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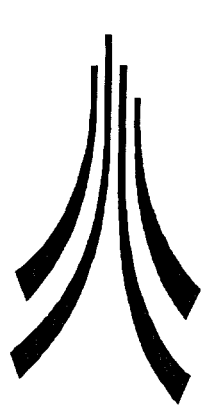

May 1997

LANCASTER BUSINESS PARK, COTTAM'S FARM LANCASTER

Archaeological Report

Comissioned by:

Wiggins Group PLC

Lancaster Business Park,
Cottam's Farm
Lancaster

Archaeological Evaluation Report

Checked by Project Manager.

..... Date 8/5/97

Passed for submission to client.

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May 1997

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EXECUTIVE SUMMARY

The project was undertaken over a seven day period, during May 1997. Archaeological evaluation was carried out on a *c* 10ha greenfield site (NY 430540), at Cottam's Farm, Lancaster (Fig 1), in advance of proposed development plans. The evaluation was completed by Lancaster University Archaeological unit (LUAU) on behalf of Wiggins Group PLC, in respect of conditions attached to a planning application submitted by them. Archaeological investigations involved the machine excavation of 52 trenches measuring up to 30m by 1.5m, and laid out on a grid pattern that sampled objectively the majority of the site. All trenches were recorded and, where appropriate, investigated further. In addition, a total of six 'targeted trenches', of varying lengths, was excavated at the south eastern boundary of the site, where three linked, sub-rectangular enclosures on a low ridge had previously been recognised from aerial photographs and verified by field walking during the previous assessment phase (LUAU 1996).

In all but one of the 52 greenfield trenches, nothing except natural deposits was noted. The one exception was Trench 47, in which a shallow feature, cut into natural silts and containing burnt stone, charcoal, and a small quantity of smithing slag, was recorded. This feature had later been sealed with alluvial deposits. It is suggested that this feature may be representative of early, small scale industrial activity close to the former course of the River Lune.

Excavations on the six 'targeted trenches' demonstrated the presence of collapsed rubble banks defining the boundary of the earthwork enclosures previously identified. Possible cobble spreads, and cut features observed within the enclosures and the associated finds of pottery sherds, have been tentatively dated to the late Roman period of occupation. These features are thus representative of the fragmented surviving elements of a possible Romano-British habitation site. As such they are of regional significance, warranting careful consideration in any development proposals.

1. INTRODUCTION

1.1 Project Background

1.1.1 The area discussed in this report lies immediately to the south-west of Junction 34 of the M6 Motorway and is the site of a proposed Lancaster Business Park, covering *c* 10ha. It lies *c* 2.5km to the north-west of Lancaster city centre and is bounded to the south by a golf course and to the north-west by the A683. An archaeological investigation of the site was required as a condition for planning consent, following the guidance contained in *Planning Policy Guidance Note 16, Archaeology and Planning* (1990). Following an earlier assessment of the site by Lancaster University Archaeological Unit, a Project Design was prepared by LUAU in December 1996, at the request of Wiggins Group PLC (*Appendix 3*) in order to fulfil this condition. The work was undertaken between the 6th and 14th May 1997 and this report presents the results of the evaluation.

1.2 Topographical and Archaeological Background

1.2.1 The site of the evaluation extends over *c* 10ha (NY 493 640) and was, at the time of the evaluation, entirely down to pasture. Much of the northern and western part of the site is flat and quite low-lying (*c* 10m OD): originally it must have lain within the floodplain of the River Lune. Along the south-eastern boundary of the site, however, the ground rises up quite abruptly onto a narrow spur of higher ground (*c* 20m OD), before dropping down to a further area of low-lying ground further to the south-east. It is this area of higher ground which was considered, prior to the evaluation, to have the greatest archaeological potential, in the form of three linked, sub-rectangular enclosures. These had originally been identified from aerial photographs and were visible on the ground as low banks in the pasture. It had been thought possible that they might represent the remains of either a small Roman military site, perhaps a signal station, or alternatively, a late prehistoric or Roman period enclosure.

1.2.2 Soils within the development area are classed as stagnogley soils of the Brickfield 2 Association (Jarvis *et al* 1984, endmap), reflecting the presence of the underlying glacial drift deposits. Alluvial soils are not mapped in the low-lying flood plain area but this may reflect the large scale of the most recent soil mapping, and it seems likely that the alluvial soils mapped further up the Lune valley are also represented in this area too.

