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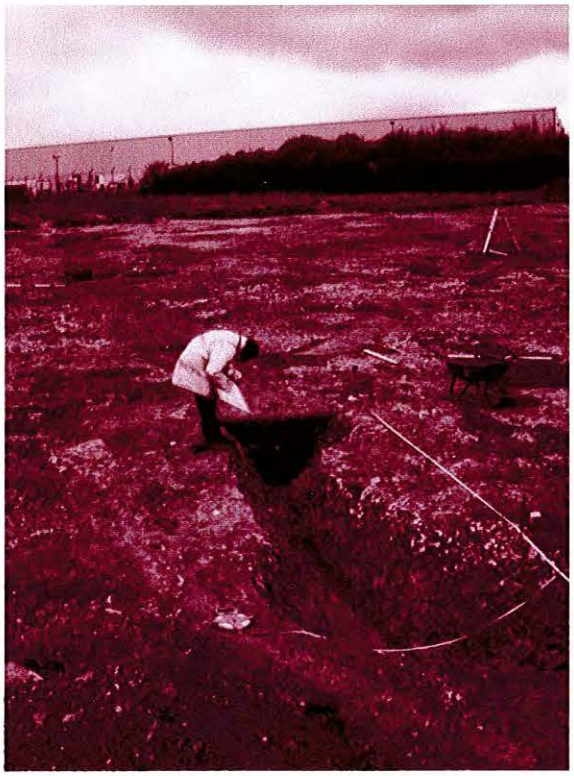

Dale Lane, South Elmsall
West Yorkshire

Archaeological Excavation

Revised Report

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CLIENT

Commercial Development Projects Ltd

Dale Lane, South Elmsall

West Yorkshire

Archaeological Excavation

Contents

Summary

Archaeological excavation of a site at the Dale Lane Industrial Estate, South Elmsall revealed at least two phases of Iron Age activity. The earliest phase was represented a pit and gullies, and the second phase consisted of an irregular ditched enclosure with internal sub-division. The excavation produced Iron Age pottery, faunal and human remains, metalworking slag, flint and environmental remains from securely stratified contexts. Three samples of carbonised material were submitted for radiometric dating providing an absolute date for the enclosure.

1. Introduction

1.1.1 The proposed extension of the Dale Lane Industrial Estate impacted upon a probable Romano-British/Iron Age landscape, located west of the A638 Doncaster Road at South Elmsall, SE 3832 1225 (Figs 1 and 2). The site was identified as potentially significant through aerial photographs of cropmarked features in adjacent fields.

1.1.2 Further information was subsequently obtained through geophysical survey carried out by GeoQuest Associates (Noel 1993), and through trial trenching carried out by Archaeological Services WYAS (Wheelhouse 1996), on behalf of Commercial Development Projects Limited (CDP Ltd). The results of these works indicated the need for more detailed investigation and recording.

1.1.3 Archaeological excavation of the site was carried out by Archaeological Services WYAS on behalf of CDP Ltd between 3rd and 21st March 1997.

2. Archaeological Background

2.1.1 Aerial photographs of fields adjacent to the site indicated a landscape of probable Iron Age/Romano-British date. The West Yorkshire Sites and Monuments Record (SMR) advised that an archaeological investigation should be attached as a condition of the planning permission to extend the Dale Lane Industrial Estate. A specification for a staged programme of archaeological works was produced by the West Yorkshire SMR.

2.1.2 A gradiometer survey, carried out by GeoQuest Associates, identified a sub-rectangular enclosure, two linear features and a number of possibly archaeological discrete features (Noel 1993). The enclosure appeared to have an entrance to the south and to be ditched on only the west, east and south sides. These geophysical anomalies were of high archaeological potential and consequently required further investigation.

2.1.3 The area was evaluated by trial trenching, carried out by Archaeological Services WYAS. Fourteen trenches were positioned to intersect the geophysical anomalies. Four of these trenches contained archaeological remains (Trenches D, I, K and N; Fig. 2). The evaluation confirmed the presence of the sub-rectangular enclosure ditch and an internal pit, and two ditched linear features identified during the geophysical survey (Wheelhouse 1996).

2.1.4 Due to an error in the presentation of the GeoQuest Associates' geophysical survey results (Noel 1993), ten of the fourteen evaluation trenches did not intersect the geophysical anomalies that they were targeted to investigate. The transcription of the geophysical survey results onto a base map by GeoQuest Associates incorporated an error of an approximately 8m translation to the west plus an anticlockwise rotation. This resulted in the north-easternmost trenches suffering a displacement of up to 15m north of the original proposed location. During post-excavation analysis the geophysical survey location was adjusted to a best fit (Boucher 1996; Wheelhouse 1996).

3. Method

3.1.1 A specification for the excavation of the site was prepared by the West Yorkshire SMR (Appendix VII). An area of approximately 60m by 50m was identified for open area excavation. The excavation targeted the probable Iron Age/Romano-British enclosure located in the north-west of the development area.

3.1.2 The detailed excavation sought to fully investigate and record the nature and relationships of the archaeological remains. The specific aim was to determine the function and duration of use of the probable Iron Age/Romano-British enclosure.

3.1.3 The proposed area of excavation was digitised from the adjusted geophysical survey base plan onto a 1:1250 Ordnance Survey (O.S.) digital map (1995 revision) in AutoCAD. The O.S. co-ordinates were read from the AutoCAD map and entered into a Geotronics Geodimeter 600 Total Station. The area of excavation was accurately surveyed prior to the commencement of fieldwork.

3.1.4 The area was stripped using a 360° mechanical excavator fitted with a 1.8m toothless ditching bucket under direct archaeological supervision. Machine stripping was halted at the first archaeological deposits and the area was cleaned by hand.

3.1.5 The area of excavation was extended to the east when it became clear that the proposed area had not encompassed the eastern extent of the enclosure ditch. This was due to a continuation of the original geophysical survey error. The accurate location (within the National Grid) of the evaluation trenches and excavation trench was known, but the geophysical survey results remained floating. This error was corrected during post-excavation analysis by overlaying the geophysical survey results with the surveyed post-excavation plan. Figure 2 illustrates the location of the evaluation and excavation trenches, and the corrected location of the relevant areas of the geophysical survey interpretation. The total area stripped for detailed excavation was 2810.30m^2.

3.1.6 In accordance with the archaeological specification, paragraph 3.2, three machine sections were cut through the enclosure ditch and recorded (Fig. 3). A further eleven sections were hand excavated and recorded through the enclosure ditch. Hand excavated sections were placed through all other linear features. All discrete features were half sectioned in the first instance, recorded, and then fully excavated and recorded. All recording was carried out in accordance with the WYAS standard method (Boucher 1995). The area of excavation and the unexcavated extent of all features were surveyed using a Geotronics Geodimeter 600 Total Station.

3.1.7 In order to determine the archaeological or geological character of ambiguous features a Consultant Pedologist was asked to visit the site.

3.1.8 All archaeological features were sampled. Samples of up to 30 litres were taken from primary fills as a priority and from subsequent fills where appropriate.

3.1.9 Human remains were encountered in one pit. The coroner was informed and a Home Office licence to exhume was obtained (licence number 226).

4. Stratigraphic Record

4.1 Summary

4.1.1 The excavation confirmed the presence of an irregular ditched sub-rectangular enclosure and associated linear features; in addition six pits and two gullies were identified. All excavated features are illustrated in Figure 3. Summaries of the context descriptions, artefacts, and environmental samples are included in Appendices II, III, IV respectively. The stratigraphic matrix forms Appendix V.

4.2 Phase I

4.2.1 Pit 4005 was located in the south-west of the area of excavation (Fig. 3). This pit was oval in plan, measuring 2.1m north-west/south-east and a minimum of 1.35m east/west. The pit had been truncated to the east by the western side of the sub-rectangular enclosure ditch (context group 200). Pit 4005 was 1.1m deep and was cut into the natural limestone geology. The cut sloped sharply from the surface forming vertical sides, and at 1m depth the slope changed sharply into a flat base. The initial filling of this pit consisted of the erosion and slumping of the limestone natural edges. Three subsequent episodes of filling were identified (Section 50; Fig. 4). Two small fragments of animal bone were recovered from the secondary fill (4025) of this pit. No datable finds or carbonised material suitable for radiometric dating were recovered from the feature.

4.2.2 Gully 4010 was curvilinear and oriented approximately east/west (Fig. 3). The gully was 2m long, 0.70m wide and 0.3m deep (Section 54; Fig. 4). The eastern end of this feature was truncated by the western side of the enclosure ditch (context group 200, cut 2006), and the western extent terminated in a butt-end. No continuation of the feature was identified within the enclosure. This feature had a single fill and contained fragments of animal bone.

4.2.3 Although this gully was clearly stratigraphically earlier than the enclosure ditch, the relationship of gully 4010 to pit 4005 could not be established.

4.3 Phase II

4.3.1 The second phase of activity was represented by the sub-rectangular enclosure (Fig. 3). The enclosure was formed by one irregular single phase ditch with an internal area of 1541.07m^2, within the area of excavation. The enclosure measured 43m east/west and a minimum of 50m north/south. The northern end of the enclosure lay outside of the limit of excavation. The area was not extended to investigate the complete enclosure due to potential health and safety hazards caused by the proximity of the A638 Doncaster road (Fig. 2). The enclosure ditch was clearly stratigraphically later than pit 4005 and gully 4010. The geophysical interpretation showed an incomplete ditch (Noel 1993; Fig. 2), and therefore the eastern, western and southern sides of the enclosure were numbered separately as context groups 200, 300 and 500.

4.3.2 The western side of the enclosure (context group 200) was irregular in plan (Fig. 3). The ditch ran south-west/north-east from the northern limit of excavation for approximately 6m, then curved through almost 90° to run east/west for a further 6m. The ditch then curved through another 90° to run

north/south for a further 17m, where it gradually turned to run north-east/ south-west for 16m, forming the westernmost extent of the enclosure. The ditch then turned through 90° to lie north-east/south-west for 20m. The southern side of the enclosure (context group 500) was formed by a further 90° turn. At the southern side of the enclosure the ditch was regular and straight, and ran north-north-east/ south-south-west for approximately 40m. At the south-eastern extent, the ditch turned through 90° to form the eastern side of the enclosure. The ditch ran north-east/south-west for 21m and then curved gradually to run approximately north/south for 22m; and then gradually turned again to lie north-west/south-east and extended beyond the northern edge of excavation.

4.3.3 No recuts were identified along the length of the enclosure ditch. The profile of the ditch varied along the length of the enclosure, from U-shaped to slightly V-shaped. The width of the ditch varied between 1.3m and 1.8m on the western side of the enclosure, 0.7m to 1.9m on the southern side, and 1.3m to 2.7m on the eastern side (Sections 3, 41, 18, 35, 12 and 7; Fig. 5). Where there were variations in depth and width of the ditch, the ratio of these measurements remained roughly proportional in all but one case (see below), and therefore it is suggested that this variation was due to the truncation of the site by ploughing. The eastern and southern sides of the enclosure ditch had survived to the greatest depth, with the most severe truncation occurring along the western side of the site.

4.3.4 A section through the south-eastern corner of the enclosure ditch (context group 500, cut 3013) demonstrated that the ditch narrowed significantly from 1.3m to 0.7m for a length of approximately 1.2m whilst maintaining a depth of 0.75m (Section 59; Fig. 5). This reduction in the width was probably not due entirely to truncation. The ditch is continuous at this point (Section 60; Fig. 5), and it is suggested that the narrow section of ditch may represent the position of a crossing. No further possible entrance was identified, however one may have been located in the northernmost ditch which lay outside of the area of excavation.

4.3.5 The enclosure ditch contained between one and six fills. This variation in the number of fills was not dependant upon the location of the section. For example, in the western side of the enclosure ditch (context group 200), cut 2017 contained three fills and the following section, cut 2006, contained a single fill. All of these fills contained limestone fragments. The inclusion of large limestone fragments may relate to the collapse of a possible associated bank, although no direction of tipping was visible in any section, and no bank material remained *in situ*.

4.3.6 Four ditch fills contained Iron Age pottery. The pottery was recovered from the upper fill of the ditch and two sherds were recovered as unstratified from 0.4m west of ditch cut 2000. Two pieces of worked flint were found; one from fill 5004 (cut 5002), and one as unstratified from above ditch fill 3001 (cut 3000). Slag was recovered from the same two areas of the ditch which contained flint; fill 3001 (cut 3000) and 5004 (cut 5002). A total of 277 fragments of animal bone were recovered from ditch fills. Carbonised material suitable for radiometric dating was recovered from primary fill 5006 (cut 5002).

4.4 Unphased Features

4.4.1 A lack of feature intersections precluded the stratigraphic phasing of a number of features.

4.4.2 **Ditch 100**

Ditch 100 was curvilinear and was located in the north-western area of the site, oriented north-east/south-west (Fig. 3). The ditch was a minimum of 9m long and terminated in a butt-end at its south-western end and extended beyond the limits of excavation to the north. This feature was 1.9m to 1.25m wide and 0.28m to 0.48m deep, cut into limestone geology (Section 1; Fig. 5). The ditch had a single fill and contained no finds.

4.4.3 **Ditch 700**

A curvilinear shallow ditch (700) was located within the south-eastern corner of the ditched enclosure (Fig. 3). This feature was 14m long and at the southern end terminated 2m north of the southern side of the enclosure. At the northern end ditch 700 terminated 6m west of the eastern side of the enclosure. Ditch 700 had an average width of 0.9m and depth of 0.4m, with a shallow U-shaped profile and uneven flat base. This feature contained a single fill, a total of 74 fragments of animal bone and one sherd of Iron Age pottery.

4.4.4 **Gully 4022**

Gully 4022 was curvilinear and oriented approximately east/west (Fig. 3). The gully was a minimum of 2m long, 1.1m wide and 0.42m deep (Section 45; Fig. 4). The western end of the feature extended beyond the limits of excavation, and the eastern extent terminated in a butt-end. This feature was located 2m north of gully 4010. This feature contained a single fill and no finds.

4.4.5 **Pit 4035**

Pit 4035 was located 4.5m north-east of pit 4005 (Fig. 3). This feature may be associated with pit 4005 in the first phase of activity; suggested solely on the basis of the morphological similarity and proximity of the two pits, however no stratigraphic relationships were available to confirm this interpretation

4.4.6 Pit 4035 had been sectioned during the evaluation and recorded as pit 015 (Wheelhouse 1996). The pit was oval in plan, measuring 2.1m north-west/ south-east, 1.54m north-east/south-west, and 0.9m deep, and was cut into the natural limestone geology. The shape of this cut and the breaks of slope were identical to those recorded for pit 4005. Pit 4035 contained four episodes of filling. The evaluation of this pit had produced three pieces of slag and a sherd of Iron Age pottery from the primary fill (019, later renumbered as 4039). No further finds were recovered from this feature during the excavation stage of work, but a carbon sample suitable for radiometric dating was recovered from the primary fill 4039.

