

**Archaeological Excavations:
Site 9 (Rothwell), A6 Rothwell
and Desborough Bypass
(SP803818)**

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Archaeological Evaluations: A6 Rothwell and Desborough Bypass (SP803818).

1. Summary

This document provides a report on the results of excavations conducted by University of Leicester Archaeological Services (ULAS) in advance of construction work for a bypass scheme at Rothwell and Desborough, Northamptonshire. Previous archaeological evaluations by geophysical survey and trial trenching at Site 9 by Northamptonshire Archaeology produced a plan of two enclosures and a number of pits dating to the Iron Age. These excavations confirmed the geophysical plot of the site and produced sherds of La Tène pottery and Scored ware from the features. This pottery dates to the Mid – Late Iron Age and the form of the settlement is consistent with other excavated examples in Northamptonshire of similar date. The artefacts, animal bone and the presence of slag on the site suggest a small farming community that grew crops and kept domesticated animals for food as well as carrying out small scale metalworking close to their habitation area. Despite several phases of recutting of both enclosure ditches there is no evidence for continuation of occupation into the Roman period.

2. Introduction

The area excavated is located north-west of Rothwell and south-west of Desborough, Northamptonshire (SP803 815; Fig. 1). The initial stages of evaluation undertaken by Northamptonshire Archaeology identified a number of sites of archaeological potential along the route of the proposed A6 Rushden-Higham Ferrers Bypass. These included trackways, a pit alignment and flint scatters as well as an Iron Age settlement site (Site 9) reported on by this document. The site was initially discovered during geophysical survey of the route; further trial evaluations confirmed the geophysical results by revealing substantial features containing a small amount of Iron Age pottery. As much of the settlement area lay within the roadline, the highways agency's consultant archaeologist determined that an archaeological excavation of the entire area of the settlement threatened by the road construction should be carried out. This work was commissioned by URS Corporation Ltd. on behalf of the Highways Agency and was conducted by University of Leicester Archaeological Services during April 2002.

3. Geology and topology

The site lies on a ridge of Northamptonshire Sand and Ironstone with bands of Upper Lias clay (Geological Survey of Great Britain Sheet 170, Market Harborough). The land slopes quite steeply to the north-west down to the River Ise before rising again

(Figs 1 and 2). There is also a slope to the west, and the land rises gently to the south-east. This places the site on a raised area overlooking a river – a preferred location for early settlement.

4. Background and summary of previous archaeological work

Both Desborough and Rothwell are ancient settlements. A number of archaeological finds including Bronze Age urns have been recorded in and around Desborough and the Desborough Mirror, an outstanding example of Iron Age art, made in bronze and decorated in the 'La Tène' style of intricately interwoven spirals, loops and swirls, indicate that this area was exploited during prehistoric periods. A seventh century necklace, with 37 gold beads decorated with a gold cross and a red garnet, has also been found here. Desborough (meaning a local place of judgement) is mentioned several times in the Domesday Book and St Giles Church, built around 1225 AD probably lies on the site of an earlier Saxon church and contains part of an Anglo-Saxon cross along with a Tudor rood screen and reminders of the Civil War (<http://www.desboro.net/history/index.htm>).

Rothwell was named for the large number of springs rising through the 'rot' (red) ironstone. It was home to Norman Lords of the extremely powerful Clare family related to William I. The Royal Charter was granted in 1204 and during the Middle Ages Rothwell became second in importance in this area only to Northampton with a town wall, gates, a nunnery and a prestigious church (<http://www.rothwelltown.co.uk/history.htm>).

Northamptonshire Archaeology undertook the initial stages of the evaluations on the route of the bypass. This included an initial desk based assessment and fieldwalking scheme in 1992 (Shaw & Sharman 1992), followed by further stages of fieldwalking and geophysical survey in 2000 (Mudd and Hegarty 2001). Further detailed survey including trial trenching was carried out in 2001 on the sites previously identified (Mudd, Holms & Masters 2001; Mudd, Roughly & Hardy, 2002).

Site 9 was identified by geophysical survey (Fig. 3). This revealed two enclosures opposite each other. On the south-west side of the excavation area lay a sub-rectangular enclosure containing a number of possible structures including clearly identifiable circular and square features. To the north-east of this was a D-shaped enclosure with an entranceway containing no visible internal features. Between these enclosures lay two groups of pits along with a number of isolated pits. A ditch was also recorded running north from the south-west corner of the site – possibly a field boundary which defined the northern edge of the medieval strip system.

Trial trenching was carried out to determine the nature of these features. Two trenches were located across the southern enclosure ditch and the linear boundary ditch (Mudd, Roughly & Hardy, 2002, Trenches 9 and 10) and a third trench (Trench

08) was located in the geophysical blank area to the north-west (Fig. 3). The trenches located the enclosure ditch (Fig. 4 Trench 9), which was recorded as V-shaped with steep sides, approximately 1.5m deep (below topsoil) and containing a single sherd of Iron Age pottery and a fragment of fired clay. A shallower U-shaped recut was visible in the top of this ditch. Two other features, one containing Iron Age pottery, were also recorded outside the ditch. The ditch marking the edge of the ridge and furrow was also excavated. These appeared to be two ditches possibly on different alignments (maximum depth of 1.4m). The upper fills contained Iron Age pottery and flint.

5. Project Objectives and Research Agenda

5.1 Aims

The principal aims of the work in the excavation area were to obtain an adequate record of archaeological deposits that will be destroyed or damaged by the road scheme proposals and to disseminate the results of the work as widely as possible. The aim of the controlled strip was to establish the nature, extent, date, depth, significance and state of preservation of archaeological deposits within the specified areas.

The specific objectives of the fieldwork as stated in the Design Specification (ULAS 26.03.02) were to:

1. To identify the presence/absence of any archaeological deposits
2. To establish the character, extent and date range for any archaeological deposits to be affected by the proposed ground works
3. To excavate and record any archaeological deposits to be affected by the ground works
4. To produce an archive and report of any results
5. To disseminate the results widely, both to the public and the archaeological community

5.2 Research Aims

The area has confirmed its potential to contribute to national and regional research themes as stated in the Design Specification (ULAS 26.03.02):

1. Fieldwork within the area of site 9 has the potential to examine the nature of the Iron Age rural landscape in this part of Northamptonshire
2. Recovery of environmental indicators for the Iron Age has been identified as a particularly important research goal in that period's Draft Resource Assessment (ULAS 26.03.02). Although initial assessment suggested little

potential for environmental research, there is still the possibility for well-preserved environmental remains.

3. Research and consideration of the chronology within the regional Iron Age and the range of sub-regional pottery production 'traditions'.
4. Establish the nature of the Middle Iron Age ceramic 'tradition', and allow comparisons with excavated assemblages from the Milton Keynes and Northampton areas.
5. Investigate the development /response/tradition of the Iron Age cultural and economic landscape into the Romano-British landscape, if applicable on this site. The evidence recovered from the evaluation would appear to show the site had ceased to exist prior to the Roman period.
6. The site has the potential to make a significant contribution to our understanding of the morphology of Iron Age field systems and their relationship with adjacent settlements.

6. Results of Excavations

6.1 Methodology

The excavations were undertaken by University of Leicester Archaeological Services (ULAS) during April 2002. Two 360° machines using flat bladed buckets were used to strip the topsoil down to the top of the natural ironstone under archaeological supervision. Archaeological deposits were cleaned, sampled by excavation and recorded as per the specifications (ULAS 26/03/2002). The site was tied into Ordnance Survey National Grid using an EDM.

6.2 Metal-detecting survey

A rapid metal detecting survey was conducted across the whole site, the spoil heaps and across the features. Metal detecting was carried out by ULAS using a Garrett 1500 metal detector with the help of Ken Wallace (Hallaton Fieldwork Group) using a Laser 3B metal detector. Very few signals were identified, and those that were investigated comprised mainly modern metalwork. Several of the pits gave off high signals – these were found to be coming from some of the stones and tiny metal fragments within the fills.

6.3 Results

The topsoil across the area was very shallow (maximum 0.3m) with archaeological features cut into the natural ironstone. The stripping revealed the majority of the features recorded by the geophysical survey (Fig. 4) as well as several others not picked up by geophysics. Both enclosure ditches were extremely difficult to see, as the tops of the fills were similar to the natural substrata. The pits contained burnt material in darker fills and were far easier to identify. Furrows from medieval strip

field systems were visible in the stripped surface aligned north-west – south-east cutting through several of the features (Fig. 4).

Enclosure I (Fig. 5)

The south-west enclosure ditch was shown by the geophysical survey to be sub-rectangular in shape and approximately 45m x 50m wide (Fig. 3). The boundary ditch showed quite strongly around the north and east side, becoming much fainter to the south and vanishing completely to the west along the slope of the hill. It contained a number of internal features including circular and square features as well as a linear feature and a number of pits (Fig. 3).

Five sections (approximately 10% of the exposed area) were excavated through the south-west enclosure (Fig. 5). The north and east side of the ditch was approximately 2.5 – 3m wide and 1.2 – 1.3m deep (from the stripped surface) with steep sides and a narrow rounded base (Section 1 & 2, [003]). Both excavated sections contained silty fills along the ditch edges, probably the result of natural silting (Section 1 (006), (019); Section 2 (027), (025), (009)). No natural silting appears to survive at the base of Section 1 suggesting that the ditch was recut ([119]). Nineteen flint flakes were recovered from the silty fill along the northern edge of Section 1 (006), many of them from a similar flint. A further nine flints and a single sherd of prehistoric pottery were recovered from the lower fills of the ditch.

The fill at the base of the recut [119] in Section 1 (014) was a fairly uniform orange-brown sandy silt containing patches of angular ironstone fragments, similar to the natural ironstone substrata. This fill is similar to the base fill of [119] in Section 2 (026), also containing angular ironstone fragments. The recut here however appears not to have reached the base of the main ditch, but cut through the natural silting (009).

Both Sections 1 and 2 displayed evidence for a second recut ([120]), approximately 0.6m deep with a wide flat base (Sections 1 & 2 (004), (005)). The fill comprised loose yellow-brown sandy silt with ironstone fragments. Seven flints were recovered from the fill. The second fill visible in Section 1 might suggest another recut of this later ditch (Section 1 [121], (005)). This fill was slightly darker with more ironstone fragments and was partly visible in plan along the north-eastern edge of the enclosure. No similar recut was noted in Section 2. Two flints, a fragment of animal bone and a large amount of slag were retrieved from this fill. Further slag was visible on the surface of the northern side of the ditch around Section 1.

Excavation of Sections 3 and 4 ([090], [109]) in the northern part of the enclosure, showed a very different ditch profile. These were both approximately 1.8m wide and 0.6 – 0.7m deep with a uniform mid orange brown sandy silt fill containing angular ironstone fragments ((089), (108)). Both these profiles are similar to the recuts visible in Section 1 and 2 ([120], [121]), and it may be that the deeper ditch indicated by the excavations through these sections is not continuous. A single flint flake was

recovered from Section 3 (089), and a sherd of prehistoric pottery was recovered from Section 4 (108).

Two small pits were recorded within the interior of the enclosure (Fig. 5). The smaller of these [007] was approximately 1m wide and 0.35m deep with an orange-brown sandy fill (008). Two rim fragments of prehistoric pottery were recovered from the fill. The larger pit [010] was 1.5m wide and 0.3m deep with a mid brown slightly clayey sandy fill (011). A linear feature within the enclosure was also excavated. This proved to be extremely shallow (less than 0.05m deep) with no finds.

A gully was recorded cutting the south-east edge of the enclosure ditch [068]. It ran north-east for few metres before turning south-east for approximately 20m (Fig. 5 (068)). Excavation showed it to be approximately 0.5 wide and 0.3m deep with a mid brown fill (069). Two flint flakes were recovered from this feature.

A small pit was also excavated immediately north-east of the enclosure ditch. This contained some charcoal flecks but no finds.

Excavation of a second linear feature with a white sandy fill containing shattered flint cut by the enclosure ditch in the area of Section 2, and a small pit to the north suggested that both were geological features possibly periglacial, in origin.

Enclosure II (Fig. 6)

The geophysical survey showed that the north-eastern enclosure opposite Enclosure I was D-shaped and much smaller in size (approximately 20m x 19m) with terminals forming an entranceway on the south-east side (Fig. 3). There appeared to be little visible inside the enclosure.

Initial machine stripping suggested that the south-west side of the D-shaped enclosure was a complete ditch with no evidence for the terminals suggested by the geophysical survey. Three sections were excavated across the south-western side in an attempt to clarify the feature (Fig 6). These revealed an entranceway along the south-western side obscured beneath approximately 0.1-0.15m of mixed deposits - probably representing fill disturbed by ploughing (030). A further two sections were excavated along the north-western and south-eastern sides (a sample of approximately 15% of the exposed ditch).

Along the north-western and south-eastern sides, the ditch appeared to be relatively shallow with evidence for three ditches (Section 4 [106], [103], [102]; Section 5 [115], [111], [112]). All three ditches appeared to have similar profiles with flat bases, similar depths (approximately 0.4 - 0.5m deep), and all comprised similar mid-brown sandy fills (Section 4 (105), (103), (101); Section 5 (114), (110), (112)), making it impossible to establish a clear relationship. Several pieces of flint and a fragment of animal bone were recovered from these ditch sections. Section 5 also

revealed what appeared to be a pit [171], cut by the interior ditch, roughly 1.5m wide and the same depth and similar fill (118) as the ditches.

