure on plot 129 has retained some domestic artefacts, although both its size and the presence of burnt stone and fired clay within the fills suggest it may have had a utilitarian function. Similar-sized features were interpreted in a nearby excavation (MHU8231) as being potential hayrick platforms, as they lack entranceways. The waste stone and fired clay present may have been used to form an area of hard standing in the centre of the ring, perhaps on the upcast soil, to help keep the hay dry.

Parallel ditches were common within the site, all similarly aligned. At least some of these are likely to have marked the edges of droveways for pastoral husbandry, similar to those excavated at nearby Dryham Lane Quarry (MHU8231) and seen on cropmarks. Other paired ditches are more likely to have formed a boundary with the ditches on either side of a central bank and probable hedgerow. These features are found adjacent to the rectangular enclosures and were probably used to separate the enclosed settlement areas from pasture.

Faunal remains from the site suggest a sheep-based economy, typical of the upland Wolds communities and differing from the predominantly cattle-based economies found on lower land more susceptible to flooding. This would suggest that the site was grazed in drier seasons and the stock moved to the higher land around Hotham village in the wetter winter months.

Freshwater flooding was a risk at this site, however, as the laminated ditch fills on plot 129 testify. Risk of flooding may have prevented the site continuing as a settlement into the later Roman period. Potential land-use could also be a factor, as the general shift towards cereal production in the third and fourth century AD may not have suited this pastoral landscape. Current soil maps show the site to be of grade 3 or 4 quality, of average to poor quality for arable use.

21.6 Potential

The Snake Hall site contains remains from the later Iron Age to early Roman period, with very limited evidence of any later Roman remains. It represents pastoral field systems, enclosures, boundaries, potential droveways and a single possible building. This site illustrates changing rural land development through the Roman period and may indicate local environmental changes as well as shifts in local economies.

The fired clay assemblage contains possible evidence for the manufacture of salt as well as textile manufacture. Evidence for both of these crafts could contribute to a comparative study in combination with other sites in the area, including those along the route of the pipeline. Similarly, the faunal assemblage, in conjunction with those from other sites, will contribute to knowledge of the agricultural economy of rural settlement and field system sites in the area.

Environmental preservation from organic deposits will allow a greater level of analysis than on many other sites along the pipeline route. Analysis of charred grains and seeds, waterlogged plant remains, insects, pollen and peat deposits are all considered worthy of further work.

The pottery represents an interesting peri-conquest group of first and second century vessels and is worthy of further research and reconstruction and illustration of these important groups for publication.

21.7 Recommendations

- Documentary research into comparative period rural sites in East Yorkshire.
- Further analysis and a short report on the fired clay to add to the larger assemblages along the pipeline.
- Illustrations of up to four selected fired clay objects.
- Documentary research into textile crafts and salt production within the region.

- Consideration of the faunal remains alongside other assemblages from nearby sites and from within the region.
- Analysis of charred plant remains from samples 812 and 814, from the fills of ditch **30261**, and further analysis of organic sample 816 for charred plant remains, especially cereal grain.
- Analysis of the four samples from the fills of ditch **30261** with the best preservation of uncharred plant macrofossils: samples 816, 818, 819 and 822.
- Full analysis of the insect remains from samples 816 and 819, in conjunction with the analysis of the plant macrofossils from these samples.
- Analysis of pollen from samples 812, 816, 819 and 822 to determine if cereal pollen is present that would provide collaborative evidence for arable cultivation or activities associated with it.
- Implementation of a programme of radiocarbon dating of material from samples 810, 812, 816, 819 and 822, in order to establish the chronology of significant fills.
- Identification of the chaff in sample 796 from the terminal of ditch **12971**, to give a record for this site that can be used in the cross-site discussions.
- Identification of the charcoal from samples 799 and 796, to give an indication of the fuel types being used at the site and any palaeo-environmental evidence this might yield in terms of the tree and shrub species growing in the area.
- Specialist identification of one sherd of prehistoric pottery.
- Research and rebuilding of the peri-conquest group of pottery from plot 129 with up to twelve illustrations.
- Research and rebuilding of the pottery group from plot 128 with up to fifteen illustrations.

22 PLOTS 131, 132, 133 AND 134 BLACK DIKE

Central NGR: SE 8698 3285
Civil Parish: North Cave
Total area of excavation: 10,080m^2
Figures 6, 71 to 78

22.1 Summary

A large ring gully and several smaller annular and penannular gullies had been recut on several occasions so that, in total, nine structures were identified. These were set in a pastoral landscape defined by ditch systems. Two phases of a corn-dryer were also identified along with a large pit, possibly the remains of a water-hole. The recovered artefacts suggest that activity was largely confined to the later Iron Age and early Roman periods. The excavation area sampled a much wider area of cropmarks to the west of the Wolds.

22.2 Location, topography and geology

The excavation area, largely in plots 132, 133 and 134 but extending north-eastwards into plot 131, was located 400m north of Common Farm with the southern edge of plot 133 abutting the western end of Dryham Lane. North Cave village lies on the ridge of the Wolds to the east, All Saints Church being just over 2.5km distant (Fig. 6).

This site is part of a group of sites, also including Carrcliffe Crossroad and Snake Hall (above), on the low-lying land to the west of the Wolds. Ground level at the north-eastern end of the excavation area was 4.1m OD, dropping to 2.2m at the south-western end.

Clays of the Mercian Mudstone group, overlain by the 25-Foot Drift lacustrine deposits laid down in the Vale of York glacial lake, underlie the site (BGS 1995). Soils are fine sandy groundwater gleys, developed over artificially drained land, classified in the Everingham Association (SSEW 1983: 821a). The land is designated as Grade 3 for agriculture (MAGIC).

A substantial drain separated plots 132 and 133; this field boundary was initially taken, rather arbitrarily, as a division between sites, but the features at the south-west end of plot 132 clearly continue into the north-east end of plot 133, and the sites were combined for the purposes of this report. It may be better to regard the sites described here separately as Carrcliffe Crossroad, Snake Hall and Black Dike as elements of a single coherent landscape.

In the excavation area, the earliest layers recorded were described as chalky gravel, *51045*, within plot 132, glacial silts, *12790*, within plot 131, and as silt, *30001* (= *30002*, *30003*, *13301*) and *13427* (= *13400*), in plots 133 and 134. These natural deposits were overlain by silty clay subsoils, *12791* (= *51041*) and *13428* (= *13402*), below a thin layer of dark silty clay ploughsoil, *12792* (= *51040*) and *30000* (= *13300*). All of the archaeological features on this site were cut into either alluvial silt or glacial drift and sealed below the subsoils.

22.3 Archaeological background

This group of sites lies in a wide area of cropmarks. The cropmark formations in the immediate vicinity of the site have been interpreted as enclosures and a possible road (MHU2838) and irregular-shaped fields, some with double ditches, and a possible hut circle (MHU1425). The archaeological investigations at Dryham Lane Quarry, and possible extensions to it, carried out in 1986-7, 1992, 1994-5, 2002 and 2004 (MHU8231) also contribute to a picture of an extensive area of activity and settlement in the late Iron Age and early Roman periods.

Roman finds from this broad area include coins and a fibula brooch recorded on the first edition Ordnance Survey map, 250m south of the site; a 'Romano-Celtic' dragonesque brooch and a coin of Constantine (318-324 AD) recovered 500m to the east by a metal-detectorist (MHU19846); another coin of Constantine found by a metal-detectorist 200m to the east (MHU15507); and an ornamental knife handle found at Dryham, 500m to the east, and reported in 1846 (MHU3121).

The desk-based assessment highlighted this area as having a high potential for Iron Age or Roman remains and stressed that 'particular attention should be paid by the field surveys to the stretch of pipeline which passes through and close to this area. Avoidance mitigation should be considered, if feasible and desirable at a later stage' (Burton 2005a).

There was magnetic activity in most of the plots in this stretch of the pipeline, although the author of the geophysical survey report cautioned that it appeared to be unusually extensive for an archaeological site, and that industrial or iron working sites would also be expected to contain at least some stronger and less uniform magnetic anomalies than were found at these locations. It was therefore thought possible that these disturbances represented natural magnetic anomalies of a kind which are characteristic of former coastal marshland (Bartlett 2005). Access was not possible to the south-western part of plot 132 at the time of the geophysical survey, as it was being used for rearing game birds.

At the time that the field survey was carried out, plot 132 was under pasture and was being grazed by sheep, so it was not fieldwalked. Plot 131 was arable with a sprouting crop which afforded fairly good ground visibility, but only two sherds of modern pottery and a single piece of ceramic building material were recovered. Plot 133 was an arable field, but had unploughed stubble at the time of the field surveys, which reduced ground visibility. Only a single piece of undated ceramic building material was recovered during fieldwalking. Plot 134 was pasture, being grazed by sheep. Earthworks were noted in this field, including a gully near to the western edge of the field and slight amorphous or linear humps.

Although the field surveys had provided little evidence of archaeological activity, a decision to proceed with evaluation was made because of the recorded cropmark sites. Single evaluation trenches were opened in plots 131, 132 and 134, with two opened in plot 133 in February 2006. The trench in plot 131 was archaeologically sterile, but the trench in the centre of plot 132 and those in 133 revealed archaeological features. A controlled topsoil strip of the working width through the whole field was carried between mid-March and mid-April, followed by area excavation, concentrating initially on clearing the running track to provide access to construction traffic. The excavations were completed on 11 May 2006. Meanwhile, the construction topsoil stripping had reached this area and two ditches, one of which had been recut, were revealed near the south-western end of plot 131. These ditches were excavated and recorded by the watching brief archaeologists in early May.

22.4 Site description

Phase 1: Late Iron Age to early Roman settlement

The earliest phase of land-use consists of fragments of field systems. In plot 133, this phase included ditches **30086** (= **30053**, **30088**, **30109**, **30107**, **30111**) and **30033** (= **30016**), the much smaller ditch **30078** towards the western end of the excavation area (Fig. 73), and ditches **13317** and **13310** in the cluster of features at the north-eastern end of the plot (Fig. 74). In plot 134, four roughly parallel ditches near the western end of the site have been included in this phase: ditches **13481** (= **13530**), **13526**, **13535** and **30501** (= **13440**) (Fig. 72). The line of ditch **13535** was continued northward by ditch **13446** (= **13444**), which had a right-angled return, **13442**. At the eastern end of the plot, ditch **13543** has been assigned to this phase, as has a small curving ditch, **13532**, in the centre of the plot. Ditches in both plots exhibited signs of sediment build-up from standing water, and occasionally contained lenses of organic matter in the deeper cut features.

Structures 1 and 2 were represented by small, circular ring gullies in plot 133 (Fig. 73). Both of these features were less than 4m in diameter; Structure 2 was an unbroken ring, while Structure 1 was penannular, with a very narrow south-east-facing entrance (Plate 18).

A horseshoe-shaped ditch, Structure 4, in the north-eastern end of plot 133 has been interpreted as a partial ring gully, with a possible entrance to the north-west, that apparently surrounded the slightly smaller Structure 3 (Fig. 74). A vertical-sided pit, **30192**, containing a compacted layer of charcoal overlain by a backfill of loose silt, charcoal and abundant fragmented late Iron Age pottery, lay just to the west (Appendix 2). This feature produced the largest assemblage of briquetage from the sites along the pipeline route, suggesting that there was a saltern very close by, perhaps just beyond the limits of excavation (Appendix 5). A small rectangular pit, **30197**, was located in the mouth of the structure and may also have had a function related to salt-making, perhaps as a small settling tank.

Plot 134 contained much larger structures more easily identified as being domestic in nature. Structure 5 was a large ring gully with an east-facing entrance. It was overlapped by Structure 6, which appears to have been a similar-sized replacement, displaced 2m to the west (Fig. 72). The Structure 5 ring gully produced a large assemblage of pottery, including 39 rim sherds. Structure 7 was a direct replacement of the previous two phases of round houses, Structures 5 and 6 (Fig. 72). This ditch was of similar dimensions to that of Structure 5, which it partly recut. Within the area enclosed by these ring gullies, a dense concentration of postholes included features **13582**, **13586**, **13590**, **13553**, **13495**, **13557**, **13499**, **13556**, **13559**, **13456**, **13566**, **13575**, **13561**, **13584**, **13493**, **13551**, **13491**, **13450**, **30518**, **30522**, **30520** and **13571**. A cluster of larger features within the area enclosed by these ring gullies includes pits **13497**, **13504**, **13588**, **13438** and **13436**.

Discrete pits included a clay-lined feature, **30114**, in plot 133 and pits **13538**, **13534** and **13506**, with the intercutting pair **13522** and **13510**, to the south of Structures 5 and 6 in plot 134. These pits varied in size and shape, and mostly contained backfilled natural silts, with few artefacts present.

Located centrally within plot 132, a penannular ditch, Structure 8, with vertical sides and a flat base, surrounding a sub-rectangular pit, **13156**, 1.8m long by 0.5m wide (Fig. 75). Both the ditched structure and the pit had been heavily truncated, with as little as 0.15m surviving depth to the features. A single fragment of iron was recovered from the pit. This structure resembled a small square barrow in plan; the high degree of truncation could well have removed any central mound and inhumation that may have originally been present. To the north-west and west of Structure 8, a row of postholes and pits, **13192**, **13194**, **13061**, **12788** and **12784**, were also heavily truncated, typically measuring less than 0.1m deep. They have been tentatively phased here by the level of truncation, which seemed to be typical of the early features on the site, and by their proximity to Structure 8.

Structure 9, a sub-square ditched feature with two internal postholes, **13122** and **13124**, was located in an open area in plot 132 near to Structure 8 (Fig. 75). No entranceway through the feature was visible, but truncation of the north-western side by a later ditch could have removed any evidence of such an entranceway. Structure 9 contains pottery dating to the first to second century (Appendix 2). At the lower end of the size range for roundhouses, the feature may represent a field hut rather than a domestic dwelling. Alternatively, like Structure 8, this could potentially represent a small truncated square barrow.

Ditch **13168**, running into the south-eastern edge of excavation approximately 40m north-east of Structure 8 (Fig. 76), is dated stratigraphically, as it was truncated by an early Roman ditch.

Digging of ditches to redefine existing boundaries and to remove accumulated silt occurred throughout this phase. Within plot 133, ditches **30147**, **30149**, **30082** (= **13302**, **13329**, **30167**), **30094** and **30047** (= **30080**, **30013**, **30124**) sub-divided the landscape, truncating earlier features. Ditch **30010** (= **30025**) curved from the south-western site margin to the east and probably represented a partial enclosure. In plot 134, ditches **13490** and **13528** dated from this phase, apparently redefining the boundary previously marked by ditch **13526**.

Pit **30201** (= **13322**), in the north-eastern part of plot 133 (Fig. 74), measured approximately 3.2m long by 3m wide by 1.2m deep, with steep sides and a concave base. It was filled with a sequence of naturally accumulated silt containing occasional organic and charcoal inclusions. A lack of slump deposits suggests that this feature may once have been revetted to prevent collapse of the steep sides. The final deposits in this feature contained dumps of discarded domestic refuse including pottery and small animal bone fragments (Appendices 2, 11).

The most significant features in plot 132 were two wide, parallel ditches **13273** and **13276**, separated by 3.5m (Fig. 76). Both features measured just over 3m wide and 0.5m deep. These features extended for 30m across the site and both ended in rounded terminals. The fills of these ditches were sterile silty clays, typical of slow erosion of the surrounding ground surface, possibly indicated the presence of a collapsed central bank. No artefacts were recovered from ditch **13273**, but the other ditch produced a small but interesting pottery assemblage, including a sherd with burnished lattice decoration and two joining sherds with a row of decorative stamps. These are possibly early Roman, though parallels are still being sought (Appendix 2). A second intervention through ditch **13276** produced a sherd of a possible imitation samian vessel.

Phase 2: Roman field systems

Land-use in Phase 2 is typical of Romano-British field systems along the pipeline route. The pottery from both this and the subsequent phases seems to be consistent with a second or third century date.

A series of narrow ditches in plot 132 formed an open rectilinear network, on broadly coaxial alignments. These included ditches **13190**, **13188** (= **13077**, **13263**), **13250**, **13254** (= **13079**, **13083**, **13073**, **13216**, **13105**, **13242**, **13256**), **13252** (= **13089**, **13209**, **13082**, **12747**), **13088** (= **13196**) and **13290** (= **13113**, **13212**) (Figs. 75 to 77). Ditch **30117** (= **30126**), in the north-east corner of plot 133 (Fig. 74), seems to continue the line of ditch **13188** in plot 132. Parallel to this was ditch **30014** (= **30015**, **30049**) which may have been a continuation of ditch **13190**. Ditch **30028** (= **30199**, **30045**, **30029**) lay on a similar alignment in plot 133, although it was both wider and deeper.

The pattern was less clear in the central area of plot 132, where ditches **13178** (= **13012**) and **13162** seem to be on a different alignment from ditches **13238** (= **13021**) and **13164** (= **12767**), perhaps indicating two sub-phases which cannot now be distinguished because of the extent of disturbance by later features in the area. After a break of some 40m, the ditch network continues towards the north-eastern end of the excavation area, where the alignments of ditches **13285**, **13283**, **13281**, **13260** and **13279** (= **13136**, **13006**, **13008**) again suggest two sub-phases. These ditches all contained relatively sterile silty fills.

Two isolated pits, **13067** and **12776**, were also included in this phase; both were over 1m in diameter and contained backfilled silts (Figs. 75 and 76).

Phase 3: Roman: second or third century AD

Features in this phase included an arrangement of parallel ditches, possibly marking a wide droveway with field entrances. The southern side of this, which truncated Structure 9, was formed by ditch **13090**, the southern return of ditch **13172** (= **13210**, **13220**), and ditch **13158** (= **13185**) (Fig. 76). Intervention **13210** produced a sherd of a bead-and-flange mortarium, probably of second-century date. Ditch **13160** (= **13023**, **13014**, **13056**) provided a northern counterpart. To the north, the severely truncated ditch **12778** (= **12764**) was similarly on a parallel alignment (Fig. 76). Near the south-western end of the plot, ditch **13294** (= **13075**, **13070**, **51043**) may have linked into the same pattern (Fig. 75). Ditch **13271** (= **12745**, **13085**, **13170**) could also belong to this phase.

Phase 4: Final Roman field systems

During the later Roman period, new field systems were laid out in plot 132. These frequently truncated earlier silted-up ditches, suggesting there may have been a period of abandonment between Phases 3 and 4. Ditches in this phase shared a common alignment. Two ditches in the centre of the site, **12781**

(= 12779, 13247) and 13154 (= 13151, 13181, 13111, 13140, 13040), may have resulted from the reinstatement of the earlier droveway after it had been lost in a reordering of the field system, marked by the installation of ditch 13265 (= 13043) in an earlier stage of this phase (Fig. 76). The Phase 4 ditches contained similar silt deposits to those of the earlier phases, and had no evidence of waterlogged deposits or rapid flood events. Their fills produced relatively few finds, and a fairly high proportion of the pottery sherds that were retrieved may have been residual.

Ditch 30051 (= 30004, 30195, 13308, 13305) running across plot 133, marks a redefinition of the previous boundaries. Ditch 30082 was partially recut by ditch 30159 (= 13316) (Fig. 74) and may have formed part of this new boundary.

A large pit, 13059, was dug into the upper fills of ditch 13265. This pit contained rapidly backfilled silts, charcoal and organic flecks, probably the products of discarded food waste. A discrete pit, 30052, was also present near the north-east corner of the plot, containing backfilled silt and occasional charcoal flecks.

Of particular interest in this phase was the presence of two phases of a corn-dryer built on top of earlier Roman ditches (Figs. 76 and 78; Plate 19). Corn-dryer 1, 12722, was positioned with the stone-lined warming box at the western end and the stokehole to the east, separated by a long stone-lined flue. This feature was later re-built as Corn-dryer 2, 13115, in a perpendicular alignment, re-using the previous warming box as a stokehole linked to another stone-lined flue and T-shaped terminal. The first phase of the corn-dryer contained pottery dated to after the third or the first half of the fourth century.

Phase 5: Medieval and later

A large sub-oval feature, 13045 (= 13047), towards the north-eastern end of plot 132 measured over 15m long by 5m wide and 0.2m deep (Fig. 77). It is likely to have been a pond, perhaps dating to the medieval period or later. Most of the material recovered from its fill was Roman, including the lid of a second- or third-century Castor Box, but a fragment of nineteenth- or twentieth-century white earthenware was also found.

A network of modern ceramic field drains was present in all plots, and particularly common in the lower-lying plot 134 to the west. Modern plough scars were also visible, indicating the site had been truncated by modern agriculture.

Table 10: Structures, Black Dike

Structure	Cut numbers	Plot	Phase	Dimensions
1	30171, 30185, 30187	133	1	3.8m
2	30179, 30175	133	1	3.5m
3	30139, 30141, 30155, 30161	133	1	4m
4	30138, 30163, 30206, 30157	133	1	2.8m
5	13595, 13433	134	1	11.5m
6	13462, 13475, 13546, 30514, 30516, 13430	134	1	11.5m
7	30505, 13599, 13576, 13548, 13470, 13424	134	1	11.5m
8	13299, 13297, 13288	132	1	2.6m
9	13092	132	1	3.8m

22.5 Discussion

The Black Dike site spanned the later Iron Age and early Roman period, but intensive land use appears to have continued into the later Roman period only in plot 132. There is no evidence for later Roman utilisation of the landscape in plots 133 and 134, although cropmarks of a larger settlement to the east and find-spots of fourth century Roman artefacts from the area indicate that there was almost certainly continuity into the later Roman period, located beyond the limits of excavation.

Within the centre of plot 132 were located Structures 8 and 9, possibly two small ploughed-out square barrows. Square barrows are most frequently found across the Wolds region and typically date from the mid- to late Iron Age. They normally contained a centrally placed inhumation, under a mound. Truncation has, however, removed much of the upper remains of these features, and any associated burials or votive deposits that may have been present would have been lost. The smaller sized square barrows such as these may be typically date from the later Iron Age, which could suggest they were created in the same period as settlement further to the south-west in plot 133 and 134.

Early land-use included settlement, represented by roundhouses and ditch systems within plot 134 and 133. Salt-making was likely to have taken place at Structure 3 in the north-eastern part of plot 133. This unusual feature comprised a small structure with a south-west-facing entrance, a simple hearth, opposite the entrance, and possible settling tank. Kiln furniture was recovered from the structure and a very small pottery sherd dubiously identified as a crucible fragment was retrieved from the fill of ditch **30139** (Appendix 2). No metalworking slag was found. A large pit and ditch lie directly west of the structure and may be related to salt water catchment from a nearby creek. The large quantity of briquetage retrieved from nearby pit **30192** is also a strong indication that this was a saltern site.

Various structures were revealed within the excavation area. The two small ring gullies, Structures 1 and 2, in plot 133 could have surrounded small huts, perhaps storage or work sheds related to animal husbandry. Other functions, such as drainage gullies around hayricks, cannot be ruled out. The three phases of ring gullies (Structures 5, 6 and 7) in plot 134 are likely to have surrounded a domestic structure, successively rebuilt. This would have been a sizeable roundhouse. No clear pattern has been identified in the group of postholes within the internal space of this roundhouse, but these features are likely to have held posts for partition walls or internal structures such as looms or drying racks. Further settlement structures are likely to survive beyond the northern limit of excavation, perhaps forming a large farmstead.

Drainage appears to have been a concern throughout the occupation of the site, particularly in the lower-lying plot 134: ditches were periodically recut and extended throughout the late Iron Age to early Roman period. Animal remains indicate a sheep-based economy, with some cattle (Appendix 11). Cattle are generally more tolerant of wet conditions than sheep. The slight preponderance of sheep may indicate that in the period when the site was occupied, it was relatively dry, perhaps with sporadic freshwater flooding.

Two wide parallel ditches, which may have flanked a ploughed-out central bank, were stratigraphically early, and may have been contemporary with round house settlement. Paired ditch and bank boundaries are often found associated with Iron Age settlements.

After a period of possible abandonment, the plot 132 portion of the site was then divided by a network of field systems, possibly formalising grazing areas, as there is no evidence for cereal production in this phase. This field layout was replaced with a ditch system, probably forming one or more droveways; these would have been used in stock management, such as directing cattle from farmsteads down onto grazing land. The land may have returned to communal grazing at this time, rather than the smaller paddocks of the earlier phase.

By the later Roman period there is evidence for nearby arable production in the form of the two successive phases of corn-dryers. However, there is no direct environmental evidence for cereal production on site, which may indicate transport of cut crops to the site. The ditch system at this time had changed to widely spaced features used for maintaining the drainage on large fields. Grain production became increasingly important in the later Roman period, supplying urban areas and the Wolds communities, which seem to have otherwise relied on a largely sheep-based economy throughout the Roman period.

Pottery recovered from plot 132 produced several small assemblages, not all of which were chronologically diagnostic. Such diagnostic material as was present tends to suggest a period of

depositional activity between the late first and mid-third century. Only in the case of ditch **1277** and the corn-dryer deposits might a later dating, to the third or fourth century, be entertained. It should be noted that the overall date-range of the whole site assemblage could just as easily be taken to suggest a lack of activity after the third century.

The site appeared to have been abandoned by the fourth century, perhaps returning to sporadic communal grazing without the need for maintaining active boundaries. Low-lying pasture would have been subject to periodic freshwater flooding, as shown by the Phase 5 pond, formed over earlier Roman deposits. This suggests that the site probably remained as marginal wetland until the modern period, when improvements in drainage allowed the landscape to revert to arable production.

22.6 Potential

This site lies on the eastern side of the Vale of York, in a low-lying landscape previously dominated by wetland. Investigation into these marginal areas is important to understanding how rural settlements developed and exploited wetland landscapes. Given the apparently short period of occupation on site during the later Iron Age and early Roman period, it may have been environmentally dependant, and untenable for permanent settlement before and after this period. The remains in plot 134 included the possible remains of a late Iron Age or Roman farmstead set within a field system that continued into plot 133.

The excavation findings have potential for increasing the understanding of the development of Roman rural sites in this area, especially when considered in conjunction with the other sites in this group. The site appears to retain evidence for the shift from pastoral husbandry to cereal cultivation during the Roman period; it also has clear evidence for cereal processing in the form of two distinct phases of corn-dryer. The lack of any further cereal processing material such as quern stones is of interest and possibly indicates a spatial separation of processing. Further analysis of the environmental samples could increase the understanding of cereal processing on the site and the general economic basis of the settlement.

The possible square barrows are of considerable significance to the understanding of the chronology, morphology and geographical distribution of this characteristic East Yorkshire feature type. Although the remains were poorly preserved, the potential for radiocarbon dating of the feature should be explored.

The small to moderately-sized assemblage of animal bone from Plots 133 and 134 was dominated by sheep or goat remains and this assemblage may provide some generalised data on animal utilisation and husbandry practices at the site. The bone remains that were recovered from the features within the ring ditch suggest deliberate deposition and consequently some ritual significance. The faunal remains from Plot 132 were limited, but could still contribute to an overview of animal husbandry.

Although the pottery assemblage is fairly small, it contains enough diagnostic material to suggest a reliable chronology, and one high quality group with particular rebuilding potential. Phase 1 is possibly to be seen on the cusp of the Iron Age to Roman transition. Phase 2 seems to reflect later first- and second-century activity, with some material in the second half of the century; and Phase 3 possibly second- to early third-century deposition. The occurrence of a number of samian form 30 imitations is of some interest, but whether this, together with mortaria, reflects a degree of aspiration to a Roman lifestyle, or nothing more than the local availability of such forms at a certain point in the history of the site, is uncertain. Specialist identification of the samian and mortarium may be expected to refine the dating of Phases 2 and 3. Further research into this aspect of the site and comparison with local sites should enable a greater understanding of the extent to which these small communities adopted the Roman lifestyle.

The briquetage assemblage enhances the growing evidence for salt-making in the area of upper Walling Fen and Hotham Carrs, providing what may be the best evidence for salt-manufacture in the

locality, previously represented only by the briquetage recovered from South Ings Lane, (Wastling 2007). Loomweight fragments were notably absent from the fired clay assemblage, suggesting the site may have specialised in salt-making rather than other craft or industrial activity.

There is good botanical data for investigating the economic basis of the Plot 132 settlement, with the charred plant remains, particularly from the corn dryer samples, having the potential to elucidate aspects of crop-husbandry and the nature of crop-processing activities as well as the use of by-products as fuel for the corn-dryer; it may also be possible to establish whether the feature had multiple uses by comparing the data with that published by Van der Veen (1989). The distribution of charred remains around the feature may help in identifying how it was used and also whether individual drying events, such as the last use of the feature, can be recognised. The identifiable charcoal fragments from the corn-dryer may also show us the range of woodland species used as fuel and contribute towards local environmental reconstruction. Environmental samples from plot 133 were generally poor, producing a modest assemblage of identifiable charcoal and little in the way of botanical remains. Plot 134 produced a more impressive assemblage, with the bulk of the charred plant remains derived from the ring gullies and associated features. Although these assemblages are not rich in charred cereal remains, there is an appreciable component of charred wetland plants that suggest the use of these plants at the settlement. A significant proportion of chaff in the cereal assemblage also implies some crop processing activity at the site. Waterlogged seeds, with a lack of charred material, dominated the western area of the site, especially the possible drainage or boundary ditches. The beetle assemblages have the potential to provide evidence of the contemporary environments.

The small assemblage of worked flint included some less diagnostic flake debitage, assigned a very broad Neolithic to Bronze Age date. Beyond providing evidence for some sporadic activity in the areas, it has little potential for further research.

22.7 Recommendations

- Documentary research into settlement and land-use on the former wetlands around Walling Fen.
- Documentary research into square barrows within the region.
- Radiocarbon dating of selected material from both potential barrows.
- Documentary research into Iron Age ditch and bank style boundaries within the region.
- Documentary research into Iron Age and early Roman rural settlements and field systems within the local area.
- Comparative research into corn-dryers within the region.
- Reconstruction drawing of the corn-dryers.
- Analysis of the faunal remains assemblage, as part of a wider discussion on sites in this area.
- Specialist identification of any faunal remains recovered from environmental samples.
- Description for publication of two registered finds of local interest: iron nails from fuel waste dumps in the flue of Corn-dryer 1.
- Analysis and discussion of key pottery groups.
- Preparation of a short discursive pottery report for publication with illustration of up to fifty vessels.
- Specialist identification of three sherds of mortaria.
- Specialist identification of thirty sherds of samian ware.
- Documentary research into salt-making within East Yorkshire and the wetlands around the Humber, including comparison with the published material from the Lincolnshire, Cambridgeshire and Norfolk Fenland.

- Research and discussion on the briquetage with comparison to other local and regional assemblages.
- Illustration of 20 fired clay and briquetage artefacts from Plot 133.
- Reconstruction drawings of selected salt-making features and structures.
- Preparation of a short note for publication on the fragmented fired clay artefacts from Plot 132.
- Documentary research into early Roman rural craft and industry within wetland sites in the Vale of York and around the Humber Estuary.
- Specialist identification of any metalworking debris recovered from environmental residues.
- Radiocarbon dating of samples from features currently ascribed to the earlier phases of Plot 132.
- Full analysis of the charred plant assemblages from the twenty-eight samples associated with the corn-dryer.
- Identification of charcoal fragments from the flue and corn-dryer.
- Identification of the small amounts of cereals from the other sampled features in Plot 132 for comparative purposes.
- Further analysis and identification of the charred material from up to eight samples from Plot 134.
- Identification of waterlogged seeds from five samples from Plot 134.
- Full analysis of the beetles from Plot 134, in particular from features **13462** and **13534**, where the insect data will be complementary to the waterlogged plant remains.
- Paraffin-flotation of the flots from ditch **13490**, which indicated a high abundance of beetle remains during assessment, and identification of the insect and plant species identified.
- Radiocarbon dating of ditch **13490**, to refine the date of the insect and plant remains recovered.
- Analysis of the hand-collected and bulk-sieved burnt sheep and pig bone assemblages from the five features where these remains are abundant, **13438**, **13504**, **13446**, **13437** and **13534**, including processing a further unprocessed sample, to investigate whether they include placed or ritual deposits.

23 PLOT 158, GREAVES END

Central NGR: SE 8108 3200
Civil Parish: Eastrington.
Total area of excavation: 70m^2
Figures 7, 79

23.1 Summary

A narrow excavated strip adjacent to the pipe-trench revealed the edge of an Iron Age segmented enclosure. Activity on the site continued into the early Roman period, with a group of discrete features including a waterlogged pit that produced an extensive ceramic assemblage.

23.2 Location, topography and geology

The site lay north-east of Eastrington, around 2.5km from St Michael's Church. The south side of plot 158 abutted Sleights Lane, a minor road or track from Carr Lane, which runs north from the village (Fig. 7). The land here is on the floodplain to the south of the River Foulness. Although the terrain is generally flat, there is a small mound at the eastern side of the plot, locally prominent as it rises above the 5m contour in an otherwise very low-lying landscape. The excavation area was at a height of around 3m OD, sloping slightly down to the west.

Devensian glacio-lacustrine deposits underlie the area to the south of the Foulness: generally clays of the Hemingbrough formation but the BGS 1:50 000 map shows a small patch of overlying sands of the Breighton formation in the area of the site itself (BGS 2008). The solid geology consists of Triassic rocks, probably of the Mercian Mudstone group. Seasonally waterlogged slowly permeable soils of the Foggathorpe 2 Association have developed over the clay, with patches of permeable loams of the Sessay Association (SSEW 1983: 712i and 831b). The land locally is variously designated as Grade 2 and Grade 3 for agriculture (MAGIC).

In the excavation area, the earliest layer recorded was yellow sand alluvium, *15835*, overlain by brownish grey clay, 1.5m thick. This clay was sealed by yellow clay subsoil, *15836*, and greyish brown silty clay ploughsoil, *15837*. All of the archaeological features recorded on this site were sealed by the subsoil layer.

23.3 Archaeological background

The site lies within an area of cropmarks thought to be formed over field system ditches and palaeochannels (MHU 7523). The desk-based assessment also noted soilmarks of possible ditched enclosures and ring ditches, 350m to the south-east (Burton 2005a, DBA:JJ).

Fieldwalking was carried out in April 2005 in very good conditions, with a germinating crop in the field having little effect on ground visibility. The only finds recovered were post-medieval, modern or undated. Some amorphous geophysical anomalies were visible in the centre of the field but these were thought not to be of any clear significance (Bartlett 2005).

The construction topsoil strip in mid-June was carried out in drizzly conditions causing smearing of the clay subsoil, but no archaeological features were visible. However, the excavation of a shallow header trench immediately prior to excavation of the pipe-trench removed the masking subsoil layer and revealed linear features and a pit with a pottery-rich fill. Following excavation of the pipe-trench, ditching the pipe and partial back-filling, there was an opportunity to excavate a 2m-wide strip on the north side of the pipe-trench. The depth of the features and the thickness of the overlying subsoil layer would suggest that significant archaeological deposits on either side of the pipe-trench will have survived reinstatement and will be partially preserved.

23.4 Site description

Phase 1: Late Iron Age

The earliest features on site date to the Iron Age and included a wide ditch, **15802**, crossing the excavation area on a north-to-south alignment (Fig. 79). This was cut by ditch **15806** (= **15807**, **15816**, **15804**), which ran largely east-to-west, turning towards the north at the eastern end of the excavated area, where it cut ditch **15086**. It terminated towards the west, but continued westward after a small gap as ditch **15800**. This ditch contained regular dumps of pottery sherds, animal bone fragments and fire-cracked stone typical of the disposal of domestic waste (Appendix 11). The pottery is not closely datable; the most diagnostic pottery, from intervention **15816**, indicating a probable first century AD date (Appendix 2).

Phase 2: Late Iron Age to early Roman

This phase includes a curvilinear ditch, **15827**, at the western end of the excavation area, and two pits (Fig. 79). The larger and more significant pit, **15825**, positioned just to the east of ditch **15827**, measured 1.8m in diameter and 0.85m deep with an angular concave profile. At the base of the pit, three pieces of waterlogged wood were preserved within a thick organic layer (Appendices 12, 13). The pit contained a series of slump deposits indicating side collapse, followed by another thick layer of organic silt. The final fill, *15832*, of the pit contained a dump of fire-cracked stones, very poorly preserved animal bone and over 400 sherds of pottery. At least 26 rim sherds are present in this assemblage, with parallels suggesting a date range of the first century BC to the first, or perhaps early second, century AD (Appendix 2).

A smaller pit **15820**, cut into the top of ditch **15806**, included a carinated jar sherd, the only pottery from the site that is unequivocally post-conquest in date (Appendix 2).

Phase 3: Modern

A series of ceramic field drains, one of which was recorded as feature **15818**, truncated the earlier features.

23.5 Discussion

Artefactual dating indicates the site was utilised during the Iron Age and Early Roman period, and probably lies on the edge of settled land, just to the north of the excavation area. The segmented enclosure could have surrounded an area of habitation, as it contains deposits of dumped food residues, hearth sweepings and discarded worked wood, typical of domestic waste. Lack of evidence for later occupation may not indicate abandonment, as later features could well lie outside of the limited area of excavation.

Cropmarks near the site suggest this floodplain was extensively exploited. Less than 600m to the east of the site, a cropmark of a large circular enclosure with internal features perhaps represents a similar layout to that glimpsed at this site. A number of small communities, including enclosed farmsteads and villages could have settled in this area, utilising the floodplain for grazing and exploited the wetland resources offered by the River Foulness.

23.6 Potential

Greaves End is a small site, with archaeological potential limited by the small size of the excavation area and its apparent location on the periphery of a settlement. Beyond incorporating a description of the site into a wider synthesis of rural Romano-British settlements within the flood plain north of the Humber Estuary, the potential of the stratigraphy and morphology are low. However, the quality of preservation of the artefacts, particularly the pottery from waterlogged pit **15825**, means that these assemblages are of considerable utility for the study of ceramic history of the region. In particular, the

presence of Iron Age Scored Ware is unusual for sites north of the Humber. The pottery assemblage shows potential for rebuilding and illustration.

Pit **15825** also produced a rich assemblage of plant remains and charcoal. Further study of the material retrieved from this pit offers potential for the broader environmental reconstruction of the landscape.

23.7 Recommendations

- Radiocarbon dating of a sample from pit **15825** to investigate whether the site was pre- or post-conquest in date.
- Species identification of the charcoal assemblage.
- Full analysis of the charred botanical remains in order to confirm and refine the preliminary identifications.
- Comparative study of the environmental evidence from this site and from plots 132, 133, 134 and 129.
- Rebuilding of selected pottery vessels, production of a short discursive pottery report for publication with up to fifteen illustrations.
- Documentary research into comparanda sites for Scored Ware from the region.

24 PLOTS 178 AND 179, HOWDEN COMMON

Central NGRs: plot 178: SE 7602 3066 and plot 179: SE 7587 3061

Civil Parish: Eastrington

Areas of excavation: plot 178: 3423m^2 and plot 179 3600m^2; total: 7923m^2

Figures 8, 80 to 85

24.1 Summary

These two excavation areas, parts of the same site, were utilised from the late Iron Age to the end of the Roman period. The earliest features include three Iron Age roundhouses, in one of which weaving had taken place. No later structures were encountered, although a burial and an apparent metalworking area indicate that settlement was probably not far away; the site was occupied by ditched field systems and pit clusters of uncertain function during the remainder of its working life.

24.2 Location, topography and geology

The excavation areas were located in two adjacent fields in the Howden Common area, 700m west of Howden railway station and just over 2.5km north of Howden Minster (Fig. 8). The land here is generally very flat, lying on the broad floodplain to the north of the River Ouse, but there was a slight slope down from the east, the surface of the excavation area being at 3.8m OD at the eastern end of plot 178 and 3.5m OD at the western end of plot 179. Near Drain abuts the southern edge of both fields, draining the land in a broad easterly loop into the Ouse at Skelton.

The site lies on silts and clays of the 25-Foot Drift Vale of York lacustrine deposits, overlaying Keuper Marls of the Mercian Mudstone group (BGS 1971). The soils are described as seasonally waterlogged fine loams of the Fogglethorpe 2 Association (SSEW 1983: 712i). They are currently designated as Grade 2 and Grade 3 for agriculture (MAGIC).

In the excavation area, the earliest layer recorded was described as brown silty clay, *23503*, and was overlain by clayey silt subsoil, *23501*, and dark silty clay ploughsoil, *23500*. All of the archaeological features on this site were cut into the glacio-lacustrine clays and sealed by subsoil.

24.3 Archaeological background

There are two cropmark sites in the fields immediately to the north of the excavation area. A group of small rectilinear cropmarks less than 300m away has been identified as a possible courtyard villa or closes (MHU20031). Another group of rectangular enclosures (MHU3198), thought to be of Roman date, is centred only 130m to the north.

The desk-based assessment also drew attention to the medieval history of the area. The village of Cavil (MHU7760) is mentioned in the Domesday Book and records show that a tenth of the population died of the plague in 1348-9. By 1855, there were six buildings with gardens, arranged along an east-to-west aligned road. The village site was bulldozed and deep-ploughed in the 1950s. An eighteenth-century house stood on the site of the original Cavil Hall and a moat there is recorded on the first and second edition Ordnance Survey maps. Both the moat (MHU3182) and the eighteenth-century property have now been destroyed. In addition, a small rectangular moated site on Howden Common was recorded in 1979 but has since been lost (MHU1761); the exact location of this moat is uncertain.

The manor of Howden was held by the Bishop of Durham and commoners had rights of pasture and turbary on the waste, known as Bishopsoil prior to its enclosure in 1767 (Bulmer 1892). The site lay close to the edge of this area of common. The desk-based assessment noted two areas of ridge and furrow visible on aerial photographs in the fields to the north and south of the site (DBA:ML; DBA:MM).

Plot 178 was a pasture field grazed by sheep at the time of the field survey. Plot 179 was freshly ploughed arable and ground visibility for fieldwalking was good. One sherd of Roman and seven sherds of medieval pottery were recovered along with quantities of post-medieval and modern finds. The pipeline route was modified, for engineering reasons, after the field surveys had taken place, so that it passed 40m to the north-west of the surveyed area.

The geophysical survey was carried out on this revised route. Intersecting linear features at the east of plot 178 were noted, lying to the south of cropmark enclosure MHU3198, and were considered to perhaps form part of a further enclosure. Magnetic disturbances at the eastern end of plot 179 included indistinct curving features, forming an approximate ring, as well as possible linear features (Bartlett 2005). The pipeline route was subsequently slightly modified again in plot 178, running between the line as originally proposed and the first proposed re-route.

In the last week of April 2006, two evaluation trenches were opened in the eastern half of plot 178 and a single trench in plot 179, positioned to intersect the possible annular geophysical anomaly. It quickly became apparent that there were significant archaeological deposits in both plots. A controlled topsoil strip of the whole working width was carried out in early June with excavation starting in the second week of the month, concentrating initially on clearing the topsoil side, so as not to interfere with pipe-stringing and welding operations. Excavation was completed during the second half of June.

24.4 Site description

Archaeological remains include a series of ditches and two possible structures. A single adult inhumation was also present near the northern site margin, away from any recorded structures.

Phase 1: Iron Age

A wide palaeochannel, **23972**, in plot 178 seems have been largely filled during this phase as it was truncated by Phase 2 features (Fig. 83). However, it did contain late Roman pottery in its upper fills, so it is likely to have remained as an open feature long after it ceased to be an active watercourse (Appendix 2). This palaeochannel would have been one of several minor channels and creeks that formed a dendritic pattern across the prehistoric wetlands around the Humber Estuary, gradually silting up and drying out as sea levels changed in the Iron Age (Van de Noort 2004).

A small annular feature, Structure 1, half exposed against the southern edge of excavation in plot 179, was very shallow, probably indicating that it has suffered truncation by ploughing (Fig. 84). At less than 4m in diameter, it is at the lower range of expected sizes for a roundhouse ring gully: it may have been a drip gully or a foundation trench for a storage hut or working area, or possibly surrounded a hayrick or similar feature. A small curvilinear gully, **23600** (= **23598**, **23601**), nearby also seems to belong to this phase, being cut by a Phase 2 ditch, and may have been part of an enclosure associated with Structure 1.

A large annular ditch in the north-east corner of the excavation area in plot 179 was 17m in diameter. It is likely to have been a drip gully or foundation trench for a roundhouse, Structure 2, towards the higher end of the expected size range for such buildings. The ring gully had been recut, probably marking the replacement of the building by a further structure, Structure 3. In the process, the position of any original entranceway had been obscured, but the ring gully of Structure 3 could be seen to have had an east-facing entranceway (Fig. 84).

Two of the interventions through Structure 2 produced large amounts of pottery, most of the sherds deriving from a limited number of vessels. A first century BC or AD date is indicated; there is nothing which definitely post-dates the Roman Conquest. The best-preserved assemblage of loomweights from any of the sites on the pipeline route was also retrieved from the fills of the Structure 2 ring gully (Appendix 5). At least twenty-one loomweights were represented in the fired clay assemblage from the site.

Within the centre of the ring, a cluster of features included fourteen circular postholes, **23508**, **23510**, **23512**, **23514**, **23516**, **23520**, **23530**, **23532**, **23534**, **23536**, **23538**, **23551**, **23558** and **23560**. In addition, there were eight small pits, **23518**, **23522**, **23527**, **23505**, **23507**, **23540**, **23555** and **23556**, with varied profiles, either concave or steep-sided. The postholes are likely to have held the upright posts for warp-weighted looms, or perhaps other internal structures, although no clear patterns could be discerned.

Phase 2: Late Iron Age to early Roman

The majority of the features from both plots date from this phase. Disjointed fragments of a north-east to south-west aligned field system survived in plot 178 (Figs. 81 to 83). This included ditch **23951** (= **23971**, **17810**, **17820**), which was cut into the fills of palaeochannel **23972**. Other elements of this field system included linear features **23952**, **23917**, **23851**, **17885**, **23806** (= **17887**, **17853**), **17891**, **23718** and **23850** (= **23834**, **23881**, **23867**). These features were generally shallow and narrow with simple concave profiles and filled with sterile clay deposits, indicating gradual accumulation. Dating evidence was sparse; interventions **23951**, **17810** and **17820** together yielded a mixed assemblage of hand-made and Roman greywares: the hand-made material of Iron Age appearance, and the Roman pottery including a large sherd possibly of third- or fourth-century date. The assemblage from interventions **23881** and **23867** consists mostly of Roman greywares, which are not chronologically diagnostic, but could be late Roman.

The pattern seems to continue westward into plot 179, although the density of ditches here is lower. The position of ditch **23599** (= **23605**, **23592**), which truncated the Phase 1 enclosure, may have been influenced by the location of Structure 3, perhaps forming a boundary between the roundhouse, during its period of use, and the land to the south (Fig. 84). Ditch **23579** (= **23614**) may have marked the western limit of this rectilinear pattern of fields, as linear feature **23590** was on a different alignment.

A group of three pits in plot 179, all just west of ditch **23579** (Fig. 85), included features **23575**, **23596** and **23594**. Their fills were generally sterile, the pits appearing to have been rapidly backfilled after excavation. The same was true of the shallow pits **23981**, **23979**, **23960**, and **23990**, grouped at the western end of plot 178 (Fig. 83). A single, large pit, **23706**, was located east of this cluster, cut into the upper silts of the palaeochannel, and again appeared to have been rapidly backfilled.

Subsequent to excavation, a feature described as a small scoop was revealed in the header trench during monitoring of the pipe-trenching. This feature, **17817**, contained most of a complete, though smashed, pottery vessel (Appendix 2).

Just to the west of ditch **23917** in plot 178, grave **23946** contained a human skeleton in a crouched position, lying on its left side (Fig. 83). The skeleton was probably that of a young adult male, although remains were in a poor condition, precluding a more accurate identification (Appendix 10).

To the east of the grave, another dense cluster of pits included features **23856**, **23869**, **23860**, **23858**, **23921**, **23886**, **23888**, **23842**, **23875**, **23871**, **23873**, **23879** and **23877** (Fig. 83). Two more pits, **17883** and **23987** were isolated in the approximate centre of the plot 178 excavation area, both exhibiting similar signs of having been rapidly backfilled. As such they have been tentatively dated to this phase.

Another cluster of pits was close to the eastern limit of excavation in plot 178. This cluster included pits **23845**, **23836**, **23840**, **23994** and **23908** as well as an L-shaped feature, **23890** (= **23892**). These pits seemed to be focused around feature **23906** (Fig. 81), a rectangular cut, 2m long by 1.4m wide and 0.4m deep, backfilled with a mixture of ash and fired clay (Appendix 5). A sub-rounded pit, **23904**, was cut through this backfill and appeared to have been utilised as a stokehole for an adjoining rectangular hearth, **23905**. The hearth contained the remnant of a clay floor, *23839*, which had suffered truncation from modern ploughing, notably by plough scar **23910**. Both the hearth and the surrounding pits contained small quantities of iron smithing waste (Appendix 7).

Phase 3: Mid- to late Roman field systems

Later Roman remains were restricted to plot 178. During this phase, the earlier ditch system was redefined, probably enlarging some of the existing elements while others were abandoned. Ditches **23919**, **23900** (= **23701**, **17803**, **17807**, **17821**), **23924** (= **23995**, **23902**), **23804** (= **17854**, **17881**) and **17862** (= **17851**, **17894**, **17880**, **23989**) (Figs. 81 to 83) all appear to date from this phase. Depositional sequences suggest the site experienced periodic flooding and standing water at this time, with thick organic sediments forming in the ditches. The artefactual evidence from the fills indicates a date after the mid-second century with continuing activity into the third or fourth century. However, deteriorating environmental conditions may have made maintaining field systems uneconomic after this period. A sub-circular pit, **23807**, cut through the upper fills of ditch **17862** could be the latest cut feature from the Roman period.

Phase 4: Post-medieval or modern

Two of the recorded features are thought to belong to this phase: linear feature **23959** (= **23957**, **23955**) near the western end of plot 178 contained a dark organic fill consistent with recent root disturbance, while ditch **23819**, near the northern edge of excavation in plot 178, appeared to be part of a recent drain. It contained compacted clay backfill which produced a residual sherd of Roman pottery (Appendix 2).

Table 11: Structures, Howden Common

Structure	Cut numbers	Phase	Dimensions
1	23584, 23586, 23588	1	4m
2	23562, 23618, 23528	2	17m
3	23620, 23524, 23547	2	17m

24.5 Discussion

This site was utilised from the later Iron Age through to the fourth century AD, with most of archaeological remains dating from the early Roman period. The site is located on low-lying land that is likely to have been marginal for settlement until the later Iron Age. Conditions seem to have become drier at this time, and the palaeochannel on the site ceased to be an active watercourse and silted up.

During early settlement, a roundhouse and a possible smaller circular structure were positioned near the eastern end of plot 179. Textile weaving was carried out within the large roundhouse, probably alongside a full range of normal domestic activities. The building was renewed on at least one occasion.

A network of ditches was developed during the early Roman period creating small enclosures or fields. Faunal remains indicate a predominantly cattle-based economy, appropriate to the low-lying and periodically flooded landscape. Environmental evidence was limited from the site, with poor preservation of botanical remains even in the waterlogged deposits. However, grain has been recovered from two ditches and this may indicate small-scale arable production or that grain grown elsewhere was imported into the settlement.

Evidence for metalworking and the presence of a human burial would both indicate that the excavation area lay on the periphery of settled land, with, perhaps, further buildings preserved to the east and north. There was no evidence that hearth **23905**, interpreted as a possible smithing hearth, was located within a permanent smithy building, and it appears to have been abandoned and backfilled after use. This may indicate a temporary arrangement, perhaps by an itinerant smith to create the tools and fittings necessary to build or expand farm buildings for a new settlement or farmstead.

The clusters of pits around the smithing hearth are likely to have been associated with the hearth. The functions of the pit clusters elsewhere are not immediately apparent: it is tempting to imagine that the group of pits around the grave may have had some funerary function.

The later Roman period seems to have witnessed increased levels of flooding with deposition sequences indicating waterlogged sediments and periods of standing-water in the ditches during this period. The expansion of the ditch system may have been an initial response to a rising water-table, but eventually the site was abandoned in the fourth century as maintaining drainage became increasingly unviable.

24.6 Potential

The site represents a rural settlement and pastoral systems on marginal land at the edge of the flood plains of the River Ouse and can contribute to understanding and interpretation of similar rural settlements in this landscape, both north and south of the Humber Estuary.

The possible smithing area has potential for research into metal-working activities on small rural sites in the Roman period. The large assemblage of loomweights from plot 179 provides a significant resource for comparative study.

Among the burnt clay assemblage, a high proportion of fragments do not appear to have been subject to the high temperatures of industrial-type processes and are more likely to be burnt daub; it is significant that a comparatively high abundance of this type of material was recovered from a ring gully. Further study of this material has the potential to provide information on the construction of wattle and daub roundhouses in the region.

The crouched inhumation provides comparative material for the study of burials and funerary practice elsewhere on the pipeline route as well as in the broader region.

Environmental samples produced two cereal-rich samples suitable for full botanical analysis. Full identification of apparent heathland species noted in the assemblage would confirm that nearby heathland resources were being exploited as part of the local economy. Analysis of charcoal could provide information on domestic fuel use, and may establish if the fuel associated with the hearth is the same as that found in the other samples, from domestic contexts. The animal bone assemblage suggests a predominantly cattle-based economy; further study could provide more detail about husbandry practices.

24.7 Recommendations

- Documentary research on Romano-British rural settlements along the Humber Estuary.
- Comparison with similar period sites on different landscapes within the region.
- Further study of the potential smithing area with reference to other known rural smithies in East Yorkshire and North Lincolnshire.
- Inclusion of the human remains in an analysis of the assemblage recovered from the pipeline as a whole.
- Comparisons with other rural settlement burials.
- Radiocarbon dating of the burial.
- Full analysis of the botanical assemblages from two samples.
- Confirmation of the apparent heathland species fragments in the assemblage
- Species identification of five charcoal samples.
- Further research and discussion of the pottery assemblage as part of a publication note on rural settlements in the region.
- Specialist identification of three sherds of prehistoric pottery.
- Specialist identification of the single sherd of samian ware recovered from the site.

- Illustration of up to sixteen pottery vessels.
- Study of the fired clay assemblage to identify cross-joins and to allow reconstruction of the varying types of loomweight.
- Spatial analysis of the locations of the loomweight fragments, both within and between sites along the pipeline.
- Illustration of up to twenty-five loomweights.
- Analysis of the animal bone assemblage with a view to understanding animal utilisation and husbandry practices.
- Further research into the possible burnt daub material from a roundhouse and searches for comparative sites.
- Further analysis of the smithing slag as part of a wider discussion on rural smithing in the region.

25 PLOT 180, WOOD LANE

Central NGR: SE 7575 3053

Civil Parish: Eastrington.

Total area of excavation: 3005m^2.

Figures 8, 86

25.1 Summary

Archaeological remains on this site were limited to three ditches, a penannular gully and a small, irregular pit, probably of recent origin. This site is part of a more extensive late Iron Age and early Roman landscape, extending through plots 178 to 184 or 186 and including the remains of small domestic farmsteads and systems of land division.

25.2 Location, topography and geology

The excavation area was 500m to the east of Howden Station and 200m north of the Hull-to-Leeds railway line (Fig. 8). The land here is very flat, barely rising above 3m OD. Immediately to the south of plot 180, a deep drain, Near Drain, flows eastward before curving southwards to empty into the Ouse at Skelton.

The underlying geological deposits are silts and clays of the 25-Foot Drift, Vale of York lacustrine deposits, over Keuper Marls of the Mercian Mudstone group (BGS 1971). Seasonally waterlogged fine loamy soils of the Fogglethorpe 2 Association have developed over these deposits (SSEW 1983: 712i). The land is designated as Grade 2 for agriculture (MAGIC).

The earliest layer recorded during the excavation was described as grey sandy clay, *18024*, overlain by mixed sand and clay subsoil, *18023*, and dark silty clay topsoil, *18022*. The Iron Age and Roman features were sealed by the subsoil layer.

25.3 Archaeological background

This site should be considered as part of a wider landscape along with the sites in plots 178 and 179 and in 182 and 184; the archaeological context of all of these sites is similar.

The field had been freshly ploughed when the fieldwalking survey was carried out in March 2005. Apart from three undatable pieces of slag, the recovered artefacts were all of post-medieval or modern provenance. There were isolated geophysical anomalies in the plot but no coherent pattern. The field was not targeted for evaluation trenching. However, trenching in the plots on either side, in early May 2006, revealed significant archaeological deposits. A controlled topsoil strip of the 850m stretch of the pipeline working width from plots 178 to 184 was carried out in advance of construction in early June.

25.4 Site description

Phase 1: Late Iron Age

A curving ditch, **18016** (= **18018**), truncated at its southern end by Phase 2 ditch **18020** (Fig. 86), was no more than 0.2m deep and was filled with a thick clay typical of a deposit formed in standing water.

Phase 2: Early Roman, first to second century AD

Two parallel ditches, **18020** and **18014**, were much wider and deeper than the Phase 1 ditch and contained a sequence of silts and organic layers, again suggesting periodic flooding. The primary fill of ditch **18014** produced a single sherd of pottery, probably pre-dating the Iron Age, while the upper fill contained a sherd from a possible imitation samian ware bowl, dating from the second to third

century or later (Appendix 2). Two possible loomweight fragments were also retrieved from this ditch (Appendix 5).

A shallow penannular feature, **18002**, with an east-facing entrance, was partially revealed against the western edge of excavation (Fig. 86). Its diameter of approximately 9m suggests that it could have been a ring gully surrounding a medium-sized roundhouse-type structure.

Phase 3: Modern

An irregular pit, **18000**, had a loose organic fill and is probably the result of recent disturbance.

25.5 Discussion

The ditches probably defined a linear field system, and would have acted as drains. It is not clear whether ditch **18016** is a continuation of one of the linear features at the western end of plot 179, but it is likely to have belonged to the same overall pattern of land division. The penannular feature is likely to be the remains of a truncated roundhouse ring gully, although there is little evidence for regular occupation of the landscape, artefacts being notably scarce. It may instead have had an alternative function, perhaps surrounding a temporary shelter used when seasonally working at the site.

25.6 Potential

On its own, the archaeological potential of this small site would be small, but it could contribute, with the data from the other nearby sites on the pipeline route, to a wider discussion of early Roman rural occupation within the region.

Small quantities of pottery, animal bone and fired clay were all recovered. These artefact assemblages do not warrant any further analysis beyond specialist identification of a sherd of prehistoric pottery, and inclusion of them in a discussion of the archaeology of the local area.

25.7 Recommendations

- Incorporation of the site data into a wider discussion of rural settlements with the local area.
- Specialist identification of a single sherd of prehistoric pottery.

26 PLOTS 182 AND 184, THORPE HALL

Central NGRs: plot 182: SE 7572 3040; plot 184: SE 7567 3022

Civil Parish: Eastrington

Area of excavation: plot 182: 4621m^2; plot 184: 7052m^2; total: 11673m^2

Figures 8, 87 to 95

26.1 Summary

This large multi-phase site, lying to the north and south of the Hull-to-Selby railway line, had remains from the Iron Age through to the fourth century AD. Settlement evidence in the early phases included several roundhouse-style buildings, but a greater diversity of forms was evident later in development of the site. This included possible rectangular post-built buildings and a group of rectangular ditched structures clustered around a well and probably used for textile production. There was also evidence of salt production and an iron-smithing area. A single human crouched inhumation was recorded. These features were located within a complex, evolving series of ditched enclosures.

26.2 Location, topography and geology

The two excavation areas lay either side of the Hull-to-Selby railway line, 500m to the east of Howden Station and 2km to the north of Howden Minster (Fig. 8, Plate 20). The terrain here is very low-lying: after stripping topsoil and subsoil, the surface of the excavation areas varied from 3.8m OD in plot 182 to 3.5m OD in plot 184. South of the railway, the land is drained through Duck Swang Drain and into the Ouse at Howdendyke, roughly following the line of an extinct natural watercourse.

The site lies on lacustrine deposits of the 25-Foot Drift, Vale of York group and underlying clays of the Mercian Mudstone group (BGS 1971). Seasonally waterlogged fine loamy soils of the Fogglethorpe 2 Association have developed over these deposits (SSEW 1983: 712i). The land is designated as Grade 2 for agriculture (MAGIC).

The superficial geological deposits were recorded on site as orange-brown gravelly sand, *41001* (= *32611*), overlain by greyish yellow silty clay subsoil, *28111* (= *42815*). The topsoil was a greyish brown silty clay, *28210* (= *41000*).

26.3 Archaeological background

The Calendar of Patent Rolls of 1284 has reference to '*Ringestainhirst*' (MHU17259), later associated with the site of St Mary Magdalen's Chapel located 800m to the west of the plot 184 excavation area. It has been variously suggested that the name originated from the presence of a ring-marked stone or of a circle of standing stones, in either case implying prehistoric activity in this area.

There is more evidence from the Iron Age and Roman periods in the area. This includes a cropmark site showing ring gullies and a rectangular enclosure 900m to the west of the excavation area (MHU1775), small enclosures just over 1km to the south-west (MHU15287), and rectangular enclosures on Howden Common, 500m to the north-east (MHU3198). More significant remains are found 400m north of site, where studies of aerial photographs for a desk-based assessment (Speed and Buglass 2003) interpreted an area of cropmarks formerly considered to represent medieval closes north of Howden as the site of a large courtyard villa (MHU20031). To these previously known sites, the excavated sites on plots 178 to 180 (above) can now be added.

In addition to the site of St Mary Magdalen's Chapel and Hermitage, other recorded medieval sites include the recently ploughed-out remains of a small rectangular moat on Howden Common, located around 250m to the north-west of the plot 182 excavation area (MHU1761). The desk-based assessment recorded the former presence of ridge and furrow earthworks in both of the fields spanned by the site (DBA:ML; DBA:IO). Howden Park, one of two large deer parks located less than 1km

west of the site, was enclosed by the Bishop of Durham in 1241 and was maintained into the eighteenth century.

The present civil parish boundary between Howden and Eastrington runs along the western edge of plot 184. The Tithe Map for Howden Parish, from 1848, extends northwards as far as Near Drain adjacent to the parish boundary, but does not include the area of plot 182 or the eastern half of the excavation area in plot 184. Beyond this limit, the land was presumably the unenclosed waste of Thorpe Common.

The geophysical survey detected linear and other magnetic anomalies in both plots, although these were confused and it was thought that they could have arisen as a result of disturbances associated with construction of the railway (Bartlett 2005). Fieldwalking produced six sherds of Iron Age or Roman pottery from the two fields (Burton 2005b).

Three evaluation trenches were opened in plot 182 and two in plot 184, in the first week of May 2006. It quickly became apparent that there were significant archaeological remains extending over both plots. The working width was stripped of topsoil in both fields, as well as plots 178 to 180 to the north in mid-May. Area excavation was then carried out, concentrating initially on the areas needed for the railway crossing.

26.4 Site description

The greatest density of archaeological deposits was along the eastern side of both excavation areas although features extended throughout plot 182 and through much of plot 184.

Phase 1: Prehistoric palaeochannel

A large palaeochannel, **41828** (= **41835**, **42530**, **41390**, **41682**, **42022**, **42579**), extended southwards from the south-east corner of the plot 182 excavation area across the northern half of plot 184. It pre-dated all of the other features on the site. The upper fill of intervention **42530** produced twelve sherds of Roman pottery indicating that it may have still existed, possibly as a seasonally dry channel, at this time (Figs. 89 to 92 and 95d).

Phase 2: Late Iron Age to early Roman enclosures and settlement

Ditches

The features that have been assigned to this phase are stratigraphically early but, in general, cannot be securely dated by artefactual evidence. There will undoubtedly be occasional chronological overlaps between Phase 2 and 3 features. This phase witnessed the first systematic division of the land, with the creation of a loose rectilinear network of enclosure ditches. Where entranceways were present, they were wide: 4m to 5m across. This loose network of ditches included a possible droveway, 2.5m to 4m wide, between ditches **29581** and **29462** (= **29529**, **29170**, **29199**, **28943**, **28757**) (Fig. 94). Other fragments of the first field enclosures include ditches **29001** (= **29098**), **29381** (= **29379**, **29112**, **29103**), **29356** (= **29354**, **28845**) and **41377** (= **41107**, **41597**).

These ditches all had concave profiles, typically measured 0.7m wide by 0.5m deep and were filled with similar sequences of slow-forming clay deposits, probably accumulated gradually in wet conditions. For the most part, the pottery from these ditches is consistent with a late Iron Age or early Roman date, but there are some anomalies; intervention **29103**, in particular, produced diagnostic later third- or fourth-century sherds. The remains of pyramidal loomweights were also recovered from ditch **41377** and from truncated ditch **42051**, which may also belong in this phase; the latter also yielded a fired clay ingot mould, evidence of non-ferrous metal-working on the site. Intervention **41107** contained fragments of a Roman rotary quern (Appendix 8).

Shorter ditch fragments were also present, probably marking the truncated remains of less substantial boundaries and drains. These ditches included features **29644** (= **29024**), **29446** (= **29448**), **29233**,

28218 (= **28216**) and **28322** (= **28361**) within plot 182 (Figs. 92 to 94) and features **41007**, **41230** (= **41236**, **41238**, **41234**) and **42153** in plot 184 (Figs. 88 to 91). These features had similar concave profiles and deposition sequences to the more substantial boundaries but were generally narrower and shallower.

Structural remains

A series of penannular features, assigned to this phase, were probably the remains of ring gullies associated with roundhouse-type structures. Their distribution, mainly against the eastern edges of excavation, suggests that the remains of a more extensive area of settlement lie preserved beyond the limit of the pipeline working width on this side. The ring gullies were often, although not always, associated with internal postholes, and are typical of roundhouses from the region. The sizes of the structures varied from as small as 2.5m in diameter, up to 8m; this would perhaps indicate a range of different uses. Three of the structures measured less than 3m in diameter and may have been storage huts rather than dwellings. The remainder of the structures, between 4.5m and 8m across, were within the expected range for roundhouses in Yorkshire (Dent 1995, 41; Millet 2006, 310).

Phase 2 structures within plot 182 were limited to a single larger building, Structure 2, which extended beyond the eastern limit of excavation (Fig. 95b), and two much smaller ring gullies, Structures 3 and 6, located in the central and eastern areas of site respectively (Figs. 92 and 93). Intervention **29207** of Structure 3 produced three sherds of possibly Bronze Age pottery (Appendix 2), while the ring gully of Structure 6 yielded a fired-clay loomweight (Appendix 5).

Structures were more common within plot 184. Structure 9 was located against the eastern site margin and was relatively well preserved, with internal postholes and the remains of a central hearth, **41068**. An ovoid fired clay object from the Structure 9 ring gully has been identified as a slingshot (Appendix 5). Just to the south, the ring gully of Structure 10 was much smaller, only 4.5m to 5.0m across (Fig. 91).

Structure 11, another small ring gully, 2.5m in diameter, located approximately 12m to the west of Structures 9 and 10, could have represented another utility hut or store (Fig. 91). Further south, again against the eastern edge of excavation, another pair of ring gullies, Structures 15 and 16, both measured between 6.0m and 6.5m in diameter (Fig. 90).

The largest structure in this phase, Structure 17, was located against the western edge of excavation in the southern half of plot 184 (Fig. 88). Its ring gully contained few artefacts, suggesting, perhaps, that the structure may not have been used for habitation. Alternatively, this large ring ditch may represent an enclosure rather than a domestic structure.

A line of three postholes **41020**, **41024**, **41023** were located near the northern site margin aligned approximately with ditch **41007** (Fig 91). These three postholes were initially considered to have supported one wall of a structure (Structure 8), with postholes **41018** and **41030** pressed into service as remnants of return walls at either end. However, this is very speculative, especially as none of the features are dated. It is perhaps more likely that the three aligned postholes are part of a fenceline, possibly related to the railway line immediately to the north.

Phase 3: Early Roman enclosures and settlement

This phase witnessed a continuation of the same patterns of use, with structures, enclosures and possible droveways as well as fragments of less well defined ditches. Identified elements of enclosures include ditches **29220**, **28716** (= **28917**), **29452**, **28970** (= **28966**, **28517**) and two smaller ditches enclosing areas within plot 182, features **28701** (= **28742**, **28772**, **28824**) and **29104** (= **28521**) adjacent to Structure 7 (Figs. 92 to 94). All of these ditches had similar profiles and depositional sequences to the Phase 2 field systems, again suggesting periods of slow accumulation of water-borne sediments. There were no visible recuts, implying no more than minimal maintenance of the enclosure systems.

Larger drainage ditches, located further south in plot 184, included features **41082**, **41580** (= **41154**, **41155**, **42590**, **41424**), **41412** (= **41387**), **42643**, **42117** (= **42079**), **41875** (= **42151**) and **42141** (= **42085**). Ditches **41983** and **41981**, though only surviving as short fragments, would also have been elements of the ditch system from this phase (Figs. 88 to 91). In the southern area of the site, the ditches in this phase were generally deeper and wider than those in the north and included occasional organic sediments, indicating that periods of vegetation growth occurred between silting episodes.

A large sub-oval well, **29328**, was created in plot 182 during this period. This feature measured just under 5m in diameter and was over 2m deep, narrowing to a deep shaft in the centre. This wide-lipped well was positioned within an enclosure directly north of Structures 4 and 5 (below) (Fig. 93). The well contained a sequence of waterlogged deposits and frequent slumps, suggesting that the central shaft was not revetted and that trample caused regular subsidence into the feature.

A notable feature in this phase was a wide, shallow pit, **28849**, which measured over 3m in diameter and 0.12m deep (Fig. 93). It had a thin layer of heat-affected clay in its base with an overlying fill of ashy silt. This pit was clearly used as a fire site, but the recovered data is unlikely to be able provide a secure interpretation of its function.

Plot 182 contained four sub-rectangular ditched features, Structures 1, 4, 5 and 7, all of similar dimensions, around 9m by 7m. None contained datable internal features (Figs. 92 and 93). Possible interpretations might be that these ditches held the foundations of rectangular buildings, or that they represent limits of enclosures around small buildings which have not survived in the record. Two of these rectangular structures (4 and 5) were positioned just south of well **29328**, providing a convenient water supply. Structure 4 was almost certainly used for weaving, as the remains of up to fifteen loomweights were recovered from its ditch (Appendix 5), though whether this was the primary function of all four structures is not clear.