4.4.7 **Pit Group 400**

Four circular pits (4001, 4006, 4015 and 4040) were located in the southern area of the site.

4.4.8 Pit 4001 was 1.5m diameter and 0.7m deep with regular steep sides and a flat base (Section 14; Fig. 4). The pit contained a single fill with a sherd of Iron Age pottery, and carbonised material suitable for radiometric dating.

4.4.9 Pit 4015 was 1.25m diameter and 0.7m deep with almost vertical sides and a flat base (Section 24; Fig. 4), and contained three fills. The primary fill of this pit (4012) was 0.15m deep and contained incomplete human remains.

4.4.10 Pit 4040 was 1.7m diameter and 0.75m deep with steep sides and an uneven flat base (Section 67; Fig. 4). The pit contained two fills and no finds.

4.4.11 Pit 4006 was 1.45m diameter and 0.4m deep. This pit had a shallow U-shaped profile (Section 20; Fig. 4), and a single fill which contained a flint flake.

4.4.12 It is suggested that these pits form a contemporary group of features. This is based upon the morphological similarities described above and the spatial location of these features. The pits were positioned 2m to 4m apart, forming a square group. No stratigraphic information was available with which to phase these features, but it may be suggested that the pit group does not belong in Phase II of activity with the enclosure. One of the pits (4040) was located within the ditched enclosure, and three pits were located to the south, outside of the enclosure. As the pits appear to form a synchronous group it may be assumed that these features were not associated with the enclosure, but it could not be determined stratigraphically whether these pits pre-dated or post-dated the enclosure phase of activity.

4.5 Natural/Geological Features

4.5.1 The site was located on limestone geology. A set of criteria for identifying natural/geological features was established by Dr Carter. The majority of the natural/geological features were identical in form and consisted of a reddish brown clay-silt fill with no inclusions, within an irregular 'cut'. These features also tended to have a red clay deposit at the interface of the silt and the natural limestone, which appeared very similar to a primary fill. A sample of these features were half-sectioned. The sections demonstrated very typical geological erosion/accumulation patterns. In natural features the clay-silt deposit filled a very smooth 'cut' into the limestone. The archaeological features had sharp cut edges with little erosion of the limestone, and the fills always contained limestone inclusions. The naturally accumulated fills were completely free of inclusions.

4.5.2 These geological features were identified as solution holes. Water had accumulated and dissolved the soft limestone, causing smooth eroded edges. The red clay formed the insoluble element of the limestone/water solution and was redeposited first; the silts were lighter and redeposited later.

4.5.3 All features fitting the above criteria were clearly natural and therefore not recorded. Any features which varied from this natural/archaeological distinction were investigated, e.g. features which contained fills with inclusions.

5. Artefact Record

5.1 The Prehistoric Pottery

5.1.1 A total of 22 sherds of prehistoric pottery were recovered from eight contexts. The paucity of later prehistoric pottery from West Yorkshire means that this small assemblage from Dale Lane is significant, however this lack of reference material also means that chronological sequences for this pottery are largely absent, and identification is problematic. The pottery from Dale Lane has been examined by three specialists; the reports are reproduced below. Whilst the results may appear to be contradictory in places, they consistently identify an Iron Age date.

5.1.2 **Pottery analysis (P. Beswick)**

A single sherd of prehistoric pottery was recovered during the evaluation of the site. The sherd from deposit 019 (renumbered during the excavation as 4039) is a small abraded body sherd. The fabric is smooth, soapy textured, laminated and moderately tempered with shell inclusions and is very similar to a sherd recovered from Long Lane Quarry in North Yorkshire (O'Neill 1997). The exterior is reddish brown and the core and internal surfaces are black. The date range given for the Long Lane Quarry sherd begins around the 3rd or 4th centuries BC and overlaps with the advent of wheel-made pottery and Roman imports. This sherd is therefore Iron Age in date.

5.1.3 **Pottery analysis (Dr S. Elsdon)**

The five sherds from context 2002 (ditch cut 2000; Fig. 3) and unstratified (from adjacent to 2002) almost certainly belong to the same vessel. The fabric is very heavily shell gritted with large, laminated fragments up to 10mm in length, which could be crushed oyster shell. The form is almost certainly of a very large ovoid jar with a slightly everted flat-topped rim with finger tip impressions on the top, of a type similar to one from Ledston, West Yorkshire *c.*SE4429. Another example is known from Kirmington, North Lincolnshire *c.*TA1412, recovered whilst fieldwalking. These jars are of an early Iron Age date and rare in this area. The sherds from context 2002 are illustrated in Figure 6.

5.1.4 Context 2012 (ditch cut 2011) yielded one fragment. This sherd had light red surfaces and a grey core which suggests some control in the firing. It has finely crushed shell and possibly some flint in the filler, and may be late Iron Age in date.

5.1.5 Context 2014 (ditch cut 2013) produced one sherd of indeterminate date, in a hard thin fabric with fine sand and probable grog filler. Context 4000 produced one small sherd with brown surfaces and dark grey core, with possible sand or grog filler. This sherd is possibly early Iron Age in date. The sherds from contexts 4002 and 3012 were too fragmentary to identify.

5.1.6 **Pottery analysis (V. Rigby)**

Context 2014 (ditch cut 2013) produced a single sherd of middle Iron Age date (this is an earliest possible date). Context 4002 (pit cut 4001) produced four small fragments of middle Iron Age date, again definitely not earlier. Context 3012 (ditch cut 3013) produced six small sherds. These are very fragmentary,

but are probably mid Bronze Age to early Iron Age in date. Context 4000 (ditch cut 4003) produced a single sherd of a probably middle Iron Age date.

5.1.7 The sherds from context 2002 (ditch cut 2000) and the unstratified sherds from near 2002 are probably from the same vessel (Fig. 6). This is Shelly ware, and is definitely Iron Age in date (but may be easily confused with the Romano-British Dales ware). Shell tempering was common throughout the first millennium BC, and sometimes into the Roman period, in Lincolnshire and the Humber Estuary.

5.1.8 In summary, the sherds from contexts 4000, 4002, 2014 and 3012 are the earliest of the sample, possibly 700-400 BC. The sherds from context 2002 are probably later, or possibly may be from the same period, but are reflecting imported wares from north Lincolnshire and the Humber Estuary into West Yorkshire.

5.2 *The Animal Bone*

5.2.1 The animal bone was analysed by Dr J. Richardson of Archaeological Services WYAS and the report is reproduced below.

5.2.2 From a total of 373 animal bone fragments (see Appendix VI) excavated from Dale Lane only 43 bones were identified to species (Table 1). This assemblage was extremely fragmented and many bones were badly degraded. A number of elements needed to be reconstructed to aid identification and the total of 43 was obtained after discarding fragments that may have joined a more complete bone. In this way a minimum number of individual bones was calculated for each context. The fragmented state of this collection prevented any metrical data being recorded.

Context	Horse	Cow	Sheep/goat
2002	1		
2007	3		
2016	1		
3001			3
3012		1	
4000		1	
4009		2	
4011		1	
5003	1	1	
5004	1	17	
5005		8	2
total	7	31	5

Table 1 Bones identified to species

5.2.3 Of the domestic species, cow was most dominant, representing 72% of the identified bones. Horse accounted for just over 16% of the assemblage and the ovicaprids, nearly 12%. No pig or dog bones were identified. Unfortunately only one bone was identified from the features that appear to pre-date the enclosure ditch. This was a cow humerus from context 4011 (gully cut 4010). With the exception of three cattle bones from contexts 4000 (ditch cut 4003) and 4009 (ditch cut 4008) all the remaining identified bones were recovered from the enclosure ditch. The majority of these bones came from features 2008 and 5002 in the south-west corner of the enclosure.

5.2.4 Age data were limited from this small assemblage but a number of interesting factors emerged. Of eleven ageable bones (ten of cow, one of horse), all were fused. This indicates that no cattle were being slaughtered before 12 months and that some were living to 3½ to 4 years or beyond (Table 2). The absence of neonate and juvenile animals suggests that breeding did not occur on site. The highly degraded condition and the small size of this assemblage, however, prevents this being stated with any certainty.

5.2.5 The erosion of the bones affected the visibility of butchery marks. Only one butchered bone was found, the chopped humerus of a horse (context 5004, ditch cut 5002).

Element	Number	Fusion age *
humerus	1	12-18 months
radius	1	12-18 months
metacarpal	1	2-2½ years
femur	2	3½-4 years
tibia	1	2-2½ years
metatarsal	2	2¼-3 years
first phalanx	1	1½ years
second phalanx	1	1½ years

(from Silver 1969)*

Table 2 Cattle age data

5.3 The Human Bone

5.3.1 The human bone was analysed by A. Burgess of Archaeological Services WYAS, and the report is reproduced below.

5.3.2 The overall condition of the bone was poor; post-deposition and excavation damage had caused fragmentation of all of the skeletal elements. The long bones displayed extreme damage to the cortical bone and in each case the less dense cancellous bone of the epiphyses had been completely eroded. The cranial fragments had been less effected by erosion, cortical damage was still evident

but the lack of cancellous bone in these elements meant that preservation was reasonably good and that the majority of the breaks could be reconstructed.

5.3.3 Although the skeletal elements could still be utilised for non-metric age and gender determination methods, the condition of the bone precluded metric analysis for stature estimation and gender determination, and the erosive damage to the surface of the bone may have removed any morphological changes indicative of pathologies. The poor condition of the material also meant that only the cranium was suitable for use in age estimation (ectocranial suture closure; Meindl and Lovejoy 1985). The use of only one ageing method, instead of a combination of methods, reduces the potential accuracy of the age assessment. In addition, this method is thought to incorporate higher levels of inaccuracy than other methods of ageing. A large age range has been obtained for these skeletal remains, in order to reduce the inaccuracies inherent in using fragmentary incomplete material.

Context	Element	Side	Condition	Description
SK001	frontal	midline	complete	damage to right supraorbital margin and pterion
SK001	parietal	left	complete	
SK001	parietal	right	fragmentary	damage to lateral portion
SK001	zygomatic	left	complete	
SK001	zygomatic	right	fragmentary	damage to fronto-zygomatic suture
SK001	humerus	right	fragmentary	diaphyses only
SK001	radius	right	fragmentary	diaphyses only
SK001	ulna	right	fragmentary	diaphyses only
SK001	metacarpals	right x 4	fragmentary	diaphyses only
SK001	dentition	left	complete	mandibular lateral incisor
3012	humerus	?	fragmentary	diaphyses only

Table 3 Inventory of skeletal remains

5.3.4 SK001 was contained in the primary fill (4012) of pit 4015 (Fig. 3).The humerus and some small cranial fragments were recovered from within the fill as loose bones but the remainder of the bones were in articulation.

5.3.5 As no suitable dental or pelvic elements were present, the age estimation of SK001 was dependant upon the cranial remains. Although these remains were fragmentary, the coronal and sagittal sutures were complete. Four of the ten anatomical locations were present (bregma, mid coronal, anterior sagittal and obelion). An age range of 44.8 - 49.2 years was obtained (Table 4). As the ectocranial suture method is imprecise when used in isolation to other methods of age estimation, this result cannot be considered absolute. It is suggested that an age of 'over 40 years' and the descriptive category of 'prime adult' are applied to this individual.

Site	Closure	Score	Age *	sd *
Bregma	Closed	3	49.2	10.7
Mid Coronal	>50%	2	46.8	12
Anterior Sagittal	Closed	3	46.9	12
Obelion	Closed	3	44.8	12.4

(Meindl and Lovejoy 1985)*

Table 4 Ectocranial suture closure data

5.3.6 Only the cranial remains were suitable for gender determination, and only five potentially diagnostic features were observable. However of these features all were assessed to be 'female' (these female traits include marked frontal/parietal bossing, the vertical inclination of the forehead and slight temporal ridges), and overall the reconstructed cranium was relatively small and gracile.

5.3.7 No pathologies were identified and one non-metric trait was present. The persistence of the medio-frontal suture was noted, a condition known as metopism. This suture usually fuses completely at 2 years of age but in this case is only 50% closed. This is a fairly common genetically inherited non-pathological trait.

5.3.8 In summary SK001 consisted of the incomplete and fragmentary remains of a prime adult probable female with no visible pathologies.

5.3.9 Context 3012 was the secondary fill of the enclosure ditch (ditch cut 3013). This fill contained faunal remains and one fragment of possible human humerus (a 160mm piece of long bone diaphysis). The erosion of the cortex and the small fragment size made species identification problematic, and precluded side identification and metric analysis of this bone. The morphology of the cortical bone was comparable to the known human elements described above, however the severe erosion also meant that no recognisable faunal or human diagnostic anatomical landmarks were identifiable. The inclusion of this fragment in the human remains inventory must be treated with caution.

5.3.10 The incomplete nature of SK001 and the position of the remains in a primary pit fill raises the issue of whether this represented a complete or incomplete burial, a primary inhumation, or a disarticulated inhumation after exposure. The excavation records clearly show that the ulna, radius and metacarpals were articulated and that the cranium was positioned at the same level as the other remains. The articulation of the elements of the right arm indicates that this was probably a primary inhumation. The phalanges and metacarpals are among the first group of bones to become disarticulated as the corpse decomposes (Micozzi 1991) and therefore are unlikely to be in articulation in a secondary burial. There is no reason to suggest that these remains represent more than one individual.

5.3.11 It is possible to suggest that this may have been a primary inhumation of an incomplete partially articulated body, i.e. of dismembered body parts. No cut marks were noted on the bones, but post-deposition erosion may have removed

these. A further possibility is that this was a complete burial which was disturbed (intentionally or otherwise) after inhumation. However, the recorded section through the pit fills shows no evidence for disturbance of the deposits.

5.3.12 Differential preservation may be suggested as a more functional explanation for the incomplete nature of SK001. Differential erosion of cortical and cancellous bone is clearly evident in the skeletal elements which have been preserved, and also can be inferred from the complete absence of the carpals which would obviously have originally been present and in articulation between the ulna, radius and metacarpals.

5.3.13 In summary, the skeletal remains probably represent one individual. This was a primary inhumation of the remains of an adult female, but the body was probably incomplete at the time of the burial. The possible human long bone fragment recovered from a secondary ditch fill may be a second inhumation or may have been the result of the disturbance of SK001.

5.4 The Flint

5.4.1 The flint was analysed by H. Taylor, and the report is reproduced below.

5.4.2 Three pieces of worked flint were recovered from the site from three different features. One was found in an unstratified cleaning layer above ditch section 3000, another came from pit 4006 in context 4007, and the third was found in ditch section 5002 in context 5004 (Fig. 3).

