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Colton Mill
Colton
West Yorkshire

Archaeological Evaluation

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CLIENT
Commercial Development Projects Ltd

Colton Mill

Colton

West Yorkshire

Archaeological Evaluation

Contents

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Summary

The archaeological evaluation at Colton Mill confirmed the presence of a number of linear features previously identified by geophysical prospection. Two of these features are thought to be the continuation of Romano-British field boundaries previously excavated to the east of the site. A third proved to be modern, probably dating to the 18th/19th century, as did a number of features at the north of the site. An undated pit containing large amounts of charcoal was discovered at the southern end of the site, and this has tentatively been interpreted as a feature possibly associated with the adjacent Bronze Age barrow cemetery. It is expected that any further work in this area may shed light upon the date and function of this feature.

1. Introduction

1.1 Archaeological Services WYAS were commissioned by Commercial Development Projects Limited to undertake an archaeological evaluation by trial trenching in advance of the construction of office units on the two currently undeveloped plots which lie to the north and south of the 18th century mill on Colton Common, Colton, Leeds.

1.2 The development site is centred on SE 376 330, bounded by Stile Hill Way to the west, Selby Road (A63) to the north, Bullerthorpe Lane to the east, and the junction of Stile Hill Way and Bullerthorpe Lane to the south. The underlying solid geology largely consists of Flockton Thin Coal underlying clay, with outcrops of Thornhill Rock at the east of the site (British Geological Survey 1979). The soils of the study area consist largely of the Dale (712a) Association, characterised as slowly permeable seasonally waterlogged clayey, fine loamy over clayey and fine silty soils on soft rock.

1.3 The strategy of evaluation by trial trenching supersedes the 'strip and record' methodology previously formulated by the West Yorkshire Archaeology Service – Advisory Services and has been amended at the request of the developers and in consultation with WYAS-AS. Although planning permission has been approved for Stage 1 of the development (Outline Planning Permission Reference Number 32/284/99/OT) the building proposals for Stage 2 are yet to be finalised. However CDP Ltd expressed a desire to evaluate both sites simultaneously.

1.4 The trial excavation forms part of a staged strategy for assessing the archaeological implications of the proposed development on the site. The results will help to determine the scope and the scale of any further stages of archaeological work that may be carried out in advance of and/or during construction and attached as conditions to a planning consent.

2. Archaeological Background

2.1 The development site lies within a rich multi-period archaeological landscape which has been the subject of numerous archaeological investigations in recent years. These include topographical and geophysical surveys, watching briefs, trial trenching and open area excavation. These investigations, along with the results of a desk-based study, have been described in the Environmental Statement (Archaeology and Cultural Heritage) produced for Colton Regeneration Ltd (O'Neill 2000).

2.2 Immediately to the east of Bullerthorpe Lane a number of artefacts and features of Neolithic and Bronze Age date have been discovered. These include a stone axe and worked flint, the ring ditches of three Bronze Age barrows, and a number of post-built structures, including two round houses which are thought to date to the Bronze Age (Howell 1997; Roberts, Burgess and Berg 2001).

2.3 Immediately to the west of the development plots is the Scheduled Ancient Monument of Grim's Ditch, which has been the focus of various investigations

in recent years. This major earthwork, long thought to be the remains of a Roman road, is now thought to date to the Late Bronze Age/Early Iron Age, with later reworking during the Roman period when it was re-cut and a settled landscape of field systems and trackways was appended to it (Morris 1999; Wheelhouse and Burgess 2001). A number of linear features to the west of Grim's Ditch have recently been excavated (ASWYAS forthcoming) which may represent these field boundaries and a possible trackway.

2.4 During the Iron Age/Roman period a settlement developed overlooking Grim's Ditch to the north-west of the site at Stile Hill, and a unique 'D'-shaped palisaded enclosure was constructed to the east of the site at Swillington Common (Howell 1997).

2.5 The only known features of possible medieval date associated with the site are a series of ridge and furrow earthworks aligned parallel to Grim's Ditch - evidence for the continuing influence of this major landscape feature across the millennia.

2.6 The post-medieval period saw the development of the area of the northern development plot into an industrial complex involved in the production of corn. The first recorded mill on the site probably dates to the mid 18th century, and is recorded on Thomas Jeffrey's 1775 map as being complete with sails. An engine house was added to the mill in the mid 19th century when the mill changed from wind to steam power. Contemporary with this an extensive brick-built farm complex was added to the site, which received additions and alterations continuing to the mid/late 20th century (Prudhoe 2002). These farm buildings and the granary and engine house associated with the mill have only recently been demolished.

2.7 Evidence for further post-medieval industrial activity in the form of earthworks indicative of brick manufacture have also been unearthed in the field immediately to the west of Grim's Ditch (Webb 1992).

2.8 However, the only archaeological work to be undertaken within the application area itself has been a geophysical survey (Boucher 1992). This identified three linear magnetic anomalies interpreted as infilled archaeological ditches. Two of these features align with other ditches (identified as cropmarks and magnetic anomalies and confirmed by excavation) immediately east of Bullerthorpe Lane.

3. Method

3.1 The aims and objectives of the trial trenching were set out in the 'Proposed Office Development, Colton Mill, Bullerthorpe Lane, Colton, Leeds - Archaeological Evaluation Project Design'. These were:

- to identify any archaeological deposits or features at the site;
- to determine the date, nature, depth, function and stratigraphic complexity of any archaeological features and deposits at the site;
- to provide an assessment of the potential and significance of any identified archaeological deposits and features in a local, regional and (if necessary) national context, and to contribute towards an assessment of the likely scope, cost and duration of any further evaluation and/or excavation works that might be required to mitigate against the proposed development scheme.

3.2 The evaluation strategy comprised the opening of twelve trenches in total, covering an area of 480m², or 4% of the site area. A further 1% of the site area (120m²) was set aside as a contingency. The purpose of this contingency was to allow for the full evaluation of any features revealed at or near a trench edge.

3.3 The trench locations and rationale are summarised in Table 1 below and illustrated in Figure 2.

Table 1. Trial trench dimensions and rationale

Trench	Dimensions	Area	Rationale
1	20m by 2m	40m^2	To evaluate the southern end of the site in the area nearest the ring ditches east of Bullerthorpe Lane.
2	20m by 2m	40m^2	To determine whether the north/south linear magnetic anomaly interpreted as a ditch continues into the southern part of the site.
3	20m by 2m	40m^2	To evaluate the linear magnetic anomaly interpreted as an archaeological ditch and sample across the footprint of one of the proposed office units.
4	20m by 2m	40m^2	To determine whether the east/west linear magnetic anomaly interpreted as a ditch continues across the site.
5	20m by 2m	40m^2	To investigate the possible relationship between the two intersecting ditch features and sample across the footprint of one of the proposed office units.
6	20m by 2m	40m^2	To evaluate the linear magnetic anomaly interpreted as an archaeological ditch
7	15m by 2m	30m^2	To determine whether the east/west linear magnetic anomaly interpreted as a ditch continues into the western part of the site.
8	20m by 2m	40m^2	To sample the northern part of the site.
9	20m by 2m	40m^2	To sample the northern part of the site.
10	20m by 2m	40m^2	To sample the northern part of the site.
11	20m by 2m	40m^2	To sample the northern part of the site.
12	20m by 2m	40m^2	To sample the northern part of the site.
	Total	**470m^2**	

3.4 Archaeological Services WYAS set out all trench locations using differential GPS. It should be noted that Trench 7 was reduced in length by *c*.5m at its southern end. This was due to the fact that this trench had to be set out relative to Trenches 8 and 6 using tapes due to problems with the GPS. It was feared that due to inherent inaccuracies in this method the southern end of the trench may have impinged upon the easement of the Scheduled Ancient Monument of Grim's Ditch.

3.5 All trenches were machine excavated under direct archaeological supervision by a back-acting mechanical excavator fitted with a 1.8m wide toothless ditching bucket. Successive spits were removed either to the top of the first archaeological horizon or to undisturbed natural, whichever was encountered first. The resulting surface was then inspected for archaeological remains, and where found, these were cleaned by hand.

3.6 All archaeological features were hand excavated in an archaeologically controlled and stratigraphic manner down to natural deposits, in order to meet the aims and objectives outlined above.

3.7 Linear features of up to 5m in length were excavated with a minimum sample of 20% of their length, or a minimum of 10% for features over 5m in length. The deposits at the junctions of linear features were removed over a sufficient length to determine the nature of the relationship between the components by the excavation of an 'L' shaped section, which was then expanded to the full width.

3.8 Discrete features with a diameter of more than 1.5m were half-sectioned in the first instance in order to determine and record their form, and one feature (see Trench 1) was subsequently fully excavated in an attempt to find suitable dating material, and to provide a 100% environmental sample. Pits, post holes and other discrete features of less than 1.5m were half-sectioned in order to determine and record their form. Stake holes were 100% excavated.

3.9 A full written, drawn and photographic record of all material revealed in each trench was maintained during the evaluation, even where no archaeological features or deposits were recognised, in accordance with Archaeological Services WYAS recording guidelines (2004). Measured plans were drawn to a scale of 1:50, and all sections were drawn to a scale of 1:10, and included spot heights related to Ordnance Datum in metres as correct to two decimal places.

3.10 Trenches that contained archaeological remains were surveyed in using a 600 series Geodimeter total station theodolite and were tied in to nearby permanent structures. Spot levels at the end of each trench were also taken and all levels were tied in to one of two Temporary Bench Marks. These TBMs were tied in to m OD by transferring a level from a survey station with a known height (COL1) used on a previous topographic survey (Wheelhouse, Whittingham and O'Neil 2000).

3.11 The site archive contains all the information gathered during the works and is quantified in Appendix I. Lists of contexts, artefacts and samples can be found in Appendices II-IV.

3.12 The archaeological evaluation took place from 17th November to 1st December 2004.

4. Results

Trench 1 (Fig. 3; Plates 1 & 2)

4.1 Trench 1 measured 20m by 2m and was located towards the south-east of the southern development plot on a north-north-east to south-south-west alignment. The topsoil and subsoil were removed by machine to an average depth of 0.70m below ground level, at which point the natural weathered sandstone bedrock was exposed to a maximum depth of 80.28m OD. Towards the southern end of the trench a deposit of *c.*030m of made ground was also encountered beneath the topsoil.

4.2 Towards the northern end of the trench, on a north-south alignment was a 1.80m long, 1.05m wide and 0.42m deep sub-oval pit (102). The primary fill (103) consisted of a 0.10m deep dark greyish black clay silt containing frequent charcoal and carbonised wood, rare large angular burnt sandstone pebbles and rare burnt bone fragments (Plate 1). The secondary fill of 102 consisted of a 0.25m deep light yellowish brown silty sand containing occasional small angular sandstone pebbles (104). This deposit was indistinguishable from the surrounding natural, and was concentrated around the perimeter of the cut. The upper fill of 102 consisted of a 0.31m deep mid orangey brown sandy silt containing rare angular sandstone pebbles of various sizes (105). This deposit was very homogeneous and indistinguishable from the surrounding subsoil.

4.3 At the base of pit 102 the sandstone bedrock had been fire reddened, and this *in situ* burning continued across the southern half of the side of the pit and spread out onto the upper surface of the bedrock beyond the cut (Plate 2). This suggests that the charcoal-rich primary fill (103) resulted from either *in situ* burning on the base of the pit, from a fire which was localised to the south only with the flames licking out beyond the top of the pit; a fire built above the pit which collapsed inwards predominantly at the southern side of the pit; or the charcoal was tipped into the pit from the south whilst still hot enough to cause the fire-reddening on the sandstone.

4.4 Located *c.*8m to the south-west of 102 was a 0.40m by 0.35m patch of fire-reddened sand (108). This deposit measured 0.03m in depth, and appeared to be heat affected natural caused by *in situ* burning rather than an archaeological deposit *per se*.

4.5 Towards the southern end of the trench, an elongated feature (109) was investigated, filled by a light yellowish-grey sandy silt fill (110). This feature did not appear to be of archaeological origin, and may have been caused by differential weathering within the natural geology.

Trench 2 (Fig. 4)

4.6 Trench 2 measured 20m by 2m and was located towards the south-east of the southern development plot on a west-north-west to east-south-east alignment. The topsoil and subsoil were removed by machine to an average depth of 0.30m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 80.67m OD.

4.7 The only archaeological feature to be exposed in this trench was a north-south oriented linear ditch (100), which evidently represents the continuation of the linear magnetic anomaly previously identified further to the north by geophysical survey. This ditch measured 0.87m in width and 0.28m in depth, and had steeply sloping concave sides and a flat base. The single fill of this ditch consisted of a mid brown clay silt (101), containing occasional medium sub-angular sandstone pebbles, occasional brick fragments and five sherds of post-medieval pot of 18th-19th century date. A small irregular feature was also investigated in this trench which proved to be of natural origin (112).

Trench 3 (Fig. 5)

4.8 Trench 3 measured 20m by 2m and was located towards the centre of the southern development plot on a west-north-west to east-south-east alignment. The topsoil and subsoil were removed by machine to an average depth of 0.30m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.17m OD.

4.9 The only archaeological feature to be exposed in this trench was the continuation of the north-south oriented ditch already investigated in Trench 2. This ditch (106) measured 1.10m in width and 0.32m in depth with steeply sloping concave sides and a flat base. The single fill of this ditch consisted of a mid brown clay silt (107), containing occasional medium sub-angular sandstone pebbles. No finds were recovered from this fill. A 0.22m deep deposit of made ground (111) lay immediately beneath the topsoil.