2. METHODOLOGY

2.1 Project Design

2.1.1 A project design was compiled at the request of Wiggins Group PLC, for an archaeological evaluation of the area of land affected by the proposed development.

2.1.2 The Project Design (*Appendix 3*) provided for an evaluation by means of a 'greenfield trenching' exercise, in order to establish the presence, date, extent, and preservation of any archaeological deposits. A maximum of 55 trenches were to be excavated as part of this process. In addition, six 'targeted trenches' were to be excavated within those parts of the earthwork complex threatened by the development. The precise location of individual trenches was discussed in the field, prior to the start of work, with the staff of Lancashire County Council Archaeology Section. The evaluation was completed in accordance with the Project Design.

2.2 Evaluation Methodology

2.2.1 *Trenching design*: A total of 52 'greenfield' trenches (1-52), each measuring up to 30m by 1.5m, was excavated by machine in order to test for the presence of archaeological deposits across the area of the proposed development. Trenches were laid out in rows, with alternate south-west/north-east and north-west/south-east orientations, the aim being to ensure that no point, within the development area, lay at a distance of more than 30m from an excavated area. On occasions this pattern was varied somewhat to take account of modern services. In addition, a total of six 'targeted' trenches (56-61) was excavated within that part of the hilltop enclosure complex threatened by the development. The distribution of trenches is shown in Figure 2.

2.2.2 *Excavation methodology*: All trenches were mechanically stripped of topsoil, under archaeological supervision, using a tracked excavator equipped with a 1.5m toothless ditching bucket. Following exposure of the natural subsoil each trench was examined in more detail and a standard LUAU trench recording form completed. Each form recorded the dimensions and orientation of an individual trench, together with data on the nature of the topsoil and natural subsoil. The presence of all cut features was also recorded on the sheets and recommendations made on which trenches required further investigation. The topsoil was checked for the presence of non-modern artefacts. This methodology was applied to both 'greenfield' and 'targeted' trenches.

2.2.3 The positions of all trenches were recorded using a Total Station Theodolite. These were subsequently superimposed on to additional survey data of the study area supplied by J. B. Associates using a Computer Aided Draughting (CAD) system, from which the final trench plot was produced (Fig 2).

2.2.4 Where further investigation of an individual trench was required, this involved the hand cleaning of the subsoil surface. Trenches treated in this manner are identified in the detailed trench descriptions (*Appendix 1*). Any features or deposits noted in this process, that were not obviously modern, were then investigated further by means of sectioning, in the case of cut features, or 1m square sondages, through more extensive spreads of material. In all cases the aim was to gather sufficient data to establish the nature of the deposits under investigation, whilst causing the minimum disturbance. Scale plans and sections were prepared on all trenches subjected to this level of investigation.

2.2.5 Any artefacts or ecofacts requiring further study were removed from the site and stored in appropriate conditions, prior to study (*Appendix 2*).

2.2.6 At the conclusion of the excavation all trenches were mechanically backfilled in a stratigraphic manner.

2.3 Health and Safety

2.3.1 Both Lancaster University and LUAU maintain safety policies, the latter based on the SCAUM (Standing Conference of Archaeological Unit Managers) *Health and Safety Manual* (1991). In keeping with current Health and Safety at Work Regulations, prior to commencing on-site work, a risk assessment for each activity was compiled. A map of services within the area was prepared on the basis of information provided by the various utilities. In addition, the ground surface was surveyed with a CAT Scan prior to machine stripping of the topsoil. The final distribution of trenches was, to some extent, dictated by the presence of the services.

3. EVALUATION RESULTS

3.1 Trench Descriptions (greenfield trenching) (Figs 2 and 3)

3.1.1 Features of archaeological significance were absent from all but one of the greenfield trenches and the main benefit derived from their excavation was to illustrate the nature and extent of the different natural deposits. Within the low-lying areas (essentially those along the fringes of the A683, towards the north-western edge of the site), the silty loam topsoil was seen to overlie a layer of light brown silt with occasional pebbles or rocks (Trenches 1, 2, 4-6, 8-12, 28, 29, 35-39, 47-51). Only in Trench 1 was this silt excavated, where it was seen to be *c* 1m deep and to overlie gravel. Waterlogged deposits did not occur in the silt, although it seems certain that it represents a waterlain deposit laid by successive flooding episodes in the floodplain of the river Lune.