The eastern terminal was characterised by a wide main ditch c. 3m in width and 0.8m deep (Sections 2 [085], 3a [083], 3b [084]; Plate 1). The fill beneath the ploughing interface was fairly uniform comprising mid-brown sand with ironstone fragments and occasional burnt pebbles ((097), (053) (067)). In section 3a there were two very similar basal fills (053, 097), which may indicate a later recut. This was not evident in Sections 3b and 2, although the shape of the base in Section 3b may indicate a possible recut. This basal fill was cut by a smaller gully (Section 3a [094]; Section 2 [086]) c. 1m wide and 0.6m deep with a slightly siltier fill ((093), (096)), which appeared to terminate shortly before reaching the eastern side of Section 3. Seven flints were recovered from the basal fill of the main ditch along with a fragment of fired clay, four sherds of prehistoric pottery including two scored pieces, some animal bone fragments and several fragments of slag.

The western terminal was very different in character with two distinct steep sided ditch terminals/pits each approximately 1.5m wide and 1m deep (Section 1 [095], [082], Plate 2). The interior ditch/pit [082] had a slightly more rounded base with a friable grey-brown sandy silt basal fill (042), a more yellow upper fill (041) and contained no artefacts. The westernmost ditch/pit [095] had very straight sides and a flat base with a yellow brown fill (040) at the base and a similar upper fill containing larger fragments of ironstone (031). Two bone fragments, a flint and a sherd of pottery were recorded from the basal fills of this ditch. A further nine flints, eleven sherds of prehistoric pottery and two undated fragments of pottery were recorded from the upper fill.

A sub-rounded pit was recorded next to the southern side of the ditch ([100]). This was c. 1.5 x 2m wide and up to 0.5m deep with a rounded base. The fill (099) was similar to that within the enclosure ditches nearby, although the only artefacts recorded from the feature were two flints, one of which is Mesolithic in date.

Pit Groups I and II

The geophysical survey indicated the presence of a number of pits lying between the two enclosures (Fig. 3). Pit Group I lay south west of the entrance to Enclosure II. A second cluster of pits lay just to the north-east of Enclosure I (Pit Group II).

Pit Group I (Fig. 7; Plate 3)

Although six possible pits were indicated by the geophysical survey, only four were visible after stripping (Fig. 4). Given the high readings from some of the stones from the fill of these pits, the extra geophysical signals may have been produced by stones disturbed by ploughing. The pit sizes varied between 1.5m - 2.5m wide and 0.4 - 1m deep with mainly steep sides and flat bases (Fig. 7). All of these pits contained large amounts of dark sand with dark clay patches, containing charcoal and burnt stone. The largest pit [045] had more sloping sides than the other three and contained some

indication of natural silting along its sides (073). The lower fill was a very dark silty sand containing charcoal and burnt stone (074), with occasional small patches of yellow clay. Above this (046) was slightly lighter in colour with a patch of darker material similar to (074) at the top (047). Five sherds of prehistoric pottery were recovered from the upper fills ((046), (047)) as well as some slag, a fragmentary iron object and two fragments of animal bone. Seven sherds of pottery and two flints were recovered from the lower fill (074).

The northernmost pit [034] also had sloping sides and a darker basal fill containing burnt material and small patches of yellow clay (038). Ten sherds of pottery were recovered, all from the lighter, upper fill (035). The two southernmost pits ([064], [021]) both had nearly vertical sides and flat bases with similar dark silty sand fills containing charcoal (Section 3 (062), (063), (070); Section 4 (022), (023), (024)). The southernmost pit contained nine sherds of prehistoric pottery and four flints from the upper fills (022), (023), while the remaining pit produced six sherds of prehistoric pottery and two flints from the upper fills ((062), (063)). Pits [034], [045] and [064] all produced numerous animal bone fragments from the fills.

Pit Group II (Fig 7; Plate 4)

The southern group contained five pits of varying size (Fig. 8). Unlike Pit Group I these tended to have sloping sides and rounded bases. Although there was less burnt material the fills of several of the pits contained patches of darker soil with burnt stone and charcoal. The two northernmost pits ([033], [036]) were the largest (between 1.6 – 1.8m in diameter) with similar mid-brown sandy fills ((037), (032)). Four sherds of pottery and a bone fragment came from (037). Four sherds of pottery, four flints and 2 bone fragments were recovered from (032). The three southern pits were much smaller. The largest [049] was 0.8m wide with a flat base. It comprised a dark sandy lower fill (052) containing a flint and an upper dark fill containing numerous pebbles and seven sherds of prehistoric pottery (048). The two remaining pits ([028], [054]) both comprised mid-brown sandy fills ((029) and (055)) with no finds.

Two small shallow features to the north-west of Pit Group II were also excavated (Fig. 4). Two pieces of flint were recovered from one of these features. It is possible however, that the westernmost of these may have been disturbed during the previous trenching. A shallow posthole/pit with a dark fill, but containing no finds, was also excavated to the south-east of the group (Fig. 4).

Boundary Ditch

The geophysical survey showed a possible boundary ditch running approximately north-south along a slight ridge apparently demarcating the eastern extent of the ridge and furrow (Fig. 2). Excavations showed it running across the site towards the southern corner of the excavation area (Fig. 4) where it was disturbed by modern

truncation (pipes and a test-pit). A single section was excavated through this. No artefacts were recovered from it and there was no evidence for recuts.

Other features

A number of linear bands of white sandy clay were recorded in the south-western area of the site. Excavation of these suggested they may be geological, probably of cryogenic origin (e.g. ice wedges). The northern area of the site appeared to be archaeologically blank with the exception of a single shallow post-hole/pit (Fig. 4), containing no finds.

7. Discussion

The shallow depth of topsoil and years of plough erosion have truncated the archaeology. In addition the nature of the soils in the area made recognising the ditch features under dry conditions very difficult. The recognition of these features was facilitated by the geophysical survey (Mudd and Hegarty 2001).

7.1 Project Aims and objectives

All of the aims listed in the Specifications (ULAS 26.03.2002, Aims 1-5) have been addressed. The excavations identified the character, extent and date of the archaeological deposits that would be affected by the groundworks. These were appropriately excavated and recorded. The archive and report have been produced and the results will shortly be published and disseminated.

Despite all indications from the previous evaluations that there was little environmental potential (ULAS 26-03-02), the first two research aims (ULAS 26.03.02, Research Aims 1-2) to examine the nature and to look at environmental indicators of the Iron Age rural landscape in this area have both been addressed. An attempt was made to consider the pottery assemblage within the regional pottery traditions (ULAS 26.03.02, Research Aims 3-4) although the nature and size of the assemblage made this difficult and it was felt that although the assemblage was generally comparable with the East Midlands tradition, it was difficult to identify the Milton Keynes style of pottery (P. Marsden *pers comm.*). The lack of continuation into the Roman period means that Research Aim 5 is no longer applicable and the small portion of the farmstead that was excavated makes it difficult to comment on the field systems (ULAS 26.03.02, Research Aims 5-6).

7.2 Prehistoric (Pre-Iron Age)

Flint scatters are common in this area of Northamptonshire and several scatters were recorded during initial fieldwork across the excavation area and in two areas to the south. No definite pre-Iron Age features were identified, although the flint assemblage recorded during excavations show that there was some prehistoric activity along the ridge (Appendix I). The presence of a possible Upper Palaeolithic piece in

the assemblage shows that prehistoric activity might date back to this time, although the majority of the flint appears to be of Bronze Age date. Although a number of flints were recorded from within features, these are likely to be residual (Appendix I, Table 1). Those flints recorded in the primary fill of Enclosure ditch I (006) all appear to be of a similar raw material and may represent a single knapping episode disturbed by the later ditch and eroded into the primary silt of the fill.

7.3 Iron Age

Evidence for Middle/Late Iron Age occupation is fairly common and widespread across Northamptonshire especially along the Nene and Ise valleys. Recent surveys at Ecton and Sywell suggest that occupation in rectilinear enclosure systems during the mid to late Iron Age is far more numerous than previously thought (Atkins *et al* 2000 - 2001). Settlements comprising small ditched enclosures containing one or more roundhouses (such as the sub-rectangular enclosure at Rothwell) with associated ancillary structures and pits are the most common Middle/Late Iron Age settlement type (Kidd, 1999). There are several excavated examples in Northamptonshire; Aldwinkle (Jackson, 1977) and Brigstock (Jackson, 1983) are both dated to the middle Iron Age by their association with La Tène ceramics.

Date and form

Apart from the obvious later furrows and the modern features, many of the features revealed by the excavations at Rothwell contained pottery belonging to Earlier La Tène ceramic styles) dating to between the 4th - 5th centuries BC and the 1st century AD. The majority of the pottery came from the pits, in particular the northern group although both enclosure ditches contained sherds of Iron Age pottery including scored ware and decorated La Tène styles (Appendix II, Table 3). This assemblage, along with the form of the features suggests a settlement site of mid - late Iron Age date and appears to be of a similar type suggesting that all the features were in use during a similar period of time.

Both enclosure ditches produced evidence for recutting or remodelling of the enclosure boundary. It is noticeable that the ditch of the south-western enclosure is represented by a much stronger geophysical signal across the eastern and southern side with a much weaker signal to the north-west (Fig. 2). It may be that this weaker signal represents the shallow recut (Fig. 5 [090], [109], [120], [121]) identified during excavation and that the deeper ditch and recut revealed by the sections through the north-east side (Fig. 5 [003], [119]) may not have continued across the western side of the enclosure. Both sections through the deeper ditch [003] showed evidence for a recut [119] after the ditch had had time to at least partially silt up, although in Section 2 the recut didn't appear to reach the base of the original ditch. The larger stone fragments in the fill of this recut might indicate deliberate backfill of this deeper ditch perhaps from a bank.

Although the numerous features and recuts prevent accurate interpretation of the history of the D-shaped enclosure boundary, there appear to be at least three phases of activity with pits or postholes possibly preceding ditches as the enclosure boundary.

It has been suggested that the D-shaped enclosure containing round houses at Great Doddington, Northamptonshire began with a period of unenclosed or possibly palisaded settlement replaced by a later enclosure (Windell 1981). The pits recorded in Enclosure II at Rothwell may be evidence for an earlier enclosure marked by posts and replaced by ditches at a later date. Excavation of a site at Wanlip, Leicestershire (Beamish, 1998) revealed an enclosure of remarkably similar size and plan to the D-shaped enclosure at Rothwell, for which a similar sequence of palisaded enclosure later replaced by ditches was suggested.

There was no evidence for the banks created by the spoil from the ditches, although it is possible that the main ditches were difficult to identify because they had been obscured by bank material spread by ploughing. Enclosure II in particular, had a layer of material (Fig. 6 (030)) obscuring the entranceway that could be bank material spread across the area by later agricultural activity. The fill of the deeper ditch in the south-east section of Enclosure I (Fig. 5 (014), (026)) contains numerous stone fragments which might be evidence of bank material used to backfill this section of ditch.

Many mid – late Iron Age settlement sites extend into the Roman period (Kidd, 1999). The excavated enclosures at Blackthorn (Williams, 1974), and Weekley (Jackson & Dix, 1986-7) both continue into the Romano-British period. This is clearly not the case at Rothwell. The lack of any Roman material or deposits from the site indicates it fell out of use before the adoption of Roman material culture in this area.

No pottery was recorded from the possible boundary ditch. This lies along a slight ridge and the fact that it coincides with the edge of the ridge and furrow may suggest a later medieval date.

Function & Economy

The interior of most Iron Age sites appears to be asymmetrical (Windell, 1981). Given the fact that less than half of each enclosure was revealed by the roadline, it is hard to say exactly how large the site was. However, it seems likely that this is a relatively small farmstead contained within the hilltop. Many of the excavated enclosures containing roundhouses in Northamptonshire are similar in size to Enclosure I (eg Aldwinkle (63.4 x 42.67m), Jackson 1977; Great Doddington (approx 55m x 50-60m), Windell 1981). Enclosure 2 is also similar in size to other D-shaped enclosures (Corby Area 1 (19m x 16.5m), Jackson 1982; Wanlip (approx. 20 x 25m), Beamish 1998). It would appear that the Rothwell settlement shares similar characteristics and is of a similar scale to many Iron Age sites in the region. Various surveys have also suggested that several enclosures may be linked together by trackways and ditches, and although there is no real evidence for this at Rothwell, it

should be noted that the site was unknown prior to archaeological survey and that further, as yet unrecorded sites may exist.

The interpreted roundhouse shown by the geophysical evidence suggests that the larger sub-rectangular enclosure may have been the main settlement/living area while the D-shaped enclosure may have been for stockading animals. There is very little animal bone recovered from the site to suggest farming; however this is more likely to be due to adverse conditions for bone survival rather than reflecting an absence of livestock (Appendix V). What animal bone was recovered suggests the presence of cattle, sheep and horse (Appendix V, Table 7). While the poor condition of the assemblage makes it impossible to draw any firm conclusions about the nature of activities taking place, all of the species identified were probably domestic and are likely to have been used for food. Burnt bone was also recovered from the site (Appendix V). This may have been incorporated with hearth debris and may be the residue from cookery, crafts or the disposal of rubbish. The pottery contains rock inclusions, probably of a granodiorite type from the Charnwood Forest area of Leicestershire, indicating trade of pottery made near the granitic outcrops of the Mountsorrel area some 40 km away (Appendix II).

The lack of any artefacts connected with farming (e.g. querns) may have resulted from modern ploughing, that is likely to have removed larger objects in the ploughsoil down slope. However, sampling of the deposits has produced a significant amount of information about the farming practises of the inhabitants. The numerous cereal grains represented include spelt and emmer wheat, oats and barley (Appendix III). This is similar to types found on other Iron Age sites from the Midlands. The numerous weeds from arable and disturbed soils represented suggest that there were areas of well drained soils nearby that were cleared and utilised for the growing of crops. Spelt appears to have been the main crop (probably autumn sown from the evidence of the weeds present), with a secondary crop of six-row barley. A fragment of pea or bean suggests that other crops may have also been grown here. Most of the remains represent waste from the processing of cereals after harvesting (e.g. cleaning, dehusking) rather than grain itself, and there is little evidence that the processed grain was stored in this area, although this evidence could lie within unexcavated areas of the site.