Trench 4 (Fig. 6; Plate 3)

4.10 Trench 4 measured 20m by 2m and was located at the north-east of the southern development plot on a north-north-east to south-south-west alignment. This trench had to be moved *c.*5m to the west of its intended position in order to avoid a large pile of topsoil. The topsoil and subsoil were removed by machine to an average depth of 0.30m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.02m OD.

4.11 A modern 'L' shaped trench for a blue plastic water pipe associated with a spread of made ground was encountered immediately beneath the topsoil at the northern end of the trench. The only other archaeological feature encountered in this trench was the west-north-west to east-south-east oriented linear ditch (116), previously identified by geophysical survey (Plate 3). This ditch measured 2.07m in width and 0.86m in depth, and had moderately sloping slightly convex sides and a flattish base. This ditch contained a series of three fills, the lowest (119) consisting of a 0.60m deep mid orangey brown clay silt containing rare large angular sandstone pebbles. The secondary fill (118)

consisted of a 0.06m deep light orangey brown clay silt containing rare angular sandstone pebbles, which represented a layer of redeposited natural. The upper fill (117) consisted of a 0.45m deep mid orangey brown clay silt containing frequent angular sandstone pebbles of various sizes. No finds were recovered from any of the fills of this ditch.

4.12 An irregular feature towards the southern end of the trench was also investigated, but dismissed as a possible tree bole due to its indistinct edges and fill of disturbed natural.

Trench 5 (Fig. 7; Plate 4)

4.13 Trench 5 measured 20m by 2m and was located towards the north-west of the southern development plot on a north-north-east to south-south-west alignment. The topsoil and subsoil were removed by machine to an average depth of 0.35m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.42m OD.

4.14 The continuation of the north-south ditch previously investigated in Trenches 2 and 3 was also exposed in this trench, where two sections were excavated. The southernmost ditch section (114) measured 1.10m in width and 0.45m in depth and contained a single fill (115) consisting of a mid orangey brown clay silt containing occasional large sub-angular sandstone pebbles. No finds were recovered from this fill.

4.15 The northernmost section across this ditch was excavated in order to test the stratigrapghic relationships at the intersection between the north-south ditch (122), a similar east-west-ditch (124) and the much larger east-south-east to west-north-west oriented ditch (126), the continuation of ditch 116 previously investigated in Trench 4. The profiles of 122 and 124 were almost identical, with widths of 0.50m and 0.54m, and depths of 0.25m and 0.22m respectively. The fills of these cuts were indistinguishable, consisting of mid orangey brown clay silts (123 and 125), suggesting that these ditches were contemporaneous. An undated brick fragment and a small sherd of post-medieval pot of late 18th-19th century date was recovered from fill 125.

4.16 The relationship between ditches 122 and 126 had been truncated away by a vertically sided sub-rectangular modern machine cut (120) which was excavated to a depth of 0.97m. This had been backfilled by redeposited natural bedrock (121), and it is assumed to be a recent geotechnical test pit. However the north-west facing section did prove that ditch 124 was cutting all three of the fills of ditch 126, and therefore post-dates it. Ditch 126 measured 1.06m in width and 0.55m in depth, with a profile which mirrored that of ditch 116 in Trench 4. Furthermore this ditch contained three fills in much the same way as 116, the 0.55m deep primary fill (127) equating to 119; the 0.19m deep secondary fill (128) equating to 118; and the 0.23m deep upper fill (129) equating to 117.

4.17 A second section (132) was excavated across the large earlier ditch, in order to test its relationship with a pit (130) which was partially exposed at the eastern edge of the trench. Ditch 132 measured 0.92m in width and 0.50m in depth, and had a 'U'-shaped profile with moderately sloping concave sides and a concave base. Again this ditch contained three fills, the 0.35m deep primary

fill (133) equating to 119 and 127; the 0.26m deep secondary fill (134) equating to 118 and 128; and the 0.33m deep upper fill (135) equating to 117 and 129.

4.18 Pit 130 measured 0.92m in width and 0.50m in depth, and possessed a slightly sub-rectangular plan with a 'U'-shaped profile (Plate 4). The single fill of this feature (131) consisted of a mid reddish-brown clay silt, containing frequent small to medium sub-rounded sandstone cobbles exhibiting evidence for burning. The relationship between pit 130 and ditch 132 was equivocal due to the similarity between fills 135 and 131, although pit 130 did appear to be cutting the secondary fill (134) of ditch 132, suggesting that it may be later.

4.19 A second section (136) was also excavated across the narrow east-west linear, which here measured 0.65m in width and 0.31m in depth, with a profile mirroring that of 124 to the west. This ditch contained a single fill (137) consisting of a mid orangey brown clay silt containing frequent angular sandstone pebbles of various sizes. No finds were recovered from the fill of this ditch.

Trench 6 (Fig. 8)

4.20 Trench 6 measured 20m by 2m and was located at the south-east of the northern development plot on a north-west to south-east alignment. The topsoil and subsoil were removed by machine to an average depth of 0.50m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.90m OD.

4.21 Perpendicular to the trench were two roughly parallel north-west to south east oriented linear features which were 0.50m-0.90m apart. The more northerly of the two (140) consisted of a 0.65m wide, 0.25m deep 'U'-shaped cut, filled by a single fill of mid reddish-brown clay silt (141). The southern linear (142) consisted of a 0.92m wide, 0.25m deep 'U'-shaped cut with a similar fill (143). Neither of these fills could be distinguished from the surrounding subsoil.

4.22 Associated with these linear features were two stake holes (154 and 156). Stakehole 154 lay immediately to the south of linear 140 and measured 0.15m in diameter and 0.17m in depth and had vertical sides and a rounded base. Stakehole 156 lay immediately to the north of linear 142 and measured 0.08m in diameter and 0.09m in depth and also had vertical sides and a rounded base. The fills of these features (155 and 157) both consisted of a mid reddish-brown clay silt that was indistinguishable from the surrounding subsoil.

4.23 At the southern end of the trench, a large, possibly sub-rectangular feature (144) was excavated, measuring 7.60m from north to south, and extending across the full width of the trench, seemingly on an east-west axis. This feature had steeply sloping, slightly concave sides and a wide, flat base, with a depth of 0.97m, of which 0.60m was cut into the sandstone bedrock.

4.24 Feature 144 contained five fills, the primary fill (145) consisting of a 0.43m deep deposit of light brownish-yellow silty clay containing frequent large angular sandstone pebbles, this probably representing weathered material from the sides of the cut. The secondary fill (146) consisted of a 0.86m deep mid orangey brown clay silt containing rare sub-angular sandstone pebbles, three

post-medieval plate fragments dating to *c.*1760-1820, one 18th century earthenware pot sherd and four large iron nails. Overlying this was a 0.55m deep deposit (147) consisting of a light brownish-grey silty clay containing frequent small fragments of coal and rare small angular sandstone pebbles. This deposit was filling the northern side of the cut only, suggesting that it was tipped in to backfill the cut from this direction. The fourth fill of 144 consisted of a 0.31m deep deposit of mottled orange and grey clay (148), which was overlain by the upper fill of the feature (149), consisting of a 0.30m deep mid orangey brown clay silt containing occasional fragments of coal, small sub-angular sandstone pebbles and one post-medieval pottery sherd.

4.25 Cutting through the primary fill of this feature were three post holes forming a line along the southern face of the cut. Post hole 150 consisted of a 0.10m diameter 0.17m deep sub-circular cut with vertical sides and a flat base. Post hole 152 consisted of a 0.23m diameter, 0.20m deep sub-circular cut with vertical sides and a flat base which was partially cut into the steeply sloping side of feature 144. Post hole 158 consisted of a sub-rectangular 0.30m by 0.15m feature cutting 0.03m into the bedrock. The respective fills of these post holes (151, 153 and 159) all consisted of a similar mid brownish-grey clay silt. These post holes were only spotted when seen to cut the weathered natural primary fill, so it is unclear as to whether they were cut from higher up within the feature, or whether they survived as post-pipes rather than post holes.

Trench 7 (Fig. 9)

4.26 Trench 7 measured 15m by 2m and was located towards the south-west of the northern development plot on a north-north-east to south-south-west alignment. The topsoil was removed by machine to an average depth of 0.30m below ground level, revealing an extensive 0.50m deep deposit of bricks and rubble, evidently the demolition layer associated with the recently removed farm buildings. The foundations of one of the buildings still survived, which had previously been identified as the south-east corner of a stable with a conjoined pig sty (Prudhoe 2002).

4.27 Adjacent to this building a 0.84m wide and 0.33m deep sub-circular pit (138) was identified cutting into the natural clay subsoil. This was filled by a single fill (139) which consisted of a dark brownish-grey clay silt containing frequent lenses of redeposited clay, frequent undated brick fragments, rare glass fragments, and one post-medieval pot sherd dating to the 18th century. A photograph of the farm buildings taken prior to their demolition (Prudhoe 2002: 5040/16) shows a large wooden gatepost located at this position up against the wall of the pig sty, so presumably 138 represents the base of the pit dug for this post.

4.28 The only other archaeological feature identified in this trench was a brick built land drain running north-east to south-west across the northern end of the trench. The natural was encountered in this trench at a maximum depth of 81.50m OD, consisting of a light brownish-yellow clay unlike the sandstone bedrock found in the previous trenches.

Trench 8 (Fig. 10)

4.29 Trench 8 measured 20m by 2m and was located towards the centre of the northern development plot on a west-north-west to east-south-east alignment. The removal of the topsoil and modern overburden in this trench revealed an interface between the sandstone bedrock found in Trenches 1-6 and 10-11 across the south and east of the site, and the clay subsoil found in Trenches 7, 9 and 12 at the extreme north-west of the northern development plot.

4.30 Across the eastern half of the trench the topsoil and subsoil were removed by machine to an average depth of 0.35m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.87m OD. This revealed the bottom course of the corner of a structure made of brick and sandstone, of which a 3.0m by 1.60m length was exposed in the trench, oriented towards the cardinal points. No finds were associated with this structure, but the nature of the brickwork suggests that it may be an out-building associated with the 19th century farm.

4.31 Across the western half of the trench *c.*0.70m of recently deposited made ground (see below) was removed by machine revealing a 0.25m deep buried soil. This soil was abutting and contained by a semi-circular setting of roughly hewn sandstone blocks, reminiscent of an ornamental garden bed. Again modern looking bricks were associated with this feature, suggesting that it was associated with the recently demolished farm buildings. This feature was left in situ, but the surrounding soil was removed by machine down to the natural clay subsoil to a maximum depth of 81.49m OD.

Trench 9

4.32 Trench 9 measured 20m by 2m and was located towards the north-west of the northern development plot on a west-north-west to east-south-east alignment. A 0.60m deep deposit of recently deposited made ground was removed by machine down to a buried turfline. This layer of clay had obviously been deposited by the developer very recently as the buried turfline was still green. Beneath this was a 0.50m deep deposit of topsoil overlying the natural clay subsoil which was reached at a maximum depth of 81.09m OD. No archaeological features or deposits were exposed in this trench.

Trench 10

4.33 Trench 10 measured 20m by 2m and was located at the north of the northern development plot on a north-north-east to south-south-west alignment. The topsoil and subsoil were removed by machine to an average depth of 0.65m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 81.88m OD. No archaeological features or deposits were exposed in this trench.

Trench 11

4.34 Trench 11 measured 20m by 2m and was located towards the north-east of the northern development plot on a west-north-west to east-south-east alignment. The topsoil and subsoil were removed by machine to an average depth of

0.70m below ground level, at which point the natural weathered sandstone bedrock was exposed at a maximum depth of 82.22m OD. No archaeological features or deposits were exposed in this trench.

Trench 12

4.35 Trench 12 measured 20m by 2m and was located at the north-west of the northern development plot on a north-north-east to south-south-west alignment. A 1.0m deep deposit of the recently deposited made ground was removed by machine down to the buried turfline. Beneath this was a 0.30m deep deposit of topsoil overlying the natural clay subsoil which was reached at a maximum depth of 81.42m OD. No archaeological features or deposits were exposed in this trench.

5. Artefact Record

Pottery by C.G. Cumberpatch

5.1 The pottery assemblage from Colton Mill, Leeds was examined by the author on 17th December 2004. It consisted of a total of twenty-seven fragments of pottery, brick and tile weighing 1011 grams. The data are summarised in Appendix V.

5.2 The pottery sherds were generally of later 18th or early 19th century date, with an 18th century date more probable for the majority. The exception appears to be the small sherd of stoneware from context 125 which is somewhat later in date. The wares types include both fine tableware (Creamware), utilitarian tableware (Slipware) and basic utilitarian wares (Brown Glazed Coarseware). The mix of types is typical of assemblages of this date and indicates the wide range of wares in production at the time. It is not possible to attribute the sherds to specific sources, but given the importance of the pottery industry in West Yorkshire in the 18th and 19th centuries, a local origin is likely.

6. Environmental Record

Burnt bone by J. Richardson

6.1 Burnt bone fragments were recovered from the primary fill (103) of pit 102, both during excavation and also from the heavy fraction (retent) following the processing of soil samples. These were initially examined by Malin Holst to determine if any of the fragments represented a human cremation. As none were clearly human, they were examined by the author and a cattle carpal was identified. Otherwise, the remaining tiny fragments were undiagnostic.

Carbonised plant microfossils and charcoal by Diane Aldritt

Introduction

6.2 A total of seven flots and six charcoal samples were received by the archaeobotanist for assessment and identification of carbonised plant

macrofossils. Charcoal analysis was carried out on the pre-sorted material and also any suitable pieces recovered from the flots. It was aimed to identify sufficient short-lived species for radiocarbon dating purposes. The samples came from a range of pit and ditch features excavated at Colton Mill, Leeds and included possible Romano-British features as well as a pit potentially associated with a Bronze Age barrow cemetery.