An adult crouched burial in grave **29558** was positioned in the south-east corner of the plot 182 excavation area, just to the north-west of Structure 6 from Phase 2 (Fig. 92). The skeleton was poorly preserved and had no associated grave goods. The grave was located within a cluster of postholes, including features **28555**, **28528**, **28570**, **28572**, **28547** and **29481**, but these postholes formed no discernable structural arrangement. Two segments of a curving ditch, **29159** (= **29117**, **29428**) and **29430**, surrounded both the postholes and the grave, and may have marked an isolated burial area away from the main settlement.

Structure 12, near the eastern site margin of the plot 184 excavation area, consisted of a penannular gully, just under 5m in diameter, within the lower range of building size for roundhouse-type structures. The gully produced few artefacts, implying that it was either kept clean while the internal area was in use, or that it was not a settlement-related feature. Just to the north of this ring gully, a roughly circular enclosure, **41619** (= **41121**), with a south-east entrance, contained a small, sub-circular unbroken ring ditch, **41461**. The enclosed space measured 11m across, while the wide but shallow ring ditch was only 2m in diameter (Fig. 90).

Phase 4: Roman enclosures, salt-making and settlement, second to third century AD

The density of land division markedly increased in this phase, with a typical Roman system of major ditches interconnected with smaller linear features, forming enclosures. As with the earlier phases periods, the system fades out towards the southern end of the plot 184 excavation area, while the central area of the site, comprising the rest of plot 184 and the southern part of plot 182, was intensively occupied.

Ditches within this system show similar levels of deposited clays and silts to those of the preceding phase, showing that there continued to be a need for regular drainage, though there is no evidence of sudden flood events. Intensification of field division may mark a shift from a predominantly pastoral to arable economy, utilising the fertile silts for crop production, although the environmental evidence will need to be clarified by more accurate dating of the sampled contexts before this can be confirmed.

Major components of the ditch system in plot 182 include a large enclosure measuring 30m long by at least 32m wide, formed by ditches **29419** (= **29427**) and **29047** (= **29387**, **28972**), enclosing the area occupied by Structures 4 and 5 and well **29328** (Figs. 93, 95c).

The main ditch system began south of the enclosed structures, splitting the site into much smaller enclosures, approximately 8m by 10m in size. This system included ditches **28207** (= **28261**), **28220** (= **29056**, **28349**, **28404**), **32620** and **28263** (= **28379**, **28695**, **28524**), continuing southwards into plot 184 with the main axis formed by ditch **41804** (= **41732**, **41770**, (Fig. 95d), **42577**). The perpendicular side branches were smaller, ditches **41605** (= **41540**) and **41211**, for instance, being less than 0.6m wide. Two lines of posts to the east and west of the main axis (Fig. 91) suggest this ditch may have been accompanied by fences and perhaps acted as a major land boundary, separating the settlement area to the east from fields to the west.

This phase also included several sub-rectangular pits, **29002**, **29102**, **29026**, **28889** and **29485**, all located within plot 182, either on the eastern side of the site near Structure 1 or in a cluster near Structure 4 (Figs. 92, 95a, b and c). These pits measured between 1.5 and 3m long and approximately 0.6m wide by 0.5m deep, and had near-vertical sides and flat bases. Their sequences of fills were all similar, with horizontally laid silts interspaced with dumps of fired clay fragments (Appendix 5). Pits resembling these examples have been known to be used as settling tanks in salt production, normally associated with estuarine, coastal or fenland environments and utilised in conjunction with hearths used to boil down the brine. No hearths were located on plot 182, but saltern hearths rarely penetrate very deeply into the ground and they would have been unlikely to survive the levels of truncation by ploughing that has happened on this site.

A large oval or sub-rectangular pit, **29208**, positioned 15m north of well **29328**, outside the newly enclosed area (Fig. 93), was over 4m across and 1.2m deep with stepped near-vertical sides and a flat base. Its fills consisted of mixtures of natural silts and lumps of heat-affected clay (Appendix 5). This pit was much larger than the other nearby pits interpreted as possible settling tanks and may instead have been used as a reservoir for salt water. Some of the backfill included fragments of roof tile (Appendix 6) which could well have come from the nearby Structure 1, abandoned by this phase. Pits, curving ditches and postholes were common in this phase and included a wide semicircle of posts in plot 184, consisting of postholes **41212**, **41172**, , **41113**, **41157** and **41174**, with a group of slightly larger postholes, **41115**, **41228**, **41374** and **41186**, within their arc (Fig. 91).

Structure 13 consisted of a rectilinear group of footings immediately to the north of Structures 15 and 16, from Phase 2, and may have been a direct replacement for one of these earlier roundhouses (Fig. 90). This building incorporated an internal partition, **42267**, at the southern end and a probable doorway in the south-east corner. A single posthole, **42495**, occupied a central position in this doorway. A thin spread of late Roman occupation material, *42186*, overlying this internal partition probably represents demolition waste when this building was demolished to make way for Structure 14 in Phase 5 (below).

Another potential structure was represented by curving ditches **29573** (= **28934**) and **29518** (= **29441**), which truncated Structure 1 and may represent another building footprint or enclosure (Fig. 93).

Phase 5: Late Roman enclosures and metal-smithing

In the later Roman period the site contained a continuation of the droveway and enclosure system; the silted-up ditches were redefined, renewing boundaries. Within plot 182, ditches **29252** (= **28987**, **29033**) and **28718** (= **28511**, **28509**, **28475**, **28578**, **28408**) formed the major axes. Minor branches to the east and west included ditches **29601**, **28910** and **29564** (= **29570**). The ditches in this phase were generally deeper and wider than in preceding periods, and contained waterlogged deposits and increasing evidence of silting episodes, indicating repeated flooding. A large pit, **29497**, was dug through one of the silted-up ditches, apparently in an attempt to improve drainage by digging a deep sump at the point where the ditch intersected several phases of earlier ditches (Fig. 94).

Further south, in plot 184, ditches **41004** (= **41392**, **41078**, **41413**, **41098**, **41222**, **41208**, **41542**, **42439**, **42568**, **41767**, **42335**, **41415**) and **42440** (= **42614**) formed the main axis. Perpendicular branches included ditches **41250** (= **41583**), **41949** (= **42173**, **42105**), **41900** and **41968** (= **41964**, **41970**, **42014**, **42131**). As in plot 182, ditches in this phase were generally deeper than in previous periods and exhibited similar signs of seasonal waterlogging and flooding. The top stone of a rotary quern, one of at least seven querns from this site, was recovered from intervention **41949**.

Ditch **28279** (= **28322**, **28276**) at the southern end of the plot 182 excavation area seemed to form two sides of a rectilinear enclosure, which may have had a counterpart in a similarly curving ditch, **41370**, in plot 184 (Figs. 91 and 92).

Structure 14, a rectangular post-built building, was the most significant feature from this phase (Fig. 90). Towards the northern end of this building, a short linear feature with small pits at either end produced large quantities of fired clay and charcoal: evidence that this feature has been fired to high temperatures. The building is thought to have been a smithy, located on the edge of the late Roman settlement. Smithing waste was recovered from the structure (Appendix 7) and surrounding features, with hammerscale also retrieved from environmental samples (Appendix 13). Feature **42218** was a sub-circular pit open to the north-west, the opening probably forming a stokehole. A narrow flue, **42225**, extended eastward and joined a clay-lined pit, **42221**, assumed to be a simple hearth. There is currently little archaeological evidence for Roman smithing hearths: documentary evidence suggests that, like modern forges, they stood waist-high, so that only the lowest portion of the structure remains as an archaeological feature (McDonnell, 1995).

Phase 6: Medieval and post-medieval drainage and agriculture

Medieval features recorded on the site were limited to three large ditches, **42603** (= **42363**, **41706**, **42437**), **41796** and **41787**, all three within plot 184 (Figs. 89 and 90). These ditches contained residual Roman material along with later artefacts. The boundary marked by ditches **41796** and **41787** survived at least until 1848, when the tithe map of Howden was produced, but presumably disappeared in a reordering of the fields that followed some time after the construction of the Hull and Selby railway in 1840. These ditches probably marked the limit of enclosed and cultivated land in the medieval period, the area to the north and east being common grazing.

Truncated remains of east-to-west-aligned furrows were also recorded, corresponding to the ridge and furrow earthworks noted in the desk-based assessment. These seemed to extend across the medieval ditches, suggesting that ploughing in ridges continued after the land had been enclosed and the railway constructed.

Phase 7: Modern

Several phases of ceramic field drains were noted.

Table 12: Structures, Thorpe Hall

Structure	Cut numbers	Phase	Dimensions
1	28773, 28669, 28929, 28680	3	7m by 9m
2	29110, 28891, 28894, 28908	2	5.5m
3	28622, 28663, 28691, 28766, 29207	2	2.8m
4	28698, 28689, 28882, 28650, 28648, 28541, 28535, 28854, 28877	3	7m by 9m
5	28693, 28687, 28624, 28741	3	7m by 9m
6	28722	2	2.6m
7	28533, 28590, 28467, 28343	3	7m by 9m
8	42020, 41024, 41023	??	> 4m long
9	41074, 41070, 41217, 41136, 41064, 41054	2	6.5
10	41529, 41531, 41533	2	4.5 to 5m
11	42549, 42551, 42553,	2	2.5m

Structure	Cut numbers	Phase	Dimensions
12	42291	3	4.2m
13	42189, 42209, 42267, 42207, 42196, 42198, 42200	4	4m by 4.5m
14	42485, 42489, 42255, 42278, 42202, 42229, 42242, 42243, 42640, 42487	5	10m by 6.5m
15	42258, 42260, 42595	2	6m
16	42645, 42445, 42354	2	6.5m
17	41884, 41888, 41886, 41890	2	8m

26.5 Discussion

Occupation of this large site extended from the later Iron Age through to the fourth century AD. Subsequently, the land seems to have reverted to unenclosed, poorly drained common and there was no evidence of activity until the digging of the large boundary ditches, in the medieval period, and the establishment of ridge and furrow agriculture. Both the boundary ditches and the ridge and furrow seemed to have survived in use into the middle of the nineteenth century. The building of the railway in 1840 led subsequently to a reordering of the fields on its south side, with several small fields combining to form the large irregular plot 184.

During the early phase of settlement, the landscape would have featured large enclosures and droveways. A well and rectangular structures were present within these fields. A palaeochannel wound past the eastern margin of the site, and may have still survived as a visible feature into the early years of Roman occupation, one of its upper fills producing artefacts from this period. The channel extends to the south-west and would have emptied into the natural watercourse now channelled as Duck Swang Drain, and entering the Ouse at Howdendyke. Surge tides on the Humber estuary or storm waters from the Wolds would have caused this stream to flood.

Faunal remains recovered from the site suggest it had a largely cattle-based economy, which would be typical of lower-lying and seasonally wet land, as cattle are more resistant to waterborne infections and parasites than are sheep, which prefer drier, higher ground. Fragments of seven or more querns were recovered from the site which, along with the cereal grains and chaff from environmental samples, indicates that grain was being processed. This was probably grown locally to the site. The quantities of loomweights indicate the settlement had access to wool supplies, either produced by a local flock or traded in as processed fleeces. Settlement, along with a single adult inhumation, was concentrated towards the eastern limit of excavation, with only a single structure located towards the western edge of the pipeline working width. This suggests the excavated area lies on the western periphery of a more substantial settlement.

The nearby excavation sites, in plots 178 to 180 and 186, along with cropmarks visible on aerial photographs of the area, show that this site is part of a much wider landscape of scattered Iron Age and Roman communities, with ring gullies and enclosures recorded to the north-east, north and west of the excavated area. Among these cropmarks, a group 400m to the north (MHU20031) has been variously interpreted as post-medieval closes or a Roman courtyard villa; the results from the group of sites along the pipeline route make the latter interpretation considerably more plausible. A villa would have provided a focal point for the various scattered communities within its estate, and increased their economic reach.

By the second and third centuries, a droveway and enclosure system was laid out along a main north-to-south axis with minor branches to the east and west, creating smaller, enclosures. The depositional sequences of ditch fills indicate that periodic flooding was still a problem. Settlement was limited to a single rectangular building with an internal partition. Previous roundhouse buildings were abandoned during this phase suggesting that settlement had mostly relocated beyond the area covered by the pipeline working width. The adoption of both Romanised building styles and settlement patterns by this period would have been influenced by the presence of a villa, if this interpretation of the cropmarks to the north is correct. Trade with the Roman military and settlements along the Humber

combined with the large population within the Wolds, who had access to urban centres such as York, may also have led to the assimilation of Roman farming methods and construction styles.

A significant discovery from this phase was the evidence for salt-making in the centre of the plot 182 excavation areas: the rectangular pits interpreted as settling tanks and associated with significant quantities of briquetage. The excavation site lies several kilometres inland from the modern Humber Estuary, which would have been the nearest source of saline water. However, the Roman Humber may have extended further north and west, and the palaeochannel recorded on the site may have been periodically recut by surge tides, refilling with brackish water which then became concentrated through evaporation. Although such surge water would not have a regular occurrence, salt was of such value that even an occasional yield might have been worth the effort for the local community. Alternatively, seawater may have been evaporated on the estuary shore before being transported upstream as concentrated crude salt crystals, for re-boiling and crystallisation on the site to produce more refined salt.

By the late Roman period the droveway had been redefined while maintaining the main axis. These later ditches were deeper, suggesting that drainage was an increasing problem. They also show increased levels of waterlogging and sediment deposition, indicating an increase in flooding. Rising water levels would have started to make arable production untenable. Salt-making seems to have been abandoned by this period, perhaps because of the changing hydrological regime.

Settlement appears to have continued into this period. A rectangular smithy was constructed in this late phase, replacing the previous rectangular building and aligned north-west by south-east rather than the north-to-south orientation of the previous structure. The building contained a probable smithing hearth at its north-western end, with the stoking-hole open to the south-west, perhaps to take advantage of the prevailing wind in East Yorkshire. A smithy would have been a common feature within a large farmstead or village, creating and maintaining agricultural equipment, construction tools and fixings and fittings. Workable iron either as scrap or bars would have been traded from other communities, using water transport or roads linking the Humber to York and the numerous Wolds communities.

By the later part of the fourth century, the site appears to have been abandoned as a settlement and field system, possibly because of increased flooding. Periodic land-use may have continued with exploitation of wetland resources: water-fowling, eel-trapping, seasonal grazing of stock and harvesting of reeds and rushes; these activities would leave little impression in the archaeological record.

Landscape development returned in the medieval period with the creation of large drainage ditches, probably accompanied by hedgerows and acting as land boundaries. Ridge and furrow agriculture was also established at some stage. The site would have remained prone to flooding into the modern era, and there are accounts in the records of the bishopric of Durham indicating that maintaining drainage was a concern into the eighteenth century and beyond.

26.6 Potential

Extensive remains of settlement, enclosures and craft activities were recorded, spanning the later Iron Age through to the fourth century AD. This was also one of the few sites along the pipeline route to produce significant evidence for medieval land-use, with large boundary ditches and ridge and furrow recorded.

This large excavation site includes sufficient remains to provide useful information on the distribution patterns and morphology of larger rural settlements in the region, and the exploitation of the flood-plains and river valleys within the Vale of York and Humberhead levels. The site data will contribute to studies of building development, the form and development of field systems and the rural economy within this region. The establishment of a droveway and enclosure system may indicate an adoption of

Roman settlement patterns, and comparative studies with other sites in the region may provide evidence for the chronology, form and extent of the adoption of Roman practices. Environmental evidence should confirm whether the site also adopted a more cereal-based economy in the later Roman period or if the landscape was unsuitable for cultivation.

Artefacts sourced from outside the local area have been discovered on site, including imported Roman pottery, Rhenish quern stones and metal and glass jewellery. The community here clearly had reasonable access to traded goods, perhaps brought in from Roman roadside settlements or by coastal trade. Further analysis of the pottery and registered finds will provide data on the extent and patterns of trade in the Humber Estuary region and beyond. Despite the evidence of trade, no coins were recovered from the site: this contrasts with plots 104 and 123 which produced fifty and nine coins respectively. That none at all were found either during the excavations or in previous find-spots nearby is of significance, either for the interpretation of the nature of these sites or of the variation of preservation conditions in the soils along the pipeline route. This may indicate that the movement and use of coinage was controlled by an external factor, perhaps the possible courtyard villa identified to the north of the site (MHU20031) maintained a strong economic influence over both this site and the smaller rural settlements on plots 178 to 180 and 186.

The fired clay assemblage is of particular interest and has the potential to provide information on salt-making, textile-working, and hunting or stock control. Two different types of loomweight were present: these may have differing chronological as well as geographical distribution. The loomweights therefore have the potential to add to the knowledge of the distribution of types of this object on both a regional and national level. Additional information regarding site formation processes may also be gleaned by examining the contextual distribution of the joining loomweight sherds. Textile-related artefacts of other materials, such as stone spindle whorls, bone weaving combs, and needles, should also be taken into account and cross-referenced. A single slingshot was identified; this has some potential to add to the study of this class of object during the early Roman period.

The moderately sized assemblage of animal bone is predominantly cattle remains with a smaller number of sheep or goat. Pig and horse constitute a much smaller percentage. It has potential to provide further information on changing patterns of husbandry practices. The smaller animal bones and the snail shells are poorly represented and can make little or no contribution. Three burnt bone assemblages have been tentatively suggested as evidence of cremated animal burials.

There is good botanical data for investigating the economic basis of the settlement, with the charred plant remains having the potential to provide information on crop husbandry, the nature of crop-processing activities taking place on the site and the possible areas of such activities as well as the use of by-products as fuel for different activities. The charred weed assemblages afford some opportunity to investigate the ecology of the crops and potentially their season of sowing, although not all charred seed need have originated with the crop remains. The data also has some spatial dimension that may allow consideration of the different activities across the site or the focus of occupation. The small amounts of identifiable charcoal fragments from the metal-smithing hearth are generally insufficient for analysis, although identifiable fragments from the large charcoal dump *41635* in ditch **41633** may yield evidence of the range of wood exploited as fuel and thus reflect local resources and contribute to landscape reconstruction. There is good botanical, pollen and insect evidence from the fills of ditch **42602** for environmental reconstruction of the landscape contemporary with these deposits. All the economic and environmental data can also be compared to other sites along the pipeline.

The slag and other metal-working debris from the possible smithing hearth has potential for further analysis to refine the interpretation of the feature and to contribute to the understanding of Roman metal-working in the area.

The site provided the second largest pottery assemblage from any of the sites along the pipeline. Once phasing has been refined, this assemblage offers potential for studying significant groups of material from the later Iron Age to the late fourth century AD, although there has been some mixing of later

and earlier material through the frequent recutting of features and by the disruption of both medieval ridge and furrow activity and modern ploughing. The presence of Rusticated Ware is an indication of early Romanisation of at least part of the ceramic repertoire. Its presence can thus indicate contact with the military, or proximity to a Roman road or settlement, perhaps the putative large courtyard villa some 400m to the north of the site. The site seems to have enjoyed easy access to samian and mortarium supplies for much of its history, though only two amphorae, represented by stray sherds, are recorded. Analysis of the composition of phase and feature assemblages, paying particular attention to these characteristic Roman wares, will contribute to an understanding not only of the ceramic history of the region but also to aspects of the cultural influences of the Roman occupation.

26.7 Recommendations

- Documentary research into rural Roman settlements within this region.
- Documentary research into potential nearby high status sites and possible trade routes.
- Documentary research into the presence of similar droveway and enclosure sites in the region and comparison with known examples from the Yorkshire Dales, Wolds and Lincolnshire.
- Reconstruction drawings of the buildings and possible smithing area.
- A detailed publication report on the fired clay artefacts.
- Illustration of fifty fired clay artefacts, a selection of which should also be photographed.
- Further analysis of the animal bone by phase.
- Comparison of the animal bone assemblage with other sites in the region.
- Specialist identification of any faunal remains recovered from environmental residues.
- Research, rebuilding and discussion of key pottery groups.
- Specialist identification of seventy-nine sherds of samian ware.
- Specialist identification of seventy-seven sherds of mortaria.
- Specialist identification of fifteen sherds of amphora.
- Specialist identification of three sherds of prehistoric pottery.
- Illustration of up to 150 pottery vessels.
- Metallurgical analysis of the iron smithing slag.
- Metallurgical analysis of the non-ferrous smithing slag.
- Study, full description and illustration of four fragments of glass bracelets, three of Iron Age to Roman date from ring ditch **41124**, ditch **41264** and ditch **41410**, and one of late Roman date from pit **28991**, interpreted as finds of regional to national significance.
- Full description and illustration of four registered finds of local to regional significance: a lead disc from ditch **28426**, an iron knife from ditch **28543**, an iron strip from ditch **28695** and a copper alloy brooch from ditch **41526**, all of Iron Age to Roman date.
- Full description of twenty-five registered finds of local significance: nine iron nails (including a group of five hobnails registered as a single find), five iron bars, seven iron strips, an iron plate, a piece of melted lead, a piece of melted glass and a copper alloy brooch.
- Specialist identification by a metallurgist of four metal and fired clay artefacts.
- Discussion on the worked stone artefacts for inclusion in the publication.
- Illustration of six worked stone artefacts, including selected hones and querns.
- Examination of three burnt bone assemblages from plot 182 to establish if they are the remains of animal cremations and, if so, to characterise them as fully as possible.

- Full analysis of the charred plant assemblages from the thirty samples that contain at least fifty items, along with a record of species presence in the flots containing smaller amounts of material.
- Full analysis of up to five samples that are rich in cereals to allow consideration of the cereals and other crops being cultivated and their relative importance, evidence for crop processing on the site, and some distributional information on activities being undertaken across the site.
- Identification and quantification of all the larger samples with significant cereal or chaff remains.
- Identification of charcoal from up to five samples which have produced large assemblages with a view to identifying the local fuel resources being exploited at the settlement and possible functional selection.
- Radiocarbon dating of the rich samples identified above, where other dating evidence is unavailable.
- Identification of the charcoal fragments from the possible smithing hearth in plot 184.
- Analysis of waterlogged plant remains from the three ditch fill samples with good organic preservation, along with the insects and pollen from ditch **42602** on plot 184.

27 PLOT 186, WEST DENE

Central NGR: SE 7524 3009
Civil Parish: Howden
Total area of excavation: 267m^2
Figures 8, 96

27.1 Summary

The archaeological remains from this small excavation area, which was discovered in the course of monitoring topsoil stripping, dated to the Iron Age and early Roman periods. A small curving feature, possibly the truncated remains of a ring gully for a roundhouse-type structure, and two ditches were recorded, along with a recent dog burial.

27.2 Location, topography and geology

Plot 186 was a small field, 25m wide, adjacent to the B1228 Station Road, 300m south of Howden Station and 2km north of Howden town centre (Fig. 8).

The site lies on lacustrine deposits of the 25-Foot Drift, Vale of York group and underlying clays of the Mercian Mudstone group (BGS 1971). Seasonally waterlogged fine loamy soils of the Fogglethorpe 2 Association have developed over these deposits (SSEW 1983: 712i). The land is designated as Grade 2 for agriculture (MAGIC). West Dene lay on level ground at approximately 4m OD.

The earliest layer recorded was described as grey sandy clay, *18603*, overlain by a thin layer of dark silty clay topsoil, *18602*. Frequent plough scarring was visible in the natural clays.

27.3 Archaeological background

The excavation area was 300m to the west of the Thorpe Hall site, plots 182 and 184, described in the previous section. The archaeological context of the site is similar, although this site is closer to the former site of St Mary Magdalen's Chapel and Ringstone Hurst, and to the former deer park of the Bishop of Durham (MHU6684), all beyond Station Road to the west.

This small roadside field was pasture, grazed short, when the pre-construction field survey was carried out in March 2005. Nothing of note was recorded. Plot 185, to the east, had a germinating arable crop which afforded fairly good ground visibility for fieldwalking; finds were limited to two sherds medieval pottery and more substantial quantities of post-medieval and modern finds. No geophysical survey was carried out in this plot. The proposed pipeline route was modified for engineering reasons, re-routing it to run 20m to the south initially and then a further 60m to the south. This second re-route resulted in a small strip of land in the field to the south being needed to provide the vehicle access area for the road crossing. It was during archaeological monitoring of the topsoil stripping for this access area that the first archaeological feature was noted, a large ditch.

This ditch could be seen to continue northwards when the topsoil strip in plot 186 was carried out in the first week of June 2006. A small team was then deployed to excavate the features, the available area of excavation being slightly constrained by the needs of the construction teams.

27.4 Site description

Phase 1: Iron Age to early Roman, first to second century AD

The earliest feature on site, probably dating from the late Iron Age, was a large ditch, **18626** (= **18617**, **18618**), which curved from the southern edge of the excavation area to the north-west, before being truncated by a sinuous east-to-west aligned ditch, **18621** (= **18630**, **18624**) (Fig. 96). Ditch **18626**

measured over 2m wide by 0.6m deep and contained a sequence of fills, derived from erosion of the surrounding deposits. There was no evidence for cleaning episodes or deliberate dumps of waste material, suggesting it was left open as a large boundary or enclosure ditch and may well have remained in use into the early Roman period. Slump deposits on the southern side of ditch **18621** probably formed by erosion from an earthen bank on this side. Artefacts were far more common in this phase and included a small quantity of dumped metal-working slag, fired clay and pottery (Appendices 3, 7, 5). The pottery is not closely datable and could be of late Iron Age or early Roman date.

A small curving ditch, **18606** (= **18608**), located in the south-west corner of the excavation area, extended beyond the limit of excavation. It could have been part of a ring gully with an east or south-east facing entrance. Five sherds of Roman pottery were recovered from its terminal (Fig. 96).

Phase 2: Modern

This phase contained a recent dog burial, **18604**, and a nearby square-cut pit, **18610**, both located in the south-west corner of the site.

27.5 Discussion

Assuming that the interpretation of feature **18606** as part of a roundhouse ring gully is correct, it is likely that this site was on the periphery of an early Roman farmstead, probably with further buildings to the west, mostly lost beneath Station Road. An extrapolation of the ring gully would indicate a diameter of between 5m and 6m; relatively small for a building, but within the range of other known structures within the region. The surrounding ditches were large at over 2m wide, and were probably banked settlement enclosure ditches rather than simple field boundaries or drains. The quantity of finds recovered from ditch **18621** is also an indication that there was nearby settlement during the later phase of occupation. A limited amount of metal-working seems to have been carried out somewhere in the vicinity, as slag is unlikely to have travelled far from its source.

Archaeological remains have almost certainly suffered truncation, as shown by the plough scars, and the large enclosure ditches were shallow compared to their width of over 2m. Any associated settlement deposits such as structural postholes, floor surfaces, or hearths are likely to have been lost prior to excavation of the site.

27.6 Potential

Of themselves, these archaeological features are of only local interest. However, this is one of several such sites uncovered during the pipeline work and forms part of a growing body of evidence of rural settlement and land-use in the area around the time of the Iron Age to Roman transition.

The pottery assemblage is typical of this period but will contribute to an increased understanding of the distribution and chronology of ceramics in the area.

Within the environmental assemblage, a small collection of charred seeds and grains could add to the growing data from the region. The assemblage also included clumps of fruit seeds, which may represent casual food disposal or natural accumulation of material from hedges or trees growing next to the ditches. Identification of these seeds may indicate either local food use or provide information on the type of hedgerow used in ditch and bank boundaries.

27.7 Recommendations

- Inclusion of the site within an overview of rural late Iron Age to early Roman sites in the region and within the low-lying landscape around the Humber Estuary.
- A short summary of the pottery assessment report to publication standards, with illustration of two vessels.

- Consideration of radiocarbon dating of a sample of the residue from a pot base in Phase 1 ditch **18617**, and possibly a cereal grain from ditch **18621**, if the features cannot be dated by the artefactual evidence.

28 PLOT 213, OXEN STANG

Central NGR: SE 7034 2814
Civil Parish: Barmby on the Marsh
Total area of excavation: 1918m^2.
Figures 9, 97, 98

28.1 Summary

The archaeological remains from this site suggest small-scale rural settlement and associated land-use. Oxen Stang produced evidence for enclosures and disposal of domestic waste as well as evidence for grazing and stock management in the early phases before being divided into enclosures and finally bisected by large drainage ditches. All of the archaeological remains were subsequently buried beneath a layer of silty subsoil up to 1m thick, which probably developed during periodic flooding of the landscape from the late Roman period until the modern era.

28.2 Location, topography and geology

The excavation area was roughly equidistant from the villages of Asselby to the east and Barmby on the Marsh to the west, each just over one kilometre away. The site is on a tongue of slightly higher ground between the flood plains of the Derwent to the north-west and the Ouse to the south (Fig. 9). The route of the former Hull-to-Doncaster railway forms the northern boundary of plot 213.

The very slight ridge is formed of sands of the 25-Foot Drift lacustrine deposits, outcropping among the more recent alluvium of the river floodplains (BGS 1971). Well-drained, coarse, loamy soils of the Newport 1 Association have developed over these sands (SSEW 1987, 551d). The land is designated as Grade 1 for agriculture (MAGIC).

The surface of the excavation area, after stripping of topsoil and subsoil, was relatively level at around 4.5m to 4.7m OD. The earliest layers were recorded as greyish clay in the northern two-thirds of the site, and yellow brown sand, *24105,* in the southern part. These deposits were overlain by thick silty subsoil, *24104*, to a depth of up to 1m in places, and silty topsoil, *24123*. The archaeological features were cut into layer *24105*, and were all sealed, at least partially, below the subsoil.

28.3 Archaeological background

There were few specific sites or find-spots highlighted by desk-based assessment in this area, apart from several possible paths or trackways visible as soilmarks and probably of recent origin. It did, however, draw attention to 'the difficulties in detecting archaeological remains in areas of deep alluvium in advance of construction, and the potential cost of assessing organic and palaeo-environmental remains' and urged that 'adequate resources should be put in place for dealing with unexpected archaeological remains during construction' (Burton 2005a).

A germinating crop at the time of the field survey did not impede ground visibility to any great extent. The fieldwalking recovered one sherd of medieval pottery along with several post-medieval and modern sherds, and tile fragments. The geophysical survey showed one quite prominent linear anomaly crossing the pipeline route along with smaller and more amorphous anomalies. Linear anomalies interpreted as the remains of ridge and furrow cultivation were also noted. Evaluation trenching was not carried out in this plot.

During monitoring of topsoil stripping in mid-June 2006, a scatter of Roman pottery, including relatively unabraded pieces of samian ware, was noted. These finds were mostly associated with a spread of darker soil, although at least one cut feature was also revealed. The masking subsoil was removed in a strip up to 18m wide throughout the field; multiple features were revealed at this level.

As the site was discovered at a very late stage in the construction process, only a limited time was available for excavation, and this was carried out within four days.

28.4 Site description

Activity in the Roman period has been divided into three phases, though the pottery assemblages, generally quite modest, suggest considerable overlap.

Phase 1: Roman, first to third century AD

The first phase of occupation on the site occurred in the early Roman period (Fig. 97). Ditch **24089** (= **24014**, **21361**) ran from the western limit of excavation, turning through an obtuse angle in the centre of the site, and was probably the remains of a livestock enclosure; no indication of a northern side survives, but one may have been obliterated by Phase 3 ditch **24016**, as ditch **24089** does not extend beyond it. Directly beyond the north-eastern extent of **24089** and continuing its alignment, two round pits, **24022** and **24059** (Fig. 98a), were both approximately 0.6m in diameter and had steep sides and loose silty fills.

To the south of this ditch, a group of features could also be interpreted as associated with animal husbandry (Fig. 97). These include a possible 'race' 1.7m wide and 7m long, its southern side formed by ditch **21372** (= **21374**), and the north by ditch **24075** (= **21366**, **21351**, **21358**), which had a right-angled return to the north. Perpendicular to the eastern ends of these two features, ditch **24044** (= **21312**) was positioned to leave a 1m entrance to the north and a much wider 1.7m entrance to the south. Two large postholes, **24091** and **24090**, positioned 1.5m apart just to the south of the race, may have supported temporary pens or part of a timber structure.

Phase 2: Roman, second to third century AD

The second phase of activity on the site can be dated to the middle Roman period and marks a clear break from the previous phase of land-use, with linear features frequently truncating the earlier ditches (Fig. 97). The land division in this phase was on a general north-to-south alignment, with ditches **21381** (= **21344**), **21321** (= **24120**), **24002** (= **21304**), **24006** (= **24049**, **24109**), **24018** (= **24073**) and **21340** (= **21329**) forming a roughly parallel pattern with a separation of around 8m. These ditches were fairly narrow and shallow, averaging 0.6m wide and 0.3m deep; they would have acted as drains rather than as physical boundaries. A single piece of thirteenth- or fourteenth-century pottery recovered from intervention **21329** is likely to have been intrusive, resulting from disturbance by medieval agriculture. Ditch **21340** (= **21329**), further to the north, was much larger at 1.5m wide by at least 0.4m deep but may have been a later feature, a precursor of the stratigraphically later Phase 3 ditches.

Ditch **24002** (= **21304**) was an exception to the general north-to-south alignment; it extended eastward from the western limit of excavation before turning sharply south. Its truncated terminal formed an entranceway with the terminal of ditch **21310** (= **21370**, **21364**).

Also in this phase was a large curving ditch, **21348** (= **21306**, **24115**, **21325**), positioned near the eastern site margin (Figs. 97 and 98c), which measured approximately 11m across its arc. It formed a large enclosure, semicircular if it was contemporary with ditch **21321**, with a wide entranceway to the north. A shorter ditch, **21387** (= **21378**, **24114**), was positioned just outside the western curve of this enclosure and may have been used to reinforce or reinstate the boundary to the enclosure at this point.

Several pits were dug in this phase, all in the central area of the site (Fig. 97). These included pits **24025**, **24004**, **24024**, **24023**, **24063** (= **24065**) (Fig. 98b), **24011** and **24021**. Most of these pits had fairly sterile silty fills with only occasional artefacts recovered. The exceptions were pit **24025**, which contained seven sherds of pottery, and elongated pit **24063** (= **24065**), which produced ten sherds, including half of a lipped dish (Appendix 2).

Phase 3: Late Roman, third to fourth century AD

The pattern of land division was again revised in the late Roman period, with the establishment of large east-to-west aligned ditches (Fig. 97). These included features **21313** (Fig. 98d), **21327** (= **24068**, **21383**, **21390**, **21397**, **24080**), **24016** (= **21376**, **21359**, **21323**), **21332** and **21385**. These ditches were much larger than those from the earlier phases, typically measuring around 1.5m wide by up to 1m deep. They had sequences of silty and organic fills, indicating that they were probably laid down during periods of flooding alternating with quieter periods when there was standing water in the ditches.

Other features in this phase included narrow ditch **21346** (= **24012**), which truncated earlier field system fragments but appeared to respect the curvature of enclosure **21348**, and an L-shaped ditch, **24034** (= **24051**), located against the eastern limit of excavation.

Pit-digging continued into this period, again mostly located in the central area of the site, producing pits **24040**, **24008**, **24070**, **21354**, **24028**, **24029**, **21367** and **24020**. These pits contained similar deposits to those from the previous phase, being mainly composed of backfilled silt and occasional charcoal flecks. They produced very few artefacts.

Phase 4: Medieval

Although no medieval features were located, medieval pottery was recovered from the upper fills of features otherwise securely dated to the Roman period. These ditches included ditch **21340** (= **21329**), which contained seven sherds of thirteenth- to fifteenth-century pottery, and linear feature **21332**, which contained a single sherd dated to the late eleventh to early thirteenth century (Appendix 2). This suggests that the ditches remained as negative features, forming shallow hollows, long after the site was abandoned.

Phase 5: Modern

Ceramic field drains were noted throughout the excavation area.

28.5 Discussion

The site contains archaeological remains spanning the Roman period, together with limited evidence for medieval land-use. The earliest features include a short race used to funnel and separate livestock, potential pen areas and the remains of a large enclosure. These features are typical of Later Iron Age and early Roman occupation within the region and indicate a predominantly rural pastoral economy, utilising the river valleys and flood plains for grazing. Grazing on the flood plain may have been seasonal in this phase, with no evidence for permanent habitation or remains prior to the Roman period.

By Phase 2, the evidence suggests an intensification of land-use, with ditched enclosures being developed. The large enclosure in the eastern part of the site suggests that animal husbandry continued into this phase and there is no definite evidence for a shift to arable land use, although the fertile flood plain silts would have been very suitable for grain production. The early remains generally produced little evidence for occupation, with no buildings identified in this phase. Two of the pits contained moderately large quantities of pottery. This included a substantial fragment of a dish, recovered from an elongated pit near the eastern edge of excavation.

During Phase 3, a series of large ditches divided up the land. These ditches contained sequences of silts and organic deposits, interpreted as the results of seasonal flooding interspersed with periods of standing water in the ditches. This reordering of the landscape is likely to have been a response to deteriorating climatic conditions. The abandonment of the site during the fourth century may have been a consequence of the ground becoming too waterlogged, or the water table too high, for cleaning out of the ditches to be effective.

The presence of medieval pottery in the upper fills of two of the ditches, and also within the subsoil, suggests that the medieval land surface may have been close to the Roman one, and that the abandoned Roman ditches were finally filled in the course of medieval cultivation. The material recovered is likely to have been distributed during manuring. The development of up to a metre thickness of subsoil shows that the site has been subjected to regular flooding and deposition of river silts from the Ouse.

28.6 Potential

Further analysis of this site, the most westerly of the sites along the pipeline, will provide data for study of the exploitation of lowland floodplains. The changing patterns of drainage during the Roman period and the subsequent abandonment are relevant to considerations of the hydrological history of the region, especially when combined with the environmental evidence from the sequences of ditch fills.

There is good botanical data from the rich plant assemblages from waterlogged ditch fills, which should allow environmental reconstruction of the changes in the nature of the local habitat through the Roman periods and beyond. This included insect, as well as plant, remains. The charred plant remains from other deposits are, however, sparse and provide only very basic data on the range of cereals being used and on the economy of the site more generally. Similarly, the small amounts of identifiable charcoal fragments limits the potential of this material for the understanding the use of different woodland species for specific uses on the site.

The plot produced a small animal bone assemblage, with an emphasis on cattle. There is some potential for this to provide general information on the underlying animal husbandry practices undertaken on site.

The pottery assemblage appears to be typical of a rural community without any pretensions towards a Romanised material culture or lifestyle, but nevertheless has some potential for increasing understanding of the ceramic history of the area, especially when considered in comparison with material from the other sites along the pipeline route.

28.7 Recommendations

- Documentary research into rural Roman sites along the Ouse floodplain.
- Documentary research into historical accounts of flooding in the region.
- Further analysis of the animal remains as part of a wider study across the pipeline.
- Notes on the fired clay assemblage to be included in any publication.
- Production of a summary pottery report, with up to 30 pottery illustrations.
- Specialist identification of eight sherds of amphora.
- Specialist identification of twenty-eight sherds of mortaria.
- Specialist identification of twelve sherds of samian.
- Full analysis of plants and insect assemblages from up to six rich environmental samples from waterlogged deposits.
- Species identifications of the charred cereals for inclusion in a comparative study with assemblages from the other sites along the pipeline route.

29 ASSESSMENT OF POTENTIAL AND RECOMMENDATIONS

Of the twenty sites described above, one, the Romano-British roadside settlement at Rudstone Dale (plots 103 and 104), below the chalk scarp of the Wolds, containing well-preserved building foundations, a metalled road, and a large number of burials including adults, neonates and domestic animals, is of potential national importance.

Six other sites can be considered to be of at least regional importance: the late Iron Age and early Roman settlement at Shepherd Lane, south-east of Beverley (plots 53 and 55), the Bronze Age or earlier Iron Age triple ditch alignment at Lion's Den (plot 86), the possible square barrows at South Newbald and Gaylands (plots 106 and 107), and the settlement sites from the Roman period at Warren Hill Spring (plot 123) and Thorpe Hall (plots 182 and 184). The potential salt-making site at Black Dike (plots 131 to 134) is also of regional importance because of the presence of well-preserved briquetage and associated features. Salt-making would have been an important element of the local economy and offers valuable evidence for environmental conditions around the Humber and Walling Fen through the later Iron Age and Roman period.

Although individually, the sites immediately to the west of the mudstone scarp of the Wolds, Carcliffe Crossroads (plot 126), Snake Hall (plots 128 and 129), would perhaps not be regarded as of much more than local importance, the facts of their proximity to one another and their relationship with the cropmarks in this area also makes them regionally significant. Similarly, the importance of both the Howden Common (plots 178 and 179) and Wood Lane (plot 180) sites is considerably enhanced by their location in relation to the Thorpe Hall site. The Iron Age to Roman settlement site at Swine (plot 14) could also be regarded as of regional importance, especially in view of the evidence for early Bronze Age activity.

The other sites described above could be considered as of local importance, as could the less significant sites detailed in Appendices 16 and 17.

29.1 Topography and settlement patterns

Further consideration of the differing landscape forms along the route has the potential to increase our understanding of settlement patterns and land use across the region. These areas contain differing natural resources and soil quality, and were exposed to varied environmental factors such as risk of flooding and erosion of cultivated slopes. Alongside these factors, the landscape areas created different opportunities for contact with other settlements, trade routes and exposure to changing markets, all of which will have influenced the trade in artefacts, changing lifestyles and the composition and complexities of local economies.

The main topographic zones to be considered are the Hull Valley, the chalklands of the Wolds, the lower-lying Jurassic Wolds and the lowlands of the lower Vale of York, to the north of the Humber Estuary and the Ouse. Two of these zones, the Hull Valley and the Vale of York, would have been at high risk of periodic flooding before they were artificially drained, and would have included areas of wetlands. These wetland landscapes would have allowed for exploitation of grazing, localised salt production, easy access to trade routes along open water-courses and contact with the growing Iron Age and Roman settlements along the Humber Estuary and North Lincolnshire. The upland landscape of the Wolds, by contrast, will have been subject to soil erosion as the hillsides came under increasing cultivation. Sites in these areas will have been close to known Roman roads and would have had greater access to the products from both roadside settlements such as Shiptonthorpe and Hayton as well as goods transported from the major settlements at York, Brough and Lincoln.

29.2 Early prehistoric

The fills of a cluster of pits on the Rudstone Dale site, provisionally dated to the Neolithic period, were the only pre-Bronze Age archaeological deposits recorded on the pipeline route. If these pits did date to the Neolithic, they are examples of a widely occurring but poorly understood monument type and this pit cluster warrants further research, including radiocarbon dating and specialist identification of the prehistoric pottery sherds to compare with the dating from the lithic assemblages.

The majority of the worked flints recovered from the pipeline were residual, either in features of clearly later date or within colluvium, subsoil and topsoil. A pipeline-wide publication report detailing both the material recovered from the excavations and fieldwalking could help identify areas of prehistoric land-use when compared with known find-spots and environmental sequences in East Yorkshire. GIS mapping of this data may be of use in identifying potential areas of early prehistoric occupation. This data should also be compared with information from the Holderness region, where the Easington to Ganstead project uncovered two Mesolithic flint scatters (Flintoft and Glover 2009).

29.3 Bronze Age

There were few remains from the Bronze Age recorded along the pipeline route, despite its proximity to a number of Neolithic and Bronze Age barrows as it crossed the higher parts of the Wolds. Sea-levels altered through the period and may have been higher than at present, rendering the lower-lying parts of the landscape crossed by the pipeline route unusable for habitation. Flintwork recovered from across the route indicates a low-level Bronze Age presence across much of the landscape, particularly across the Wolds and towards the Vale of York. Mapping flintwork distribution across the route, as discussed above, would be helpful in understanding which parts of the landscape were utilised in this period, especially when considered with existing evidence for sea level changes along the Humber and in Holderness.

Bronze Age artefacts recovered from sites appear to be largely residual in nature, with the possible Beaker pit on the Swine site (plot 14) providing a notable exception. However, the prehistoric pottery assemblage from the pipeline has not yet been assessed by a regional specialist in this period and this may reveal a greater Bronze Age presence during this further analysis.

Examination of pollen records and environmental data from the region plotted, using GIS software, against the data from the pipeline and recorded find-spots and sites may provide correlations with episodes of the ‘Lime Decline’, considered to be an indicator of increased deforestation during settlement in the middle Bronze Age.

29.4 Iron Age

The Iron Age saw increased settlement and development of farming communities in East Yorkshire. Monument traditions changed to incorporate large-scale boundaries formed from single, double and triple ditches, particularly across the Wolds. Smaller-scale ditch and bank boundaries were also created, probably for stock control as well as enclosing settlements. Sites with identified Iron Age remains along the pipeline were spread thinly across the Hull Valley (plot 14), the Yorkshire Wolds (plot 86), and the western slope of the Wolds (plots 103 and 104, 106 and 107) and on the lowland in the Vale of York (126, 131 and 158).

With the exception of plots 86, 106 and 107, all of these sites continued to develop into the early Roman period, suggesting a continuity of settlement once the landscape had been settled. Further analysis of the early settlements and ditch systems will increase understanding of settlement patterns and local economies. The analysis of the environmental samples could provide data on the factors which influenced how and why the landscape was first settled and whether human action altered the local environments. An additional research aim should be to explore the theme of development and decline: why and how some settlements changed and what factors influenced the continuation or abandonment of settlements.

A new and distinctive tradition of burial beneath mounds in a square-ditched enclosure began in East Yorkshire in the Iron Age. Square barrows are widespread between the Humber and York, typically located across the north-eastern edge of the Wolds and are characterised by grave goods, including brooches, pots, food remains, weapons and, on occasion, chariot or cart burials. These monuments have been well-documented in East Yorkshire, with notable examples recorded at Wetwang, Garton Slack and Danes Graves (Dent 1982), as well as the barrow cemetery at the hamlet of Arras which gave its name to the distinctive culture.

Three of the sites along the pipeline route contain evidence for possible square barrows, although in each case, these have been heavily truncated by later ploughing. Two of these sites are located in the lower western part of the Wolds (plots 106 and 107) and one on the low-lying land of the Vale of York (plots 131 to 134). Further analysis of these barrows, including a programme of targeted radiocarbon dating aimed at dating both their construction and disuse, would enhance understanding of these monuments. It is notable that the three sites with barrows contained minimal remains after the early Roman period, suggesting that while the monuments were still prominent in the landscape the area was avoided by the development of the Roman agricultural landscape.

The construction of large ditch boundaries forming extensive networks of linear earthworks was typical of the Iron Age. These monuments, which probably marked significant boundaries between large areas of land, are frequent among the cropmarks visible on aerial photographs of higher parts of the Wolds. Earlier prehistoric monuments such as long and round barrows were often incorporated into these ditch systems, or respected by them, along with contemporary trackways that would have provided connections between parcels of enclosed land. Ditch boundaries have been recorded at places such as Huggate Dykes and near the coast, with Dane's Dyke on Flamborough Headland a particularly impressive example. Dating these monuments has been problematic, with few excavations undertaken to modern archaeological standards and the sheer size of the features ensuring that they would have survived as significant landscape features for a considerable time. This would allow for artefactual material spanning a wide date range to be incorporated in their slowly accumulating fills, while their likely remoteness from centres of settlement resulted in such artefacts being relatively scarce. In addition, such substantial ditch systems, once created, would have been regularly cleaned out and maintained for as long as they retained their significance and utility. They may have been originally constructed in the late Bronze Age and remained open into the Roman period and beyond.

Plot 86 on the pipeline contained part of a triple ditch boundary previously recognised from cropmarks. The site was located close to known Neolithic and Bronze Age burial mounds at Ling Howe and appears to extend over several kilometres, probably with a trackway associated with it. As with other excavated examples, dating of these features has been complex. Bronze Age flint, fragments of abraded prehistoric pottery, Roman pottery and post-medieval artefacts were recovered from the fills of the three ditches. A programme of carbon dating targeting material from the lowest fills of the ditches would be of great benefit in providing a more conclusive date for the creation and use of this monument. In addition, the snail assemblage retrieved from the features can be used to build up an environmental history for the local area, from the inception of the monument to when it was ploughed out in the modern era.

29.5 Late Iron Age and early Roman

By the later Iron Age more of the East Riding landscape exposed by the construction of the pipeline had been settled, with small farmsteads, enclosures and pastoral field systems developing across the Wolds, the Hull Valley and into the Vale of York. These farming communities would have been populated by the *Parisi*, identified as a distinct tribal group in classical sources.

The majority of sites investigated on the pipeline route originated from rural settlement and pastoral land-use towards the end of the first millennium BC or in the early years of the first century AD. There are patterns of continuation from earlier land-use in the Hull Valley (plot 14), on the lower, western Wolds (plot 103 and 104) and on the lowland in the Vale of York (plot 126, 131 and 132 and 158).

Plot 86 on the Wolds contains low levels of Roman pottery, indicating that the ditch system remained open in this period, but there is no evidence for any sustained activity.

The sites in plots 106 and 107, which both contained plough-damaged square barrows, appear to have been abandoned by the early Roman period, perhaps because of the continued presence and significance of these monuments. Investigating and accurately dating when the site stopped being permanently utilised will help our understanding of the region; this should be tied into a study of the local environmental record to examine whether they were abandoned because of a changing environment.

New settlements also developed during this period in the Hull Valley (plots 53 and 55); on the lower western Wolds (plots 117 and 121), including a large settlement on the high point above the western scarp (plot 123), and on the flood plains of the Vale of York (plots 128 and 129, 133 and 134, 178 and 179, 180, 182 and 184, 186, and 213). Across the higher parts of the Wolds, new land-use was limited, although poorly dated fragments of field systems noted in the evaluations and during monitoring of construction work may date from this period (Appendices 16 and 17). Elsewhere in the Wolds, there are extensive cropmarks of Iron Age and Roman settlement and field systems (Stoertz 1997).

The theme of continuity can be further explored for this period, in examining why some sites developed while others diminished. Many of these sites continued to grow through the Roman period, while others were apparently abandoned. A study of comparative sites from the region may reveal if there are typical factors behind the continuation or abandonment of settlements and farmland in this period. It is possible that natural factors such as depletion of local fodder or decreasing quality of soils may have led to these changes. In addition, the advent of Roman forts and urban developments may have caused rural depopulation as small farming communities were drawn to working and living in these new, more affluent and potentially safer settlements. Relating the construction dates of known Roman forts and towns against the decline in these small rural settlements may reveal a pattern of rural settlement changes.

Romanisation would have begun by the establishment of informal trade in the first century AD, and become much more significant after the conquest of the area north of the Humber in AD 71. Examining the extent to which the rural settlements adopted the Roman lifestyle and whether these were the settlements which thrived during the Roman period is fundamental to understanding the changes which occurred in the region. The Shepherd Lane site (plot 53 and 55) is by far the largest late Iron Age to early Roman settlement discovered along the pipeline, located in an area rich in cropmarks and known sites. However, the site diminished significantly in the Roman period becoming slowly converted to field systems with the buildings abandoned. Further analysis of the data from this site, the surrounding cropmarks, the geophysical survey results, and nearby excavations may explain whether the focus of the settlement shifted beyond the limit of the pipeline easement or if permanent settlement was truly abandoned at this time. Similar analysis of the rural sites revealed to the west of the Wolds will further our understanding of settlement patterns and land-use throughout this period.

Evidence of salt-making has been recorded at Black Dike (plots 131 to 134) dating to this period including a substantial assemblage of briquetage. There were also salt-making residues at Thorpe Hall (plots 182 and 184) dating from the earlier Roman deposits. Salt-making was an important industry in both the Iron Age and Roman periods and evidence for production near Walling Fen and the Humber is of regional interest.

29.6 Roman

Roman remains have been extensively recorded in the region illustrating a high degree of colonisation of the landscape from the first century AD onwards. These remains range from rural farmsteads, villages and field systems continuing in use from the later Iron Age, to metalled roads, roadside settlements, villas, forts and towns developed in the Roman period.

Before AD 71, the Roman frontier is thought to have been south of the Humber, with contact between the *Parisi* north of the Humber, and the *Corieltauvi* south of the Humber and Roman occupiers being fairly amicable. These tribes were largely composed of rural farming communities and the immediate impact of a close Roman presence may have been limited to a subtle change in local political structures rather than widespread economic and ideological changes. Certainly there is no evidence for violent changes, destruction of settlements or forced movement of communities in the initial period of contact. Imported goods present in final Iron Age *Parisi* and *Corieltauvi* sites suggest a degree of familiarity with the Roman Empire prior to the conquest, with perhaps generations-worth of trade and contact prior AD 71. With more aggressive neighbouring tribes, such as the *Brigantes*, pressurising *Parisi* and *Corieltauvi* land and resources, the advances of a relatively restrained Roman military may have been actively welcomed north and south of the Humber as both a trading partner and military protector. Although settlements south of the Humber, such as Lincoln, had a Roman garrison in the mid-first century AD, there is evidence the fort was considerably down-scaled in the AD 70s as the threat of any rebellion by the occupied *Corieltauvi* was thought to be unlikely (Jones et al 2003).

In AD 71, the Roman army began to move across the Humber, possibly in response to the more aggressive *Brigantes* who occupied territory to the north and west of the *Parisi*. The major *Parisi* settlement at Brough was occupied by a fort, with a new road constructed to Market Weighton, where it branched off to York and across the Wolds to Malton. New settlements were founded on the site of these forts, with a network of other, smaller linking roads established often with their own smaller roadside settlements.

There is a fairly extensive literature on various aspects of the East Yorkshire Roman landscape, including the wetlands of the Humberhead Levels (Van de Noort, Ellis 1997), the area around Holme-on-Spalding Moor (Halkon and Millett 1999) and the Foulness Valley (Halkon 2008). Other research has focused on the roadside settlements at Shiptonthorpe (Millett 2006) and Hayton (Millett forthcoming), forts such as that at Malton on the Wolds and the Roman town of *Petuaria* at Brough-on-Humber (Wacher 1969).

Across the pipeline route, Roman remains have been discovered which can both complement existing research and allow for further investigation of less understood facets of rural development. The themes of continuity, development and abandonment, outlined in the late Iron Age and early Roman section above, can be revisited here, allowing for an exploration and comparison of sites across the East Riding landscape. Identifying the factors associated with development or decline of rural settlements will enhance previous research in the region and may be able to produce a model for Roman agricultural communities across different landscapes.

The site with the greatest individual potential is the roadside settlement in plots 103 and 104. This site covers the entire Roman period from its origins as a late Iron Age agricultural community to the construction of a metalled road and the development of several phases of Romanised buildings. Many of these buildings were associated with neonate burials, with the human remains assemblage comparable to nearby roadside settlements at Shiptonthorpe and Hayton. It is unusual for such a large assemblage of well-preserved neonate burials to be recovered away from a formal cemetery, or indeed at all. The size and preservation of this assemblage allows a rare opportunity to study infant mortality in a late Iron Age to Roman rural context.

Most of the contemporary human burials from the area are single isolated skeletons or very small groups from multi-period sites, such as the sites at Ferrybridge, Molton and Easington. The roadside settlements at Shiptonthorpe and Hayton have produced very similar assemblages to that from Rudstone Dale, but in both of those cases, there was very limited opportunity to analyse the remains before reburial. Therefore, analysis of this larger collection of remains will provide invaluable information on demography, health and diet of the late Iron Age to Roman East Yorkshire rural population. The remains are thought to be in sufficiently good condition to allow DNA extraction and analysis.

One hypothesis about Roman neonate burials has been that they are the result of infanticide of unwanted female offspring (Mays 1993). Although many archaeologists have expressed doubt about this hypothesis, accurate data on the sex of neonates has been extremely difficult to provide in the past. The neonate assemblage from Rudstone Dale is sufficiently large and well preserved for the of infanticide be investigated by DNA analysis, the main focus of which would be to assess sex bias in the neonatal population. Sex selection has often been suggested as a motive for infanticide. DNA studies have not, as yet, been well utilised in British archaeological material, with currently, only two published studies on site assemblages from Romano-British neonatal material. These had small sample sizes and achieved only limited success (Mays and Faerman 2001). Recent advances are increasing the success rate of DNA extraction (Dr R. Dixon, *pers. comm.*). DNA extraction would also provide the potential for establishing kinship among the Rudstone Dale population. Successful results from this study would be of national significance.

The good survival of unerupted tooth crowns provides an excellent opportunity to look for the neonatal line within the teeth. Studies by Smith and Avishai (2005) have shown that a hiatus in growth of the tooth crown occurs as a result of the trauma of birth, forming a discernable line, visible in thin section, referred to as the neonatal line. The study of the presence or absence of the neonatal line in this large population of neonates would provide dramatic evidence as to whether these skeletons were the result of natural infant mortality or infanticide.

Another aspect of plots 103 and 104 is the development and alteration of building styles through the Roman period, with roundhouses being gradually replaced by rectangular structures on stone foundations or constructed on a framework of posts. Studying these changes and accurately dating the buildings may reveal influences from nearby Roman towns or other roadside settlements such as Shiptonthorpe and Hayton. The abandonment of the settlement at plots 103 and 104 in the fourth century can be compared to those of other Roman sites along the pipeline route and within the region.

Several sites produced evidence for craft and industrial processes including metalworking, textile production and salt-making. These craft elements are important aspects of the rural settlements revealed along the pipeline, with salt-making being of potential regional significance as so few comparative sites have been explored in East Yorkshire.

29.7 Anglo-Saxon

No remains or significant artefacts have been positively identified from this period. As such, there is little potential for additional analysis. One possible avenue would be to explore whether refinement of the pottery dating can produce evidence for an element of later fourth- or early fifth-century material. Should this be possible, then a selection of radiocarbon dating of any sooted pot sherds from this material would be recommended to examine the potential for an early Anglo-Saxon presence within the Roman settlements.

29.8 Medieval

Medieval deposits were infrequent across the pipeline, with the bulk of medieval artefacts being derived from subsoil, topsoil and plough furrows. This pattern is typical of material derived from manuring of fields.

Recorded medieval features on the pipeline include single ditches in plots 123 and 107, and a single pit in plot 106. Three ditches recorded in plot 184 are perhaps of most significance: these form the corner of a large enclosure, and include the edge of the unenclosed common land as shown on the tithe map. Documentary research into historic settlements and Domesday records may be of interest in tying these limited datasets into a known landscape.

The pipeline passed through the former extents of several medieval deer parks. No evidence for any associated features, such as park pales, boundary ditches, hunting lodges or areas of cleared woodland, were found, and this apparent archaeological invisibility of these parks, which must have been

significant landscape features, is notable, though perhaps unsurprising. Documentary research to accurately locate the limits of these parks, in relation to the pipeline easement, may be worthwhile in order to determine if there are any more subtle indications of these elements of the medieval landscape, perhaps in the patterns of occurrence of ridge and furrow, the distribution of unstratified finds or evidence for deforestation or conversion to low cover.

Among the modest assemblage of medieval finds, a single fragment of slip-decorated floor tile has been identified as of possible regional significance. The fabric of this tile could not be identified by eye, and thin-sectioning and chemical analysis for comparison with tiles from other sites in the region is recommended. The pattern should be compared with the corpus of medieval floor tiles in Northern England (Stopford 2005) and illustrated if appropriate. These tiles were used between the thirteenth and the fifteenth centuries, being replaced by plain or slipped tiles from Flanders in the fifteenth century.

Of more interest would be documentary research into land reclamation and drainage projects from this era, as many of the Roman occupied sites appear to have been undisturbed following the end of the Roman period until recent ploughing and drainage. This is particularly noticeable on the lower-lying sites and may be related to a preference for wetland land-use, such as meadows or grazing marsh, rather than drainage and agriculture.

Fragments of ridge and furrow were recorded on several plots, most notably plots 123 and 182 and 184, which both lie close to medieval settlements. Dating of ridge and furrow is notoriously difficult and these fragments may be post-medieval. Although detailed mapping of ridge and furrow might be of local value, it is considered beyond the scope of the project, particularly as the recorded data set is so sparse.

29.9 Post-medieval and modern

Post-medieval and modern remains were limited within the pipeline. Features from this period generally relate to field division, drainage and agricultural practices. The recorded field boundaries are of some interest for the information that they contain about the changing landscape patterns of the region since medieval times and can be correlated with cartographic sources such as tithe maps and early Ordnance Survey maps, but otherwise do not merit any further study.

29.10 General and undated

Where possible, all of the recorded archaeological remains have been dated, phased and included in the discussion above. Many of the exceptions will be natural features such as palaeochannels, tree throws and glacial hollows. Without artefactual dating, these features are extremely difficult to assign to a specific period. Glacially derived features are particularly complicated; they were formed prior to human activity in the region but may have remained open in some form into the early prehistoric period.

Where human interaction is demonstrated, additional analysis of the excavation data will be carried out to try to identify woodland clearance, active water channels or the presence of open, natural hollows in the landscape. This will focus on those excavation areas where investigation of the wider landscape is feasible. Natural, undated features located during evaluation trenching and monitoring of construction activities are of limited value if they cannot be tied into other aspects of the landscape.

30 ASSESSMENT CONCLUSIONS

The first part of this section provides an appraisal of the pre-construction and fieldwork stages, assessing both their overall success and considering whether there are lessons that can be learnt for future projects. The success of this post-excavation assessment is then discussed in the second part of the section.

The desk-based assessment was very comprehensive in collecting and presenting details of known archaeology and provided a very useful resource, both in the design of mitigation strategies at the planning stage and for informing all of the subsequent stages of investigation. As such it more than adequately fulfilled its brief. A useful addition, however, would have been a fuller synthesis of the data into an overall picture of the historical landscape, related to the differing topographies of the pipeline route. A concentration on the impact of the pipeline on individual sites meant that the overall landscape picture was not as clearly drawn as, perhaps, it could have been, rendering it slightly less useful than it might have been in the later stages of the project.

The fieldwalking survey was useful in locating the significant Roman site in plot 123, which produced a very clear signature in the form of a scatter of Roman pottery sherds across the surface of the topsoil, coinciding almost exactly with the area of the site as subsequently excavated. Although only small numbers of pottery sherds were recovered from plots 182 and 184, and plot 55, these provided significant indicators of the nature of the cropmark sites located by the desk-based assessment and the geophysical anomalies in these plots. There was a stark contrast between the results from plot 123, on the top of a ridge and heavily plough-damaged, and from plot 104, nestling beneath the Wolds and covered by thick layers of colluvium. Plot 104 produced only two sherds of Roman pottery: little indication of the 240kg of pottery that would be recovered during excavation. The contrast highlights the limitations of fieldwalking in fields where the top of the archaeological deposits lies below the base of the plough-soil.

Though the usefulness of fieldwalking as a prospection method on pipelines can be questioned, it is a relatively simple and inexpensive technique: the savings produced by locating and allowing for the timely mitigation of a relatively complex site such as plot 123 could easily offset the costs of the whole fieldwalking survey. The reconnaissance or walkover survey of the route, carried out in conjunction with the fieldwalking, is also a useful and necessary element of the pre-construction process, allowing the landscape context of the route to be assessed as well as specific earthwork features, such as the upstanding ridge and furrow in plot 42, to be recorded.

It should also be remembered that fieldwalking has an archaeological value beyond simple prospection for sub-surface remains. Without the fieldwalking survey, the cluster of twelve flints in plot 97 (Burton 2005b) and the smaller surface scatters of flints elsewhere along the route would not have been recorded. Overall therefore, it can be argued that the results from this project provide a compelling argument for continuing to carry out pre-construction fieldwalking of proposed pipeline route.

The soils along the pipeline route are, in general, not particularly conducive to producing good magnetic responses, especially in the lower-lying areas, and the results of the geophysical survey were variable. However these results identified a number of potential sites and, in conjunction with the information from the fieldwalking and reconnaissance surveys, were used to select target areas for evaluation trenches. The success of the evaluation trenching in locating most of the areas of significant archaeological remains implies that even rather poor and indistinct magnetic anomalies, a practised eye can use the results to discern the presence of significant archaeological features in these soils. On plot 104, the complexity of the site stratigraphy was apparent in the geophysical survey results even through the superficial layers of alluvium, but sites on more poorly draining soils or where they were heavily truncated sites produced weak or confusing signals. The plot 123 site, for instance, would not have been identified on the evidence of geophysics alone, emphasising the need for using a combination of different survey techniques.

Thirty-six plots were targeted for evaluation trenching. Of the excavation sites, only plots 117, 128, 156, 180, 186 and 213 were not targeted for trenching, all relatively small sites. Difficulties of access meant that evaluation trenching in advance of construction topsoil stripping could be carried out in only thirty-three plots; of these, twenty-one became all or part of excavation sites, ten had archaeological deposits of lesser significance, and no significant deposits were recorded in the remaining two. Overall, the success rate of the pre-construction surveys in identifying areas of potential archaeological importance and of the evaluation in characterising them was high.

Despite the success of the pre-construction stages of work in locating areas of high archaeological potential, the short construction timescale, greatly exacerbated by the poor weather conditions, severely limited the opportunities for mitigation measures other than full area excavation. The weather also curtailed the time available for excavation, preventing all fieldwork for extended periods on several occasions during the construction season. In recent years, it has become common practice in the pipeline construction industry to extend the pre-construction timetable, affording the possibility in some cases of carrying out evaluation trenching in the year before the pipeline is due to be constructed. This is a welcome development as it allows for careful consideration of re-routing the pipeline away from areas of high potential and, if this proves not to be possible, gives ample time for area excavation before the demands of the construction schedule become very pressing.

Thirteen of the nineteen excavation sites were identified by the pre-construction stages of investigation with four more identified during monitoring of the construction topsoil stripping. The remaining two sites were found while monitoring the excavation of the pipe-trench. One of these, in plot 158, produced a significant ceramic assemblage, despite the limited opportunities for excavation. The discovery of both of these sites highlights the usefulness of archaeological monitoring of the pipe-trench excavation, especially in areas where masking subsoil layers prevent good surface visibility during topsoil stripping.

Taken as a whole, the fieldwork was remarkably successful in characterising the archaeological deposits along the pipeline route in what were often very trying conditions. The complexity of the archaeological deposits was much greater than anticipated, especially at Rudstone Dale where the extent of the site was only apparent after removal of overlying alluvial layers. Excavation of this site required close cooperation with the project engineers and coordination with the various stages of construction to allow satisfactory recording without causing undue delays to the project timetable. On the project overall, the tightness of the timetable required a large excavation team, often working simultaneously on several widely dispersed sites. While the exigencies of the situation may demand it, rapid excavation is never ideal and, in practice, places strains on procedures for correlating stratigraphic relationships across different areas of a site. This, compounded by the more general problems of elucidating relationship in gleyed glacial silts and clays dealing with masking layers of colluvium or alluvium on some of the sites, presented challenges for the understanding of the phasing on many of the larger sites. This emphasises the point that the earlier that sites are detected and mitigation measures implemented, the better the outcomes will be.

One area where lessons should be learnt for future projects was in the implementation of the soil sampling strategy. While there are arguments in favour of comprehensive sampling, allowing samples to be selected for processing and analysis at a later stage where more contextual information is available, the challenges of moving and processing large quantities of soil meant that a more discriminating approach, concentrating on the most useful contexts, would have been far preferable. In an ideal situation, soil samples would be processed on site, so that results are immediately available to provide feedback on the efficacy of the sampling strategy. While this can present considerable logistical difficulties on rapidly moving construction sites, it should always be a preferred option where practicalities allow.

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Considering the aims of this assessment, the large quantities of data and finds have been marshalled into a structured and usable documentary archive, which will take a minimal amount of further collation before deposition. The size of this project, recording over twelve thousand archaeological contexts, makes it comparable with some of the larger and more complex urban excavations of recent years. With personnel changes and a rather over-ambitious initial timetable, the post-excavation stage has overrun its original target date for completion of the assessment. However, it is still a considerable achievement to have successfully completed this in what is, by standards of many archaeological projects, still a short time. The potential of the data produced by the fieldwork has been assessed against current research agendas enabling a proportionate and realistic project design for the analysis and publication of the results to be proposed.

Rudstone Dale adds to a group of nationally important Roman roadside sites in the East Riding. Together with the other Iron Age and Roman sites investigated on the pipeline route, it will add hugely to the knowledge of this period in the region north of the Humber.

The pipeline offered the rare privilege of seeing a 52km-long sub-surface view of the rural landscape of the East Riding. In passing from east to west through the Yorkshire Wolds, it sampled all of the main landscape regions. It confirmed that the extensive cropmarks to the west of the Wolds originated largely from late Iron Age and Roman field systems and small rural settlements. Perhaps of equal significance, it demonstrated that the areas visible as cropmarks are, to a large extent, coterminous with the sub-surface remains; the lack of recorded cropmarks in other areas seems to reflect a genuine absence of features rather than differential visibility of archaeological deposits.

So what of the other periods, pre-Iron Age and post-Roman? The triple-ditch monument at plot 86 is poorly dated, but perhaps looks back to the prehistoric landscape of the high Wolds rather than forward to the agrarian communities of the later Iron Age. Otherwise, the early-phase pits in plot 104, the Beaker pottery of plot 14 and scattered flints were almost all that was recorded of earlier periods. Twelve pieces of worked flint, including a scraper, from plot 97, constituted the most significant of the unstratified finds.

Some monument types are inherently less visible: unenclosed early Iron Age sites are always underrepresented when compared to later Iron Age settlements, where the large enclosure ditches are often all that survives. Conversely, the visibility of prehistoric monuments in the chalklands of the Wolds means that they are likely to be recorded and would have been avoided by the pipeline route in its early planning stages. But even taking these factors into account, there is a fairly marked lack of evidence for prehistoric activity, especially in the lower lying areas of the route, suggesting that environmental conditions may not have been suitable for occupation at these times.

Changes in hydrology would have profound effects on this marginal landscape; the detailed history of sea level changes is not well understood, but the explosion of activity in the late Iron Age is possibly related to an amelioration of conditions, brought about by climatic change or falling sea levels, which was probably reversed in the late Roman period. While the encroachment of marshland would have only affected the lower-lying parts of the landscape, it is likely that the economies of the uplands of the Wolds would have been severely affected by the loss of their lowlands.

Deterioration in conditions in the later Roman period could also explain the almost total lack of any evidence from the Anglo-Saxon period, although this is a period which is commonly poorly represented in the archaeological record. A similar lack of evidence of medieval activity is perhaps more surprising. There is documentary evidence of drainage works in the mid-twelfth century, carried out by Meaux Abbey, suggesting that the land was fairly intensively managed by that time, in the area

where the pipeline crosses the Hull Valley at least. Elsewhere, there were extensive hunting parks, which would have constrained the areas available for settlement and agricultural exploitation, and it is likely that the area was never as densely settled as many other rural landscapes. Although there are a few deserted or shrunken settlements close to the pipeline route, most notably Cavil to the north-east of Howden, the pattern of settlement established in the medieval period largely persists in the modern landscape.