The inhabitants' diet would have been supplemented by collecting nuts and berries from the local area, such as hazelnuts represented by shells found in the samples. Oyster shell was also present, although this was not necessarily part of their diet (Appendix III).

The cereal cleaning waste was relatively abundant compared with other sites in the region and probably represents an important activity on this area of the site (although this may be because a number of samples were taken from areas outside the main domestic contexts). The burnt fragments of waste suggest it may have been burnt as fuel or kindling before being dumped in the pits (Appendix III).

The slag assemblage from the site would appear to suggest some form of industrial activity in the area (Appendix IV). Evidence of the iron ore, partly reduced also suggests preparation for the ironworking processes being used and it is likely that iron smelting and smithing were taking place nearby on a very small, domestic scale. There was no archaeological evidence for a hearth or furnace, although burnt artefacts and charcoal were recorded from the pits.

The function of the pits between the two enclosures remains uncertain. There was no evidence to suggest that any of them ever held posts or represented structures of some kind. Given the lack of any lining (although a few patches of yellow clay were recorded in the fill these were relatively small pieces), *in situ* burning or processed grain from the samples, they are unlikely to be grain storage pits. Although several had similar profiles with steep sides and flat bases this may be a consequence of the geology or the original excavators preferred method of digging rather than relating to function. Most Iron Age sites contain similar pit groups of unknown function. Excavations on surveyed sites at Ecton and Sewell suggests that Iron Age pits often have a tendency for flat bases and vertical sides but that there are also a variety of other sizes and shapes represented on sites (Atkins *et al*, 2000-2001). In this case considering the amounts of pot, grain waste, slag, animal bone and burnt material within them, the pits may be rubbish pits or even small borrow pits for sand or ironstone that were later used for the dumping of rubbish and sweepings during cleaning of the area.

8. Conclusions

The pottery along with the form of the features suggests that the excavated area represents a small farmstead of mid – late Iron Age date with possible earlier activity represented by a number of flint artefacts from the site. The main evidence for living quarters comes from the geophysical survey, which clearly shows a circular feature that may be a round house within Enclosure I. Enclosure II (the smaller of the two) has no visible internal features and may well have been used as a stockade for animals of some kind. Both enclosure ditches produced evidence for recutting or remodelling of the enclosure boundary so, although the site did not continue into the Romano-British period, it was utilised over a long enough period of time to undergo these recutting phases.

The people that inhabited this site would have been farmers concerned with the tending of their livestock including sheep, horses and cattle. They also had cleared areas of land nearby for cultivating several types of crop. Metalworking including preparation of the iron ore, iron smelting and smithing were taking place nearby on a small, domestic scale. The iron ore may have been obtained via the pits, which were later used to dump the industrial waste and domestic rubbish from the site.

9. Archive

The Archive consists of site notes and indices, colour slides, monochrome prints, digital site records and digitised archive records and one box of finds containing lithics, pottery, bone and slag. It is currently held by University of Leicester Archaeological Services under the site code Roth.2002, until a suitable depository can be found for it.

The archive contains:

- Watching Brief Record Sheets (1-3)
- Sample Records
- Samples (1-14)
- Summary Context Sheets
- Contexts sheets (1-120)
- Drawing Records
- A2 Drawing Sheets (1-22)
- Photo Records
- Colour Slides (1-208)
- Monochrome negatives & contact sheets (1-208)
- Digital photos (1-11)
- Finds Record Sheets
- Individually recorded Finds (1-203)
- EDM files (1-3)
- Specialist Reports

10. Publication

A version of this report will be published in *Northamptonshire Archaeology*.

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Appendix I The Lithics by Lynden Cooper

Description

A total of 123 lithics were collected during the excavations of which 20 were identified as natural and discarded. Ten of these were unstratified. The remainder was recorded by context and depth and marked with a find number. All of the material was scanned to identify any diagnostic pieces and all obviously modified pieces were recorded by type. The data was recorded in the computerised site archive. Table I contains a full list of all lithics.

The raw material is translucent flint, typically brown but with a few grey pieces. It is typical of derived flint from till deposits, probably of local origin, possibly from the boulder clay ridge mantle to the south of the site.

There is a patinated backed blade fragment, which, from its thickness and size, is probably Upper Palaeolithic (Fig 8: 1; Find No 76) from the silting of the enclosure ditch (Fig. 5 (006)). Late Upper Palaeolithic lithic material has not been recorded for Northamptonshire (Kidd n.d.), although a Late Upper Palaeolithic site was found at Launde, Leicestershire, some 20km to the north in a similar ridge top situation overlooking the Chater Valley (Cooper 1997).

There is a Mesolithic component including an opposed platform bladelet core (Fig. 9: 2; SF No 180) from the pit close to Enclosure II (Fig. 6: [100]) and four bladelet fragments from various contexts. A fragment of a bifacial piece (Fig. 9:3; Find No 145) may be part of a laurel leaf/spear point and is probably Neolithic.

The majority of the assemblage appears to be later prehistoric in date and includes 13 retouched pieces, 69 flakes, 6 shatter fragments and 4 cores. The retouched material includes 4 scrapers, 5 piercers and 4 retouched pieces. The flaking mode was invariably hard hammer and the butt types are mostly plain, though some dihedral examples are also present. Some of the scrapers are rather crude and include examples with linear retouch, a feature that has been considered Bronze Age (Humble n.d.).

Discussion

The issue of flint use into the first millennium BC has been recognised as a regional research question (Willis 2001), and some workers have suggested that this might extend into the Late Iron Age (Humphrey and Young 1999). The evidence for contemporary flint use at the present site is arguable. The flake debitage cluster from the primary fill of the southern enclosure ditch (Fig. 5: (006)) is fresh and much of it appears to be from the same nodule. On face value it might be considered to be contemporary. However, it can be envisaged that such material might derive from an eroded knapping scatter encountered during the excavation of the ditch. On balance it is thought that the flint is probably of a Bronze Age date. The technological features

and limited typology (scrapers and piercers) have been reported from Bronze Age contexts (Ford et al., 1984).

Table 1 Catalogue of flints

Find No	Context	Type	Other Info	Patinated	Burnt
1	001	Natural		NO	NO
2	001	Scraper		NO	NO
3	001	Flake		NO	NO
5	001	Flake		NO	NO
9	001	Flake		NO	NO
10	001	Keeled core		NO	NO
15	001	Flake	Huge	NO	NO
16	001	Scraper		NO	NO
17	001	Retouched flake		NO	NO
18	001	Flake		NO	NO
19	001	Natural		NO	NO
20	001	Natural		NO	NO
21	001	Natural		NO	NO
22	001	Bladelet fragment		NO	NO
25	022	Flake		NO	NO
26	022	Flake	Old scar	NO	NO
27	022	Piercer		NO	NO
30	022	Natural		NO	NO
44	004	Flake		NO	NO
45	004	Flake		NO	NO
46	004	Flake		NO	NO
47	005	Flake		NO	NO
50	006	Flake		NO	NO
51	006	Flake		NO	NO
52	006	Flake		NO	NO
54	006	Flake		NO	NO
55	009	Natural		NO	NO
56	009	Flake		NO	NO
57	009	Flake		NO	NO
58	009	Natural		NO	NO
59	009	Flake		NO	NO
60	009	Flake		NO	NO
61	009	Flake		NO	NO
62	009	Natural		NO	NO
63	009	Flake		NO	YES
64	009	Flake		NO	NO
65	009	Piercer		NO	NO
66	009	-		NO	NO
67	032	Natural		NO	NO
68	032	Flake		NO	NO
69	032	Flake		NO	NO
73	022	Flake		NO	NO
75	006	Flake		NO	NO
76	006	Backed blade fragment	?Upper Pal	YES	NO
77	006	Flake		NO	NO
78	006	Flake		NO	NO
79	006	Flake		NO	NO

80	006	Flake		NO	NO
81	004	Flake		NO	NO
82	006	Flake		NO	NO
83	006	Flake		NO	NO
84	006	Flake		NO	NO
85	006	Flake		NO	NO
86	006	Flake		NO	NO
87	006	Flake		NO	NO
88	006	Flake		NO	NO
89	006	Flake		NO	NO
90	006	Flake		NO	NO
91	004	Flake		NO	NO
92	005	Scraper		NO	NO
93	004	Struck frag.		NO	NO
94	004	Flake		NO	NO
95	030	Flake		NO	NO
96	030	Shatter		NO	NO
97	030	Flake		NO	NO
98	030	Natural		NO	NO
101	031	Flake		NO	NO
102	031	-		NO	NO
103	031	Core fragment		NO	NO
104	031	Shatter		NO	NO
	031			NO	NO
107	031	-		NO	NO
108	031	Flake		NO	NO
110	031	Natural		NO	NO
111	031			NO	NO
112	031	Notched flake		NO	NO
113	031	-		NO	NO
115	040	Flake		NO	NO
121	013	Piercer		NO	NO
122	013	Flake	Similar to flints from 006	NO	NO
124	051	-		NO	NO
125	053	Blade fragment		YES	NO
129	053	Core fragment		NO	NO
130	053	Flake		NO	NO
132	032	Flake		NO	NO
133	052	Flake		NO	NO
134	039	-		NO	NO
137	032	Flake		NO	NO
138	053	Natural		NO	NO
140	053	Flake		NO	NO
142	053	Shatter		NO	NO
143	053	Flake		NO	NO
145	053	Bifacial fragment	Laurel leaf/spear point?	YES	NO
148	067	Flake		NO	NO
149	067	Flake		YES	NO
151	069	Flake		NO	NO
152	062	Flake		NO	NO
154	062	Natural		NO	NO

168	046	Retouched flake		NO	NO
169	046	Shatter		NO	NO
173	074	Shatter		NO	NO
175	074	End scraper	NB. Straight edge	NO	NO
177	051	Flake	Probably fragment of bladelet	YES	NO
179	099	Natural		NO	NO
180	099	Opposed platform bladelet core	Mesolithic	YES	NO
181	099	Flake		NO	NO
182	099	Natural		NO	NO
183	112	Flake		NO	NO
184	076	Flake		NO	NO
186	089	Flake		NO	NO
187	079	Flake		NO	NO
188	112	Shatter		NO	NO
189	101	Piercer		NO	NO
190	078	Natural		NO	NO
191	112	Flake		NO	NO
192	114	Flake		NO	NO
193	078	Blade fragment		NO	NO
194	112	Thick piercer		NO	NO
195	092	Natural		NO	NO
196	078	Natural		NO	NO
197	092	Flake		NO	NO
200	092	Natural		NO	NO
202	092	Natural		NO	NO
203	062	Flake		NO	NO

Appendix II

The Prehistoric Pottery by Patrick Marsden

Methodology

The material was examined and recorded using the guidelines for the analysis of later prehistoric pottery (Prehistoric Ceramics Research Group 1997) and those for the recording of later prehistoric pottery from the East Midlands (Knight 1998). It was analysed using a x10 binocular microscope and allotted to fabric groups based on the dominant type of inclusion and to a fabric type within each group using the ULAS prehistoric pottery fabric series. Form, decoration, surface treatment and any evidence of use were also recorded. The information is stored on prehistoric pottery record sheets and on a computer database.

Description

The excavations produced 100 sherds of prehistoric pottery weighing 940g. The pottery from the site is mainly made up of East Midlands scored wares and includes several large rim sherds. A summary list of prehistoric pottery is available in Table 3

Fabrics

Nearly all of the pottery is shell-tempered (91.2%) and is likely to be locally produced as are those in sandy fabric Q1 (7.2%). Five sherds weighing only 18g contain igneous rock inclusions (fabric R1). The rock is probably of a granodiorite type from the Charnwood Forest area of Leicestershire. This is significant in that it may indicate trade over some distance, c.40 km, of pottery made near the granitic outcrops of the Mountsorrel area. Thin-section work would be needed to prove or disprove this, however. Similar inclusions have been found in Iron Age pottery from excavations at Weckley, Northamptonshire (A. Gwilt: pers. comm.; Williams, n.d.).

Fabric Summary

S1 Shell-tempered
S2 Shell-tempered with sand
Q1 Sandy ware
R1 Igneous rock inclusions

Fabric	Sherd no.	Weight (g)
S1	38	379
S2	59	657
Q1	8	82
R1	5	18
Total	110	1136

Table 2 Iron Age Pottery Fabric totals (sherd no. and weight (g))

For descriptions of similar fabrics from Leicestershire published elsewhere see Marsden 1998, 45 and 2000, 27 (in both cases Fabric RQ1=R1).

Forms

Forms consist of globular (fig.9 nos.1 and 4), ellipsoid (fig.9 no.5) and round-shouldered (fig.9 no.3) vessels. The most common rim form is of the rounded direct type (e.g. fig.9 nos.1, 5, 6 and 8). Other rim forms represented are everted rounded (e.g. fig.9 nos.3 and 7), tapered direct (e.g. fig.9 no.4) and everted flattened (e.g. fig.9 no.9) types.

Decoration

Linear decoration is present on at least one vessel. This decoration belongs to the La Tène tradition, displaying patterns made up of burnished horizontal and diagonal lines (see fig.9 no.1).

Surface Treatment

39.3% of the pottery by weight is scored. Most of this is fairly deep, sometimes with scratching (e.g. fig.9 no.2). Some other vessels display external and internal burnishing. Light brushing is also present on one vessel (fig.9 no.6).