Methodology

6.3 Bulk environmental samples were processed by ASWYAS using an Ankara style water flotation system (French 1971). Sample sizes varied although most were 10litres. The resultant flots were subsequently dried and forwarded to the author for assessment. These varied in size from <5mls to up to 25mls of charred fragments and modern roots. Flots were sorted with the aid of a low powered binocular microscope at magnifications of x4-45. Carbonised cereals, weeds, and so forth were counted and bagged separately.

6.4 All charcoal suitable for identification was examined using a high powered Vickers M10 metallurgical microscope. Identified charcoal was subsequently bagged separately by species. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals which follow Zohary and Hopf (2000).

Results

6.5 All results are presented in Appendix VI and discussed below.

Discussion

Possible Bronze Age Pit

Samples 2 (103) and 4 (105)

6.6 Context 103 produced large quantities of charcoal and hazel nutshell, and occasional carbonised seeds. Identified charcoal was mostly hazel and birch and this potentially originated as kindling used on a cremation pyre. Birch in particular would have provided a good source of fuel for the pyre as it burns well with a strong heat. A very small number of barley cereal grains and field bean seeds found in this context may have been intrusive from later contexts or could represent offerings thrown onto the funerary pyre. Context 105 contained only small amounts of charcoal, with both hazel and willow types being identified.

Romano-British ditch

Samples 7 (119) and 8 (127)

6.7 Neither of these contexts produced any carbonised seeds or identifiable charcoal.

Pit cutting Romano-British ditch

Sample 10 (131)

6.8 This pit potentially had an industrial purpose based upon examination of the environmental material. A single small bubble of slag was present, whilst every piece of charcoal was either oak or not identifiable and showing signs of vitrification. Oak was a highly favoured fuel for metalworking (Tylecote 1986) and the condition of the charcoal suggested it had been heated to high temperatures.

Romano-British double-ditched boundary

Samples 11 (141); 12 (143); 13 (143) and 14 (141)

6.9 Context 141 produced both oak and hazel charcoal in very small amounts, whilst context 143 contained only bark which was not identifiable to species. No other plant remains were found which may indicate that the ditch was kept free of rubbish and other detritus during its period of use.

Summary and conclusions

6.10 The potential Bronze Age cremation pit produced large quantities of charcoal which could have originated as fuel from a cremation pyre. Small branches of hazel would have provided ideal kindling for a pyre created of either birch or oak, although it is suggested that birch was used primarily at this site. Scarce finds of cereal grain may have been offerings or represent later farming activity.

6.11 The Romano-British ditch features produced very little evidence for agriculture or the use of woodland resources, although small quantities of oak and hazel were identified. It is probable that as defensive or perhaps temporary features the ditches were kept very clean of intrusive material and not used as areas to tip domestic rubbish.

7. Discussion

7.1 Trench 1 was located in order to evaluate the area of the site which lay on the line of the three Bronze Age barrow ditches, which also coincided with the alignment of the Iron Age/Romano-British trackway excavated immediately to the east of Bullerthorpe Lane (YAT 2003), and possibly continuing to the east of Grim's Ditch, suggesting a later routeway across the earthwork (ASWYAS forthcoming).

7.2 Whilst there was no evidence for the continuation of the trackway in this trench, pit 102 was exposed in a position corresponding closely with the alignment of a centre line drawn through the previously excavated barrows (Fig. 2). Furthermore the distance between pit 102 and the centre point of the northernmost barrow corresponds closely with the distance between the centres of the two southernmost barrows. There is a strong suggestion here that pit 102 represents a feature associated with a fourth, previously

undetected barrow in this linear cemetery. This interpretation is lent weight by the fact that the trackway to the east of Bullerthorpe Lane must either stop or change direction before reaching the position of pit 102, and this would have been necessary if there was an upstanding barrow here in the Iron Age/Romano-British period.

7.3 Although 102 was large enough to have received an inhumation, and had the sub-oval shape of a typical grave cut, only a small amount of burnt bone was recovered, the only diagnostic fragment being a cattle carpal. Pits devoid of burials beneath barrows but containing charcoal and evidence of *in situ* burning have long been recognised as being part of pre-barrow activity (Ashbee 1960:52), and similar pits have been reported from elsewhere in Yorkshire (Smith 1994:13). It is unclear whether these pits represent pyre pits that have been cleaned out, with the bone being retrieved and deposited elsewhere, or pits dug (or re-used) in order to receive the still hot pyre debris after the cremation had been raked out. It should also be noted that barrows were multi-phased monuments which were expanded, re-modelled and re-used, often over hundreds of years, and grave cuts were often re-opened and/or re-cut, disturbing or totally removing their primary interment (Woodward 2000).

7.4 If the fire-reddening within 102 was the result of hot pyre material being tipped in from the south, then it is possible that fire reddened natural 108 could be the location of the pyre. Although this burnt area was diminutive in size, subsequent truncation by ploughing could have removed the majority of the evidence. Experimental pyre cremations have shown that the effects of the pyre only penetrate *c.*0.10m below the ground surface, and so evidence for pyres usually only survives when protected by a covering layer or mound such as a barrow (Mckinley 1997).

7.5 In light of these observations, but notwithstanding the lack of a surrounding ring-ditch or diagnostic human bone fragments, it seems plausible that pit 102 represents a primary feature beneath a fourth Bronze Age barrow in the linear cemetery excavated previously, or at least a feature associated with the funerary practices connected with them. The paucity of charred cereal grains or slag/pot within the primary fill militates against other possible interpretations of the function of the pit, such as an oven or kiln.

7.6 Trenches 2 and 3 were located in order to test the presence/nature of the north-south oriented ditch identified by the geophysical survey, and Trench 5 was located in order to test the relationship of this ditch (124) at the intersection with the east-west oriented ditch (126). This ditch proved to be narrow and quite shallow, and contained post-med pot providing a *terminus post quem* of the late 18th/19th century for its disuse, suggesting that it may be a minor boundary or drainage ditch associated with the 19th century farm buildings to the north or the earlier mill. A second similar ditch undetected by the geophysical survey was also discovered perpendicular to the former one, which is presumably contemporaneous.

7.7 The east-south-east to west-north-west ditch targeted by Trenches 4 and 5 proved to continue beyond the area of the site covered by the geophysical survey, and it is expected that this is the continuation of the ditch previously identified by aerial photography and excavation to the east of Bullerthorpe

Lane. This ditch forms part of the Iron Age/Romano-British field system connected to the double ditched trackway to the east, and although no artefeacts were recovered during the present excavations to confirm this date, the pot from ditch fill 125 provides a *terminus ante quem* of the late 18th/19th century for this boundary ditch.

7.8 The pit (130) that appeared to be cutting this ditch is directly comparable to a number of discrete features excavated to the east of Bullerthorpe Lane, which also contained burnt stones. These features were tentatively interpreted as evidence for prehistoric domestic activity, possibly for storage (Howell 1997). It has been suggested here that the piece of slag recovered from the fill of 130 may point to industrial as well as domestic activity in the immediate vicinity.

7.9 The only other known archaeological feature to be targeted was the ditch in Trench 6. This in fact proved to consist of two very shallow parallel ditches with associated stake holes, and is assumed to be the continuation of the Iron Age/Romano-British field systems detected by geophysics to the east and excavated to the west (ASWYAS forthcoming). The shallowness of the ditches and the presence of stake holes suggest that the boundary here may have relied on a fence rather than a deep ditch to provide a physical boundary. The absence of this ditch in Trench 7 suggests that it may have been truncated away by the 19th century farm buildings

7.10 The only other features to have been exposed during the excavation were the modern features to the north of the mill in Trenches 6, 7 and 8. These include the recently demolished building foundations uncovered in Trench 7 which had been recorded whilst still upstanding (Prudhoe 2002). The foundations and possible garden feature in Trench 6 are situated beyond the extent of the farm as shown on the 1st edition and subsequent OS maps, and so may relate to earlier activity, perhaps connected with the 18th century mill, or maybe indicating that the farm had origins slightly earlier than previously thought. This is also borne out by the presence of late 18th/early 19th century domestic wares within the backfill of the large pit in Trench 6.

8. Conclusions

8.1 The trial trenching at Colton Mill has confirmed the existence of the putative archaeological ditches previously identified by geophysical prospection. The north-south linear proved to be modern, probably associated with the 18th century mill or associated farm, and this was intersected by an unsuspected perpendicular ditch of similar date. The east-west linears provided no dating evidence, but are most likely the continuations of the Iron Age/Romano-British boundary ditches excavated previously to the east.

8.2 At the north of the site, the presence of previously unrecorded buildings and features in the vicinity of Colton Mill Farm indicate that activity here in the 18th/19th centuries extended beyond the area shown on the 1st edition OS map.

8.3 The most intriguing feature to have been discovered is the undated pit at the south of the site. The function of this pit must remain equivocal, but its position central to the line of the barrow cemetery is suggestive that it may be a feature associated with Bronze Age funerary ritual. It should be possible to

ascertain the date of this feature using radiometric dating methods, but due to the time constraints involved resulting from the requirements of the client it was not possible to do this at this stage. It is expected that material suitable for radiometric determination from the pit will be included as part of a scientific dating programme should there be a further stage of work. It is also to be expected that any further work in this area of the site may shed light upon this feature, as well as potentially locating the continuation of trackway previously excavated to the east and west of the site.

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Malin Holst (cremated bone)
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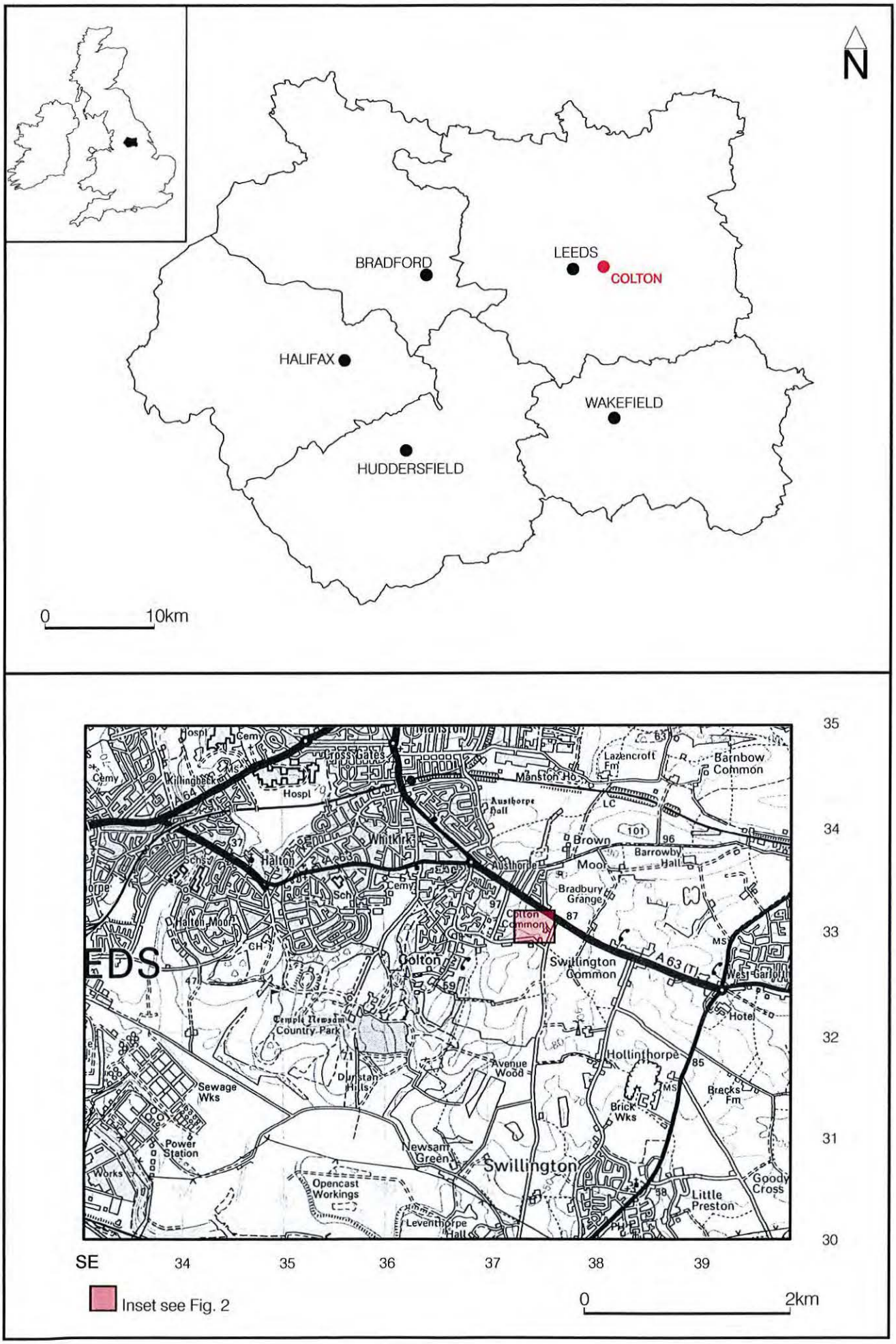