3.1.2 Within those parts of the site beyond the reach of the floodwater (the high ground along the south-eastern fringes of the site and the whole of the south-western portion of the site), the topsoil was seen to overlie glacial deposits consisting of gravel, sand and boulders (Trenches 3, 7, 15-31, 33-34, 40-46, 52). Features of archaeological significance were not detected in any of these trenches. In some instances the topsoil on these trenches was seen to be extremely thin (Trench 28), perhaps reflecting the erosion of topsoil from areas of more marked relief.

3.1.3 A significant proportion of the colluvial deposits generated by soil erosion was probably washed away by the river, but in Trench 32, which lay at the base of a particularly steep slope a, *c* 1.2m deep deposit of coarsely sorted stones and sand was identified beneath the topsoil. This deposit overlay gravel and may be contrasted with the finely sorted silt seen in the floodplain. It seems likely that the deposit seen in Trench 32 represents a colluvial deposit which accumulated beyond the alluvial influences represented in the lower lying floodplain. Similar deposits were seen in the adjacent trenches, 13 and 14, but these were not bottomed.

3.1.4 Only one of the greenfield trenches produced significant archaeological results (Trench 47). The trench straddled the boundary between silt and gravel and close to this boundary a circular feature, *c* 2m in diameter, was identified. The feature, which was cut into the silt, was 0.25m deep and filled with charcoal, burnt stone, and naturally deposited silt (Fig 3). Datable artefacts were absent but a small quantity of slag was recovered. The feature, which was not fully exposed in the trench, was entirely sealed by a thin layer of naturally deposited silt.

3.2 Trench Descriptions (targeted trenching) (Figs 4, 5 and 6)

3.2.1 Despite the interest generated by Trench 47, it is clear that the most important evidence was produced by the six 'targeted trenches' (Trenches 56-61) excavated on the hilltop. It must be emphasised, however, that these examined only a small proportion of the sub-rectangular enclosures that make up the hilltop earthwork complex (that part which lay within the boundaries of the development area). Thus all of the south-eastern enclosure, and all but the western bank of the northern enclosure, lie outside the proposed development area. Much of what follows is, therefore, based on evidence from the examination of the south-western enclosure: the only element of the site significantly encompassed by the development area.

3.2.2 The first point to make is that, where sectioned (Trenches 56, 58, 59, and 61), the earthwork banks proved to consist of rubble overlying natural. Only in one trench (58) was there any sign of a more substantial boulder foundation, but even here the rocks were resting directly on the natural. In one instance (Trench 59) the bank could not be identified after machine stripping, with only the natural slope of the ground represented in the trench. Ploughing may have entirely removed the bank at this point (the south-

western bank of the south-western enclosure). Secondly, where the bank make-up, or collapse, was removed (Trenches 56 and 58) small quantities of Roman ceramic material were usually recovered. It should also be noted that no traces of a ditch were identified around the enclosure. The boundaries, of the enclosures appear to have been restricted to banks of rubble construction, which have been eroded to a significant extent by natural processes and later agricultural activity. Only at the extreme north-western end of Trench 56 were possible traces of a ditch recognised. This feature, however, lay at some distance from the collapsed north-western bank of the northern enclosure and it seems more likely that it represents a natural break of slope, subsequently buried by hillwash derived from the hilltop. In consequence, it is difficult to argue that any element of defence was represented in the excavated evidence.

3.2.3 Trenches 57 and 58 provided evidence of the nature of the features within the areas enclosed by the rubble banks. Much of the interior of the south-western enclosure appears to consist of spreads of natural gravel, with occasional sherds of Roman pottery lying on the gravel surface. At the south-western end of Trench 57, however, the presence of more ordered cobbles, overlain by a dark soil matrix, suggests the survival of intact stratigraphy on the site. Crucially this spread of material was bounded by cut features in the form of well-defined gullies containing, in one case, a substantial amount of burnt clay. This may indicate the survival of Roman period structural features with intact floor levels, within the south-western enclosure.

3.2.4 Mention should also be made of Trench 60, which was cut across an extant field boundary to the north of the earthwork complex, in order to compare its form to that of the enclosure banks, obtain dating evidence, and check for evidence of buried soils. No artefactual material or traces of buried soils were recovered and the form of the boundary (large boulders in a loose soil matrix) proved to be completely different from that of the enclosure banks (see 3.2.2).