Discussion

The pottery belongs to the Earlier La Tène ceramic styles as identified by Knight (2002, 131-135 and fig.12.3 nos. 20-26). These styles date to between the 4th or 5th centuries BC and the 1st century AD (*ibid.* fig. 12.2). The assemblage is mainly made up of East Midlands Scored wares and includes several large rim sherds. However, a La Tène decorated globular bowl is also present displaying linear tooled decoration (Context 23/24 SF23, fig.9 no.1). Further sherds of La Tène decorated pottery are present (Context 46 SF64, Context 74 SF174 and SF176) which may also be part of this vessel. La Tène ornamental style pottery has been found at other sites in Northamptonshire close by at Weekley (Jackson and Dix 1986-7 and Knight 2002 fig.12.3 no.23) and Desborough (*ibid.*). The closest published parallel for SF23 in terms of form and decoration though is from Hunsbury (David Knight pers. comm., Fell 1936 vessel D10).

Illustration Catalogue for Figure 10

1. Rim and decorated body, S2, globular vessel with rounded direct rim, burnished horizontal and diagonal lines, burnished on internal and external surfaces, SF23, context 23/24.
2. Body sherd, S1, deeply scored and scratched, SF24, context 23/24.
3. Rim and body, S2, round-shouldered vessel with everted rounded rim, burnished externally, SF 106, context 30/41.
4. Rim, Q1, globular vessel with tapered direct rim, burnished externally and internally, SF33, context 32.
5. Rim and body, S2, ellipsoid vessel with rounded direct rim, deeply scored and scratched, external carbonised residue, SF41, context 32.
6. Rim and body, S1, ?globular vessel with rounded direct rim, light brushing on external body surface, SF32, context 35.
7. Rim and body, S2, everted rounded rim, deeply scored, external carbonised residue, SF178, context 46.
8. Rim and body, S2, rounded direct rim, deeply scored, external carbonised residue, SF136, context 48.
9. Rim and body, S2, everted flattened rim, deeply scored, external carbonised residue, SF158, context 63.

Table 3 Catalogue of prehistoric pottery

FindNo	Context	Sherd No	Weight	Notes
11	001	17	37	
12	001	6	22	scored
14	001	4	6	
23	023	2	120	LT style, decorated bowl (includes rim)
24	023	7	120	scored
28	022	1	6	
29	022	1	7	scored
31	035	1	6	rim
32	035	1		scored
33	032	1		scored
35	035	1	35	scored
39	035	1	19	
40	035	1	6	
41	032	1	65	scored, includes rim
42	035	2	32	
43	035	1	11	rim
71	037	2	16	scored
74	014	1	4	
99	031	5	6	
100	031	1	14	
106	031	4	79	includes two rim sherds
109	031	1	6	
119	008	1	12	rim
120	008	1	4	?LT rim
126	053	1	4	
127	053	1	4	
128	053	1	6	scored
136	048	7	28	scored, includes rim
146	053	1	14	scored
147	067	1	32	
150	062	2	57	
153	062	1	8	scored
156	062	1	6	
157	063	1	14	scored
158	063	1	18	scored rim
161	046	1	18	scored
164	046	2	31	scored rim & LT style
165	047	1	2	
167	046	1	8	
170	046	1	2	
172	074	3	4	scored
174	074	3	3	LT style, ? same vessel as SF23
176	074	1	10	LT style, ? same vessel as SF23
178	046	1		scored rim
198	108	1	6	
199	001	1	5	
201	107	1	3	

Appendix III Environmental Samples by Angela Monckton

Methodology

During excavation samples were taken from the base of both enclosure ditches for assessment for the preservation of waterlogged plant or other remains, which could give evidence of the environment or the function of the features in the past. In addition samples were taken from several of the two groups of pits between the enclosures, particularly the northern group of pits, which appeared to have charred material within it, in order to investigate any evidence for crops, economy or activities on the site in the past.

Samples were taken from 14 contexts in one to three parts of around 10 litres size. These were processed by wet sieving in a 0.5mm mesh with flotation into a 0.5mm mesh sieve. The flotation fractions (flots) and residues were air dried and the heavy fraction over 4mm was sorted for all finds which are included in the relevant sections of the report. The fraction below 4mm was reserved for analysis. This work was carried out by John Tate at ULAS.

All the flots were then scanned at x10 magnification and those with sufficient remains for interpretation (over 50 items) were selected for analysis. During analysis the flots were sorted at x10-60 magnification with a stereo-microscope and for these samples the fine fractions were also refloated and sorted for plant remains to ensure recovery. For richer samples one part only was sorted. The plant remains were identified by comparison with modern reference material, counted and recorded (Table 4). The plant names follow Stace (1991) and are seeds in the broad sense, unless stated.

To compare the samples with each other, and with those from other sites, the total numbers of cereal grains, weed seeds and chaff (spikelet forks consist of two glumes), were calculated (Table 4). The ratios of glumes to wheat grains, and weed seeds to total grains were then calculated, because this can give evidence of crop processing activities (van der Veen 1992).

The plants

Cereals: Wheat chaff fragments were abundant. The majority of identifiable glumes were of spelt (*Triticum spelta*) with prominent minor veins, one prominent wide angled keel and wide bases. Occasional glumes were identified as emmer (*Triticum dicoccum*) because of their lack of prominent minor veins, the acute angles of the two keels and their small size. Glumes which were too broken to distinguish these features were identified as glume wheat, either emmer or spelt (*Triticum dicoccum/spelta*), although many of these were probably spelt. Small rachis segments were also identified only as glume wheat. The identifiable cereal grains were mainly of wheat (*Triticum* sp). Identification of wheat grains is problematic because of the overlap of characters and distortion on charring, however, some of the better preserved grains were identified as spelt and a few had the characteristic shape of emmer. Only a trace of emmer was found here. Barley grains (*Hordeum vulgare*)

were found which was of a hulled form and the presence of twisted grains showed that six-row barley was present. Oat was present as awns or cereal barbs (*Avena* sp) which have a characteristic twisted shape; this was possibly wild oat which is an arable weed. The crops found here are the same as those from other Iron Age sites in the midlands (Greig 1991).

Other food: Evidence of collected plants used as food included hazel (*Corylus avellana*) nutshell fragments gathered from woodland. Hawthorn (*Crataegus* sp.) berries are edible, but the pips found had been eaten by rodents, and thus may have been present with charcoal rather than as food waste, and could be from hedgerows or scrub vegetation. A fragment of pea or bean was also found representing another crop.

Wild plants: Abundant weed seeds were found in some of the samples from the pits. These were mainly weeds of arable or disturbed ground probably present as weeds of the cereal crops. Of particular note was cleavers (*Galium aparine*), which is typical of autumn sown cereals, as has been shown in field trials at Butser (Reynolds 1981). Arable weeds also included scentless mayweed (*Tripleurospermum inodorum*) perhaps suggesting the cultivation of better drained soils. A group of weeds typical of disturbed ground such as is found in settlements, garden type cultivation or of spring sown crops was also present. These included charred goosefoots (*Chenopodium* sp), docks (*Rumex* sp) and chickweed type plants (*Stellaria* sp.). A number of the plants are more typical of grassland including vetches/vetchling (*Vicia/Lathyrus*), clover type plants (*Trifolium* type), eyebright or bartsia (*Euphrasia/Odontites*), and ribwort plantain (*Plantago lanceolata*). These may represent grass used as kindling or perhaps waste fodder, but may have been weeds cleaned from the cereals as most of these grassy plants can also grow as arable weeds or in field margins. The seeds of grasses including brome grass (*Bromus* sp) were also found. These may also have been arable weeds. Buttercup (*Ranunculus acris, repens* or *bulbosus*) was present, a plant indicating damp grassy vegetation. Plants of wet ground were few in number and represented by sedges (*Carex* sp) and blinks (*Montia fontana*), perhaps from poorly drained areas of the fields or from ditch sides.

Results by context

Pit group I.

Pit cut 21 (24), sample 4: This sample from the middle fill of the pit was dominated by weed seeds with spelt grains and chaff, barley grains and a single barley chaff fragment (Table 4). The seeds were mainly small and the chaff was mainly wheat glumes. The sample was interpreted as fine sievings from cleaning wheat to remove seeds and chaff.

Pit cut 34 (38), sample 6: This sample from the basal fill of the pit was dominated by chaff fragments which were glumes of wheat with some spelt grains and barley grains with one barley chaff fragment only (Table 4). Seeds were also quite numerous and the sample was thought to represent waste from dehusking spelt. Some larger seeds were also present perhaps hand sorted from the grain and added to the waste as

discussed below. A sample from the upper layer in the pit, sample 5, contained abundant charcoal with a few charred cereal grains only.

Pit cut 64 (63), sample 11: The sample was taken from the charcoal layer within the pit and was dominated by weed seeds, as in sample 4, with chaff more numerous (Table 4). Small seeds were most abundant including clover type seeds and vetches were quite abundant perhaps indicating a weedy crop or including some grassy material. Large grasses and cleavers were also present as arable weeds. The sample was interpreted as including cereal cleanings fine sieved from the grain. A sample from the basal layer, sample 12 contained fewer of the same type of remains.

Pit Group 2

Pit cut 33 (32) sample 7: The sample was dominated by wheat chaff, with fewer seeds and grains. This was thought to represent dehusking waste from wheat, although a few grains of barley are present probably mixed from a previous crop or mixed on disposal.

Pit cut 39 (39), sample 8: The sample was dominated by seeds but there were almost equal numbers of wheat grains and glumes, perhaps representing whole spikelets of wheat being processed. The abundant seeds suggest this contains cereal cleaning by fine sieving, possibly with spikelets burnt during processing, although differential preservation can occur, chaff being more easily burnt away than grains (Boardman and Jones 1990).

Pit 49 (52), sample 9: This sample contained little charred material, but broken oyster shell was distributed throughout the sample. Oysters were consumed in the Iron Age on the coast, but the shell is more common inland on Roman sites when oysters could be transported for consumption. Shell could have been brought to the site and may not represent food waste.

Enclosure 1

Ditch cut 10 (11), sample 1: The sample contained 54 items, with chaff being most numerous with grains and seeds present. This was thought to represent cereal cleaning waste similar to material accumulated in the ditch.

Enclosure 2

Ditch 84 (33), sample 13: Only single numbers of remains were found in this sample, but although chaff, grains and seeds were present there were too few remains for interpretation. This is likely to be part of the scatter of cereal cleaning waste, but could also be from domestic activity, not encountered in the excavated area.

Discussion

In order to interpret the samples it is necessary to consider what is known about the cereals. The main cereal found here is spelt, a glume wheat, in which the grains are held firmly in the chaff even after threshing which only breaks the cars into spikelets. After initial threshing the straw is removed and the spikelets winnowed to remove

light contaminants and coarse sieved to partly clean the spikelets (Hillman 1981). This type of grain could have been stored as spikelets with the chaff still present, because the chaff protected the grains from weevil and fungal attack (Hillman 1984). Sample 8 may represent a few whole spikelets of spelt because there is approximately one wheat grain to each glume in the ear of wheat and in the sample.

Before the grain was used it was subject to parching and pounding, followed by fine-sieving to remove the chaff (glumes and rachis) and any small weed seeds, leaving cleaned grain for use (Hillman 1981). The waste chaff could be preserved by charring if it was burnt either as rubbish or if it was used as fuel or kindling. Evidence for this fine sieving waste is found where the ratio of glumes to wheat grains is high because in the ear of wheat there is one glume to each grain so an excess of glumes in the sample indicates cereal-cleaning waste, this was found in samples 6 and 7 (table 1). Similarly a high ratio of seeds to grains also indicates cereal cleaning waste (van der Veen 1992), this was found here in samples 4 and 11 (Table 4).

When samples are found with grain more abundant than chaff they may represent cleaned cereal product, no samples of this type were found here. However some of the large seeds such as those of cleavers, large grasses and black bindweed remain with the grain because they would not be removed by fine sieving but could be hand sorted from the grain before use. The large seeds found here in samples 6 and 11 may represent some of this waste sorted from grain during processing added to the fine sieving waste.

The density of remains is high in the pits ranging from 40.5 to 72.9 items/litre of soil in pit group 1 and 15.6 to 56.3 items/litre in pit group 2 selected samples. Sites can be compared using the maximum density found in the most productive sample from each site although this can be affected by preservation and the type of activity in the past. Many Iron Age sites in the midlands have low maximum densities of remains most Leicestershire sites being below 10 items/litre with the exception of the Late Iron Age sites at Huncote and Ashby de la Zouch with 19 and 32 items/litre respectively (reviewed in Monckton in press). Gamston in Nottinghamshire falls into this more productive group with 23 items/litre maximum density (Moffett 1992). At Crick Northamptonshire the maximum density of cereal cleaning waste was 16 items per litre with the most productive samples being from a four poster interpreted as a granary which had a grain rich sample of 171 items/litre. Hence cereal cleaning waste is more abundant on this site than on the extensive settlement at Crick where mainly domestic contexts were sampled (Monckton forthcoming).

Although maximum densities are only one means of comparison the high density here of 72.9 items/litre of fine sieving cereal cleaning waste suggests the importance of cereal processing on the site. Chaff could be used as fodder so would only be burnt if plentiful, and perhaps if it was useful for fuel or kindling. Chaff was commonly used for fuel to parch cereals in the Roman period (van der Veen 1989) and it may have been used for this on a smaller scale here although it could have been used as fuel for

other purposes including kindling for domestic fires. Unfortunately no evidence survived to indicate where the waste was burnt or to show the scale of the activity.