Fig. 1. Site location

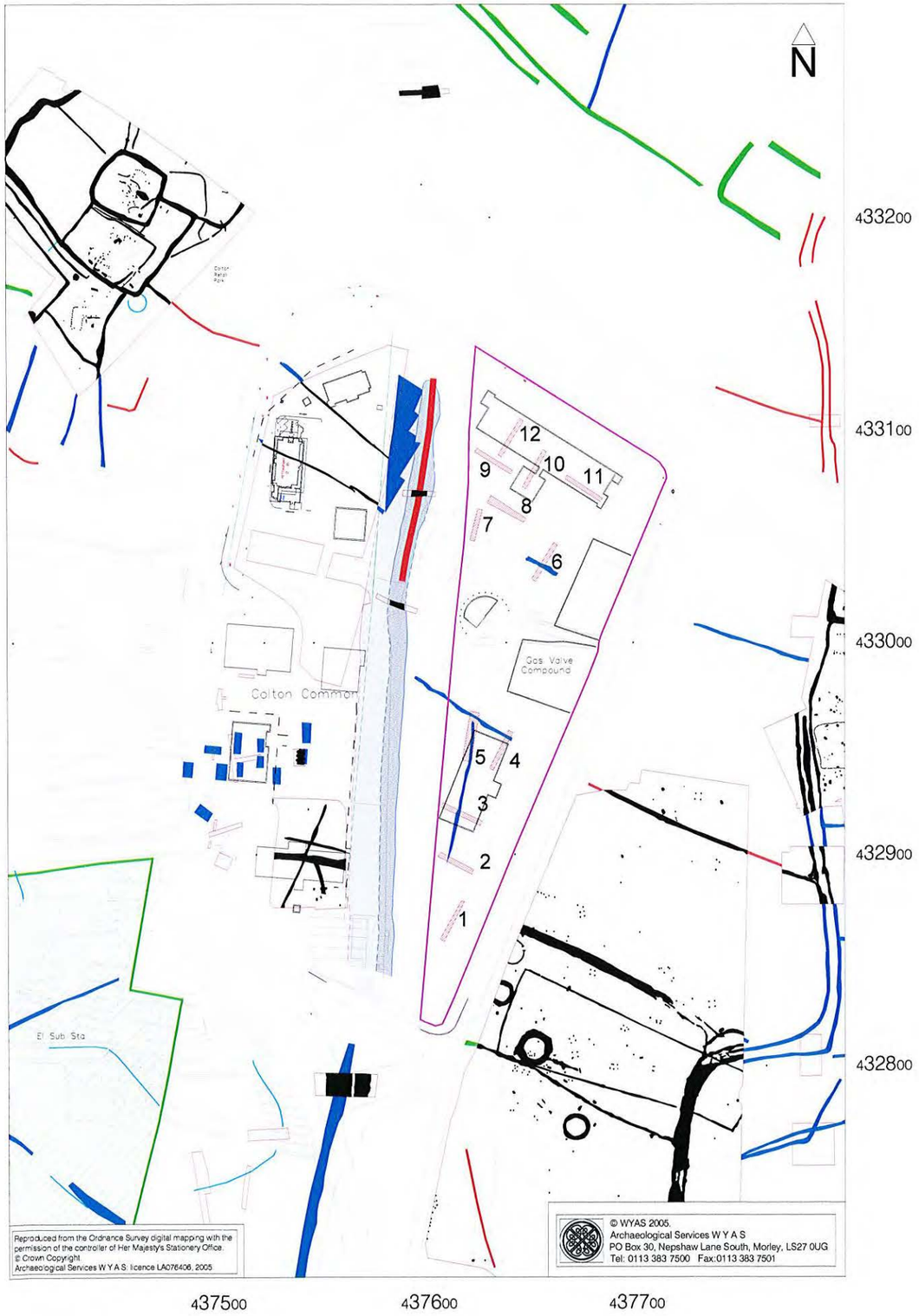


Fig. 2. Site location

GENERAL DETAIL

	SITE BOUNDARY
	ARCHAEOLOGICAL TRENCH
	PREVIOUS ARCHAEOLOGICAL AREAS
	EXCAVATED ARCHAEOLOGICAL FEATURE

AIR PHOTOGRAPHIC DETAIL

	CUT FEATURE
	DUBIOUS CUT FEATURE
	AREA OF RIDGE/FURROW PLOUGHING

GEOPHYSICAL SURVEY DETAIL

	MAGNETIC ANOMALY- ARCHAEOLOGICAL
	MAGNETIC ANOMALY- POSSIBLE ARCH.

TOPOGRAPHIC DETAIL

	GRIM'S DITCH BANK
	VISIBLE LIMITS OF BANK
	INTERPOLATED LIMITS OF BANK
	GRIM'S DITCH DITCH
	VISIBLE LIMITS OF DITCH
	INTERPOLATED LIMITS OF DITCH
	APPROXIMATE LINE OF EASEMENT