Overall, the earlier stages of investigation and this assessment have provided an organised mass of data, a solid foundation for addressing research questions in the next and final phase of this project, and with the potential to inform studies of the archaeology of the East Riding, especially that of the Iron Age and Roman periods, well into the future.

31 UPDATED PROJECT DESIGN

31.1 Introduction

The archaeological investigation along the route of the pipeline has been designed throughout to conform to the principles outlined first in MAP2 (English Heritage 1991) and its successor MoRPHE (English Heritage 2006). For each stage of work, a written scheme of investigation (WSI) was produced and agreed with the clients and consultees before implementation. The guiding principles followed are:

- the establishment of an explicit research agenda;
- proper planning, documentation and management;
- the dissemination of results promptly and appropriately;
- the critical evaluation of the data against the research agenda.

The WSI for the excavation stage (Network 2006b) set out the broad aims of the fieldwork and identified the need for subsequent assessment and dissemination of the results. Following fieldwork and quantification of the field archive, Network Archaeology produced a post-excavation strategy document detailing the intended procedures to be followed and identified specific project aims and areas of research (Wilson 2008).

This updated project design outlines how the approach will be carried forward into the final stages of the project. The research aims have been updated as a result of the post-excavation stratigraphic and specialist artefact assessments. The specific ways in which it is proposed to address these aims are then given.

31.2 Updated research aims and objectives

Following the archaeological assessment described in the previous chapters of this report, it is now possible to considerably refine the research aims and objectives. The research aims outlined below have been drawn up on the basis of the results and recommendations from the specialist analyses and taking note of relevant research agendas and period-based discussions, both national and regional (such as Haselgrove et al 2001; Manby, Moorhouse and Ottaway 2003).

General research aims

1. *To analyse and refine our understanding of changing environments, land-use, settlement and economy in East Yorkshire.*
2. *To review the implementation of the earlier stages of the project to inform future archaeological practice in the area.*

31.3 Period-specific research aims and proposed analysis tasks

The following period-specific research aims have been identified:

The Mesolithic period

3. *To consider the patterns of activity against landscape zones to consider whether differing topography and environmental factors in the Mesolithic influenced land-use.*

   The distribution of Mesolithic flint will be mapped across the pipeline, along with data from nearby sites in existing SMR records in order to locate potential focus points. The distribution patterns from this project will be compared with the results from excavated Mesolithic sites in Holderness.

4. *To refine the date range of the potential late Mesolithic to early Neolithic activity.*

5. *To place the results in their archaeological and landscape contexts.*

   An illustrated narrative discussion will be prepared, to form part of a chapter dedicated to prehistoric archaeology within the published monograph.

The Neolithic and Bronze Age

6. *To analyse the potential Neolithic pit cluster at Rudstone Dale.*

   The flint and the ceramic assemblage from this cluster of pits will be subject to further analysis. Radiocarbon dating of a selection of targeted samples from these deposits will be undertaken.

7. *To investigate the local environment at plot 104 in this period and search for comparative sites in the region.*

   Should the Neolithic dating be confirmed, then environmental samples from this pit cluster will be analysed further in order to examine potential diet indicators and landscape information during this period.

8. *To investigate the palaeochannel adjacent to the pit cluster at Rudstone Dale.*

   Radiocarbon dating of samples from a sequence of stratified deposits within the channel will be carried out to determine when this feature was an active watercourse and the time at which it became a dry streambed.

9. *To determine the extent and to refine the dating of the prehistoric phase on plot 14.*

   Specialist identification of the Beaker sherds and radiocarbon dating of a fill of the pit from which they were recovered will be carried out..

10. *To consider the local environment on plot 14 during the Bronze Age, and compare this with known data from the Hull Valley.*

    Plant, pollen and insect remains from samples taken from waterlogged contexts will be analysed.

11. *To consider the Beaker period finds in their regional context.*

    Documentary research will include comparative Beaker period sites within both the Hull Valley and East Yorkshire. Parallels will be sought for apparent continuity or re-use of Bronze Age sites by Iron Age and Roman rural communities.

12. *To examine the pattern of distribution of Neolithic and Bronze Age worked flint in its regional context*

    The distribution of worked flint recovered from the pipeline will be mapped along with other known sites in the region and compared with the extent of the landscape zones and proximity to natural features such as hills, rivers and the Humber Estuary.

The Iron Age

13. *To investigate the reasons for the colonisation of the landscape during this period.*

    Documentary research, seeking parallels to the development of the Iron Age rural communities and land-use in this period, will be undertaken. The distribution of settlements across the region and its relation to the local geology and topography, along with evidence for the changing environments, climate and hydrology of East Yorkshire will be a key research priority. This will include specialist identification of the snail assemblages, pollen analysis and identification of charcoal and charred plant remains.

14. *To refine the dating and phasing of the sites.*

Further analysis of the pottery typology will be carried out in concert with reconsideration of the stratigraphy of the excavated sites. Key groups of late Iron Age pottery will be re-examined and an illustrated discursive text produced with reference to known sites in East Yorkshire; this will be an important contribution to regional research. A maximum of 150 Iron Age vessels will be drawn and comparisons sought to well-dated assemblages in the region, with comparisons also drawn to the large assemblage of Iron Age pottery recovered from the Easington to Ganstead pipeline route. Accurately dating of native tradition material is an important aspect of understanding the phasing of sites and comparison will be made to other pottery assemblages in East Yorkshire, including the large volume of material collected from the Easington to Ganstead pipeline project. Where feasible, selected peri-conquest pottery with suitable sooting from secure contexts will be subjected to radiocarbon dating in order to refine the dating of these ceramics.

15. *To seek evidence for patterns of trade.*

The material culture and the access to particular goods that the various settlement sites would have enjoyed, will be related, where possible, to known production centres.

16. *To consider whether there is significant variation in the typology of sites implying variations in settlement forms and the patterning of activity within them, across topographic zones.*

The settlement patterns and field systems from the key sites from the pipeline will be compared to known examples from the region including those from the Easington to Ganstead pipeline (Flintoft and Glover 2009) and elsewhere in North Lincolnshire, the Vale of York, the Wolds and Holderness.

17. *To examine building forms and activities carried out within them.*

Building forms and the activities carried out within them will be critically studied in order to examine construction methods, use of building space and how buildings were utilised.

18. *To explore the potential for patterns of placed deposits and rubbish discard within Iron Age settlements across the pipeline.*

Any features which could be considered to incorporate placed or structured deposits, particularly those relating to buildings, will be examined in detail and compared to other studies of such deposits from the region to elucidate the activities and depositional practices which occurred on these sites.

19. *To consider and examine potential industrial activities.*

The evidence for crafts and industries, including salt-making, metal smithing and textile production, will be critically evaluated to determine the nature and extent of these activities on each of the sites.

20. *To investigate the economic basis of individual sites.*

Evidence for site economies, as shown by faunal remains, artefacts and environmental data, will be compared with broader patterns across the region. Consideration will be given to the influence of different landscapes, social and ideological pressures and market forces. Analysis of residues on ceramics will be carried out, should there be suitable material from well-dated deposits from sites containing other dietary evidence such as faunal remains, shellfish and environmental data

21. *To examine the evidence for changing agricultural practices.*

The animal bone assemblage from the contexts of this period will be fully catalogued and analysed. This will include calculation of minimum number of individuals (MNI) and ageing by tooth-wear analysis in order to provide information on husbandry practices, and analysis of bone elements to investigate usage patterns. Parallels with other animal bone assemblages will be sought.

22. To consider the evidence for burial rites.

All of the human remains dated to the period will be examined. Evidence for associated burial rites will be considered alongside existing data from the area and the Roman remains uncovered along the pipeline.

23. To examine the possible square barrows excavated on the pipeline route.

The construction, use and abandonment of the features identified as possible square barrows will be explored. The dating of the square barrows will be refined by specialist ceramic identification supplemented by radiocarbon dating of suitable samples. Documentary research will be undertaken to compare these features with other recorded square barrows in the region. Consideration will also be given to whether the siting of the square barrows can be related to the reasons why particular locations were favoured.

24. To fully characterise the triple-ditch boundary on plot 86.

The known extent of the ditches and nearby monuments will be mapped, incorporating data from geophysical surveys, cropmarks and known find-spots from the SMR and Portable Antiquities Scheme. The dating of the triple ditch will be refined by radiocarbon dating of targeted samples. The environmental assemblage from the triple-ditch boundary will be studied and an environmental sequence constructed, using the well-preserved snail assemblage as well as charred plant remains.

The Roman period

25. To refine the dating and phasing of the Roman sites.

A thoroughgoing review of the stratigraphy will be carried out, taking into account all of the findings of this assessment. Regular contact with specialists will be maintained throughout their analysis work to resolve any remaining inconsistencies between artefact dating and recorded stratigraphic relationships. Where necessary, radiocarbon determinations will be used to refine dating.

26. To consider the typology of the excavated sites.

The detailed forms of the settlement sites and the evidence for patterning of activities within them will be critically examined. Research will be undertaken on contemporary sites from the region with a view to producing a broad synthesis of settlement patterns, to which the excavation data can be compared. Comparative sources will be examined for rural settlements from East Yorkshire and from across the Humber into North Lincolnshire.

27. To consider the excavated sites within their wider context.

The settlement sites and areas of enclosed land will be mapped in relation to the known archaeology of the region, including the results of previous archaeological interventions and the extensive cropmark sites to the south of Beverley and to the west of the Wolds. The extent to which the excavation results can be extrapolated to the cropmark patterns as a whole will be considered. The location of all of the sites will be considered in relation to their detailed topographic settings to elucidate factors which would have influenced settlement and land-use. The results will be presented in an illustrated discursive section of the publication.

28. To assess the nature of the agricultural economy

Specialist analyses will be carried out on the charred plant remains and charcoal from selected samples from Shepherd Lane, Rudstone Dale and Thorpe Hall, to provide information about the local environments of these sites and the kinds of agriculture likely to have been practised at these sites.

The animal bone will be analysed in order to provide information on the patterns of husbandry and exploitation. Contrasts in the pattern between Iron Age and Roman contexts will be sought, to ascertain whether variations in husbandry practices can be detected. Consideration will also be given to the variations in local animal husbandry and what relation they had to environmental conditions and market forces. Animal bone recovered from the environmental samples, in particular birds, fish and microfauna, will be discussed as part of a palaeo-environmental overview of the period and used to illustrate the likely available local species within the local area of each major site.

Stone artefacts relating to agriculture and food processing, notably whetstones and querns from Rudstone Dale, will be further studied and a selection illustrated

29. *To elucidate, where possible, the factors affecting forms of building.*

The various structures identified during this assessment will be critically appraised and compared with known examples from across the region. Building morphology, where possible, will be related to period, function, method of construction, topographic setting. The extent to which Roman building styles supplanted native traditions will be evaluated. One piece of worked and decorated stone recovered from demolition rubble at Rudstone Dale will be illustrated and re-examined by an appropriate specialist.

30. *To consider and examine the evidence for industrial activities, including salt-making, metal smithing and textile production.*

Documentary research into salt-producing sites in East Yorkshire, Lincolnshire and East Anglia, will be undertaken with particular attention to the Walling Fen and Hotham Carrs area. The briquetage and fired clay will undergo further analysis and research, and an illustrated discursive text will be prepared for inclusion in the publication.

The evidence for metalworking at Shepherd Lane, Rudstone Dale and Thorpe Hall will be examined. Chemical analysis of targeted samples from the metalworking debris, including both ferric material and non-ferrous smelting slags, will be undertaken where appropriate to help to clarify the nature of these activities. The distribution of material, including hammerscale recovered from environmental samples, will be considered and the scale, type and location of metalworking will be discussed within the publication text.

The contextual distribution of the fired-clay loomweights from Rudstone Dale, Howden Common and Thorpe Hall will be considered and discussed within the publication. The better examples will be illustrated. The textile-related artefacts among the registered finds assemblages will be cross-referenced.

31. *To explore the changing local environments.*

Analysis of rich snail shell assemblages and of pollen sequences, in addition to the should provide evidence of the local environments of the more significant settlement sites. The interaction between the local environments on the economy of the settlements will be considered.

32. *To consider evidence for intra- and inter-regional trade.*

The provenance of artefacts of non-local origin will be considered with a view to finding evidence of trading links to various production centres and potential trade routes in the Humber region and beyond.

33. *To examine relationships between the excavation sites and known military sites, towns and villas.*

Any potential evidence that could relate the excavation sites to known Roman towns, villas and military sites will be identified and pursued with o consider the influence that urban, political and military centres exerted over the rural sites along the pipeline.

34. To contribute to the ceramic chronology of sites in the region

The pottery assemblages from the three major sites (Rudstone Dale, Shepherd Lane and Thorpe Hall, plots 53 and 55, 103 and 104, and 182 and 184) will be examined in greater detail and comparisons drawn from sites across East Yorkshire. Specialist identification will be undertaken on samian wares, mortaria and amphora. The chronology of native tradition and wheel thrown pottery will be examined and supported by selected radiocarbon samples where appropriate. The pottery from the smaller sites will be summarised in a short discussion, with up to fifty supporting illustrations.

Detailed fabric analysis of ceramic building material recovered from Rudstone Dale will allow comparison with other assemblages from the region. Key groups of pottery will then be discussed in detail with up to 250 supporting illustrations. The project has produced one of the largest collections of Roman pottery excavated in the East Riding and will be an invaluable guide to the ceramic preferences of both rural communities and the potentially more urbanised roadside settlement at Rudstone Dale. The large assemblage of registered finds was recovered from Roman contexts, the majority derived from Rudstone Dale, included an important find of an early Roman chatelaine, glass bangles, copper alloy brooches and rings and a military buckle. Over 60 coins were also recovered from the pipeline, the majority again from Rudstone Dale. Further study will be undertaken on the finds assessed as of regional or national significance and an illustrated, discursive text produced. Selected artefacts such as the glass bangles and coins will be sent for specialist identification.

35. To investigate the development and decline of Roman settlements through the first to fifth centuries.

Refining the dating for features currently phased as late Iron Age to early Roman will be a research priority as dating the inception and occupation of these sites will enable a thorough discussion of the cultural, societal and economic changes which occurred as a result of Roman contact. The subsequent evolution of sites compared to other recorded sites in the region to determine the extent to which the excavation sites fit with regional trends. Evidence of factors which could have influenced the apparent abandonment of Roman settlements by the end of the fourth century AD will be considered.

36. To seek evidence for continuation of settlement into the fifth century.

Selected radiocarbon samples may be taken from potential fifth-century deposits in order to define the end date of sites and consider whether they continued into the early Anglo-Saxon period.

37. To investigate the roadside settlement at Rudstone Dale in relation to other documented roadside settlements in the region, especially Shiptonthorpe and Hayton.

The roadside settlement at Rudstone Dale will be further investigated, with particular reference to similar published regional sites at Shiptonthorpe and Hayton. The apparent similarities between these key sites (Millett pers com) will be explored in detail, in particular with reference to site layout, position and number of neonate burials and related animal burials.

38. To consider if and when Rudstone Dale became urbanised.

The evidence from the artefact analyses, including the distribution of coins and other significant finds will be related to the phased plans of the site. It is hoped that this, in conjunction with consideration of the building remains, will allow conclusions to be drawn about the extent to which the site became urbanised and at what stage of its development this occurred. This will be discussed with reference to known or potential political, economic and environmental developments in the region.

39. To construct, as far as possible, an in-death profile of the Roman population.

Full analysis of the human remains will be carried out, to obtain demographic data and information pathology, in comparison with known data for the period and region. Evidence of ritual behaviour, such as burial positions, association with grave goods and with animal burials, feasting debris and the relationship of neonate burials to domestic buildings will considered. Results will be compared to results from contemporary local examples where possible. Radiocarbon determinations of skeletons will be carried out where the contextual data provides insufficient dating evidence.

40. To analyse the neonate remains from Rudstone Dale for any sex bias and possible kinship

DNA extraction will be attempted on all of the neonate skeletons where sufficient bone survives. Results will be analysed to find statistically significant variation from normal sex ratios and for any evidence of the degree of relatedness within the neonate population. The teeth will be examined for presence or absence of the natal line. Radiocarbon determinations will be carried out as necessary.

The Anglo-Saxon period

41. To consider the possibility of continued occupation of sites into the fifth century.

Potential early Anglo-Saxon pottery recovered from late Roman contexts will be re-assessed with reference to local type series. Documentary research will be undertaken on Roman rural sites across East Yorkshire which continued into the fifth century. The question will be addressed as to which of the excavation sites, if any, indicate continuity of settlement beyond the Roman period and what factors may have influenced this.

The medieval period

42. To consider the alignment of ridge and furrow and other remnants of the medieval landscape in relation to earlier periods or contemporary features.

Research will be undertaken to plot known medieval remains including ridge and furrow agriculture, deer parks, settlements and find-spots within the vicinity of the pipeline route. This data will be considered with the results of the pipeline and utilised to illustrate where medieval settlement and land-use had diverged from the preceding widespread Roman settlements.

The general lack of medieval evidence recovered during excavation will be considered in light of historically known remains from the area such as deer parks, settlements and field systems. Research will be undertaken on recorded medieval land-use from documentary sources, including ecclesiastical records, in order to understand the wider landscape setting, with particular attention to the medieval phase at the Thorpe Hall site. Comparison of the decorated medieval tile recovered from fieldwalking in plot 25, with the corpus of medieval floor tiles in Northern England (Stopford 2005) with an appropriate illustration.

The post-medieval period

43. To relate the evidence from the fieldwork to the patterns of land use established as a result of enclosure.

Consideration will be given to the developing post-medieval and modern rural landscape, with regard to changing farming practices, wetland and woodland management, transport links and industrialisation of rural settlements. The continuity or decline of medieval settlements within the area crossed by the pipeline in this period will also be summarised. This work will form a discursive overview as part of the formal publication.

44. To consider which medieval settlements near the pipeline expanded or declined and what factors influenced them.

General

The results will be considered with regard to existing regional research agendas. This will include ongoing academic research into the archaeology of East Yorkshire. Meetings will be arranged, where

possible, with leading specialists to discuss the excavation results and their implications for regional knowledge. This may include Peter Halkon (Lecturer in Archaeology, Hull University), Jeremy Taylor (Lecturer in Landscape Archaeology, Leicester University), Martin Millett (Laurence Professor of Classical Archaeology, University of Cambridge) Robin van de Noort of Exeter University, and Rod Mackey of the East Riding Archaeological Society.

Finds from the processing of additional environmental samples will be assessed and incorporated into the catalogues for all artefact types.

The methods used during the project will be critically assessed. In particular, the effectiveness of the archaeological prospection techniques used, such as desk-based assessment, field surveys and geophysical surveys, will be reviewed in the light of the archaeological record revealed in the excavations and watching brief. The final report will consider the overall success of the project and any lessons for future development projects.

In addition to the tasks listed above, Network Archaeology will actively seek to cooperate with any academic research groups for whom the excavation data would provide suitable material.

The excavation data is of sufficient quality and significance to justify further efforts to maximise its value. In particular, cooperation across specialisms would be of particular value. Provision will be made for meetings between the various specialists at different points in the analysis process in order to ensure consistency and the integration of the various reports and to eliminate areas of overlap. Opportunities will be provided for feedback on completed discussion text with academic institutions to ensure current research is considered within the publication.

31.4 Reporting, publication and presentation

It is proposed that the results of this project will be submitted for publication a monograph, in the Yorkshire Archaeological Society series. The draft of the publication text, together with the full content of the specialist analysis reports, will constitute the report for the client, which, once approved, will be released for deposition with the SMR.

Where appropriate, results pertaining to important sites or to important finds and environmental assemblages may also be published as articles in specialist or period-specific journals, such as Britannia for nationally significant Roman remains. In particular, it is expected that the results of the scientific analyses carried out on the Rudstone Dale burial assemblage will be published in appropriate specialist journal. The detailed format of the final publication will depend on the findings of the analysis stage, but it is currently envisaged that it will be structured around the following headings:

Foreword

A regionally respected archaeologist will be approached to write a foreword for the publication.

Summary

This will give a short, clear summary of the findings, in accessible, non-technical language.

Introduction

A brief outline of the history of the project, the methods of pre-construction prospection, evaluation and excavation, and project aims, together with a description of the locations of the excavated sites in their broad geological, topographic and landscape setting.

Results of the excavations

Presentation of the fieldwork results: excavation sites will be described individually. As all of the sites cover the same broad Iron Age to Roman period in some form, the sites will be discussed in geographical rather than period order, divided by the four main zones of topography: the Hull

Valley, the chalklands of the southern Yorkshire Wolds, the western Wolds and the southern Vale of York.

A broad synthetic approach to site descriptions will be used, including sufficient detail to allow interpretations to be understood and assessed but making reference to archive reports on earlier stages of work and to the site archive to avoid the need to include distracting detail. Interpretations of each site based on the evidence presented will be discussed. Site location plans and overall multi-phase site plans will be included, together with phase plans as appropriate, landscape group plans, feature plans, selected section drawings and selected photographs where these will aid in interpretation and exposition.

The palaeo-environment

This chapter will allow a discussion of the past environment along the route of the pipeline and how it developed and changed throughout the periods of human occupation. An illustrated text will be produced including details of solid and drift geology, soil mapping, pollen sequences and known sea-level changes. Consideration will be given to the potential for salt production along the Fenland north of the Humber, and to how local environments may have affected animal husbandry and agricultural practices.

The prehistoric landscape

Evidence for Mesolithic, Neolithic and Bronze Age land-use across East Yorkshire will be considered in this section. Worked flint from the pipeline will be mapped and spatial groupings explored in relation to known monuments, topography and natural features such as ponds and watercourses. The possible Neolithic pit cluster from Rudstone Dale will be explored in greater detail, including an illustrated discussion placing these features into their immediate landscape setting in relation to the nearby palaeochannel and topography. The Beaker period pit in plot 14 will also be discussed in relation to Bronze Age occupation of the Hull Valley. An illustrated discussion will then summarise the prehistoric sites from the pipeline within East Yorkshire, referencing known monuments, excavated sites and established environmental sequences.

Iron Age monuments and boundaries

This chapter will discuss the apparent square barrows recorded on plots 106 and 107, as well as the triple-ditch boundary revealed on plot 86. Each site will be considered in relation to the topography and geographical setting, with attention given to the local environment from sample data wherever possible. This will include summarised snail and charred plant remains reports from the features. Dating these features is crucial to understanding their significance; pottery and flint will be discussed with supporting illustrations.

A discussion will follow, placing the sites within their regional context, again supported by appropriate illustrations and reference to previously documented sites in East Yorkshire. Reconstruction drawings of the square barrows and triple-ditch boundary may be produced to aid discussion of their situation and utilisation within the landscape.

Rural settlement and identity in the later Iron Age and Roman period

This chapter will be an illustrated, broad discursive text which will consider the rural late Iron Age and Roman sites recorded along the pipeline in their regional setting, drawing together common themes and local variations. Reference will be made to previously recorded sites in East Yorkshire and North Lincolnshire, mapping known settlement patterns across the region. Whilst the full study of this topic warrants a more in depth review and synthesis, this chapter will bring together the main themes and current thought in order to illustrate this important aspect of East Yorkshire's Roman heritage.

Understanding the Roman agrarian landscape recorded in this project is a fundamental part of the proposed publication. Consideration will be given to the organisation of the landscape and how this

is reflected in regional Roman control during this period. The extent to which settlements adopted Roman material culture, building styles, and diet will be explored in a broad synthesis of the topographic zones transected during the project. Reference will again be made to known sites and regional research frameworks.

Building styles will be compared across the pipeline and from previously published sources, to examine how habitation patterns and architecture changed and developed according to changing time, topographic zones and the impact of Romanization.

The fired clay, briquetage and metalworking slag from this area will be considered with reference to local sites and find-spots. Craft-related registered finds recovered from this region such as worked bone tools and spindle whorls will also be discussed. Selected artefacts will be drawn and comparisons made to known assemblages.

Evidence for sea-level changes and alterations to the local environment in the Roman period will be mapped with reference to previous palaeo-environmental studies and plotting palaeochannels and creeks.

Field systems and settlements will be mapped across the pipeline route, incorporating known cropmark and SMR data in an illustrated text. The typology and evolution of field systems will be explored and compared with regional examples. Of particular interest will be how field systems changed and developed in relation to the topography, local environment and the site economy.

The Roman roadside settlement at Rudstone Dale

Rudstone Dale is the largest site on the pipeline and by far the most complex and important. Close proximity to two well-known and superficially similar sites at Shiptonthorpe (Millett 2006) and Hayton (Millett forthcoming) increases the significance of the site, allowing for thorough discussion of this type of settlement in East Yorkshire.

The site will be discussed in an illustrated narrative text, including references to regional research agendas and current academic thought. This chapter will be split into several sections outlined below:

Roadside settlements in East Yorkshire

Previous work on other roadside settlements will be summarised, accompanied by supporting illustrations, which will include location figures, comparative site plans and reconstruction drawings.

Burials, ritual and religion

This section will discuss the adult and neonate burials in detail, with supporting illustrations and plates, including the variety of burial practices utilised on site, ranging from the most common crouched burial to prone and supine inhumations and rarer cremations. The variation of burial position and associations to nearby buildings and the road will be discussed with reference to regionally known examples.

Analysis of the large collection of human skeletal remains, including DNA analysis, will be presented, with supporting figures and the results interpreted with reference to regionally and nationally recognised assemblages and research frameworks. The implications of the results for the understanding of the demography, health and diet of the late Iron Age to Roman population of East Yorkshire will be discussed.

Research and analysis of features containing articulated animal remains, which may represent ritualised burial of animals such as lambs, cows and horses, will be considered alongside the human burials, and parallels drawn to similar assemblages from both Shiptonthorpe and Hayton.

Material culture

The large assemblage of Roman pottery will be discussed with reference to illustrated key groups and known regional assemblages. Particular emphasis will be placed on the assemblage from Rudstone Dale, which indicates a community enjoying access to good quality Roman ceramics by virtue of its roadside location in the hinterland of Brough. The supply of wares from local and regional sources, such as the Holme upon Spalding Moor industries and South Yorkshire and Lincolnshire, and from sources further afield will be discussed in detail, in association with specialist identification of the mortaria, samian, amphora and colour-coated vessels. The extent of trade routes to the settlement will be explored.

The Roman tile and brick from this site will be discussed in detail with comparison made to other published datasets such as those from Shiptonthorpe, Hayton and the potential production site on the nearby Easington to Paull Pipeline (Allen Archaeological Associates 2008).

The large assemblage of registered finds, including a number of personal effects such as glass bangles, bronze brooches, bronze rings and jet pendants, will be described, illustrated and discussed, with reference made to regional comparisons. Particular attention will be given to the more significant finds, including two artefacts typically associated with the Roman military: a bronze belt slider and a bronze military belt buckle, and the bronze chatelaine recovered from what was apparently an empty back-filled grave. The Roman coins will be catalogued in detail and their distribution across the site mapped. This data will be compared to regional and national patterns of loss.

The results from the spatial analysis of the distributions of hammerscale, prill and metalworking slag will be described with an interpretation of the nature of metalworking technology applied on site.

Diet and economy

The results of cross-phase analysis of the large animal bone assemblage and the implications for husbandry, diet and economic changes will be examined along with the evidence for crop cultivation and processing revealed by the charred plant remains. Consideration will be given to how the local environment will have affected economic choices.

After the Romans

This chapter will explore the apparent abandonment of many settlements and field systems after the fourth century AD. Factors behind the decline in rural land-use will be considered with reference to known sites and find-spots in the region and regional research agendas. This will include reference to the apparent deliberate destruction of the metalled road surface in the fourth century at Rudstone Dale. Further study of why these sites decline and appear to have been abandoned after the fourth century is essential in understanding the wider context of the late Roman period in East Yorkshire and beyond. The proximity of documented Anglo-Saxon and early medieval sites to the late Roman settlement sites will be discussed. The subsequent evolution of the landscape through to the present day will be considered.

Conclusions

Acknowledgements

References

31.5 Archive management

The project archive will be managed and prepared in accordance with the following guidelines:

- Draft Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (I*f*A 2008a);
- Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (I*f*A 2008b);
- Guidelines for the preparation of excavation archives for long-term storage (UKIC 1990).

Arrangements have been made with East Riding Museum Service for the deposition of the finds and document archive, subject to agreement of landowners. Landowners have been contacted and invited to donate the finds from their land to East Riding Museum Services and the majority of them have already agreed to this. The archives will be prepared and submitted in line with the requirements of the museum.

The archive will include copies of electromagnetically stored or processed data, supplied on compact disc.

Completed forms will be submitted for inclusion in the Online Access to the Index of Archaeological Investigations (OASIS).

31.6 Project management

The project team will continue to meet each week to monitor progress, so that any issues which may affect the implementation of the project design can be identified and ameliorated.

Monthly progress reports will continue to be produced for the client, Murphy Pipelines, to be forwarded, after approval, to National Grid. The programme for the project will be reviewed and updated during preparation of the monthly report, identifying any potential slippages of time. Monitoring visits by the archaeological consultant of National Grid have contributed to the successful implementation of the assessment stage of work and will continue to be encouraged and welcomed.

Monitoring by the county curator will also be welcomed. Network Archaeology will ensure that the curator is kept informed of overall progress and the achievement of major milestones.

Professional cooperation with archaeological contractors carrying out work on other projects in the region will be encouraged so long as this does not affect the commercial interests of either party.

Network Archaeology will continue to encourage and support outreach activities, and will endeavour to meet requests for speakers at local archaeology and history societies.

During implementation of the programme, regular contact will be maintained with external specialists and they will be urged to supply regular progress reports, linked to invoicing and payment. The project team will respond rapidly to requests from specialists for information or other project support.

Overall responsibility for the project will reside with Claire Lingard, one of the three directors of Network Archaeology. Richard Moore will be responsible for day-to-day implementation of the programme and will oversee the production of reports and publication text. It is anticipated that the other contributing authors of the archive report and the monograph publication will be Patrick Daniel, Chris Casswell and Rachel Savage, all experienced writers.

32 RESOURCES AND PROGRAMMING

32.1 Staffing

It is proposed that the following personnel be used during the analysis and reporting stages of work:

Table 13: Staff resources for analysis and reporting

Network Archaeology staff
Claire Lingard: Internal monitoring, management overview and quality assurance
Chris Taylor: Financial management
Richard Moore: Project management, progress reports, text reviews, editing.
Patrick Daniel: Report author
Chris Casswell: Report author
Rachel Savage: Research and editing
Jacqueline Churchill: Illustrations
David Watt: Illustrations
Mike Wood: Finds co-ordination, stratigraphic analysis
Caroline Kemp: Finds handling
Kealey Manvell: Landowner liaison and archiving
Lisa Bea: Financial administration
External specialists and organisations
Flint: Hugo Lamdin-Whymark
Small finds: Kevin Leahy
Prehistoric pottery: Terry Manby
Iron Age and later pottery: Peter Didsbury
Mortaria: Kay Hartley
Samian: Felicity Wild
CBM: Jane Young
Medieval tile: Jennie Stopford
Fired clay and briquetage: Lisa Wastling
Stone: Ruth Shaffrey
Slag: Rod Mackenzie
Chemical analysis: Mike Hughes
Radiocarbon dating: SUERC
Human bone: Jen Wood
DNA analysis: Ron Dixon
Animal bone: Jen Wood
Environmental samples: James Rackham
Charcoal identification: Paul Flintoft
Pollen samples: James Rackham and Rob Scaife
Slag, sample finds: Rod Mackenzie
Glass, sample finds: Paul Courtney
Shell, sample finds: Jen Wood

32.2 Task lists and programme

Presented below is a task list for the post-excavation analysis programme with currently projected completion dates for each task. This indicates a completion date for submission of the draft monograph for publication in mid-June 2012 and completion of archive deposition in mid-August.

The programme set out below is based on the time estimates supplied by the individual specialists and their expected availability to carry out the work. The heads of the technical departments at Network Archaeology: finds, illustrations and archiving, have also supplied estimates of the time they need to carry out the tasks assigned to them.

Time lags and realistic time allowances have been built in to the programme to allow for unforeseen overruns, conflicts with other projects and the logistical problems which may accompany the transitions between different tasks.

Table 14: Task list

Task	Personnel	Target date
Stratigraphic analysis		
Review of stratigraphy following assessment	Mike Wood, Patrick Daniel, Chris Casswell	25 Mar 2011
Ongoing review	Richard Moore, Claire Lingard	
Specialist liaison on stratigraphy	Mike Wood, Chris Casswell	
Finds		
Updating finds catalogues	Mike Wood	17 Feb 2012
Ongoing specialist liaison	Mike Wood	
Dispatch and retrieval of finds	Caroline Kemp	24 Feb 2012
Specialist analyses		
Flint	Hugo Lamdin-Whymark	22 July 2011
Small finds	Kevin Leahy	22 July 2011
Pre-Iron Age pottery	Terry Manby	26 Aug 2011
Iron Age and later pottery	Peter Didsbury	18 Jan 2012
Mortaria	Kay Hartley	26 Aug 2011
Samian pottery	Felicity Wild	24 Jun 2011
Ceramic building material (CBM)	Jane Young	29 Jun 2011
Fired clay and briquetage	Lisa Wastling	23 Sept 2011
Stone	Ruth Shaffrey	29 July 2011
Slag	Rod Mackenzie	29 July 2011
Chemical analysis	Mike Hughes	16 Dec 2011
Radiocarbon dating	SUERC	25 Nov 2011
Residue analysis	Bradford University	10 Feb 2012
Human bone	Jen Wood	24 Jun 2011
Animal bone	Jen Wood	26 Aug 2011
DNA analysis	Lincoln University	22 Dec 2011
Environmental samples	James Rackham	28 Oct 2011
Charcoal identification	Paul Flintoft	14 Oct 2011
Slag, sample finds	Rod Mackenzie	30 Sept 2011
Glass, sample finds	Rachael Hall	30 Sept 2011
Shell, sample finds	Jen Wood	30 Sept 2011
Research		
Research: libraries, SMRs	Rachel Savage	21 Apr 2011
Meetings with specialists	Mike Wood	
Topographic and landscape analysis	Chris Casswell, Susan Freebrey	14 Aug 2011
Analysis text		
Introduction	Patrick Daniel	20 May 2011

Task	Personnel	Target date
Descriptive text for each site	Chris Casswell, Patrick Daniel	24 Jun 2011
Ongoing review and revision of draft text	Richard Moore, Rachel Savage	25 May 2012
Palaeoenvironment	James Rackham	30 Dec 2011
The Prehistoric landscape	Chris Casswell	30 Mar 2012
Iron Age monuments and boundaries	Chris Casswell	13 Apr 2012
Rural settlement and identity in the later Iron Age and Roman period	Patrick Daniel, Chris Casswell	04 May 2012
The Roman roadside settlement at Rudstone Dale	Patrick Daniel, Mike Wood	15 Jun 2012
Rural Roman craft and industry along the Humber	Patrick Daniel, Chris Casswell, Lisa Wastling	13 July 2012
After the Romans	Patrick Daniel, Chris Casswell	20 July 2012
Conclusions and concluding sections	Patrick Daniel, Chris Casswell	10 Aug 2012
Formatting of specialist reports	Rachel Savage	27 Apr 2012
Editing of archive analysis report	Richard Moore	14 Sept 2012
Illustrations		
Plans and section drawings	Susan Freebrey, Jacqui Churchill	28 Oct 2011
Artefact drawings	Jacqui Churchill, Dave Watt	02 Dec 2011
Reconstruction drawings	Dave Watt	09 Dec 2011
Graphical presentation of analysis results	Jacqui Churchill	29 Jun 2012
Publication		
Editing of specialist report text for publication	Patrick Daniel	15 Jun 2012
Archive text into monograph format	Rachel Savage	05 Oct 2012
Incorporation of illustrations and tables and cross-referencing	Chris Casswell	19 Oct 2012
Review of archaeological content	Richard Moore, Claire Lingard	26 Oct 2012
Copy editing	Richard Moore, Rachel Savage	09 Nov 2012
Proof reading and submission	Rachel Savage	16 Nov 2012
External review	Murphy Pipelines, National Grid, Humber Archaeology Partnership	14 Dec 2012
Preparation of papers for research publications	Chris Casswell, Rachel Savage	26 Oct 2012
Landowner liaison		
Ongoing landowner liaison	Kealey Manvell, Richard Moore	07 Mar 2012
Archiving		
Preparation of paper archive	Kealey Manvell	14 Dec 2012
Preparation of finds archive	Kealey Manvell, Caroline Kemp	07 Dec 2012
Materials and deposition costs	Kealey Manvell	

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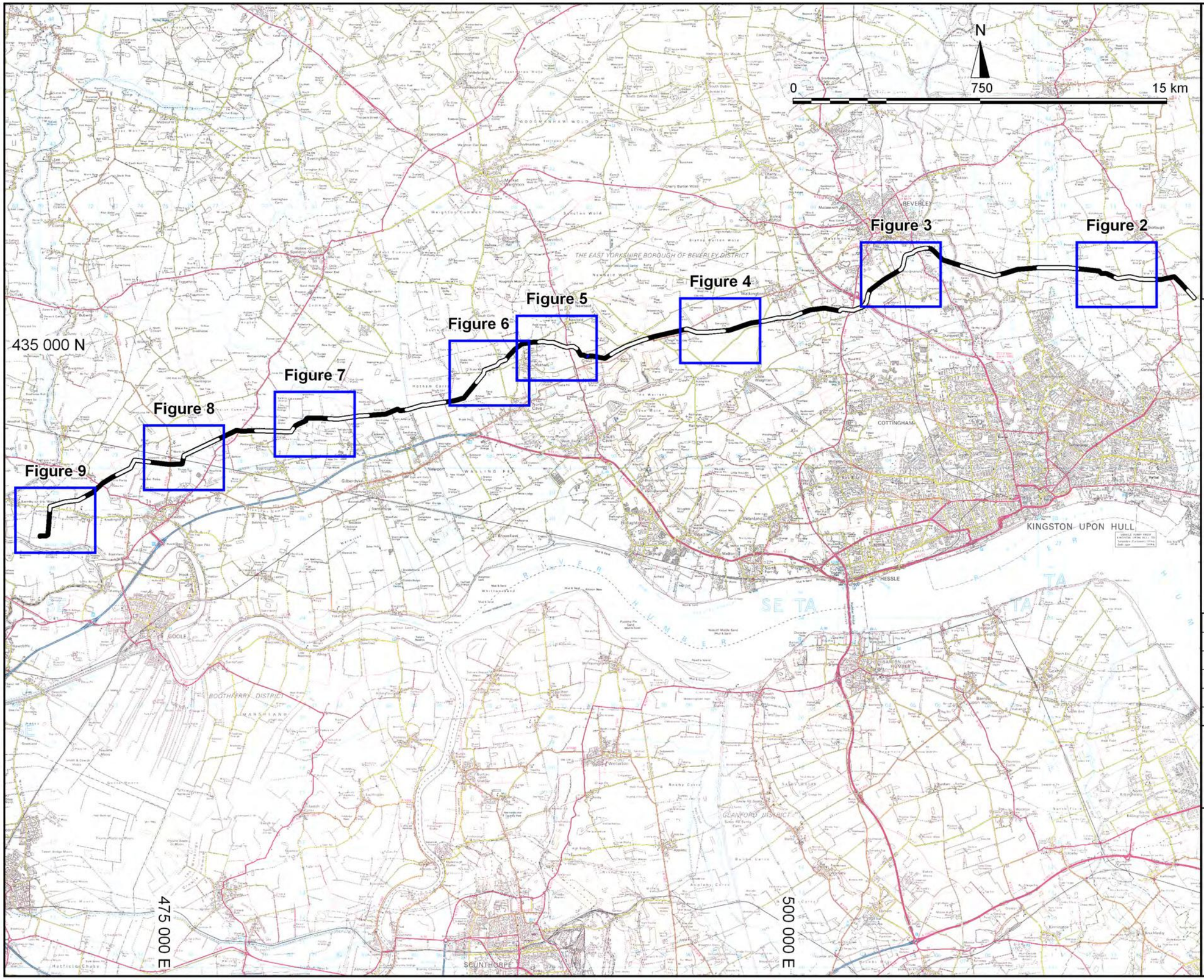
FIGURES



Pipeline

Ver	Date	Description	Drn	Chk	App
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network archaeology

Gansted to Asselby

Figure 1
Location of pipeline

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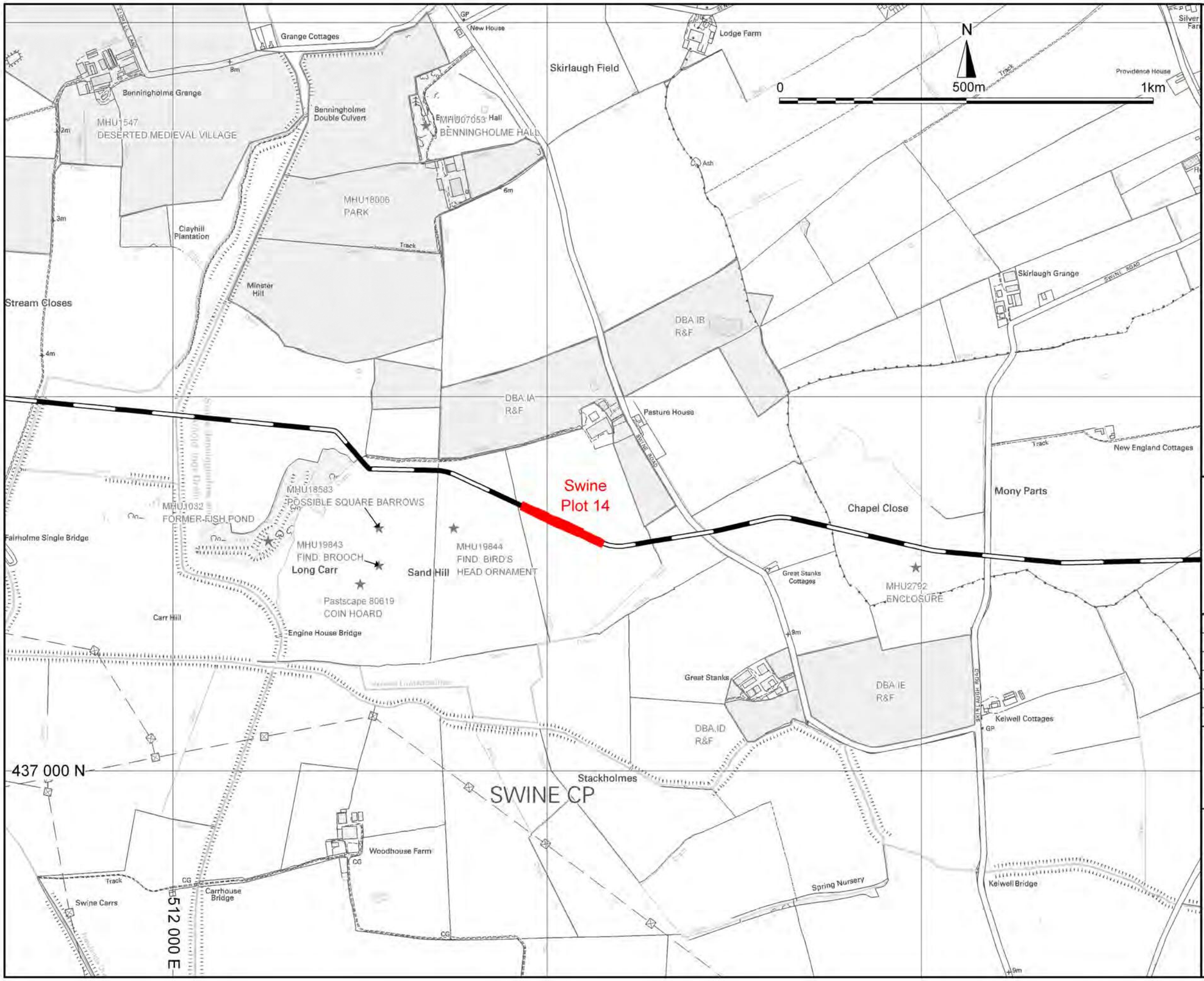
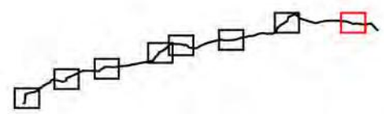


Pipeline route

Excavation area

DBA sites



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Ganstead to Asselby

Figure 2
Location of Swine excavation area

Scale: 1:10 000

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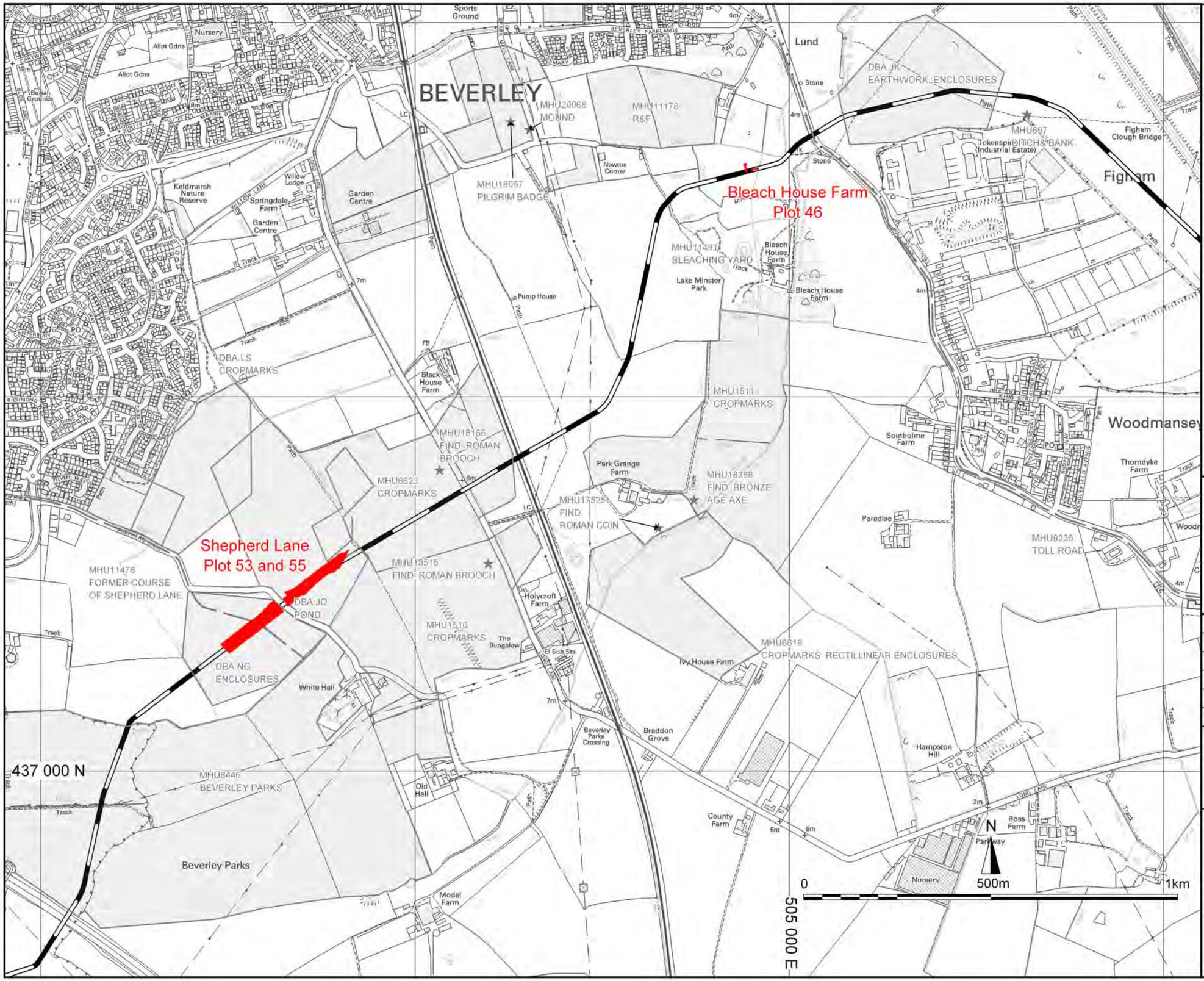
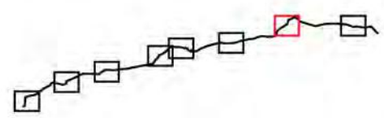


Pipeline route

Excavation area

DBA sites



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Gansted to Asselby

Figure 3
Location of Bleach House Farm and Shepherd Lane excavations areas

Scale: 1:10 000

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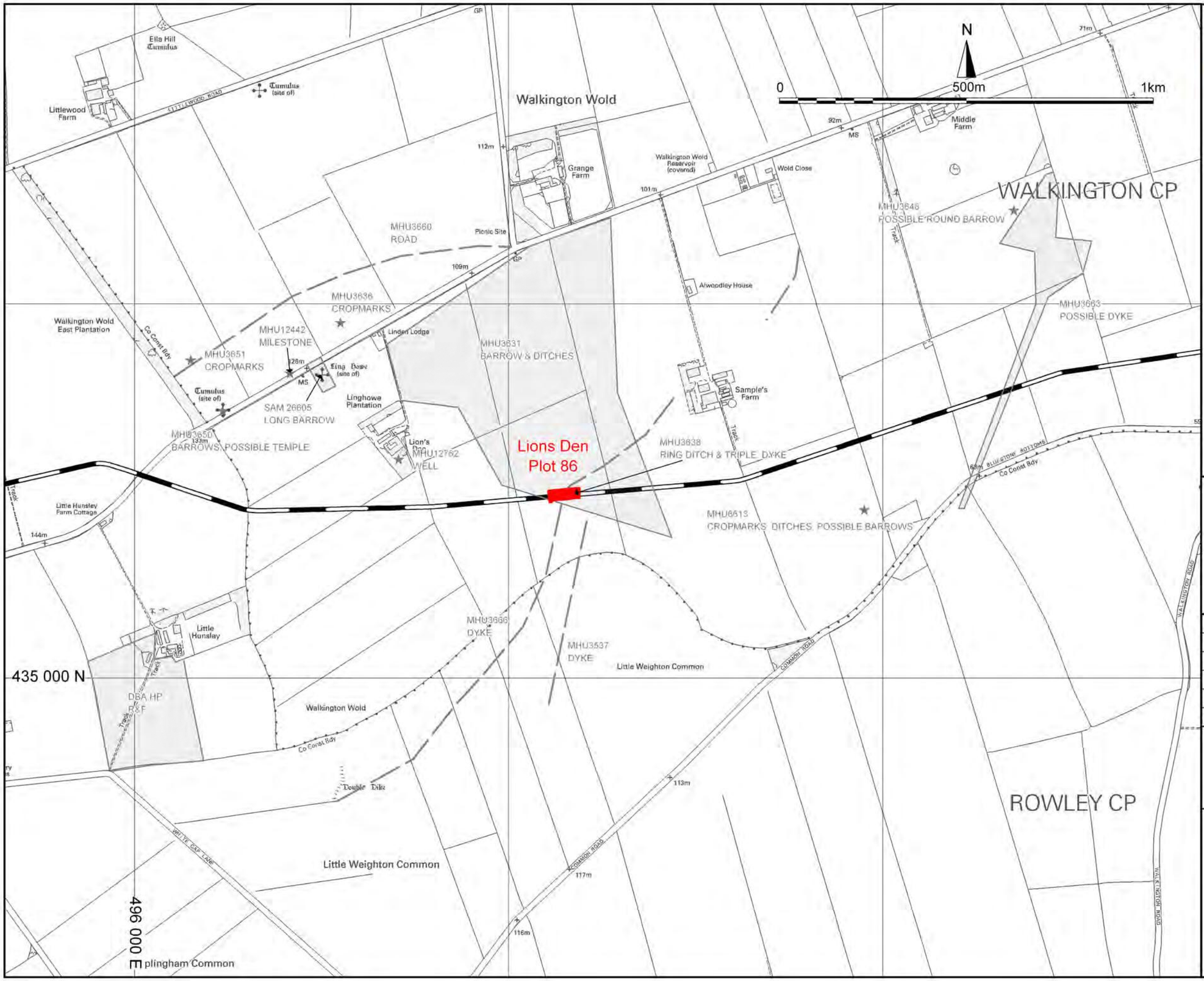

Pipeline route

Excavation area

DBA sites

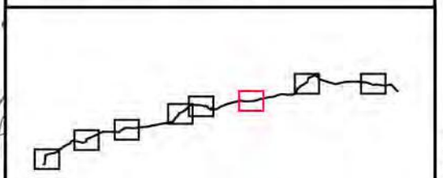

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Figure 4
Location of Lion's Den excavation area

Scale: 1:10 000

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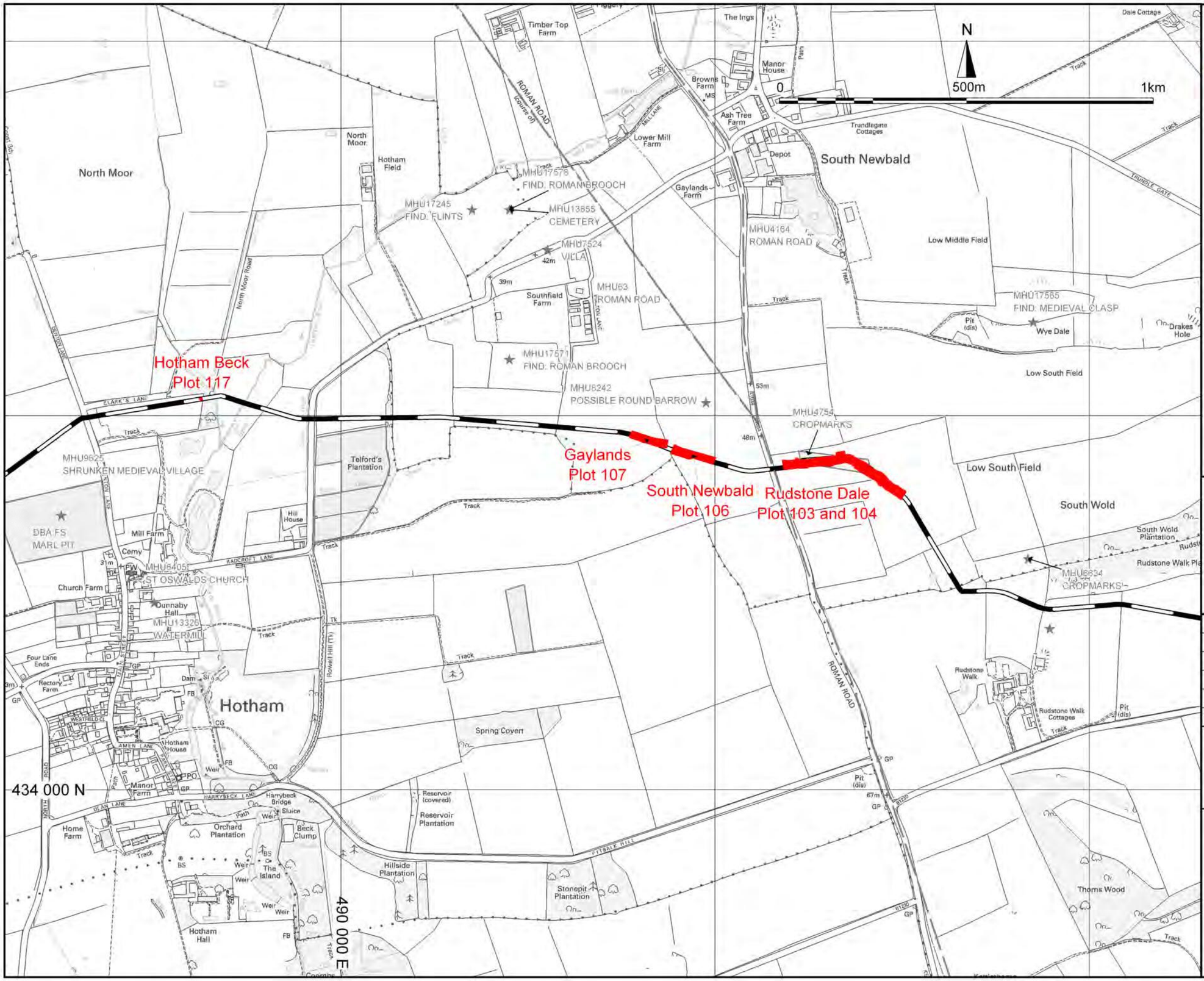
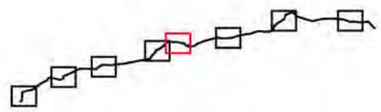


Pipeline route

Excavation area

DBA sites



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network archaeology

Gansted and Asselby

Figure 5
Location of Rudstone Dale, South Newbald, Gaylands and Hotham Beck excavation areas

Scale: 1:10 000

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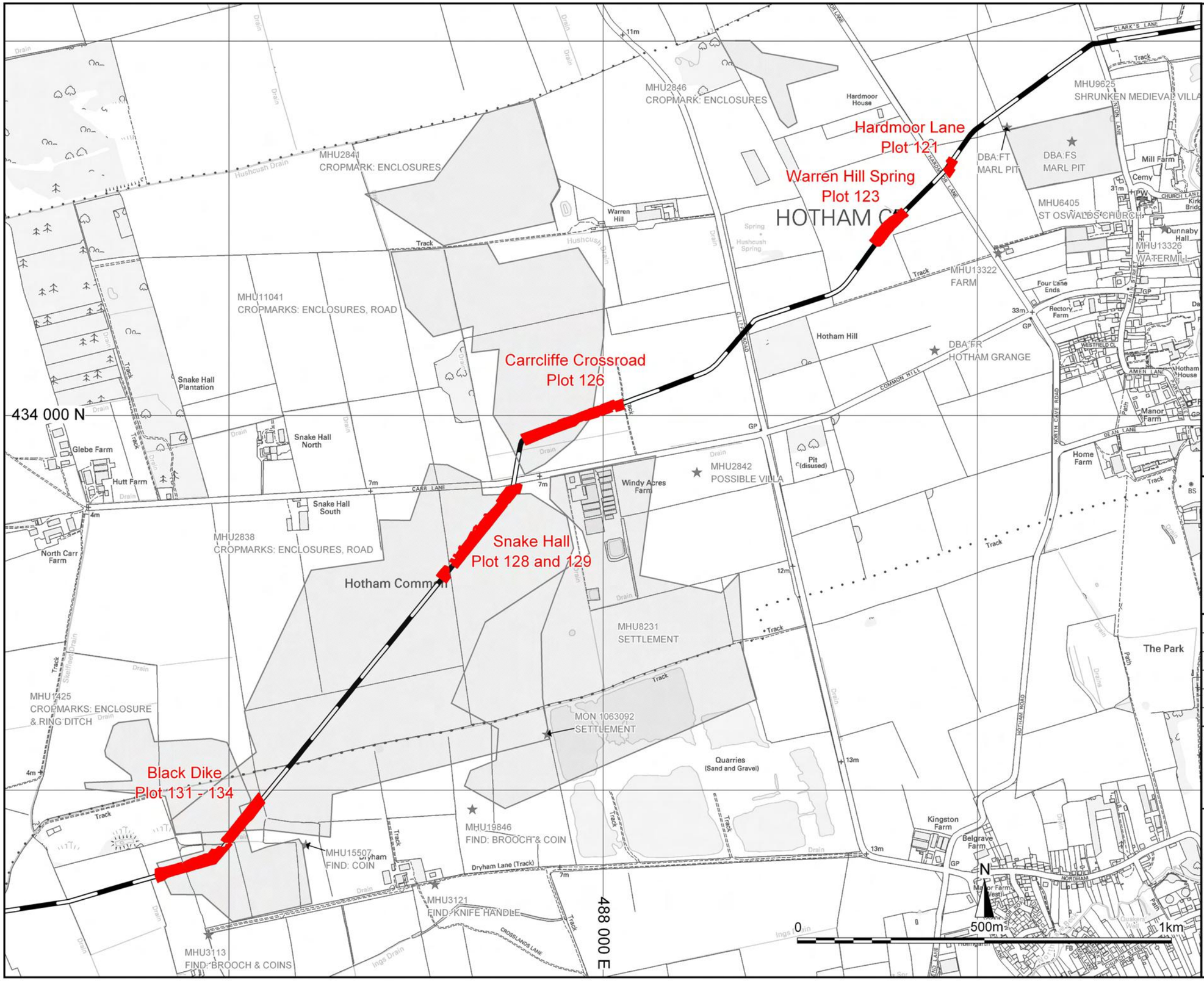
Pipeline route

Excavation area

DBA sites



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network archaeology

Gansted to Asselby

Figure 6
Location of Hardmoor Lane, Warren Hill Spring, Carrcliffe Crossroad, Snake Hall and Black Dike excavation areas

Scale: 1:10 000

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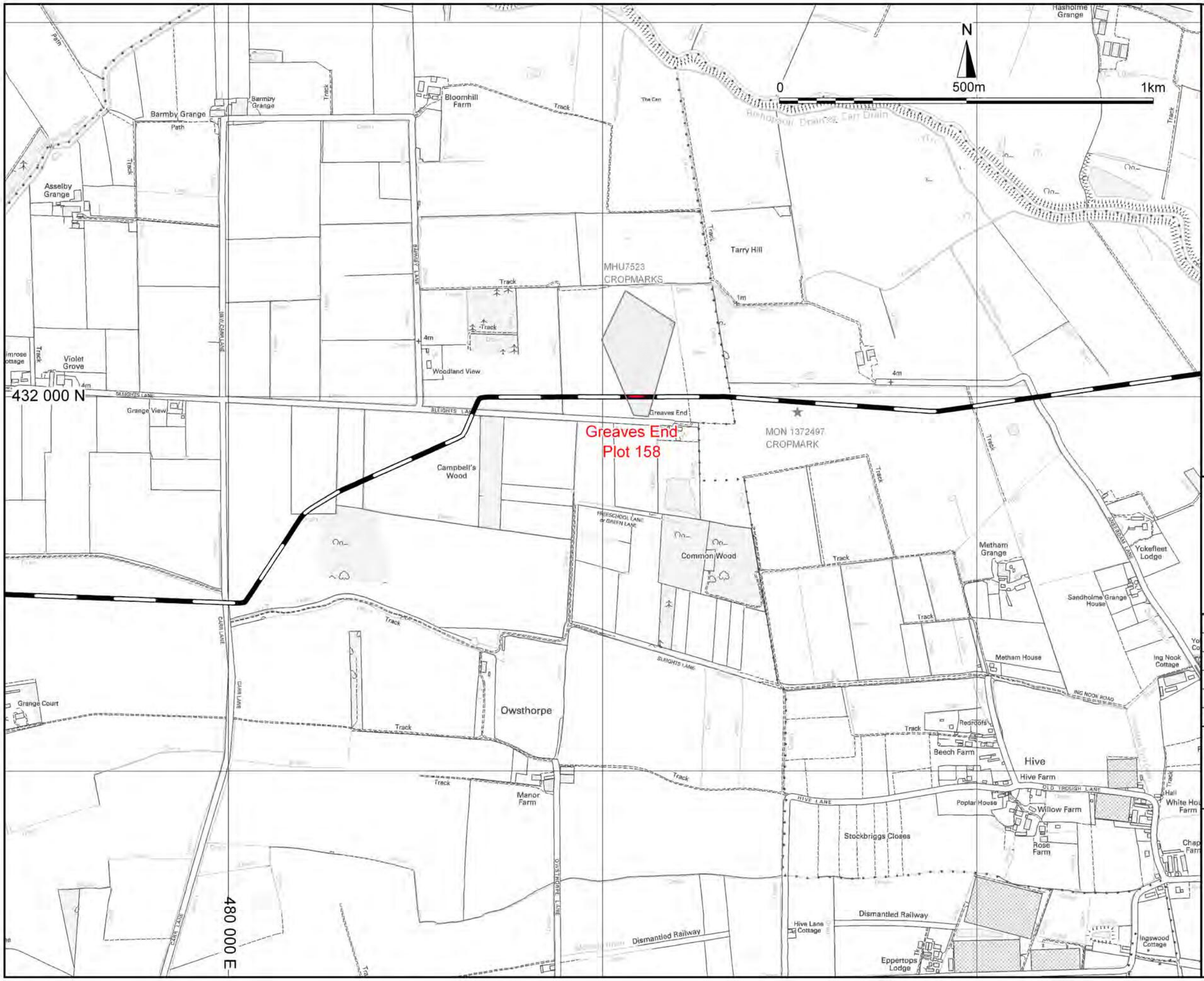

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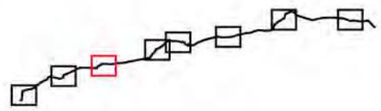

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Gansted and Asselby

Figure 7
Location of Greaves End excavation area

Scale: 1:10 000

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Pipeline route

Excavation area

DBA sites

Wood Lane
Plot 180

Howden Common
Plot 178 and 179

Thorpe Hall
Plot 182 and 184

West Dene
Plot 186

Brind
Orchard Farm
Brind Common
Brickyard Farm
Village farm
Lane Farm
Bishopsoil
Burland
Burland Comn
Burland C
Howden Common
North Howden
Howden Station
Station View
North Gates
Crows Nest Farm
Thorpe Common
Thorpe Hall
West Dene
Newfield House
Caville Bridge
Newfields Farm
Newfields
Caville Hall
Caville Hall Cottages
Howden Parks
Skel
Works
Featherbed Lane (Track)
Middle Lane (Track)
Drain Lane (Track)
Newfield Lane (Track)
Track
Path
Dismtd Rly
STATION ROAD
THORPE ROAD
BRIND LANE
WOOD LANE
MHU20031
ZVILLA
MHU3198
CROPMARK ENCLOSURE
MHU7689
CROPMARK MOAT
MHU1775
CROPMARK ENCLOSURE
MHU1761
CROPMARK MOAT
DBA MM
R&F
DBA ML
R&F
DBA TO
R&F
MHU7760
DESERTED MEDIEVAL VILLAGE
MHU3182
FORMER MOAT
MHU17260
DESERTED MEDIEVAL VILLAGE
MHU6684
DEER PARK
MHU1760
CHAPEL & MOAT
MHU17259
RINGSTONE HURST
MHU15287
CROPMARKS ENCLOSURES
430 000 N
475 000 E
N
0
500m
1km

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Gansted to Asselby

Figure 8
Location of Howden Common, Wood Lane, Thorpe Hall and West Dene excavation areas

Scale: 1:10 000

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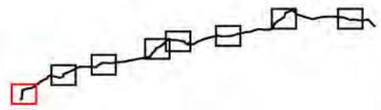
Pipeline route

Excavation area

DBA sites



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Gansted to Asselby

Figure 9
Location of Oxen Stang excavation area

Scale: 1:10 000

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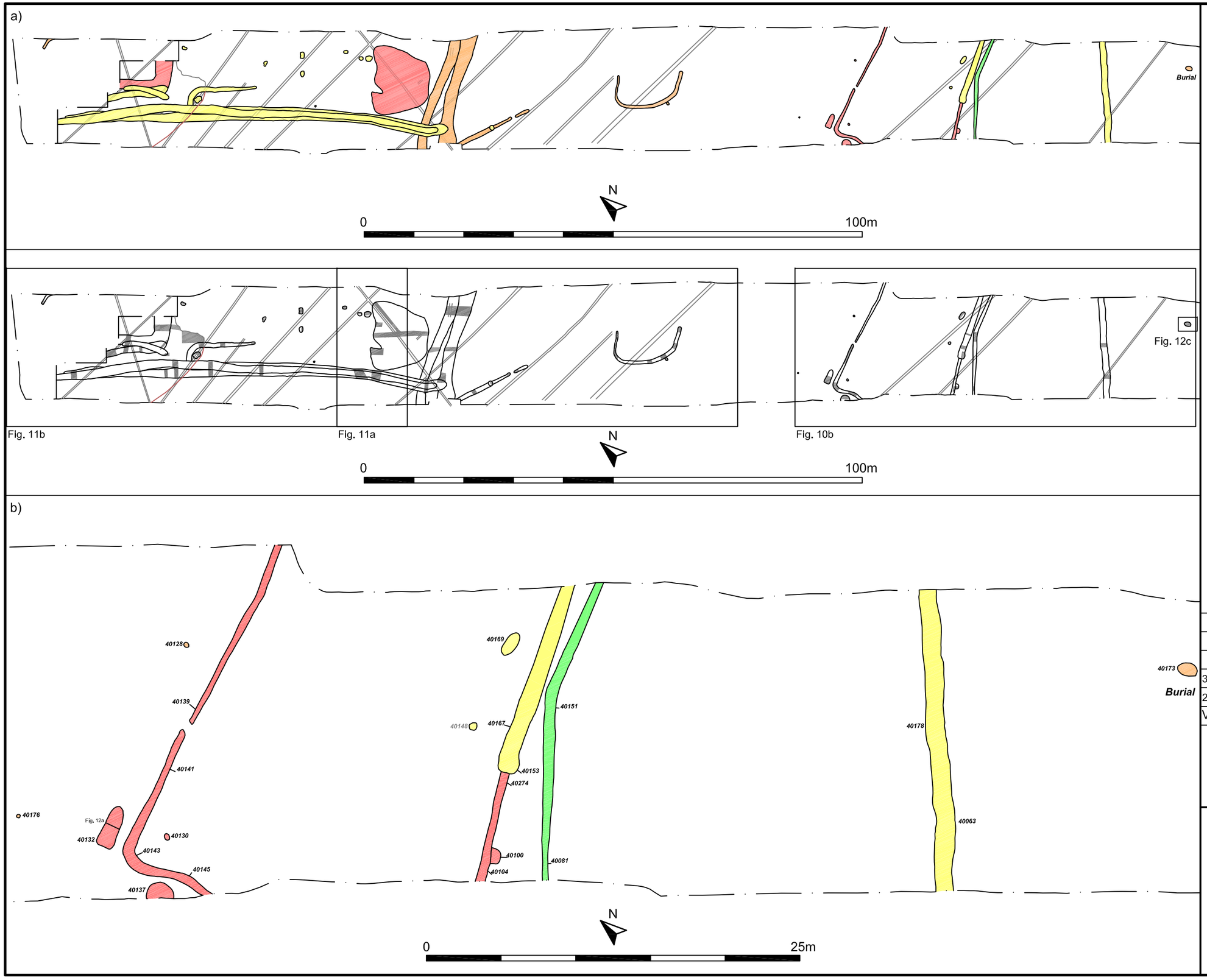


Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 5
Unphased
Excavated sections

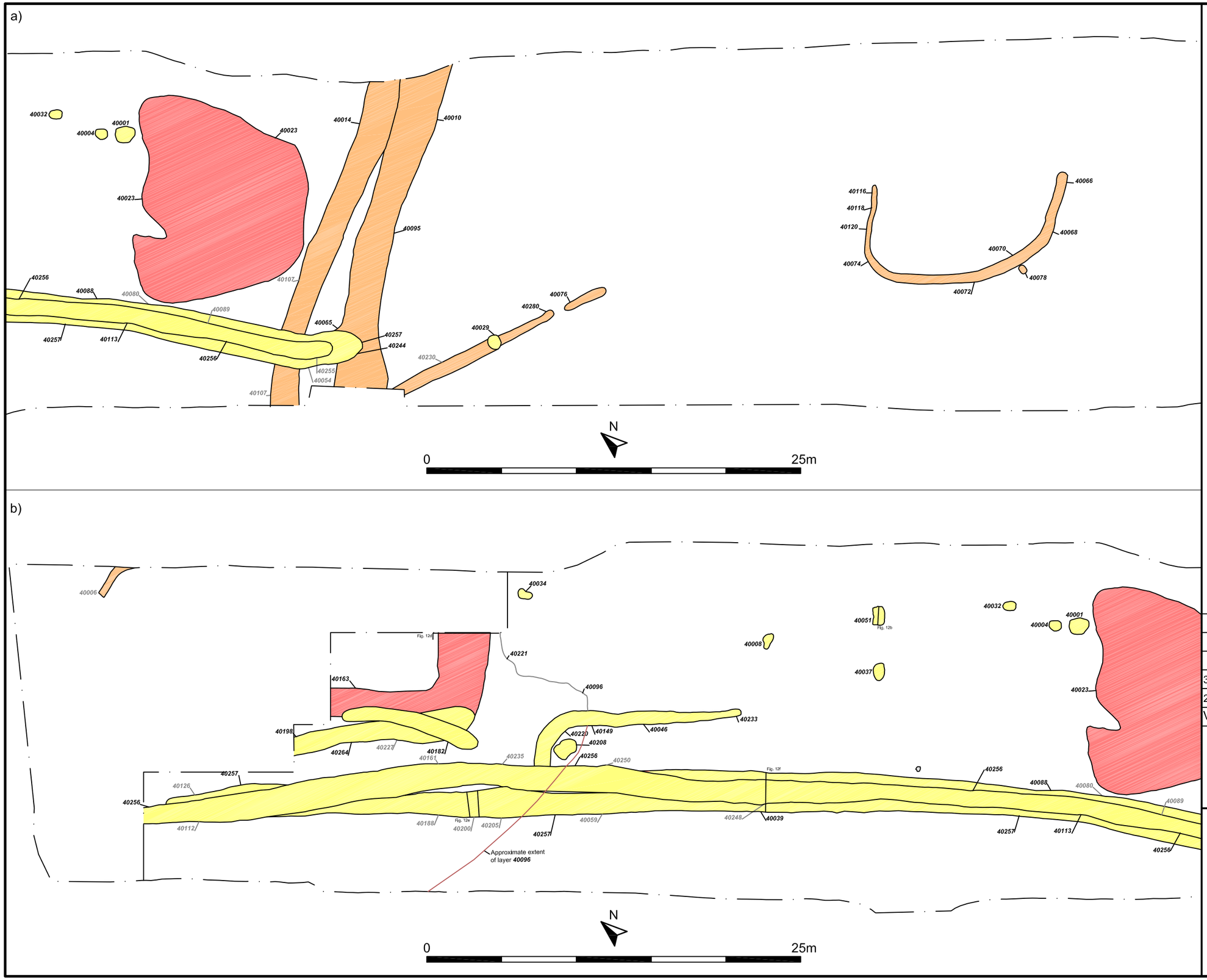
Ver	Date	Description	DM	Chk	App
3.00	21/3/11	Edits	JLC	RM	CL
2.00	9/12/10	Plot 14	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 10: Overall plan of plot 14 (Swine) excavation area, with phased plan of eastern end of the area

Scale 1:750 and 1:250



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 5
Unphased
Excavated sections

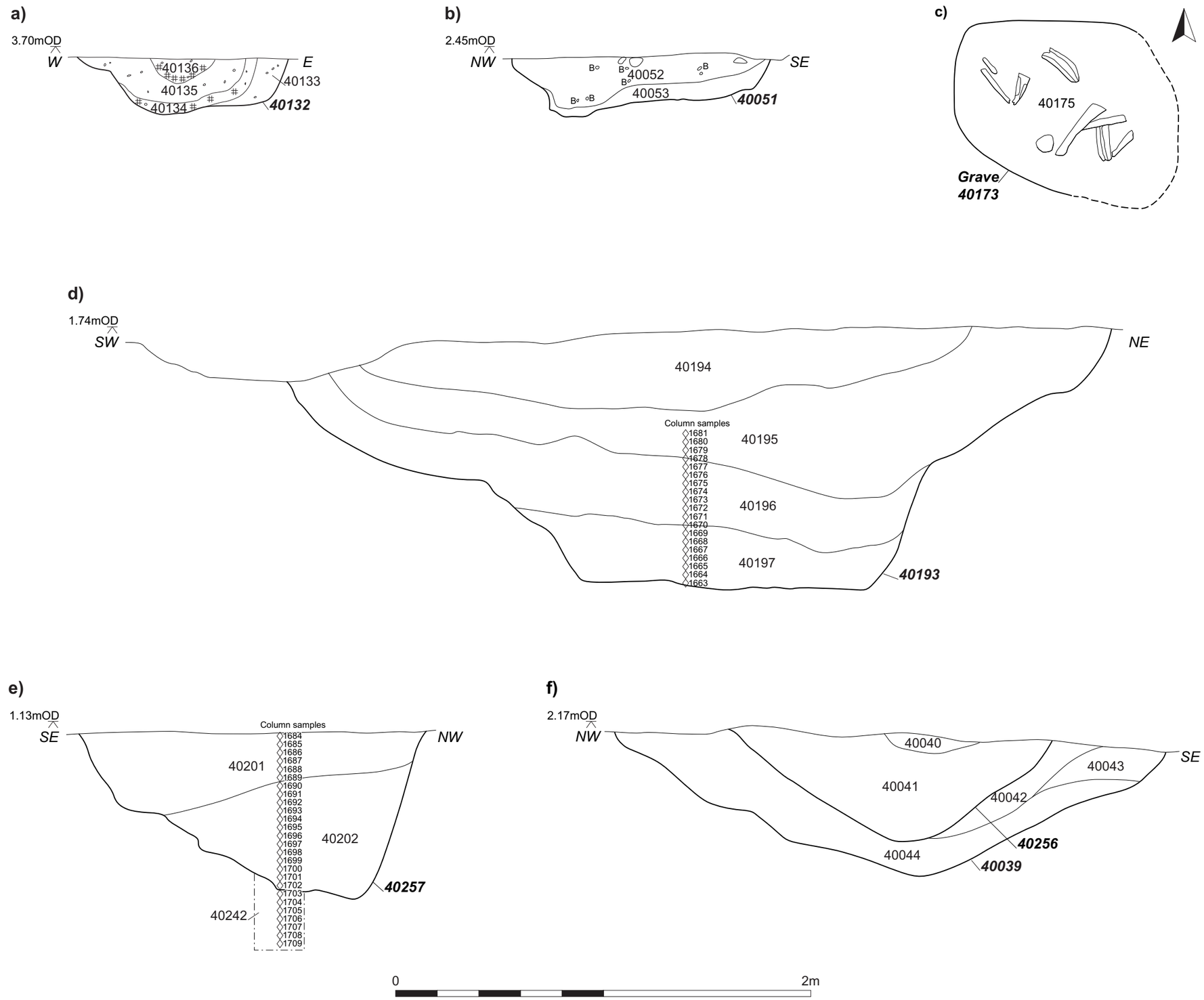
Ver	Date	Description	DM	Chk	App
3.00	21/3/11	Edits	JLC	RM	CL
2.00	9/12/10	Plot 14	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 11: Phased plans of the central and western parts of the plot 14 excavation area

Scale 1:250



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Clay
Charcoal
Charcoal lense
Stones
Burnt stone
Pottery
Bone
Flint

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	9/12/10	Plot 14	JLC	MW	CL

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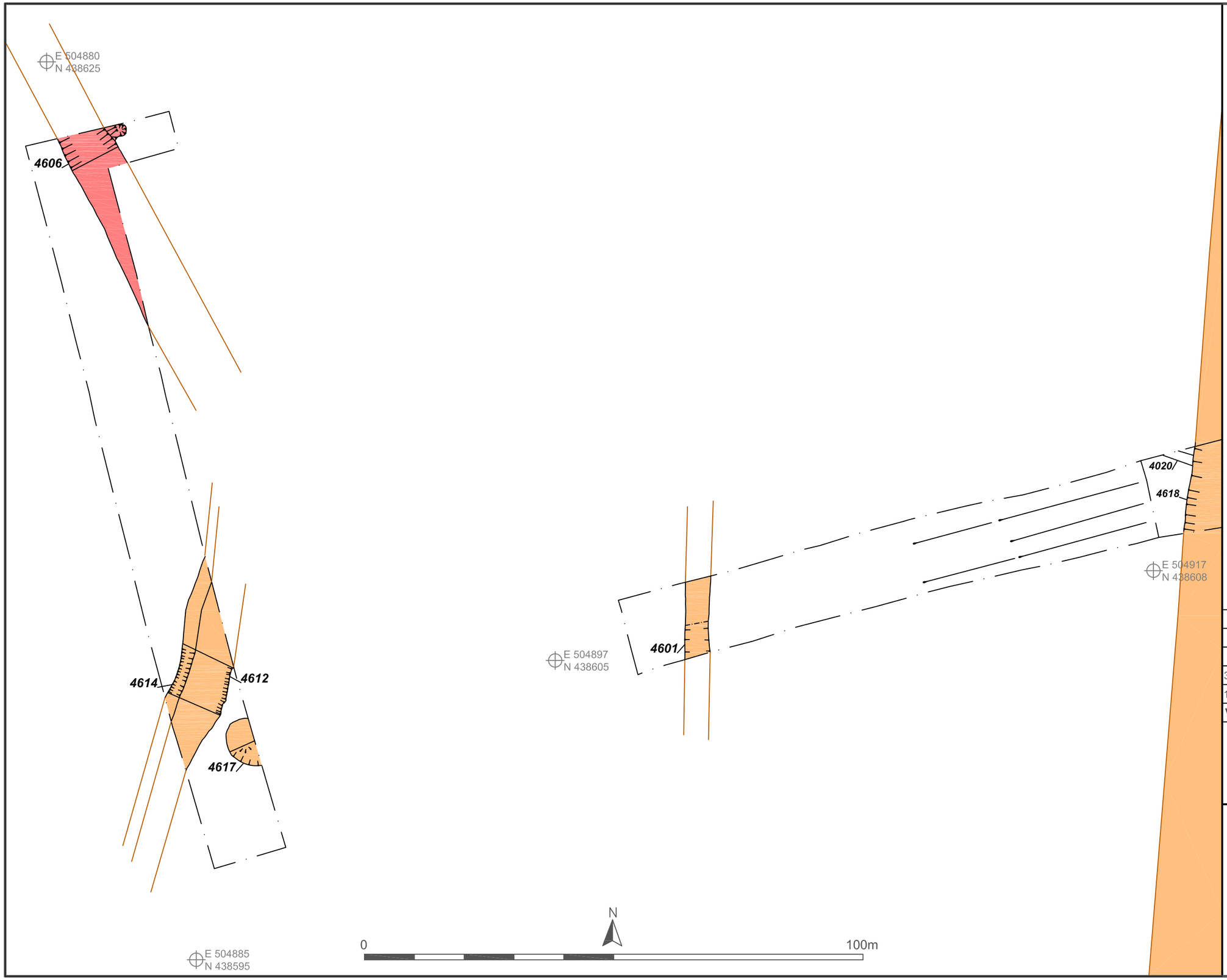
Ganstead to Asselby Pipeline

Figure 12: Detailed plan and individual section drawings from plot 14
a) Pit 40132, Phase 1
b) Pit 40051, Phase 3
c) Plan of Grave 40173, Phase 4
d) Boundary ditch 40193, Phase 2
e) Boundary ditch 40200, Phase 3
f) Boundary ditch 40039 and recut 40248

Scale 1:20



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2

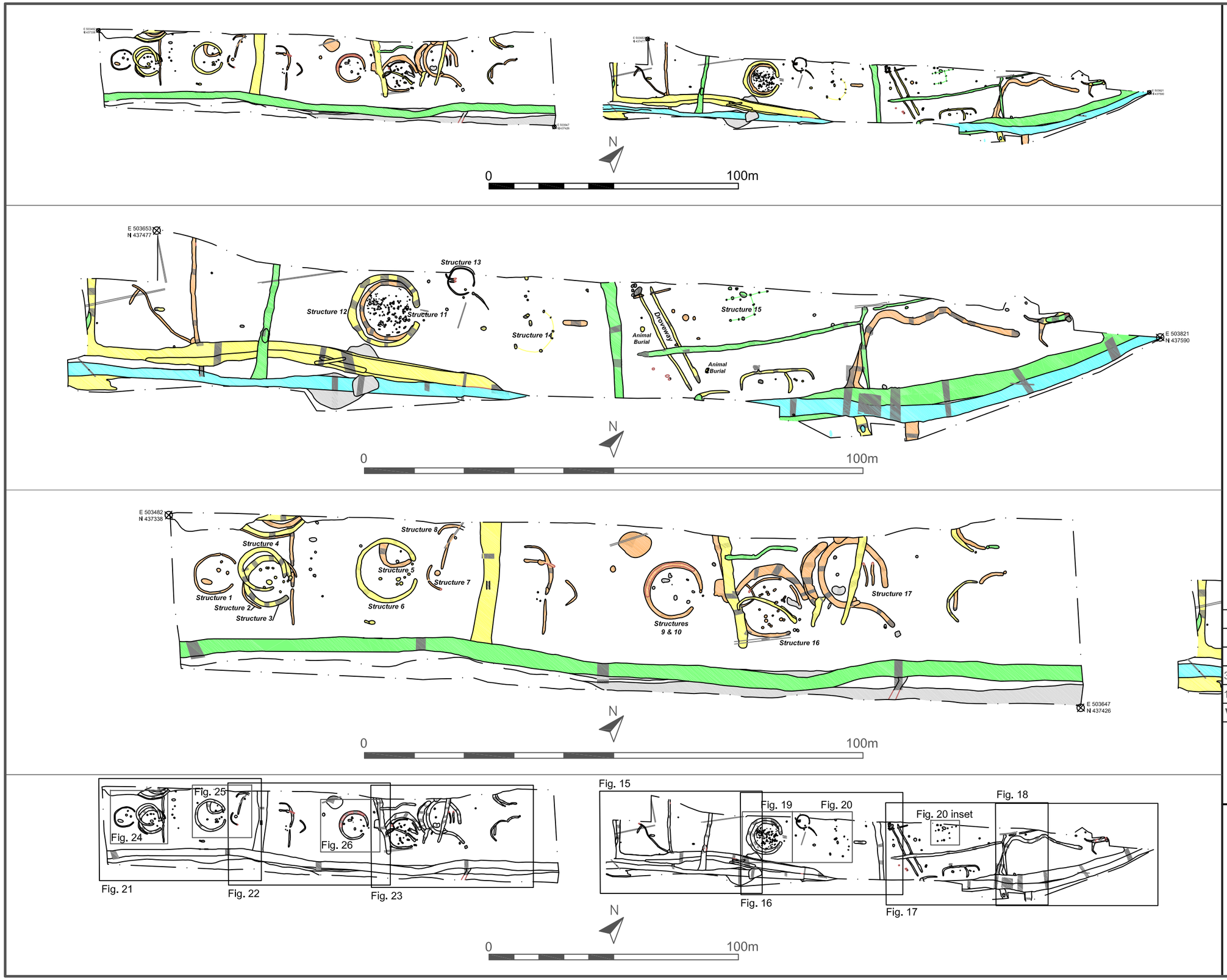
Ver	Date	Description	DM	Chk	App
3.00	21/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 46	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 13: Phased plans of Trenches 46.1 and 46.2 in plot 46 (Bleach House Farm)

Scale 1:250



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plots 53-55	JLC	RM	CL

network archaeology

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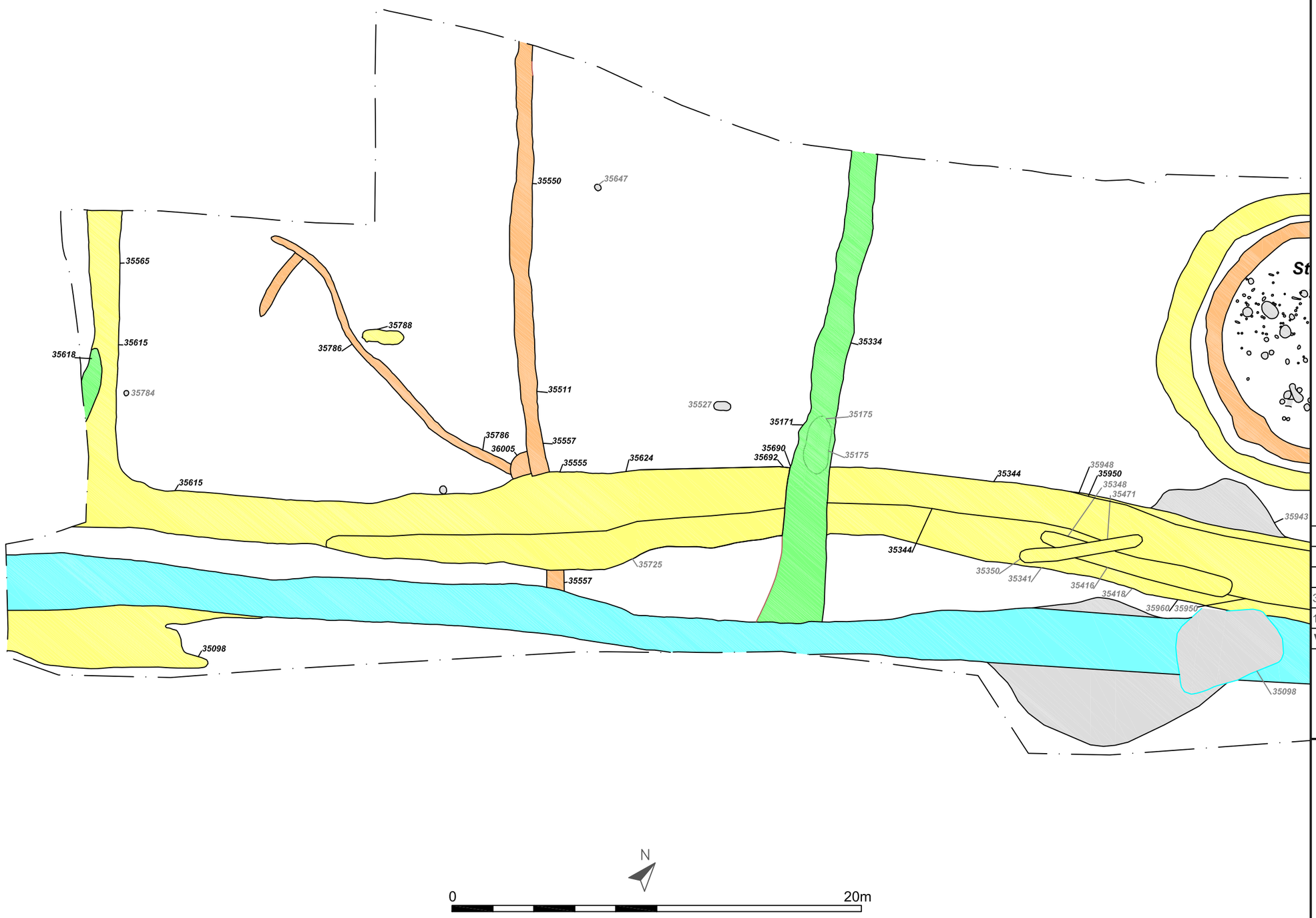
Figure 14: Overall plans of plots 53 and 55 (Shepherd Lane) excavation areas

Scale 1:1500 and 1:750



Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 53	JLC	RM	CL

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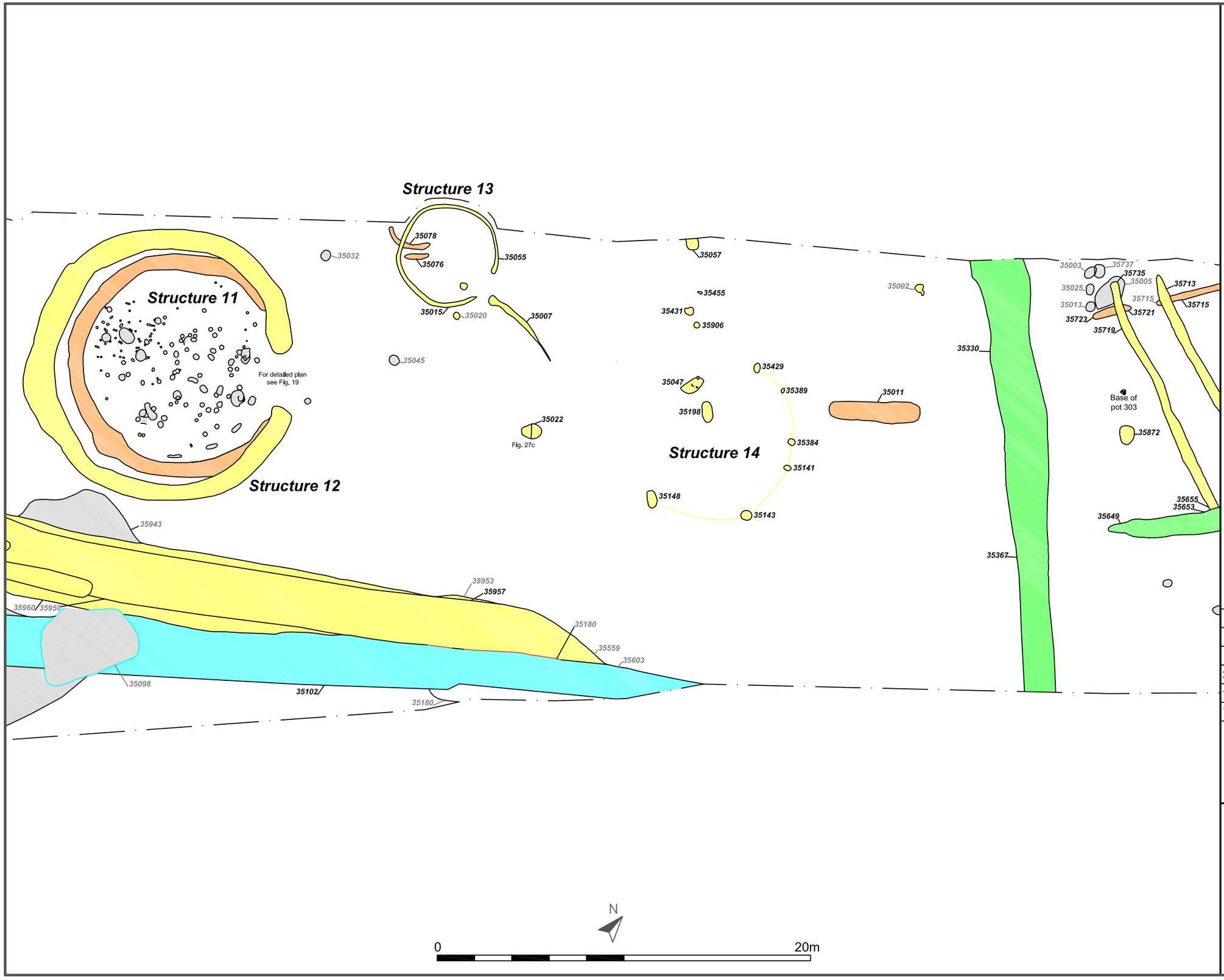
Ganstead to Asselby Pipeline

Figure 15: Phased plan of the western end of the plot 53 excavation area

Scale 1:200



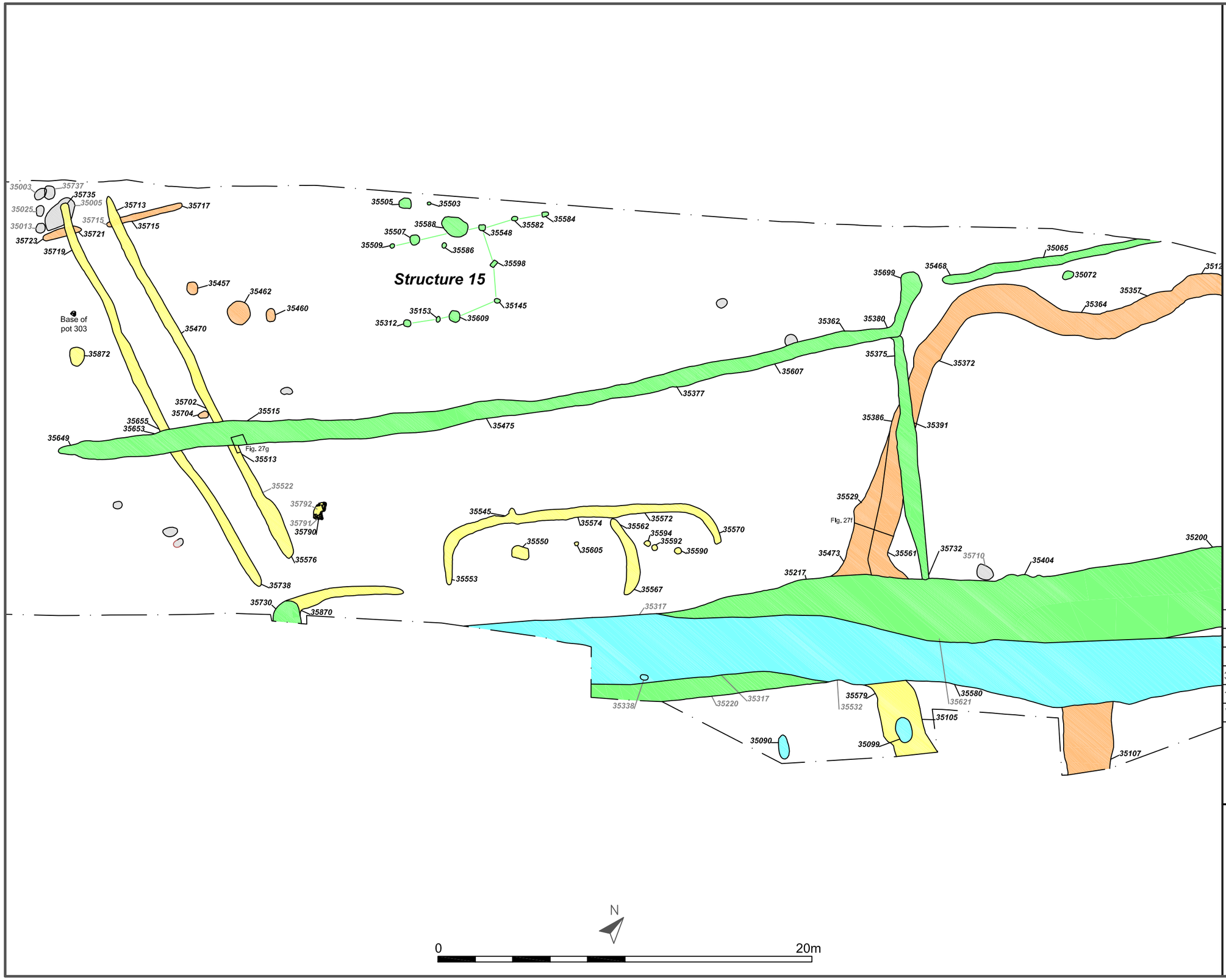
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 53	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 16: Phased plan of the western central portion of the plot 53 excavation area

Scale 1:200



Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 53	JLC	RM	CL

network archaeology

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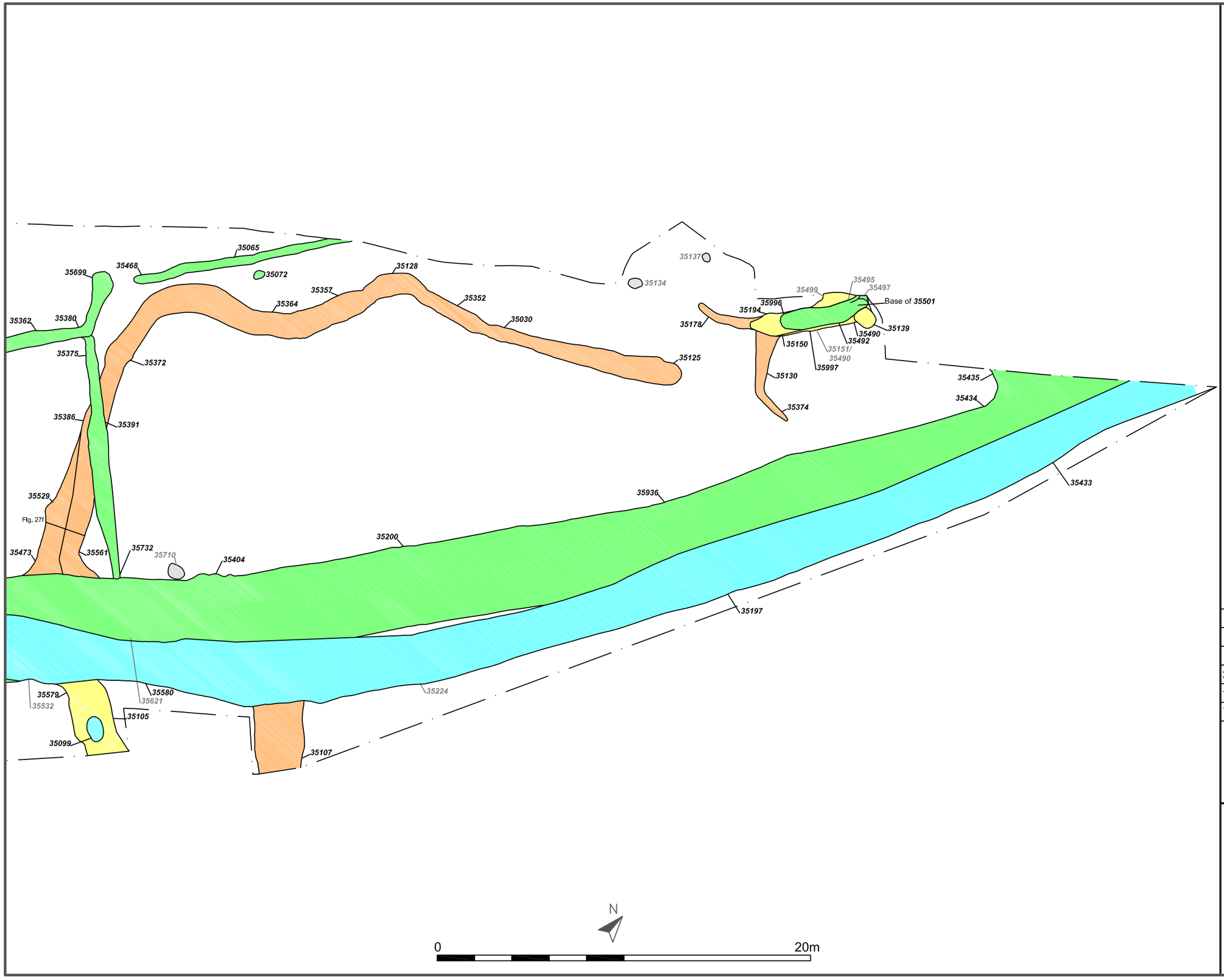
Figure 17: Phased plan of the eastern central portion of the plot 53 excavation area

Scale 1:200



Limit of excavation

Cut line

Layer line

Projected line

12345 Cut number

12346 Layer/fill number

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Unphased

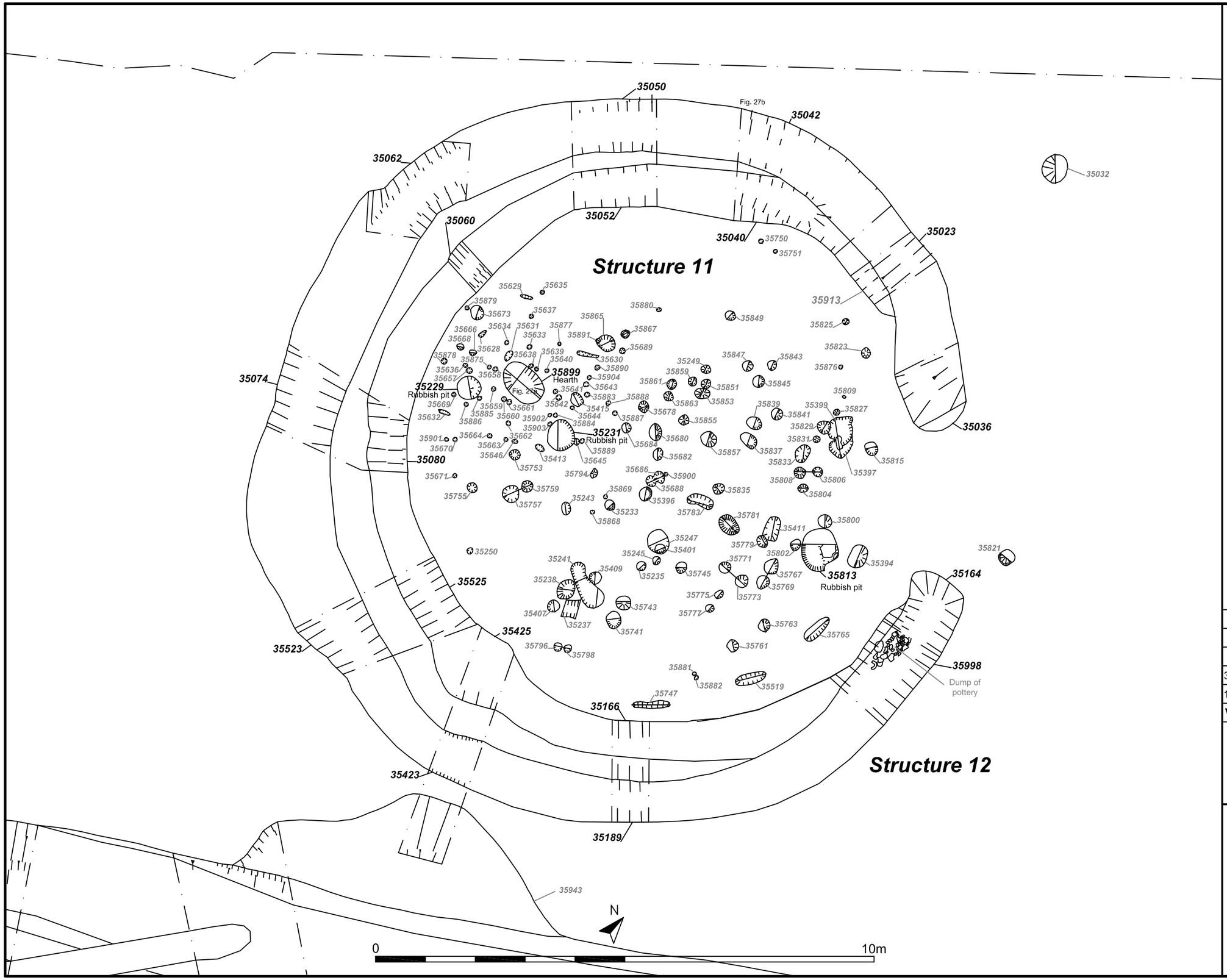
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 53	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 18: Phased plan of the eastern end of the plot 53 excavation area

Scale 1:200



Limit of excavation

Cut line

Layer line

Projected line

12345 Cut number

12346 Layer/fill number

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 53	JLC	RM	CL

network archaeology

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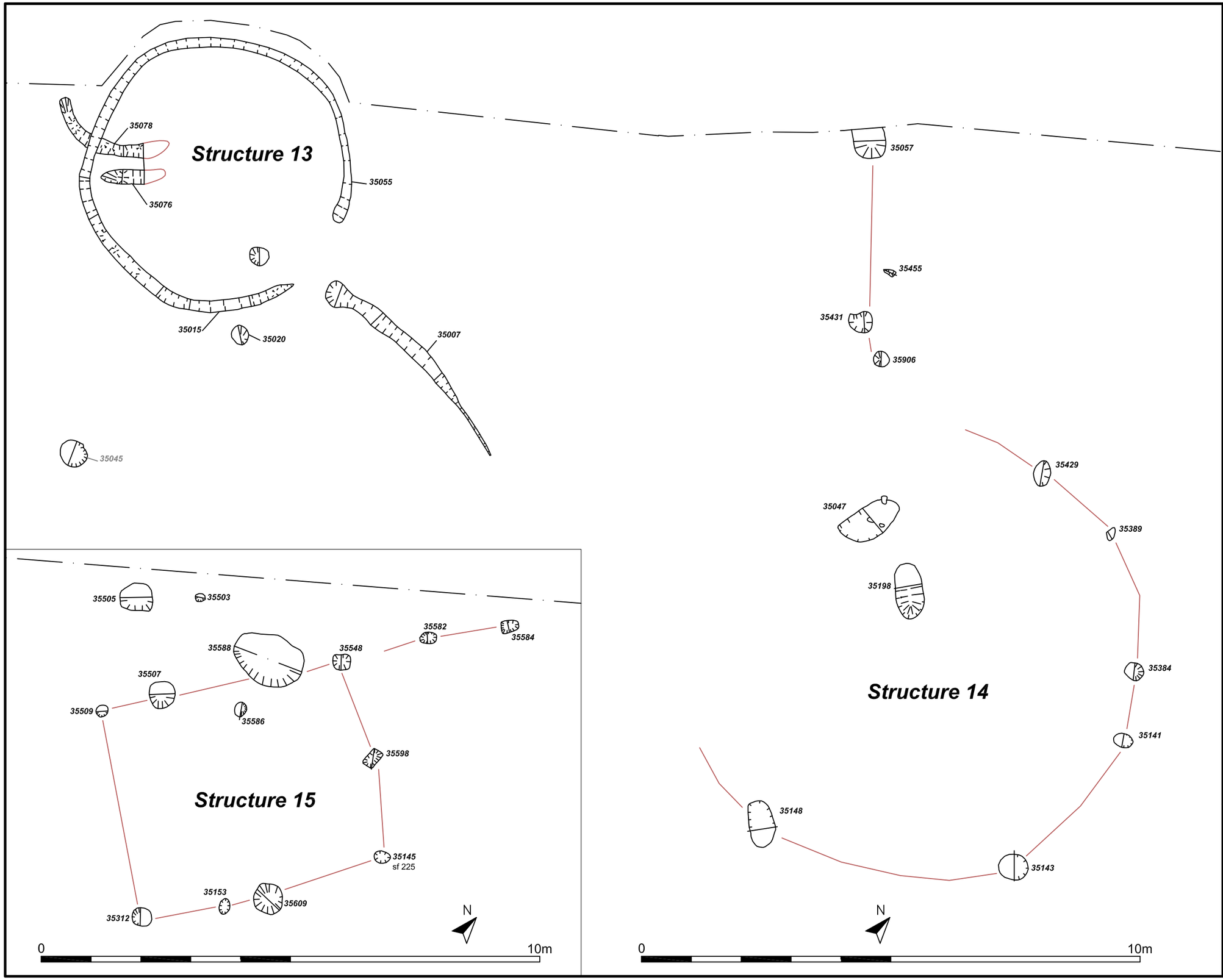
Figure 19: Detailed plan of Structures 11 and 12 in plot 53, with associated features

Scale 1:75



Limit of excavation

Cut line

Layer line

Projected line

12345 Cut number

12346 Layer/fill number

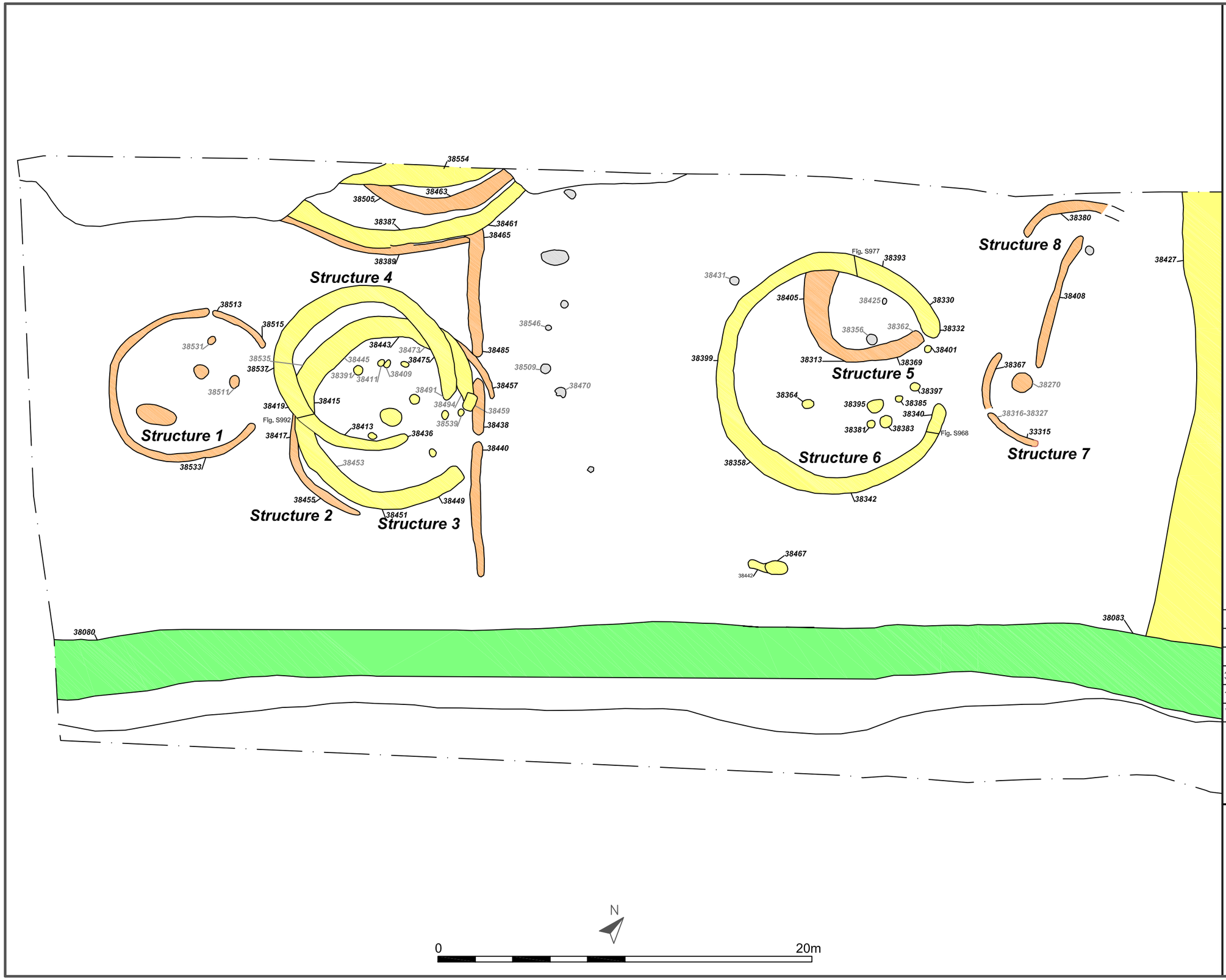
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	9/12/10	Plot 53	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 20: Detailed plan of Structures 13, 14 and 15 in plot 53, with associated features

Scale 1:75



Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 21: Phased plan of the western end of the plot 55 excavation area

Scale 1:200

Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased

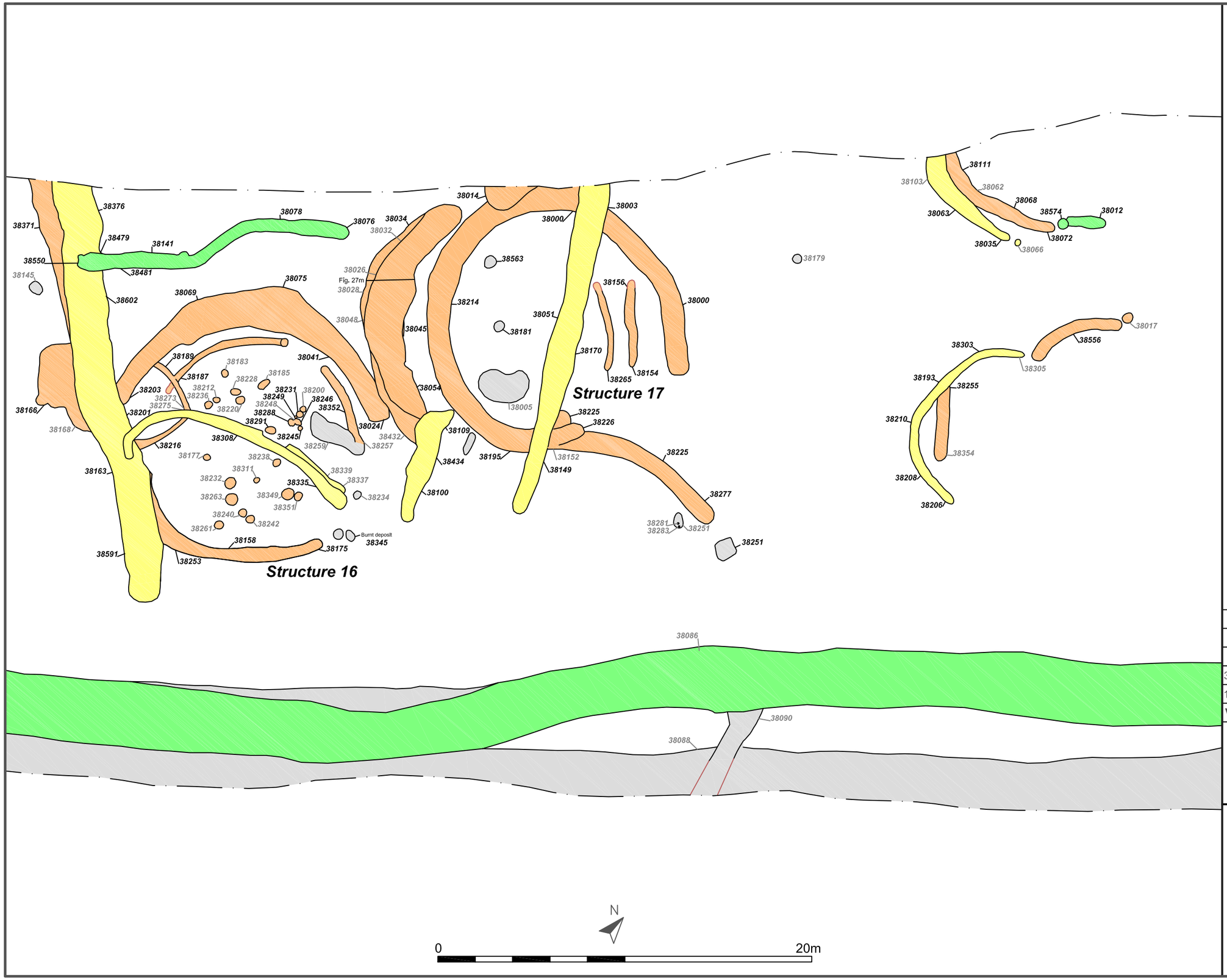
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 22: Phased plan of the central portion of the plot 55 excavation area

Scale 1:200



Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

network archaeology

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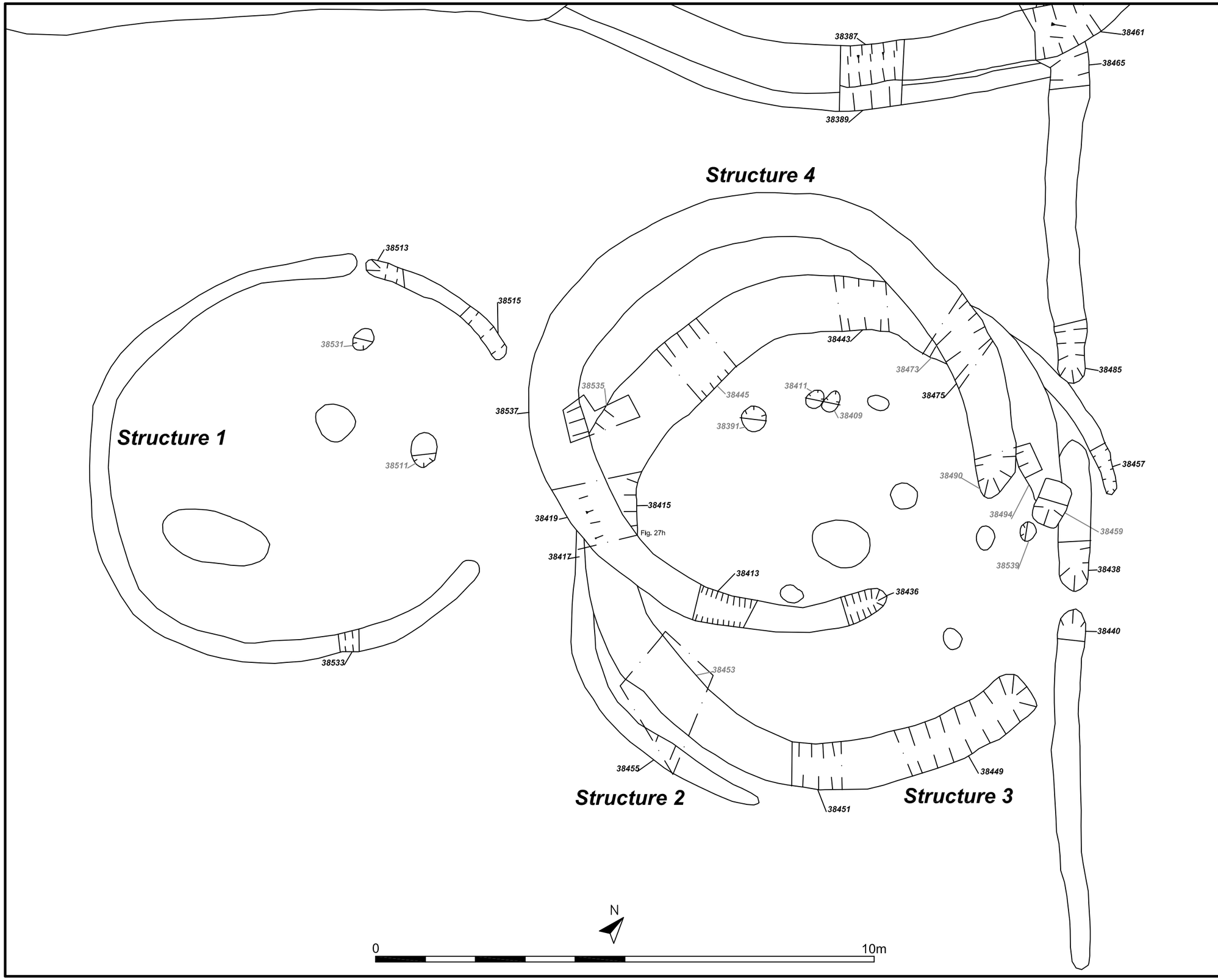
Figure 23: Phased plan of the eastern end of the plot 55 excavation area

Scale 1:200



Limit of excavation

Cut line

Layer line

Projected line

12345 Cut number

12346 Layer/fill number

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

network archaeology

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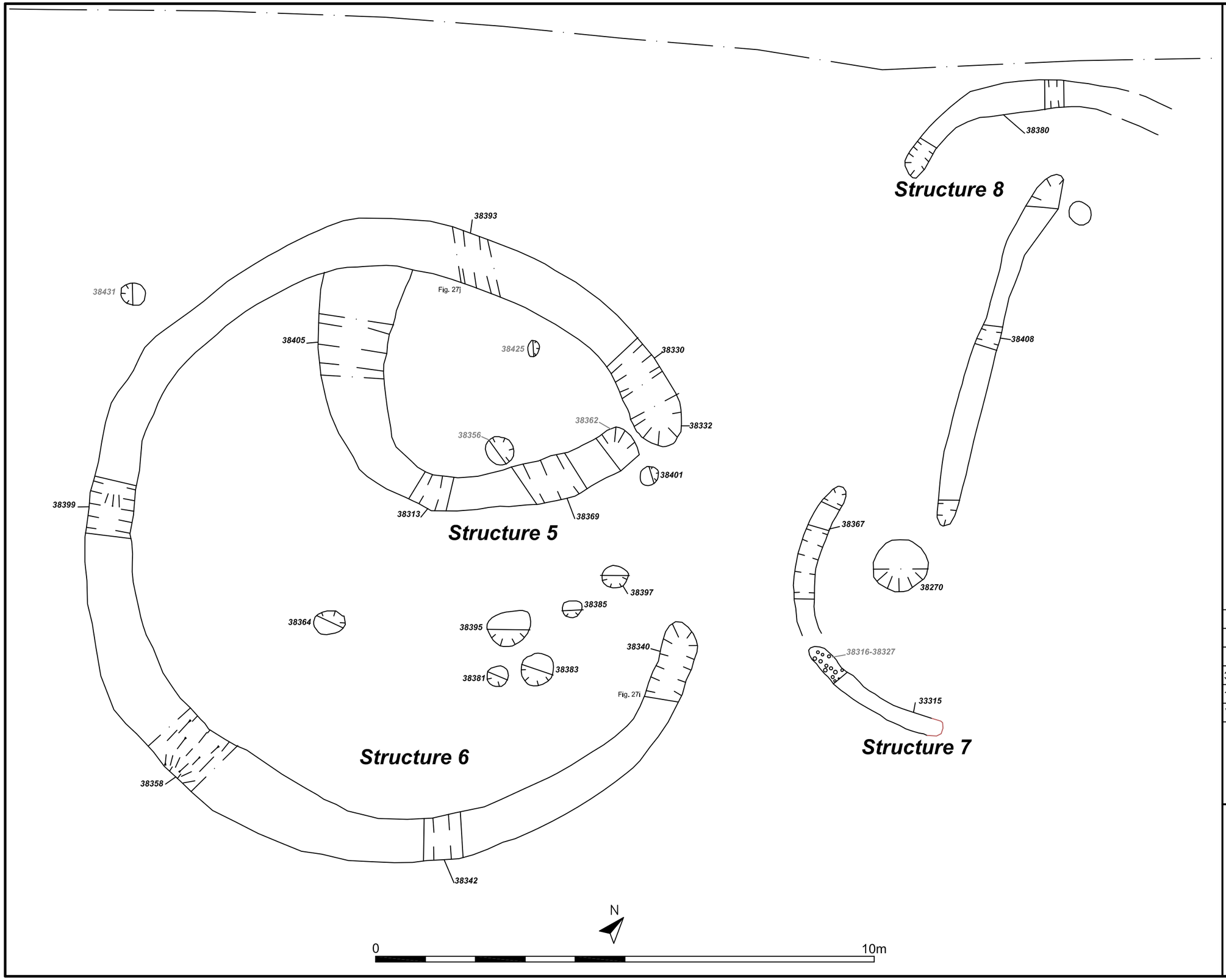
Figure 24: Detailed plan of Structures 1, 2, 3 and 4 in plot 55, with associated features

Scale 1:75



Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

network archaeology

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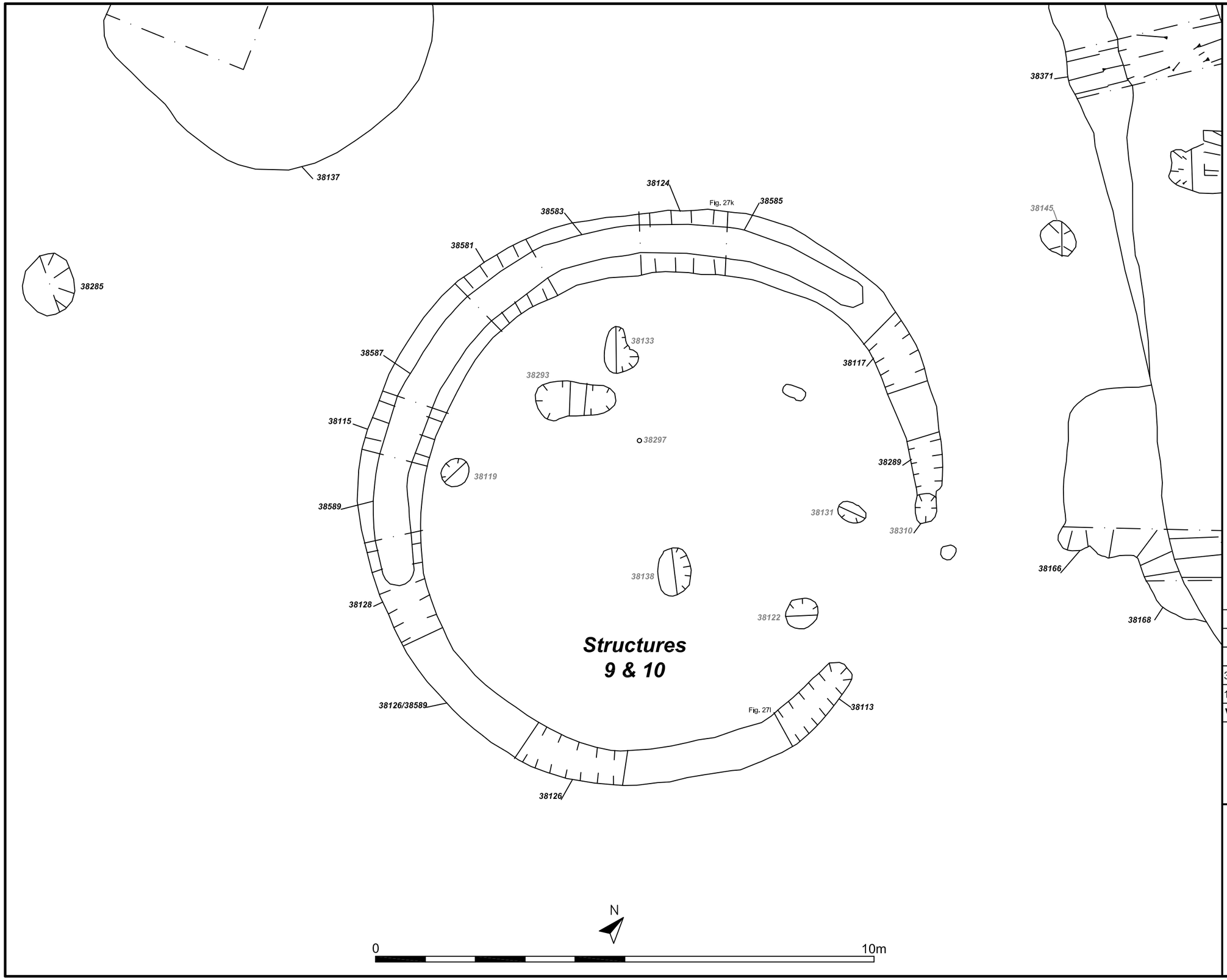
Figure 25: Detailed plan of Structures 5, 6, 7 and 8 in plot 55, with associated features

Scale 1:75



Limit of excavation
Cut line
Layer line
Projected line
12345 Cut number
12346 Layer/fill number

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 55	JLC	RM	CL

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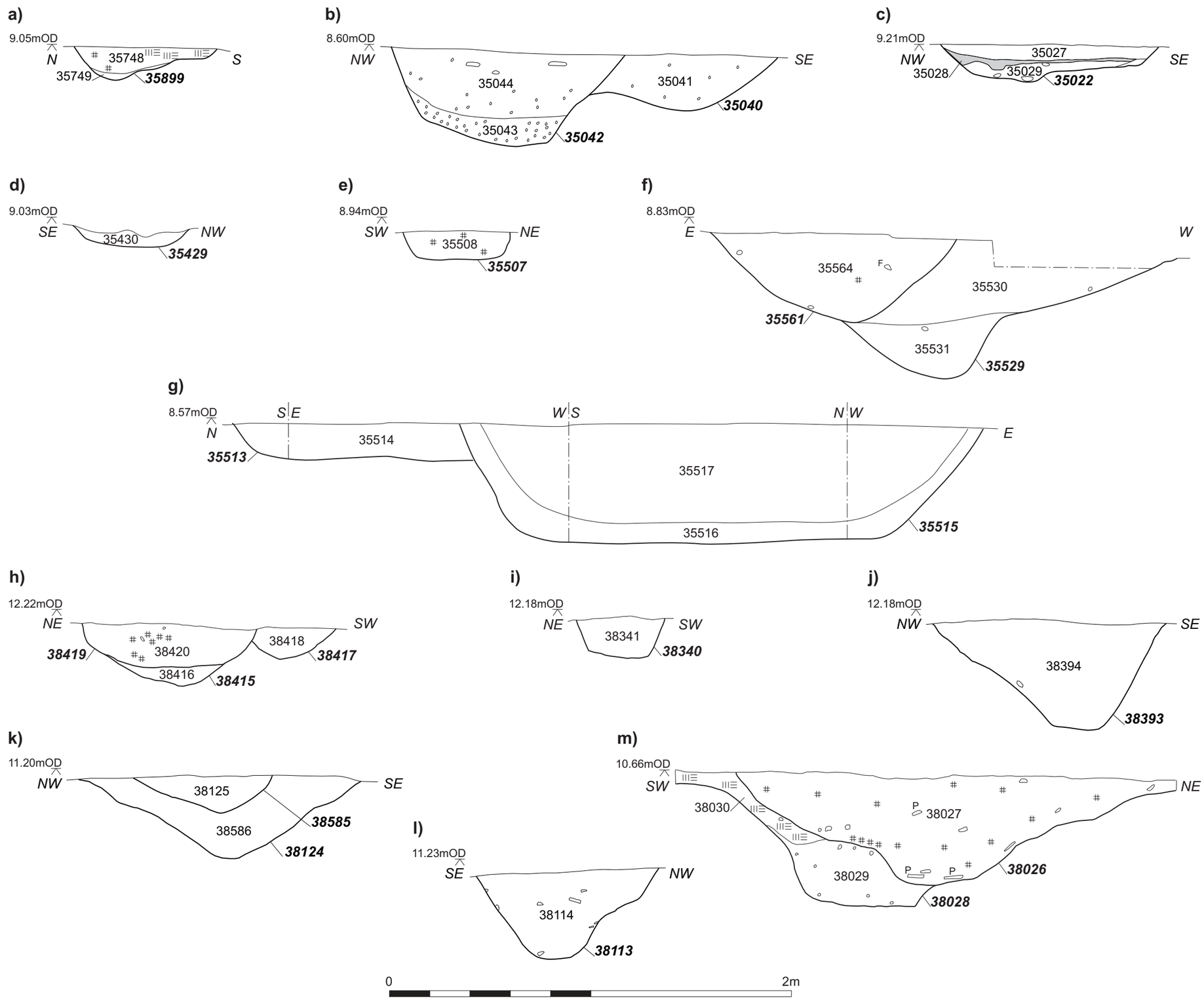
Figure 26: Detailed plan of Structures 9 and 10 in plot 55, with associated features

Scale 1:75



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Clay
Charcoal
Charcoal lense
Stones
Burnt stone
Pottery
Bone
Flint

Ver	Date	Description	DM	Chk	App
1.00	26/8/10	Plot 53 & 55	JLC	RM	CL

network archaeology

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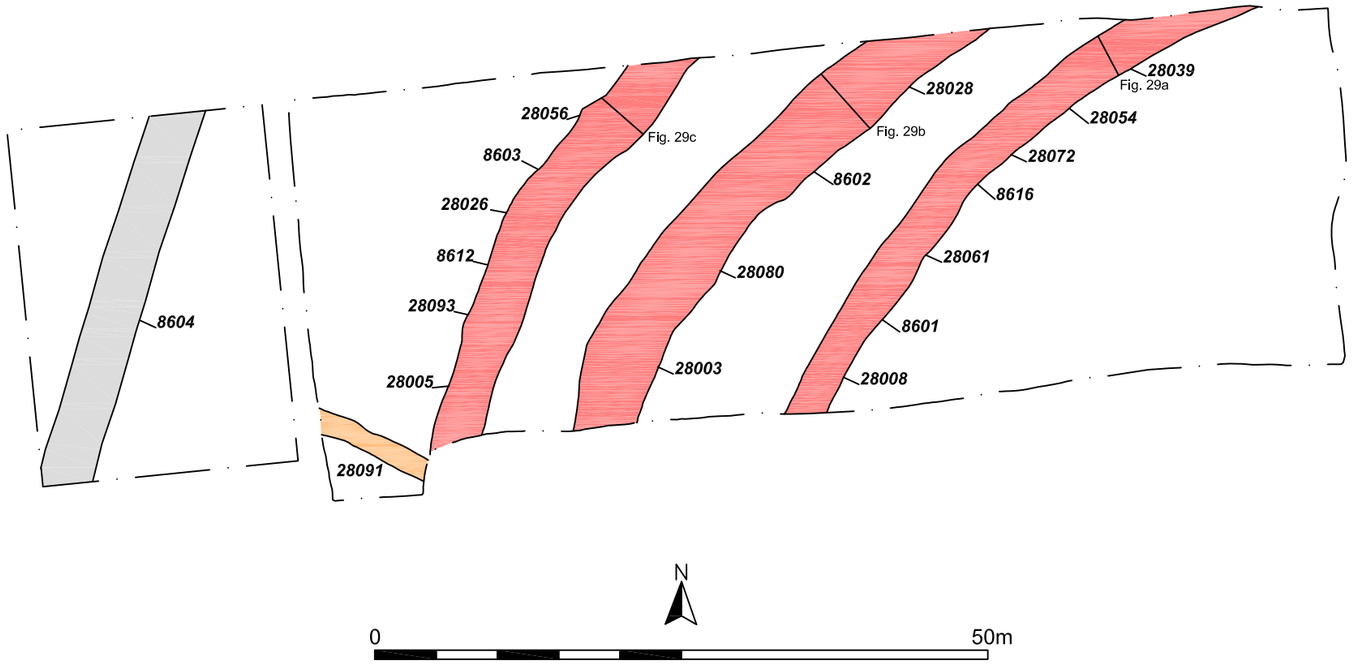
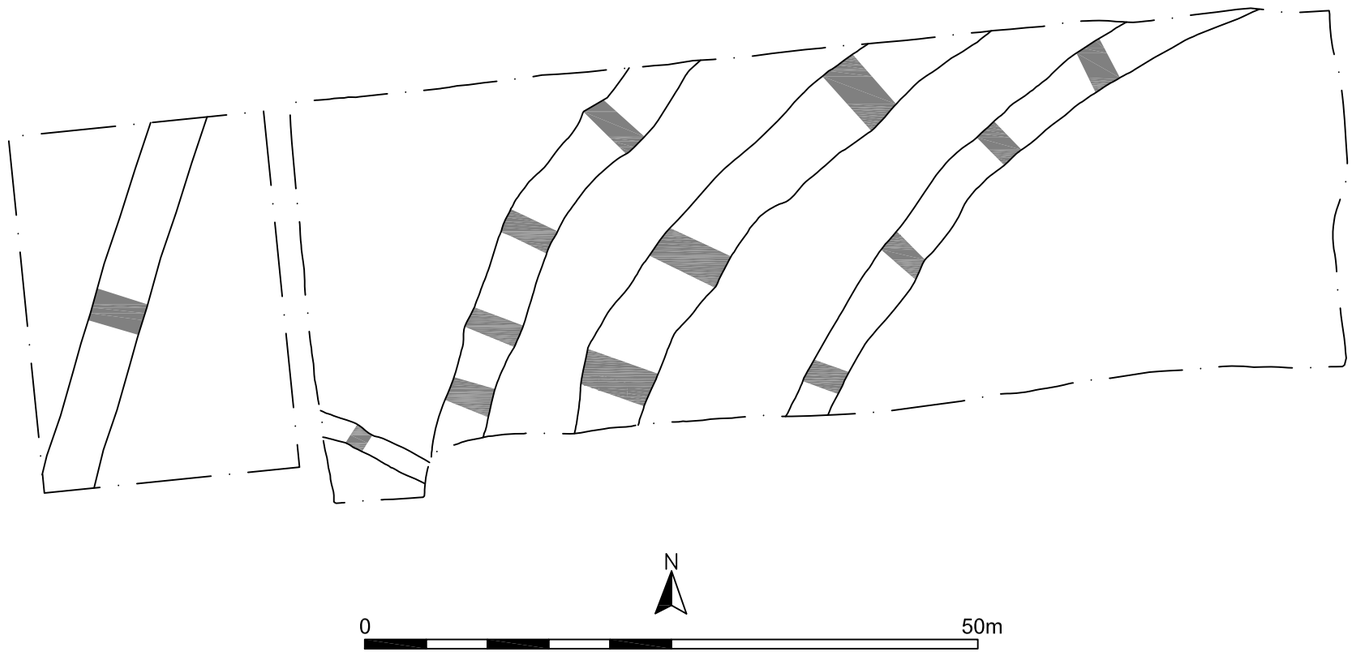
Figure 27: Individual section drawings from plots 53 and 55
a) Plot 53, hearth 35899, Structure 11
b) Plot 53, ring ditches, Structure 11
c) Plot 53, hearth 35022, Structure 14
d) Plot 53, posthole, Structure 14
e) Plot 53, posthole, Structure 15
f) Plot 53, ditches
g) Plot 53, early Roman boundary truncating droveway ditch
h) Plot 55, ring ditches, Structures 2, 3 & 4
i) Plot 55, ring ditch, Structure 6
j) Plot 55, ring ditch, Structure 6
k) Plot 55, ring ditches, Structures 9 & 10
l) Plot 55, ring ditch, Structures 9 & 10
m) Plot 55, ditches