3.3 The Finds

3.3.1 The evaluation produced a significant amount of finds evidence. The range of material recovered is fairly restricted, principally domestic ceramics, mainly table wares and locally made kitchen wares. In general the fragments are small, only slightly abraded but often heavily heat or frost-spalled and discoloured, suggesting strongly that most have reached their present place of deposition as a result of night-soiling or midden spreading in the course of agriculture. Most of this material is of late date, seldom before the last two decades of the eighteenth century, and often later, the range extending into the early to mid-twentieth century.

3.3.2 Several of the trenches, however, produced significantly larger and less damaged fragments, implying a different and less destructive mode of deposition. Material from Trenches 22, 27, 29, 37, 39, 42, 43, and 44 was in generally better condition, unabraded and in larger fragments, often several from the same vessel, implying that they had not moved far from their original place of deposition and were unlikely to have been deposited as a direct result of agricultural practice. There is, within these groups of finds, a strong eighteenth century element, perhaps suggesting significant domestic activity in the close vicinity at that date.

3.3.3 A single fragment of abraded medieval pottery is unlikely to be of archaeological significance; its presence is not surprising given the proximity of the Cottam's Farm complex, which seems to be part of the medieval township of Bulk. Similarly, although of much earlier date, the presence of a fragment of worked flint does little more than echo the known presence of prehistoric groups in the general area.

3.3.4 Trenches 56, 57, and 58 were amongst those targeted to examine a putative Roman earthwork. Although abraded and worn, all three produced material of appropriate date, and nothing that could be construed as later than the Roman period. The pottery suggests

activity in the later part of the period, probably in the fourth century AD, although the one fragment of vessel glass is earlier. Glass storage jars are, however, a robust type, and it is not infrequent for them to have survived, apparently in use, into the later third and fourth centuries. Although sparse, the assemblage of Roman material is comparable to that from rural sites elsewhere in the region, and suggests occupation and small scale industrial activity in the vicinity during the fourth century AD

3.3.5 A full description of the finds can be found in *Appendix 2*.

4. DISCUSSION

4.1 Within the area examined by means of 'greenfield trenching' little of archaeological importance was noted and the main benefit derived from the work has been to demonstrate the nature and extent of the natural deposits found across the site. Thus across most of the low-lying, north-western parts of the site the topsoil was seen to overlie a light brown silty deposit. It seems certain that this represents alluvium laid down during flooding episodes across the floodplain of the river Lune. In most trenches no attempt was made to bottom this silt deposit but in Trench 1 it was excavated and was seen to be c 1m deep. The silt overlay gravel and was not waterlogged, suggesting that waterlogged deposits are unlikely to be represented anywhere on the site.

4.2 On the higher ground, along the south-eastern edge of the development and in its south-western corner the topsoil was seen to overlie a mixed deposit of glacially deposited gravel and boulders mixed in with sand. In some instances, particularly on the high ground forming the south-eastern boundary of the site, the topsoil overlying these deposits was extremely thin (Trench 33) and may have been subject to significant erosion. The truth of this was borne out by the evidence from Trench 32, which lay at the base of the high ground described above. Here, a depth of 1.2m of mixed sand and small pebbles was located beneath the topsoil and seen to overlie gravel similar to that seen on the hilltop. In all probability the material beneath the topsoil in Trench 32 represents hillwash or colluvium that has been washed off the hillside due to the effects of ploughing or other ground disturbance. This putative colluvial deposit, which was made up of coarsely sorted sand and pebbles, may be contrasted with the much finer alluvial silt found further to the north-west. No artefactual evidence was recovered from the colluvium to aid in the dating of the processes that led to its deposition.

4.3 The 'greenfield trenching' did, however, produce one piece of significant archaeological evidence: the hollow containing charcoal, slag, and burnt stone from Trench 47. The lack of dating evidence from the feature was disappointing but it seems to represent some form of primitive industrial-type activity on the edge of the river Lune's floodplain. The presence of small amounts of slag may be suggestive of primitive smelting of metal ores but, given the small quantities recovered, other explanations should, for the present, be borne in mind. If for instance salt or brackish water penetrated this far upstream in antiquity, small-scale salt making might be a possibility. Such questions cannot, however, be answered without further excavation. It should also be remembered that the feature, although close to the surface, was still sealed by silt. This provides a timely reminder that other features may lie within the silt at similar or greater depths, elsewhere on the floodplain.