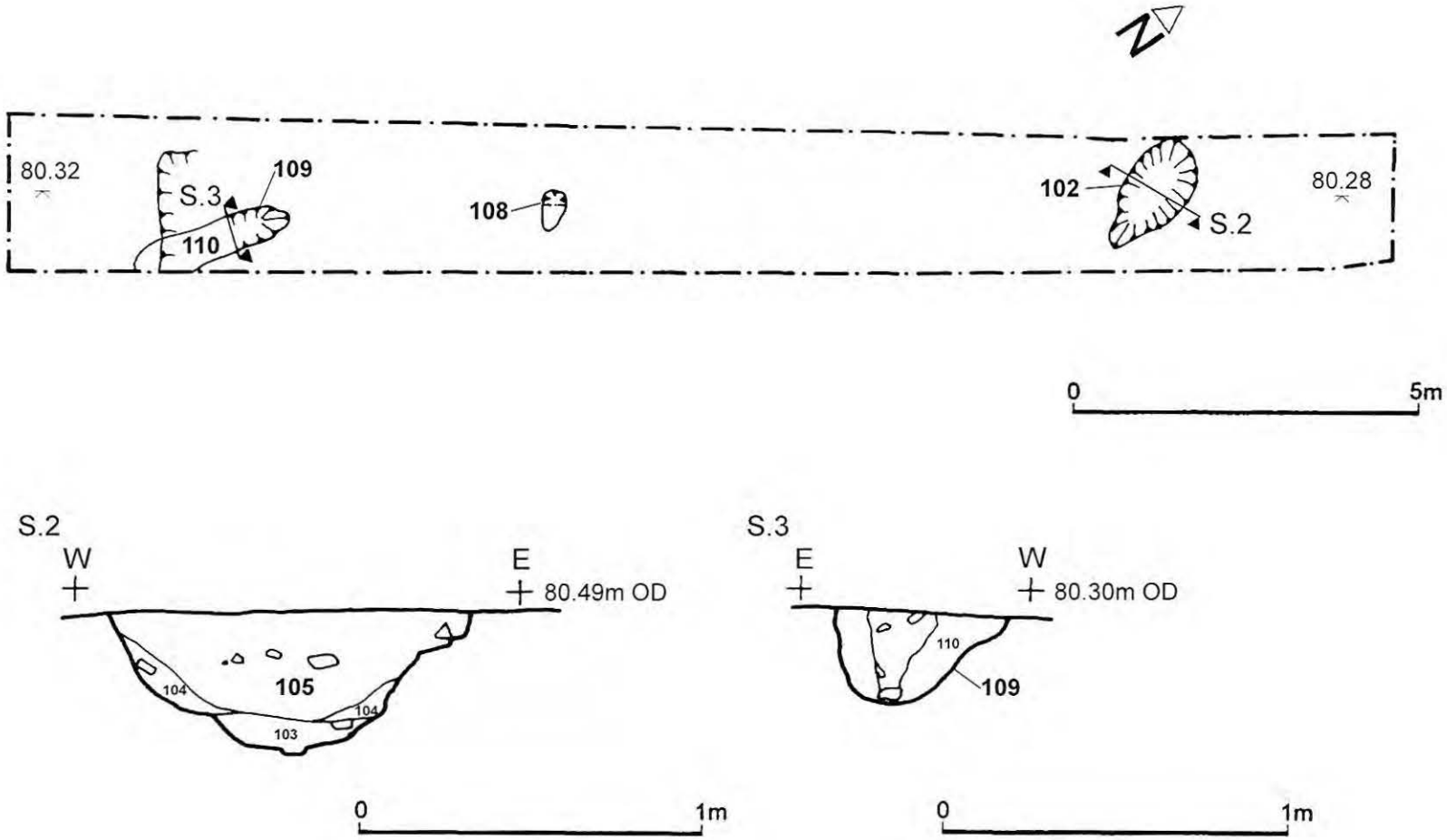


Fig. 3. Trench 1 Plan and sections

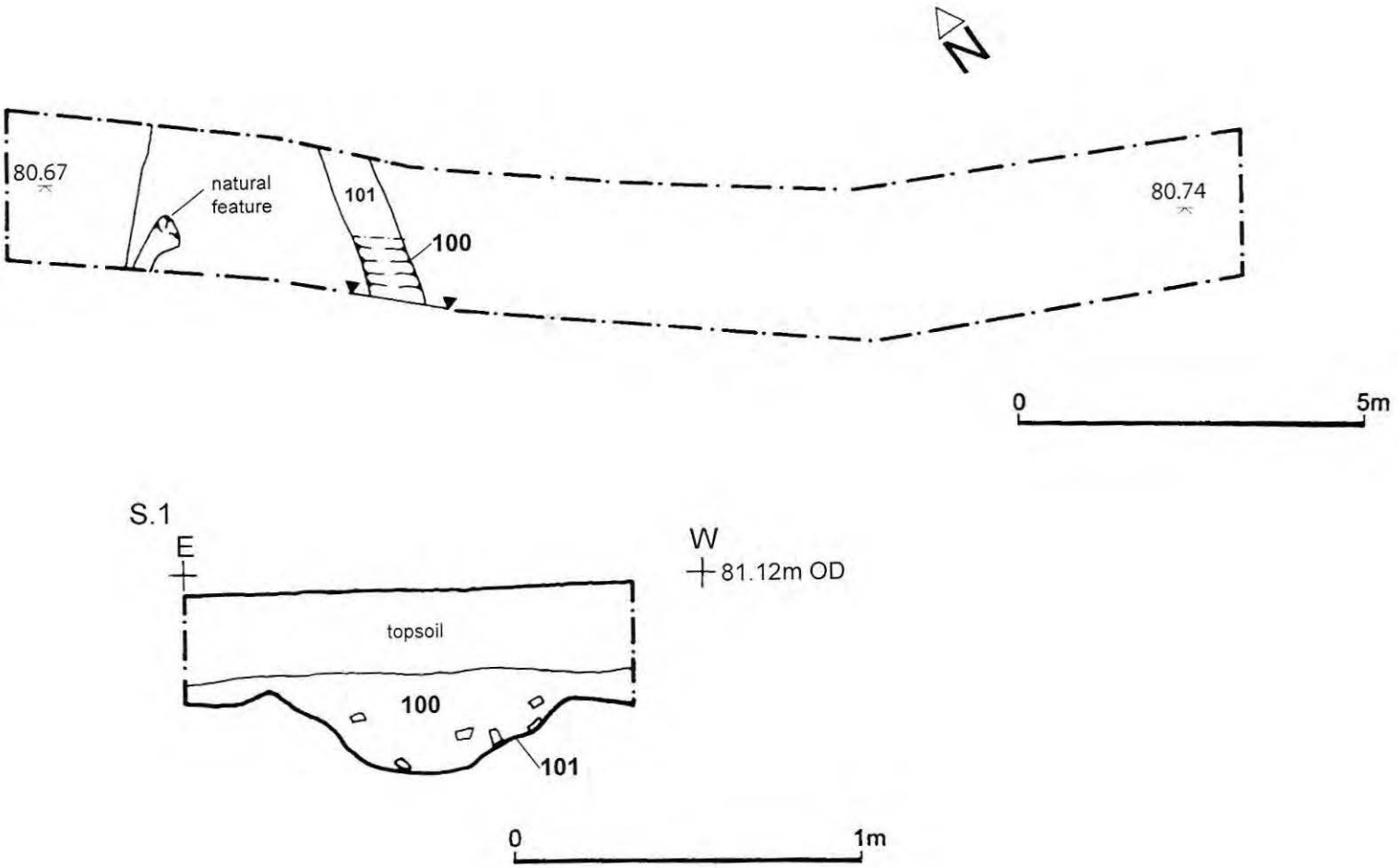


Fig. 4. Trench 2 Plan and section

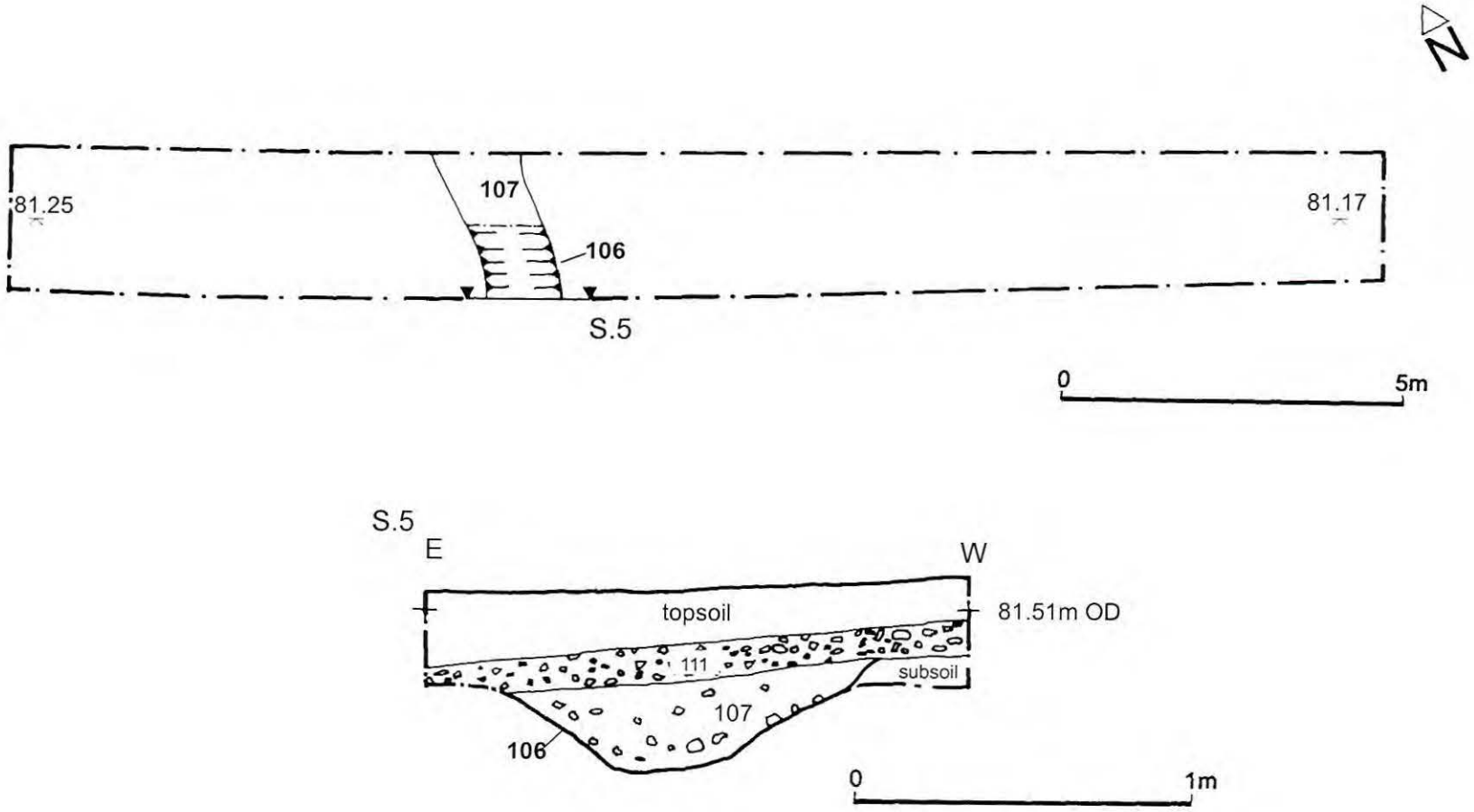


Fig. 5. Trench 3 Plan and section

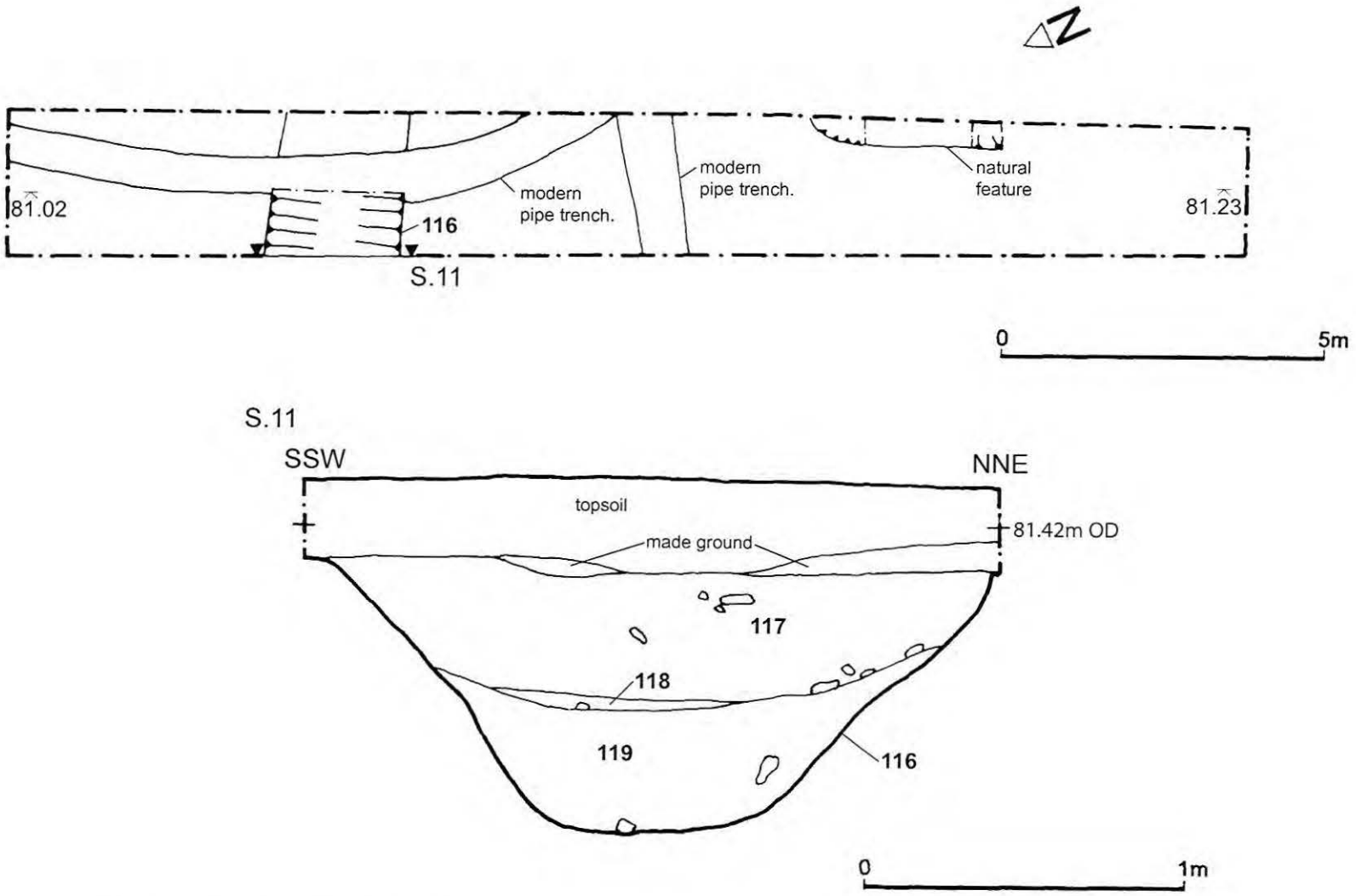
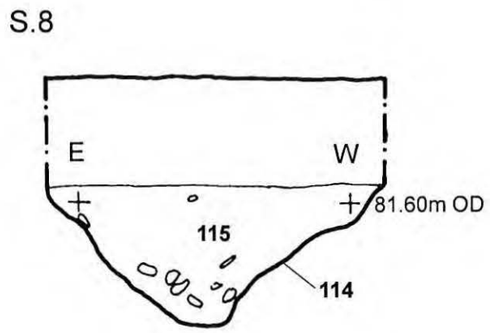
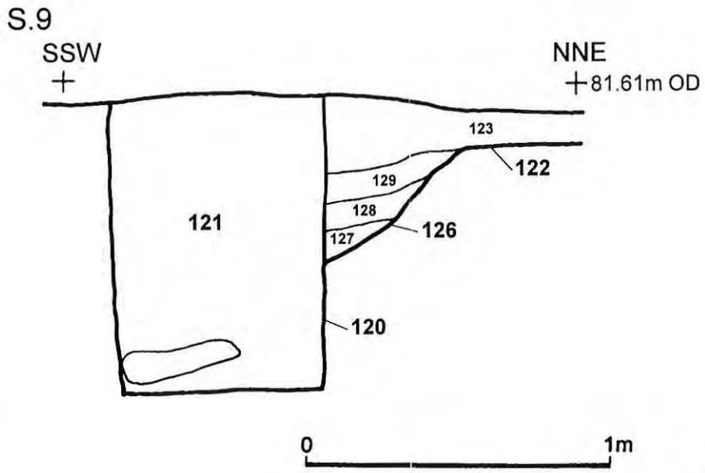
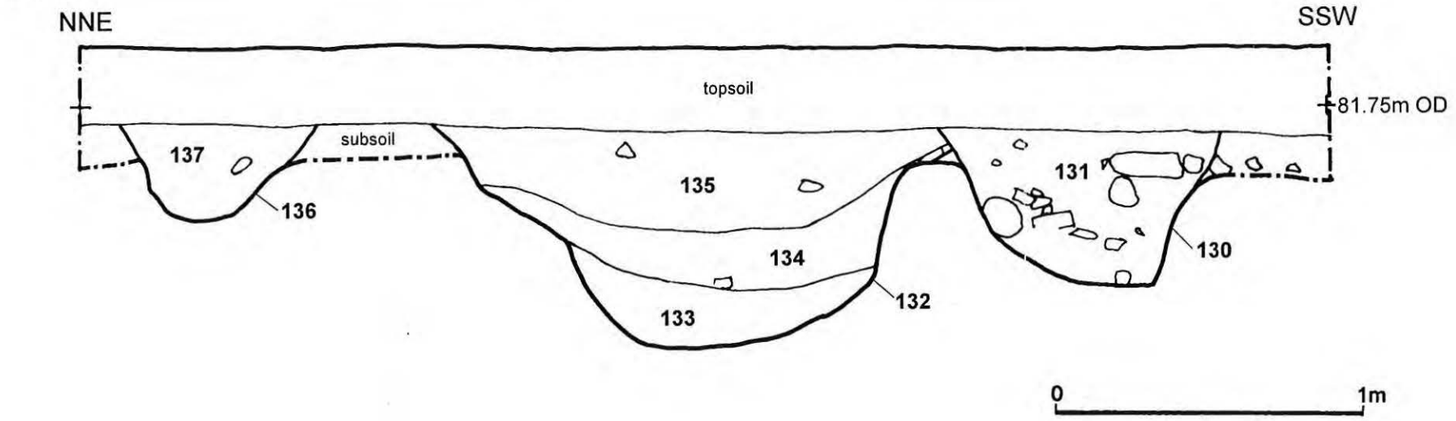
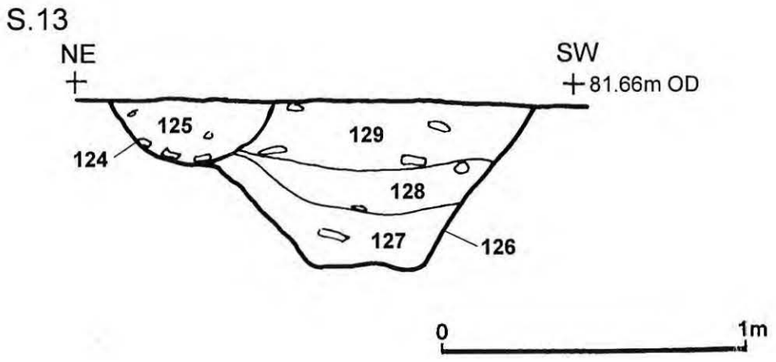