5.4.3 The piece of flint from the unstratified cleaning layer above ditch 3000 is a small flake of brown flint probably detached from a narrow flake/blade core. This flake shows signs of having been burnt. Some tiny pieces of cortex remain at the distal end of the flake. It has been carefully prepared with a clear striking platform and its dorsal surface has numerous scars from the removals of other flakes prior to its detachment from the core. On the ventral surface there has been some more recent damage at the distal end.

5.4.4 The flake recovered from pit 4006 (deposit 4007) is a small chip of opaque cream flint. This is the kind of debris produced in large quantities during an episode of knapping. The presence of only one chip demonstrates that knapping did not take place on site.

5.4.5 The narrow flake found in ditch 5002 (deposit 5004) is of the same pale cream/brown opaque flint. Again this flake has been carefully prepared and shows controlled working. There is some possible utilisation/edge wear along one side and on the distal end. The surface of the flake shows scars have been removed on two directions prior to the knapping of the flake.

5.4.6 The presence of only three flakes indicates that this material is residual. Since none of the pieces are diagnostic and represent only casual debris from flint working, little can be said about the possible chronology. However, the carefully controlled working evident in two of the flakes may suggest that they are not Iron Age or late Bronze Age, since by this period flint working was fairly crude and opportunistic. The narrowness of the flakes is more characteristic of Mesolithic and Neolithic working, but given the absence of formal tool types, and with only three pieces of knapping debris, it is impossible to confirm this.

5.5 The Metalworking Slags

5.5.1 The slags was analysed by Dr G. McDonnell of the University of Bradford and the report is reproduced below.

5.5.2 The slags were visually examined and the classification was solely based on morphology. Three slag samples were recovered from the excavation from Iron Age contexts (Table 5; Fig. 3).

Context no.	No of frags.	Classification	Major diameter (mm)	Minor diameter (mm)	Depth (mm)	Mass (g)
5004	11	smithing hearth bottom	78	50	25	300
3001	complete	smithing hearth bottom	97	65	25	310
0019	4	smithing slag lumps	-	-	-	65

Table 5 Slag classification

5.5.3 Smithing slag is characterised by random shaped pieces of fayalitic slag generated by the smithing process. Smithing hearth bottom is a plano-convex accumulation of fayalitic slag formed in the smithing hearth.

5.5.4 Both hearth bottoms, and to some extent the slag lumps are dense slags, i.e. they lack vesicles and entrapped charcoal fragments etc. This suggests that they were heat to high temperatures close to or above the melting point of the slag. Smithing slags from other Iron Age sites have also had an apparent high 'density'.

5.5.5 Only a very small quantity (675g) of slag was recovered from the site. However the presence of smithing debris clearly indicates the manufacture and use of iron in the area. There is no evidence to indicate the presence of a 'smithy' from the material recovered, although it is noted that all the hearth bottoms were recovered from the south-west corner of the enclosure.

5.6 The Charred Plant Remains

5.6.1 The environmental flotation samples were assessed by Dr T. Holden of Headland Archaeology Ltd. The flots were scanned using a binocular microscope and the residues were wet sieved down to 1mm and the remainder sorted. The report is reproduced below.

5.6.2 Charcoal was recovered from most flot samples although in the majority of cases individual fragments were very small. Only three samples contained charred remains other than wood charcoal. Contexts 4038 and 4039 (pit 4035; Fig. 3) contained poorly preserved wheat grains (either bread wheat or spelt) and context 4025 (pit 4005) contained a single rachis segment of a species of free-threshing wheat, probably *Triticum aestivum* (bread wheat). These offer little scope for further analysis.

5.6.3 The retents produced a number of small fragments of large animal bone together with infrequent rodent teeth. These have been retained but offer little scope for further investigation.

5.7 The Mollusc Remains

5.7.1 The environmental sample flots contained large quantities of well preserved mollusc remains (Holden 1997). The mollusc assemblage was analysed by Dr S. Carter of Headland Archaeology Ltd; the report is reproduced below.

5.7.2 Assessment of the processed bulk samples demonstrated that the samples contained variable concentrations of land snail shells. Preservation of these shells was due to the limestone bedrock which the archaeological features were cut into. All excavated archaeological sediments contained frequent fragments of limestone and are assumed to have been calcareous; therefore shell preservation should be good in all cases.

5.7.3 In view of the relative lack of stratigraphic links and information regarding the nature and function of the features excavated, a limited analysis of the land snail shells was recommended. This analysis aimed to answer the following questions:

- Does variation in the size or composition of the snail assemblages allow the features to be classified into chronological groups with distinct faunas?
- What information do these assemblages offer regarding the deposition of the sediments in the cut features?
- Can any conclusions be made about the nature of the landscape within and around the enclosure?

5.7.4 Thirty three bulk samples were processed by WYAS and the resulting flots and retents delivered to Headland Archaeology. The flots were collected in a 500μm mesh sieve and the retents in a 1mm mesh sieve. The flots and retents were sorted and all apical shell fragments were extracted with the exception of apices of *Cecilioides acicula*. This species burrows deeply into soils and it cannot be assumed to be contemporary with the remainder of the assemblage; it is therefore excluded from the analysis. The majority of apices were collected from the flots because apical shell fragments tend to be buoyant. All apices were examined under a binocular microscope and identified with the aid of the author's reference collection and standard guides (Evans 1972; Kerney and Cameron 1979). Apices were identified to species where possible, with the exception of the genus *Oxychilus*. Some juvenile or broken shells of the genera *Cochlicopa, Vertigo* and *Vallonia* could not be identified to species level.

5.7.5 The samples have been placed into context groups (100 to 700) created by the excavator using field data. Isolated cut features were not assigned to groups. Two of the samples (37 and 38) are from excavated features subsequently interpreted as natural disturbances and therefore were not assigned to any group. Samples were of variable volume and the total numbers of apices have been standardised to 10 litres to allow comparison of shell concentrations.

5.7.6 It was anticipated that variation in the concentration and species composition of the shell assemblages could be used to classify the excavated features into

groups that might enhance understanding of the stratigraphy and chronology of the site.

5.7.7 Values range from only one apex in 10 litres of sediment up to 831 apices. The main enclosure ditch (context groups 200, 300 and 500) contains a wide range of values (13 to 831) and it is two other context groups that stand out with low values: groups 400 and 700. The six samples in pit group 400 have very low concentrations, only three or less in 10 litres, with the exception of 4012 (pit cut 4015). Cut 4015 is the pit which contained a partial human skeleton. The four samples in group 700 are also very low concentration; only single shells were recovered from three of these samples and this could represent contamination of shell-free sediment. One other feature, pit 4005, is notable as all four samples of fills contained high concentrations of shells.

5.7.8 It may be concluded that the shell concentration results indicate differences between the context groups that support the context grouping based on field data. In the case of the pits, the results reveal differences that suggest they do not form an homogenous group. This is discussed further below.

5.7.9 A total of 21 taxa were identified in the samples. In the majority of cases two species dominate the assemblage: *Carychium tridentatum* and *Discus rotundatus*, but there are a number of other taxa consistently present at lower frequencies (*Cochlicopa, Vallonia, Acanthinula aculeata, Vitrea contracta, Aegopinella, Oxychilus* and *Clausilia bidentata*). Variation in composition in most assemblages results from a shift in the balance of these frequently occurring species. For example *Vallonia* is relatively abundant in contexts 2010 and 2014 (group 200) and *Aegopinella* and *Oxychilus* are relatively abundant in context 3014 (group 300). More extreme variation in composition is limited to two examples: in context 4012 (pit group 400) there is an exceptional concentration of *Lauria cylindracaea*. Three contexts are dominated by the two species of *Vallonia*, 4038 in pit 4035 and the two natural features 4028 and 4032.

5.7.10 Given the overall similarity of most samples, the composition of the assemblages is of little assistance in the classification of the excavated features. Only pit 4035 and two adjacent (natural) features form a distinctive group. The relatively high concentration of *Lauria* in 4012 probably represents a chance event of no interpretative significance.

5.7.11 The excavated sediments comprise fills of ditches and pits. There are two possible sources of the shells in these sediments. Either they were deposited as a component of the infilling sediment (an allochthonous component) or they formed part of a community of snails living within the pit or ditch (an autochthonous component). These two components contribute to the overall concentration of shells in the sediment. The numbers of allochthonous shells will be determined by the shell content of source sediments. Shells are only likely to be abundant in the upper parts of soil profiles where they can be incorporated after death at the soil surface. At South Elmsall the presence of solution hollows filled with de-calcified soil indicates that snail shells would not have survived long in the topsoil (this is a common occurrence in soils over limestone). Therefore the contribution of allochthonous shells to the pit and ditch fills is likely to have been small and the assemblages at South Elmsall will be

dominated by the autochthonous snails, living in the pits and ditches. The concentrations of autochthonous shells in the fills is controlled by the establishment of snail populations and by the rate of sediment in-fill. Slower infilling will allow more time for populations to grow and for snails to die, creating higher concentrations in the accumulating sediment.

5.7.12 The majority of the South Elmsall snail assemblages may be assigned to one of two types. Firstly there are assemblages of medium to high concentration with a diverse and catholic species composition typical of humid, sheltered ditch environments (Evans and Jones 1973). These must have formed in slowly accumulating sediments with a well established snail fauna. The main enclosure ditch (context groups 200, 300 and 500), ditch 100, the isolated pit 4005 and gully 4022 fall into this group of gradually infilling pits or ditches. The second type of assemblage is characterised by very low concentrations, indicative of rapid accumulation of sediment with a low allochthonous shell content. Context group 700 and some pits in group 400 fall into this group of rapidly backfilled features.

5.7.13 It is clear therefore that the main enclosure ditch remained open for a significant period of time and infilled gradually. The wide variation in shell concentration in the ditch fills could reflect either varying rates of sediment accumulation or localised differences in the species composition of the snail community. Some species, such as *Carychium tridentatum* can be present in extremely large numbers and therefore greatly increase the shell concentration. The short detached ditch outside the main enclosure (context group 100) appears to have had a similar history but the ditch within the enclosure (context group 700) is practically shell-free. This cut cannot have remained open and must have been immediately back-filled. Immediate backfilling must have also occurred in pits 4001, 4006 and 4040 of context group 400 but the adjacent pit 4015 and other pits further west remained open long enough to acquire a snail fauna similar to the main enclosure ditch. Shell concentrations are particularly high in pit 4005 and gully 4022.

5.7.14 Land snails inhabit micro-habitats and therefore provide most information about the immediate environs of the sample site (only a few metres around the sample). It is for this reason that snail assemblages from ditch or pit sediments offer only limited scope for the reconstruction of the contemporary landscape. Snails inhabiting ditches reflect conditions in that ditch rather than the wider landscape. Clearly, when a ditch or pit is created then it is colonised by snails from the existing local fauna and the composition of that fauna will limit the species available for colonisation. Given these limitations, what can be concluded about the local environment of the South Elmsall enclosure?

5.7.15 The enclosure ditch was inhabited by a diverse snail community consisting overwhelmingly of widespread, common species capable of exploiting a wide variety of habitats (Cameron and Redfern 1972; Evans and Jones 1973). This excludes certain possibilities: the enclosure was not created in dense woodland or in a totally open, cultivated landscape as both of these would have provided a much less diverse and/or specialised fauna. As noted above, the actual composition of the ditch fauna reflects the conditions in the ditch itself which must have been stony, humid and well vegetated. This vegetation need not have

been more than rank grass or low bushes (Cameron and Morgan-Huws 1975). The same diverse, catholic snail community appears to have exploited the temporary habitat created by the digging of pits. Pit 4005 and gully 4010 pre-date the creation of the enclosure but there is no indication from the snail assemblages in their fills of any changes in the local environment in the time between the digging of the features and the enclosure.

5.7.16 The only evidence for a different snail community comes from pit 4035 and the adjacent natural features where sediment fills contained an assemblage dominated by *Vallonia*. *Vallonia costata* and *Vallonia excentrica* are both species of open, dry environments and assemblages dominated by this genus are only likely to be encountered in grassland or cultivated land. Most of the other widespread catholic species are present in the fill of pit 4035 so this may be an example of the species balance more typical of the wider landscape that was the source of the ditch fauna. A diverse fauna dominated by *Vallonia* in the pre-enclosure landscape would become a diverse fauna dominated by *Carychium* and *Discus* in the enclosure ditch. Pit 4035 is not stratigraphically linked to the enclosure but it does contain pottery thought to be of Iron Age date and therefore may be close in date.

6. Dating

6.1 Radiometric Dating

6.1.1 A total of 41 environmental flotation samples contained charcoal. However only thirteen of these contained sufficient charcoal for radiometric dating (Holden 1997). Of these thirteen samples three were selected to be submitted for dating. The selection of samples was based upon the following criteria:

- the context was securely stratified with no disturbance;
- the context was a primary fill (where possible);
- the context, or a subsequent fill contained pottery artefacts;
- the context related to either the sub-rectangular enclosure or to one of the possible pit groups.

6.1.2 The samples selected for dating did not contain sufficient large fragments of charcoal for a conventional radiocarbon date, and were therefore dated using accelerator mass spectrometry (AMS). The samples were measured at the University of Arizona AMS Facility and the dates calculated at the Scottish Universities Research and Reactor Centre.

6.1.3 **Pit 4001 (pit group 400)**

Context 4002 (sample 46) was the sole fill of pit 4001 (Fig. 3). This feature was selected for dating in order to enhance the phasing of pit group 400 in relation to the sub-rectangular enclosure and other datable features.

6.1.4 The charcoal in sample 46 was derived from *Pomoideae*, a family of trees including hawthorn, rowan, apples and pears.

Table 6 Sample 46

Context	Lab. number	Uncal. date	Cal. date at 1σ	Cal. date at 2σ
4002	AA-26220	7255 ± 50 BP	BC 6128 - 6003	BC 6213 - 5980
		$\delta^{13}C$ = -25.5‰	BP 8077 - 7952	BP 8162 - 7929

6.1.5 The radiometric date therefore places the filling of this pit within the early Mesolithic period. This clearly conflicts with the pottery evidence which indicated a *terminus post quem* within the Iron Age. The carbon in this fill is therefore residual and cannot provide a date for the filling of this pit or contribute to a pottery chronology; it does however provide tentative evidence of Mesolithic activity in the area.

6.1.6 **Pit 4035**

Context 4039 (sample 41) was the primary fill of pit 4035. Again, it is anticipated that an absolute date for this feature will assist in the phasing of this and the possibly associated pit group 4005 in relation to the sub-rectangular enclosure and other datable features.