4.4 The section across the extant field boundary in Trench 60 showed that it was not of the same antiquity as the banks around the enclosures. It may, however, represent a part of the medieval intake around Cottam's Farm.

4.5 The most significant evidence, however, has come from the targeted trenching carried out on the earthwork complex, which lies on the high ground straddling the south-eastern boundary of the site. The excavations, although limited to the south-western enclosure, and a portion of the northern one, were sufficient to demonstrate the presence of banks consisting of low rubble walls, laid directly on the natural ground surface. No trace of ditches associated with the enclosure banks was identified but the presence of small quantities of Roman pottery from the bank make-up and collapse indicates a Roman period date, possibly of late third or fourth century date.

4.6 The presence of significant colluvial deposits at the base of the high ground suggests probable ploughing in the past, which may explain the partially levelled state of the enclosure banks. Such putative disturbance, however, has not been sufficient to remove evidence of activity from the interior of the south-western enclosure. Thus, the two cut

features identified within the south-western enclosure may hint at the survival of structural evidence, perhaps with intact floor levels indicated by the spread of dark soil between the two cut features. This adds to the importance of the site and suggests that extensive, well-preserved deposits, of Roman date, survive within the enclosure complex.

4.7 The suggested date of the site can be stated with some confidence, however, the question of function is less clear cut. A military signal station has been suggested (SMR 2360) but the evidence from the evaluation perhaps suggests that a Roman period, native-style enclosure is a more likely explanation. Such a site may have housed an extended family group practising an essentially Iron Age lifestyle but under Roman administration. Many such sites have been identified in the Mersey valley by aerial photography and excavation (Cowell and Innes 1994, 208). As one of the major river valleys of north-west England, a similar pattern might be expected in the Lune valley. If this interpretation is correct, the site must be considered of significant regional importance given the quality of the preservation of its archaeological deposits, as demonstrated by this evaluation.

5. ARCHAEOLOGICAL RECOMMENDATIONS

5.1 It is clear that the archaeological evaluation carried out by LUAU has not demonstrated the existence of any significant archaeological remains across much of the area affected by the proposed development, and in those areas no further archaeological input will be required.

5.2 The exceptions to this statement concern the silt-filled burnt feature identified in Trench 47, close to the maximum extent of silt deposition, within the development area. The presence of slag fragments from the feature suggest attempts at iron working, but too little evidence was recovered to make definite statements at this stage. Current development proposals will undoubtedly destroy the feature and in these circumstances, more extensive excavation should be considered in the area of Trench 47. This should be undertaken in order to expose fully the feature, examine its function, and establish whether it is one of a cluster of such features on the floodplain edge. Studies might also be carried out on the sediments, in order to elucidate the depositional environment in the river valley at the time of the site's use. It is also possible that *foraminifera* analysis would establish the existence and degree of salinity in the water.

5.3 With regard to the earthworks on the high ground at the south-eastern boundary of the site, it must be emphasised that most of the earthwork complex lies just outside the development area. This has meant that only a small fragment of the relevant area has been examined. This has, however, produced significant evidence and current policy dictates that, wherever possible, identified sites of archaeological importance are preserved *in situ* as embodied in the Institute of Field Archaeologist's *Code of Conduct* and the Department of the Environment's *Planning Policy Guidance Note 16 Archaeology and Planning*. If, however, development was to proceed on this threatened fragment, it should on academic grounds, involve excavation of the whole of the complex. Examination of a major portion of the south-western enclosure and a fragment of the northern one would be difficult to justify. In these circumstances a mitigation strategy might be favoured. Ideally this could involve moving the boundary of the development area some distance to the north-east, in order to avoid damage to the monument.