Fig.6. Trench 4 Plan and section









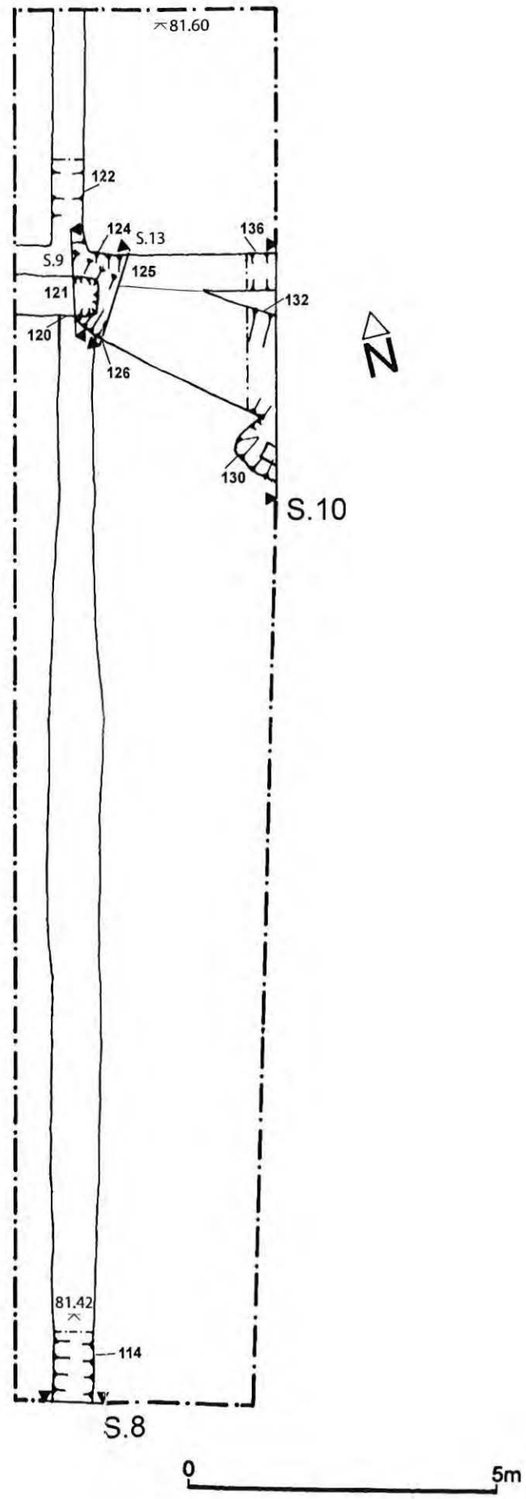


Fig. 7. Trench 5 Plan and sections

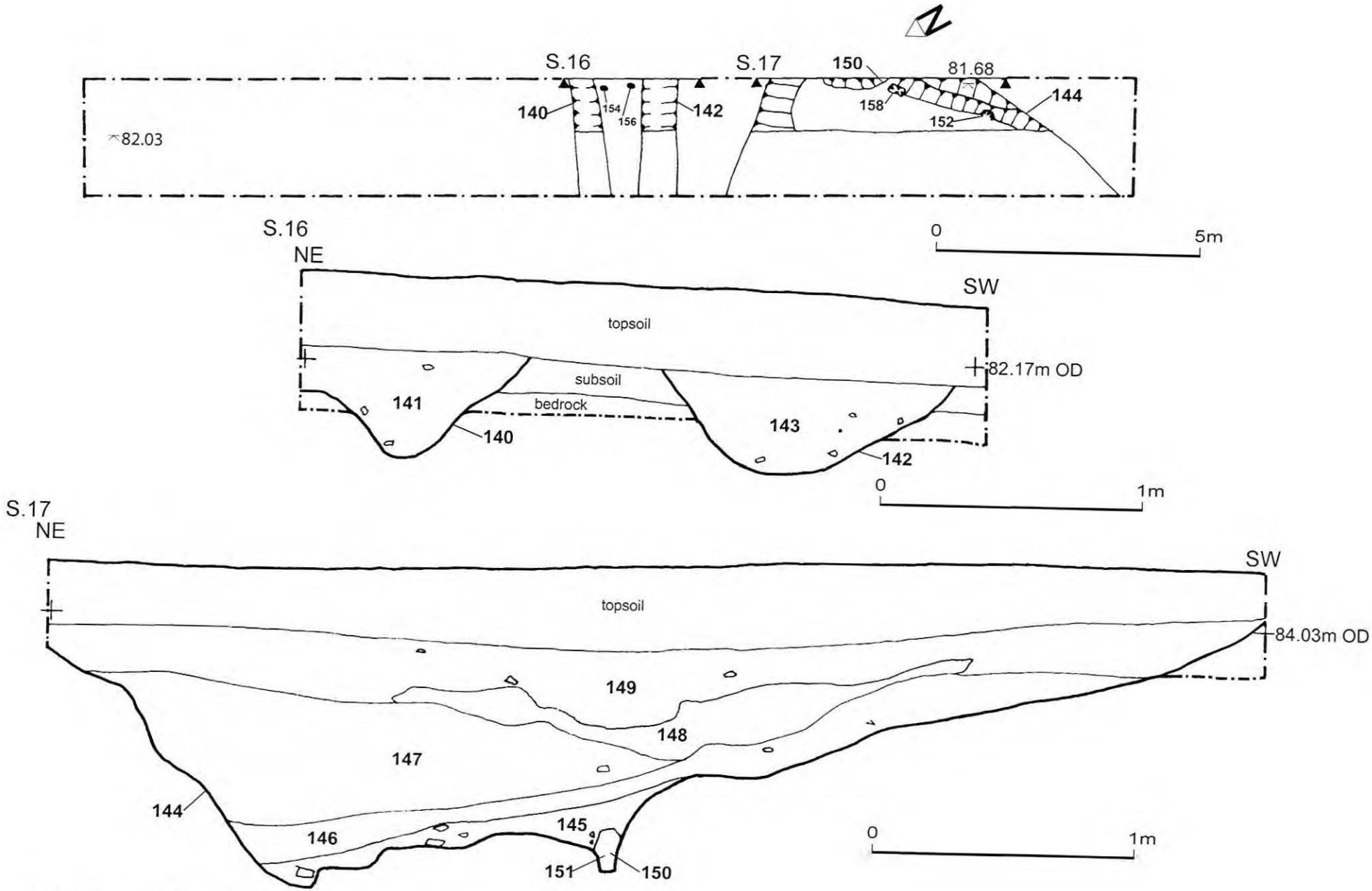


Fig. 8. Trench 6 Plan and sections.

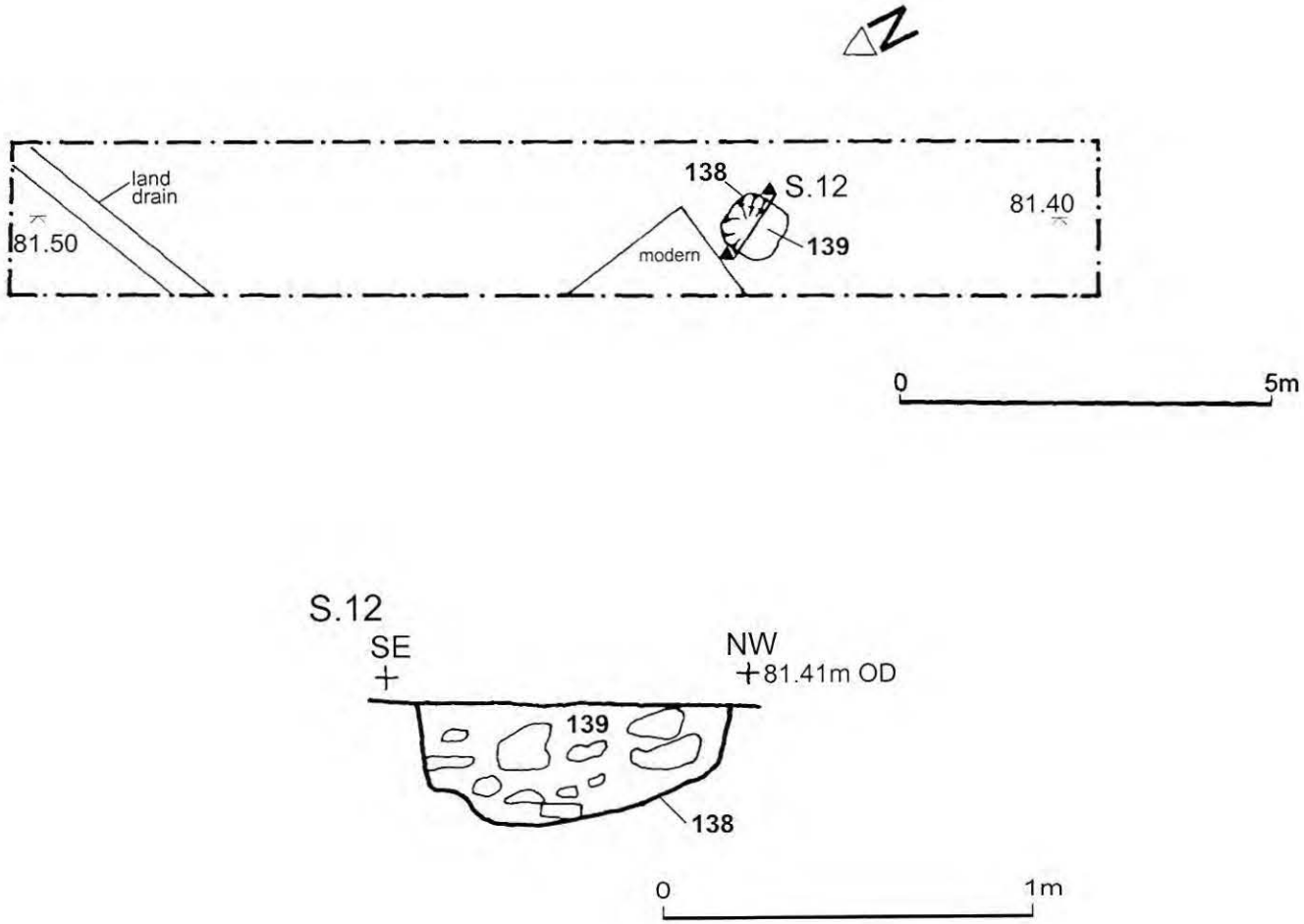


Fig. 9. *Trench 7* *Plan and section*

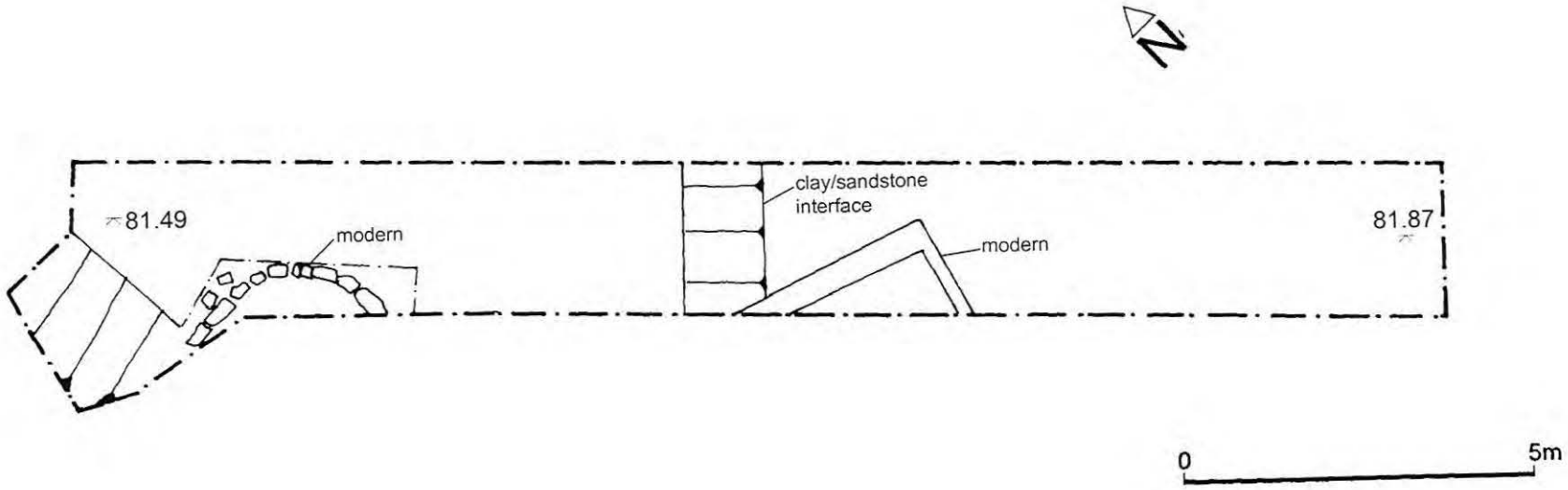
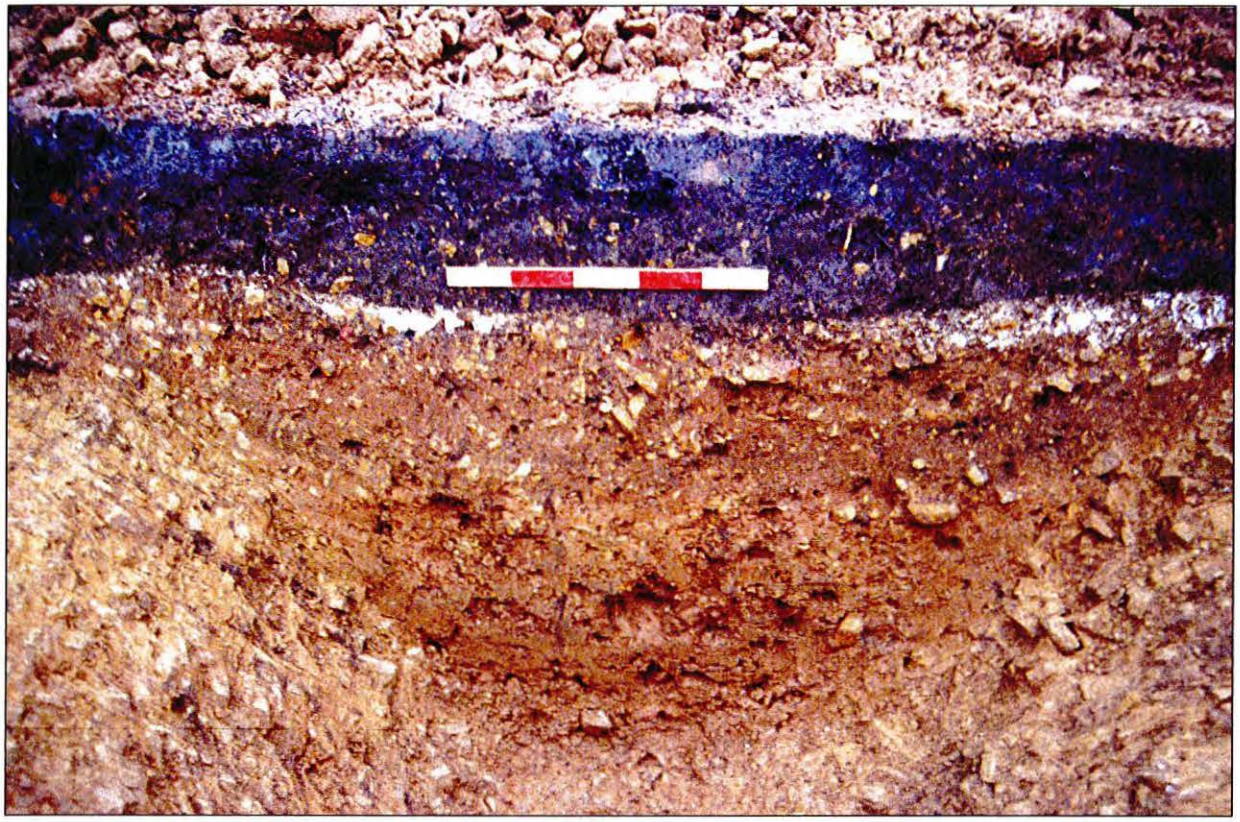