6.1.7 The charcoal in sample 41 was identified as derived from *Prunus spinosa* (sloe tree).

Table 7 Sample 41

Context	Lab. number	Uncal. date	Cal. date at 1σ	Cal. date at 2σ
4039	AA-26219	2015 ± 50 BP	BC 99 - AD 25	BC 165 - AD 80
		$\delta^{13}C$ = -23.8‰	BP 2048 - 1925	BP 2114 - 1870

6.1.8 This late Iron Age date is consistent with the date provided by the pottery from this context.

6.1.9 **Ditch 5002 (enclosure ditch 500)**

Context 5006 (sample 19) was the primary fill of ditch cut 5002, which formed the south-western corner of the sub-rectangular enclosure, and cut pit 4005. The feature was dated in order to establish the date of the enclosure and provide a *terminus post quem* for the final filling of pit 4005.

6.1.10 The charcoal in sample 19 was derived from *Quercus* (oak).

Table 8 Sample 19

Context	Lab. number	Uncal. date	Cal. date at 1σ	Cal. date at 2σ
5006	AA-26218	2040 ± 50 BP	BC 349 - 109	BC 370 - 50
		$\delta^{13}C$ = -26.1‰	BP 2298 - 2058	BP 2319 - 1999

6.1.11 *Quercus* is a long-lived species (up to 400 years), and the potential age of wood prior to use should be recognised when interpreting the results of the radiocarbon dating. As the uncalibrated date for this sample is only 130 years earlier than the uncalibrated date for sample 41 above, the potential error incorporated by the use of *Quercus* must be acknowledged, and any phasing based upon the difference between this and the sample 41 must be treated with caution.

6.1.12 This sample provides a middle to late Iron Age date for the enclosure ditch. The pottery from this feature was identified as possibly 700-400 BC, the carbon date indicates that this range is slightly early and that a 400-50 BC date would be more appropriate.

7. Discussion and Interpretation

7.1 Early Prehistoric Activity

7.1.1 The analysis of the flint artefacts has suggested that the site had been utilised prior to the Iron Age. The presence of just three worked pieces of flint at the site implied that these artefacts were residual, whilst the nature of the working suggests Mesolithic or Neolithic activity. Although none of the identified features related to these periods, carbonised *Pomoideae* from pit 4001 produced a date of 6128-6003 cal BC. The carbon is residual in an Iron Age feature but its presence may reflect Mesolithic activity at or near the site. The evidence for early prehistoric activity in the Dale Lane area is related only to residual finds and must be treated with caution.

7.2 Iron Age Activity

7.2.1 The archaeological features identified at the site appear to relate to a minimum of two phases of Iron Age activity. Pottery was recovered from a variety of features including the enclosure ditch, a gully and the pits. This pottery has been consistently identified as Iron Age, however the paucity of reference material from West Yorkshire and South Yorkshire has meant that a chronological sequence for this pottery could not be clearly established. Rigby (paragraph 5.1.8) suggests that all of the pottery may date to 700 - 400 BC, with the shell tempered sherds from the enclosure ditch representing contemporary imported wares from north Lincolnshire or the Humber Estuary. The analysis of the mollusc assemblage did not provide any additional chronological information, however this analysis did provide evidence to support the phasing established on site. Radiocarbon dating confirmed a middle to late Iron Age date for the site. Superficially the radiocarbon dates indicate two phases of Iron Age activity but the use of oak charcoal for one of these dates makes these results an unsuitable basis for establishing separate phases.

7.2.2 The first phase of Iron Age activity consisted of pit 4005 and gully 4010, these features were each undated but were stratigraphically earlier than the enclosure ditch. The function of these features is not clear. The sides of pit 4005 had slumped into the base indicating that the pit had remained open for some time. Subsequent fills appeared to have accumulated naturally, with the surface of these fills sloping downwards towards the base. The snail fauna which

opportunistically colonised the open pit indicated a stony, humid and well vegetated environment; confirming that the pit infilled gradually.

7.2.3 Gully 4022 is probably related to this first phase of activity. This and gully 4010 were of similar dimensions and shape, and were located 2m apart; the space between the two butt-ends may represent an entranceway. These features may have been part of a structure or small enclosure. Gully 4022 contained a snail assemblage and concentration closely comparable with that of pit 4005, but no relationship between these features could be determined.

7.2.4 The second phase of Iron Age activity was represented by the large enclosure, plus ditches 100 and 700. The enclosure was formed by a continuous single phase ditch with an internal area of approximately 1540m^2. The snail assemblage indicated that like the features in Phase I, this ditch had remained open for a significant period, with gradual filling rather than deliberate backfilling. The duration of the use of the enclosure could not be established. The primary fill of this enclosure has been dated to 349-109 cal BC. Taking into account the limitations inherent in using *Quercus* for dating, this result still indicates a late Iron Age rather than Romano-British date for the enclosure.

7.2.5 The enclosure was wider at the southern most end which may suggest a stock control function, i.e. funnelling animals into the enclosure from the north. However the shape of the ditch in plan was unusually irregular and may indicate a more complex reason for the shape than simply stock management. In particular the western side of the enclosure may have been cut to incorporate or exclude other contemporary features which could not be identified archaeologically. The site had been truncated and it is possible that shallow structural features such as post-holes, gullies or beam slots may have been removed. These features would have been of a reasonably permanent nature, given that they dictated the shape of the enclosure ditch.

7.2.6 No evidence of an entrance to the enclosure was identified, leaving the probability that an entranceway lay in the unexcavated area of the enclosure to the north of the limits of excavation. Ditch 100 could not be related to the main enclosure stratigraphically, but the position of this feature at the northern end of the enclosure may relate to the entranceway. As with the that of the enclosure the snail fauna was indicative of a ditch which remained open for some time and infilled gradually.

7.2.7 Tentative evidence of a bank to accompany the enclosure ditch was identified in some of the ditch fills that included large limestone blocks which may have resulted from the slumping of an adjacent bank into the ditch. The position of this putative bank (internal or external) could not be established.

7.2.8 A putative crossing point of the ditch was identified in the south-eastern corner of the enclosure. At this point the ditch maintained a similar depth to the rest of the enclosure but became significantly narrowed. This may have been a simple crossing point or may have incorporated a beam slot and fence.

7.2.9 Ditch 700 was located within the south-eastern area of the enclosure and appeared to form a sub-division of the main enclosure. The existence of an internal bank means that this gully would have formed a division running from the bank in the south, with an entrance adjacent to the putative bank at its

northernmost extent. In contrast with the fills of the main enclosure ditch, very few mollusc shells were recovered from the fill of the sub-division ditch, indicating a feature which was not open for a significant amount of time and was backfilled. This suggests that the ditch (700) formed a temporary sub-division of the more permanent main enclosure. It should be noted that the putative crossing point of the main enclosure ditch led into this sub-division.

7.2.10 The function of the enclosure is unclear. Faunal remains were recovered from the enclosure ditch (concentrated in the south-west corner) and from the internal ditch 700 and it is possible that the shape of the enclosure may have related to stock management. No juvenile bones were recovered from any of the features, suggesting that breeding was not taking place on site. Only cattle bones were identified from the ditch 700 and the south-eastern corner of the enclosure ditch, which may indicate that cattle were kept in the small sub-enclosure. The main enclosure ditch contained a mixed assemblage of cattle, sheep/goat and horse bones, indicating that a variety of species were present over the enclosure as a whole. Although faunal remains were the most prevalent artefact recovered from the excavation, the sample size was relatively small and therefore it is unlikely that the function of the enclosure was solely an animal enclosure. The mollusc evidence from the enclosure reflected a probable background landscape of grassland and cultivated land similar to that of the first phase of Iron Age activity.

7.2.11 The enclosure phase may also have included the stratigraphically unphased pit 4035. Despite obtaining a radiocarbon date for this feature, its position in the sequence of activity at the site remains ambiguous. The radiocarbon date for this pit was 99 cal BC - cal AD 25 and came from a reliable short-lived species. This date could place this pit into a third phase of activity, but equally may overlap with the enclosure in Phase II when the limitations of the *Quercus* sample from the enclosure are considered.

7.2.12 Similarities between pit 4035 and the Phase I pit, 4005 can also be identified. Morphologically these features were very similar, and an association between them cannot be ruled out. In contrast to the Phase I feature, pit 4035 contained much less slumping of the sides and the surface of the fills was closer to horizontal, suggesting that pit 4035 had been backfilled. The snail assemblage confirmed this; the fauna entered the pit as a component of the backfilled deposits, and the species present indicated that the contemporary background landscape was probably grassland or cultivated land.

7.2.13 It is interesting to note that the only three environmental samples from the site to contain carbonised plant remains (wheat grains and rachis) were the secondary fill of pit 4005 and the primary and secondary fills of pit 4035. Their presence only in these two features may be a further indication of contemporaneity.

7.2.14 Pit group 400 also remains undated. Whilst it is assumed that these pits were not contemporary with the main enclosure because one lay inside and three lay outside the ditch, it is not clear whether these pits pre-date or post-date the enclosure.

7.2.15 The position and morphology of the four pits suggest a coherent group of features with a common function. The mollusc evidence is indicative of a difference in the functions of the pits as they were not treated identically once open. Three of these four pits were backfilled immediately (pits 4001, 4006 and 4040) but pit 4015 remained open long enough to become colonised by a similar snail assemblage to that in pit 4005 described above. Articulated human remains were present in the base of this pit and consisted of a right arm and cranium fragment. The articulation of the arm is not consistent with the bones being residual and redeposited, and therefore this must have been a primary inhumation, but the remains may have been incomplete at the time of burial. The arm and skull were covered with a shallow deposit and the pit remained partially open. Alternatively the human remains may have been complete at the time of burial, only partially covered, and disturbed prior to the gradual infilling of the pit.

8. Conclusion

8.1.1 The excavation at Dale Lane, South Elmsall identified a middle to late Iron Age site composed of at least two phases of activity. The identified features indicate that funerary activity and stock management were taking place at the site. Modern agriculture has clearly truncated the site and the nature of the archaeology, in particular of the unusually shaped enclosure, remains ambiguous.

8.1.2 The excavation produced securely stratified prehistoric pottery, bone and environmental evidence; the mollusc evidence has been of significant use in understanding the site formation processes at work. Iron Age sites of this type with artefactual and absolute dating are extremely rare in West Yorkshire and the results of this excavation provide an opportunity to enhance the archaeological understanding of this period in the county.

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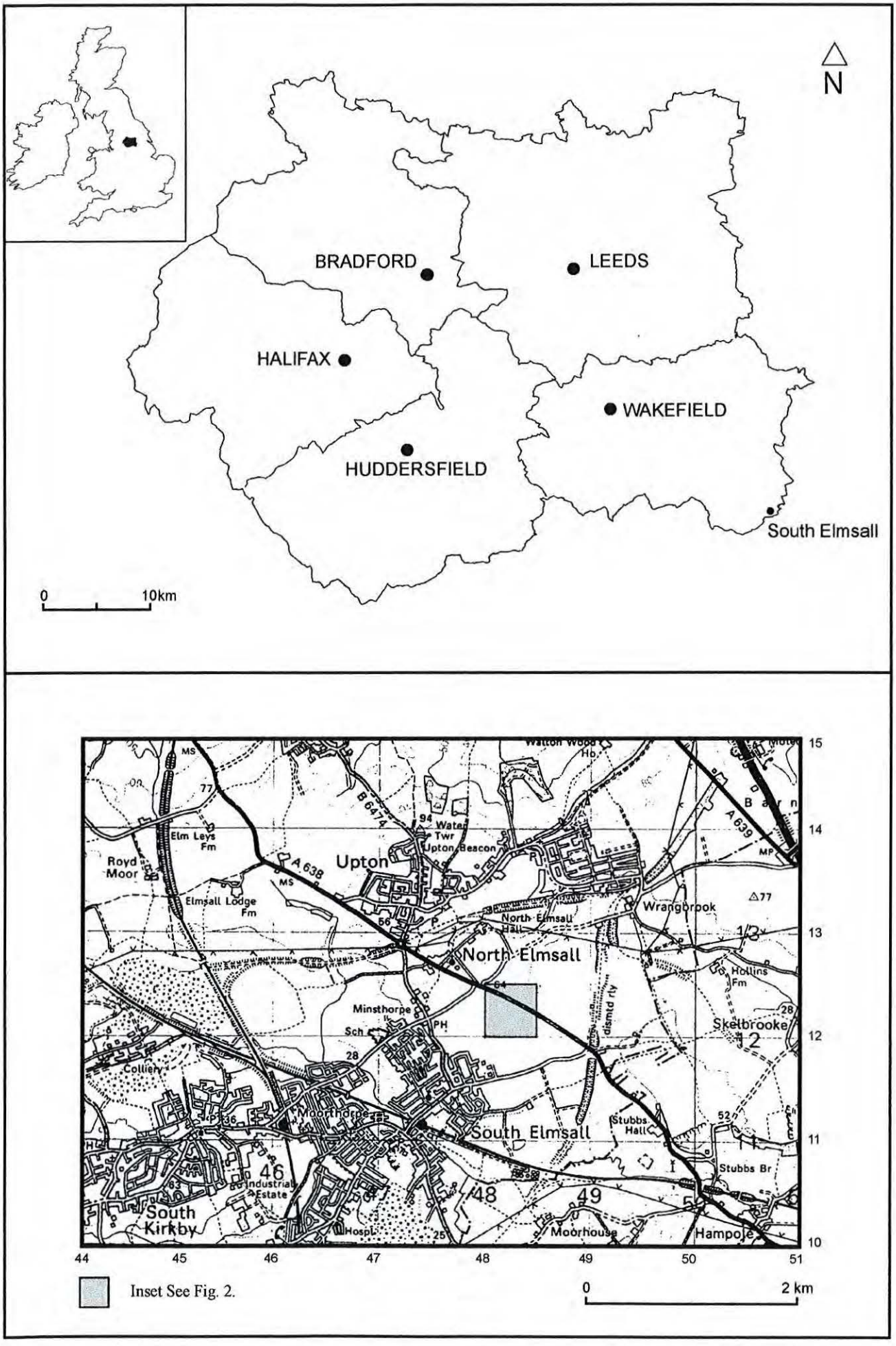
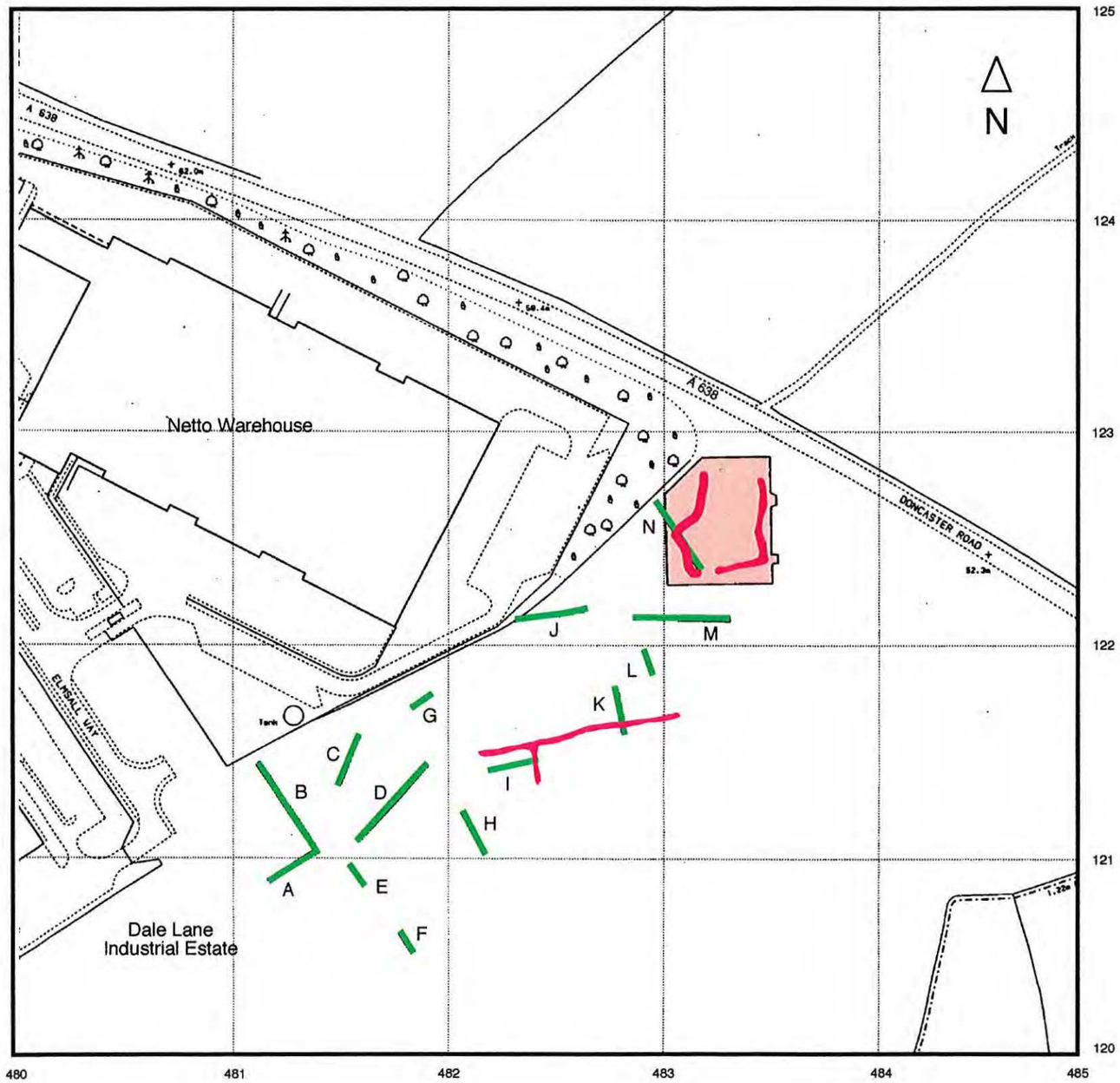