Scale 1:20





Limit of excavation

Cut line

Field drain/modern feature

Phase 1

Phase 2

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 86	JLC	RM	CL

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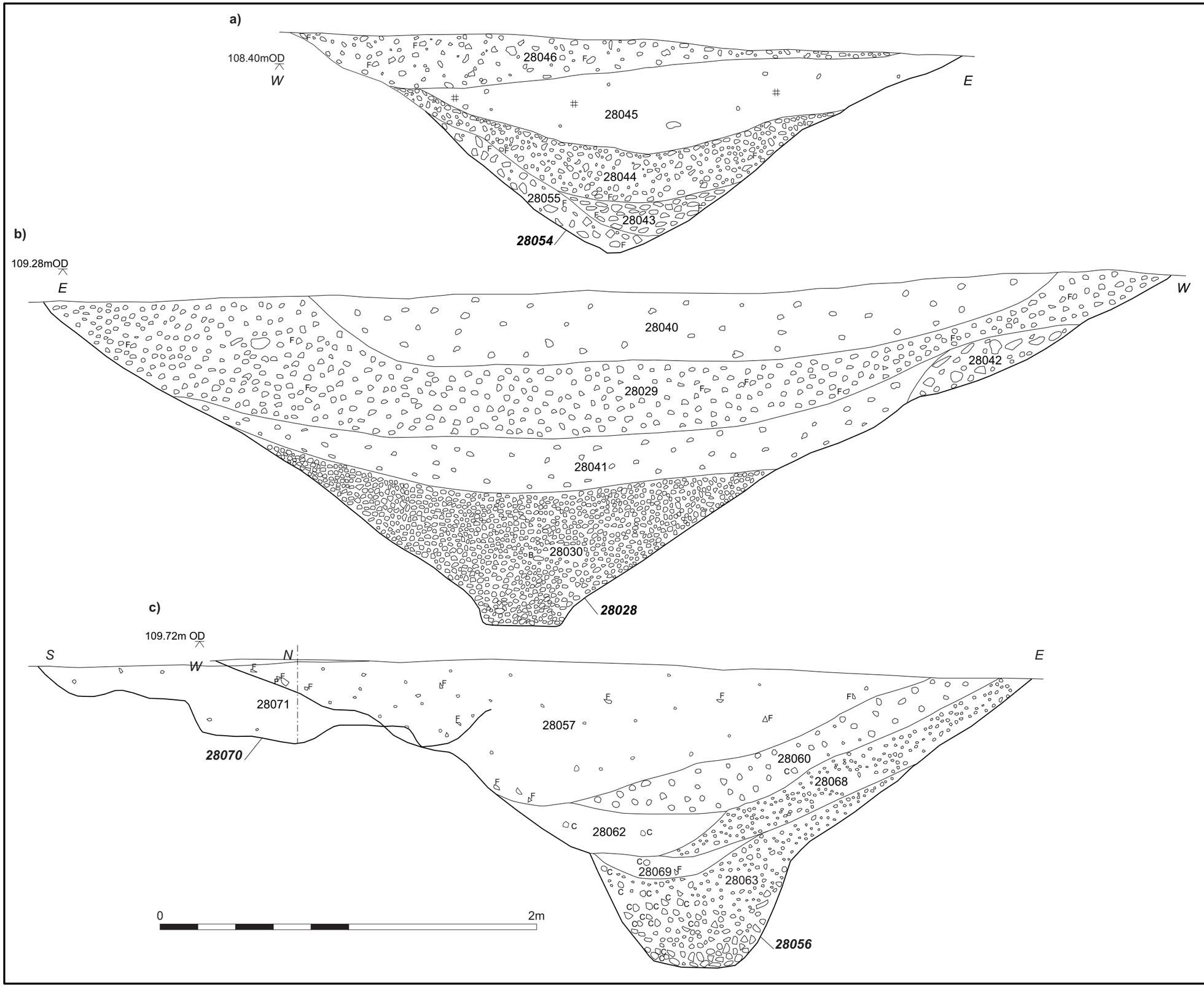
Figure 28: Phased plan of the plot 86 (Lions Den) excavation area

Scale 1:500



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Clay
Charcoal
Charcoal lense
Stones
Burnt stone
Pottery
Bone
Flint
Chalk

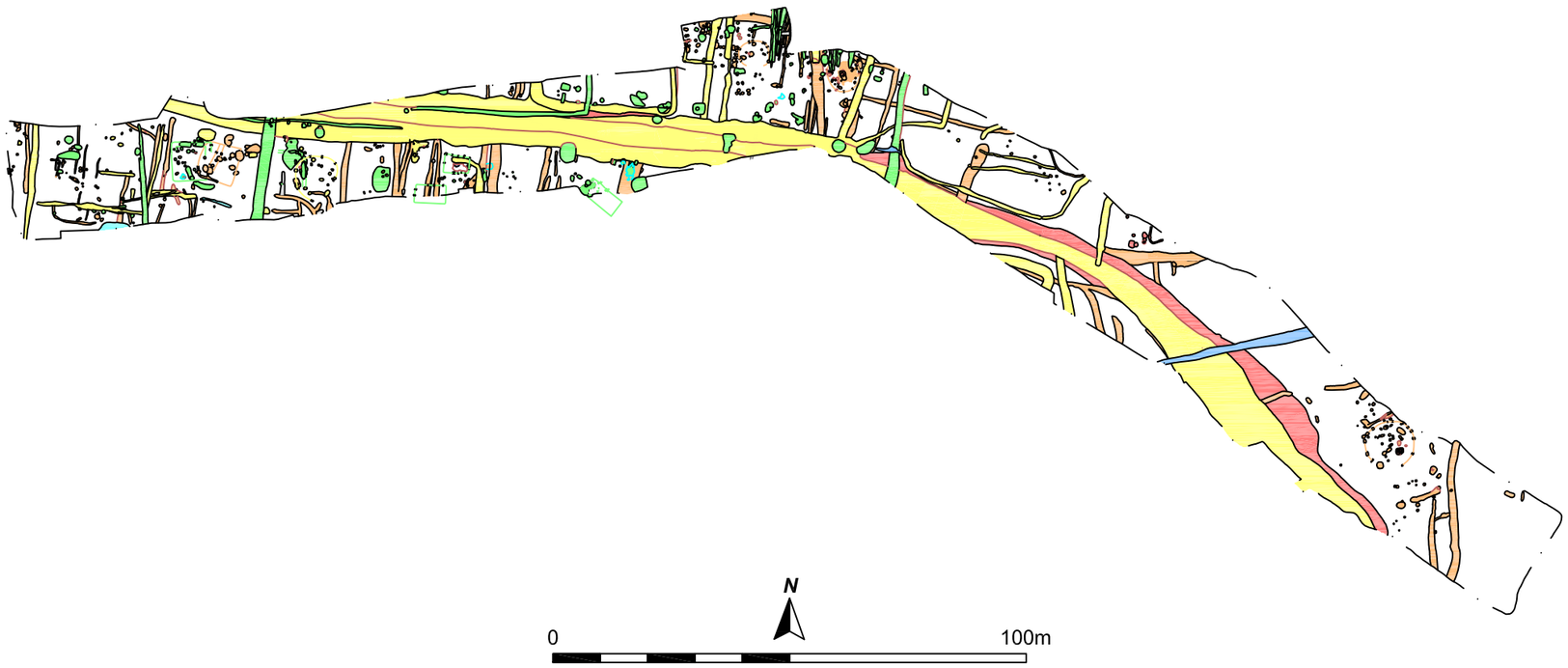
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 86	JLC	RM	CL

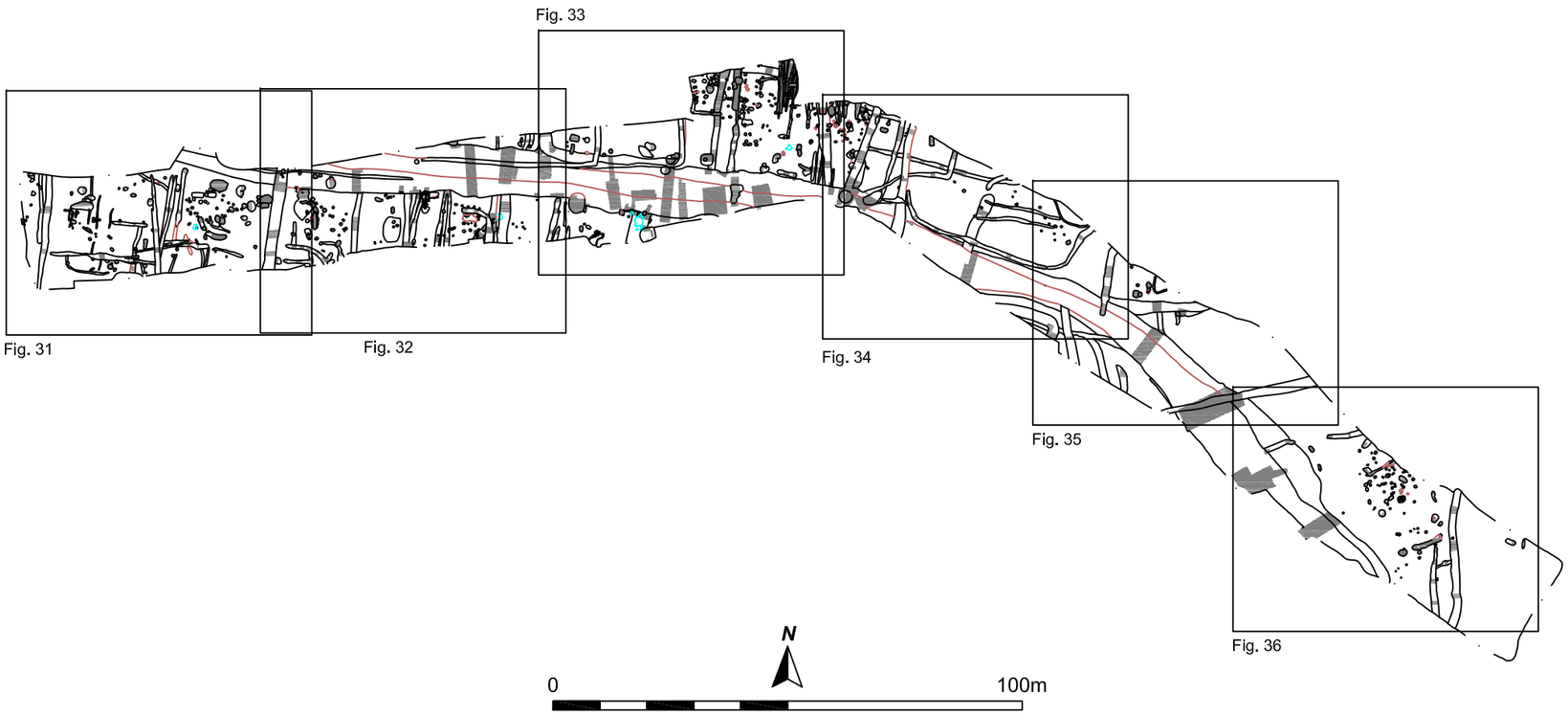
network archaeology

Ganstead to Asselby Pipeline

Figure 29: Individual section drawings from plot 86
a) Ditch 28039
b) Ditch 28028
c) Ditch 28056

Scale 1:20





Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	CL

network archaeology

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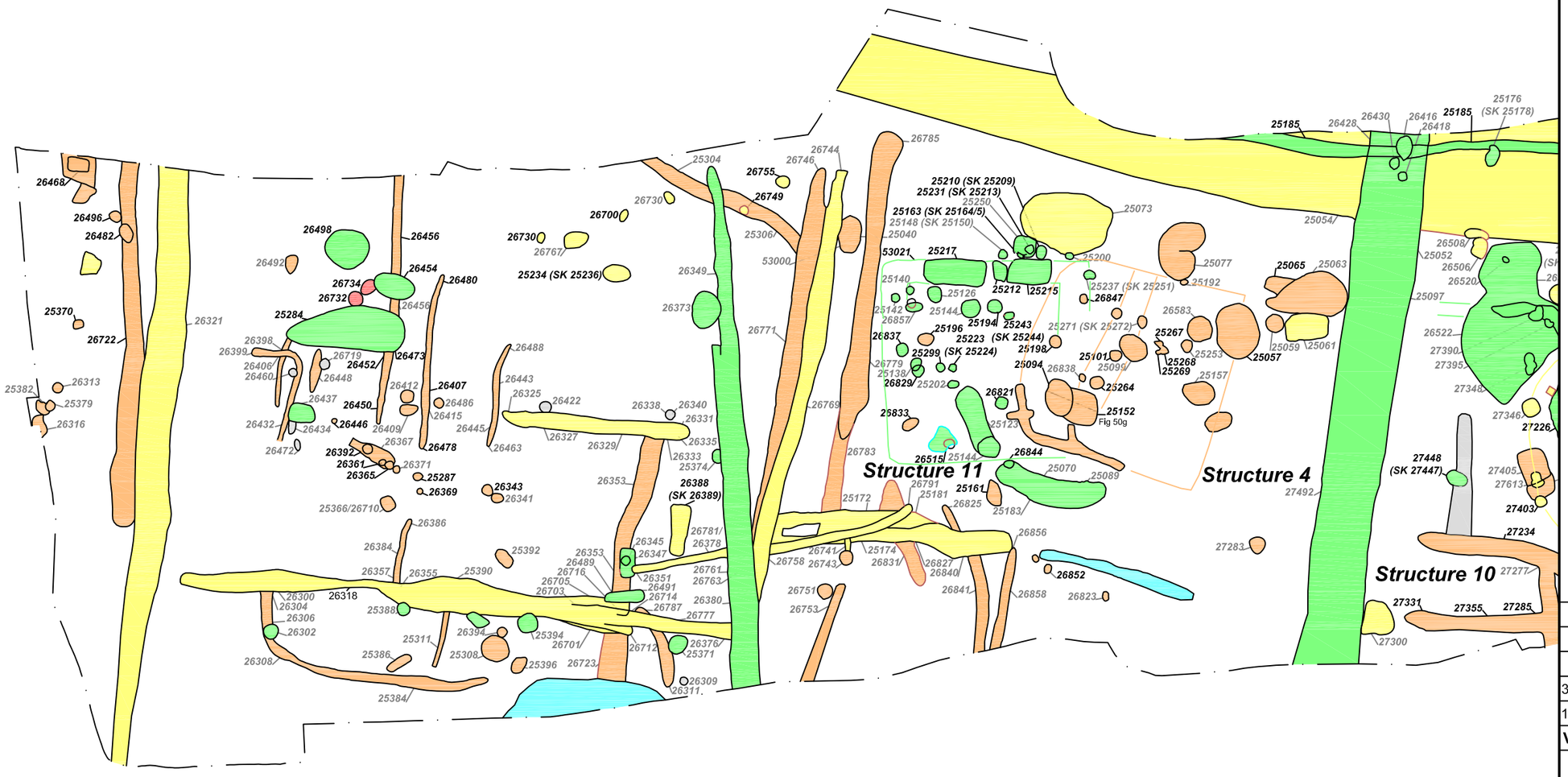
Figure 30: Overall plans of plot 104 (Rudstone Dale) excavation area

Scale 1:1250



N

0 20m

Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	*CL*

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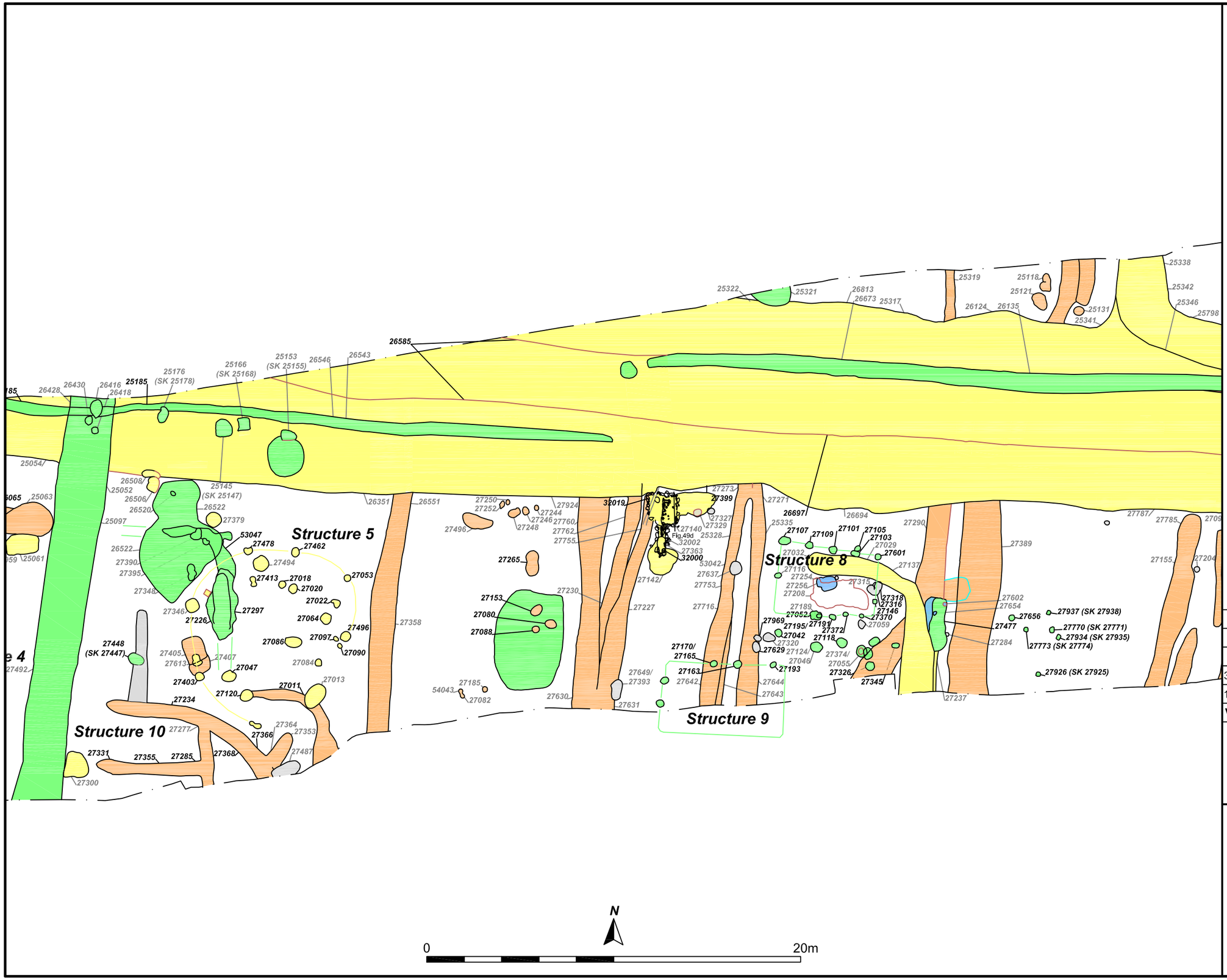
Figure 31: Phased plan of the western end of the plot 104 excavation area

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	CL

network archaeology

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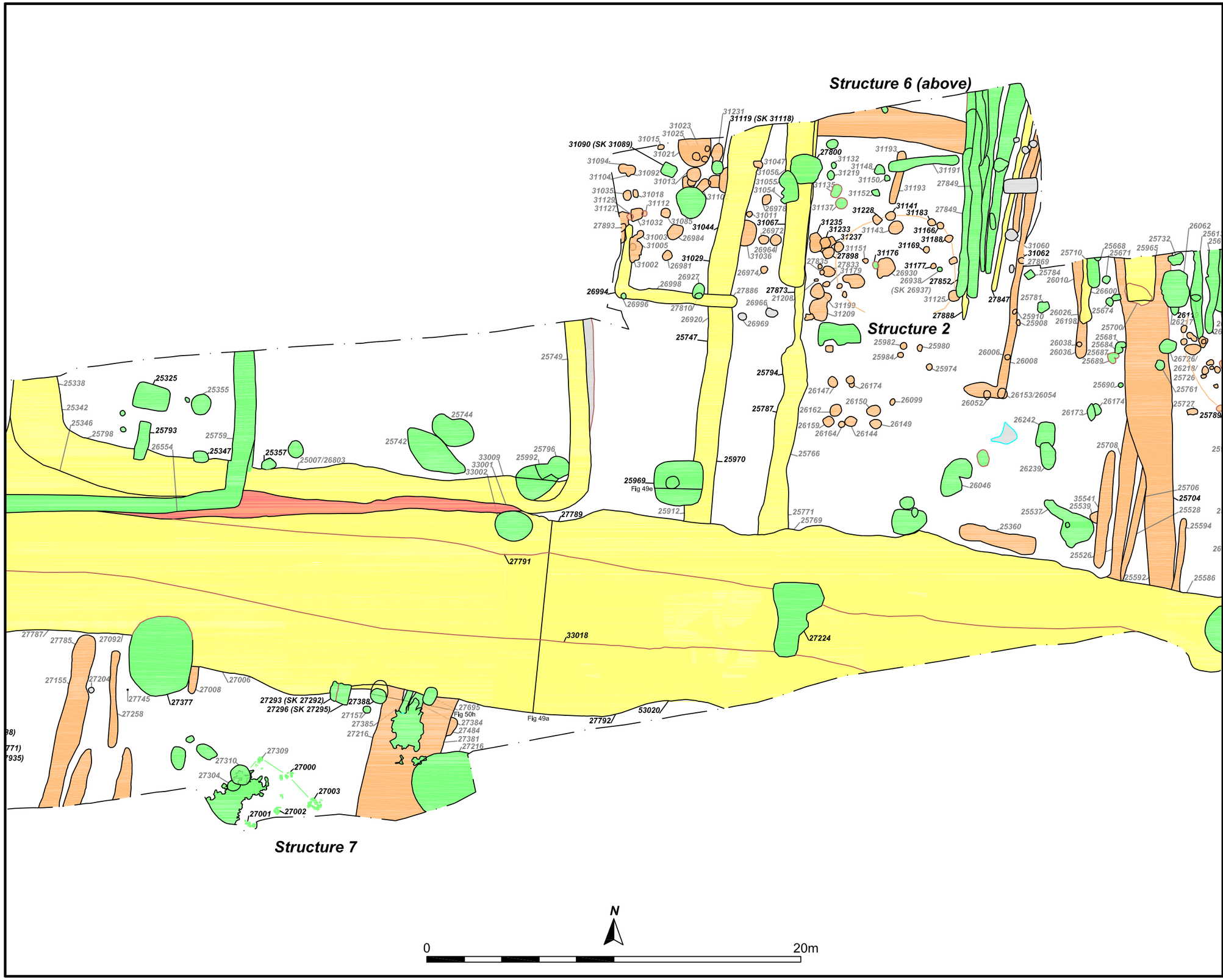
Figure 32: Phased plan of the penultimate western portion of the plot 104 excavation area

Scale 1:200



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	*CL*

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Figure 33: Phased plan of the western central portion of the plot 104 excavation area

Scale 1:200

Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	*CL*

network archaeology

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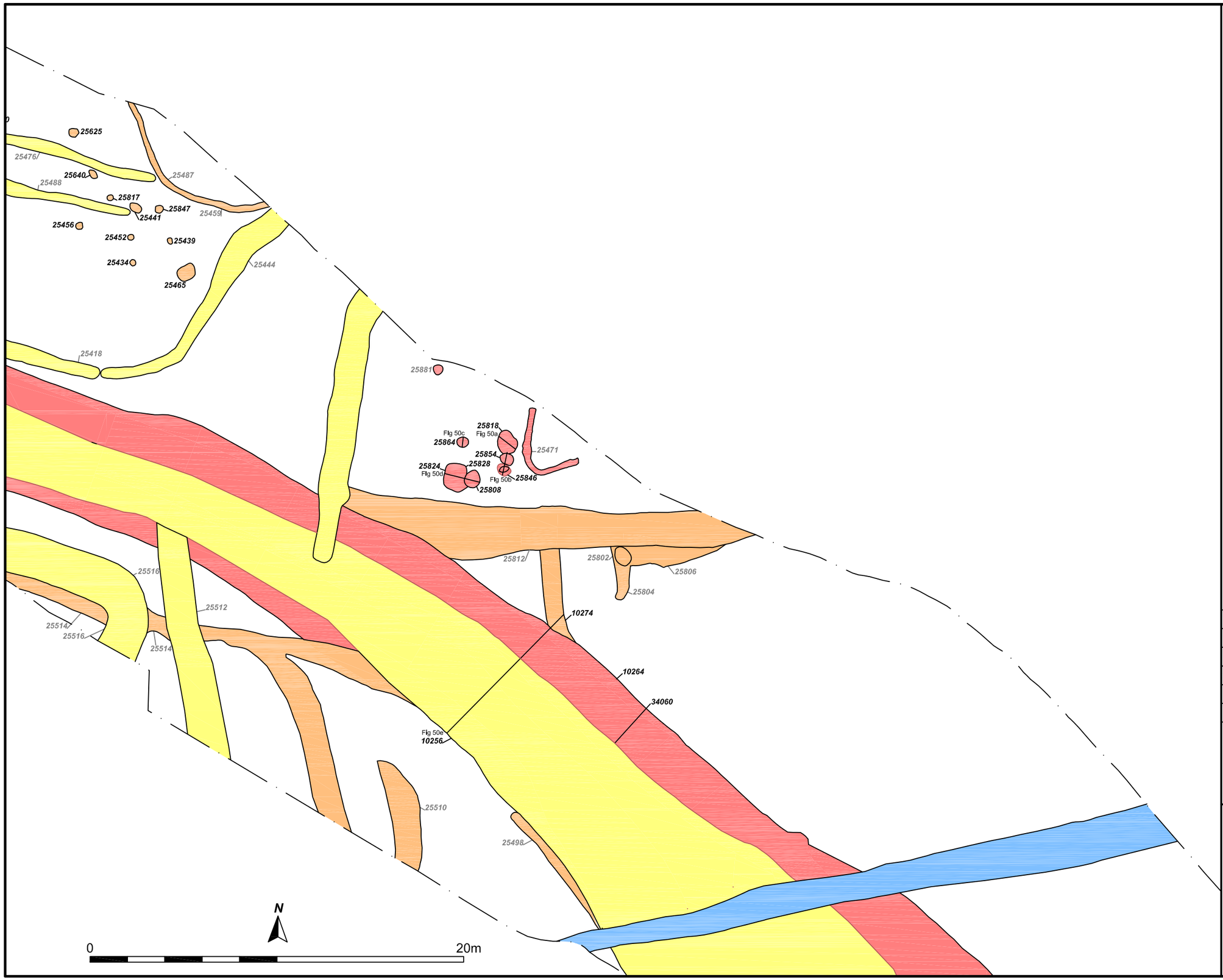
Figure 34: Phased plan of the eastern central portion of the plot 104 excavation area

Scale 1:200



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	*CL*

network archaeology

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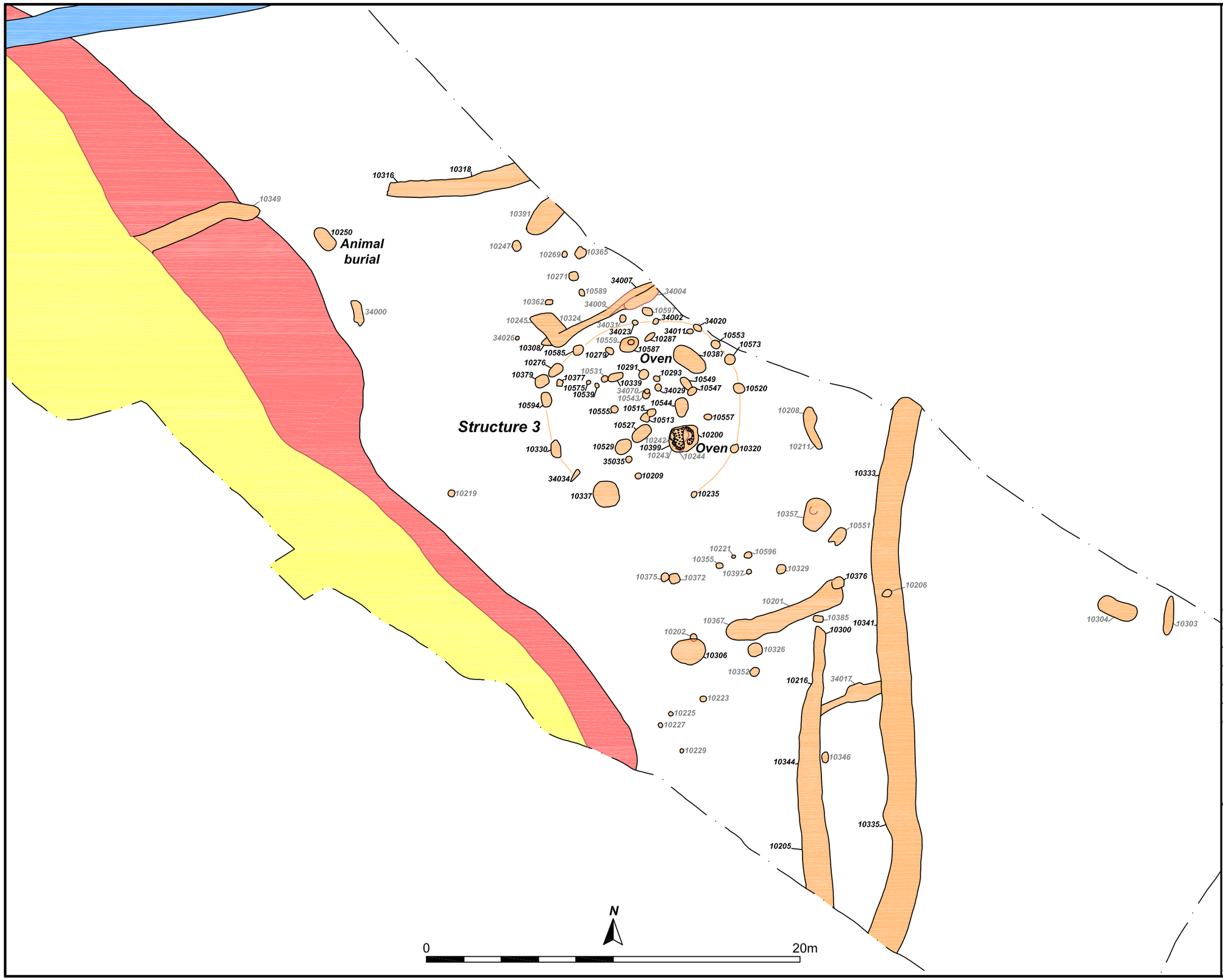
Figure 35: Phased plan of the penultimate eastern portion of the plot 104 excavation area

Scale 1:200



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

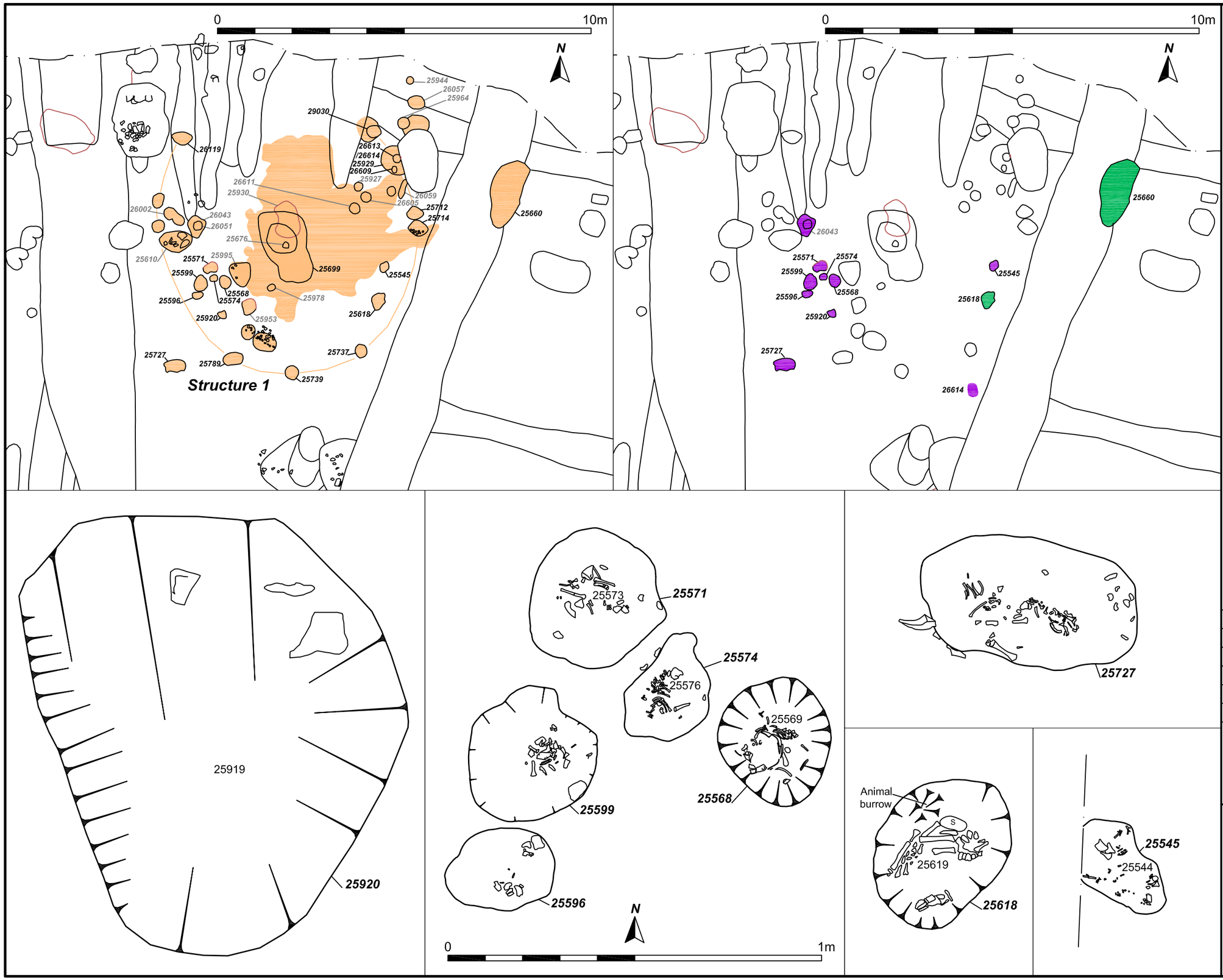
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	*CL*

network archaeology

Ganstead to Asselby Pipeline

Figure 36: Phased plan of the eastern end of the plot 104 excavation area

Scale 1:200



Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

network archaeology

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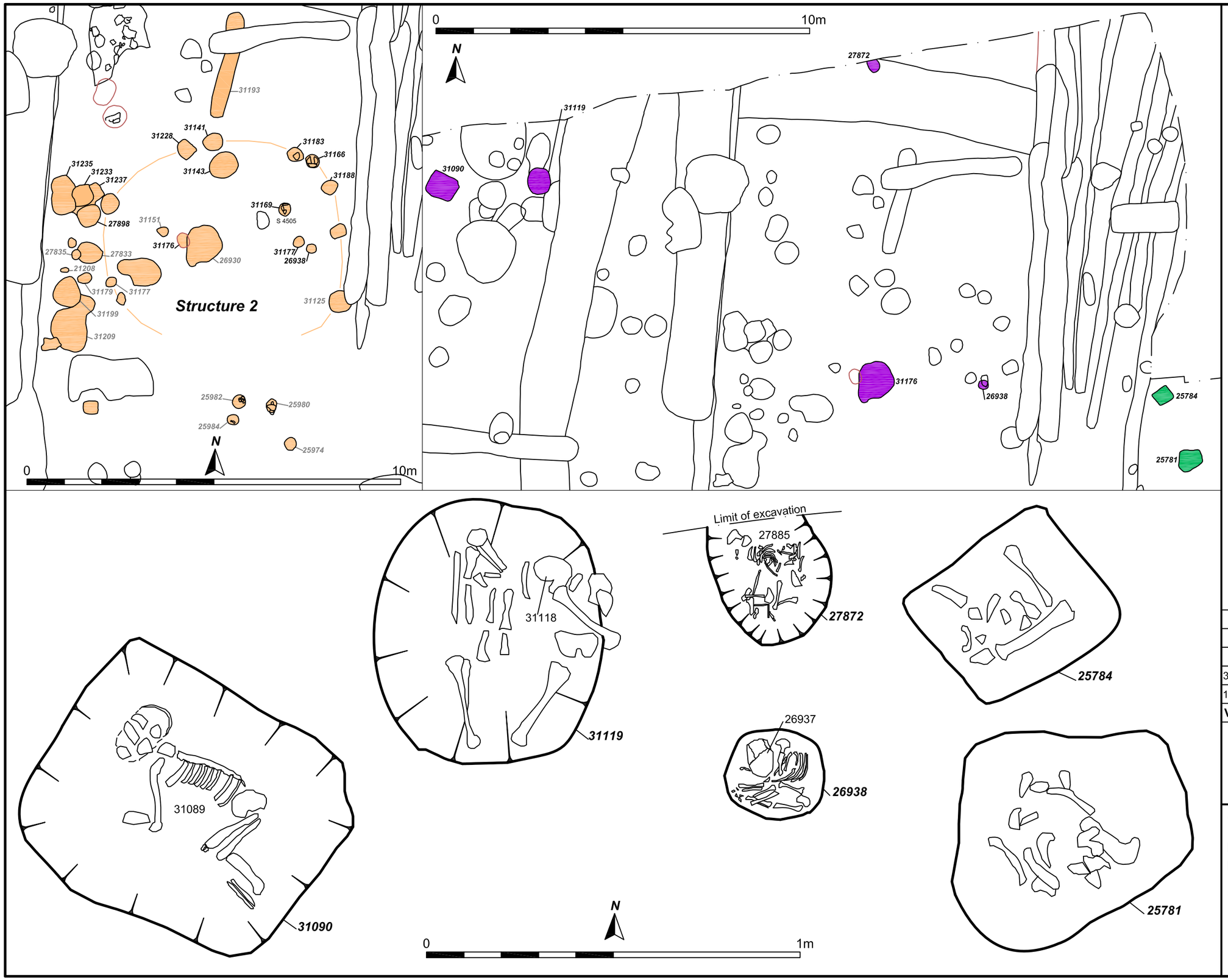
Figure 37: Detailed plans of Structure 1 in plot 104 and its associated burials

Scale Plans 1:100, burial plans 1:10



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 2 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 104	JLC	RM	CL

network archaeology

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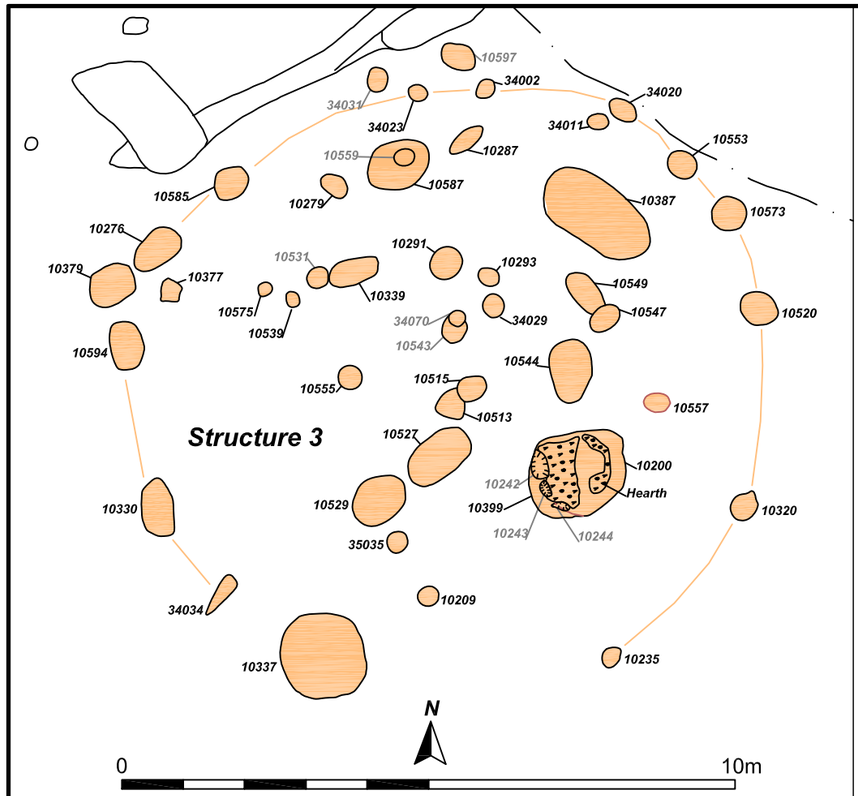
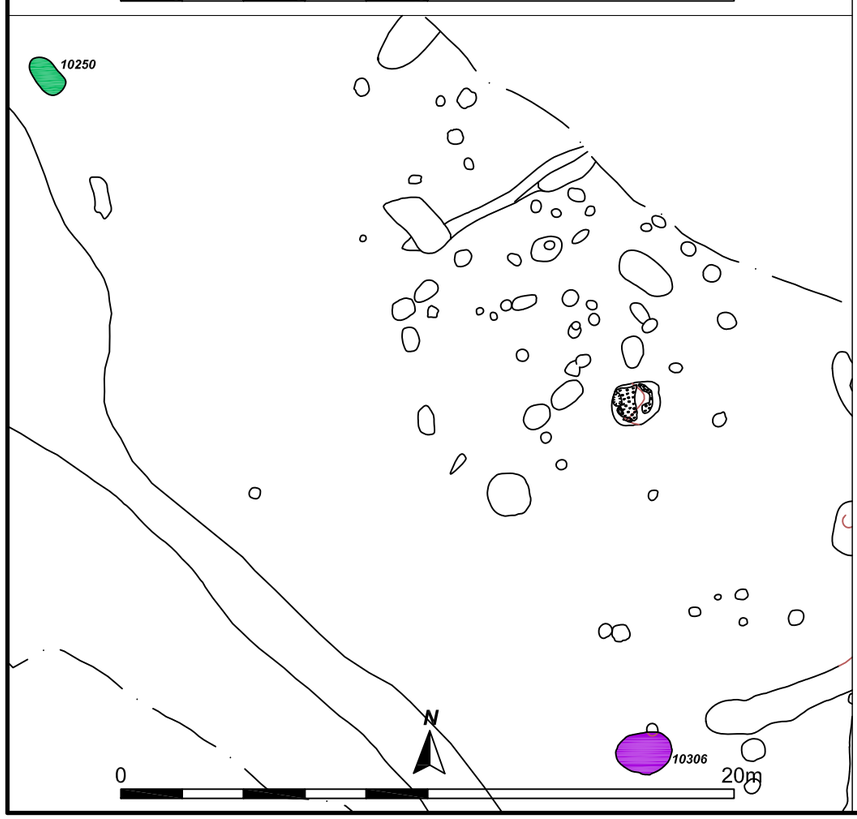
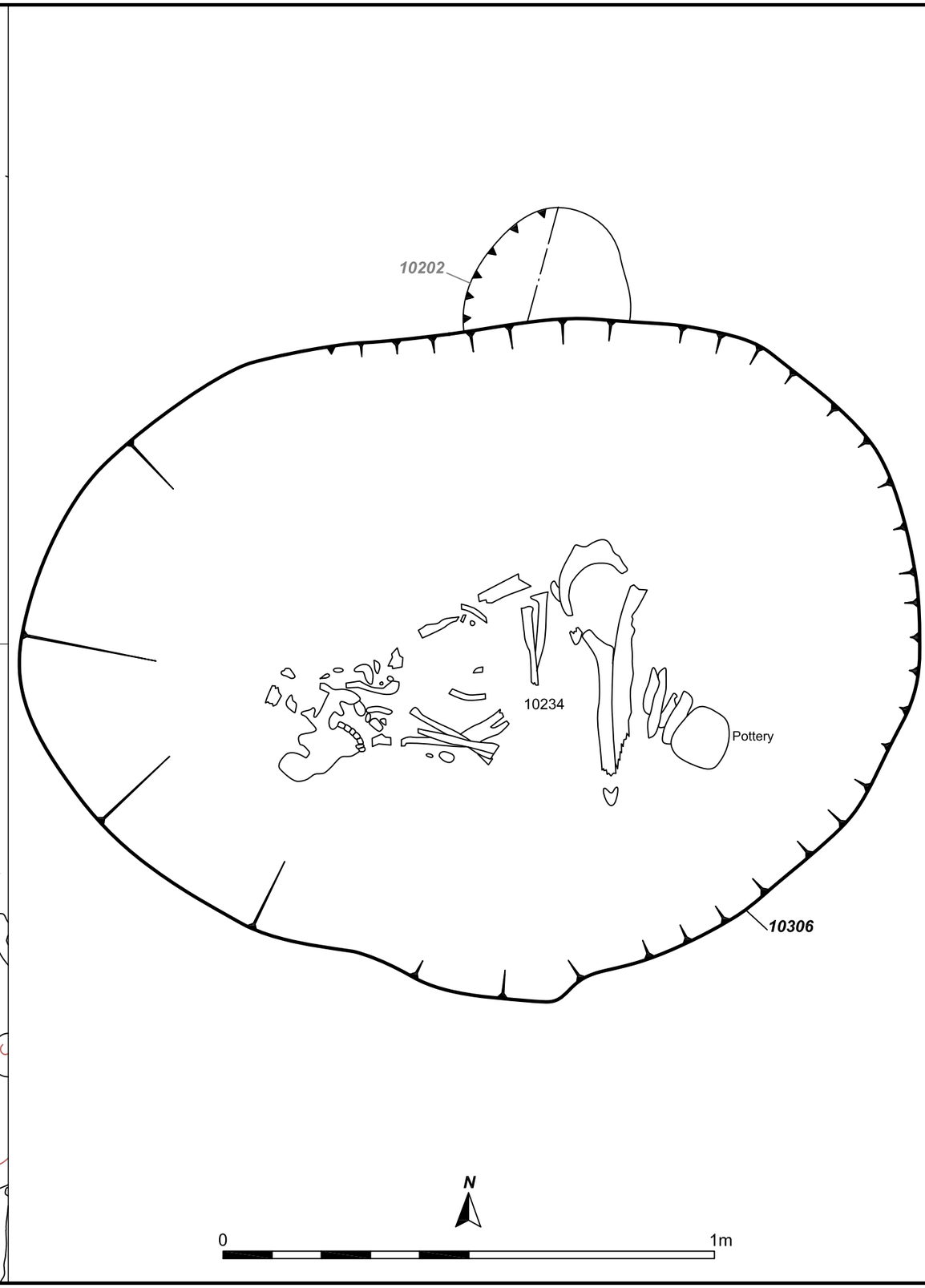
Figure 38: Detailed plans of Structure 2 in plot 104 and its associated burials

Scale Plan 1:100, burial plans 1:10







Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 2 structure
Human burials
Animal burials

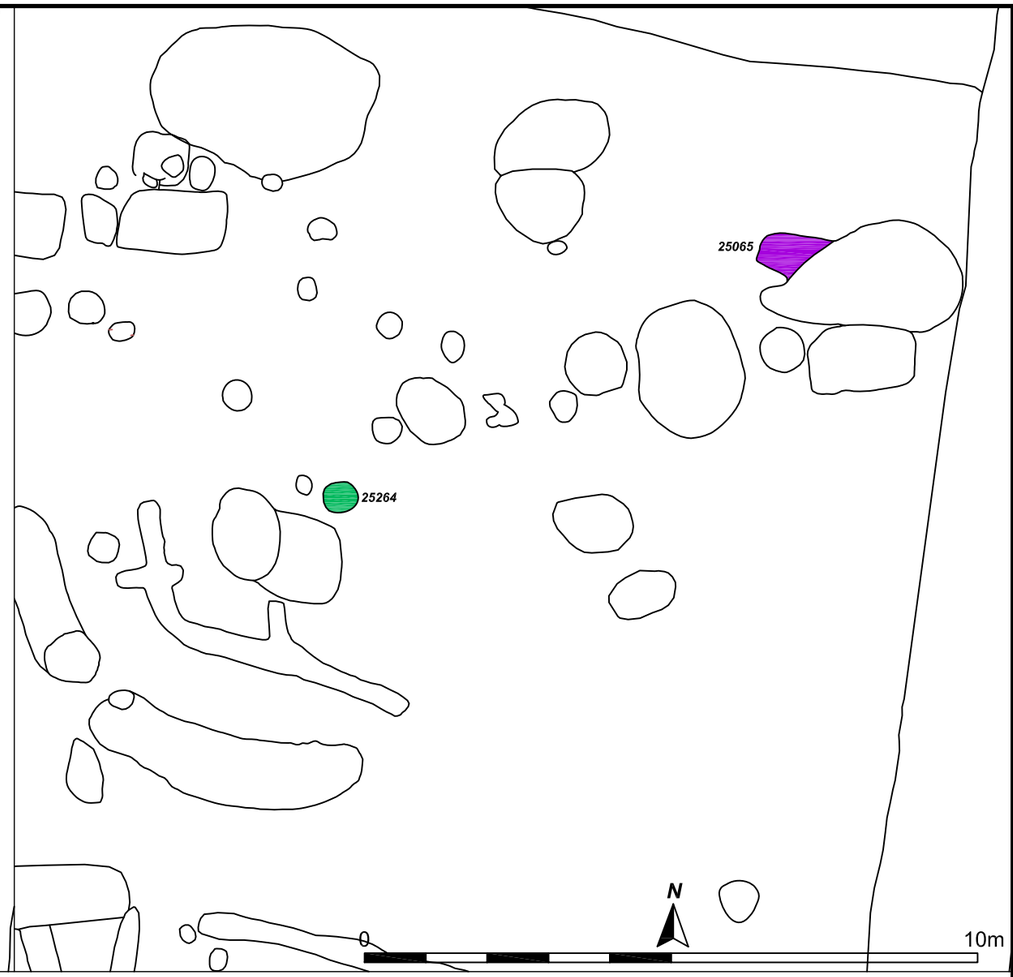
Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

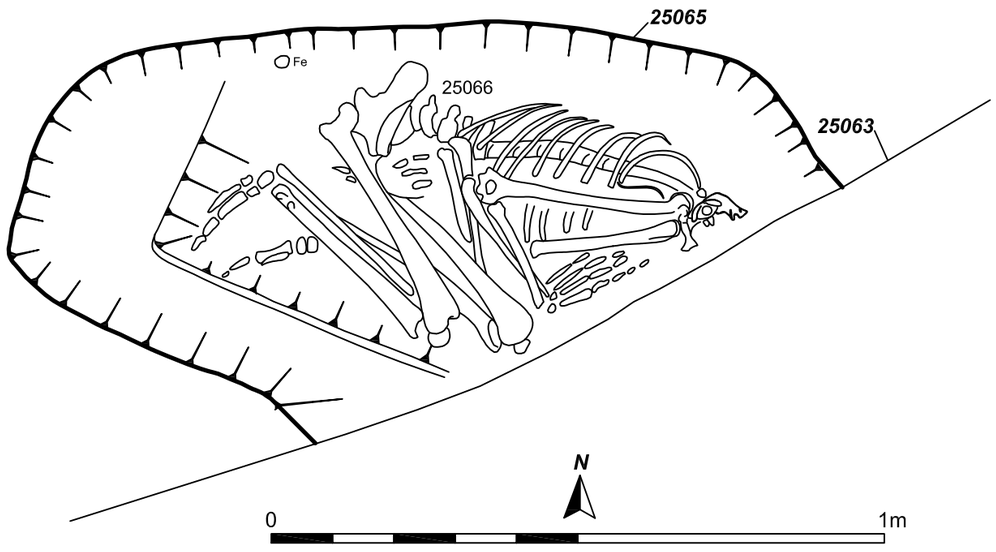
network archaeology

Ganstead to Asselby Pipeline

Figure 39: Detailed plans of Structure 3 in plot 104 and its associated burial

Scale Plans 1:100 and 1:200, burial plan 1:10





Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 2 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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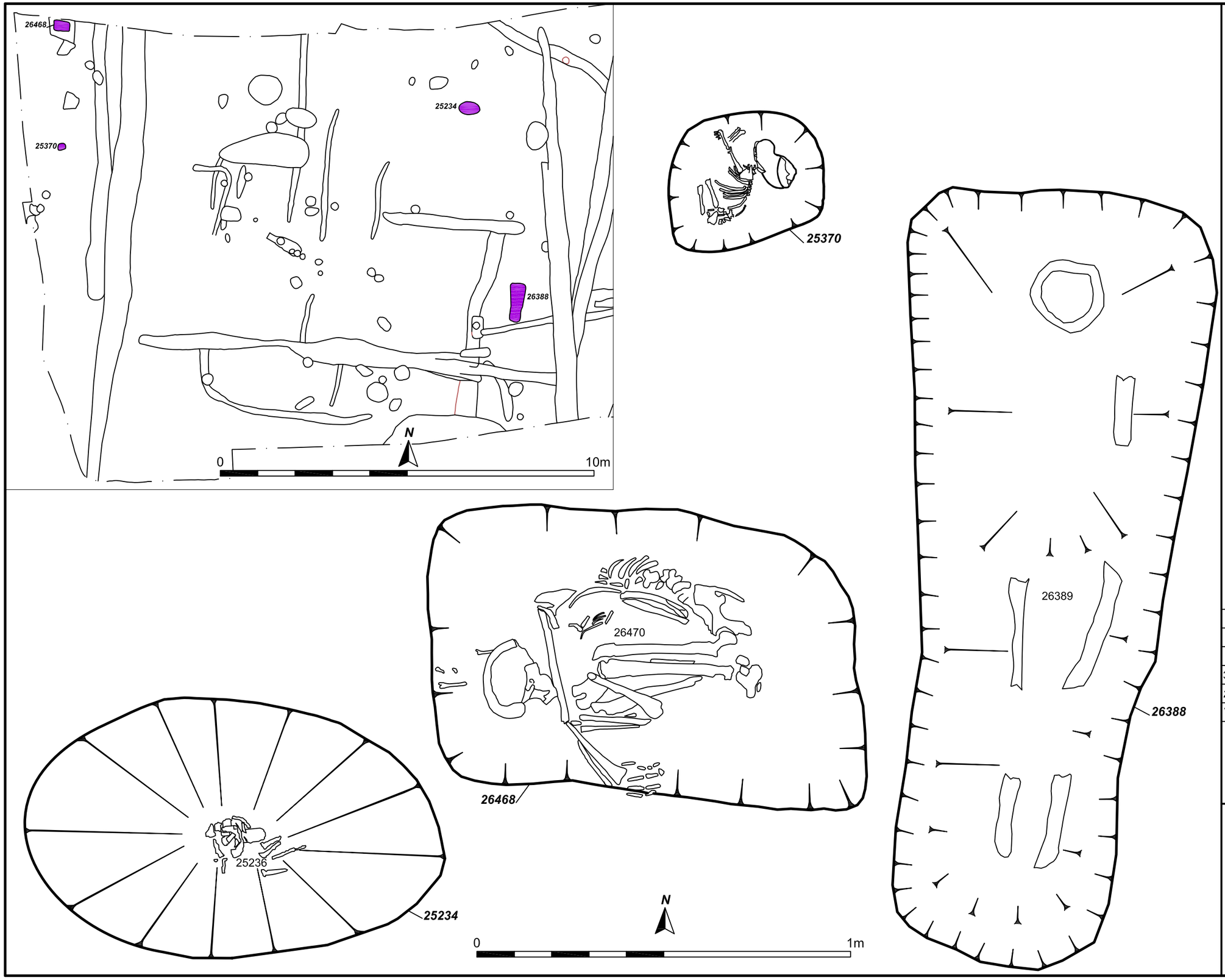
Figure 40: Detailed plans of Structure 4 in plot 104 and its associated burial

Scale Plans 1:100, burial plan 1:10



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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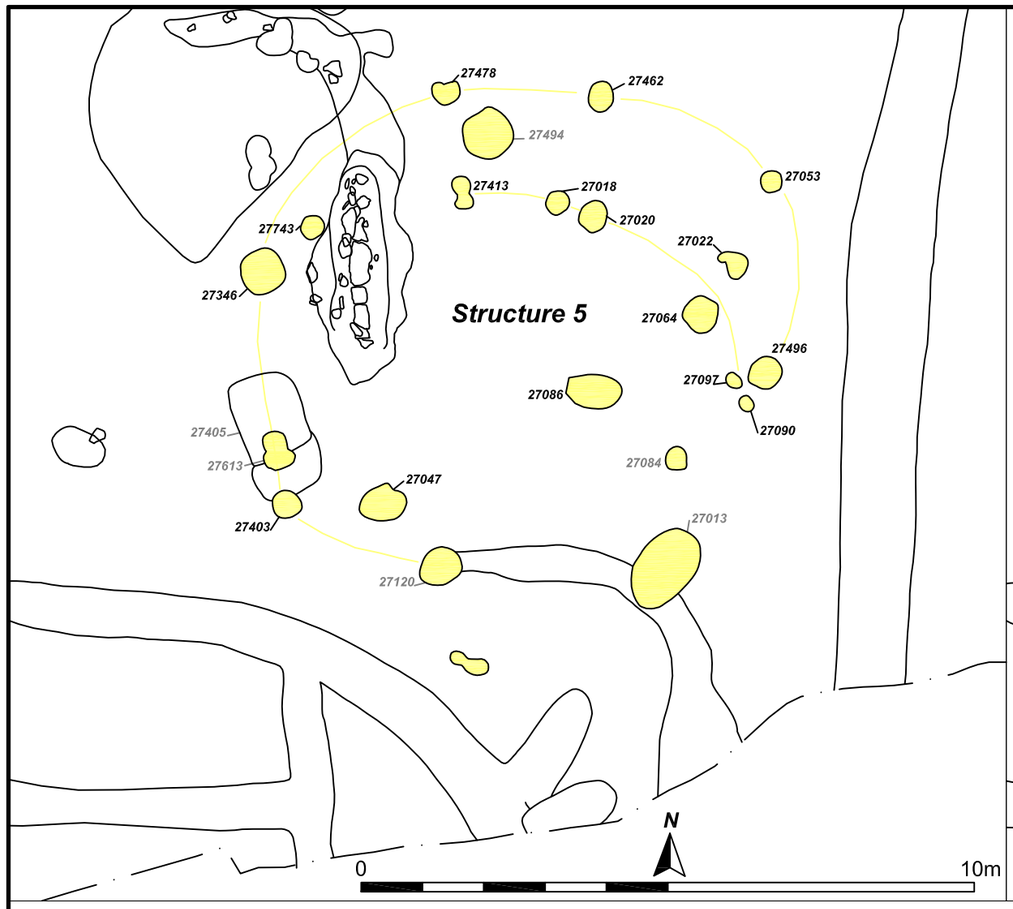
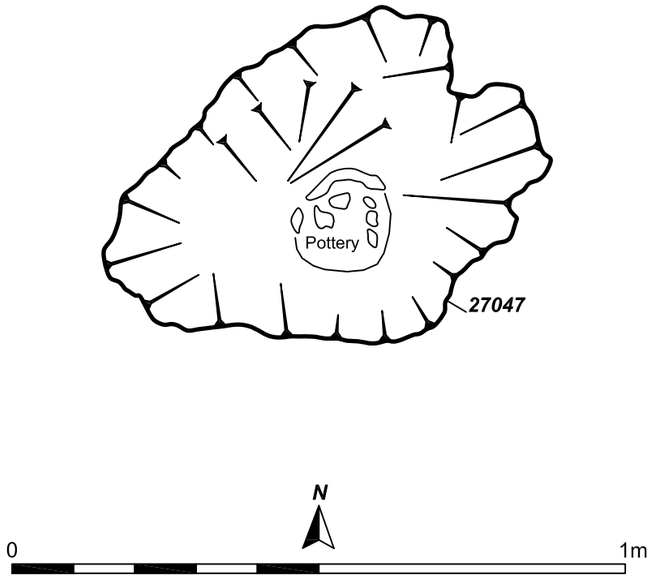
Figure 41: Detailed plan of the burials at the western end of plot 104

Scale Plan 1:200, burial plans 1:10





Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 3 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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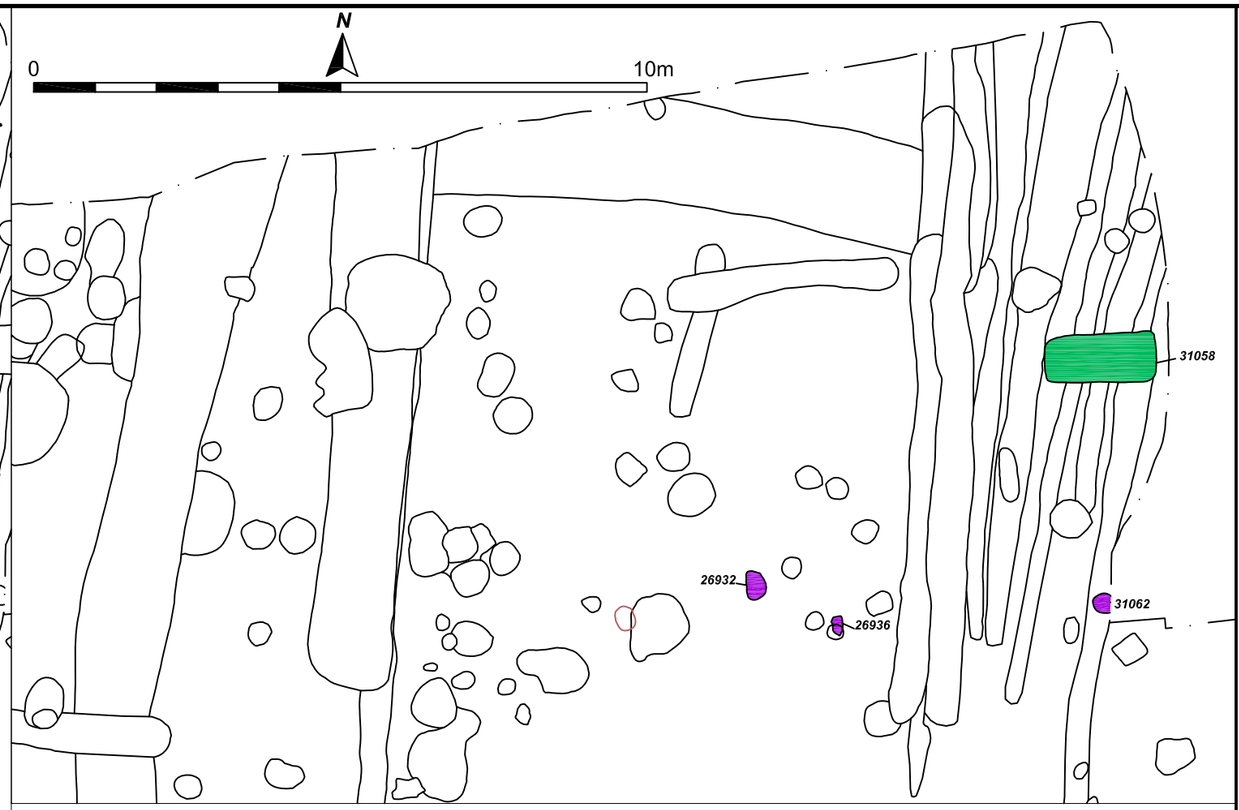
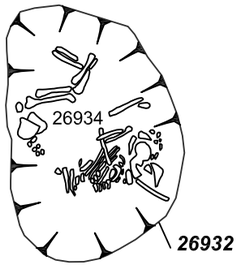
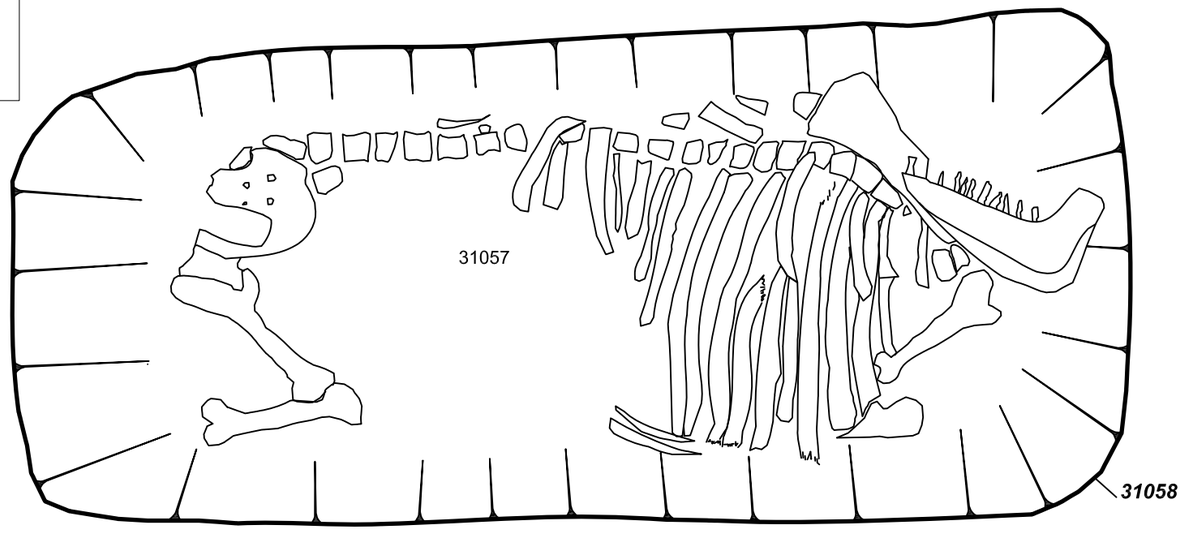
Figure 42: Detailed plans of Structure 5 in plot 104 and its associated burials

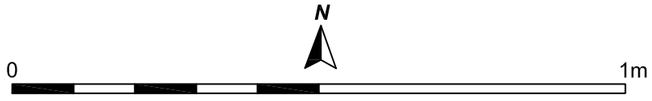
Scale Plans 1:100, burial plan 1:10



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 4 structure
Human burials
Animal burials







Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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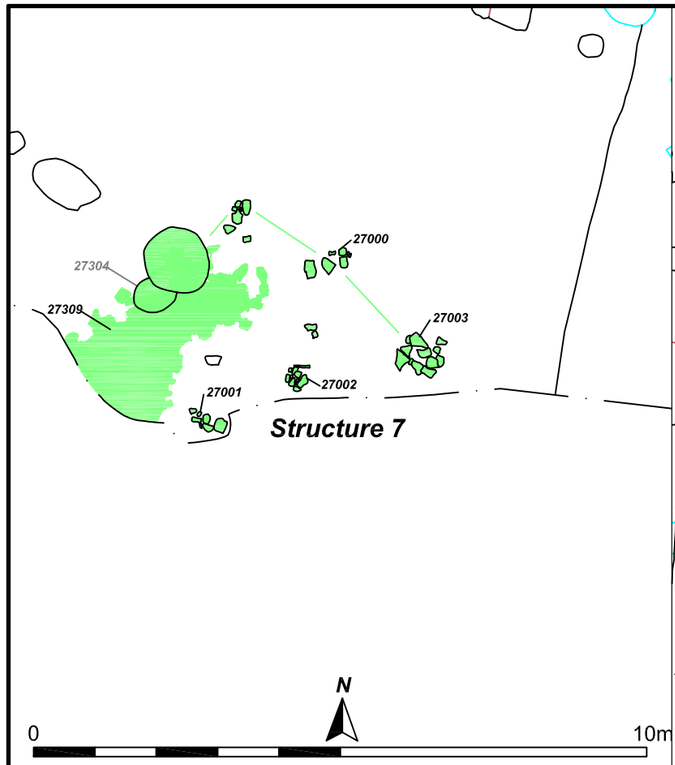
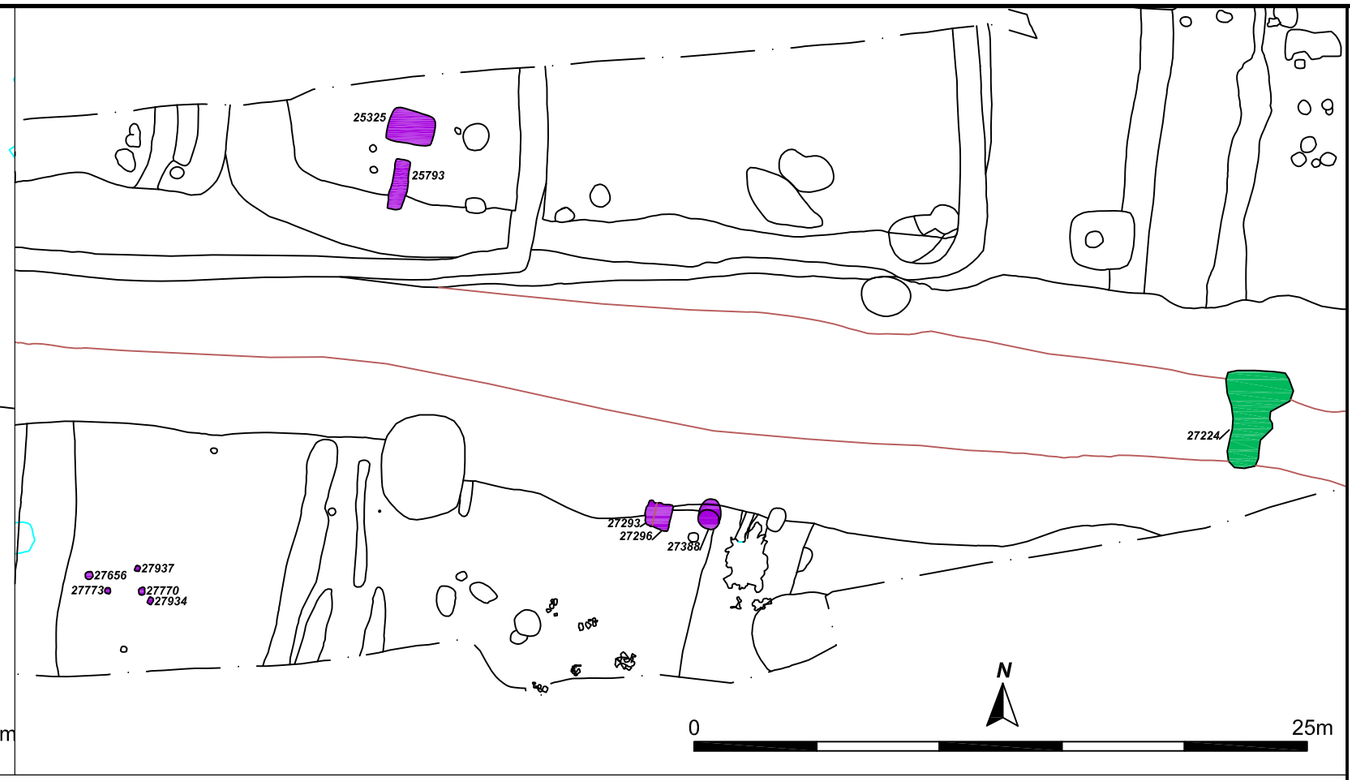
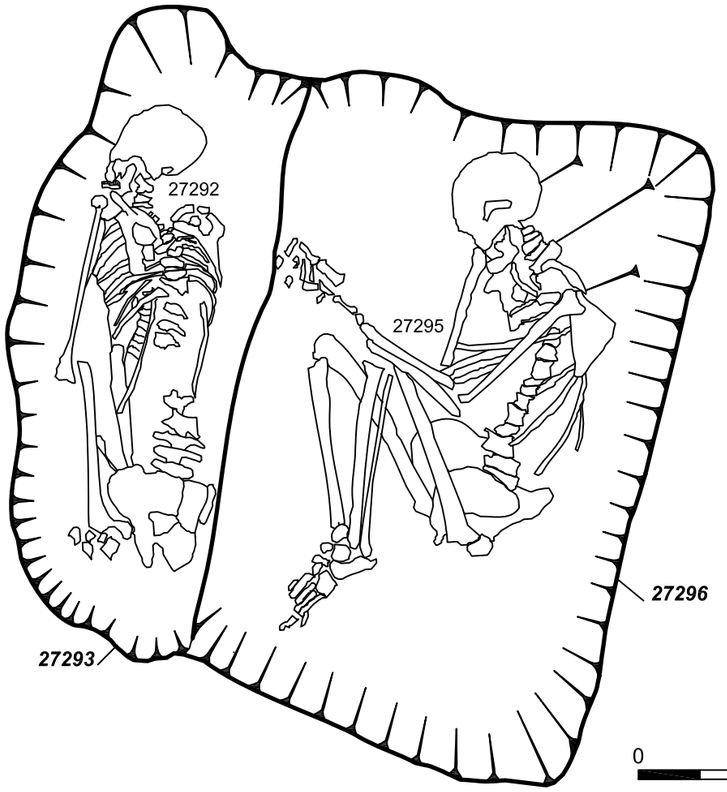
Figure 43: Detailed plans of Structure 6 in plot 104 and its associated burials