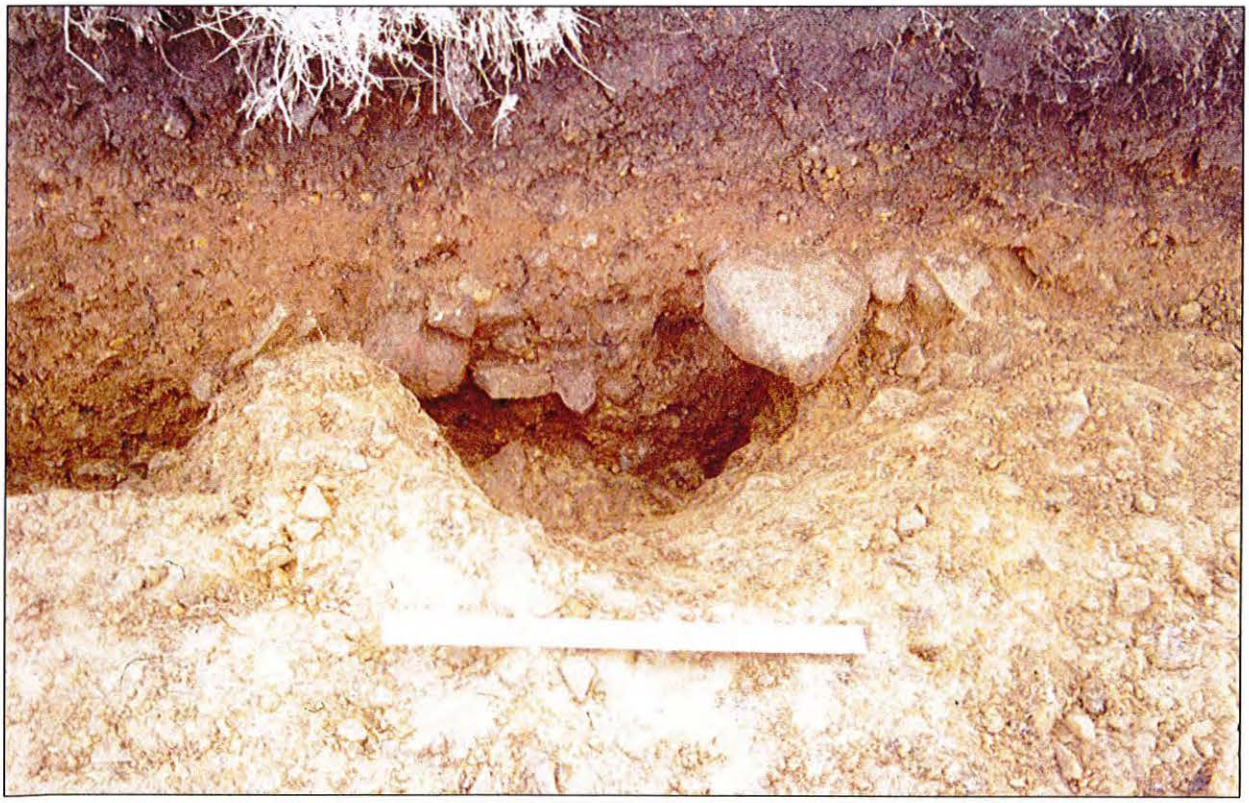
Fig. 10. Plan of trench 8.

Pl. 1 Trench 1 - Pit 102 showing charcoal-rich fill 103

Pl. 2 Trench 1 - Pit 102 showing in-situ burning



Pl. 3 Trench 4 - ESE facing section of ditch 116



Pl. 4 Trench 5 - WNW facing section of pit 130

Appendix I

Inventory of primary archive

File no.	Description	Quantity
1	Context register	3
2	Context cards	60
1	Drawing register	1
1	Sample register	1
1	Photographic record sheets	4
1	Black and white contact sheet (film nos 7266; 7273)	1
1	Black and White Negatives (film nos 7266; 7273)	1
1	Colour Transparency (film nos 7267; 7274)	1
1	Levels sheets	4
1	Trench record sheets	12
1	Laminated trench location plan	1
1	Small drawing sheets	3
Loose	Large drawing sheets	3

Appendix II

Inventory of contexts

Context	Trench	Description
100	2	Cut of N-S post-med. ditch
101	2	Mid brown clay silt – single fill of ditch 100
102	1	Cut of sub-oval pit – possibly pit beneath cremation pyre?
103	1	Dark greyish black clay silt - primary fill of pit 102
104	1	Light yellowish brown silty sand – secondary fill of pit 102
105	1	Mid orangey brown sandy silt – tertiary fill of pit 102
106	3	Cut of N-S post-med. ditch
107	3	Mid brown clay silt – single fill of ditch 106
108	1	Light reddish pink silty sand – heat affected natural
109	1	Linear feature – possibly of natural origin
110	1	Light yellowish grey sandy silt – single fill of 109
111	3	Dark brown clay silt - made ground beneath topsoil
112	2	Sub-circular feature – probably of natural origin
113	2	Brown clay silt - single fill of 112
114	5	Cut of N-S post-med. ditch
115	5	Mid reddish-brown clay silt - single fill of ditch 114
116	4	Cut of E-W ?Romano-British boundary ditch
117	4	Mid orangey brown clay silt - tertiary fill of ditch 116
118	4	Light yellowish brown clay silt – secondary fill of ditch 116
119	4	Mid orangey brown clay silt – primary fill of ditch 116
120	5	Sub rectangular vertically sided modern machine cut – test pit?
121	5	Light yellowish brown silty sand – backfill of test-pit 120
122	5	Cut of N-S post-med. ditch
123	5	Mid reddish-brown clay silt - single fill of ditch 122
124	5	Cut of E-W post-med. ditch
125	5	Mid reddish-brown clay silt - single fill of ditch 124
126	5	Cut of E-W ?Romano-British boundary ditch
127	5	Mid orangey brown clay silt – primary fill of ditch 126
128	5	Light yellowish brown clay silt – secondary fill of ditch 126
129	5	Mid orangey brown clay silt - tertiary fill of ditch 126
130	5	Cut of sub-rectangular pit
131	5	Mid reddish-brown clay silt – single fill of pit 130, containing frequent ?pot-boilers
132	5	Cut of E-W ?Romano-British boundary ditch
133	5	Mid orangey brown clay silt – primary fill of ditch 132
134	5	Light yellowish brown clay silt – secondary fill of ditch 132
135	5	Mid orangey brown clay silt - tertiary fill of ditch 132
136	5	Cut of E-W post-med. ditch
137	5	Mid reddish-brown clay silt - single fill of ditch 136
138	7	Cut of post-med. pit – possibly for gatepost?
139	7	Dark brownish grey clay silt with frequent lenses of clay – single fill of pit 138

Context	Trench	Description
140	6	Cut of E-W linear ditch
141	6	Mid reddish-brown clay silt – single fill of ditch 140
142	6	Cut of E-W linear ditch
143	6	Mid reddish-brown clay silt – single fill of ditch 142
144	6	Large sub-rectangular cut
145	6	Light yellowish brown silty clay – primary fill of 144
146	6	Mid orangey brown clay silt – secondary fill of 144
147	6	Light brownish grey silty clay – tertiary fill of 144
148	6	Mottled orange and grey clay – tertiary fill of 144
149	6	Mid orangey brown clay silt – tertiary fill of 144
150	6	Cut of post hole in base of 144
151	6	Mid brownish grey clay silt – single fill of post hole 150
152	6	Cut of post hole in base of 144
153	6	Mid brownish grey clay silt – single fill of post hole 152
154	6	Cut of stake hole
155	6	Mid reddish-brown clay silt – single fill of stake hole 154
156	6	Cut of stake hole
157	6	Mid reddish-brown clay silt – single fill of stake hole 156

Appendix III

Inventory of artefacts

Fabric	Trench	Context	Quantity	Details
Pottery	2	101	5	See Appendix V
	5	125	2	See Appendix V
	7	139	1	See Appendix V
	6	146	4	See Appendix V
	6	149	1	See Appendix V
Total			13	
CBM	2	101	8	See Appendix V
	5	125	1	See Appendix V
	7	139	6	See Appendix V
Total			15	
Bone	1	103	<10g	Undiagnostic fragments
Total			1 bag	
Slag	1	7	1	-
Total			1	

Appendix IV

Inventory of samples

Sample	Trench	Context	Type	Description
1	N/A	N/A	N/A	N/A
2	1	103	GBA	Primary fill of pit 102 (100%)
3	1	103	Spot	Charcoal from primary fill of pit 102
4	1	105	GBA	Backfill of pit 102
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	4	119	GBA	Primary fill of ditch 116
8	5	127	GBA	Single fill of ditch 126
9	5	137	GBA	Primary fill of ditch 136
10	5	131	GBA	Single fill of pit 130
11	6	141	GBA	Single fill of ditch 140
12	6	143	GBA	Single fill of ditch 142
13	6	143	Spot	Charcoal from single fill of ditch 142
14	6	141	Spot	Charcoal from single fill of ditch 140

Appendix VII

Project Design

Proposed Office Development, Colton Mill

Bullerthorpe Lane

Colton

Leeds

Archaeological Evaluation
Project Design

Contents

Archaeological Services WYAS

PO Box 30, Nepshaw Lane South, Morley, Leeds LS27 0UG

1. Introduction

1.1 Archaeological evaluation by trial trenching has been proposed in advance of the construction of office units on the two currently undeveloped plots north and south of the gas compound on Bullerthorpe Lane, see attached plan, in order to establish the presence, form, period, function and condition of any archaeological features or deposits. This strategy supercedes the 'strip and record' methodology previously formulated by the West Yorkshire Archaeology Service – Advisory Services and has been amended at the request of the developers and in consultation with and the approval of WYAS-AS. Although planning permission has been approved for Stage 1 of the development (Outline Planning Permission Reference Number 32/284/99/OT) the build proposals for Stage 2 are yet to be finalised. However, the developers (CDP Ltd) expressed a desire to evaluate both sites simultaneously. This project design has been prepared by Archaeological Services WYAS on behalf of Commercial Development Projects Limited.

1.2 The trial excavation may form part of a staged strategy for assessing the archaeological implications of the proposed development on this site. The results of the trial excavation will help to determine the scope and scale of any further stages of archaeological work that may be carried out in advance of and/or during construction and attached as conditions to a planning consent.

2. Archaeological Background

2.1 The proposed development lies in a rich archaeological landscape. Numerous archaeological investigations, including earthwork and geophysical surveys, watching briefs, trial trenching and open area excavation, have been undertaken in the immediate vicinity over the last fifteen years in advance of the various housing, retail and light industrial developments as well as for the M1-A1 Link Road. These investigations are extensively detailed and described in the Environmental Statement (Archaeology and Cultural Heritage) produced for Colton Regeneration Ltd (O'Neil 2000).

2.2 The only archaeological work undertaken to date within the application area was a geophysical survey in 199?. This identified three linear magnetic anomalies interpreted as infilled archaeological ditches. These features align with other ditches (identified as cropmarks and magnetic anomalies and confirmed by excavation) immediately east of Bullerthorpe Lane.

3. Aims and Objectives

3.1 The aims and objectives of the trial trenching are:

- to evaluate and determine the extent of the features causing the linear magnetic anomalies
- the identify any other archaeological deposits or features at the site;
- to determine the date, nature, depth, function and stratigraphic complexity of any archaeological features and deposits at the site;
- to provide an assessment of the potential and significance of any identified archaeological deposits and features in order to inform any decision about

the likely scope, cost and duration of any further evaluation and/or excavation works that might be required to mitigate against the proposed development scheme.

4. Method

4.1 The evaluation strategy will comprise the opening of twelve trenches, in total covering an area of approximately 540m², 4% of the site area. A further 1% of the site area (134m²) will be set aside as a contingency. The purpose of this contingency is to allow for the full evaluation of any features revealed at or near a trench edge. It should be noted that no excavations shall be undertaken within the gas pipeline easement.

4.2 The proposed trench location and rationale are summarised in Table 1 below and illustrated in Figure 1.

Table 1. Trial trench dimensions and rationale

Trench	Dimensions	Area	Rationale
1	20m by 2m	40m²	To evaluate the southern end of the site in the area nearest the ring ditches east of Bullerthorpe Lane.
2	20m by 2m	40m²	To determine whether the north/south linear magnetic anomaly interpreted as a ditch continues into the southern part of the site.
3	20m by 2m	40m²	To evaluate the linear magnetic anomaly interpreted as an archaeological ditch and sample across the footprint of one of the proposed office units.
4	20m by 2m	40m²	To determine whether the east/west linear magnetic anomaly interpreted as a ditch continues across the site.
5	20m by 4m	80m²	To investigate the possible relationship between the two intersecting ditch features and sample across the footprint of one of the proposed office units.
6	20m by 2m	40m²	To evaluate the linear magnetic anomaly interpreted as an archaeological ditch
7	20m by 2m	40m²	To determine whether the north/south linear magnetic anomaly interpreted as a ditch continues into the southern part of the site.
8	20m by 2m	40m²	To sample the northern part of the site.
9	20m by 2m	40m²	To sample the northern part of the site.
10	20m by 2m	40m²	To sample the northern part of the site.
11	20m by 2m	40m²	To sample the northern part of the site.
12	20m by 2m	40m²	To sample the northern part of the site.
	Total	**537m²**	

4.3 Archaeological Services WYAS will establish and set out all trench locations using electronic survey equipment (either total station theodolite or differential GPS) based upon digital data.

4.4 The trenches will be machine excavated, using an appropriate mechanical excavator fitted with a flat bladed ditching bucket, under direct archaeological supervision, in level spits to either the top of the first archaeological horizon or to undisturbed natural, depending on whichever is encountered first. The resulting surface is to be inspected for archaeological remains and any features tagged. Where archaeological remains require clarification, the relevant area will be cleaned by hand.

4.5 The resultant spoil will be carefully stockpiled for reinstatement. For Health and Safety reasons it will be necessary to demarcate the excavated area with orange plastic mesh.

4.6 Archaeological Services WYAS will hand excavate all archaeological features in an archaeologically controlled and stratigraphic manner in order to meet the aims and objectives outlined above.