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ILLUSTRATIONS

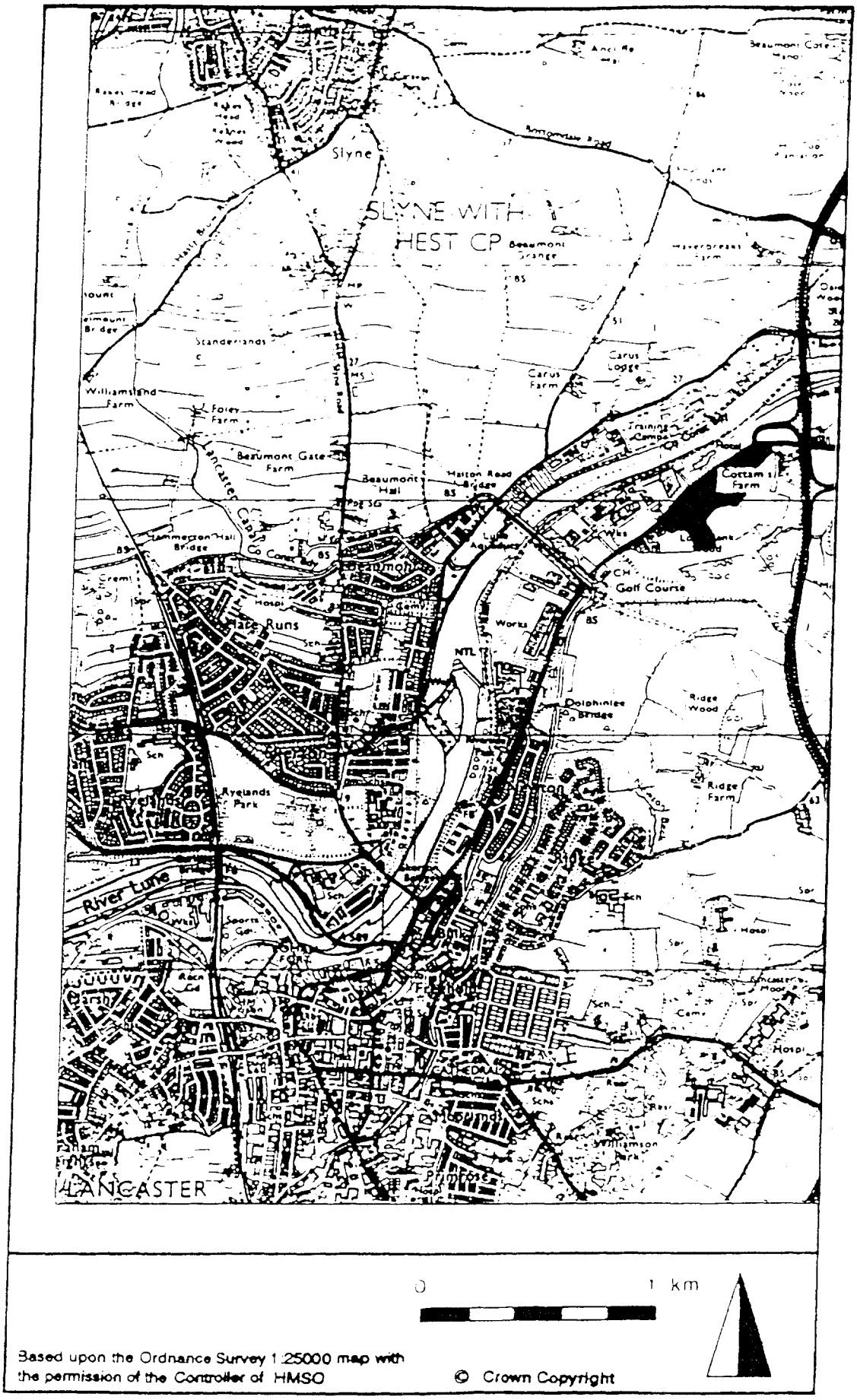

Figure 1 Site Location Map

APPENDIX 1
DETAILED TRENCH DESCRIPTIONS

GREENFIELD TRENCHES

TRENCH 1

Alignment	**East/West**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown silty loam topsoil with an average depth of 0.3m, with a layer of light yellowish silt below 0.32m in depth. The silt overlay natural gravels which were excavated to a maximum depth of 1.2m below modern ground surface.

Features

A wide gauge alkathene water main was located at the eastern end of the trench. This cut the southern section of the trench at 0.50m from the eastern end.

TRENCH 2

Alignment	**East/west**
Length	**31m**
Width	**1.5m**

Description

The section showed 0.2m of very dark brown organic silty loam above a layer of pinky brown silt, containing occasional sub-rounded stones which became more frequent (40%) towards the western end of the trench.

Features

None.

TRENCH 3

Alignment	**East/west**
Length	**16.5m**
Width	**1.5m**

Description

The section showed a layer of dark brown organic silty loam 0.18m to 0.23m in depth, overlying a reddish brown silty loam containing 35% small to medium sized sub-rounded cobble type stones

Features

None.