Conclusions

Abundant charred cereal remains and weed seeds were recovered from pits between the two enclosures. The remains were interpreted as dehusking waste from glume wheat as fine sieved waste of chaff and seeds removed from the grain. The main cereal was spelt with six-row barley as a second crop. The cereal cleaning waste was relatively abundant compared with other sites in the region and was thought to represent an important activity on this area of the site. The spelt was thought to be autumn sown from the evidence of the weeds present and probably grown on the well drained soils nearby. The waste may have been burnt as fuel or kindling before being dumped in the pits.

Table 4 Charred Plant Macrofossils

Area	Gp.1			Encl 1	Gp. 2		Encl 2	
Feature	21	34	64	10	33	39	84	
Context	24	38	63	11	32	39	33	
Context type	Pit	Pit	Pit	Ditch	Pit	Pit	Ditch	
Site/Sample	4.1	6	11.1	1	7	8	13	
GRAINS								
<i>Triticum cf spelta</i>	1	5	11	-	4	7	-	Spelt
<i>Triticum cf dicoccum</i>	-	-	1	-	1	1	-	Emmer
<i>Triticum dicoccum/spelta</i>	4	18	25	2	7	8	-	Glume wheat
<i>Triticum</i> spp.	-	-	2	1	2	6	-	Wheat
<i>Hordeum</i> sp. hulled	7	7	-	-	5	3	-	Barley
<i>Hordeum</i> sp. hulled, twisted	2	2	-	-	-	1	-	Barley
<i>Hordeum vulgare</i> L.	-	15	12	-	2	1	-	Barley
Cereal indet.	25	74	24	7	33	20	2	Cereal
Cereal/Poaceae	-	-	6	-	1	-	1	Cereal/Grass
Cereal embryos	-	1	-	-	1	1	-	Cereal
CHAFF								
<i>Triticum dicoccum</i> Schubl. gb.	-	-	-	2	-	1	-	Emmer
<i>Triticum spelta</i> L. spikelet fork	1	4	2	-	-	-	-	Spelt
<i>Triticum spelta</i> L. glume	3	37	17	7	27	9	-	Spelt
<i>T. dicoccum/spelta</i> spikelet fork	2	34	12	1	5	3	1	Glume wheat
<i>T. dicoccum/spelta</i> glume	22	207	94	20	102	29	1	Glume wheat
<i>T. dicoccum/spelta</i> rachis	2	6	1	-	2	5	-	Glume wheat
<i>Hordeum vulgare</i> L. rachis	1	1	-	-	-	-	-	Barley
<i>Triticum</i> type awns	-	1	-	-	-	-	-	Awns wheat
<i>Avena</i> type awns	2	2	1	-	1	-	-	Awns oat
Culm node large	-	1	-	1	-	2	-	Cereal stem
Culm base large								Cereal stem base
WILD PLANTS								
<i>Ranunculus</i> subgen <i>Ranunculus</i>	3	-	-	-	-	1	-	Buttercup
<i>Papaver</i> sp.	3	1	1	-	-	-	-	Poppy
<i>Corylus avellana</i> L.	1	2	2	2	2	1	1	Hazel nut shell
<i>Chenopodium</i> sp.	2	8	45	-	2	2	-	Goose foot
<i>Cerastium/Stellaria</i>	9	12	8	-	-	5	-	Stitchwort type
<i>Montia fontana</i> L.	-	1	1	-	2	2	-	Blinks
<i>Stellaria media</i> L.	1	1	1	-	-	-	-	Chickweed

<i>Silene</i> sp.	-	1	-	-	-	-	-	Campion
<i>Polygonum aviculare</i> L.	5	-	20	-	4	9	-	Knotgrass
<i>Polygonum</i> sp.	2	1	-	-	1	-	-	Knotweed
<i>Fallopia convolvulus</i> L.	-	-	1	-	-	-	-	Black Bindweed
<i>Rumex</i> sp.	10	15	66	2	1	3	-	Docks
<i>Rumex acetosella</i> L.	3	2	2	-	-	2	-	Sheep's-sorrel
<i>Brassica</i> sp.	-	1	-	-	-	-	-	Cabbages/mustards
<i>Potentilla</i> sp.	-	-	-	-	1cf	-	-	Cinque-foil
<i>Crataegus</i> sp.	-	-	2	-	-	-	-	Hawthorn
<i>Vicia/Pisum</i>	-	2	-	-	-	-	-	Bean/Pea
<i>Vicia/Pisum/Lathyrus</i>	3	-	1	-	-	-	-	Vetch/Peas
<i>Vicia sativa</i> ssp <i>nigra</i> (L.) Ehrh.	-	1	-	-	-	-	-	Common vetch
<i>Vicia</i> sp.	26	1	15	2	-	2	-	Vetch
<i>Vicia/Lathyrus</i>	3	7	7	1	4	-	-	Vetch/Vetchling
<i>Lotus/Trifolium</i> small	36	9	14	-	-	-	-	Clover type
<i>Medicago/Melilotus/Trifolium</i>	37	15	14	-	12	12	-	Clover type
<i>Hyoscyamus niger</i> L.	-	-	2	-	-	-	-	Henbane
<i>Prunella vulgaris</i> L.	-	1	-	-	-	-	1	Self-heal
<i>Stachys</i> sp.	-	5	-	-	-	-	-	Woundwort
<i>Plantago lanceolata</i> L.	-	1	1	-	-	1	-	Ribwort plantain
<i>Euphrasia/Odontites</i>	37	-	-	-	-	-	-	Eyebright/Bartsia
<i>Galium aparine</i> L.	3	5	9	-	1	2	-	Cleavers
<i>Galium</i> sp.	2	2	2	1	2	-	-	Bedstraw
<i>Tripleurospermum inodorum</i> (L.) Shultz-Bip.	6	8	21	-	-	1	-	Scentless mayweed
Asteraceae indet.	1	-	-	-	-	-	-	Daisy family
<i>Carduus/Cirsium</i>	-	-	2	-	-	-	-	Thistles
Cyperaceae	1	-	-	-	-	-	-	Sedge family
<i>Carex</i> sp.	2	1	12	-	-	3	-	Sedge
<i>Bromus hordeaceus/secalinus</i>	2	24	9	1	2	4	-	Brome grass
Poaceae large	15	98	59	3	2	7	-	Grasses
Poaceae small	12	6	40	-	8	2	-	Grasses
Indetermined seeds	14	19	12	-	5	7	-	Seeds
OTHER								
Blackthorn/Hawthorn	-	1	-	-	-	-	-	Thorns
<i>Arrhenatherum elatius</i> (L.) tu.	1	-	4	-	1	-	-	Onion couch grass
Capsule fragment	-	-	-	-	1	-	-	Capsule indet.
Culm node small	3	-	2	1	3	4	-	Grass stem
TOTAL	324	664	523	54	250	169	7	Items = 205 l
Vol sample	8	14	8	14.5	16	3	12	Litres
Vol flot	20	35	15	25	12	10	8	mls
% in Flot	86.4	52.3	77.7	12.9	46.4	86.0	28.5	% in Flot
Items/litre	40.5	47.4	72.9	3.7	15.6	56.3	0.6	Items/litre
Totals								
GLUMES	31	320	139	29	139	45	3	
GRAINS	39	121	81	10	55	47	3	
WEED SEEDS	247	246	369	10	51	66	1	
Ratios								
Glumes: Wheat grains	2.2	5.3	2.2	2.9	3.8	1.2	-	Ratio 1
Rachis: Barley grains	1 : 9	1 : 24	-	-	-	-	-	Ratio 2
Seeds : All grains	6.3	2.0	4.6	1.0	0.9	1.4	-	Ratio 3

Key. gl/glume = glume base, tu = tuber. Remains from flot plus residue recorded.
Remains are seeds in the broad sense unless described otherwise.

Appendix IV Slag and Hammerscale by SallyAnne Smith and Graham Morgan

Methodology

The finds in this assemblage were weighed, counted and internal structures described where possible. Most of the finds were examined by microscopy. Item number 12 was also polished to establish the internal structure of the metal found present. Table 5 lists the slag from contexts while table 6 catalogues the hammerscale and spheroidal hammerslag from sieved samples.

Results

The assemblage was quite unusual as initially it appeared to be made up of fuel ash slag – light and vesicular – but on further examination, turned out to be metalworking slag. The lightness of colour could be due to the light coloured sand and fayalite (G. Morgan pers. comm.).

Item numbers 7 and 8 came from Pit Group I, Item 9 came from Enclosure Ditch II and the remainder came from topsoil clearance. Item 12, cut number 03, revealed a fragment of metal within the slag residue. This was polished for further analysis on the internal structure.

Soil samples were also taken from several of the pits and upon analysis, revealed evidence of flake hammerscale and spheroidal hammerslag. This is produced by smithing - hammering the smelted iron bloom whilst hot to consolidate the metal and expel any trapped slag. The spheroids consist of droplets of slag that are expelled mainly during primary smithing, whilst the flake hammerscale is produced in both primary and secondary smithing.

Discussion

This assemblage would appear to represent industrial activity in the form of iron smelting and smithing on a very small, domestic scale. Evidence of the iron ore, partly reduced, also suggests preparation for the ironworking processes being used. No evidence of a hearth or furnace was apparent although burnt artefacts (not in situ) were located from Pit Group I, including Items 7 & 8. Charcoal was also present within the residue of Items 7, 8 and 10.

Although a clear indication of metalworking in the area has been revealed by this analysis, the relatively small amount of slag retrieved from this site and the deposition of the finds in pits and ditch fill suggests possible dumping or cleaning up. The actual production site remains unknown.

Table 5 Catalogue of slag and hammerscale

Item No.	Context No.	Small Find No.	Cut No.	Weight in grams	Number of pieces	Description
1	001	6		65.35	2	Oolitic ironstone, partially surrounded by Fayalite (partially reduced iron ore)
2	001	6		36.82	4	Vesicular, light sand & light coloured fayalite
3	001	13		25.38	9	Vesicular, light sand & light coloured fayalite
4	005	49		362.39	18	Vesicular, light sand & light coloured fayalite
5	005	49		55.84	2	Partially reduced haematite/oolitic ironstone
6	005	49		27.04	2	Haematite limonite iron ore
7	046	171		20.48	1	Partially vesicular light coloured sand & fayalite - not liquid but grainy.
8	047	160		38.18	3	Vesicular fayalite & sand with some charcoal
9	053	139		6.35	2	Vesicular, light sand & grey fayalite.
10	U/S		Nr to 03	33.02	1	Partially vesicular light coloured fayalite with some charcoal
11			Nr to 03	19.15	1	Vesicular light coloured fayalite & sand
12			Nr to 03	74.39	1	Vesicular fayalite & sand with frags of metallic iron *GM to polish
13	0005			119.98	2	Partially reduced iron ore with light coloured V.F & S - limonite
14	0005			74.19	4	Vesicular Fayalite & Sand, light coloured.

Table 6 Catalogue of hammerscale and Spheroidal hammerslag from sieved soil samples

Sample No	Context No	Cut No	Number of pieces	Description
2 (1 of 2)	6	3	2	Spheroidal hammerslag
1	11		8	"
3 (2 of 2)	14	3	2 (S) 1 (F)	Spheres & hammerscale flakes
4	24		7 (S) 3 (F)	"
5 (1 of 2)	35		16	Spherical hammerslag
7 (2 of 2)	35		5 (S) 2 (F)	Spheres & Flakes
6 (2 of 2)	38		8 (S) 2 (F?)	"
10	47	45	3	Spherical hammerslag
9	52		4	Spherical hammerslag
13	53		3 (S) 3 (F?)	Spheres & Flakes
11 (2 of 2)	63	64	7 (S) 1 (F)	Spheres & Flakes
12 (1 of 2)	70	64	1	Spherical hammerslag
12 (2 of 2)	70	64	7	Spherical hammerslag

Appendix V Animal Bone by Jennifer Browning

Introduction and Methodology

A small faunal assemblage was recovered during excavations of two enclosure ditches and a number of pits at Rothwell, Northamptonshire. All features have been dated to the Iron Age. The bone was identified with reference to the comparative skeletal material held by the School of Archaeology and Ancient History at Leicester University. Where possible species, anatomy, completeness and state of fusion were recorded for each fragment and the bones were examined for signs of butchery, burning and gnawing. The observations were recorded upon a computerised spreadsheet. Where fragments were clearly part of the same bone they are counted as a single fragment.

The majority of specimens (133 fragments) were recovered from the coarse fraction of sieved samples. These were processed by wet sieving in a 0.5mm mesh with flotation into a 0.5mm mesh sieve. The flotation fractions and residues were air dried and the coarse fraction over 4mm was sorted and animal bone separated. The remainder of the fragments were recovered by hand during excavation. The bone was mostly highly fragmented and very poorly preserved. The specimen size of the sieved bone was generally far smaller than the hand-recovered material and there were few identifiable pieces. Those fragments that could not be identified to species level were classified as 'cattle-size', 'sheep-size' or 'unidentified'. A full list of animal bone is shown in Table 8.

Results

The assemblage comprised 158 fragments. However, this total does not include quantities of partially disintegrated bone, which could be neither identified nor quantified, but which do serve to confirm the presence of bone in contexts 32, 37 and 46. The remains of cattle, sheep and horse were identified in the assemblage, in the fragment proportions shown in Table 7. No small-boned mammal species, bird or fish bones were observed.