- Linear features: A minimum of 20% along their length (each sample section to be not less than 1m) for features up to 5m in length, or a minimum of 10% along their length for features over 5m in length, of the deposits within linear features such as boundary or drainage ditches associated with domestic, agricultural, industrial, funerary or ritual enclosures, or fields, or trackways, will be excavated to their full depth. Where possible one section will be located and recorded adjacent to the trench edge.
- Intersections of linear features: The deposits at the junctions of or interruptions in linear features will be totally removed over a sufficient length to determine the nature of the relationship between the components. Excavation of an 'L'-shaped section will be undertaken in the first instance to demonstrate and record relationships and then expanded to the full widths if necessary, planned and recorded.
- Discrete features: Pits, post–holes and other isolated features of less than 1.5m diameter will normally be half-sectioned to determine and record their form with a minimum sample of 50% of discrete features in each trench. Features with a diameter greater than 1.5m will be subject to a minimum sample of 25%. Stake-holes will be 100% excavated. The exceptions will be potential sunken-floored buildings, wall-settings, working hollows, floor levels, hearths, kilns, storage pits or other identifiable domestic, agricultural, industrial, funerary or ritual structures or buildings. These will be excavated to a degree whereby their extent, and location are defined and if possible the nature, form, date, function and relationship to other features and deposits may also be established. The complete excavation of such features may, however, be more suitably left to a further stage of excavation but only following consultation with and the agreement of the WYAS Advisory Service.
- Built structures, such as walls, will be examined and sampled to a degree whereby their extent, nature, form, date, function and relationship to other features and deposits can be established.

4.7 Archaeological Services WYAS shall make a full written, drawn and photographic record of all material revealed in the trench during the course of the evaluation, even where no archaeological features or deposits have been recognised. The trench limits will be surveyed using electronic survey equipment with larger scale hand-drawn plans of the trench illustrating archaeological features at 1:50 or 1:20 scale, as appropriate. Sections of linear and discrete features will be drawn at 1:10 scale. All sections, plans and elevations will include spot-heights related to Ordnance Datum in metres as correct to two decimal places. Survey tie-in information will be undertaken during the course of the evaluation and will be fixed in relation to nearby permanent structures and roads and to the Ordnance Survey National Grid.

4.8 Small finds will be recorded three dimensionally. Bulk finds will be collected by context. All non-modern artefacts recovered will be retained and removed from the site for processing and analysis. Non–modern artefacts will be collected from the excavated spoil. Finds material will be stored in controlled environments, where appropriate at the Archaeological Services WYAS offices in Morley. All artefacts recovered will be retained, cleaned, labelled and stored as detailed in the guidelines laid out in the IFA Guidelines for Finds Work. Any conservation will be undertaken by approved conservators. UKIC guidelines will apply (UKIC 1990).

4.9 Archaeological Services WYAS will fully record all excavated archaeological contexts by detailed written records giving details of location, composition, shape, dimensions, relationships, finds, samples, and cross-references to other elements of the record and other relevant contexts, in accordance with best industry practice and in accordance with the Archaeological Services WYAS recording guidelines. All contexts, and any small finds and samples from them, will be given unique identifying numbers. Colour transparency and monochrome negative photographs will be taken at a minimum format of 35mm.

4.10 A soil-sampling programme will be undertaken during the course of the evaluation for the recovery of carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material. An environmental specialist will be consulted prior to the commencement of works the excavation in order that a suitable sampling programme is devised.

4.11 Environmental material removed from site will be stored in appropriate controlled environments at the Archaeological Services WYAS offices. The collection and processing of environmental samples will be undertaken in accordance with Archaeological Services WYAS standard guidelines which are based upon those set out in the Association for Environmental Archaeology's (1995) Working Paper No. 2, *Environmental Archaeology and Archaeological Evaluations - Recommendations concerning the environmental archaeology component of archaeological evaluations in England* and English Heritage's (2002) guidelines, *Environmental Archaeology. A Guide to the theory and practice of Methods, from Sampling and Recovery to Post-excavation.*

4.12 In the event of human remains being discovered during the evaluation these will be left *in situ* by the on site archaeologists, covered and protected, in the first instance. If human remains are identified, Archaeological Services WYAS will

inform the Supervising Officer. The removal of human remains will only take place under appropriate Home Office and Environmental Health regulations, and in compliance with the Burial Act 1857.

4.13 Archaeological Services WYAS will make provision for the recovery of samples suitable for scientific dating.

4.14 All finds that fall within the purview of the Treasure Act 1996 will be reported by to H.M. Coroner according to the procedures outlined in the Act.

5. Archive Preparation and Deposition

5.1 The site archive will contain all the data collected during the exploratory work, including records, finds and environmental samples. It will be quantified, ordered, indexed and internally consistent. Adequate resources will be provided to ensure that all records are checked and internally consistent. Archive consolidation will be undertaken immediately following the conclusion of fieldwork:

- the site record will be checked, cross–referenced and indexed as necessary;
- all retained finds will be cleaned, conserved, marked and packaged in accordance with the requirements of the recipient museum;
- all retained finds will be assessed and recorded using *pro forma* recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated with the site matrix;
- all retained environmental samples will be processed by suitably experienced and qualified staff and recorded using *pro forma* recording sheets, to identify at this stage presence or absence of environmental remains.

5.2 The archive will be assembled in accordance with the specification set out in English Heritage's *Management of Archaeological Projects 2* (English Heritage 1991; Appendix 3). In addition to the site records, data and reports produced during excavation, post-excavation, finds processing, conservation and analysis, and the artefacts, ecofacts and other sample residues, the final archive shall contain:

- a project summary;
- the specification and the approved project design;
- an archive guide (an introduction to the archive stating its principle and layout);
- an index to the contents of the archive;
- interim and post-excavation assessment reports.

5.3 The integrity of the primary field record will be preserved.

5.4 Provision will be made for the deposition of the archive, artefacts and environmental material, subject to the permission of the relevant landowner, in Leeds Museum. Archaeological Services WYAS will be responsible for the deposition of the site archive. Archaeological Services WYAS will adhere to any reasonable requirements the museum may have regarding conservation and storage of the excavated material and the resulting archive. The archive will be

prepared in accordance with the *Guidelines for the Deposition of Archaeological Archives* prepared by The East Riding Museum (1999) and the published *Guidelines for the preparation of Excavation Archives for long–term storage* (United Kingdom Institute for Conservation 1990) and *Standards in the Museum care of archaeological collections* (Museums and Galleries Commission 1994).

6. Report Preparation, Contents and Distribution

6.1 The artefacts, ecofacts and stratigraphic information shall be assessed as to their potential and significance for further analysis.

6.2 The illustrated final report, incorporating a post-excavation assessment, will conform to the requirements defined in English Heritage's *Management of Archaeological Projects 2* (English Heritage 1991). It will include the following:

- a non-technical summary of the entire report;
- a summary of the project's background (including reference to planning application numbers, site codes, the archaeological background and the dates when fieldwork took place;
- a detailed site description;
- an account of the methodology and techniques used and the objectives of the evaluation;
- the results of the evaluation, including phasing and interpretation of the site sequence;
- a post-excavation assessment of the stratigraphic and other written, drawn and photographic records;
- a catalogue and post-excavation assessment of each category of artefact recovered during excavation, including spot-dating, each undertaken by a relevant archaeological specialist and detailing the potential for any further analytical work and recommendations for selection of material to be deposited for long-term storage with the site archive;
- a catalogue and post-excavation assessment of any faunal remains recovered during the excavation, each undertaken by an archaeological specialist and detailing the potential for any further analytical work and recommendations for selection of material to be deposited for long-term storage with the site archive;
- a catalogue of soil samples collected and a post–excavation assessment of the results of the soil sampling programme, undertaken by a relevant archaeological specialist and detailing the potential for any further analytical work and recommendations for selection of material to be deposited for long-term storage with the site archive;
- catalogues and post-excavation assessments and/or summary reports of all scientific dating procedures or other analyses carried out and detailing the potential for any further analytical work and recommendations for selection of material to be deposited for long-term storage with the site archive;

- individual specialist reports to contain non-technical summaries and tabulation of data in relation to site phasing contexts, and presented as unedited appendices to the main report;
- a statement of potential for all categories of evidence, including stratigraphic, artefactual and ecofactual data, a deposit model indicating the likely nature and state of preservation of any archaeological strata, within the limits imposed by the scale of the evaluation;
- recommendations regarding storage and curation requirements;
- an appendix containing a list and summary descriptions of all contexts recorded;
- a summary of the contents of the project archive and its location;
- if further post-excavation work is recommended an outline research design will be prepared, although the implementation of any such work will depend on whether further work is required, and will be the subject of a separate contract and project design;
- a full list of acknowledgments, references and bibliography of all sources used.

6.3 The report will be supported by an overall plan of the site accurately identifying the location of each trench on Ordnance Survey mapping, plus an individual trench plan as excavated (irrespective of results), indicating the location of archaeological features with supporting section drawings and photographs (including those of finds), where appropriate.

6.4 Copies of the final report will be produced, of which one will be included in the project archive prior to deposition. Copies will be submitted to the commissioning body, the Local Planning Authority, English Heritage and the Humber Archaeology Partnership.

6.5 The final report will also be provided to the Humber Sites and Monuments Record office in digital form in PDF format.

6.6 The Supervising Officer will be responsible for the distribution of the final reports to interested parties.

7. Publication and Dissemination

7.1 The information contained within the assessment report will enable decisions to be taken regarding the future treatment of the archaeology at the site and any material recovered during the evaluation.

7.2 If the results of the evaluation do not lead to a further stage of work, it may be possible that the results warrant publication. Where no further work is envisaged, Archaeological Services WYAS will make an allowance for the preparation and publication of a brief note in a local journal outlining the results of the evaluation.

7.3 If further work is proposed, the publication of the results of the evaluation will be covered by and included in the requirements for the further work.

8. Copyright and Confidentiality

8.1 At the end of the project, Archaeological Services WYAS will assign copyright of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 to the Employer upon written request. However, Archaeological Services WYAS and/or their subcontractors shall retain the right to be identified as the author(s) of the report and/or its component parts and to be duly referenced as such.

8.2 The Employer will also retain absolute control over the use and dissemination of any project documentation or reports, although Archaeological Services WYAS may apply in writing for permission to use or disseminate any of the material themselves. Such permission will not be unreasonably withheld.

9. Health and Safety

9.1 Archaeological Services WYAS has its own Health and Safety policies compiled using national guidelines and which conform to all relevant Health and Safety legislation.

9.2 In addition, Archaeological Services WYAS will undertake a Risk Assessment detailing project-specific Health and Safety requirements, which all members of staff are made aware of prior to on-site work commencing. This will take into account the location of the nearest Accident and Emergency Unit Department to the site, take precautionary measures for overhead and below-ground services, dangers to/from the public and the identification of potential dangers and risks to the archaeologists and approved visitors to the site during fieldwork and when the site is not in operation (e.g. evenings and weekends).

9.3 Archaeological Services WYAS will ensure that Health and Safety takes priority over archaeological matters. All necessary precautions will be taken to locate and avoid disturbance to underground services and overhead lines at the outset of the project.

10. Insurance

10.1 Archaeological Services WYAS is covered by the insurance and indemnities of the City of Wakefield Metropolitan District Council. Insurance has been effected with: Zurich Municipal Insurance, Park House, 57–59 Well Street, Bradford, BD1 5SN (policy number RMP 03GO39–0143). Any further enquiries should be directed to : The Chief Financial Officer, Insurance Section, Wakefield MDC, PO Box 55, Newton Bar, Wakefield WF1 2TT.

11. Monitoring

11.1 The work may be monitored by the SMR Officer of the West Yorkshire Archaeology Service who will be afforded the opportunity to inspect the site and the records during any stage of the fieldwork and post-excavation processes.

12. Resources

12.1 Archaeological Services WYAS is an accredited ISO9001:2000 organisation operating to set guidelines, processes and procedures. These are set within a framework that endeavours to carry out the required work and submit the final

report in a manner that meets with our client's specific needs providing quality assurance throughout the project and for the end product. These guidelines, processes and procedures are contained within a Quality Manual and all staff work in accordance with this manual.

12.2 Archaeological Services WYAS will ensure that the relevant archaeological personnel involved in the evaluation are professionals and are competent to undertake the work required.

12.3 Project personnel:

Senior Manager:	Paul Wheelhouse BA MIFA
Project Manager:	Alistair Webb BA
TST/GPS Surveyor:	Louise Martin BSc
Artefact/ecofact co–ordinator:	Jim Thompson BSc
Illustrator/CAD operator:	Andy Swann MAAIS
Photographer:	Paul Gwilliam BA

12.4 Post–excavation specialists:

Prehistoric pottery specialist:	Peter Didsbury MPhil
Roman pottery specialist:	Peter Didsbury MPhil
Medieval pottery specialists:	Peter DidsburyMPhil
	Chris Cumberpatch PhD
Flint specialist:	Jason Dodds BSc*
Soils and environmental:	Ruth Young PhD
	Dianne Alldritt MSc
	Jane Richardson PhD*
	John Carrott PhD
Faunal analyst:	Jane Richardson PhD*
Human bone specialist:	Malin Holst MSc
Non-ceramic artefact specialist:	Holly Duncan MIFA
	Hilary Cool PhD
Artefact conservator:	Karen Barker

* Archaeological Services WYAS staff

12.5 The list of Archaeological Services WYAS project personnel may be subject to change.

13. Timetable

13.1 The on-site works will commence as quickly as possible after the receipt of a formal instruction to proceed. At present it is anticipated that work will

commence in late September/early October 2004. A site specific 'Risk Assessment' will be prepared in advance of any fieldwork commencing.

13.2 It is anticipated that the final report will be submitted within an agreed period following completion of on-site works, dependant on the availability of any external specialists. If the final report is likely to be delayed an interim report may be produced.

13.3 The archive will be deposited with the Leeds Museum following the submission of the final report.

Prepared by Alistair Webb BA, September 2004

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