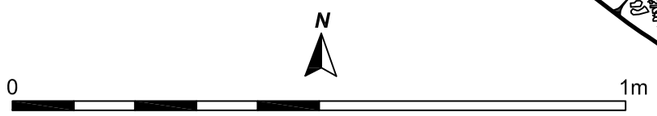
Scale PLans 1:100, burial plans 1:10

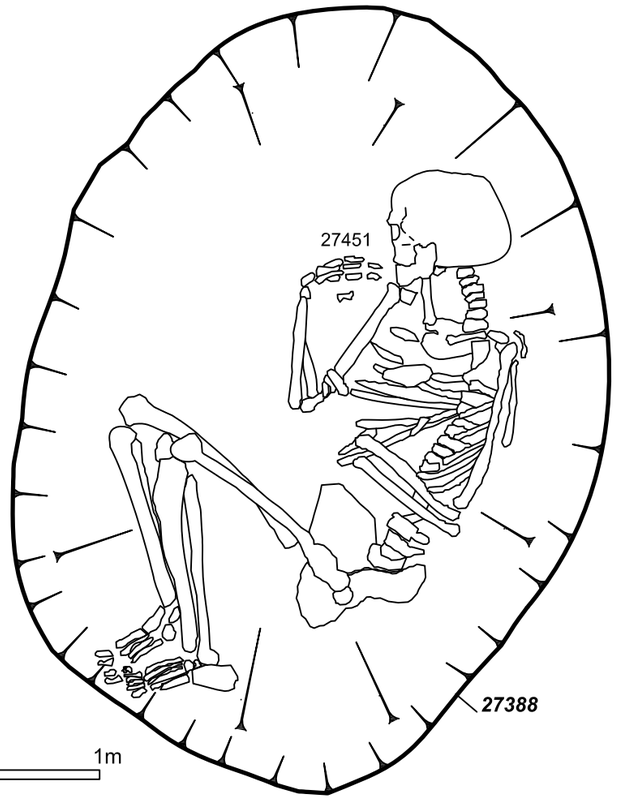




Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 4 structure
Human burials
Animal burials







Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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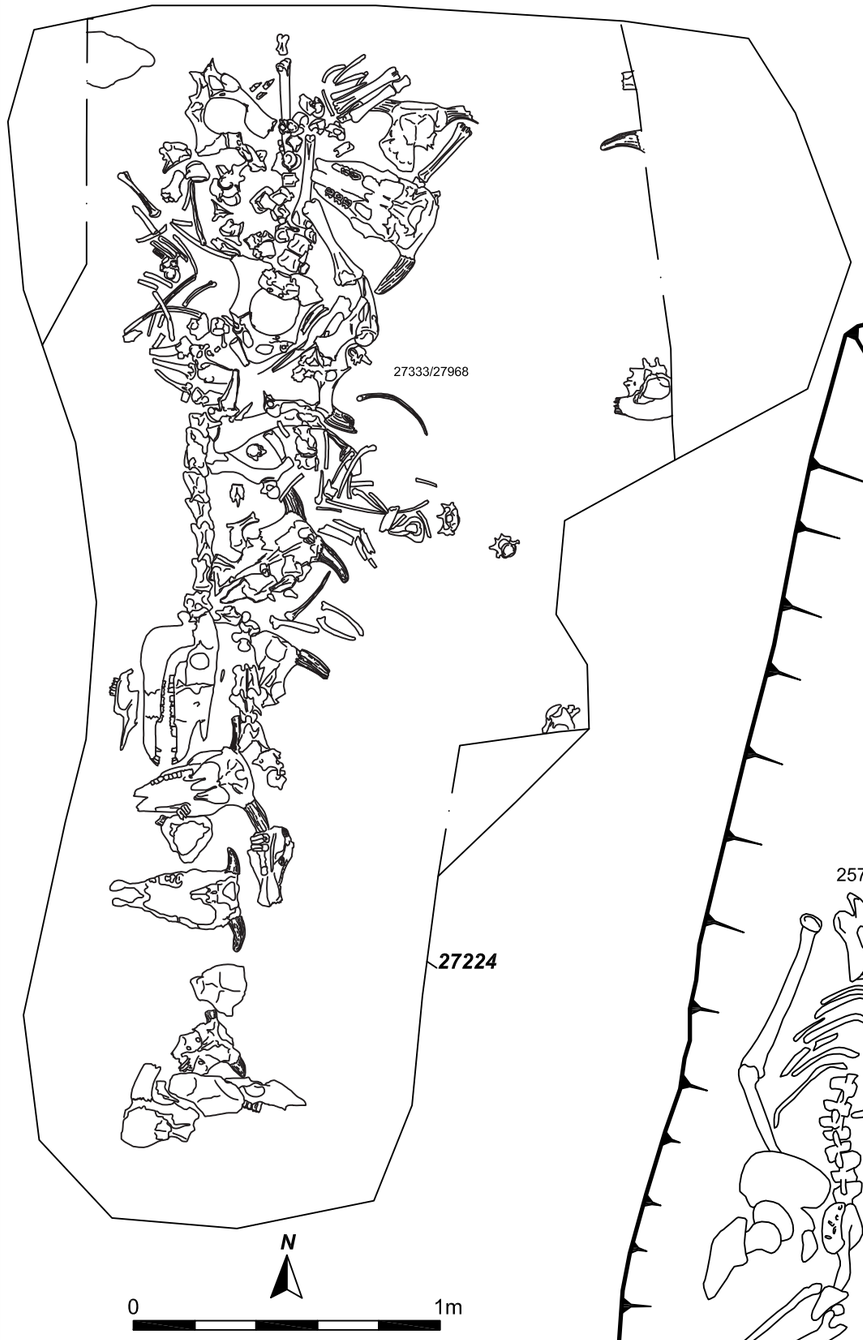
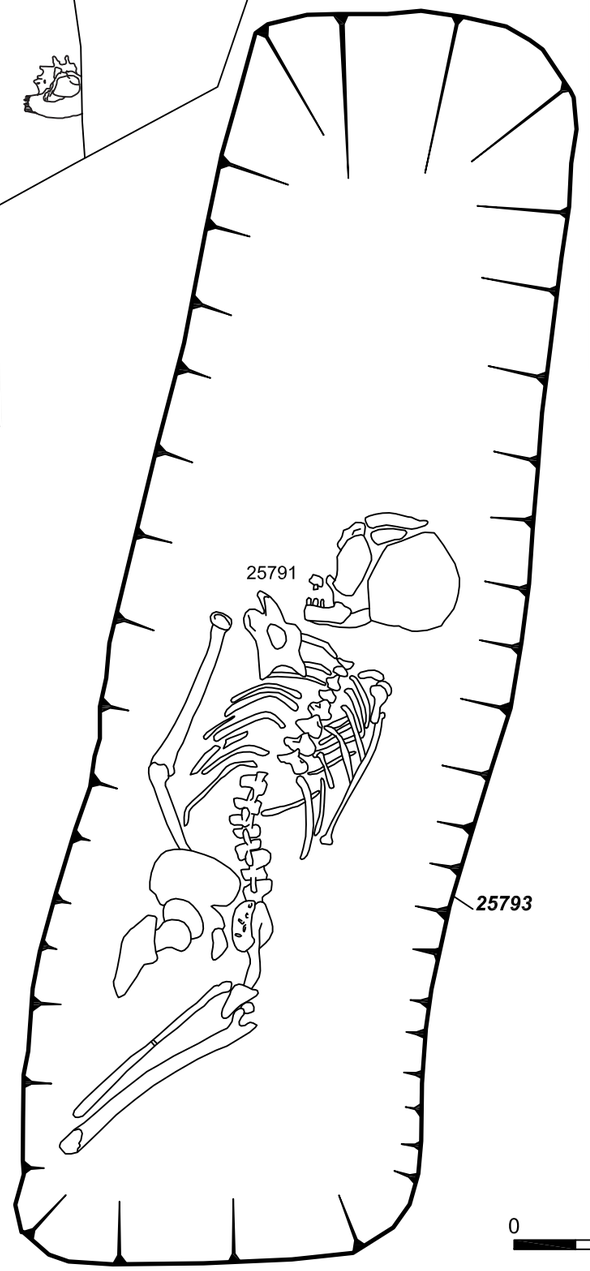
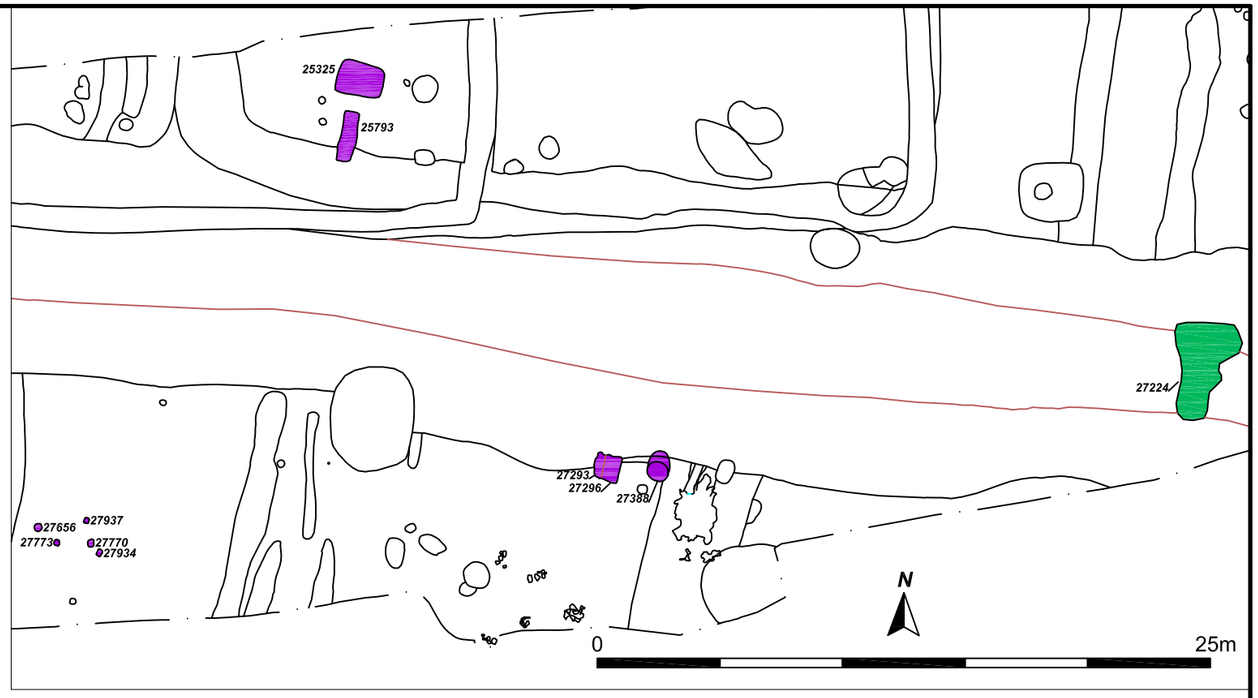
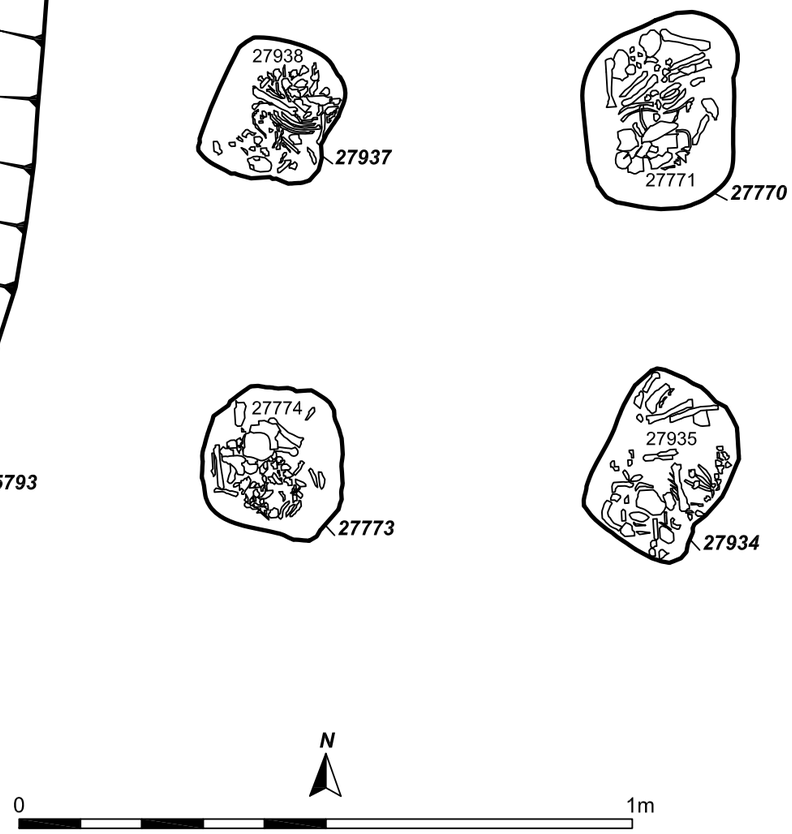
Figure 44: Detailed plans of Structure 7 in plot 104 and some of its associated burials

Scale Plans 1:100 and 1:250, burial plans 1:10









Limit of excavation

Cut line

Field drain/modern feature

Projected line

Human burials

Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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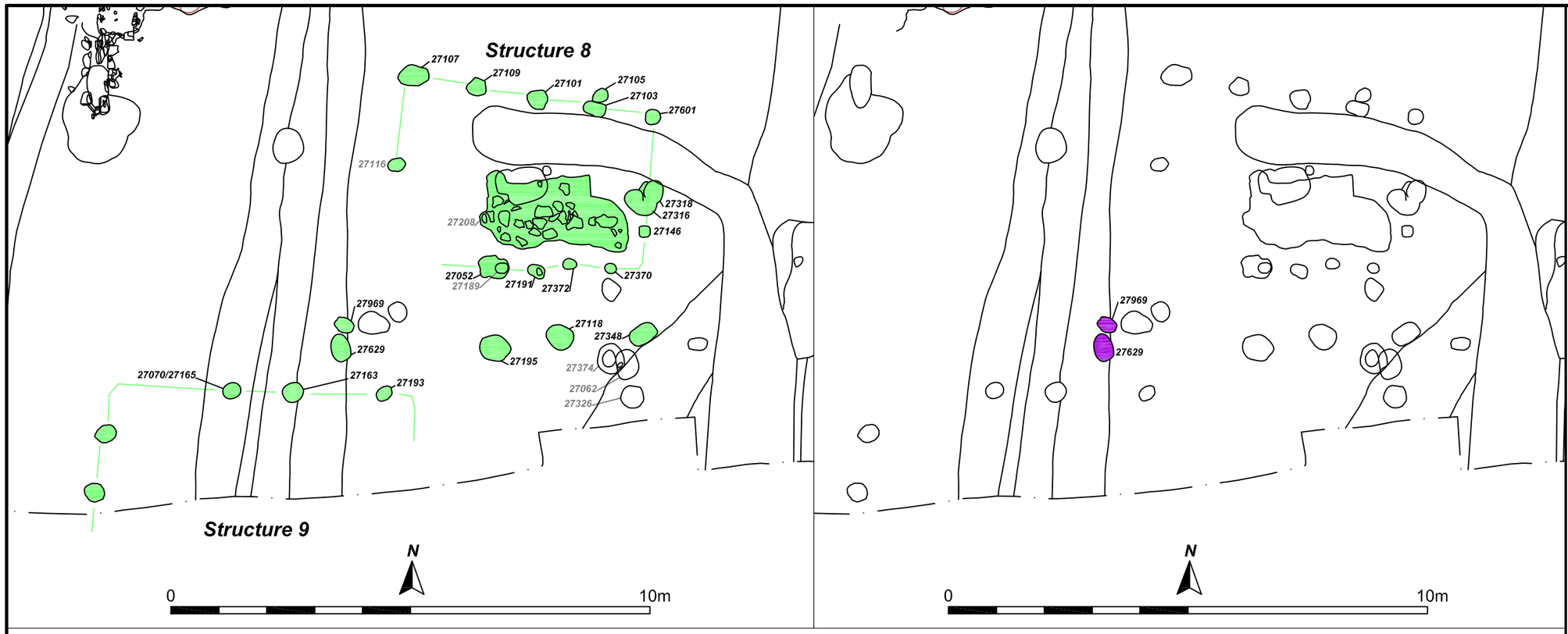
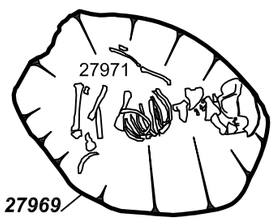
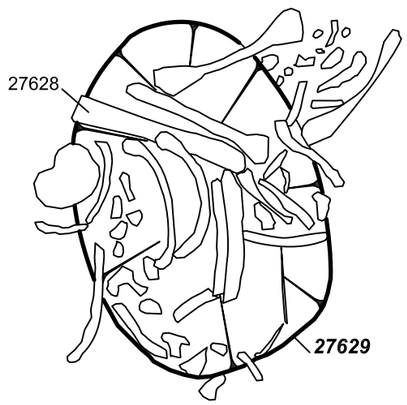
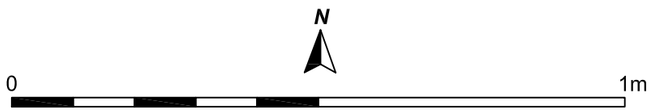
Figure 45: Detailed plans of further burials associated with Structure 7 in plot 104

Scale Plan 1:250, burial plans 1:10 and 1:20









Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 4 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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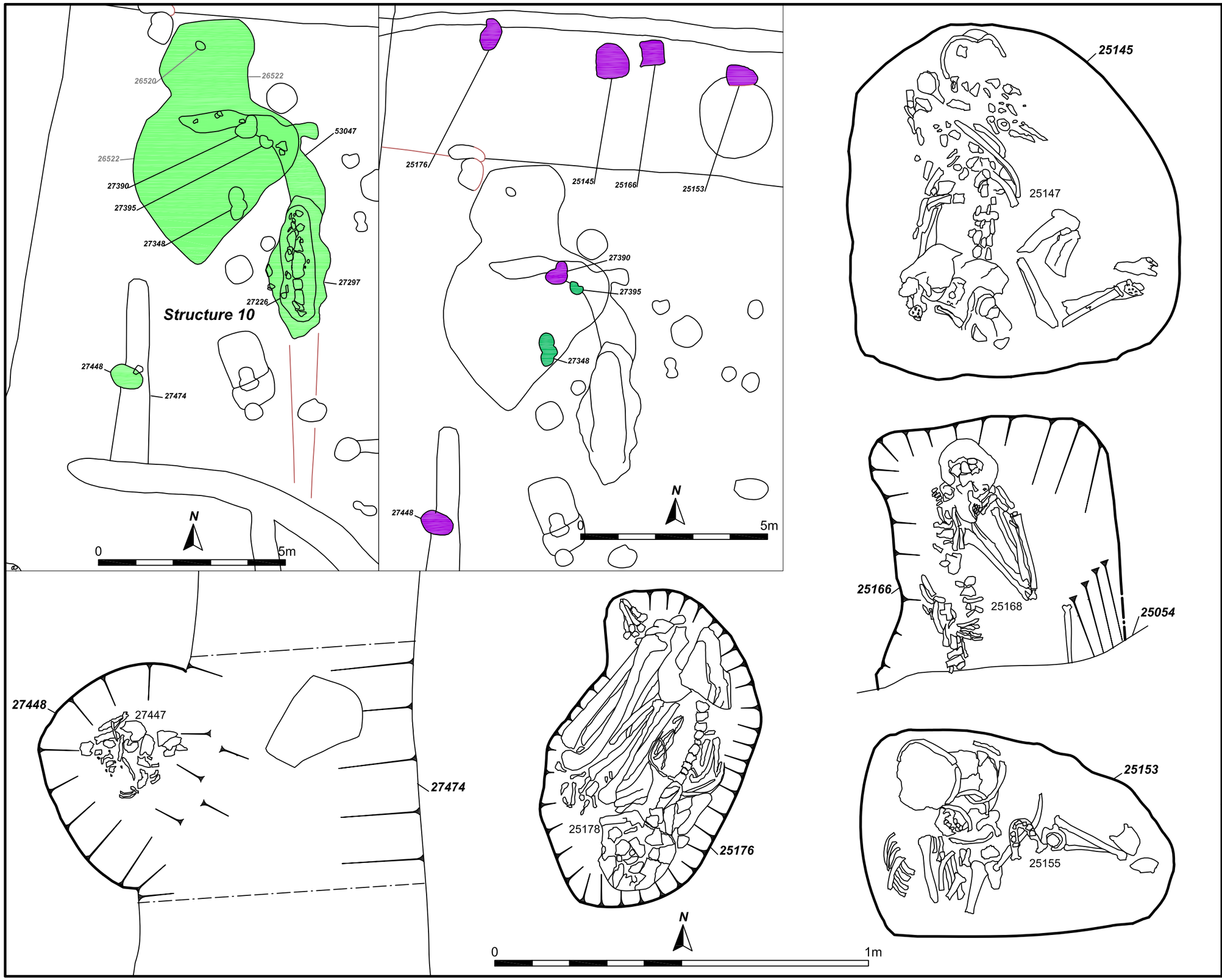
Figure 46: Detailed plans of Structures 8 and 9 in plot 104 and their associated burials

Scale Plan 1:100, burial plans 1:10



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 4 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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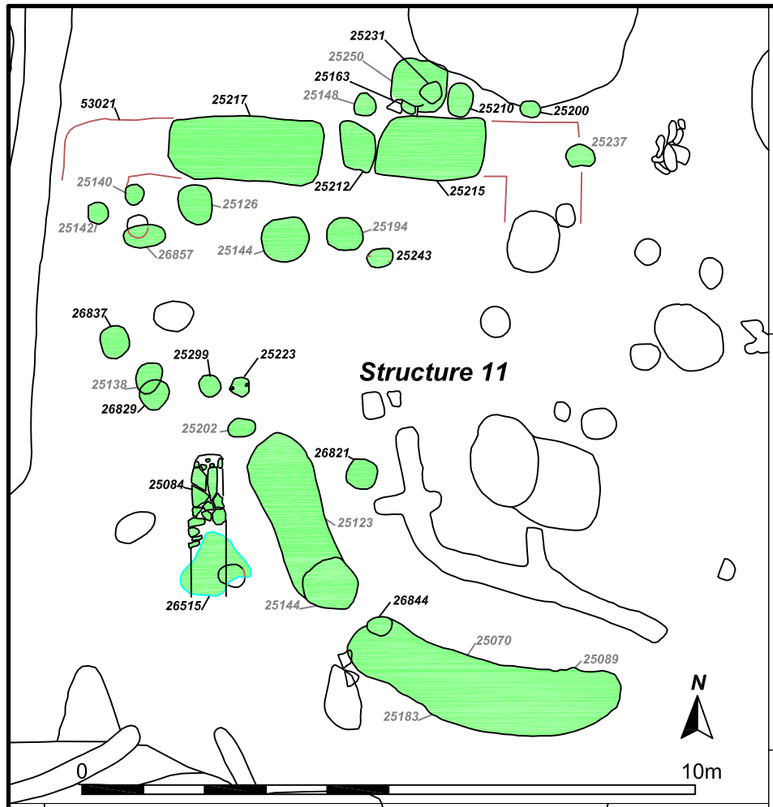
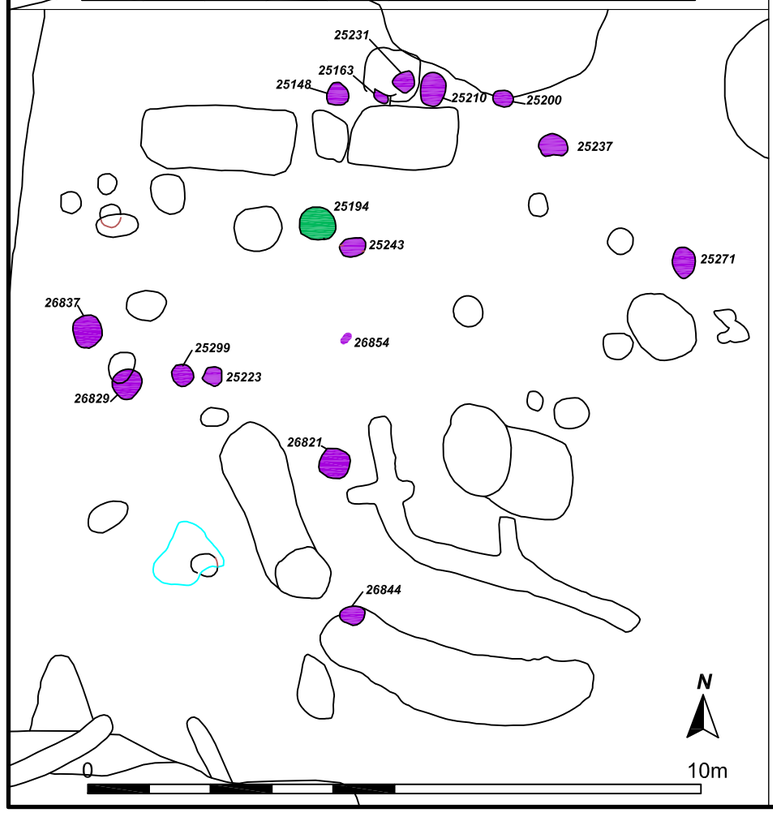
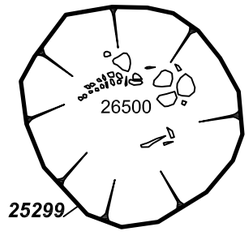
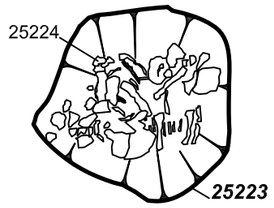
Figure 47: Detailed plans of Structure 10 in plot 104 and its associated burials

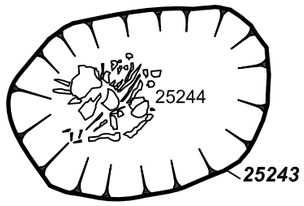
Scale Plans 1:100, burial plans 1:10

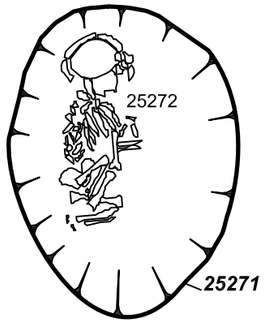


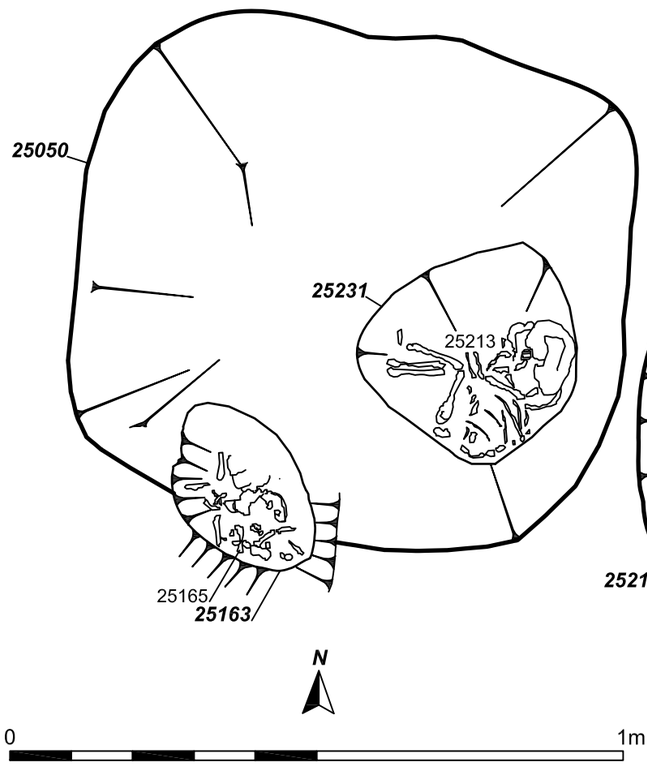












Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 4 structure
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	28/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 104	JLC	MW	CL

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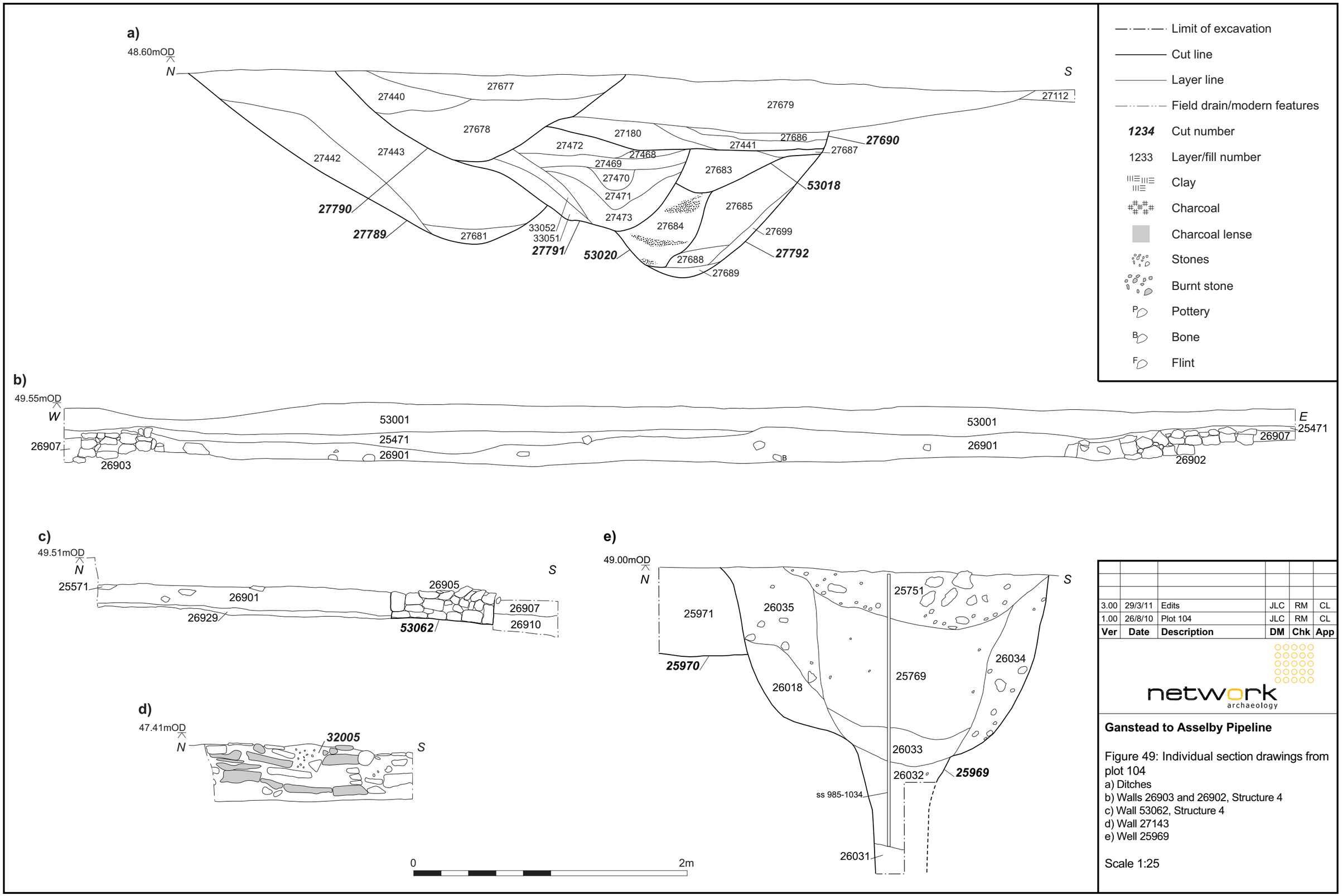
Figure 48: Detailed plans of Structure 11 in plot 104 and its associated burials

Scale Plans 1:100, burial plans 1:10



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 104	JLC	RM	CL

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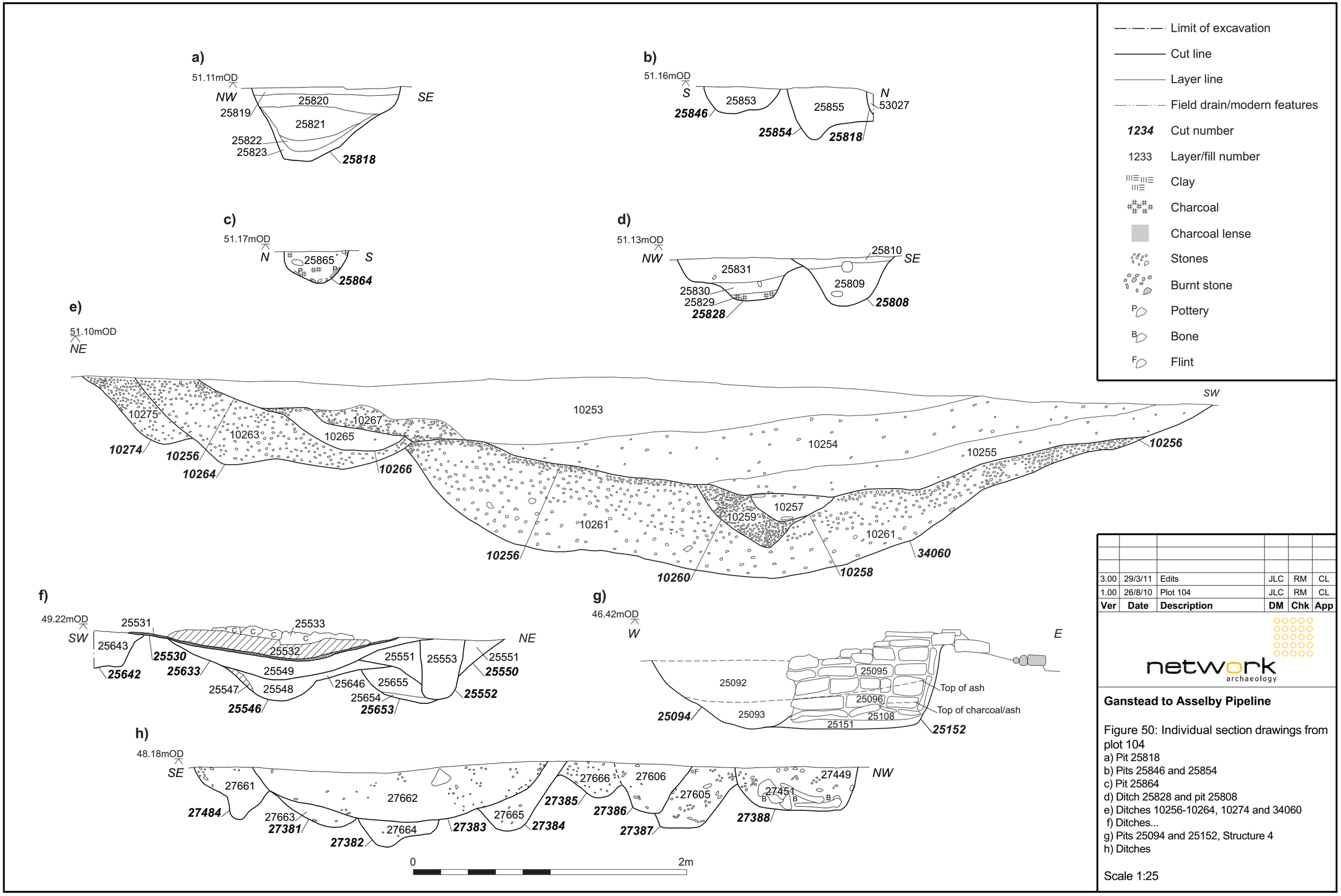
Figure 49: Individual section drawings from plot 104
a) Ditches
b) Walls 26903 and 26902, Structure 4
c) Wall 53062, Structure 4
d) Wall 27143
e) Well 25969

Scale 1:25



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 104	JLC	RM	CL

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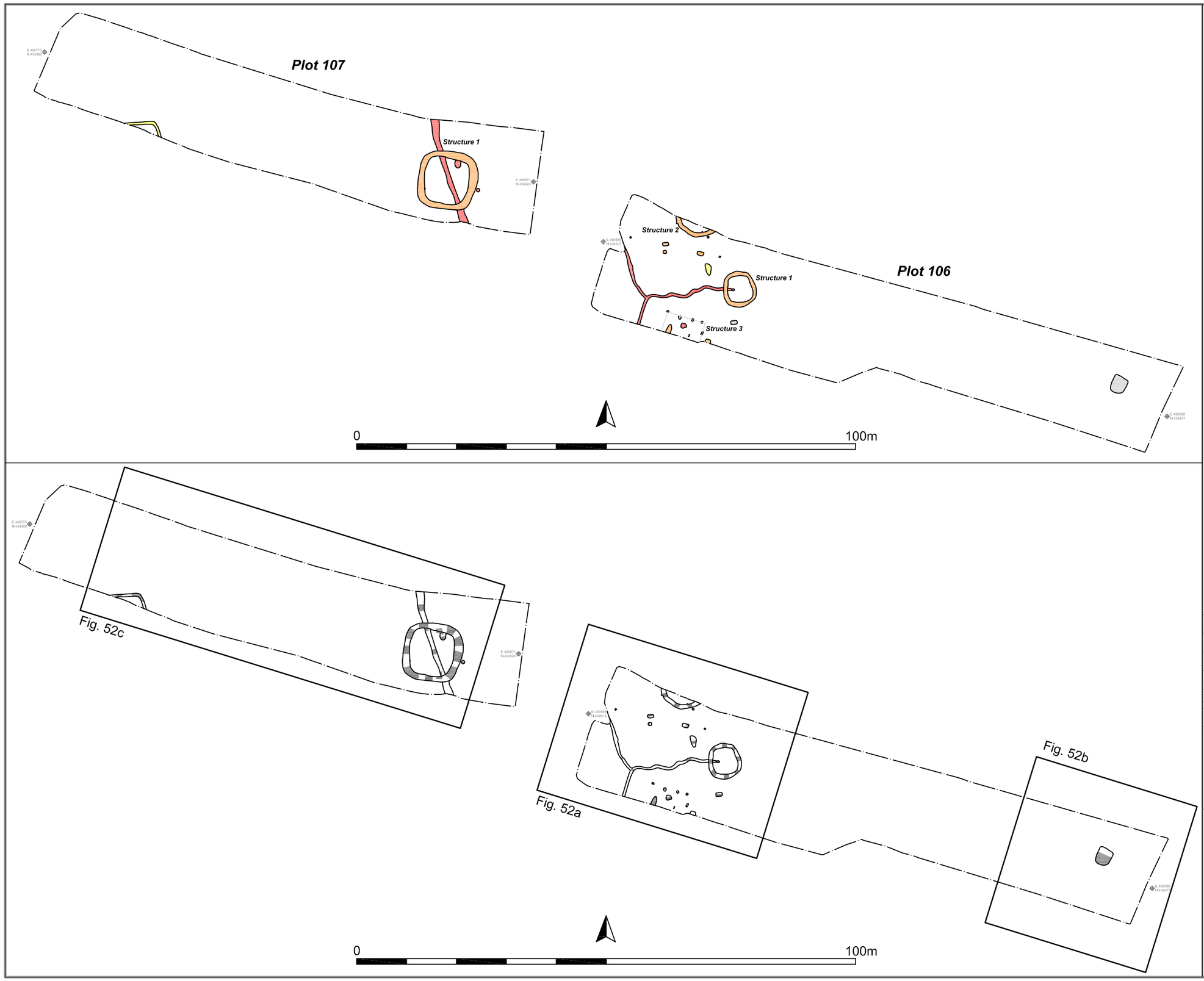
Figure 50: Individual section drawings from plot 104
a) Pit 25818
b) Pits 25846 and 25854
c) Pit 25864
d) Ditch 25828 and pit 25808
e) Ditches 10256-10264, 10274 and 34060
f) Ditches...
g) Pits 25094 and 25152, Structure 4
h) Ditches

Scale 1:25



Limit of excavation

Cut line

Field drain/modern feature

Phase 1

Phase 2

Phase 3

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plots 106 & 107	JLC	MW	CL

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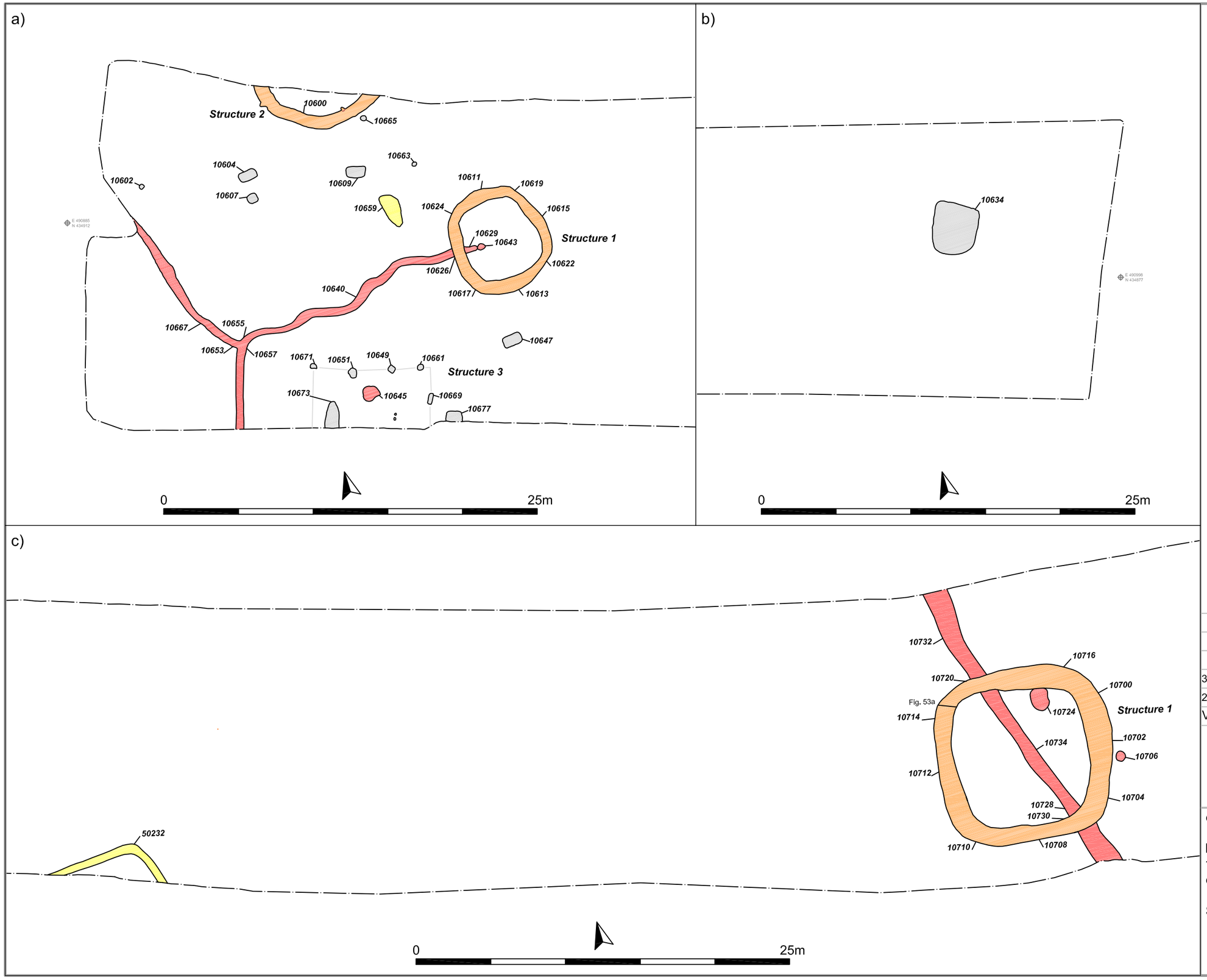
Figure 51: Overall plan of the plots 106 (South Newbald) and 107 (Gaylands) excavation areas

Scale 1:750



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plots 106 & 107	JLC	MW	CL

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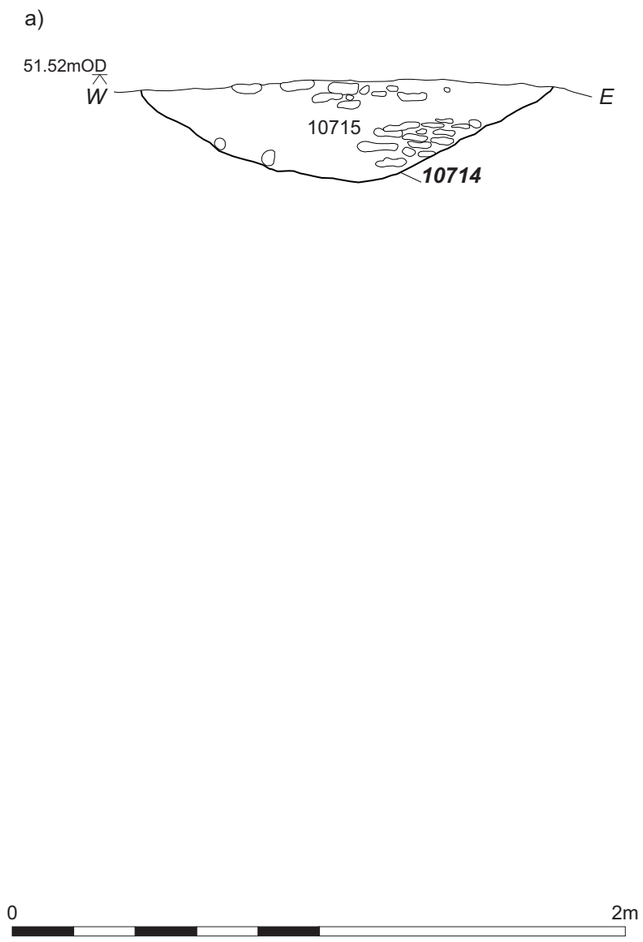
Figure 52: Phased plan of the plots 106 and 107 excavation areas, with plan of excavated sections

Scale 1:250



Limit of excavation

Cut line

Layer line

Field drain/modern features

1234 Cut number

1233 Layer/fill number

Stones

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 107	JLC	RM	CL

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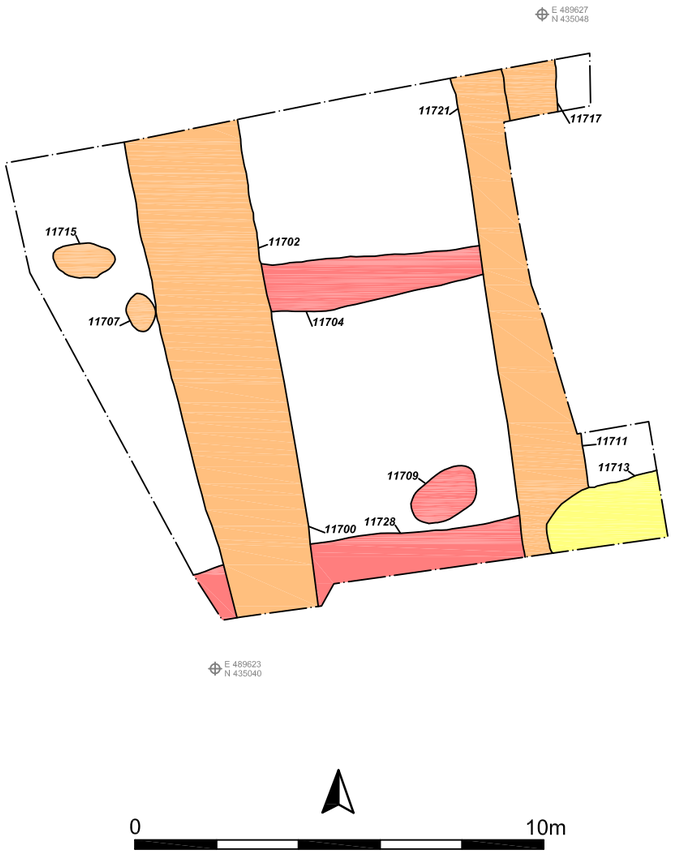
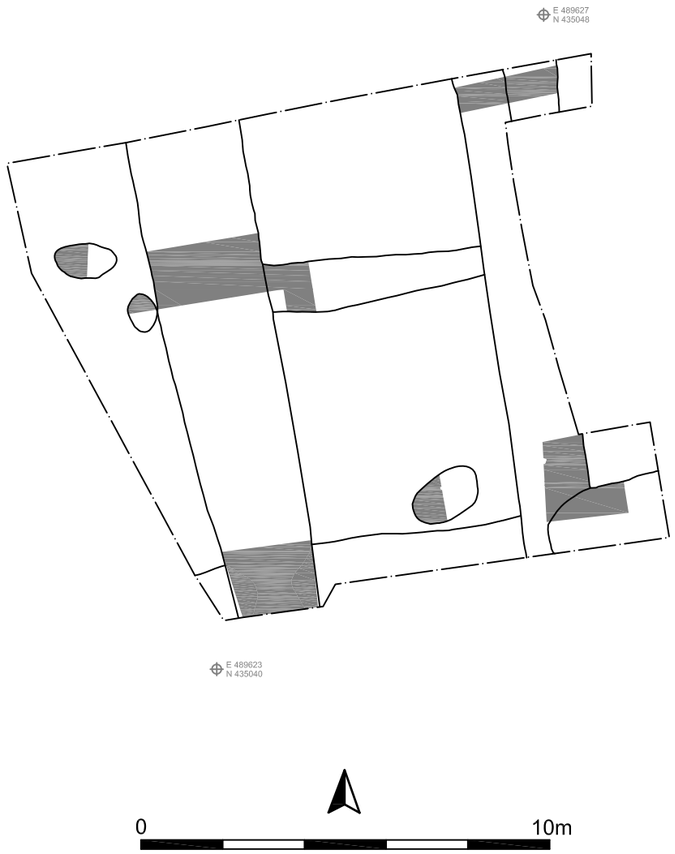
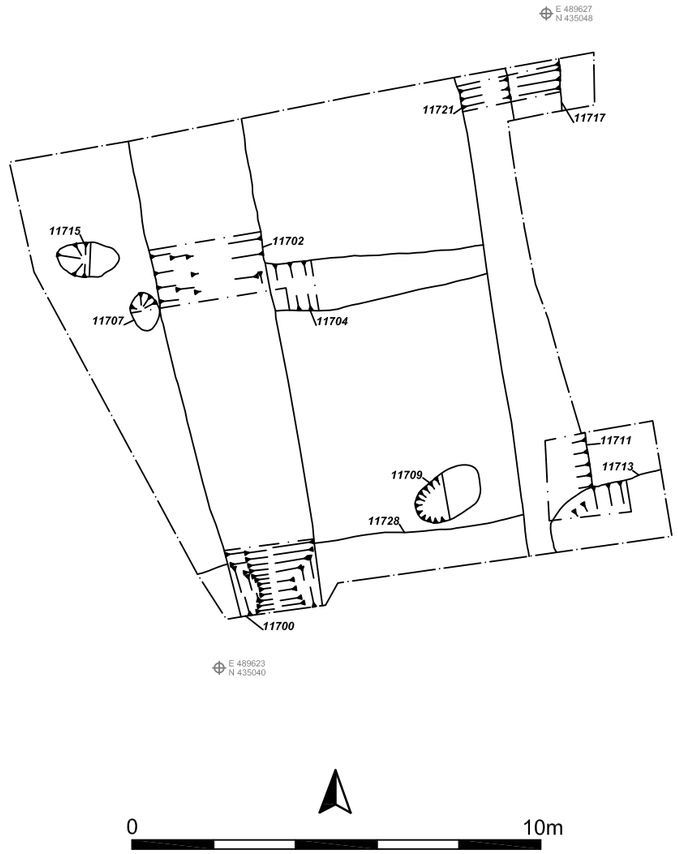
Figure 53: Individual section drawing from plot 107
a) Ditch 10714 from Structure 1

Scale 1:20







Limit of excavation

Cut line

Conjecture line

Phase 1

Phase 2

Phase 3

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 117	JLC	MW	CL

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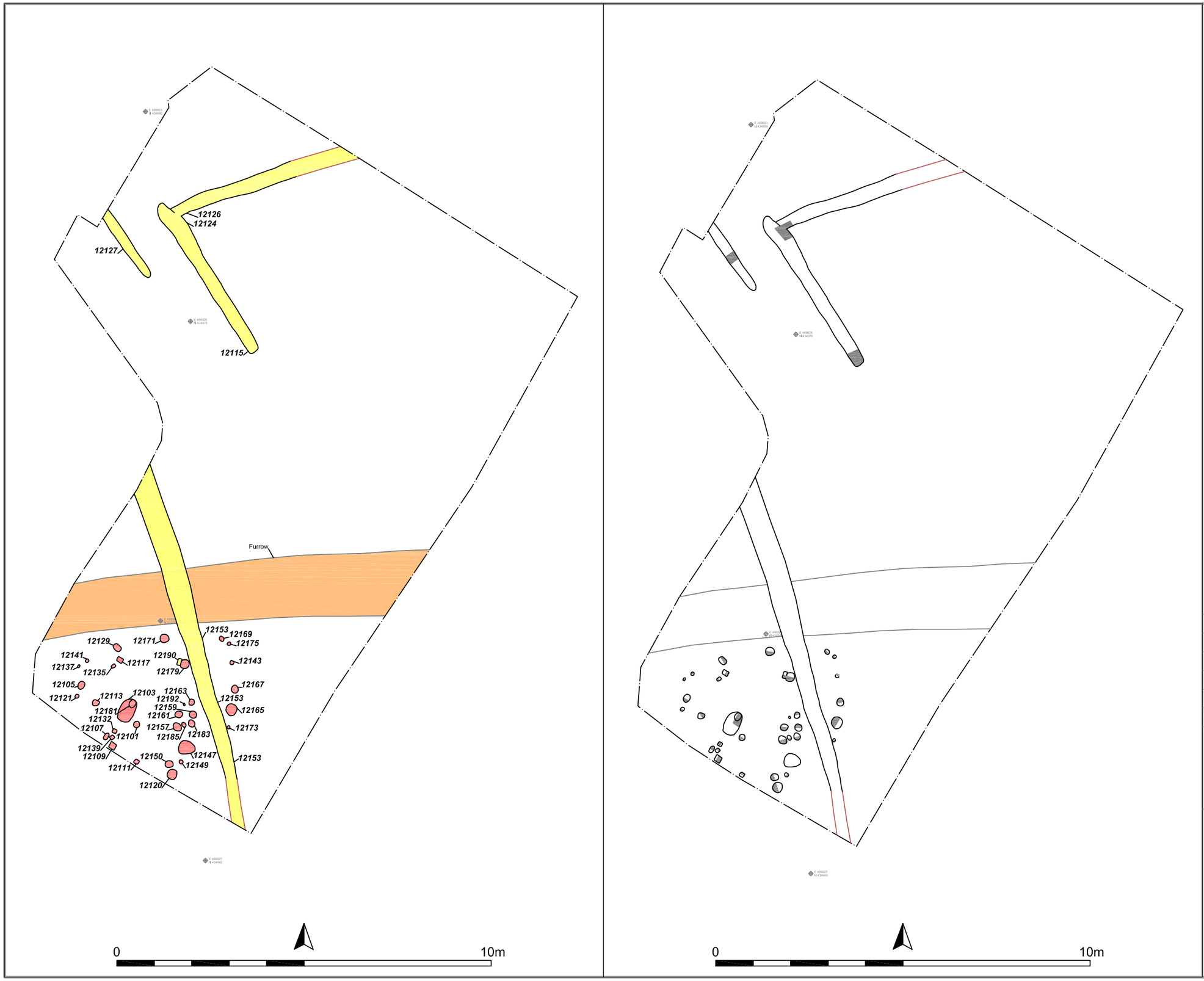
Figure 54: Phased plan of the plot 117 (Hotham Beck) excavation area, with plan of excavated sections

Scale 1:50



Limit of excavation

Cut line

Field drain/modern feature

Phase 1

Phase 2

Phase 3

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 121	JLC	RM	CL

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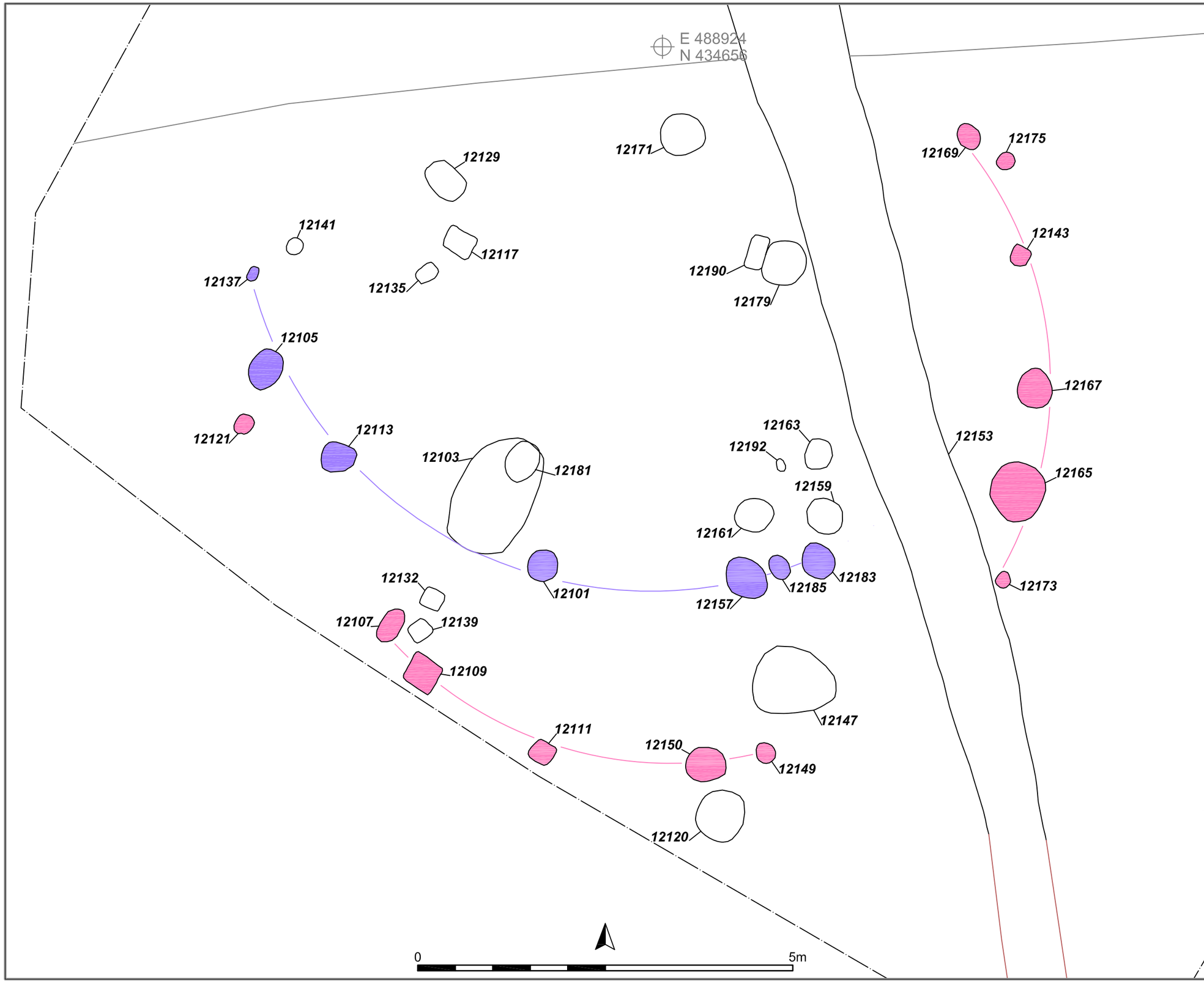
Figure 55: Phased plan of plot 121 (Hardmoor Lane), with plan of excavated sections

Scale 1:250



Limit of excavation

Cut line

Field drain/modern feature

Structure 1

Structure 2

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/3/10	Plot 121	JLC	RM	CL

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Figure 56: Detailed plan of Structures 1 and 2 in plot 121

Scale 1:50

a)

0 50m

b)

0 50m

Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 123	JLC	MW	CL

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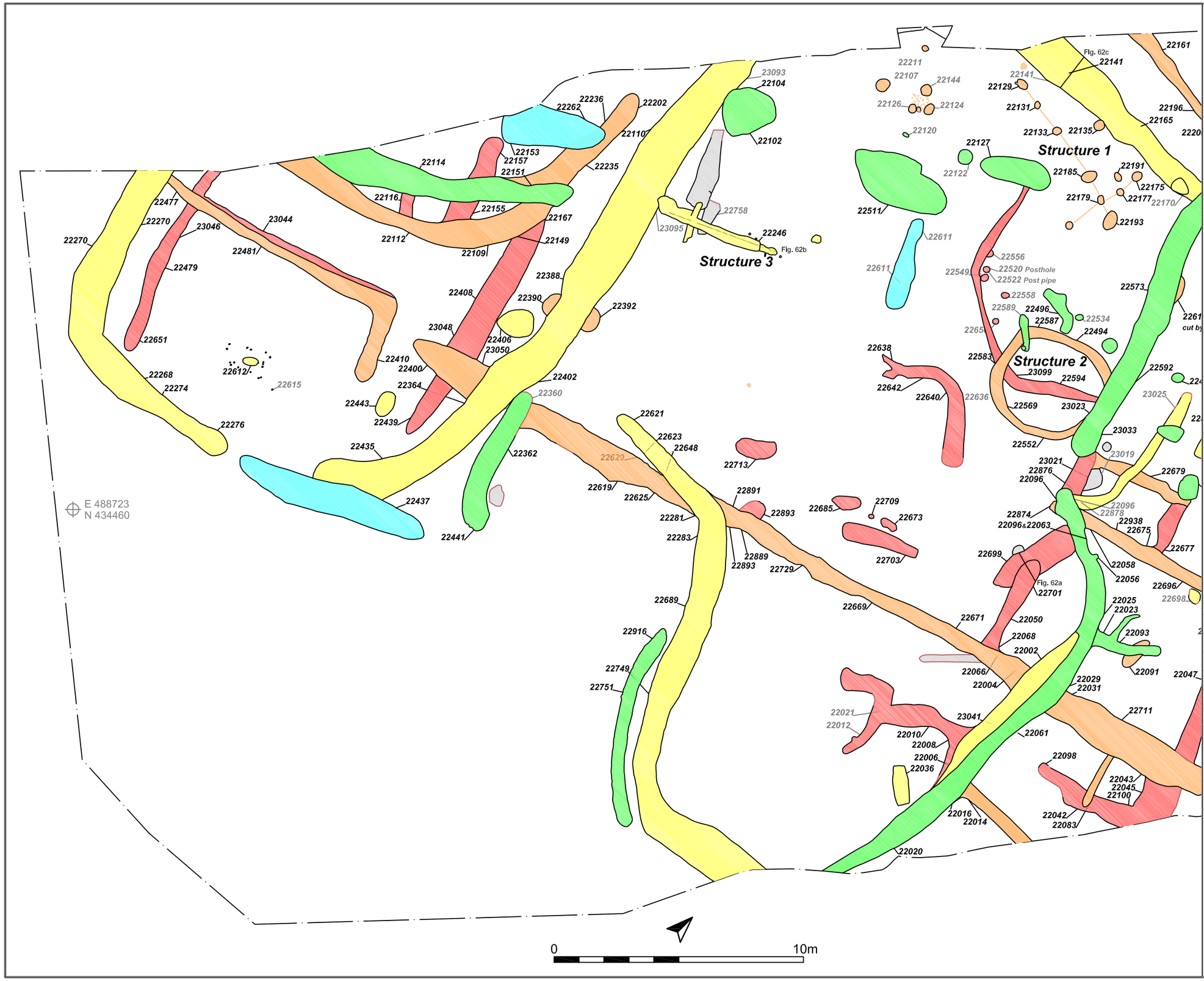
Figure 57: Overall plans of the plot 123 (Warren Hill Spring) excavation area

Scale 1:1500



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 123	JLC	MW	CL

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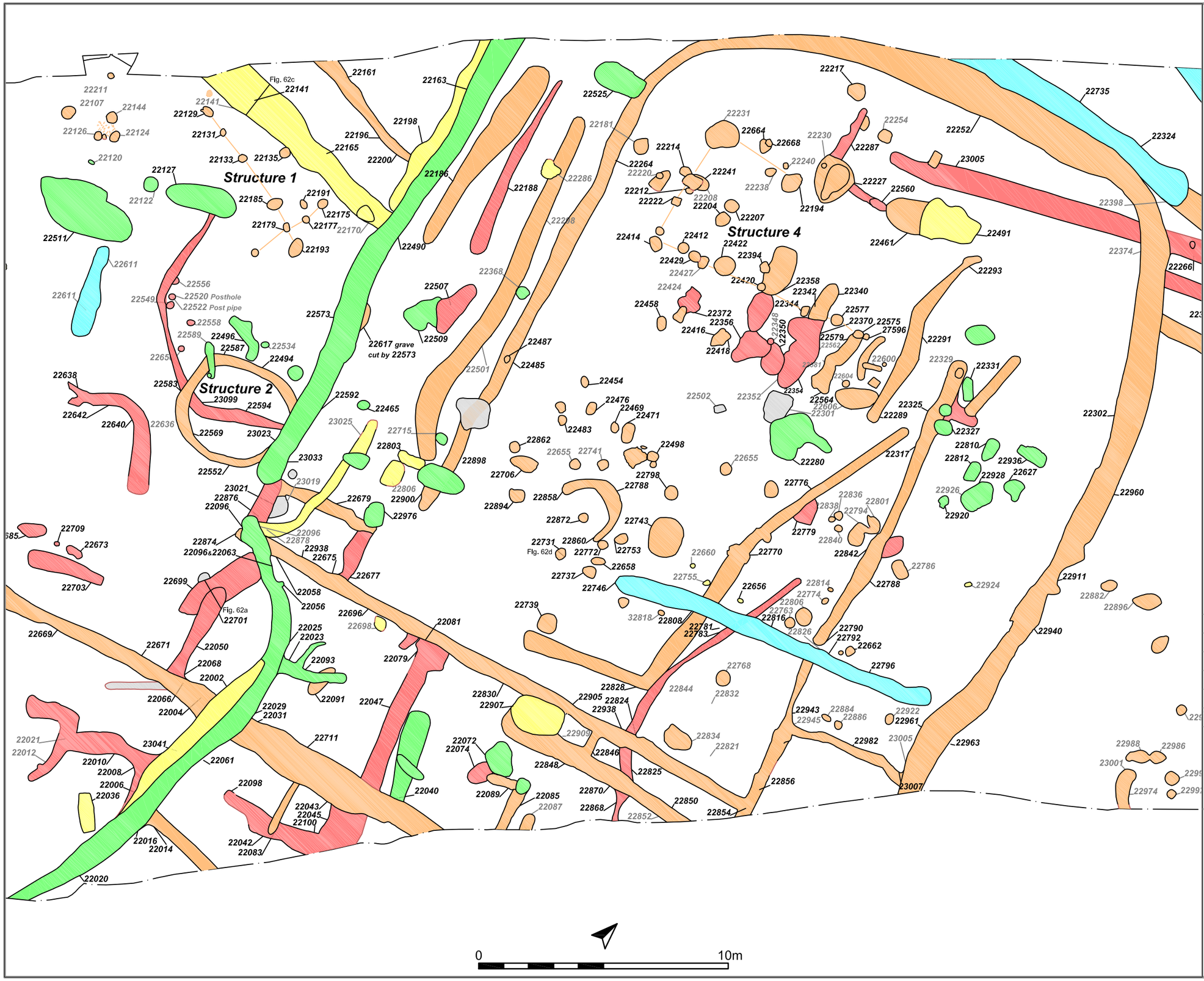
Figure 58: Phased plan of the south-western end of the plot 123 excavation area