Table 7 Species representation

Species	<i>cattle</i>	<i>sheep</i>	<i>horse</i>	<i>sheep-size</i>	<i>cattle-size</i>	<i>unidentified</i>	<i>Total</i>
<i>Number</i>	7	2	2	5	9	133	158
<i>Percentage</i>	4	1	1	3	6	84	100

Nearly 85% (133 fragments) were assigned to the 'unidentified' category. Positive identifications were only achieved using tooth remains or the denser parts of the skeleton. This is a further indication that the sandy soil conditions have not favoured bone preservation, as teeth tend to survive even when other bone does not. Most of the bone was recovered from the cluster of pits close to enclosure ditch 2. A third of the fragments were recovered from pit context 32, both hand-recovered and sampled and these included sheep and cattle remain. Horse was represented by tooth

fragments in contexts 53 and 46 and sheep in 62 and 32. Cattle were the most widely represented in contexts 6, 32, 37, 40, 46 and 89. Not every pit contained bone, which may suggest that the individual pits might be used to deposit different types of material.

Burnt bone

Over 65% of the assemblage was burnt to some degree, ranging from light charring to complete calcination. The large quantity of burnt bone present in the sample may be partially indicative of the better survival rate of the denser burnt material but also suggests that activities involving heating were taking place on the site. The colour of bone is indicative of the temperature to which it has been heated (O Connor 2000, 45). The majority of burnt bone at Rothwell was grey, suggesting that it had been subjected to fairly high temperatures but that these were not hot enough to completely convert the organic material. Only a small quantity (11 fragments) was completely calcined. Most of the burnt material was recovered from the samples, which is not surprising given that the average specimen size is less than 1cm. Samples from contexts 32, 39, 38, 63 and 70 contained both burnt and unburnt fragments. Samples from context 5 contained only burnt fragments but, by contrast, no burnt fragments were retrieved from 6, 11 and 47. It is possible that these distinctions are accounted for by distributions within the matrix as contexts 5 and 6 can be found within the same feature. The small fragment size, absence of more identifiable specimens and mixture of burnt and unburnt, might suggest that these fragments were incorporated with other hearth debris.

Conclusions

A small animal bone assemblage, comprising 158 fragments, was recovered from features at Rothwell, Northamptonshire. The vast majority of the bone consisted of small unidentifiable fragments, many of which were burnt. The remains of cattle, sheep and horse were identified. Given the poor condition of the assemblage, it is impossible to draw any firm conclusions about the nature of activities taking place upon the site. However, all of the species identified were probably domestic and are likely to have been used for food. The burnt material may have been incorporated with hearth debris and may be the residue from cookery, crafts or the disposal of rubbish.

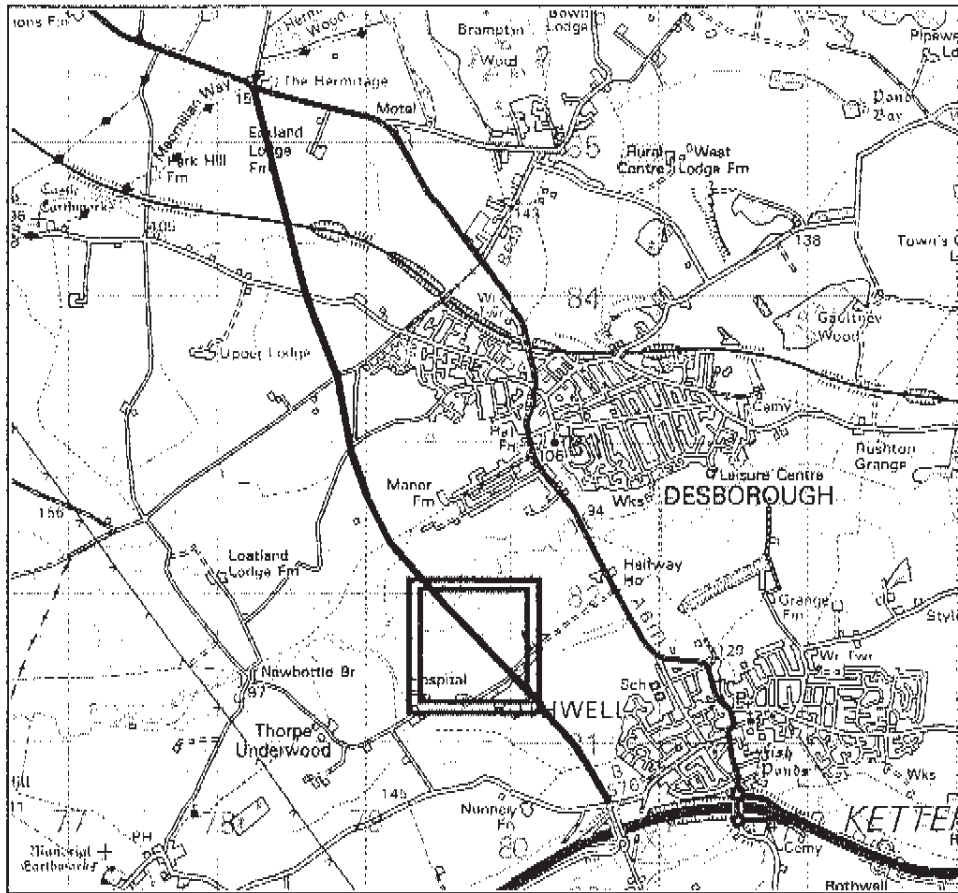


Figure 1: Site location plan showing proposed roadline.

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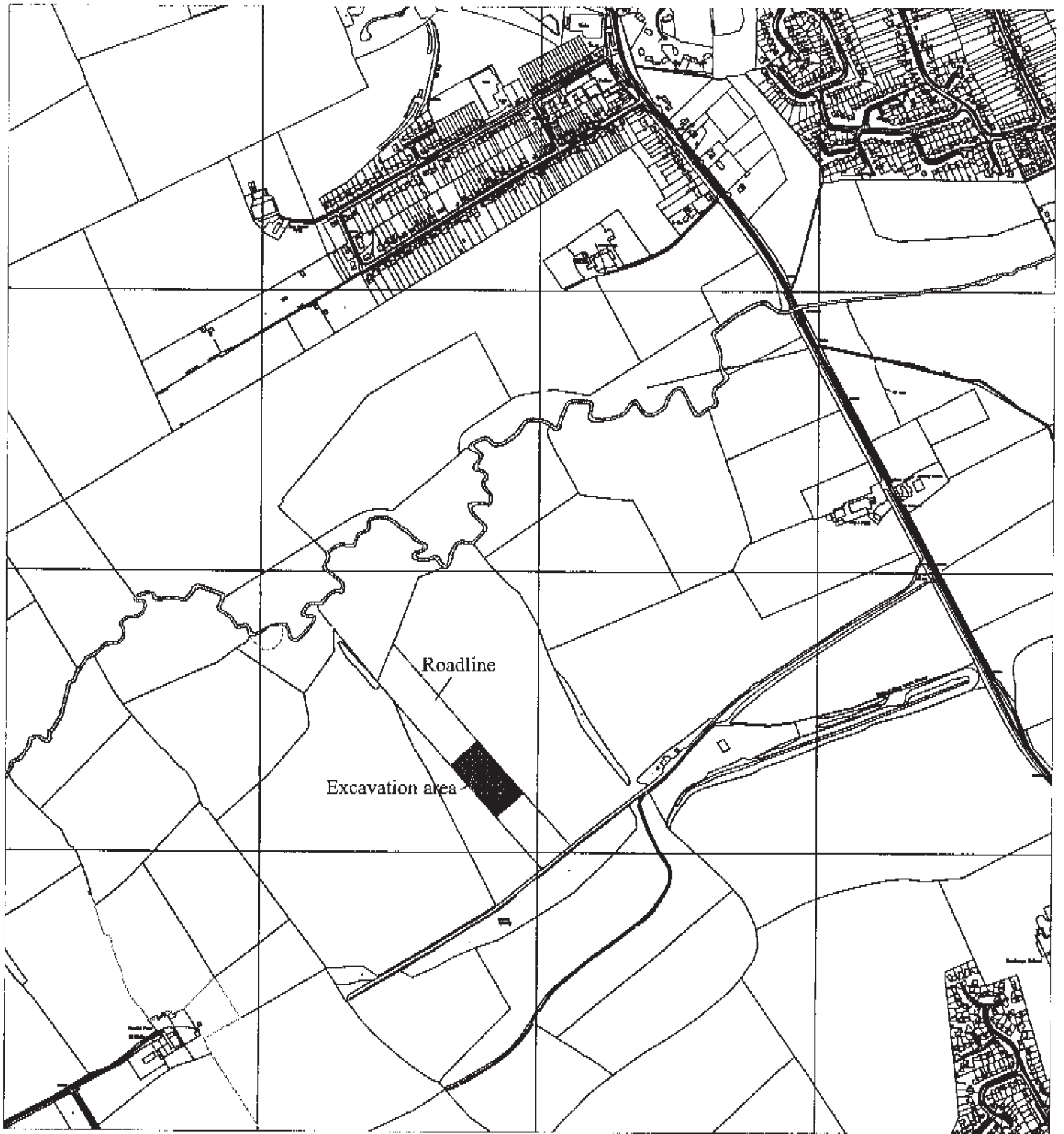


Figure 2 Approximate location of the roadline and the excavated area (shaded). Scale 1:10000
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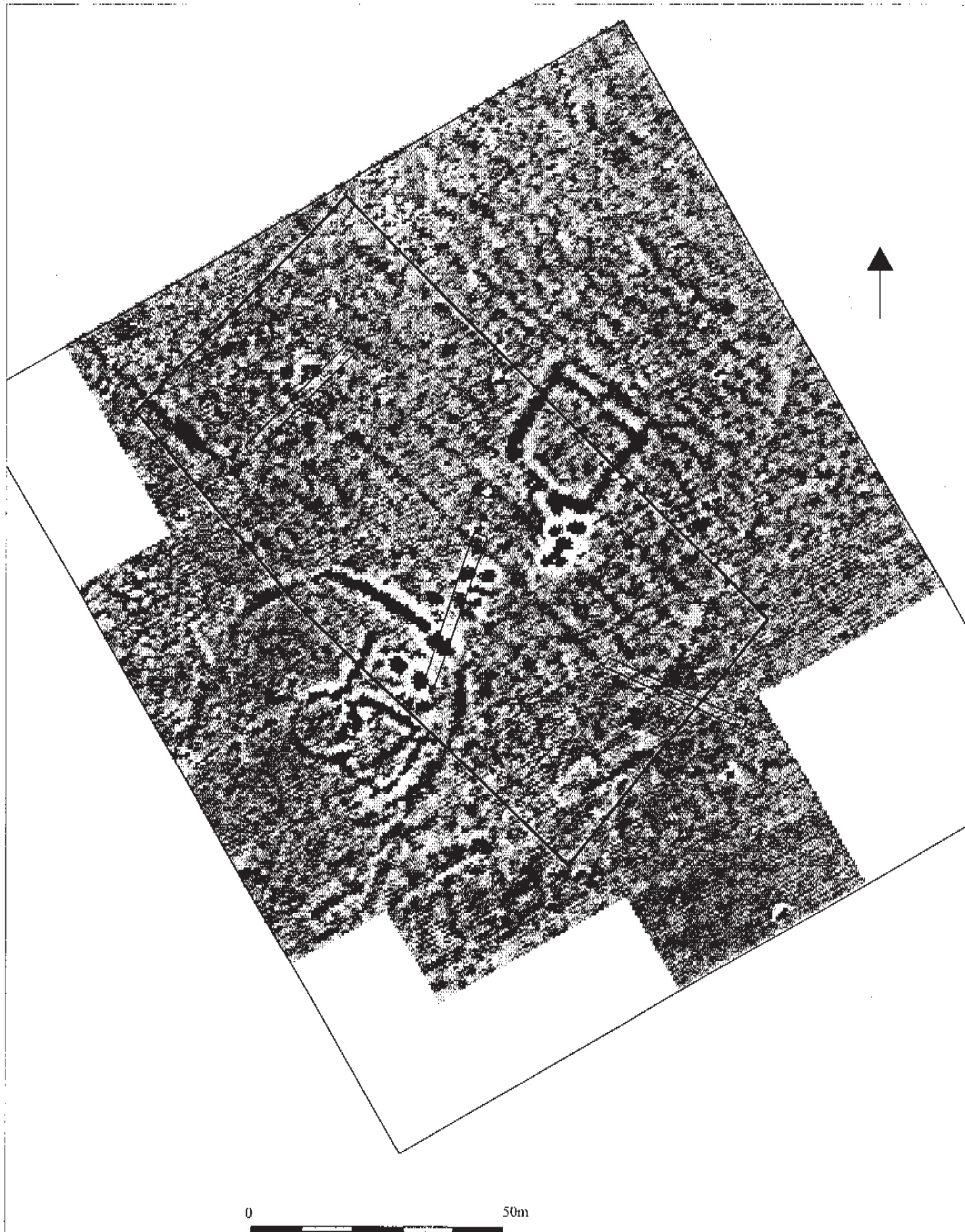


Figure 3: Plot of geophysical survey showing the location of initial trial trenches and the limit of the excavated area. Scale 1:1000
Geophysical survey information from Northamptonshire Archaeology, a service of Northamptonshire County Council.