Fig. 1. Site Location



KEY

Area of Excavation

Evaluation Trenches

Geophysical survey interpretation (corrected from Noel 1993)

Fig. 2. Trench location plan

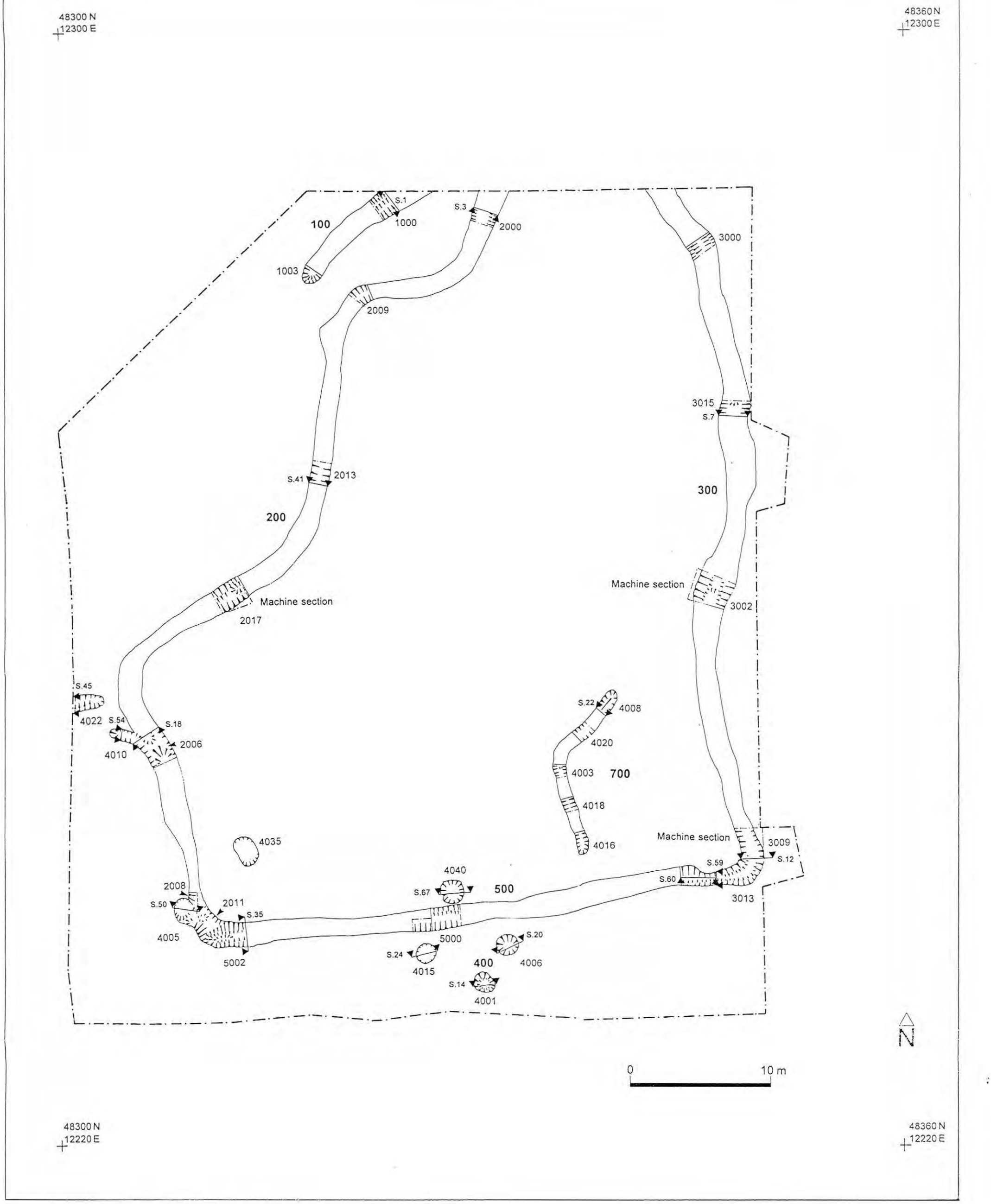
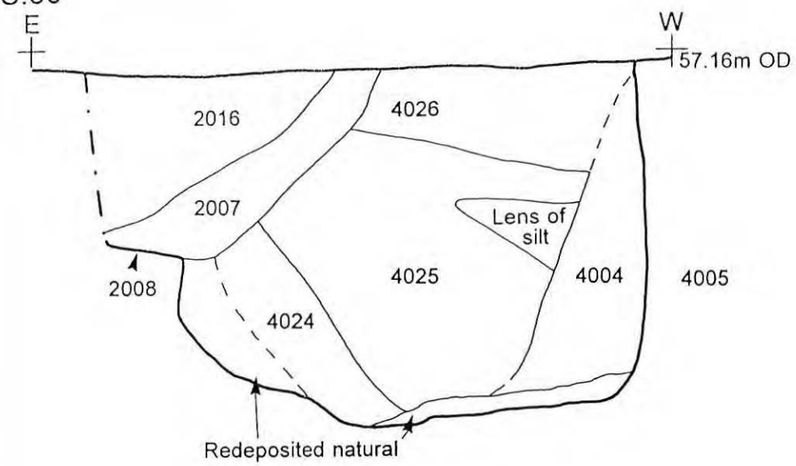


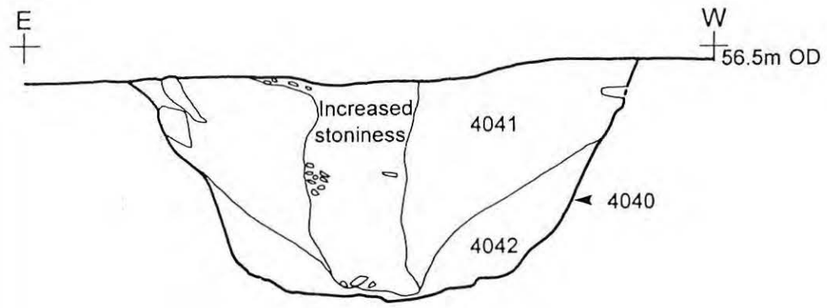
Fig. 3. Post-excavation plan

Pit sections

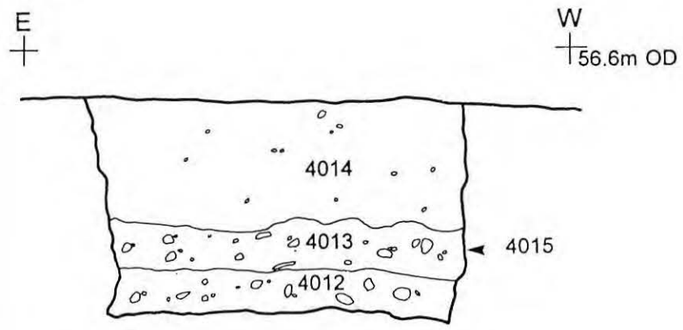
S.50



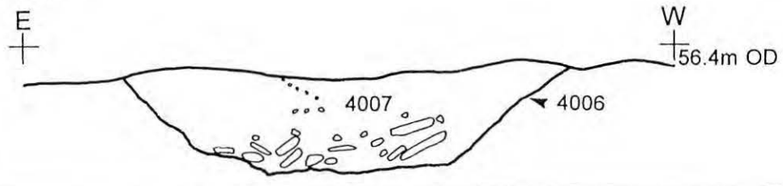
S.67



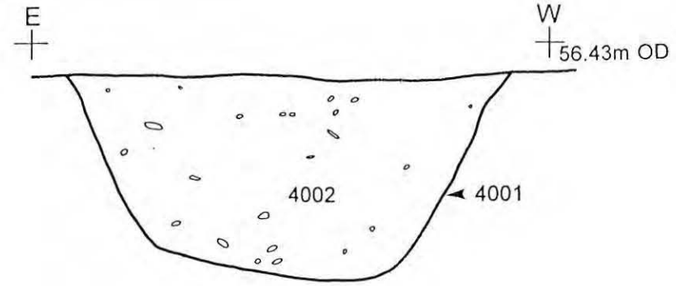
S.24



S.20

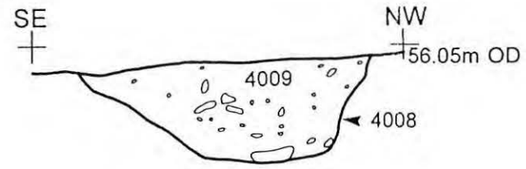


S.14

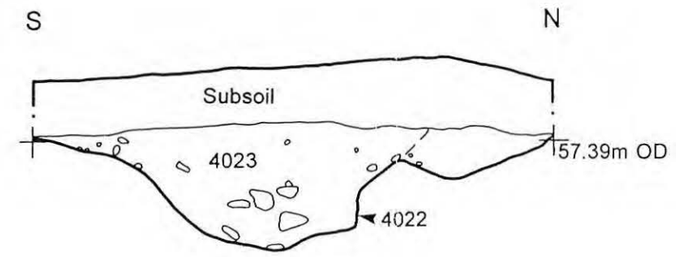


Gully sections

S.22



S.45



S.54

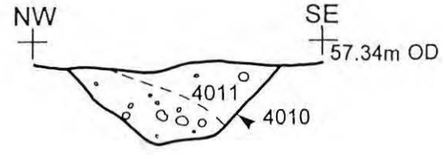
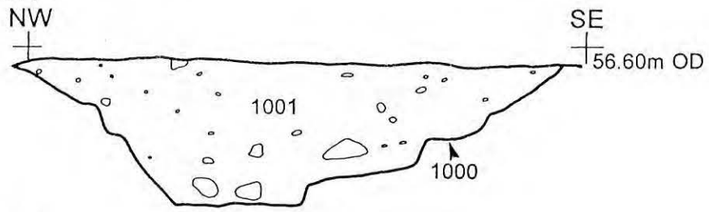