Scale 1:150



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 123	JLC	MW	CL

network archaeology

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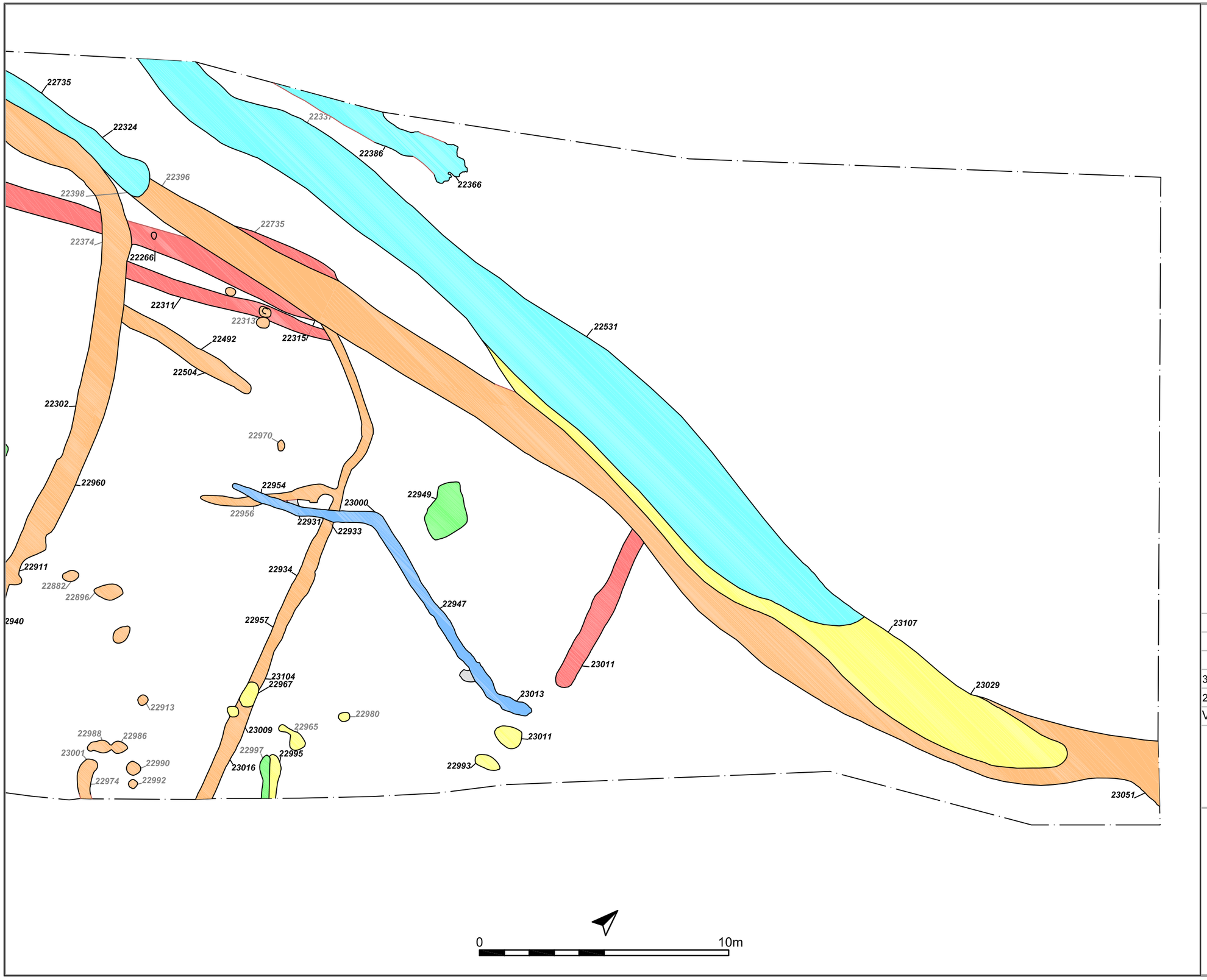
Figure 59: Phased plan of the central portion of the plot 123 excavation area

Scale 1:150



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased
Excavated sections

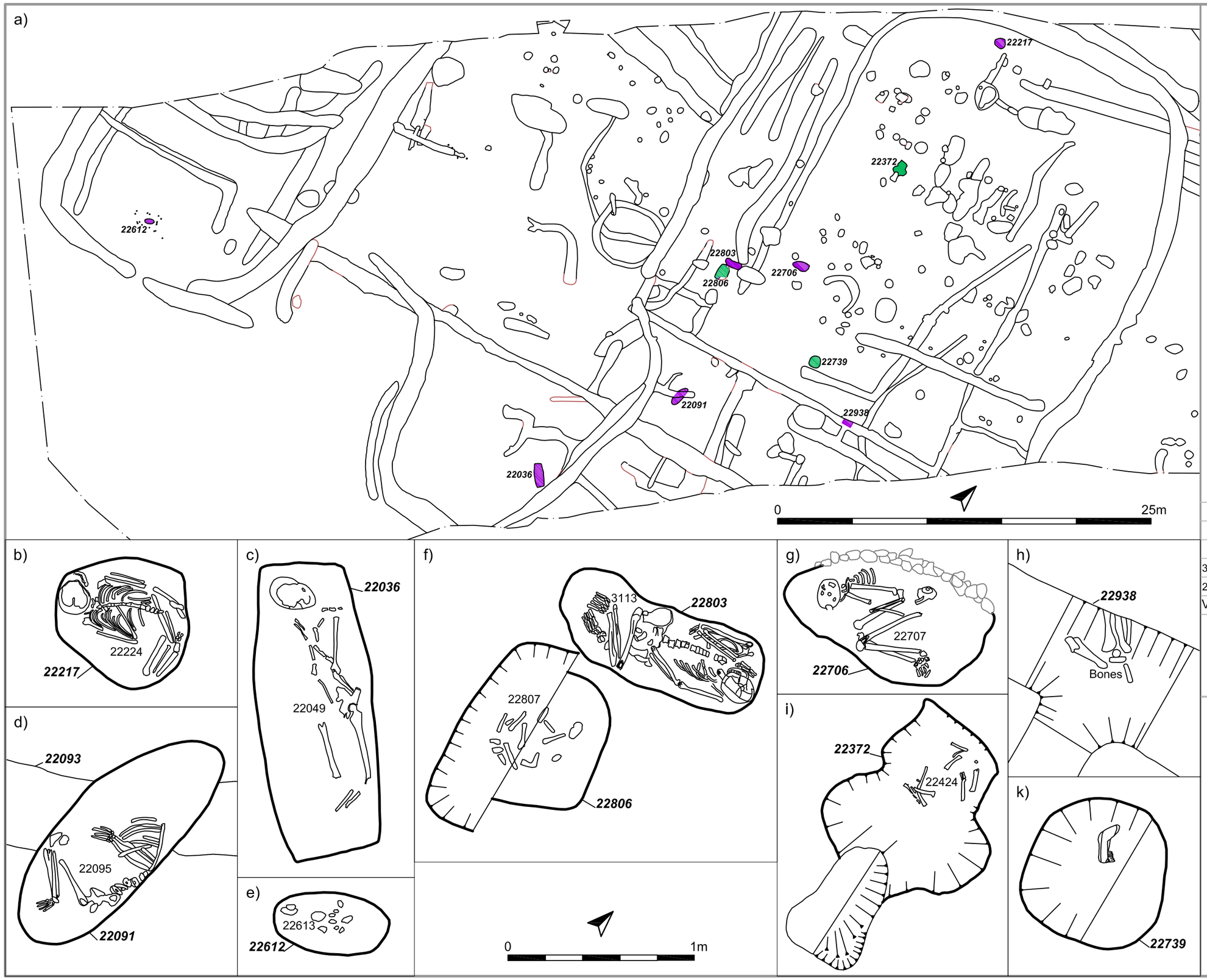
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 123	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 60: Phased plan of the north-eastern end of the plot 123 excavation area

Scale 1:150



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Human burials
Animal burials

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 123	JLC	MW	CL

network archaeology

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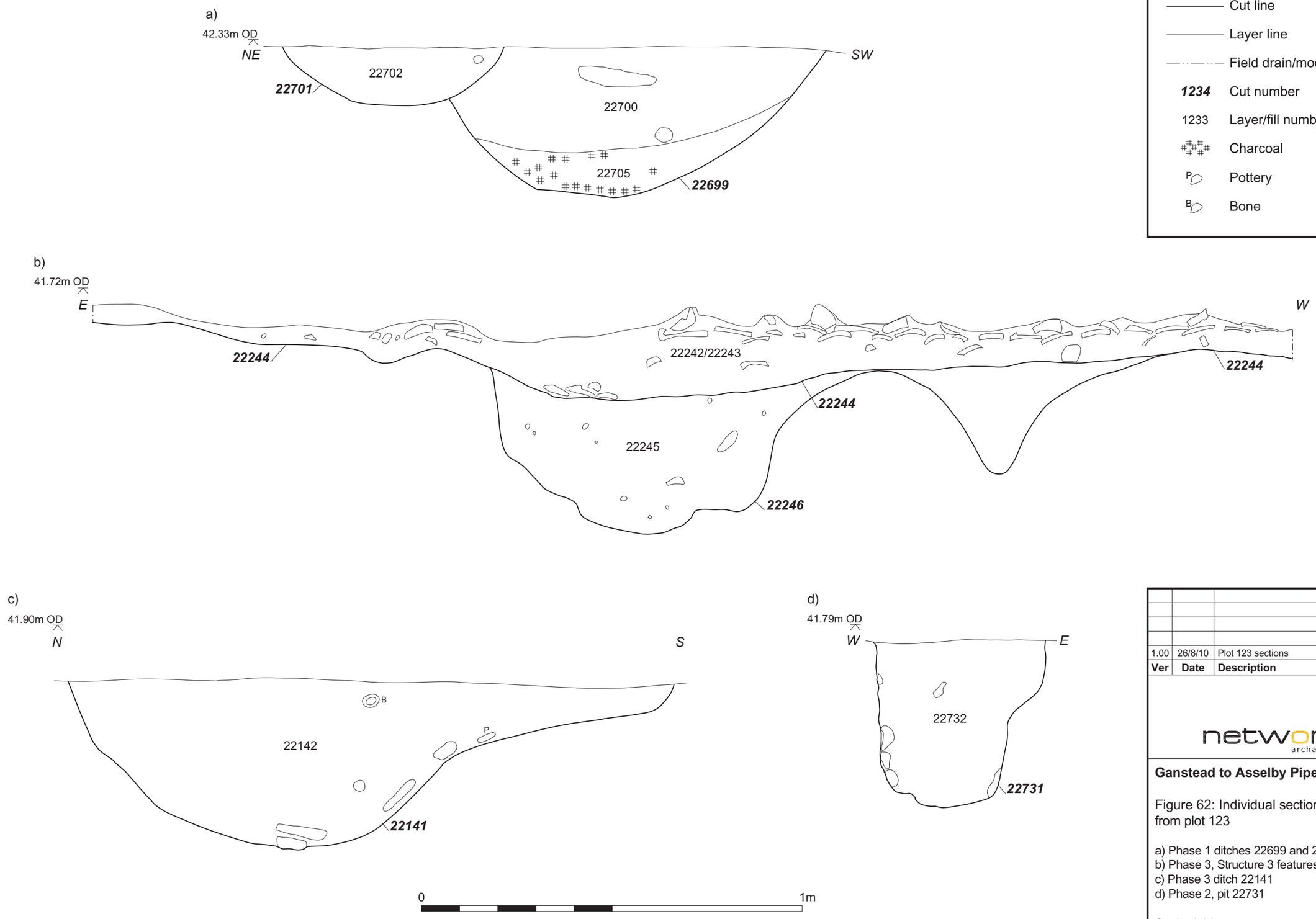
Figure 61: Detail plans of the burials in plot 123
a) Plan of burials
b) Skeleton 22224
c) Skeleton 22049
d) Skeleton 22095
e) Feature 22612 containing bones
f) Feature 22806 containing bones and Skeleton 3113
g) Grave cut 22706
h) Feature 22938 containing bones
i) Sheep burial 22424
j Feature 22739 containing jaw bone

Scale 1:250 and 1:20



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Charcoal
P Pottery
B Bone

Ver	Date	Description	DM	Chk	App
1.00	26/8/10	Plot 123 sections	JLC	RM	CL

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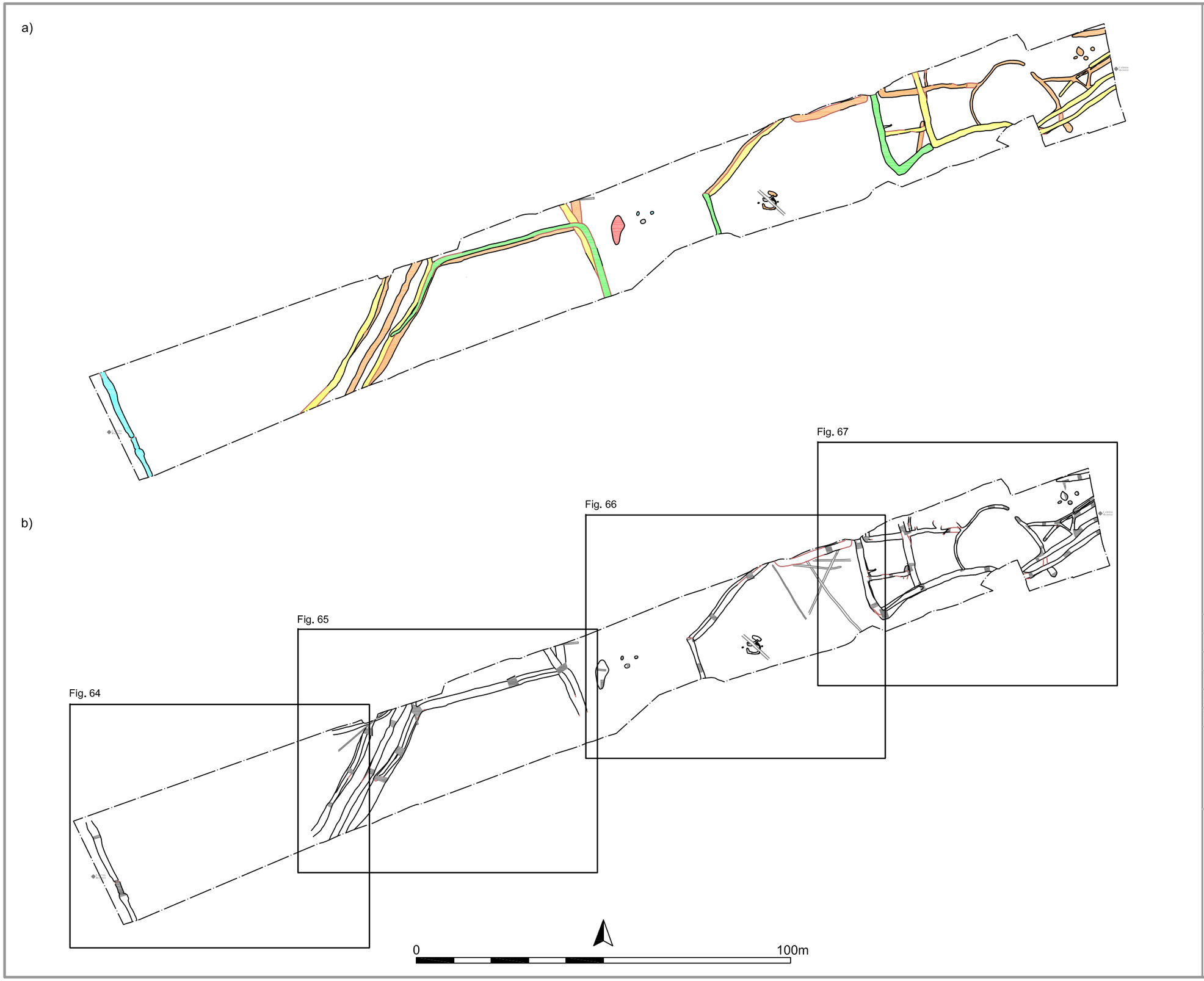
Figure 62: Individual section drawings from plot 123

a) Phase 1 ditches 22699 and 22701
b) Phase 3, Structure 3 features
c) Phase 3 ditch 22141
d) Phase 2, pit 22731

Scale 1:20



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

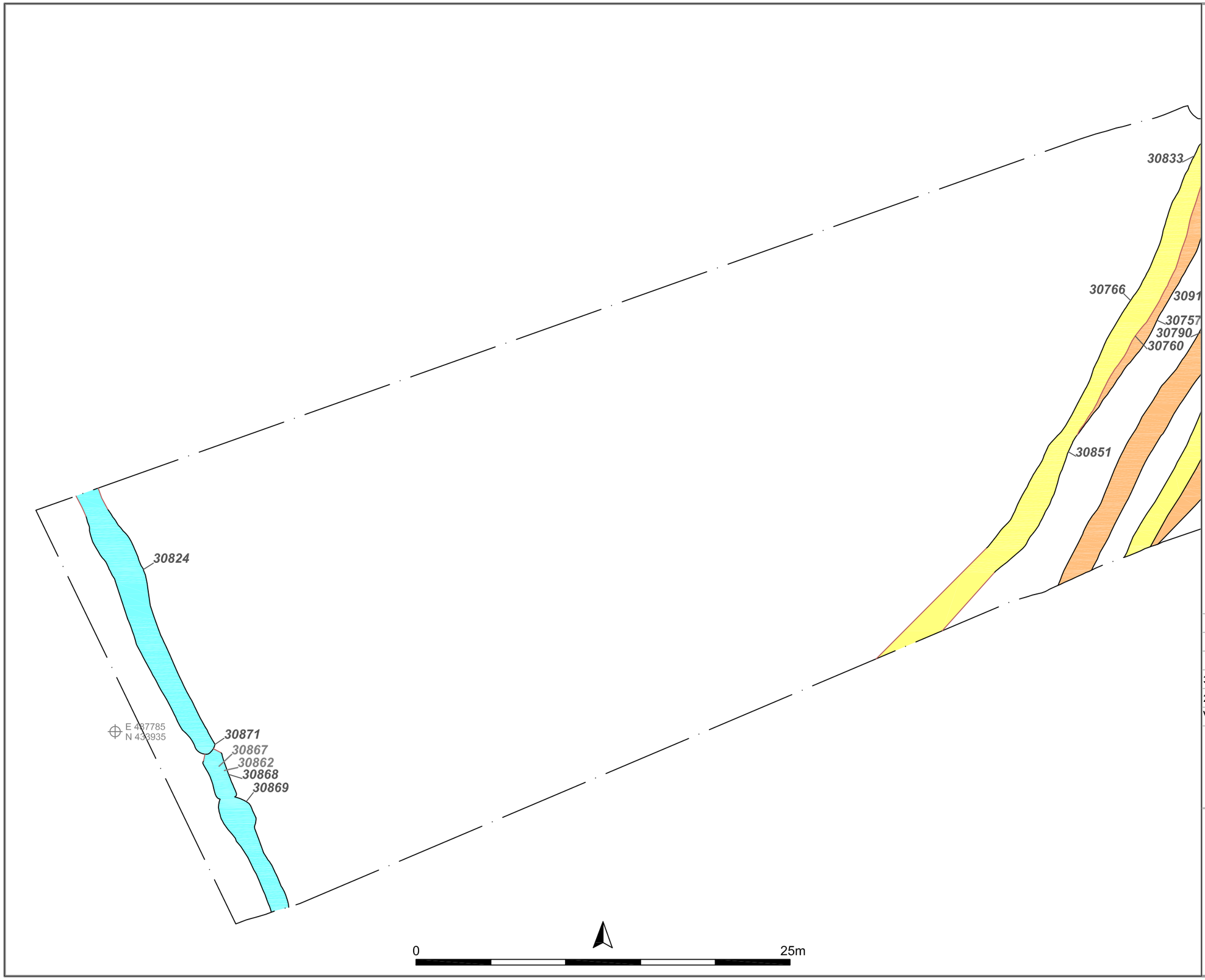
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 126	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 63: Overall plans of the plot 126 (Carrcliffe Crossroad) excavation area

Scale 1:1000



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 126	JLC	MW	CL

network archaeology

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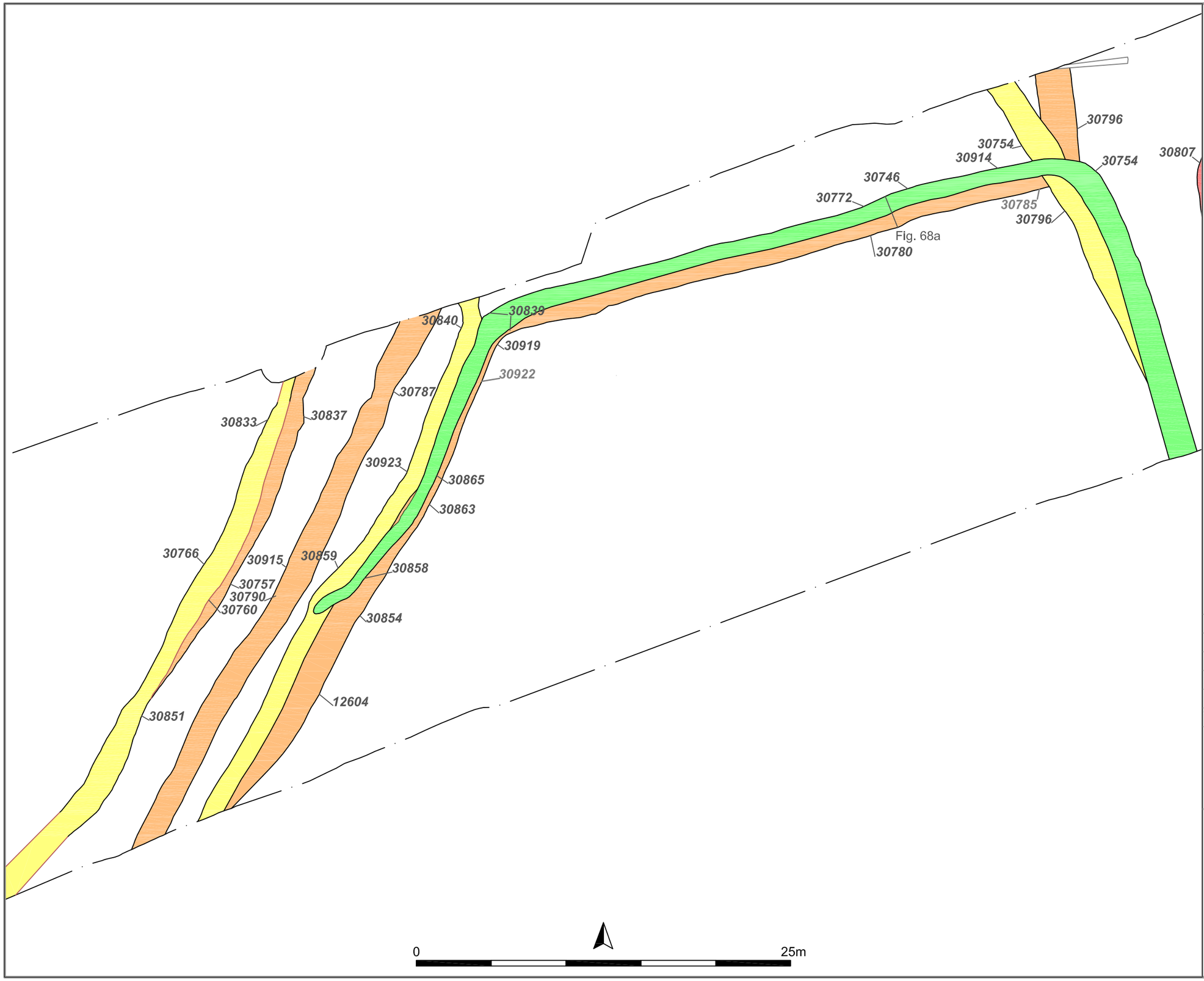
Figure 64: Phased plan of the south-western end of the plot 126 excavation area

Scale 1:250



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 126	JLC	MW	CL

network archaeology

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Figure 65: Phased plan of the south-western central portion of the plot 126 excavation area

Scale 1:250

a)

30810
30812
30821
30817
30802
30803
30807
30805
30813
30815
12601
30613
30667
30723
30739
30619
30903
Fig. 66b
Structure 1

0 25m

b)

Structure 1

30925
30842
30926
30850
30848
30844
30846
30789

0 10m

Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

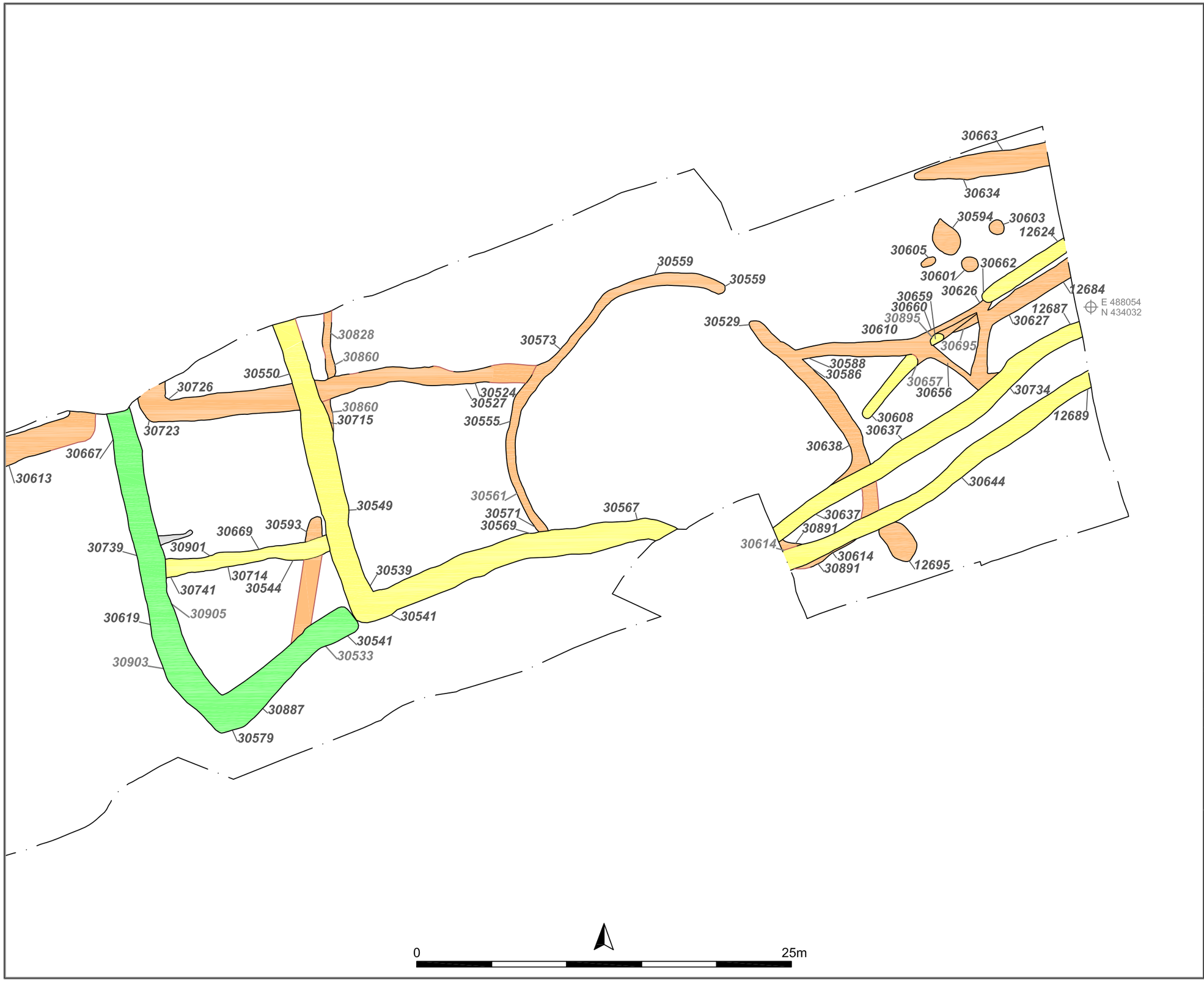
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 126	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 66: Phased plan of the north-eastern central portion of the plot 126 excavation area

Scale 1:250 & 1:100



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

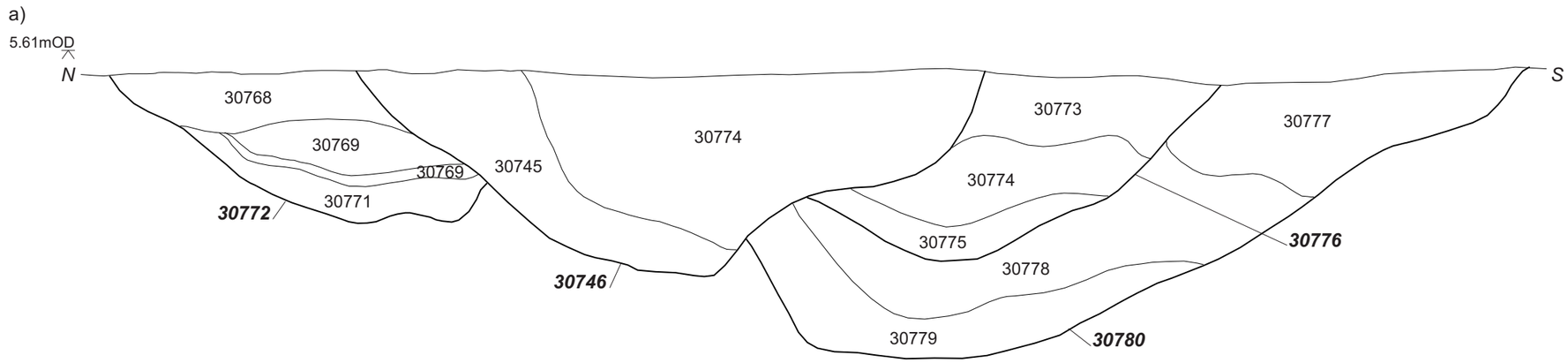
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 126	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 67: Phased plan of the north-eastern end of the plot 126 excavation area

Scale 1:250



0 1m

Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number

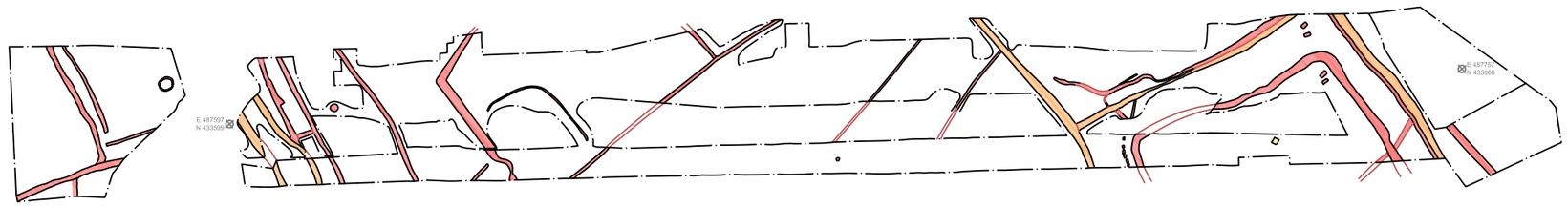
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/09	Plot 126	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 68: Individual section drawings from plot 126
a) Ditches 30772, 30780, 30776 and 30746

Scale 1:10



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

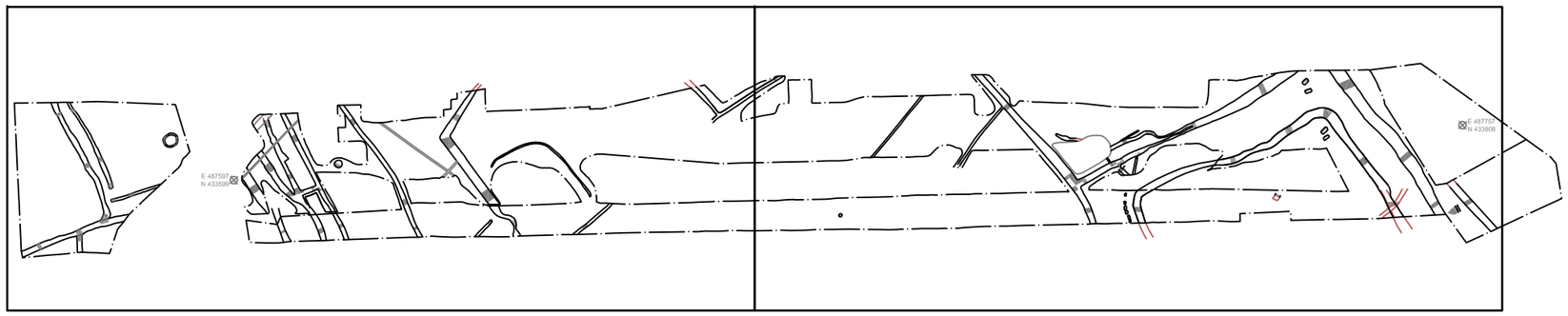
Phase 2

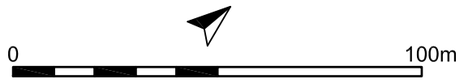
Phase 3

Excavated sections

Fig. 70a

Fig. 70b





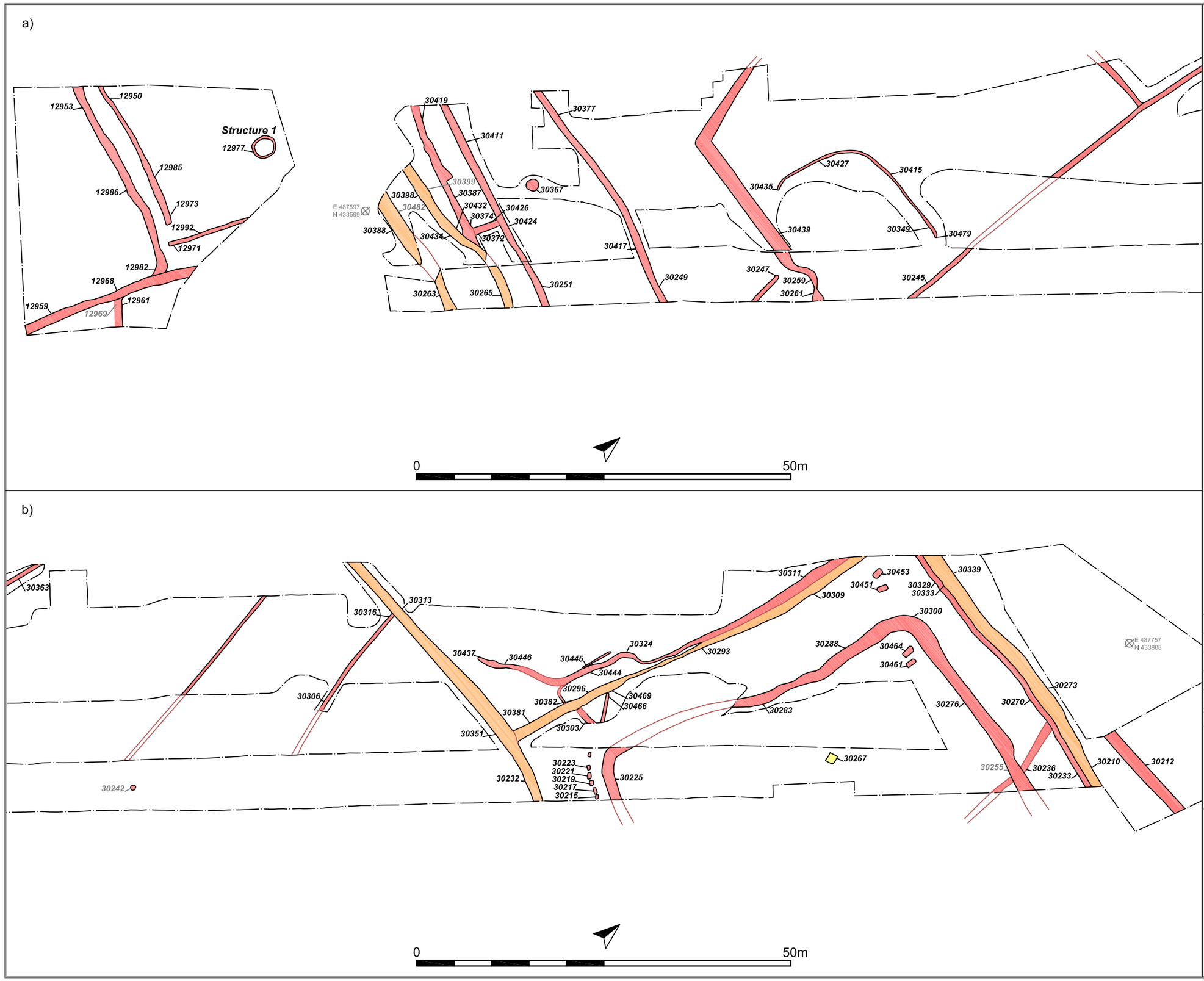
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 128 & 129	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 69: Overall plans of excavation areas in plots 128 and 129 (Snake Hall)

Scale 1:1250 and 1:1000



Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

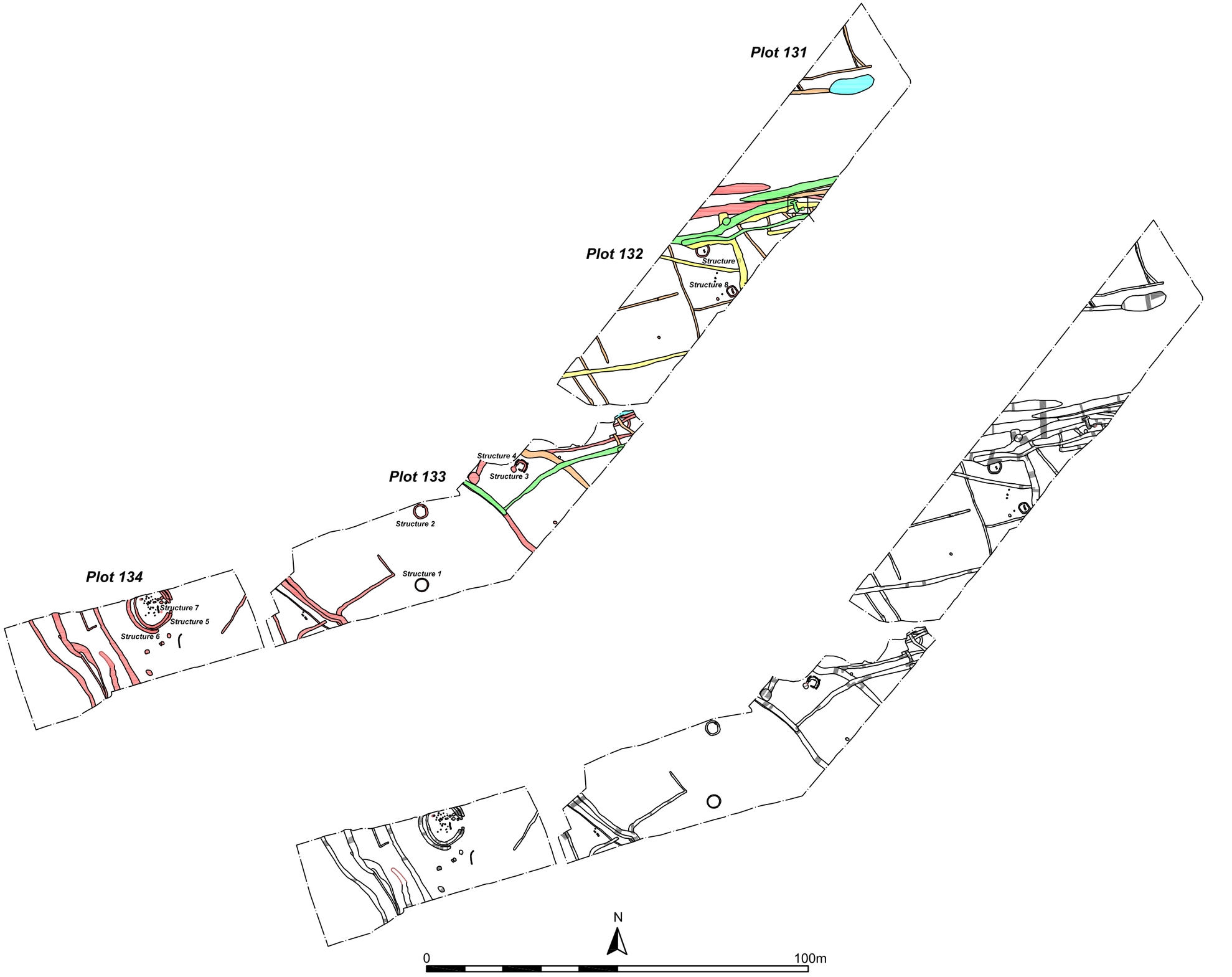
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 128 & 129	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 70: Phased plan of the excavation areas in plots 128 and 129

Scale 1:500



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

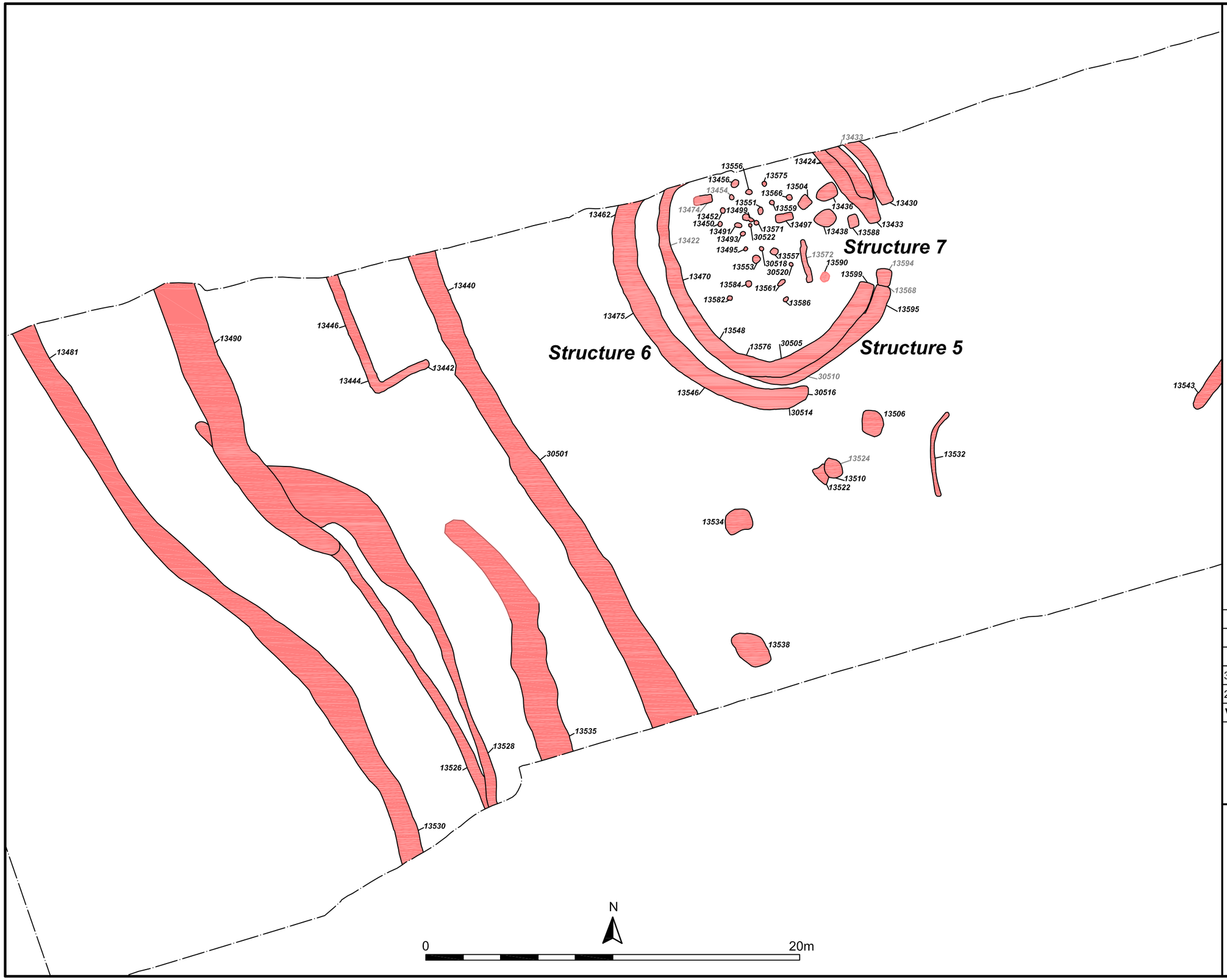
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 71: Overall plan of the excavation areas in plots 131, 132, 133 and 134 (Black Dike)

Scale 1:1250



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

network archaeology

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Figure 72: Phased plan of the south-western end of the plot 134 excavation area

Scale 1:200

Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

network archaeology

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Figure 73: Phased plan of the north-eastern end of the plot 134 excavation area and the south-western end of the plot 133 excavation area

Scale 1:200

Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

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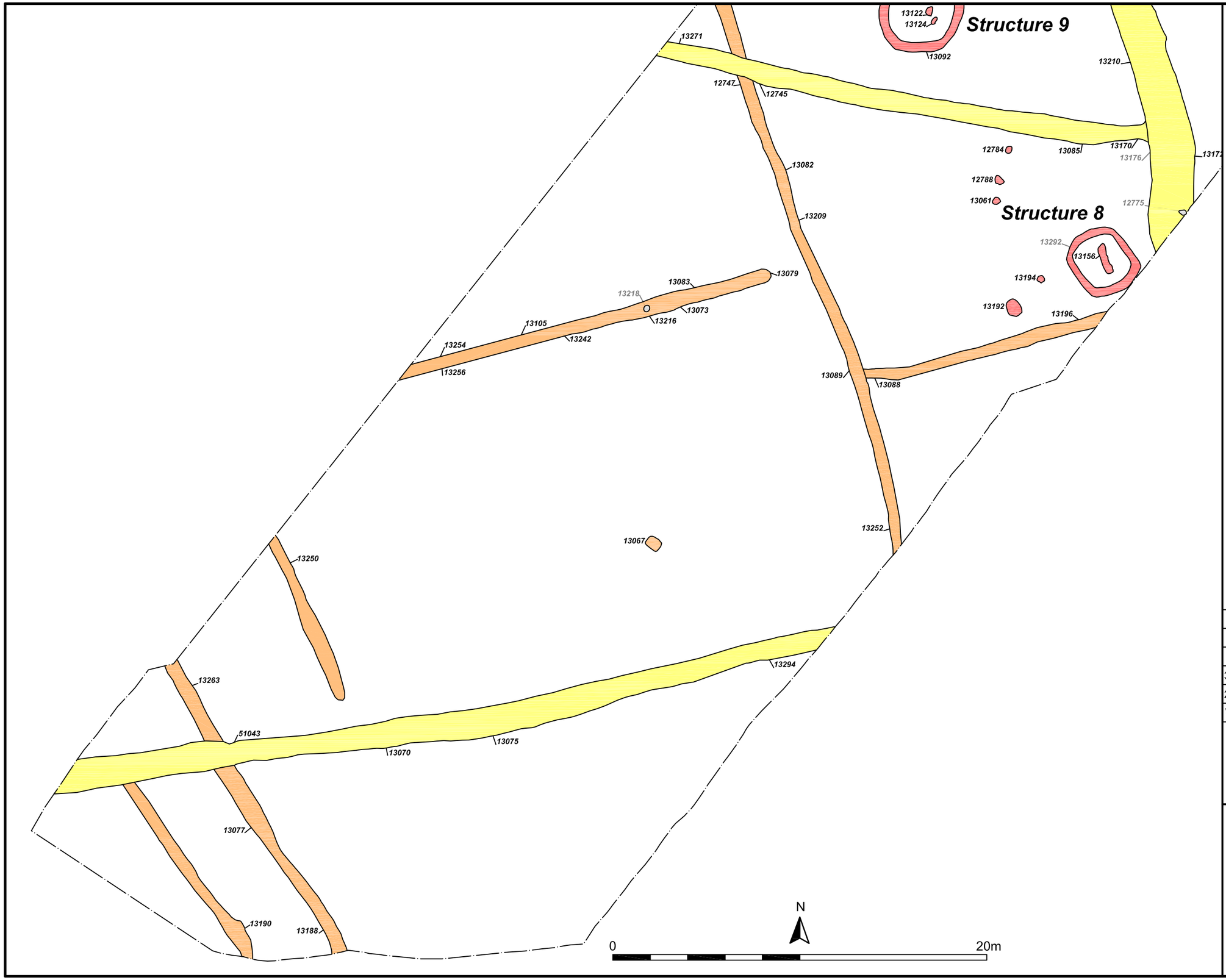
Figure 74: Phased plan of the north-eastern end of the plot 133 excavation area

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

network archaeology

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Figure 75: Phased plan of the south-western end of the plot 132 excavation area

Scale 1:200

Limit of excavation

Cut line

Field drain/modern feature

Projected line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Unphased

Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

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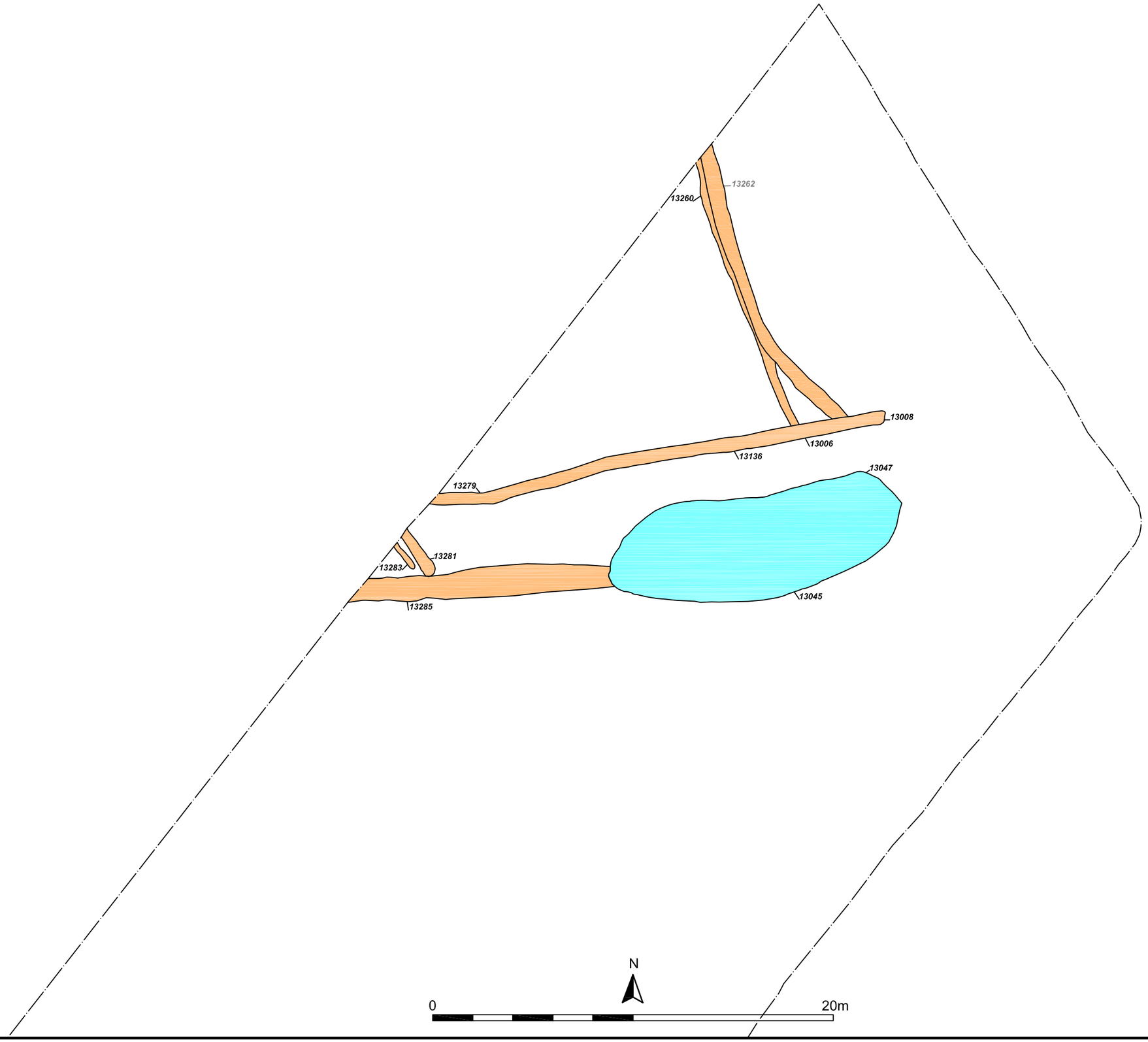
Figure 76: Phased plan of the central portion of the plot 132 excavation area

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	10/12/10	Plot 131-134	JLC	MW	CL

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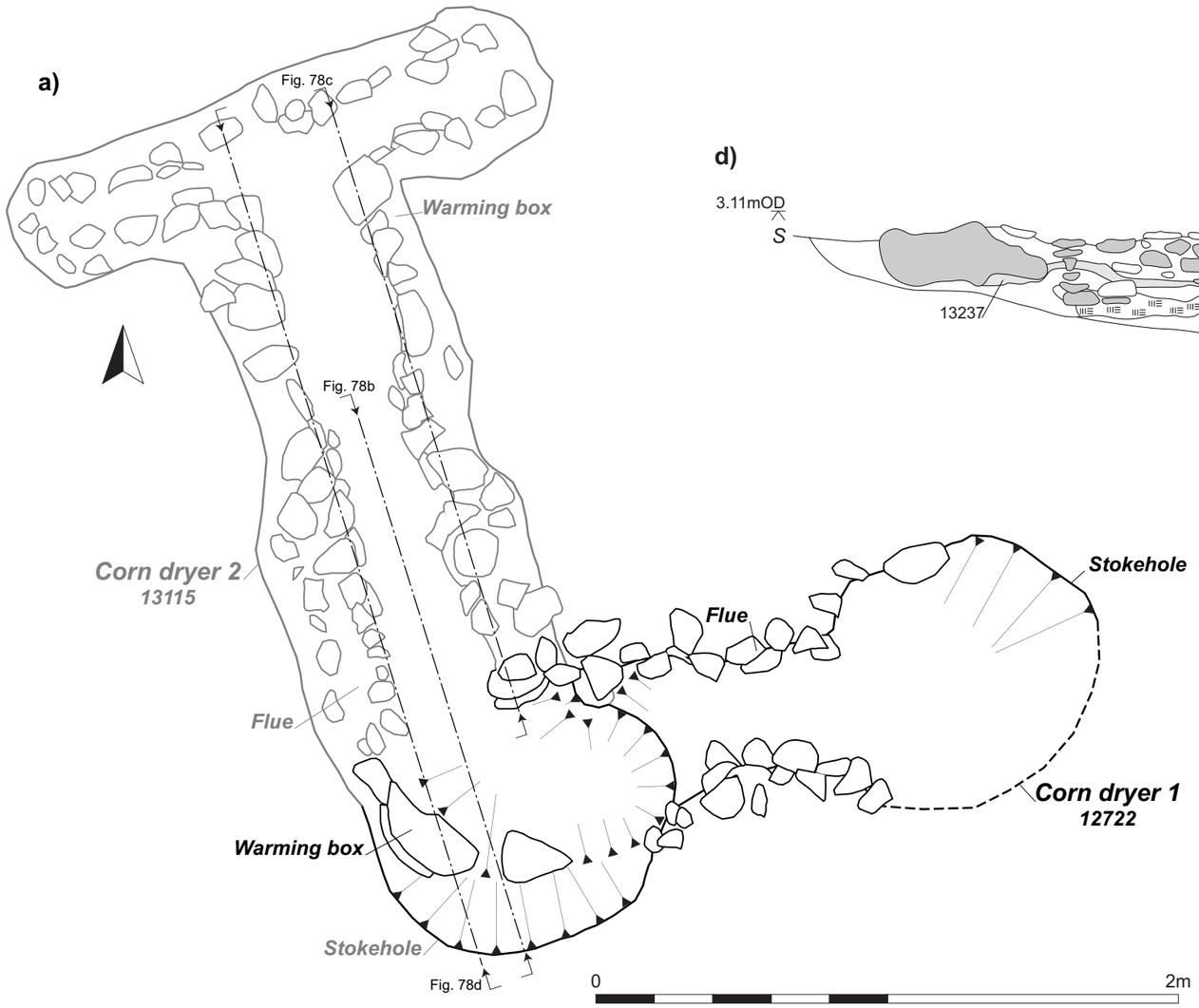
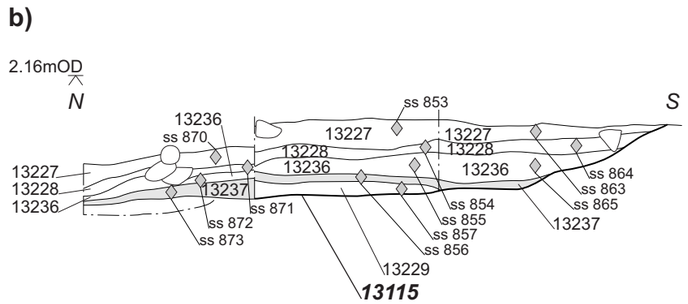
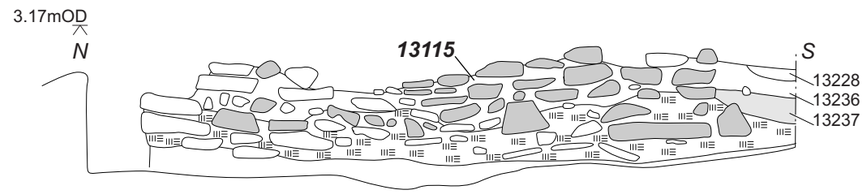
Ganstead to Asselby Pipeline

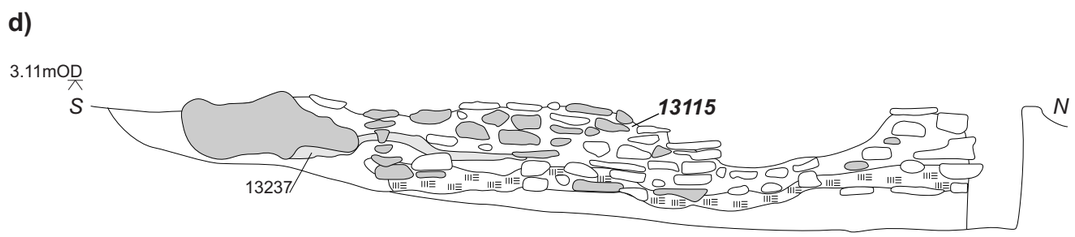
Figure 77: Phased plan of the north-eastern end of the plot 131 and 132 excavation area

Scale 1:200









Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Clay
Charcoal
Charcoal lense
Stones
Burnt stone
Pottery
Bone
Flint
ss 864 Soil sample

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 132	JLC	RM	CL

network archaeology

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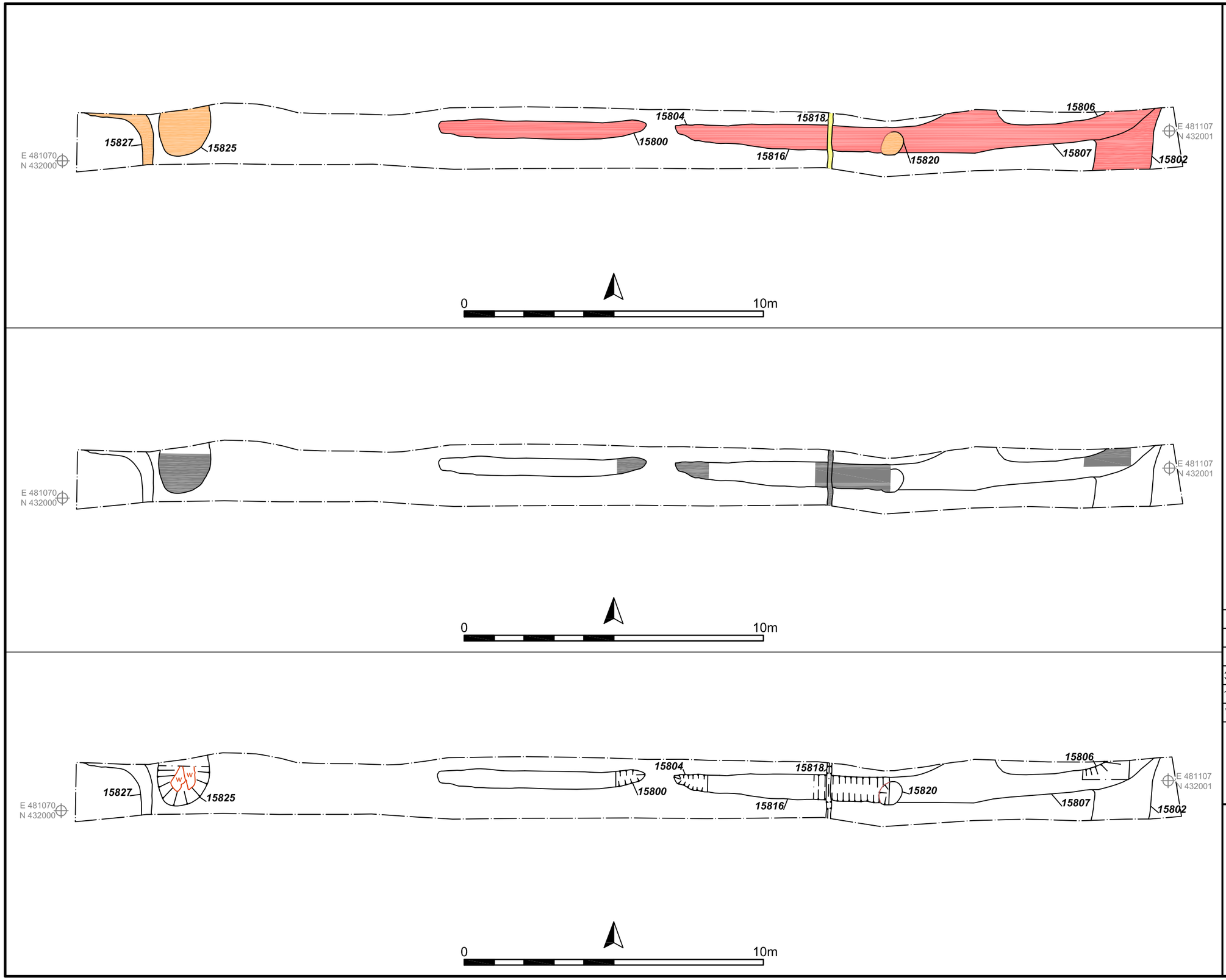
Figure 78: Individual plan and section drawings from plot 132
a) Corn dryers 1 and 2, Phase 5
b-d) Sections through corn dryers 1 and 2

Scale 1:20



Limit of excavation

Cut line

Field drain/modern feature

Phase 1

Phase 2

Phase 3

Excavated sections

Waterlogged wood

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plots 158	JLC	RM	CL

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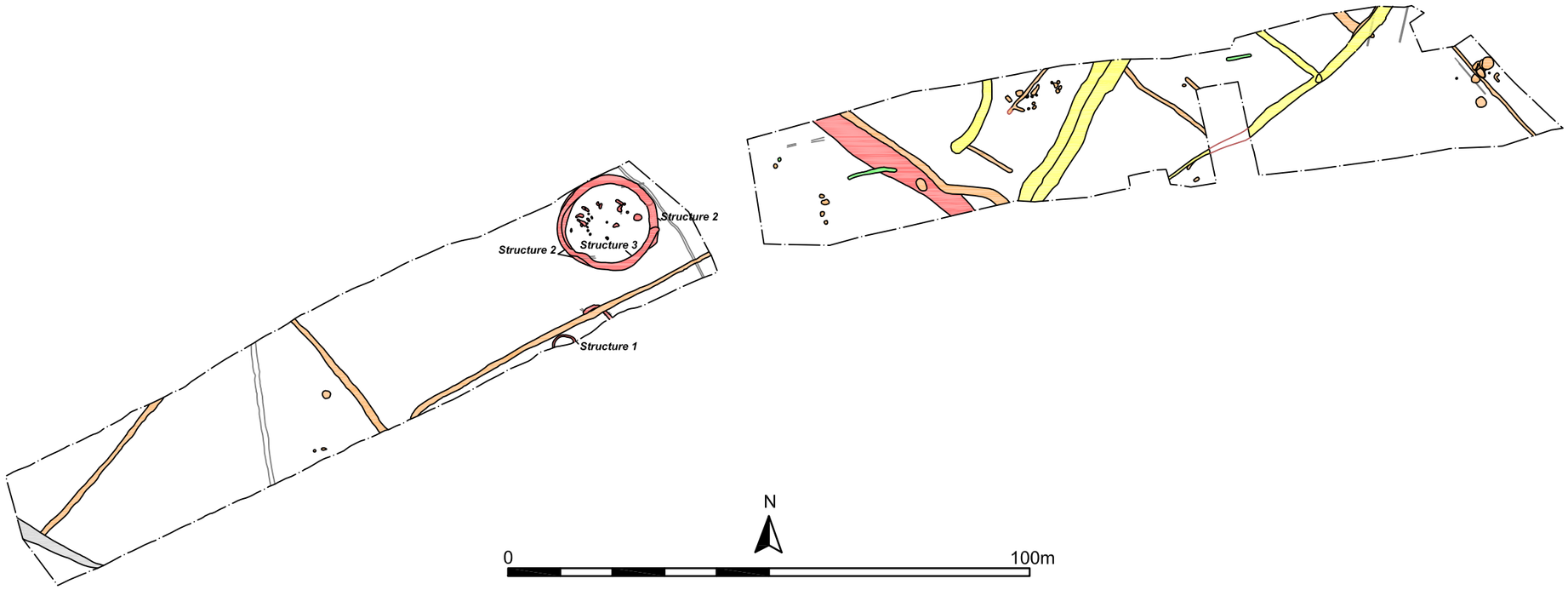
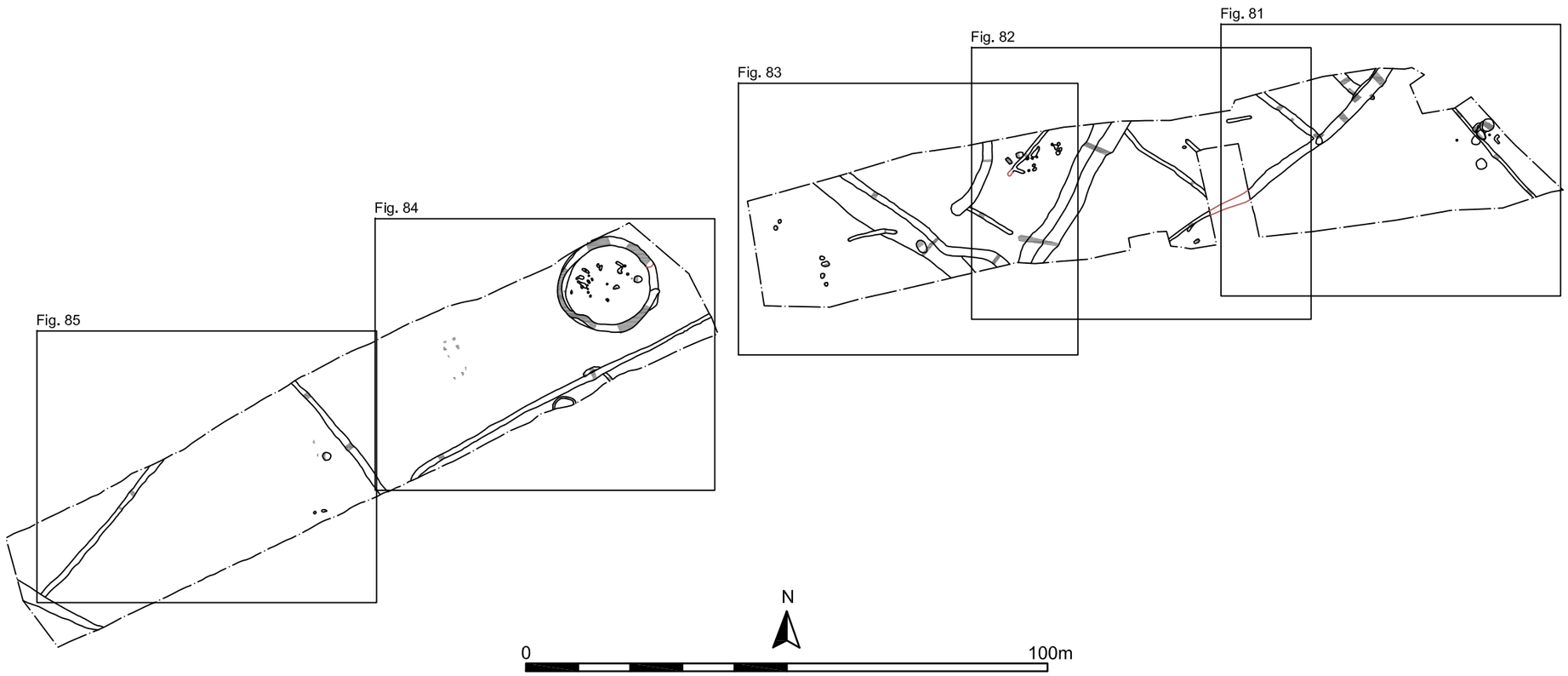
Figure 79: Overall plan of the excavation areas and plan of excavated sections in plot 158 (Greaves End)