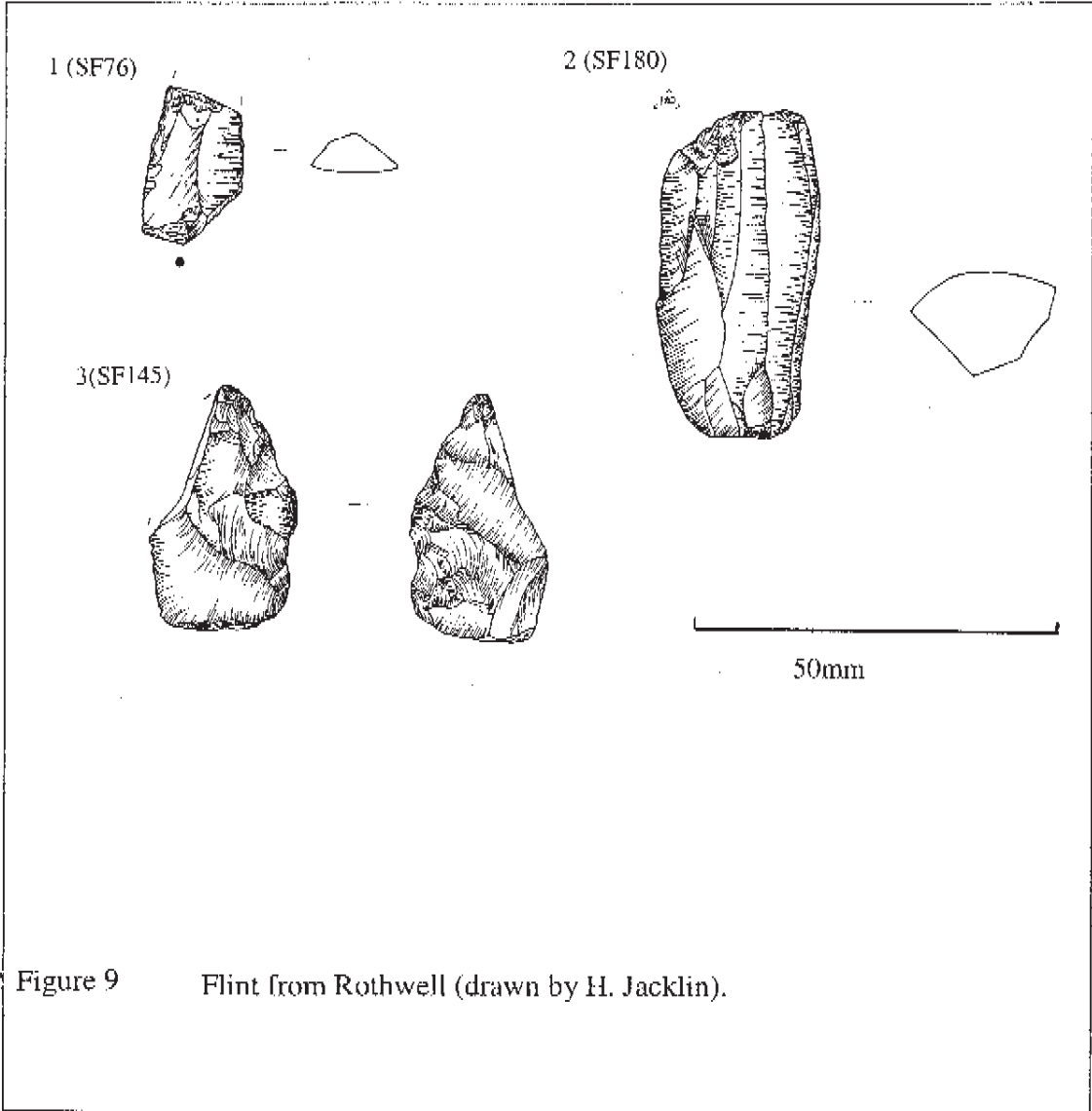
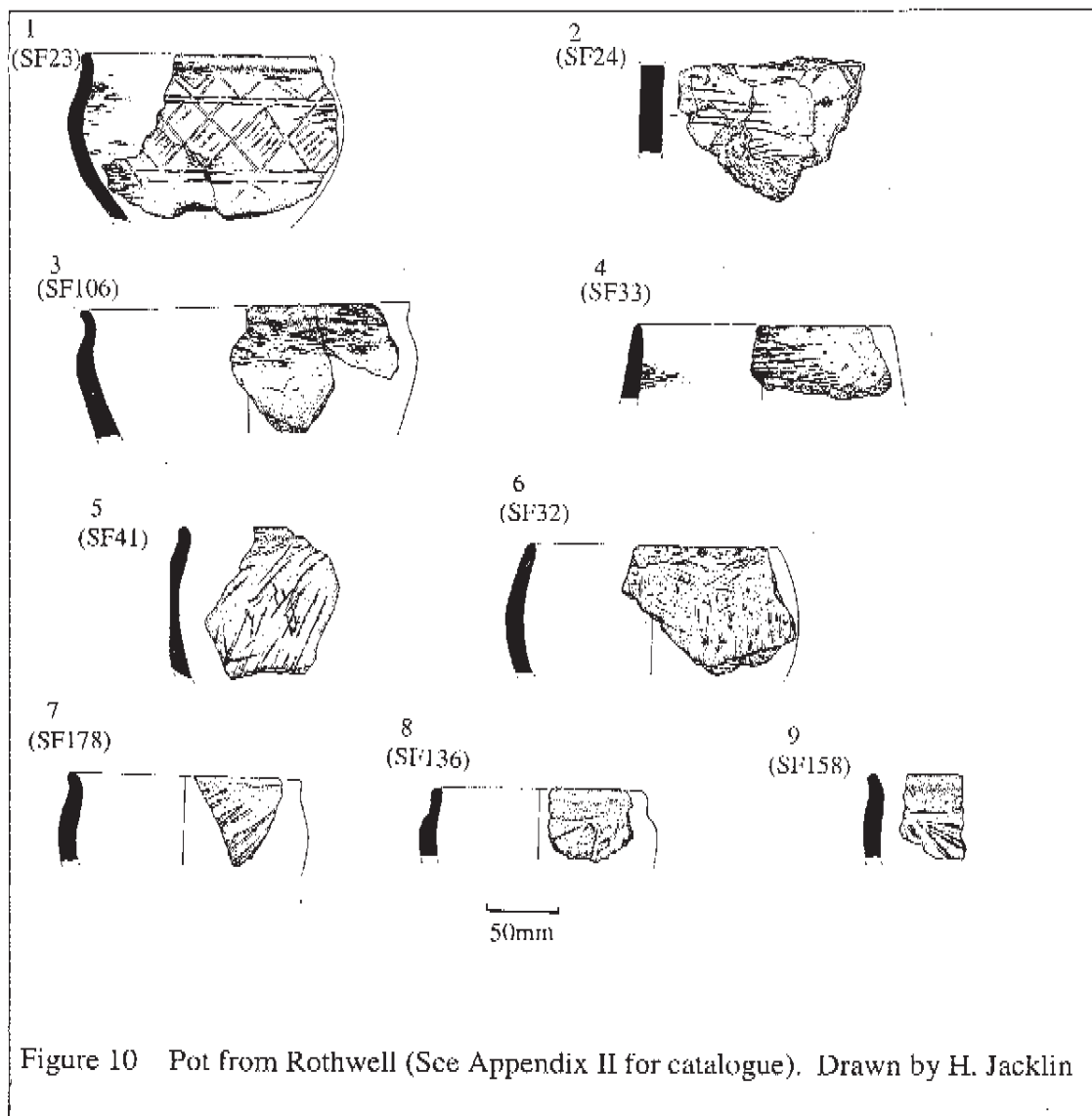


Figure 9 Flint from Rothwell (drawn by H. Jacklin).



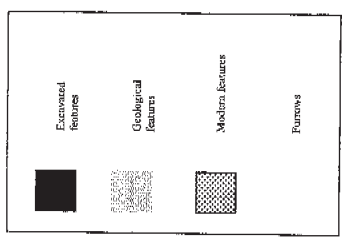
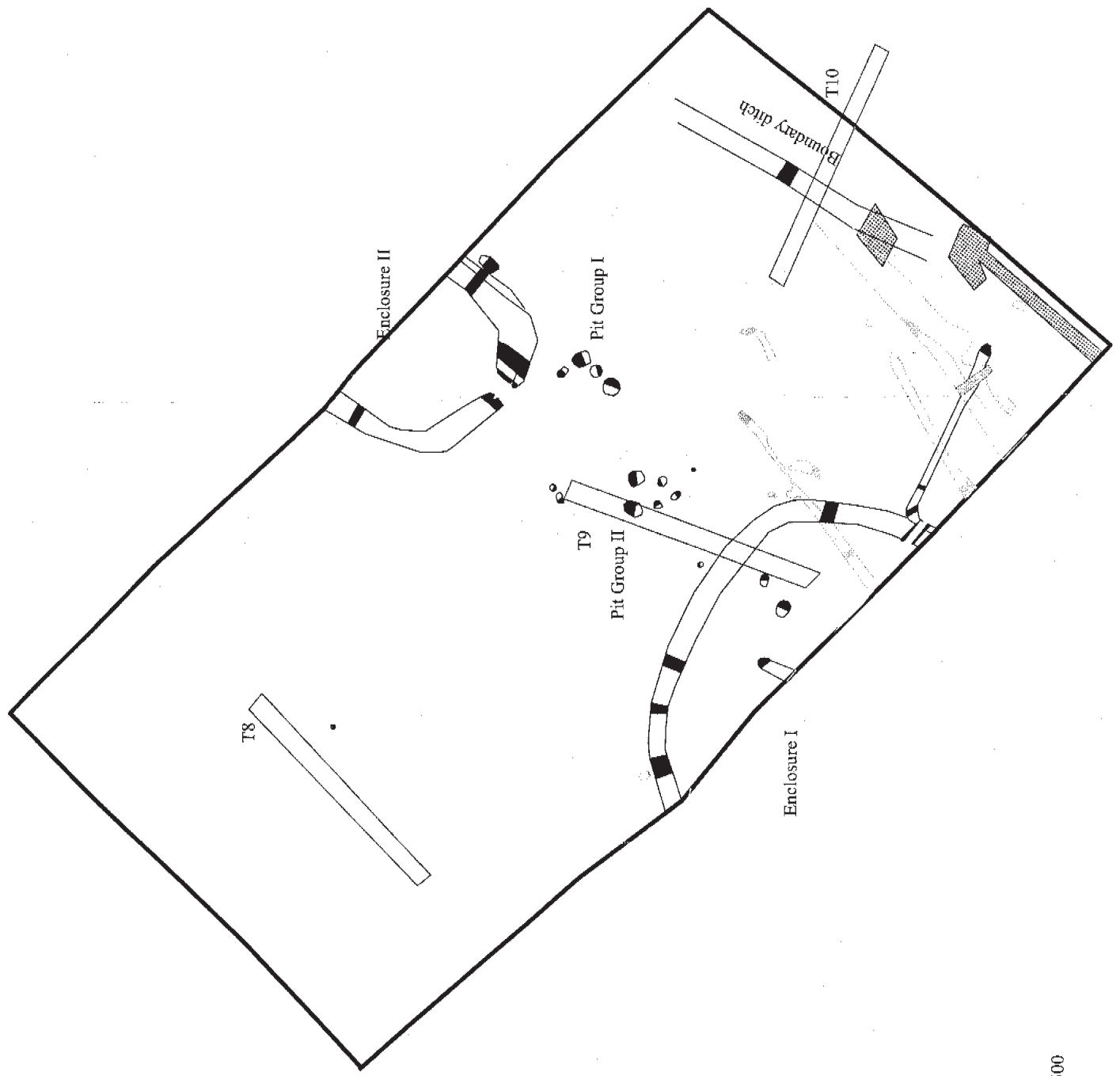


Figure 4: EDM plan of features within the excavated area. Scale 1:500

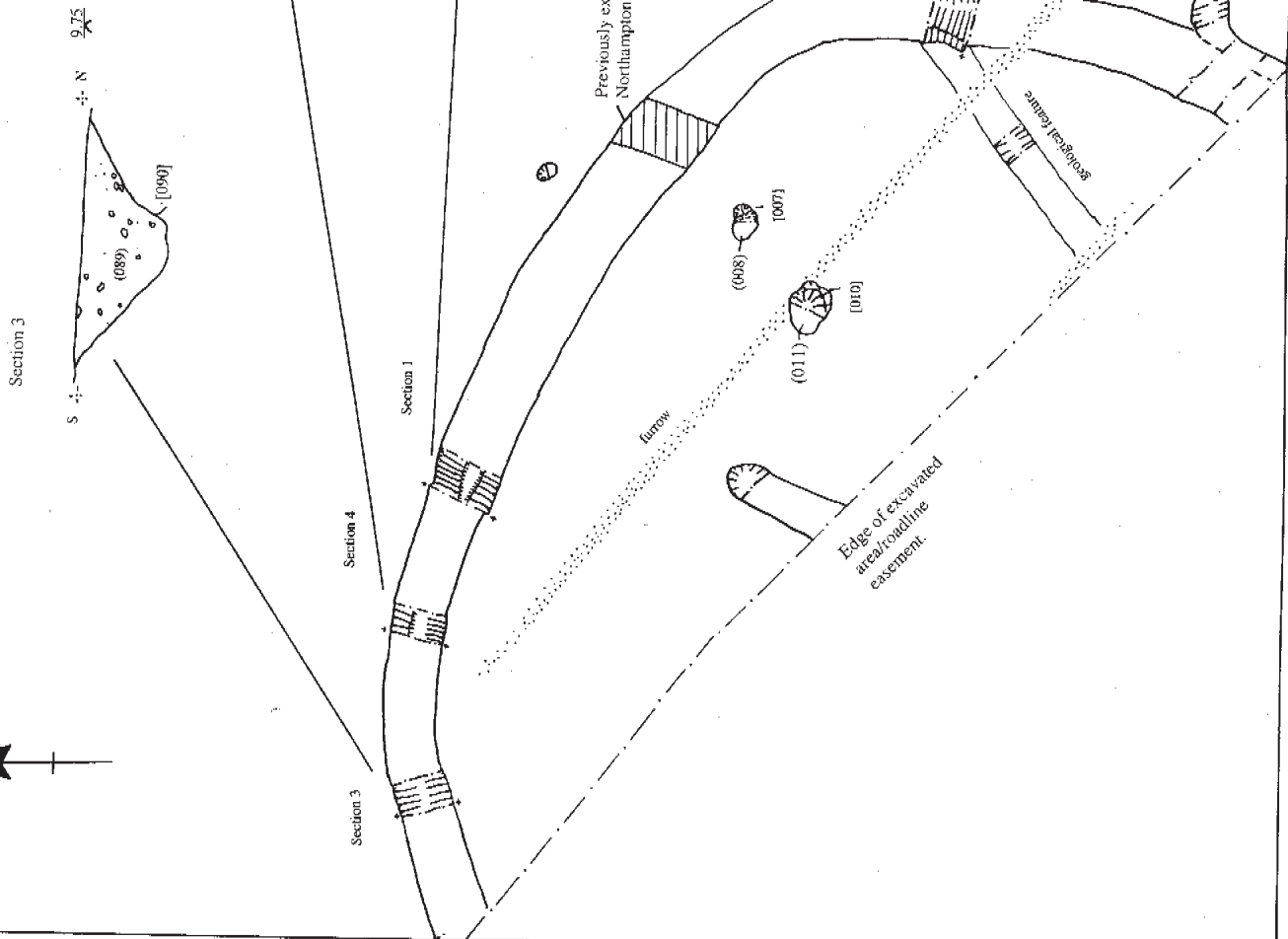
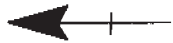