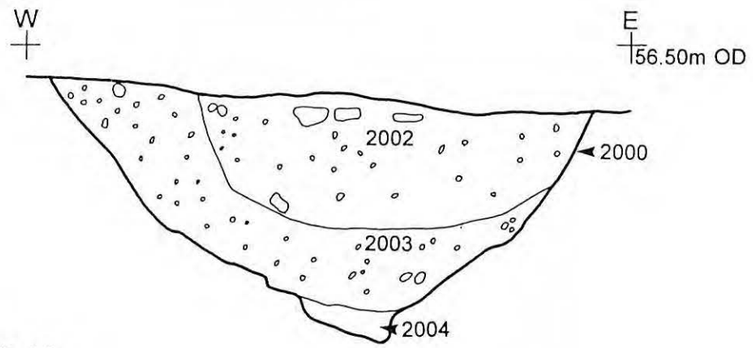
Fig. 4. Pit and gully sections

Ditch sections

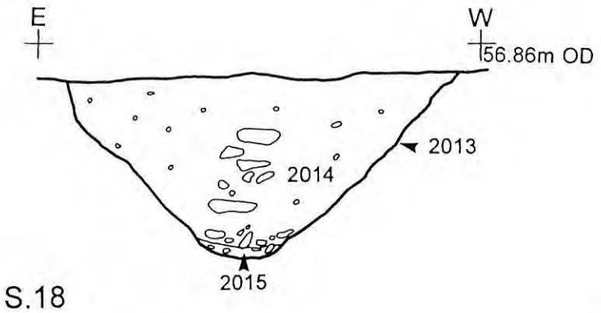
S.1



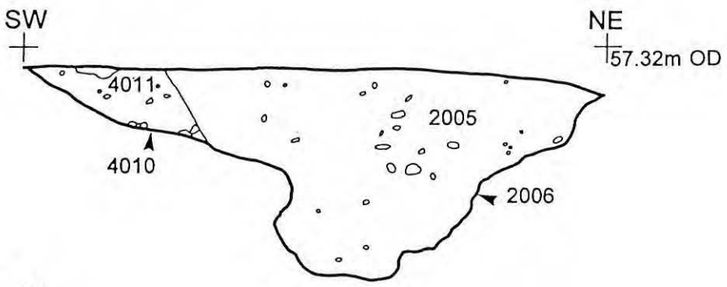
S.3



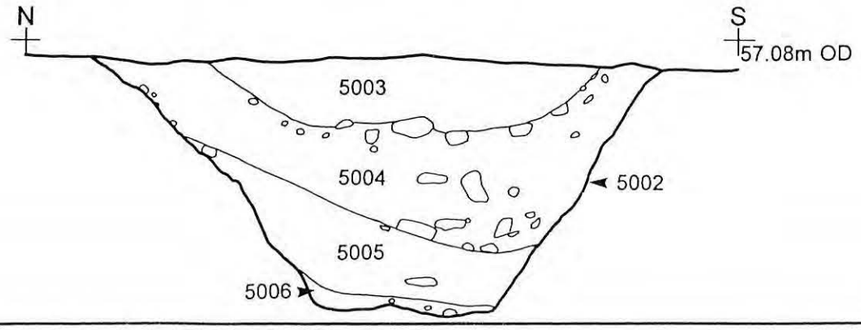
S.41



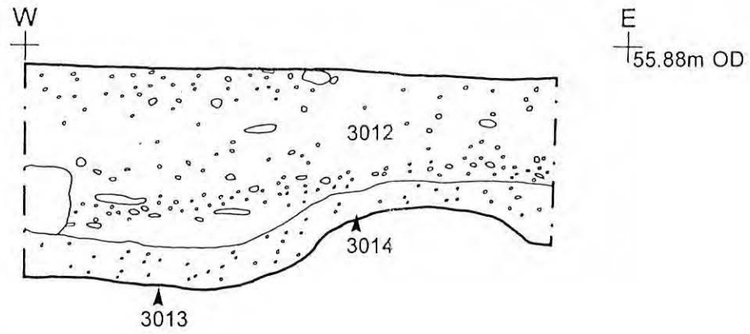
S.18



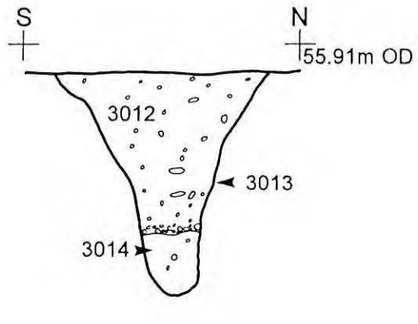
S.35



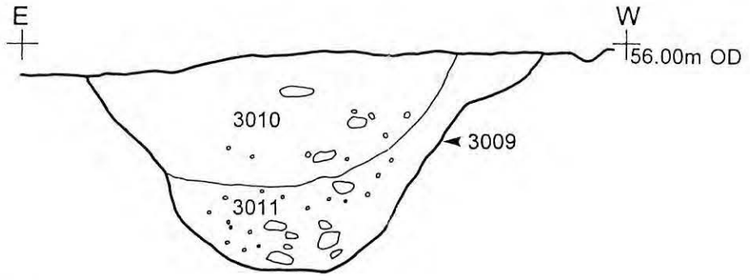
S.60



S.59



S.12



S.7

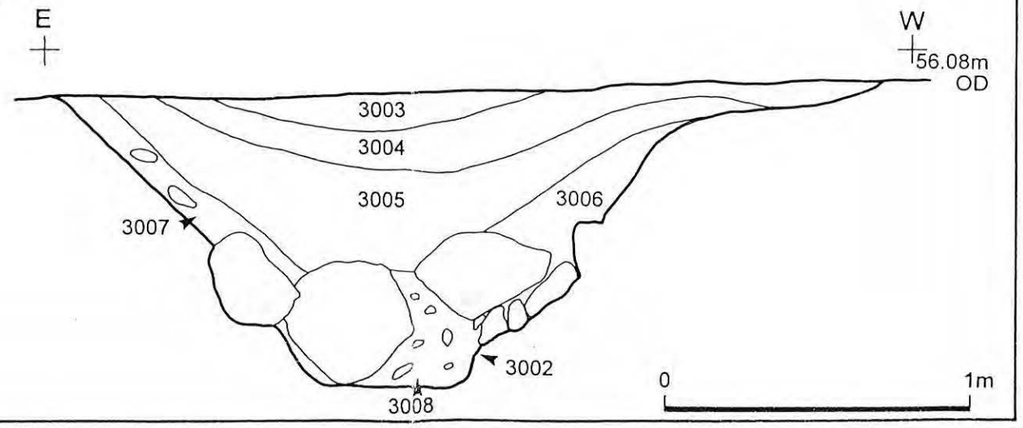


Fig. 5. Ditch sections

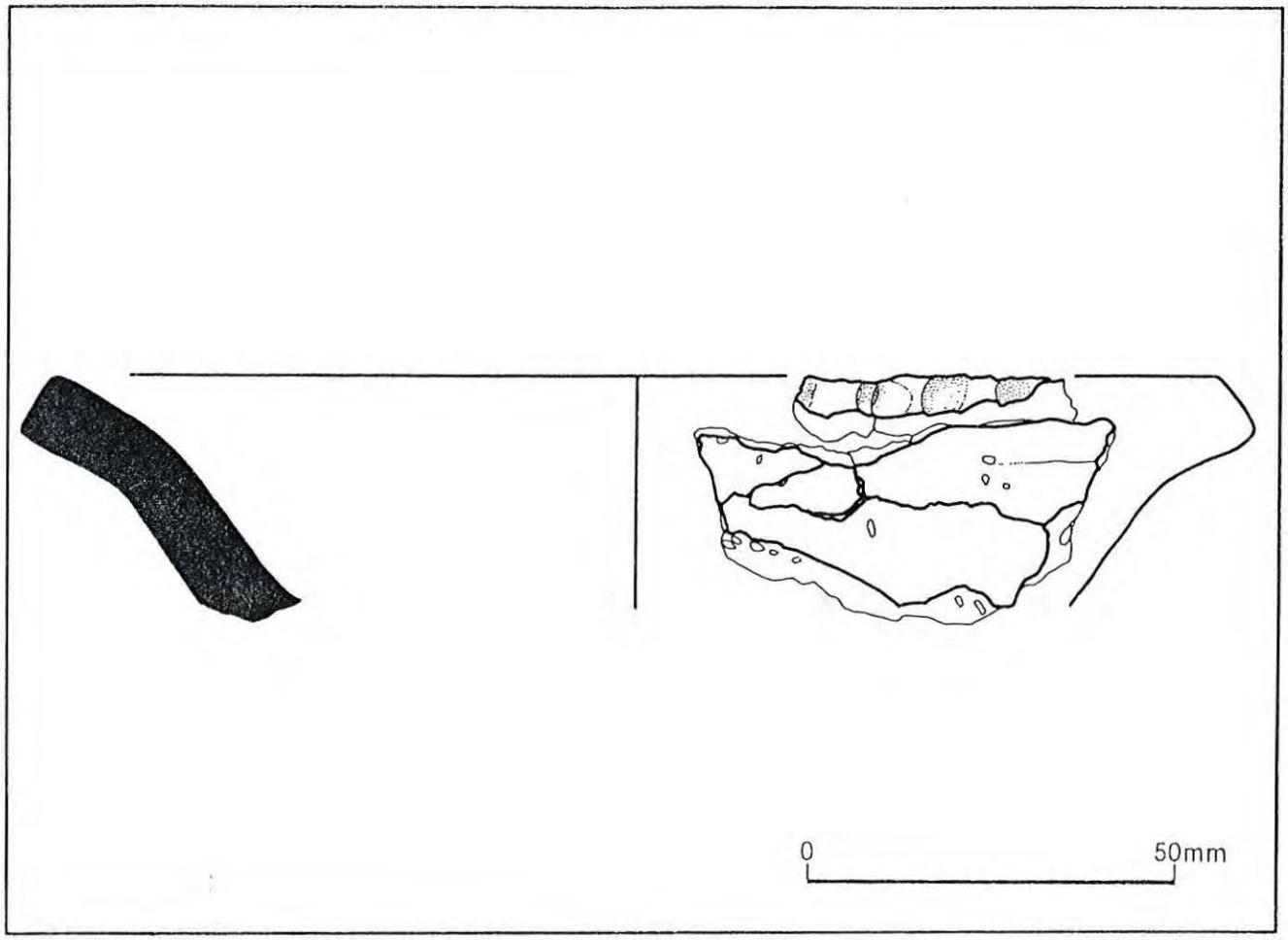


Fig. 6. Iron Age shelly ware. Context 2002.

Appendix I

Primary Archive Inventory

Evaluation (Archaeological Services WYAS)

File No	File	Contents	no of sheets A4
I	CONTEXTS	Context register	2
		Samples register	1
		Context cards	34
		Evaluation specification	3
		Geophysical survey report	1 report
		Survey data	10
II	DRAWINGS	Drawing register	1
		Drawings	9 (A3)
		Report illustrations	13
		Colour transparencies	1 film
		Black and white prints	2 films
		Photo record sheets	3

Film Numbers	
Black and white prints	**Colour transparencies**
3407	3406
3408	

Excavation (Archaeological Services WYAS)

File No	File	Contents	no of sheets A4
I	CONTEXTS	Post-ex plan	1 (A3)
		Context register	7
		Group context cards	7
		Context cards	94
		Skeleton sheet	1
II	DRAWINGS	Drawing register	7 (A3)
		Drawings	41 (A3)
		Survey drawing	1
		Section locations	1
		Colour transparencies	6 films
		Black and White prints	6 films
		Photo record sheets	12
III	SAMPLES & FINDS	Samples summary	2
		Finds summary	2
		Samples register	3
		Sample sheets	44
		Finds reg B	3
IV	PRE-EXCAVATION INFO	Site location maps	5
		Site summary	2
		Site plan	1
		Matrix	2 (A3)
		Inventory of archive	2
		Inventory of contexts	5
		Inventory of finds	2
		Inventory of samples	4
		Site diary	11
		Home office licence	2
		Excavation specification	1 report
		Geophysics report	1 report
		Evaluation report	1 report
		Survey problems	1 report
IV	POST-EXCAVATION WORK	Specialist pottery analysis	6
		Specialist faunal bone analysis	5
		Specialist human bone analysis	1 report

File No	File	Contents	no of sheets A4
IV	POST-EXCAVATION WORK	Specialist slag analysis	3
		Specialist flint analysis	1
		Luminescence dating advice	3
		^{14}C sample context info	3
		^{14}C dating analysis (SURRC)	
		Sample processing sheets	39
		Specialist enviro. assessment	1 report
		Specialist snails analysis	1 report + 1 disk
		Client report version 1	1 report + disk copy - selrep1.doc
		Client report version 2 (includes ^{14}C dates and revised phasing)	1 report + disk copy - selrep2.doc
		Report illustrations	5 (A3)

Film Numbers	
Black and white prints	**Colour transparencies**
4076	4058
4075	4077
4234	4231
4235	4232
4233	4236
4239	4237

Appendix II

Summary of Contexts

Evaluation (Archaeological Services WYAS)

Context	Type	Description	Interpretation	Position of fill in feature
001		Trench B. natural		
002		Trench B. subsoil		
003		Trench B. natural		
004		Trench B. natural		
005	fill	Trench D. mid brown silty sand. v. occ. flecks of burnt bone	fill of 006	sole fill
006	cut	Trench D. post-hole cut. filled by 005	cut of ditch	
007		Trench D. natural		
008		Trench D. natural		
009		Trench D. natural		
010		Trench D. natural		
011		Trench D. natural		
012		Trench D. natural		
013		Trench D. natural		
014		Trench D. natural		
015	cut	Trench N. pit cut. filled by 016, 017, 018, 019	cut of pit	
016	fill	Trench N. light brown sandy silt clay. mod. l/stone inclusions	fill of 015	final (4th)
017	fill	Trench N. light brown sandy silt. freq. l/stone	fill of 015	3rd
018	fill	Trench N. mid brown sany silt clay. mod. l/stone frags	fill of 015	2nd
019	fill	Trench N. dark brown sandy silt clay. occ. l/stone frags. mod. charcoal flecks	fill of 015	primary
020	fill	Trench K. mid orange brown sandy silt. freq. l/stone frags. occ. charcoal flecks	fill of 021	2nd
021	cut	Trench K. ditch cut. filled by 022, 023, 020	cut of ditch	
022	fill	Trench K. =023. mid orange brown silty sand. freq. l/stone flecks	fill of 021	primary
023	fill	Trench K. =022.	fill of 021	primary
024	cut	Trench N. ditch cut. filled by 025	cut of ditch	
025	fill	Trench N. mid red-brown silt clay loam. freq. l/stone frags. occ. fire cracked cobbles. occ. charcoal flecks.	fill of 024	sole fill

Context	Type	Description	Interpretation	Position of fill in feature
026	cut	Trench I. ditch cut. filled by 027	cut of ditch	
027	fill	Trench I. mid red-brown silt clay loam. occ. l/stone frags	fill of 026	sole fill
028		Trench B. natural		
029		Trench B. natural		
030		Trench B. natural		
031		Trench B. natural		
032		Trench B. natural		
033		Trench B. natural		
034		Trench B. natural		
035		Trench B. natural		

Excavation (Archaeological Services WYAS)

Context	Type	Description	Interpretation	Position of fill in feature
100	group	curvilinear ditch		
200	group	western enclosure ditch		
300	group	eastern enclosure ditch		
400	group	pits		
500	group	southern enclosure dich		
600	group	complete enclosure ditch (=200, 300 and 500)		
700	group	internal curvilinear ditch		
1000	cut	linear. filled by 1001	cut of ditch 100	
1001	fill	mid red-brown silty sand. mod. l/stone frags. rare charcoal. = 1004	fill of 1000	sole fill
1003	cut	butt-end of linear. filled by 1004	cut of ditch 100	
1004	fill	mid red-brown silty sand. mod. l/stone frags. = 1001	fill of 1003	sole fill
2000	cut	linear (enclosure). = 2001. filled by 2002, 2003, 2004	cut of ditch 200	
2001	cut	= 2000	cut of ditch 200	
2002	fill	mid brown silt sand clay. mod. l/stone flecks. occ. l/stone frags	fill of 2000	final (3rd)
2003	fill	mid brown silty sand. freq. l/stone flecks. occ. l/stone frags	fill of 2000	secondary
2004	fill	light grey-brown silty sand. occ. l/stone flecks	fill of 2000	primary