Scale 1:125





Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased
Excavated sections

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

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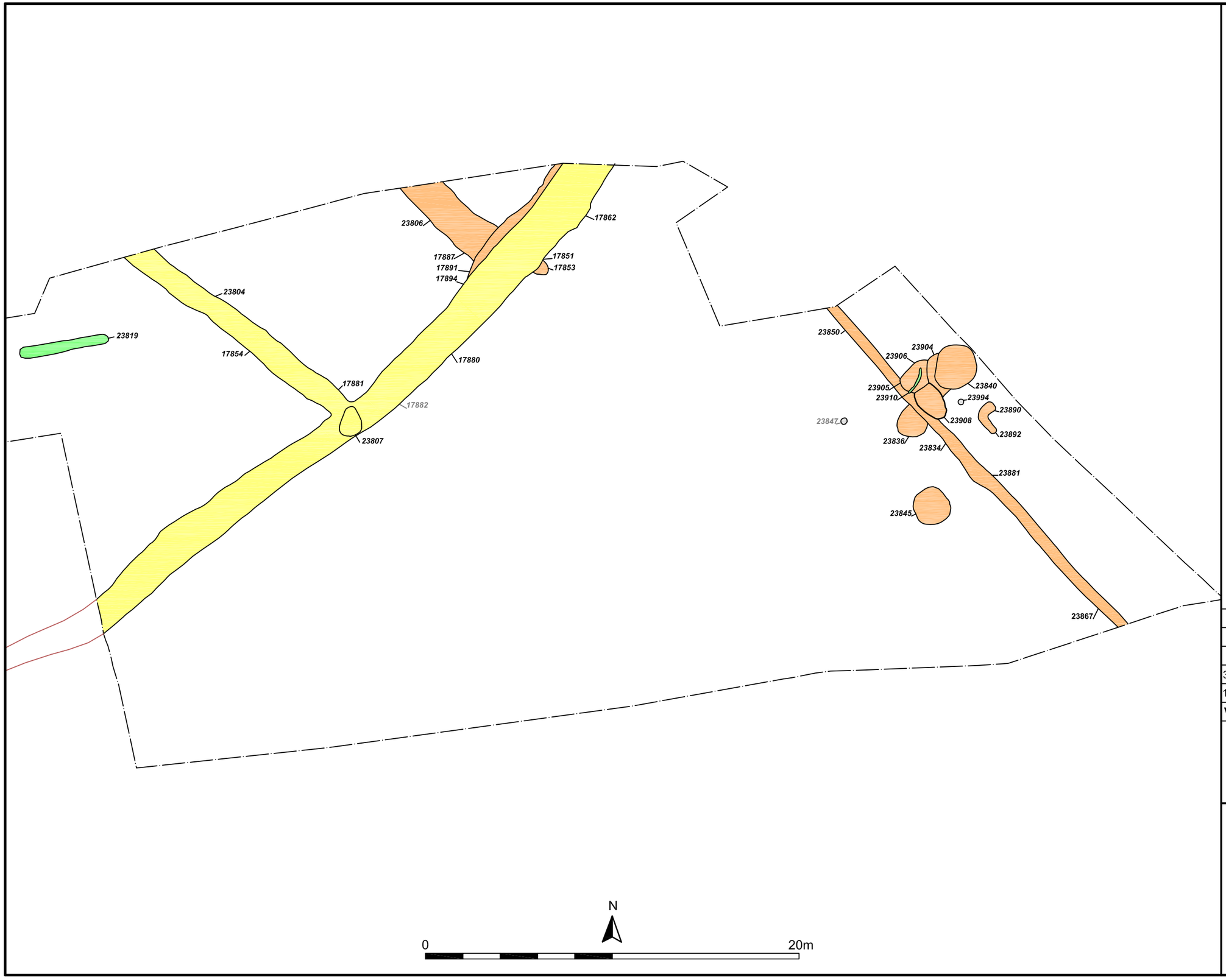
Figure 80: Overall plan of the excavation areas in plots 178 and 179 (Howden Common)

Scale 1:1250



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

network archaeology

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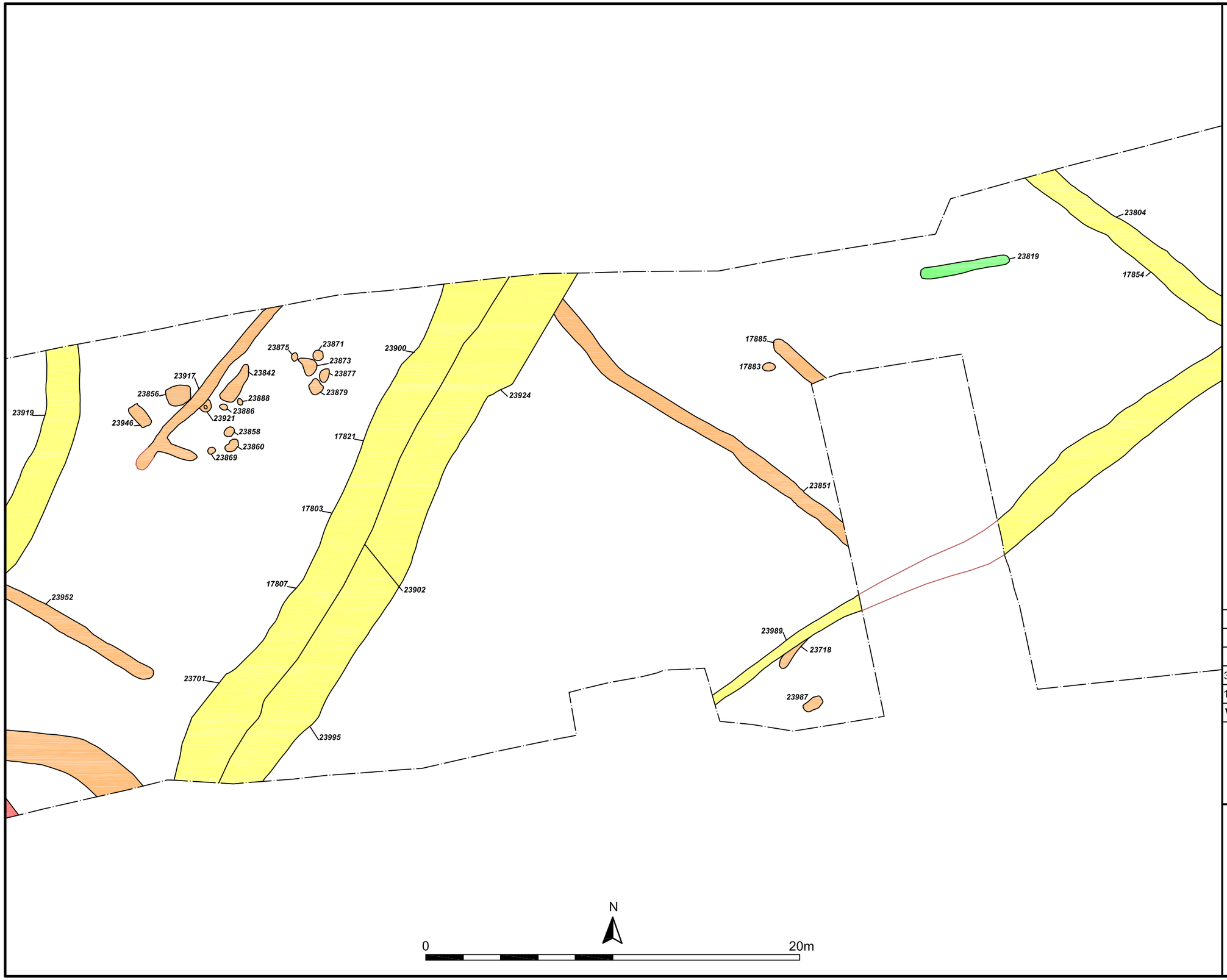
Figure 81: Phased plan of the eastern end of the plot 178 excavation area

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

network archaeology

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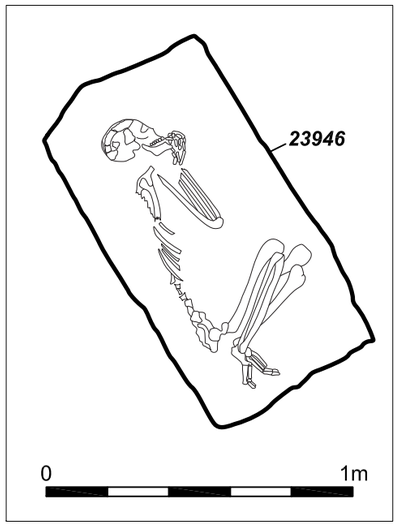
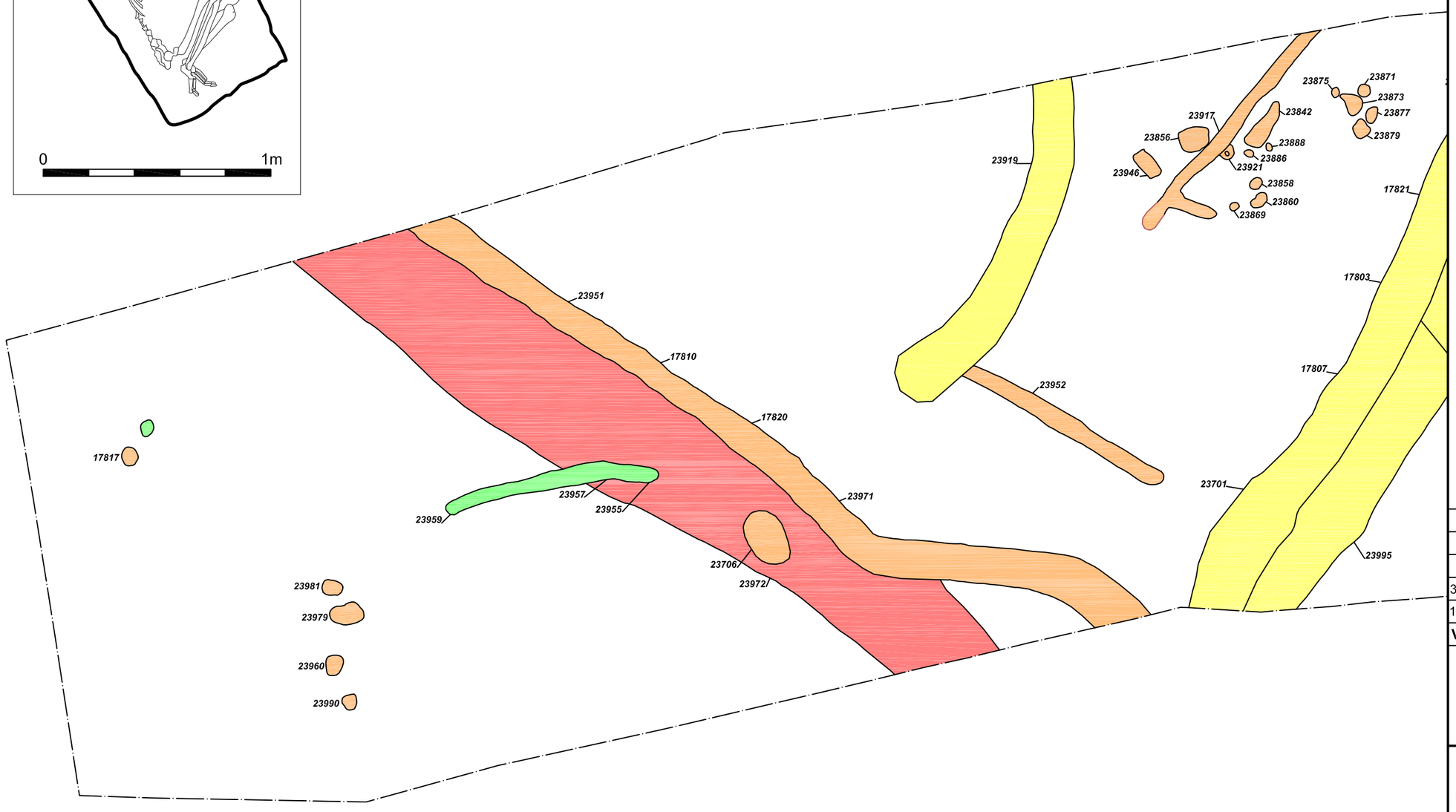
Figure 82: Phased plan of the central portion of the plot 178 excavation area

Scale 1:200





Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

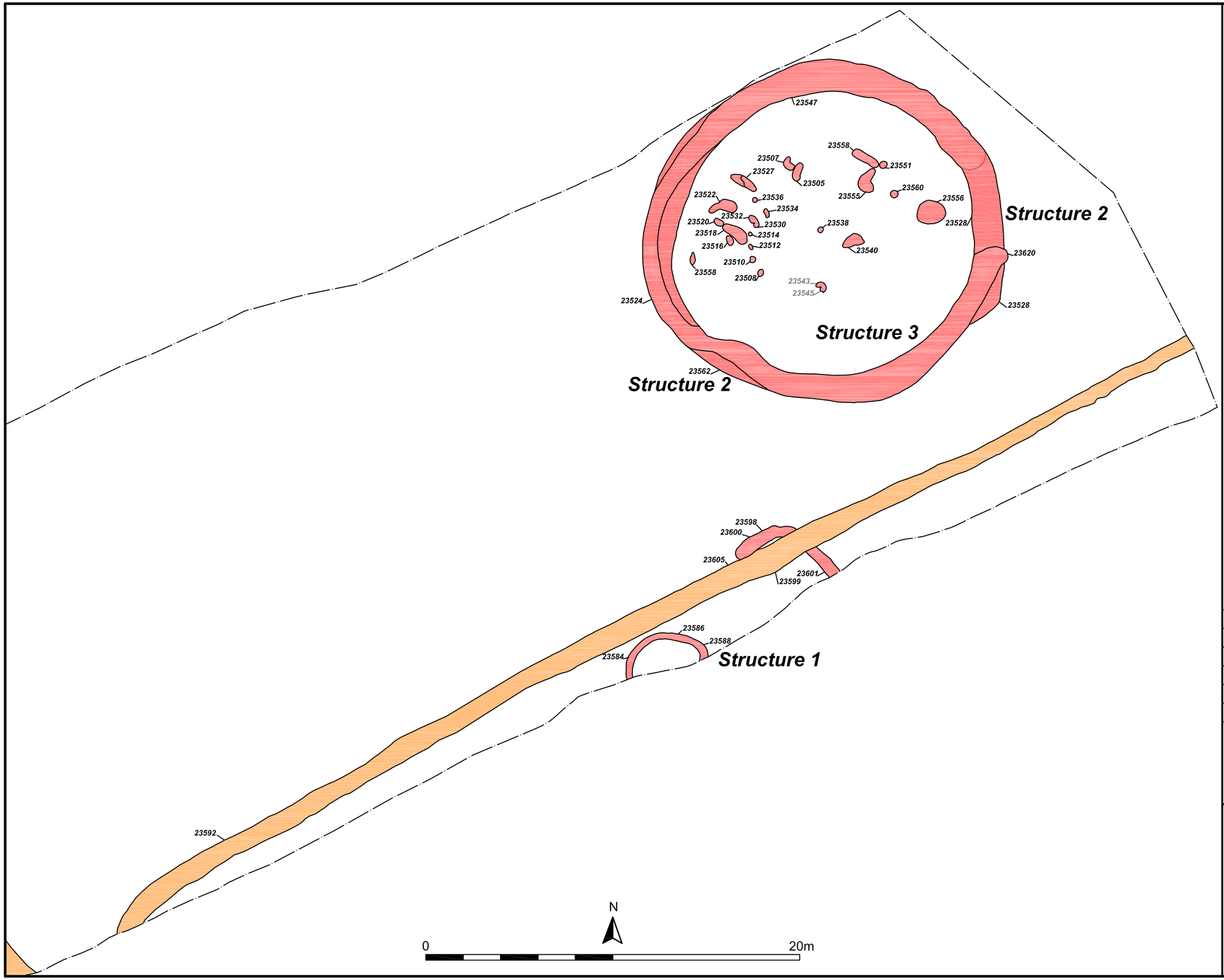
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 83: Phased plan of the western end of the plot 178 excavation area, with individual plan of the burial

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

network archaeology

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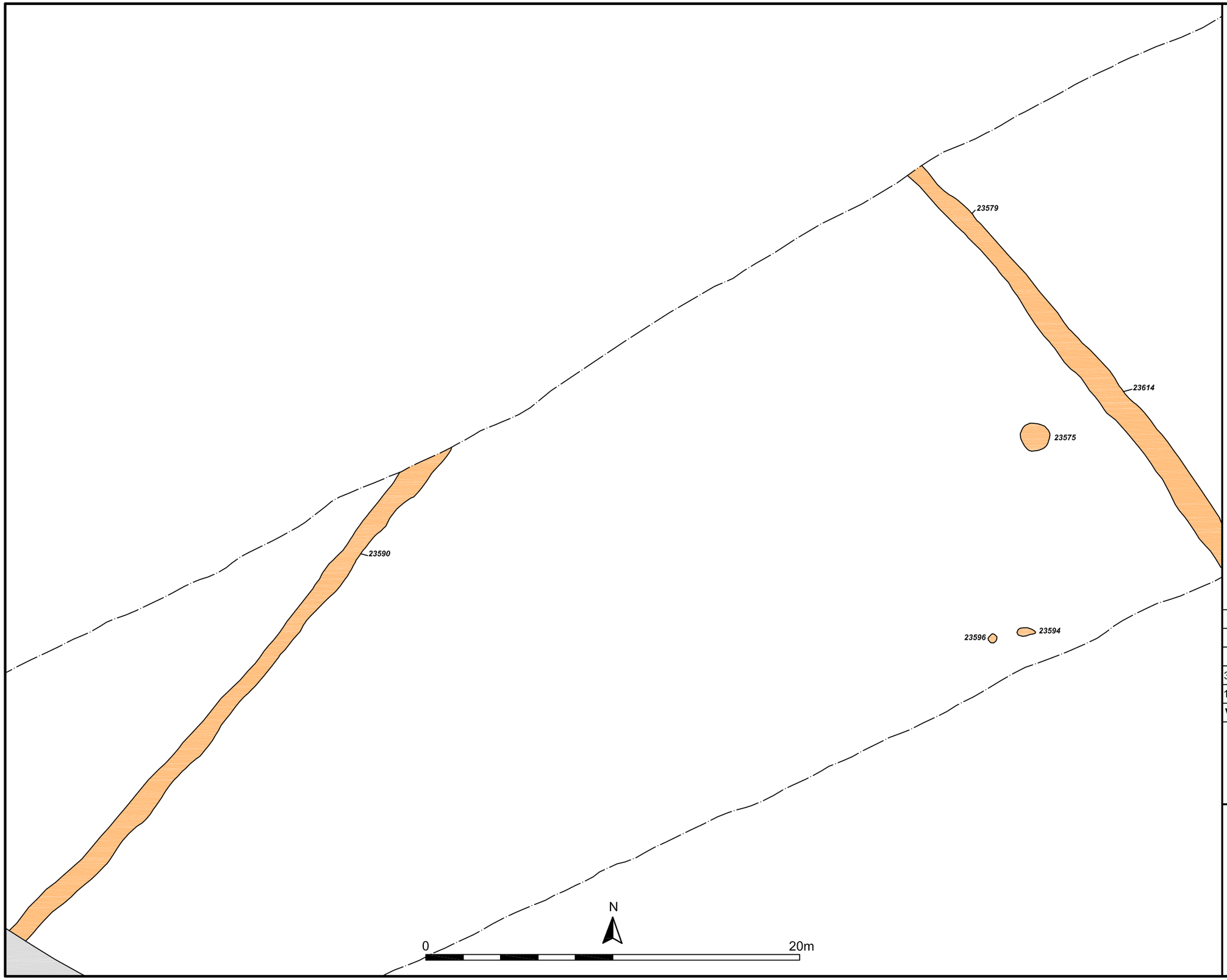
Figure 84: Phased plan of the north-eastern end of the plot 179 excavation area

Scale 1:200



Limit of excavation
Cut line
Field drain/modern feature
Projected line
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Unphased

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 178-9	JLC	RM	CL

network archaeology

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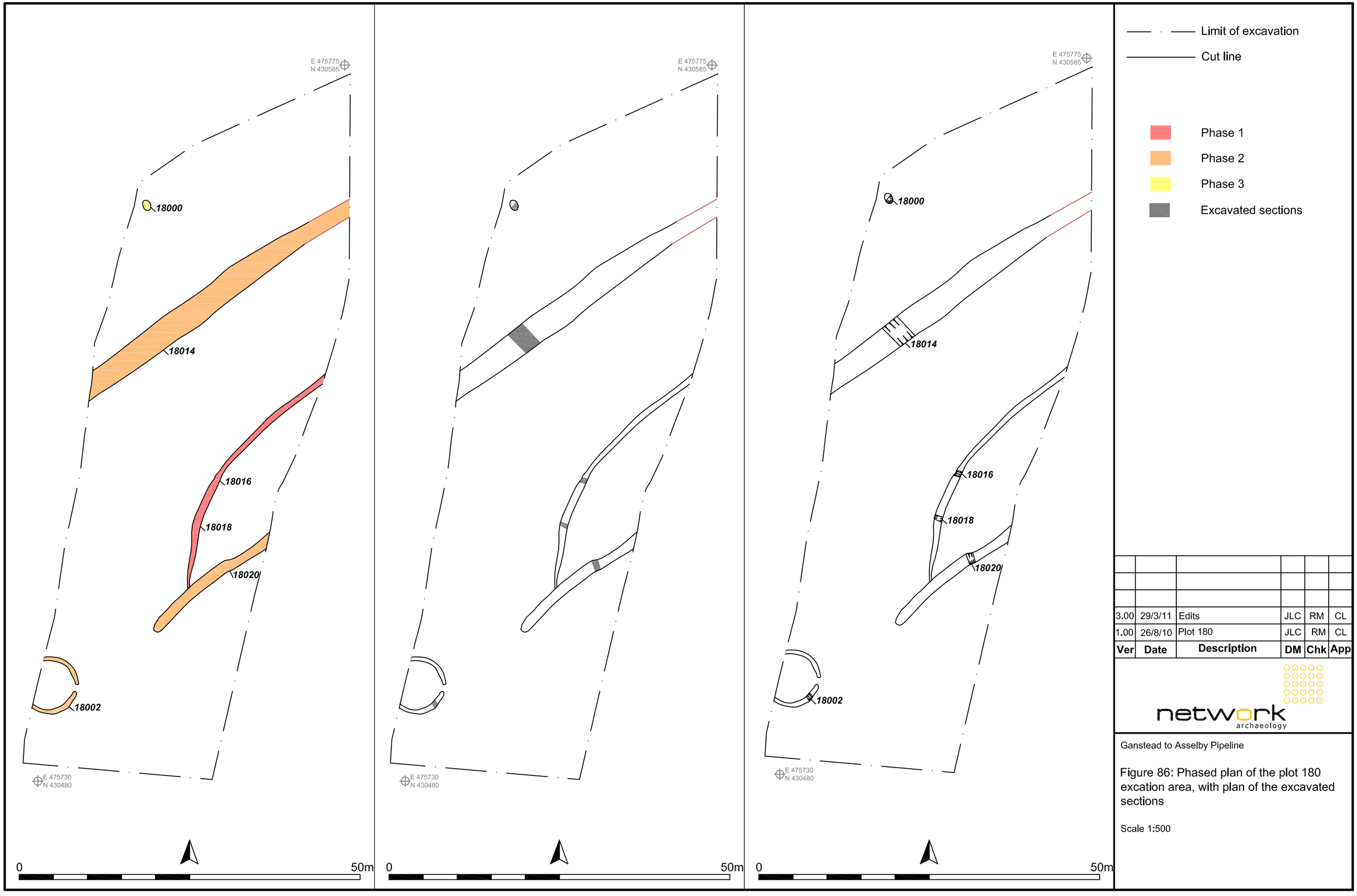
Figure 85: Phased plan of the south-western end of the plot 179 excavation area

Scale 1:200



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 180	JLC	RM	CL

network archaeology

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Figure 86: Phased plan of the plot 180 excation area, with plan of the excavated sections

Scale 1:500

Limit of excavation
Cut line
Conjecture line

Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased
Excavated sections

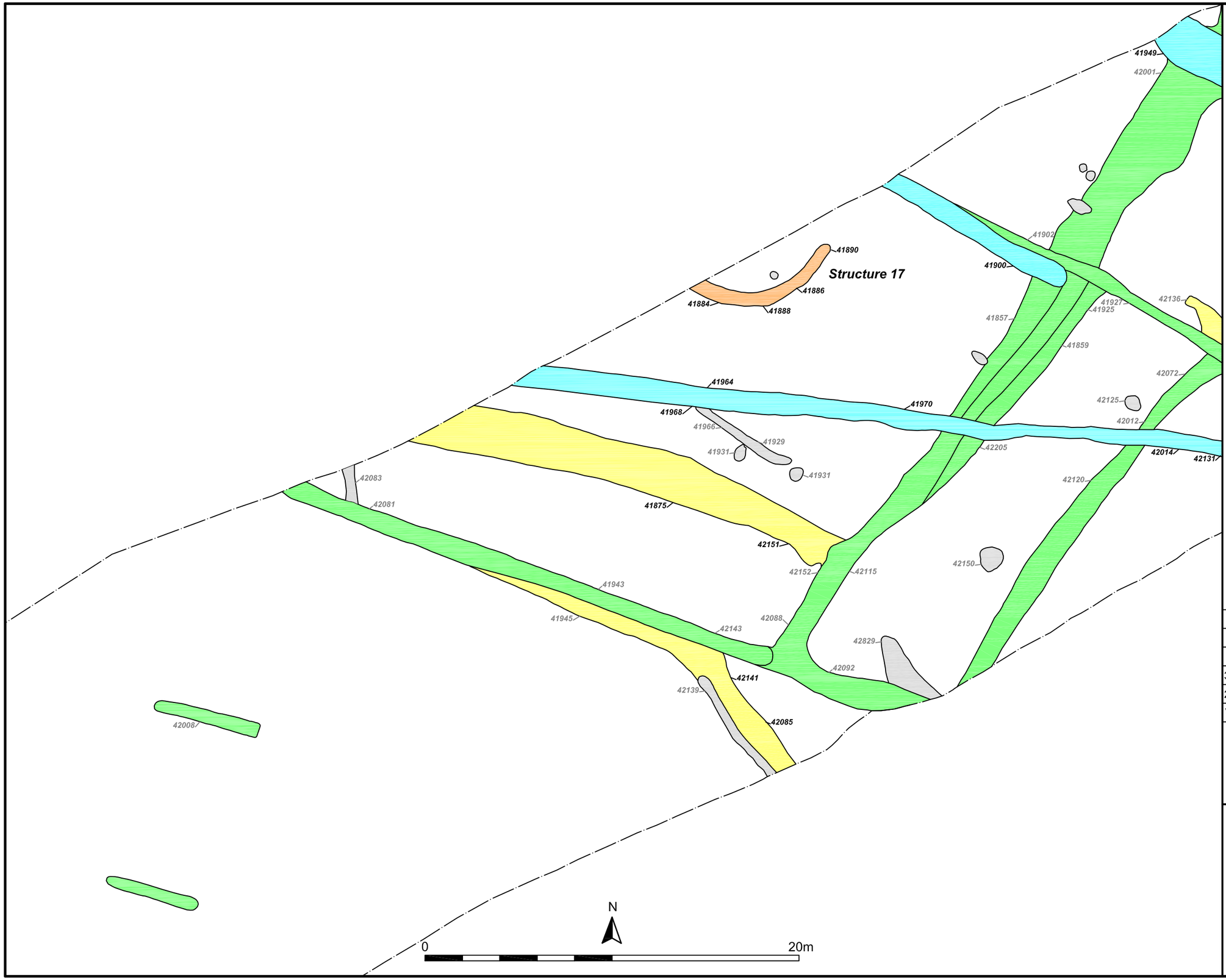
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 87: Overall plan of the excavation areas in plots 182 and 184 (Thorpe Hall)

Scale 1:1250



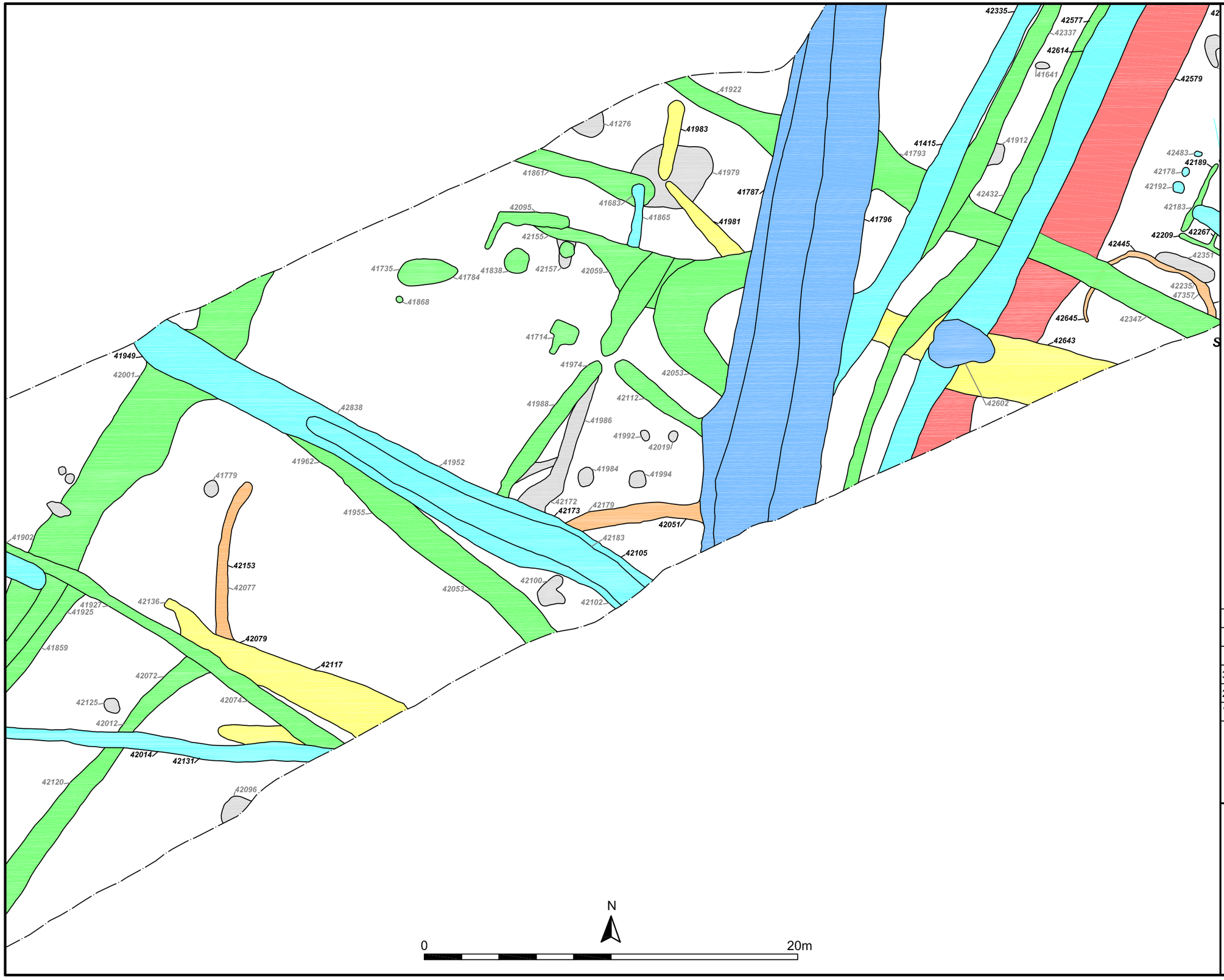
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 88: Phased plan of the south-western end of the plot 184 excavation area

Scale 1:200



Limit of excavation

Cut line

Conjecture line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Unphased

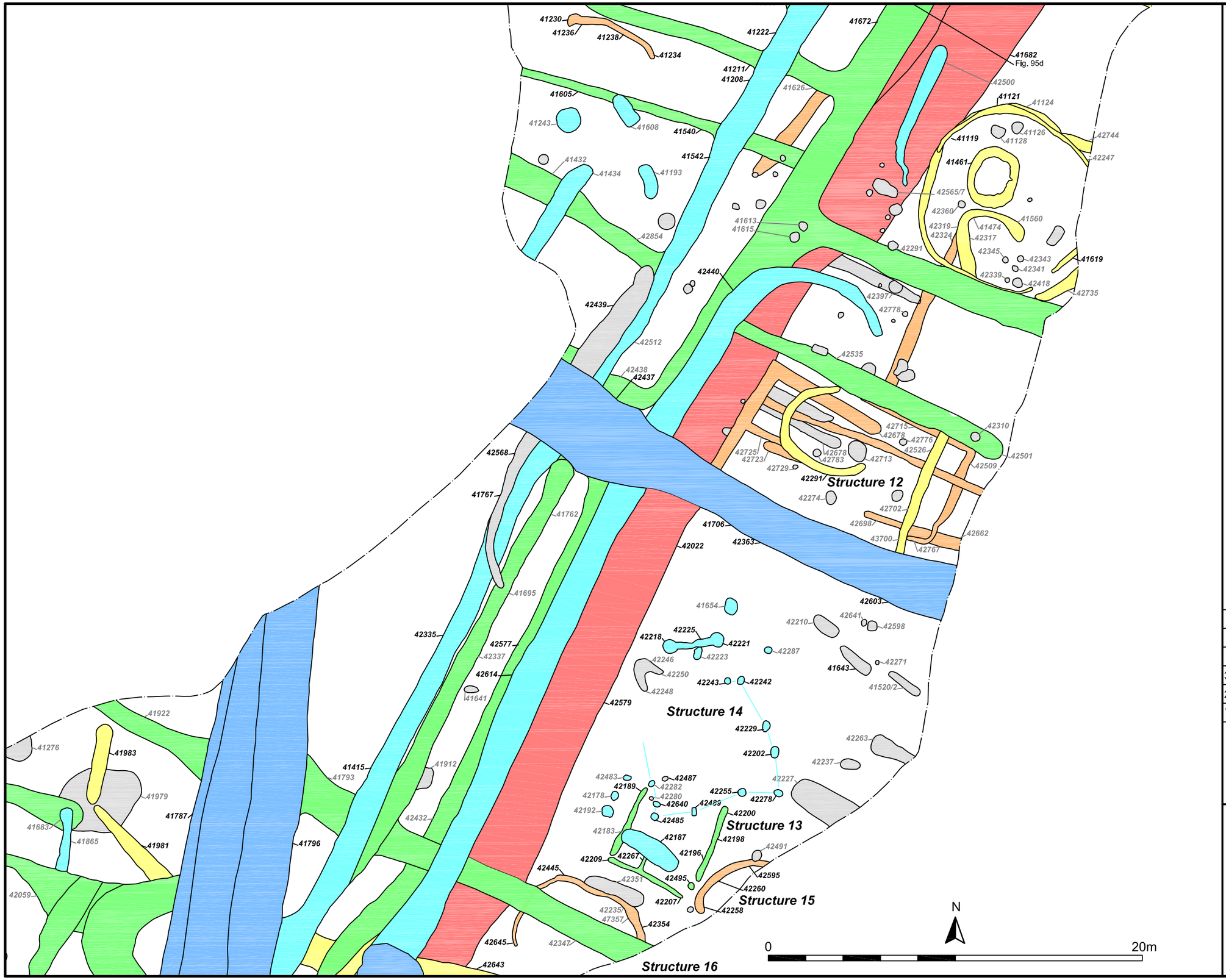
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 89: Phased plan of the south-western central portion of the plot 184 excavation area

Scale 1:200



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 90: Phased plan of the north-eastern central portion of the plot 184 excavation area

Scale 1:200

Limit of excavation
Cut line
Conjecture line

Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
Phase 6
Unphased

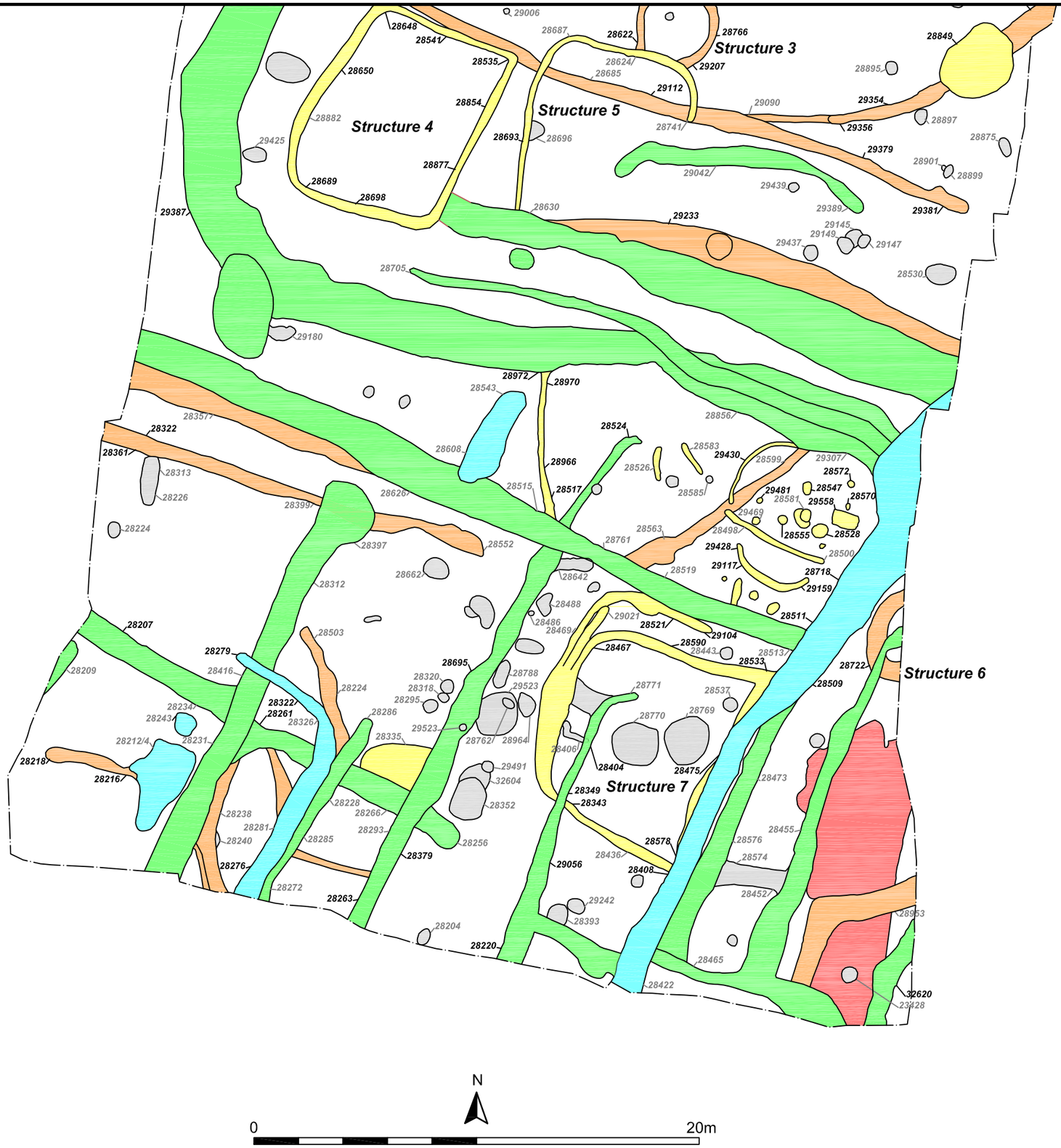
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 91: Phased plan of the north-eastern end of the plot 184 excavation area

Scale 1:200



Limit of excavation

Cut line

Conjecture line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Unphased

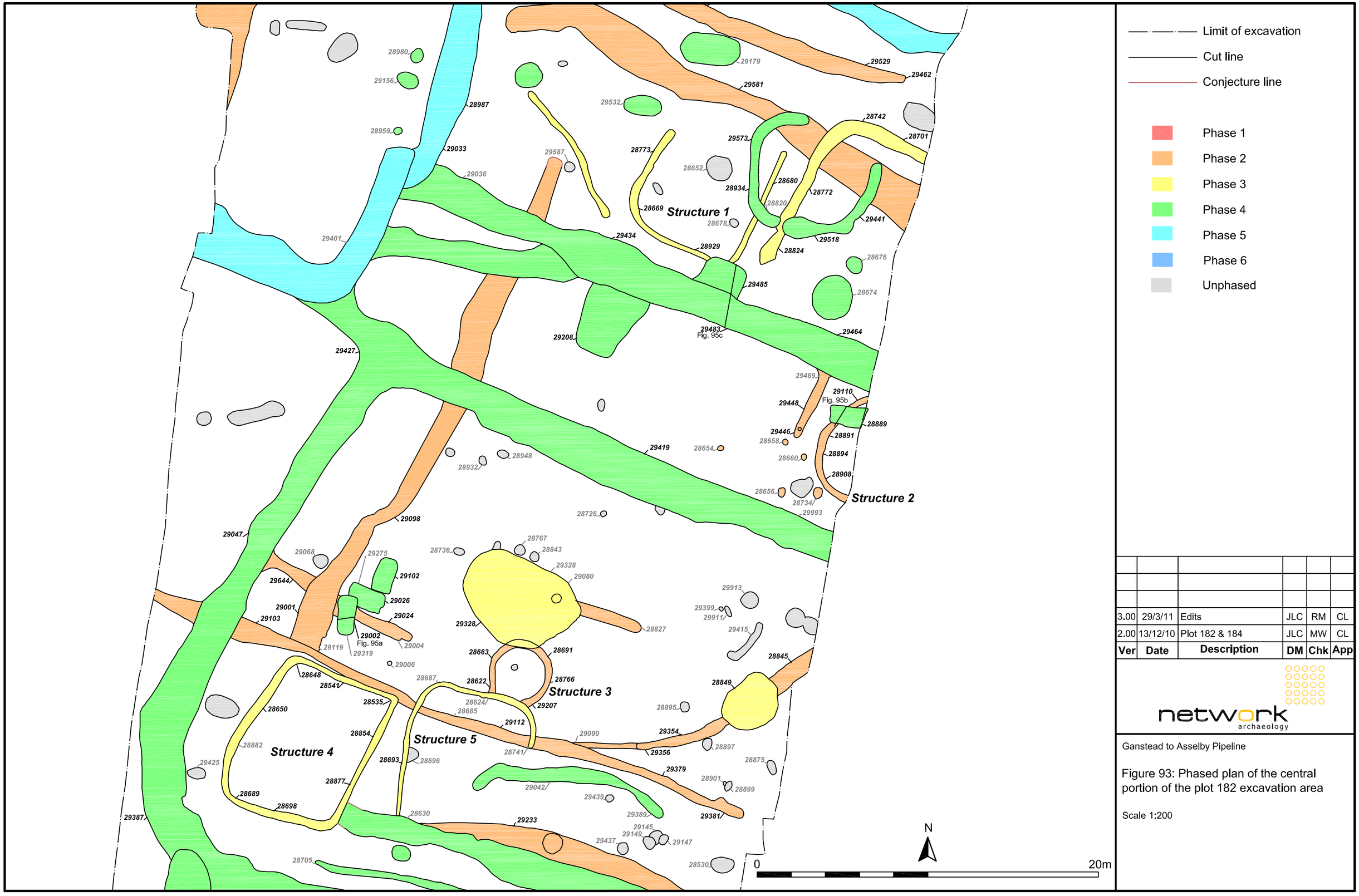
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 92: Phased plan of the south end of the plot 182 excavation area

Scale 1:200



Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 93: Phased plan of the central portion of the plot 182 excavation area

Scale 1:200

Limit of excavation

Cut line

Conjecture line

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

Phase 6

Unphased

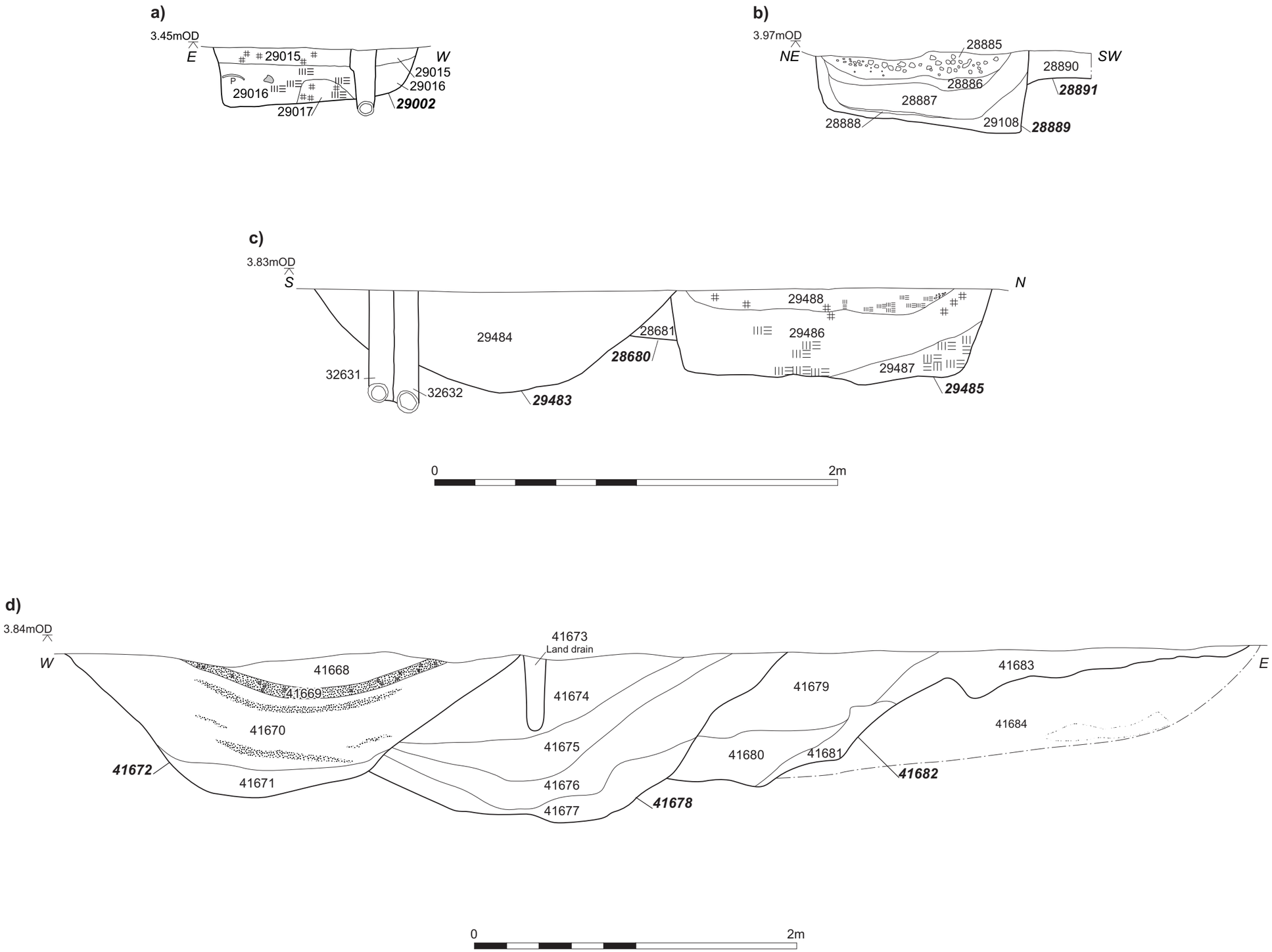
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 182 & 184	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 94: Phased plan of the north end of the plot 182 excavation area

Scale 1:200



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Clay
Charcoal
Charcoal lense
Stones
Burnt stone
Pottery
Bone
Flint

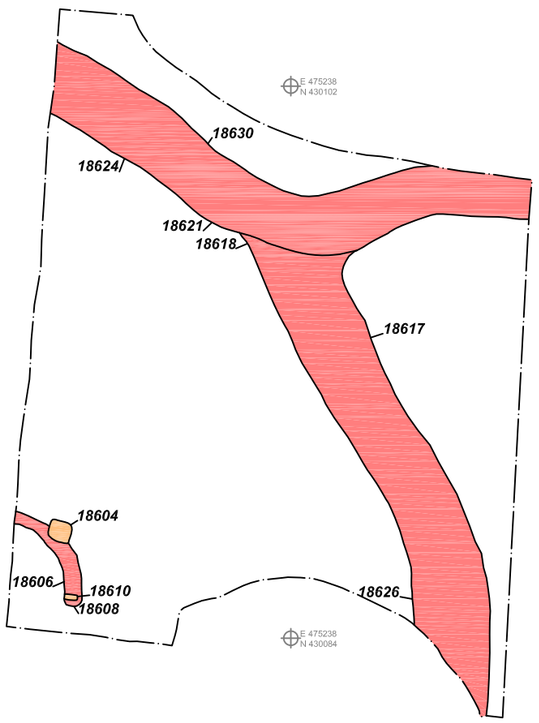
Ver	Date	Description	DM	Chk	App
1.00	26/8/10	Plot 182 & 184	JLC	RM	CL

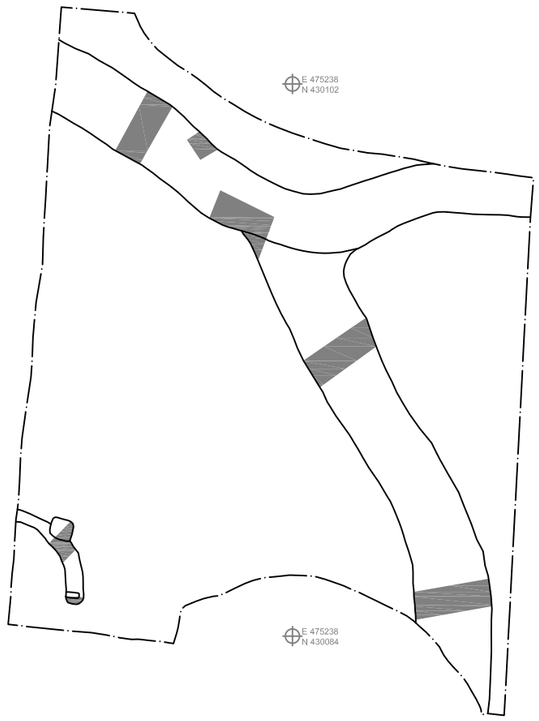
network archaeology

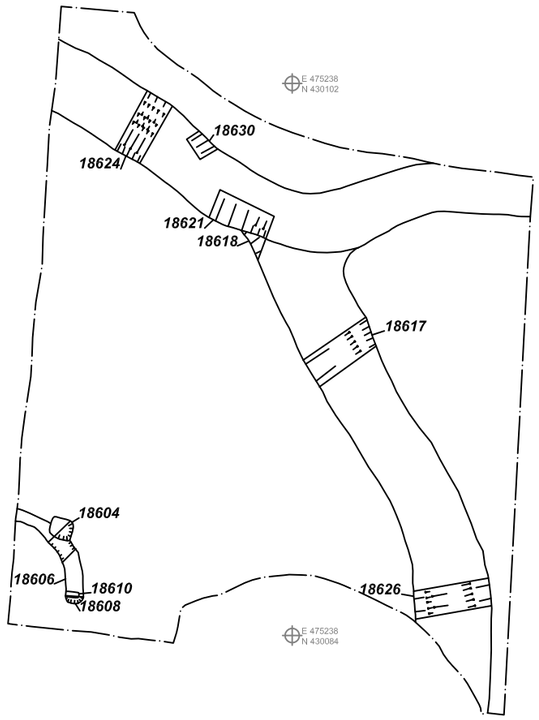
Ganstead to Asselby Pipeline

Figure 95: Individual section drawings from plots 182 and 184
a) Pit 29002, Phase 4
b) Pit 28889, Phase 5
c) Pit 29485 and ditch 29483
d) Ditches 41672, 41678 and 41682

Scale 1:20 and 1:25







Limit of excavation

Cut line

Phase 1

Phase 2

Excavated sections

N

0 10m

N

0 10m

N

0 10m

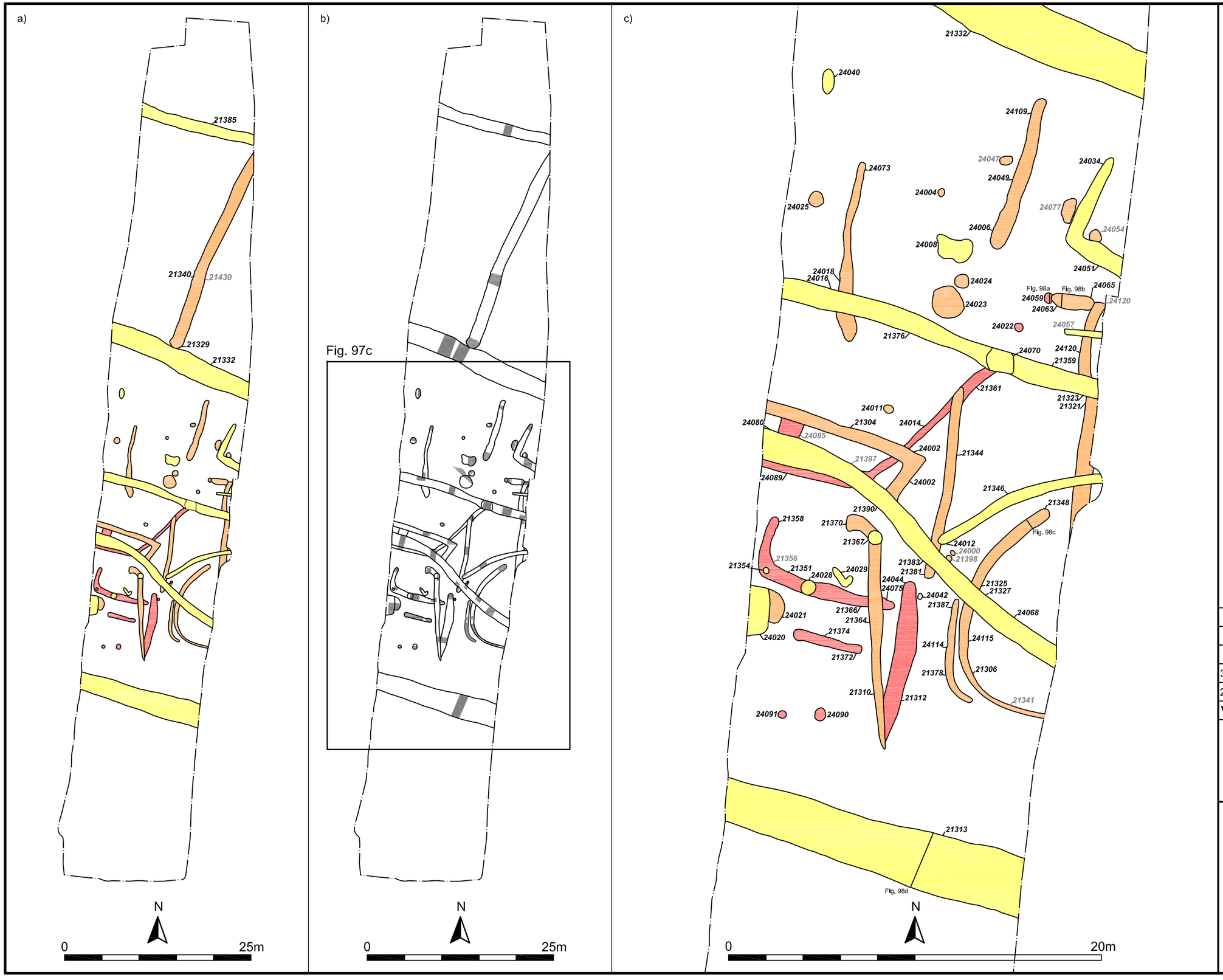
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
2.00	13/12/10	Plot 186	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 96: Phased plan and plan of excavated sections of the excavation area in plot 186 (West Dene)

Scale 1:200



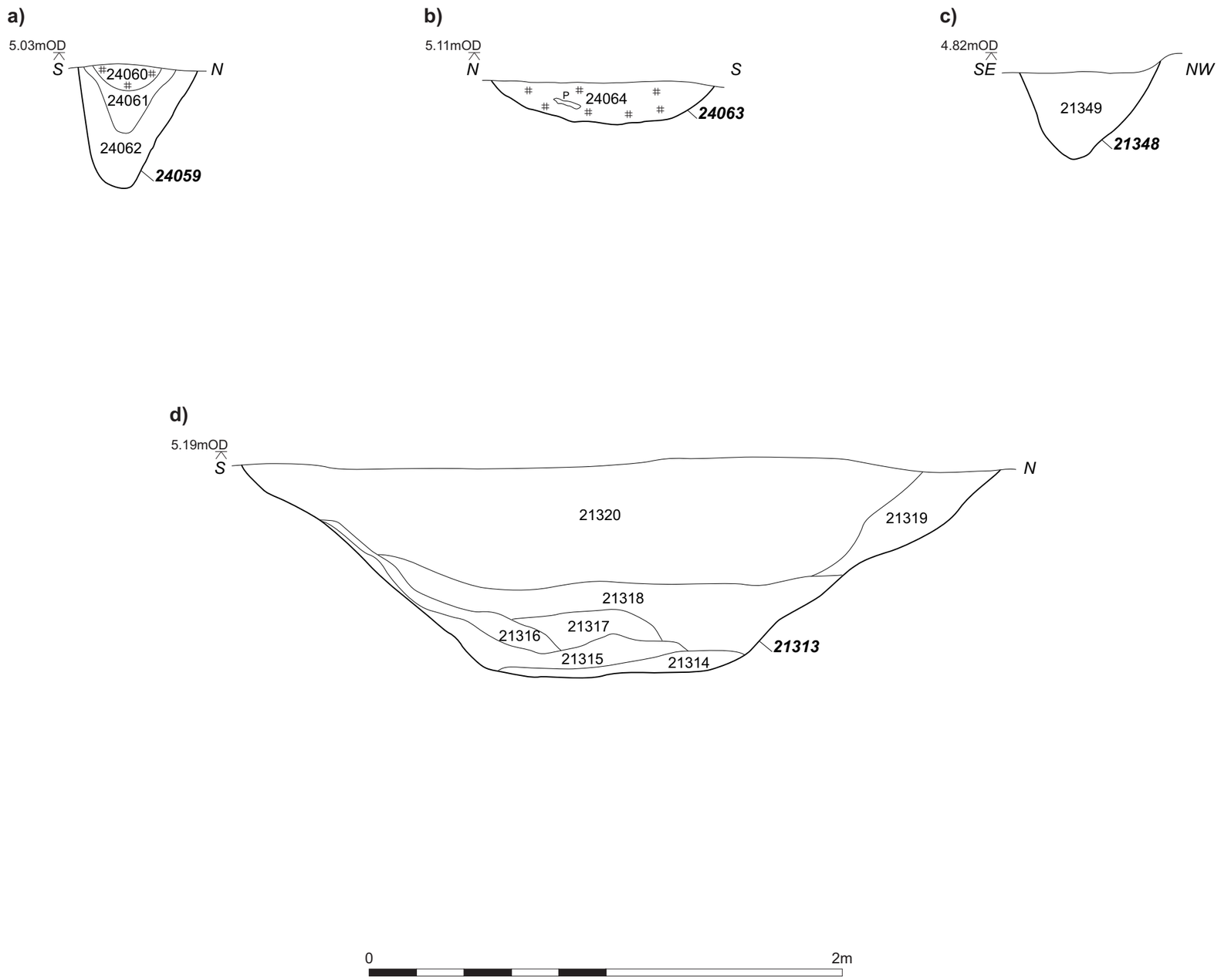
Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLH	RM	CL
2.00	13/12/10	Plot 213	JLC	MW	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 97: Overall plans of the plot 213 (Oxen Stang) excavation area, with plan of excavated sections

Scale 1:500 and 1:200



Limit of excavation
Cut line
Layer line
Field drain/modern features
1234 Cut number
1233 Layer/fill number
Charcoal
Pottery

Ver	Date	Description	DM	Chk	App
3.00	29/3/11	Edits	JLC	RM	CL
1.00	26/8/10	Plot 213	JLC	RM	CL

network archaeology

Ganstead to Asselby Pipeline

Figure 98: Individual section drawings from plot 213
a) Pit 24059, Phase 1
b) Pit 24063, Phase 2
c) Enclosure ditch 21348, Phase 2
d) Ditch 21313, Phase 3

Scale 1:20

PLATES

Plate 1: Late Iron Age roundhouse, Plot 53 Structures 11 and 12.
Plate 2: Triple ditch alignment, Plot 86.
Plate 3: Fully articulated late Iron Age cattle burial **26250**, Plot 104.
Plate 4: Roman cattle burial **10250**, Plot 104.
Plate 5: Excavation of a first century AD chatelaine within pit **27265**, Plot 104.
Plate 6: Roman corn dryer **27399**, Plot 104.
Plate 7: Late third century stone building, Plot 104 Structure 6.
Plate 8: Cattle burial adjacent to the eastern wall of Structure 6, Plot 104.
Plate 9: Roman crouched burials **27296** (left) and **27293** (right), Plot 104.
Plate 10: Roman burials **25793** in the foreground and **25325** in the background, Plot 104.
Plate 11: Roman crouched burial **25176**, Plot 104.
Plate 12: Early Roman neonate burial **25237**, Plot 104.
Plate 13: Roman neonate burial **25272**, Plot 104.
Plate 14: Second century neonate burial **25231**, Plot 104.
Plate 15: Iron Age square barrow, Plot 106 Structure 1.
Plate 16: Late Roman crouched burial **22217**, Plot 123.
Plate 17: Late Iron Age ring gully, Plot 129 Structure 1.
Plate 18: Late Iron Age ring gully, Plot 132 Structure 8.
Plate 19: Late Roman corn dryer, Plot 132.
Plate 20: General site working shot, Plot 182.

Plate 1: Late Iron Age roundhouse, Plot 53 Structures 11 and 12.

Plate 2: Triple ditch alignment, Plot 86

Plate 3: Fully articulated late Iron Age cattle burial **26250**, Plot 104.

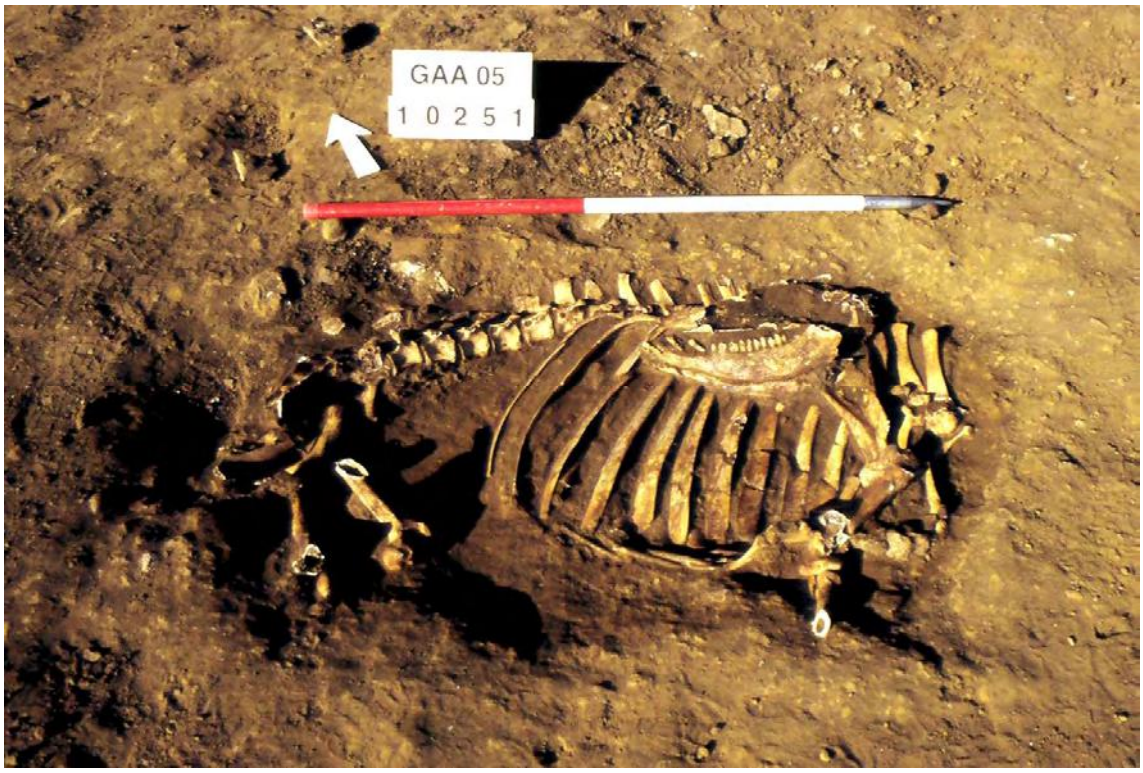


Plate 4: Roman cattle burial **10250**, Plot 104.

Plate 5: Excavation of a first century AD chatelaine within pit **27265**, Plot 104.

Plate 6: Roman corn dryer **27399**, Plot 104.

Plate 7: Late third century stone building, Plot 104 Structure 6.

Plate 8: Cattle burial adjacent to the eastern wall of Structure 6, Plot 104.

Plate 9: Roman crouched burials **27296** (left) and **27293** (right), Plot 104.

Plate 10: Roman burials **25793** in the foreground and **25325** in the background, Plot 104.

Plate 11: Roman crouched burial **25176**, Plot 104.

Plate 12: Early Roman neonate burial **25237**, Plot 104.

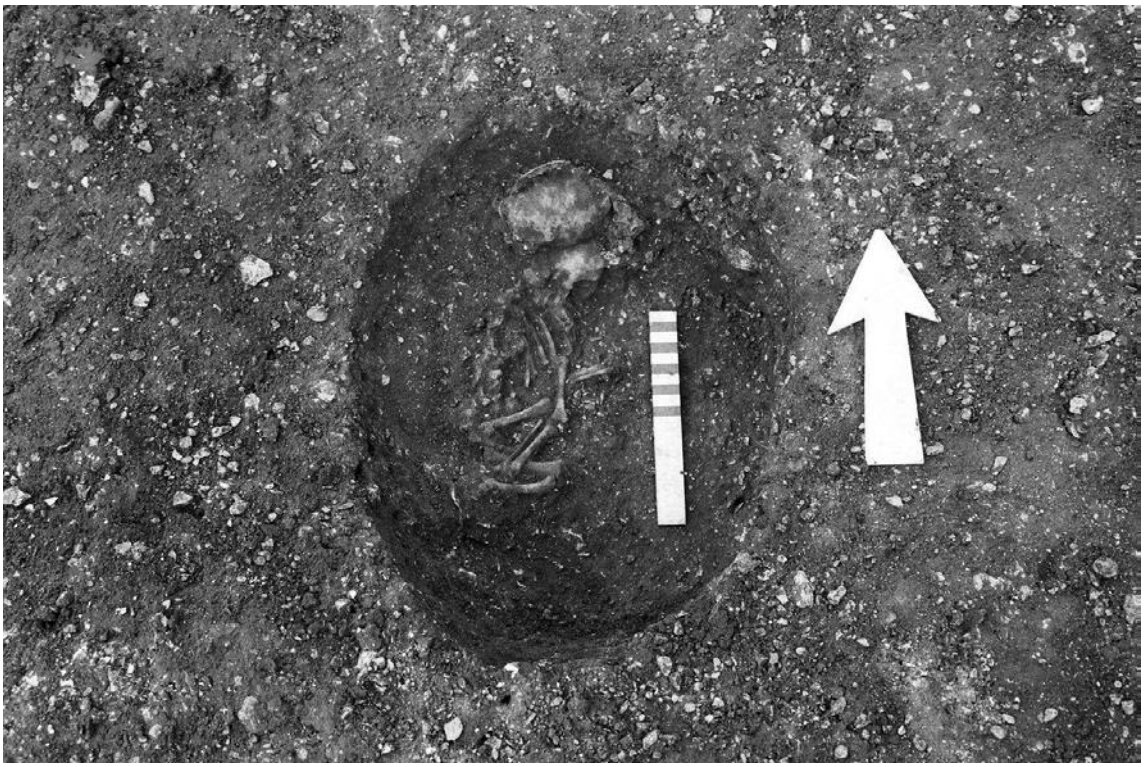


Plate 13: Roman neonate burial **25272**, Plot 104.

Plate 14: Second century neonate burial **25231**, Plot 104.

Plate 15: Iron Age square barrow, Plot 106 Structure 1.

Plate 16: Late Roman crouched burial **22217**, Plot 123.

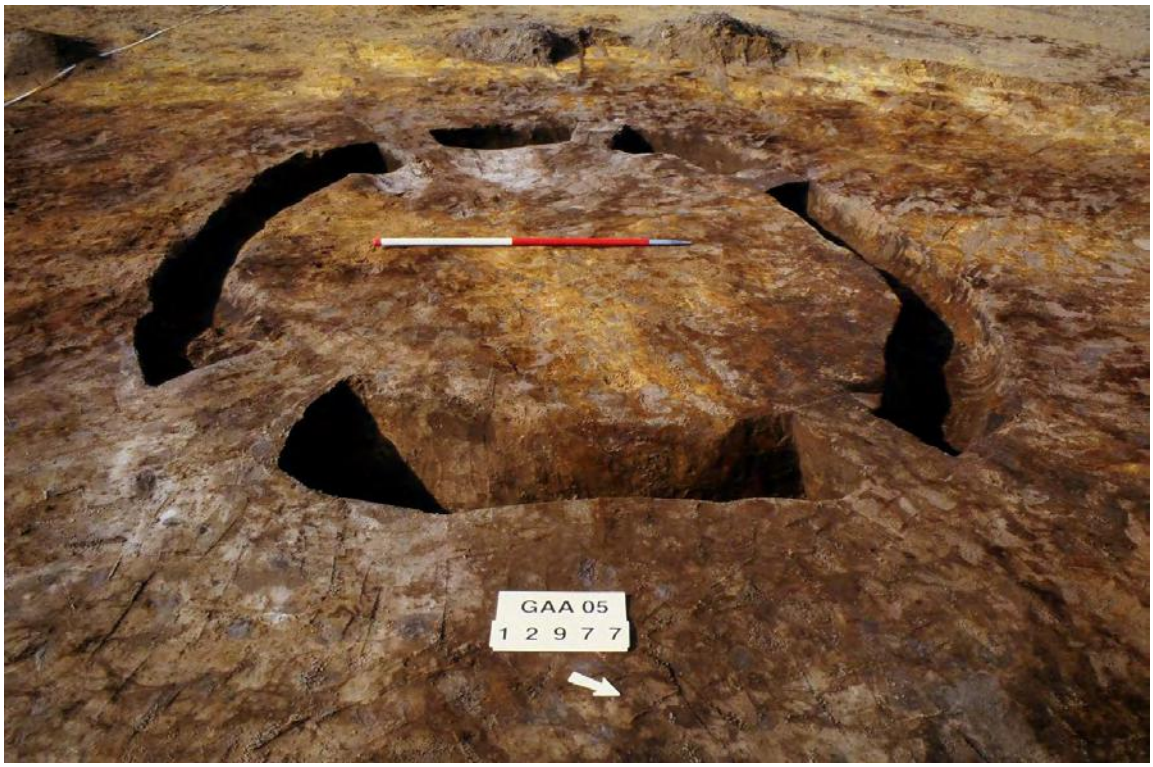


Plate 17: Late Iron Age ring gully, Plot 129 Structure 1.

Plate 18: Late Iron Age ring gully, Plot 132 Structure 8.

Plate 19: Late Roman corn dryer, Plot 132.

Plate 20: General site working shot, Plot 182.