Figure 5 Enclosure Ditch I: Composite plan of exposed ditch and excavated sections. Heights are relative (m) but unconverted to OD. Plan scale 1:200, Section scale 1:40

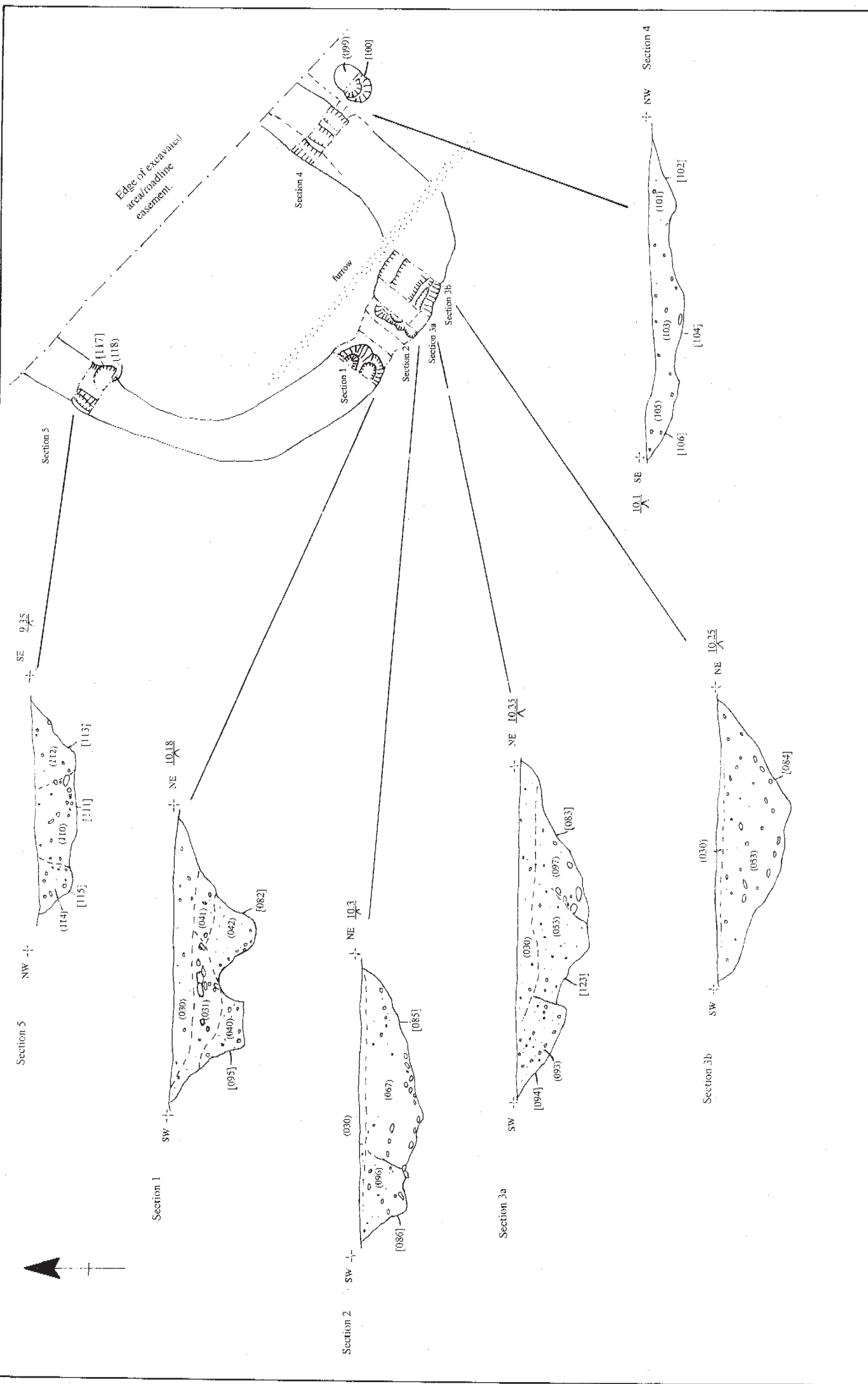


Figure 6 Enclosure Ditch II: Composite plan of exposed ditch and excavated sections. Heights are relative (m) but unconverted to OD. Plan scale 1:200, Section scale 1:40

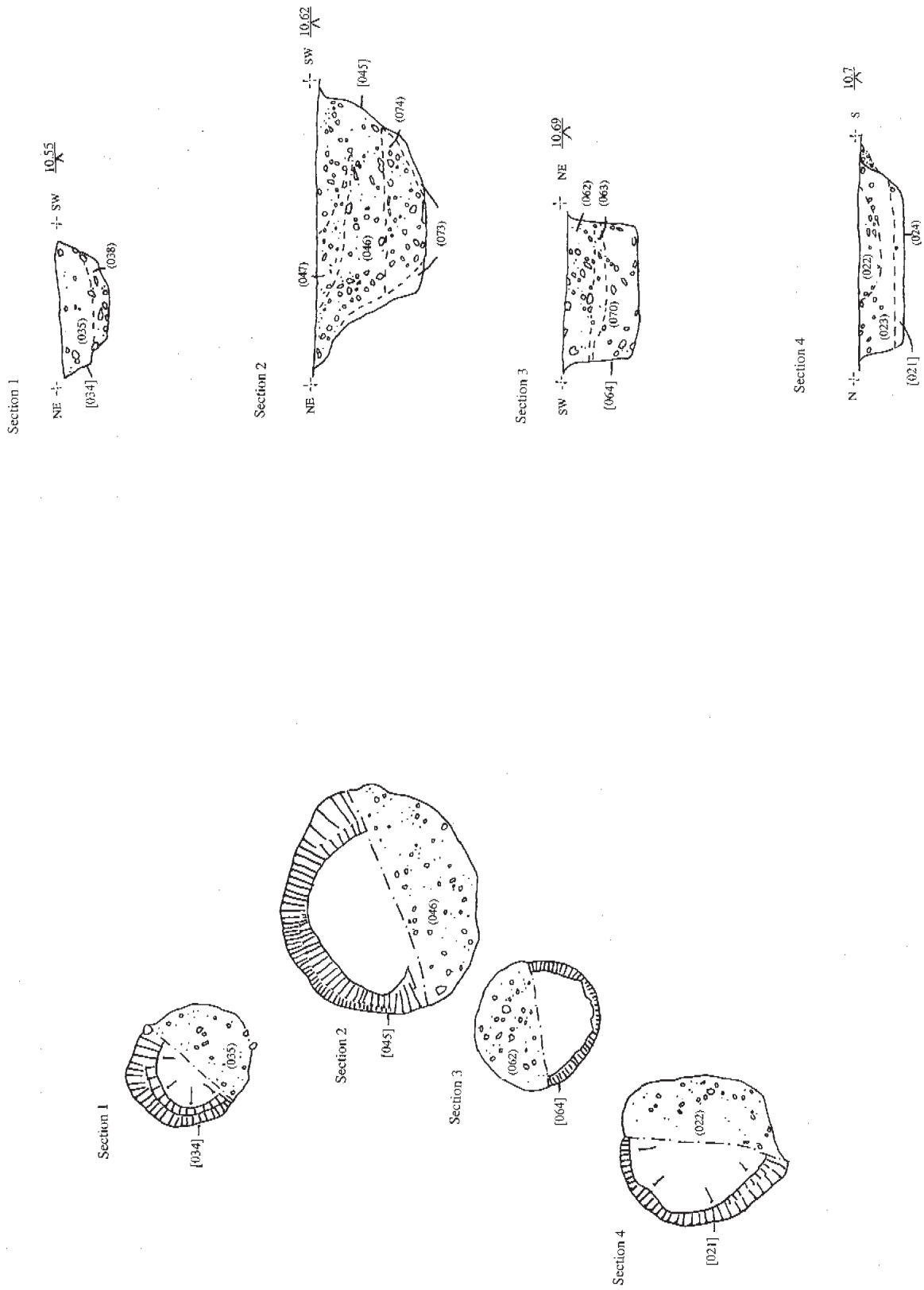
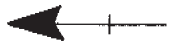


Figure 7 Pit Group I: Plan of exposed pits and excavated sections. Heights are relative (m) but unconverted to OD. Plan scale 1:50, Section scale 1:40

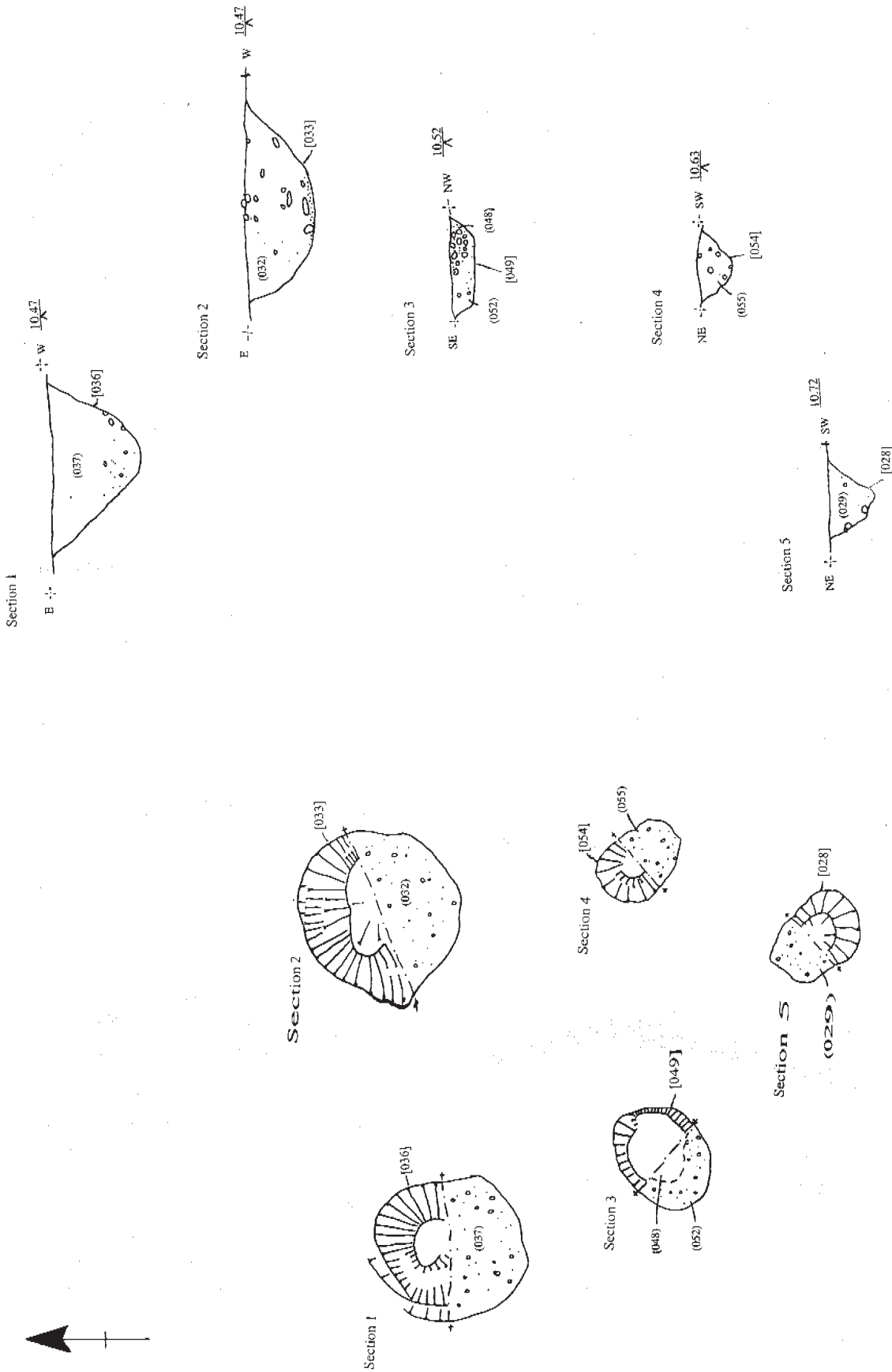


Figure 8 Pit Group II: Plan of exposed pits and excavated sections. Heights are relative (m) but unconverted to OD.