Context	Type	Description	Interpretation	Position of fill in feature
2005	fill	red brown silty sand. freq. l/stone frags	fill of 2006	sole fill
2006	cut	linear (enclosure). filled by 2005	cut of ditch 200	
2007	fill	mid brown-orange sandy silt. occ. l/stone frags. mod. pea grit. = 2018	fill of 2008	secondary
2008	cut	linear (enclosure). = 2011. filled by 2007, 2016	cut of ditch 200	
2009	cut	linear (enclosure). filled by 2010	cut of ditch 200	
2010	fill	light brown sandy-silt. freq. l/stone frags	fill of 2009	sole fill
2011	cut	linear (enclosure). =2008. filled by 2019, 2018, 2012	cut of ditch 200	
2012	fill	mid orange-brown silty sand. mod. l/stone frags. occ. charcoal. = 2016	fill of 2011	final (3rd)
2013	cut	linear (enclosure). filled by 2014, 2015	cut of ditch 200	
2014	fill	mid brown silty sand. freq. l/stone frags. v. occ. charcoal	fill of 2013	final (2nd)
2015	fill	yellow-brown silty sand. occ. l/stone frags	fill of 2013	primary
2016	fill	mid orange-brown sandy silt. occ. l/stone frags. = 2012	fill of 2008	final (2nd)
2017	cut	linear (enclosure). filled by 2020, 2021, 2022	cut of ditch 200	
2018	fill	mid orange-brown sandy silt. mod. l/stone frags. occ. pea grit = 2007	fill of 2011	secondary
2019	fill	light orange-white silt. v. freq. l/stone frags (sparse soil matrix)	fill of 2011	primary
2020	fill	dark/mid brown silty sand. occ. l/stone frags. occ. charcoal	fill of 2017	final (3rd)
2021	fill	dark/mid brown sandy silt. v. occ. l/stone flecks	fill of 2017	secondary
2022	fill	dark/mid yellow-brown sandy silt. mod. l/stone frags	fill of 2017	primary
3000	cut	linear (enclosure). filled by 3001	cut of ditch 300	
3001	fill	mid brown sandy silt. freq. l/stone frags.	fill of 3000	sole fill
3002	cut	linear (enclosure). filled by 3003, 3004, 3005, 3006, 3007, 3008	cut of ditch 300	
3003	fill	dark/mid brown sandy silt. freq. charcoal. occ. l/stone frags.	fill of 3002	final (5th)
3004	fill	light/mid red brown sandy silt. v. occ. l/stone frags.	fill of 3002	4th
3005	fill	light/mid red brown sandy silt. occ. l/stone frags.	fill of 3002	3rd
3006	fill	light/mid red-brown sandy silt. v. occ. l/stone flecks.	fill of 3002	secondary
3007	fill	light brown sandy silt. freq. l/stone flecks. occ. l/stone frags.	fill of 3002	secondary

Context	Type	Description	Interpretation	Position of fill in feature
3008	fill	mid brown silty sand. freq. l/stone frags. occ. l/stone boulders.	fill of 3002	primary
3009	cut	linear (enclosure). filled by 3010, 3011	cut of ditch 300	
3010	fill	mid brown silty sand. mod. l/stone frags.	fill of 3009	final (2nd)
3011	fill	mid brown silty sand. freq. l/stone frags and pea grit	fill of 3009	primary
3012	fill	mid red-brown sandy silt. mod. l/stone frags.	fill of 3013	final (2nd)
3013	cut	linear (enclosure). filled by 3012, 3014	cut of ditch 300	
3014	fill	mid red-brown sandy silt. v. freq. small l/stone frags. occ. charcoal	fill of 3013	primary
3015	cut	linear (enclosure). filled by 3016, 3017, 3018	cut of ditch 300	
3016	fill	dark brown-black sandy silt. v. freq. charcoal. occ. l/stone frags	fill of 3015	final (3rd)
3017	fill	light/mid brown sandy silt. occ. l/stone flecks. occ. charcoal	fill of 3015	secondary
3018	fill	light/mid brown sandy silt. v. freq. l/stone flecks and frags.	fill of 3015	primary
4000	fill	mid red-brown silty clay. mod. small l/stone frags. = 4009, 4017, 4019, 4021	fill of 4003	sole fill
4001	cut	circular pit. filled by 4002	cut of pit	
4002	fill	mid/light yellow-brown sandy silt. mod. small l/stone flecks & frags	fill of 4001	sole fill
4003	cut	curvilinear ditch. filled by 4000	cut of ditch 700	
4004	fill	mid orange-brown sandy silt. occ. l/stone flecks	fill of 4005	primary
4005	cut	oval pit. filled by 4004, 4024, 4025, 4026	cut of pit	
4006	cut	circular pit. filled by 4007	cut of pit	
4007	fill	mid orange-brown silty sand. mod. l/stone frags. occ. charcoal	fill of 4006	sole fill
4008	cut	butt-end of curvilinear ditch. filled by 4009	cut of ditch 700	
4009	fill	mid red-brown silty clay. occ. l/stone. v. occ. charcoal. = 4000, 4017, 4019, 4021	fill of 4008	sole fill
4010	cut	curvilinear ditch. filled by 4011	cut of ditch	
4011	fill	red-brown sandy silt. occ. l/stone frags and pea grit. inc. to freq. at base	fill of 4010	sole fill
4012	fill	mid brown silty sand. freq. l/stone frags and pea grit. occ. charcoal	fill of 4015	primary
4013	fill	mid brown silty sand. mod. l/stone frags and pea grit	fill of 4015	secondary
4014	fill	mid brown silty sand. occ small l/stone grits	fill of 4015	final (3rd)
4015	cut	circular pit. filled by 4012, 4013, 4014	cut of pit	

Context	Type	Description	Interpretation	Position of fill in feature
4016	cut	curvilinear ditch. filled by 4017	cut of ditch	
4017	fill	mid red-brown silty clay. occ. l/stone. rare charcoal. = 4000, 4009, 4019, 4021	fill of 4016	sole fill
4018	cut	curvilinear ditch. filled by 4019	cut of ditch	
4019	fill	same as 4017. = 4000, 4009, 4017, 4021	fill of 4018	sole fill
4020	cut	curvilinear ditch. filled by 4021	cut of ditch	
4021	fill	same as 4017 with freq. l/stone frags. = 4000, 4009, 4017, 4019.	fill of 4020	sole fill
4022	cut	curvilinear ditch. filled by 4023	cut of ditch	
4023	fill	mid red-brown clay silt. mod. l/stone frags. mod. charcoal	fill of 4022	sole fill
4024	fill	mid orange-brown sandy silt. occ. l/stone frags and charcoal	fill of 4005	primary
4025	fill	mid/dark orange-brown sandy silt. freq. l/stone frags and pea grit. occ. charcoal. lens of silty material	fill of 4005	secondary
4026	fill	mid orange-brown sandy silt. mod. l/stone frags. occ. l/stone flecks. occ. charcoal	fill of 4005	final (3rd)
4027		natural		
4028		natural		
4029		natural		
4030		natural		
4031		natural		
4032		natural		
4033		natural		
4034		natural		
4035	cut	oval pit (= evaluation cut 015). filled by 4036, 4037, 4038, 4039	cut of pit	
4036	fill	light brown sandy silt. mod. small l/stone frags. (= evaluation fill 016)	fill of 4035	final (4th)
4037	fill	light white-brown sandy silt. freq. l/stone frags (= evaluation fill 017)	fill of 4035	3rd
4038	fill	mid brown sandy silt. mod. l/stone frags. (= evaluation fill 018)	fill of 4035	secondary
4039	fill	dark brown sandy silt. mod. small l/stone frags (= evaluation fill 019)	fill of 4035	primary
4040	cut	circular pit. filled by 4041, 4042	cut of pit	
4041	fill	mid orange-brown clay sand silt. freq. small l/stone frags. occ. charcoal. occ. cobbles. lens of purple clay.	fill of 4040	final (2nd)
4042	fill	dark orange-brown sandy silt. occ. charcoal	fill of 4040	primary

Context	Type	Description	Interpretation	Position of fill in feature
		frags.		
5000	cut	linear (enclosure). filled by 5001	cut of ditch 500	
5001	fill	mid/light yellow-brown sandy silt. mod. l/stone flecks. occ. l/stone frags. v. occ. charcoal. v. occ. cobbles	fill of 5000	sole fill
5002	cut	linear (enclosure). filled by 5003, 5004, 5005, 5006	cut of ditch 500	
5003	fill	mid orange-brown sandy clay silt. mod. small l/stone frags. occ. cobbles. occ. charcoal	fill of 5002	final (4th)
5004	fill	mid orange-brown sandy clay silt. mod. small l/stone frags. occ. large l/stone frags.mod. charcoal. occ. cobbles	fill of 5002	3rd
5005	fill	mid orange-brown clay sand silt. occ. small l/stone frags. occ. charcoal. occ. cobbles	fill of 5002	secondary
5006	fill	light orange-brown sandy clay. freq. small l/stone frags. occ. charcoal	fill of 5002	primary

Appendix III

Inventory of Artefacts

Evaluation and excavation (Archaeological Services WYAS)

Material	Context	Amount	Comment
POTTERY	u/s	1	12th -13th century
	u/s 2002	3	?late Iron Age
	2002	4	?late Iron Age
	2012	1	?middle Iron Age
	2014	1	?middle Iron Age
	3012	6	?early Iron Age
	4000	1	?middle Iron Age
	019 (4039)	1	?late Iron Age
	4000	1	?middle Iron Age
	4002	4	?middle Iron Age
	4034	1	17th-18th century
	Total	24 sherds	
BONE	005	2	burnt bone
	025	3	faunal
	2002	11	faunal
	2007	3	faunal
	2016	1	faunal
	3001	19	faunal
	3012	2	?human poss. faunal
	3012	19	faunal
	4000	28	faunal
	4009	46	faunal
	4011	6	faunal
	4012	several	human
	4025	2	faunal
	4034	11	faunal
	019 (4039)	1	burnt bone
	4039	3	faunal
	5001	6	faunal
	5003	19	faunal
	5004	134	faunal

Material	Context	Amount	Comment
BONE	5004	1	burnt bone
	5005	65	faunal
	total	382 fragments + human remains	
FLINT	u/s (3000)	1	
	4007	1	
	5004	1	
	total	3 pieces	
SLAG	3001	1	
	019 (3039)	3	
	5004	4	
	total	8 pieces	

Appendix IV

Inventory of Environmental Samples

Evaluation (Archaeological Services WYAS)

Sample No	Context No	Cut No	Position of Fill in Feature	Feature Type	Sample Type
001	005	006	sole fill	post-hole	Bulk
002	027	026	sole fill	ditch	Bulk
003	020	021	secondary fill	ditch	Bulk
004	019	015	primary fill	pit	Bulk
005	025	024	sole fill	ditch	Bulk

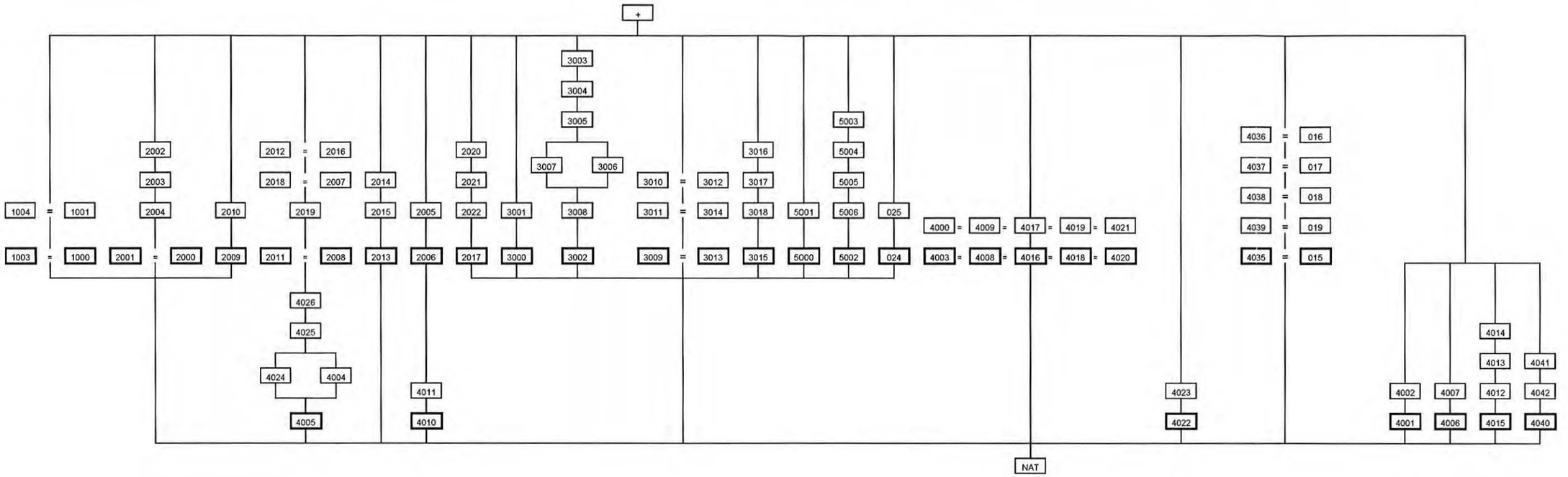
Excavation (Archaeological Services WYAS)

Sample No	Context No	Cut No	Position of Fill in Feature	Feature Type	Sample Type
001	2002	2000	secondary fill	ditch	^{14}C
002	2002	2000	secondary fill	ditch	Bulk
003	2003	2002	primary fill	ditch	Bulk
004	2004	2001	secondary fill	ditch	Bulk
005	1001	1000	sole fill	ditch	Bulk
006	3008	3002	primary fill	ditch	Bulk
007	4002	4001	sole fill	pit	Bulk
008	3003	3002	latest fill	ditch	^{14}C
009	5001	5000	sole fill	ditch	Bulk
010	4009	4008	sole fill	ditch	Bulk
011	4007	4006	sole fill	pit	Bulk
012	3012	3013	secondary fill	ditch	Bulk
013	3014	3013	primary fill	ditch	Bulk
014	4012	4015	primary fill	pit	Bulk
015	4017	4016	sole fill	ditch	Bulk
016	4019	4018	sole fill	ditch	Bulk
017	5003	5002	latest fill	ditch	^{14}C
018	5004	5002	4th fill	ditch	^{14}C
019	5006	5002	primary fill	ditch	^{14}C
020	2012	2011	secondary fill	ditch	Bulk

Sample No	Context No	Cut No	Position of Fill in Feature	Feature Type	Sample Type
021	4021	4020	sole fill	ditch	Bulk
022	2012	2011	final	ditch	TL sample
023	2014	2013	sole fill	ditch	Bulk
024	4023	4022	sole fill	ditch	Bulk
025	5005	5002	secondary fill	ditch	Bulk
026	5006	5002	primary fill	ditch	Bulk
027	4023	4022	single fill	ditch	^{14}C
028	3016	3015	latest fill	ditch	^{14}C
029	3018	3015	primary	ditch	Bulk
030	4011	4010	sole fill	ditch	Bulk
031	2007	2008	primary fill	ditch	Bulk
032	2016	2008	secondary fill	ditch	Bulk
033	4004	4005	primary fill	pit	Bulk
034	4024	4005	primary fill	pit	Bulk
035	4025	4005	secondary fill	pit	Bulk
036	4026	4005	latest fill	pit	Bulk
037	4028	4027	sole fill	natural	Bulk
038	4032	4031	sole fill	natural	Bulk
039	2022	2017	primary fill	ditch	Bulk
040	4038	4035	secondary fill	pit	Bulk
041	4039	4035	primary fill	pit	Bulk
042	4041	4040	secondary fill	pit	Bulk
043	4042	4040	primary fill	pit	Bulk
044	4041	4040	secondary fill	pit	Bulk
045	4042	4040	primary fill	pit	^{14}C
046	4002	4001	sole fill	pit	^{14}C

Appendix V

Stratigraphic matrix



Appendix VI

Animal Bone Archive

(from Richardson 1997)

Key to abbrieviations

unident.	unidentifiable to species and/or element	**dom.**	domestic
fr.	fragment	**F**	fused
sh.	shaft cylinder	**PF**	proximal epiphyses fused
vert.	vertebra	**DF**	distal epiphyses fused
PH1/2/3	first, second and third phalanges	**PUF**	proximal epiphyses unfused
max.	maxilla	**DUF**	distal epiphyses unfused
mand.	mandible	**Bp**	greatest breadth of proximal articulation
M1/2/3	first, second and third molars	**Bd**	greatest breadth of distal articulation
P2/3/4	second, third and fourth premolars	**GL**	greatest length

Context	Species	Element	N.	Side	Fusion	Comments
2002	horse	femur sh.	11	L		eleven frags. of same bone
2007	horse	max. molar	2	R		P4-M2 in wear
2007	horse	max. molar	1	L		P4-M2 in wear
2016	horse	max. M3	1	R		in wear
3001	unident	unident	16			
3001	sheep/goat	max. M1/2	1	R		in wear
3001	sheep/goat	radius sh.	1	R		
3001	sheep/goat?	tibia fr.	1	L		
3012	unident	unident	17			
3012	cow	femur	2	R	DF?	v. badly degraded
4000	unident	unident	25			
4000	cow	humerus sh.	3	R		three frags. of same bone
4009	cow	mandible	1	R		no teeth
4009	cow	manidble	45	R		no teeth
4011	cow	humerus	6	L	DF	all frags. from one bone
4025	unident	unident	2			
4034	unident	unident	11			
4039	unident	unident	3			
5001	unident	unident	5			
5001	unident	skull	1			

Context	Species	Element	N.	Side	Fusion	Comments
5003	unident	unident	16			
5003	unident	pelvis	1			
5003	horse	max. P2?	1	L		in wear
5003	cow	max. M3	1	L		in wear
5004	unident	unident	96			includes large rib frags.
5004	unident	skull frag.	2			
5004	horse	humerus	1	L	DF	chopped
5004	cow	astragalus	1	R		badly degraded
5004	cow	astragalus	1	L		
5004	cow	second/third carpal	1	L		
5004	cow	fourth carpal	1	L		
5004	cow	femur	1	L	DF	
5004	cow	ulna	3	R		three frags. of one bone
5004	cow	mand. hinge	1			
5004	cow	mand. P4	1	R		in wear
5004	cow	humerus	1	L		
5004	cow	radius	1	L	PF	
5004	cow	tibia	2	L	DF	two frags. of one bone
5004	cow	pelvis	1	L	F (?)	
5004	cow	metacarpal	1	R	DF	unique
5004	cow	metacarpal fr.	1			poss. joins
5004	cow	metacarpal fr.	1	R		prob. joins
5004	cow	metacarpal fr.	1	L		unique
5004	cow	metacarpal fr.	1	L		poss. joins
5004	cow	metatarsal	1	L	DF	unique - v. badly degraded
5004	cow	metatarsal fr.	1			prob. joins
5004	cow	metatarsal fr.	1			poss. joins
5004	cow	metatarsal fr.	1			prob. joins
5004	cow	metatarsal	4		DF	unique - four frags. of one bone
5004	cow	metatarsal fr.	1	R		poss. joins
5004	cow	metatarsal fr.	1	L		unique
5004	cow	metatarsal fr.	2			poss. joins.
5004	cow	metatarsal fr.	1	L		poss. joins
5004	cow	metatarsal fr.	1	R		poss joins
5004	cow	metatarsal fr.	1			poss. joins

Context	Species	Element	N.	Side	Fusion	Comments
5005	unident	unident	50			plus large rib frags./ one skull frag.
5005	cow	PH1	1		PF	
5005	cow	PH2	1		PF	
5005	cow	tibia fr.	1	R		
5005	cow	mand. M1/2	1	R		
5005	cow	mandible	1	L		no teeth
5005	cow	mand. hinge	1	L		
5005	cow	metacarpal fr.	3	L		three frags. of one bone
5005	cow	metatarsal fr.	2			poss. joins
5005	cow	metatarsal fr.	2			two frags. of one bone
5005	sheep/goat	radius sh.	1	L		
5005	sheep/goat	tibia fr.	1	L		
Total			373			

Appendix VII

Specification for further archaeological work in advance of proposed warehouse development, Dale Lane industrial estate, South Elmsall

(Planning Permission 93/99/46853/A)

Specification prepared on behalf of Wakefield M.D.C.'s Planning Dept. for Commercial Development Projects Ltd by the West Yorkshire Archaeology Service's Sites and Monuments Record

1. Summary

1.1.1 An archaeological condition has been attached to the above planning permission. A staged approach has been adopted and has now identified an area of approximately 60m. x 50m. containing a ditched enclosure of supposed Iron Age/Romano-British date. This specification is for the open area excavation of this site to allow the planning condition to be satisfied.

2. Site Location, Description & Background Information

2.1.1 Grid reference SE 4832 1225. Commercial Development Projects Ltd. have been granted planning permission (ref.93/99/46853/A) for a warehouse development as an extension to the present Dale Lane Industrial Estate, South Elmsall. This permission had an archaeological condition attached. A staged approach has been adopted in carrying out the archaeological work required by the condition. A geophysical survey was carried out in 1993 (Noel 1993) and the anomalies identified as a result of that survey, which were thought to be of possible archaeological significance, were tested by trial trenching in March 1996 (WYAS 1996). The trial trenching has identified an area of approximately 60m. x 50m. which warrants further investigation and recording. This area contains a ditched enclosure and the single trench that cut the enclosure also located a large internal pit. Fragments of horse teeth and bone were recovered from both the enclosure ditch and the pit, whilst the pit also contained fragments of iron slag material. A single pottery sherd of native Iron Age/Romano-British type was also recovered from the pit. Both reports are available for consultation by appointment with the WYAS SMR.

2.1.2 The solid geology is limestone; the topsoil cover approximately 25-30cms. The land is currently uncultivated although it has been used as arable in the recent past.

3. Approach

3.1.1 The archaeological contractor should confirm in writing adherence to this specification, or state (with reasons) any proposals to vary the specification. Should the contractor wish to vary the specification, then written confirmation of the agreement of the WYAS SMR is required prior to work commencing.

3.1.2 The intention is to determine (as far as archaeological survival allows) the function and period of use of the supposed Iron Age/Romano-British enclosure; detailed investigation of the 'minutiae' of the site is less important than these broad questions. The enclosure, as illustrated by the geophysical plots, has an unusual shape and appears to have one entrance (to the south) and an enclosure ditch on only three sides with a large open side to the north. The form of the enclosure may relate to possible contemporary structures, both internal and external. This aspect of the site is expected to be addressed by the excavation, albeit in a limited fashion as regards associated external features.

3.1.3 The area defined on the attached plan is to be stripped of topsoil and recent overburden by the use of an appropriate machine using a wide toothless ditching blade. The machine work must be carried out under direct archaeological supervision and the machine halted if archaeological deposits are encountered. After site stripping the area is to be cleaned by hand and inspected for archaeological features. All features are to be planned and all further excavation is to be by hand except for a limited number of machine-cuts across the enclosure ditch. The contractor should allow for eleven sections to be hand-dug across the enclosure ditch (which includes a contingency figure of two sections to examine relationships that may only become apparent after stripping). A further four sections (minimum) are to be excavated, and these may be by machine (i.e. a minimum of thirteen ditch sections are to be excavated, four of which may be machine-cut). It is expected that the apparent ends of the enclosure ditch, at the entrance for instance, will all be excavated by hand. All pits, postholes, hearths etc. are expected to be half-sectioned and sampled. These figures are to provide a common basis for tendering purposes based upon our best knowledge of the site at this point. It would be expected that the archaeological contractor would retain sufficient flexibility / contingency within their approach to deal adequately with the archaeology of the enclosure, which is likely to comprise of gullies, hearths, post-holes, pits etc.

3.1.4 Experience gained over the last few years has shown that the dating of apparent late prehistoric / Romano-British sites in West Yorkshire is frequently problematic. There is an apparent paucity of any prehistoric material culture, and all too often there is a dearth of Roman pottery. As no substantial typology of late prehistoric pottery exists for the region, provision should be made, as a contingency, for the use of the following dating methods should the occasion arise:

3.1.5 It may be useful to consider the viability of dating unidentifiable / pre-Roman pottery by thermoluminescence. Details of sampling requirements for Durham University's Luminescence Dating Laboratory are attached to this specification as Appendix One. Dr. Sarah Chyriwsky is working at Durham on a Postdoctoral Fellowship with the intention of improving the precision in luminescence dating of First Millennium BC British ceramics, and liaison should be established with her prior to commencing fieldwork, so that the potential of using this technique is not lost.

3.1.6 If kilns or hearths are found, or undisturbed silts are found in the bottom of a ditch or gulley, and the archaeological contractor is certain that no post-deposition subsidence (e.g. through coal-mining) has occurred, then the possibility of archaeomagnetic dating should be considered.

3.1.7 Samples for possible carbon-14 dating should be taken where appropriate and as the opportunity arises.

3.1.8 It is not expected that all three of the dating methods will be applied. The possibility of using thermoluminescence and archaeomagnetism will depend upon what is found and in what context. However, the site supervisor should be aware of the possible need and their special requirements. Samples for carbon-14 dating should be taken as the opportunity arises, with the suitability of submission for dating dependent upon post-excavation analysis.

3.1.9 Contingency provision should also be made for specialist reports on relatively small amounts of pottery and bone, iron-slag and the possibility of finding Roman metalwork. (The SMR is aware that metal detectorists have found brooches and coins in fields 300-400 m. south of this site.) Conservation costs should also be shown as a contingency figure, but as a guiding principle, only artefacts of a 'displayable' quality would warrant full conservation. Environmental sampling during the trial trenching of the enclosure ditch and pit (as well as from other ditches external to the enclosure) did not recover pollen, molluscan or seed remains (pers. comm. P. Wheelhouse), therefore bulk sampling for environmental analysis should also be treated as a contingency to be invoked only if suitable deposits are encountered. Environmental samples would be expected to be processed in a flotation tank by running them through a nest of sieves of mesh sizes 4mm, 1mm and 0.25mm.

3.1.10 Note that all contingencies are to have the prior agreement of the WYAS SMR before they are invoked; this agreement will be recorded in writing, if necessary in retrospect.

3.1.11 Recording to be according to the normal principles of stratigraphic excavation and to involve photographs, scale drawings and written descriptions as judged adequate by the archaeologist in charge of the excavation.

3.1.12 The archaeological contractor will be responsible for locating any service pipes, cables etc. which may be in the vicinity, and for taking the necessary measures to avoid disturbing such services.

3.1.13 The archaeological contractor will be responsible for ensuring that Health and Safety requirements are met with regard to site personnel and to members of the public.

3.1.14 The contractor should contact Wakefield Museum Service prior to commencing fieldwork on site. However, previous experience suggests the number of finds will be relatively small and the WYAS is prepared to accept and curate the small amount of finds material that is likely to result from this project. However, ultimately the Museums Service will be the curator of the site archive and the requirements of the Museums Service should be met by the archaeological contractor as regards ordering, boxing and labelling the site archive. It is the responsibility of the archaeological contractor to endeavour to obtain the consent of the landowner in writing for the deposition of finds with the West Yorkshire SMR.

3.1.15 Any human remains that are discovered must initially be left in-situ, covered and protected and the coroner informed. If removal is necessary, this must comply with the relevant Home Office and local environmental health regulations.

3.1.16 Any finds of gold and silver must be removed to a safe place and reported to the local coroner as required by the procedures relating to Treasure Trove. Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

4. Monitoring

4.1.1 The project will be monitored as necessary and practicable by the County SMR in its role as 'curator' of the county's archaeology. The SMR should receive as much notice as possible and certainly one week, of the intention to start the fieldwork.

5. Post-excavation Work

5.1.1 On completion of the fieldwork, any samples taken shall be processed and all finds shall be cleaned, identified, assessed, dated (if possible), marked (if appropriate) and properly packed and stored in accordance with the requirements of national guidelines. A fully indexed and quantified field archive shall be compiled consisting of all primary written documents, plans, sections and photographs. The archive shall also contain a site matrix, a site summary and brief written observations on any artefactual or environmental material. The field archive or a copy of it will be deposited with the West Yorkshire Archaeology Service's Sites and Monuments Record. The site archive and the materials recovered will then be appraised by the SMR with the advice of of the archaeological contractor and, if necessary, the District Museum Service, to assess the nature and extent of post-excavation work required. A detailed specification will then be be prepared by the archaeological contractor and agreed in writing by the WYAS SMR.

6. Results

6.1.1 The nature of the final report will depend upon the specification agreed in para. 5.1 above. However, it should be prepared to publication standard and should include a full description and interpretation of results produced, whilst being of summary form compared with the research archive. Publication in the Yorkshire Archaeology series might be appropriate (in which case close liaison will be required with the editorial requirements of the West Yorkshire Archaeology Service), however, the possibility of publication in some other reputable journal is not excluded. Publication costs should be included in the contractor's tender.

6.1.2 A copy of the final report to be supplied to the County Sites and Monuments Record held by the WYAS within a period of six months unless specialist reports are awaited; in the latter case a revised date should be agreed with the WYAS SMR. The report will be supplied on the understanding that it will become a public document after an appropriate period of time (generally not exceeding six months). Copies of the field archive and the final report are also to be supplied to the National Archaeological Record held by the RCHME, in a form acceptable to that body.

7. Queries

7.1.1 Any queries relating to this specification should be addressed to the County Sites and Monuments Record, West Yorkshire Archaeology Service, 14, St. John's North, Wakefield WF1 3QA (tel. 01924 306801/fax 01924 306810).

IS/11.04.96

Bibliography

Noel,M.J., 1993, 'Geophysical Survey of an Area of Land at South Elmsall, Near Pontefract', York Archaeological Trust and Geoquest Associates

West Yorkshire Archaeology Service Report No.321, 1996 'Dale Lane Industrial Estate - Archaeological Evaluation'