TRENCH 4

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown silty loam topsoil averaging 0.13m to 0.18m in depth overlying a layer of coarse gravelly material in a matrix of red brown silt (15%)

Features

None

TRENCH 5

Alignment	**North-east/south-west**
Length	**31m**
Width	**1.5m**

Description

The section showed a layer of dark brown silty loam, 0.21m to 0.18m in depth, above a natural pale brown silt.

Features

None.

TRENCH 6

Alignment	**North-east/south-west**
Length	**16.2m**
Width	**1.5m**

Description

The section showed a very dark brown silty loam topsoil 0.27m to 0.34m in depth above a layer of natural pale brown silt.

Features

None.

TRENCH 7

Alignment	**East/west**
Length	**17.5m**
Width	**1.5m**

Description

The section showed a dark brown organic silty loam topsoil 0.43m to 0.38m in depth overlying a pale brown silt containing 3% small sub-rounded stones.

Features

None

Trench 8

Alignment	**East/west**
Length	**31.5m**
Width	**1.5m**

Description

The trench section showed a dark brown organic silty loam 0.17m to 0.23m in depth overlying a pale pinky brown, stone free silt.

Features

None

Trench 9

Alignment	**East/west**
Length	**31m**
Width	**1.5m**

Description

The section showed a layer of dark brown organic silty loam 0.23m to 0.18m in depth, overlying a layer of pale brown silt with very occasional sub-rounded stone. Between 16.7m and 17.8m from the eastern end of the trench the top of a gravel horizon was exposed.

Features

None.

Trench 10

Alignment	**East/west**
Length	**31.3m**
Width	**1.5m**

Description

The section showed a layer of dark brown silty loam 0.23m to 0.18m deep above a very fine pale brown silt. Between 5.8m and 8.4m from the eastern end of the trench a gravel horizon was exposed.

Features

None.

Trench 11

Alignment	**East/west**
Length	**30.2m**
Width	**1.5m**

Description

The section showed 0.38m to 0.22m of dark brown organic loam overlying a pale, almost stone free silt.

Features

None.

Trench 12

Alignment	**East/west**
Length	**29.7m**
Width	**1.5m**

Description

The section showed a dark brown organic loam 0.21m to 0.17m in depth, overlying a layer of pale brown silty loam containing 40% water-worn stones.

Features

None.

Trench 13

Alignment	**North-east/south-west**
Length	**28.7m**
Width	**1.5m**

Description

The section showed a dark brown silty loam topsoil 0.21m to 0.34m in depth above a layer of pale brown silt.

Features

None.

Trench 14

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of dark brown silty loam topsoil 0.13m to 0.22m in depth above a pale brown silt with 3% water-worn stones.

Features

None.

Trench 15

Alignment	**East/west**
Length	**31.4m**
Width	**1.5m**

Description

The section showed a dark brown silty loam topsoil, 0.17m to 0.25m deep. At the eastern end of the trench the loam overlay a gravel deposit in a matrix of mid brown sand, changing to a less stony layer of light brown sandy loam at the western end of the trench.

Features

None.

Trench 16

Alignment	**East/west**
Length	**32.8m**
Width	**1.5m**

Description

The section showed a very dark brown sandy loam 0.17m to 0.25m in depth above a layer of orangey brown sandy loam containing 40% small to medium sized water-worn stones

Features

None

Trench 17

Alignment	**East/west**
Length	**29.3m**

Width 1.5m

Description

The section showed a very dark brown organic sandy loam topsoil, 0.18m to 0.23m deep, above a layer of gravel comprising very small (less than 10mm x 10mm) to medium-sized water-worn stones.

Features

None.

Trench 18

Alignment	**North-west/south-east**
Length	**29.7m**
Width	**1.5m**

Description

The section showed a dark brown organic sandy loam 0.27m to 0.13m deep above gravel similar to that in Trench 17.

Features

None.

Trench 19

Alignment	**North-east/south-west**
Length	**33.8m**
Width	**1.5m**

Description

The section showed a dark brown organic sandy loam topsoil 0.19m to 0.27m deep, overlying gravel as seen in Trenches 17 and 18.

Features

None.

Trench 20

Alignment	**North-west/south-east**
Length	**29.7m**
Width	**1.5m**

Description

The section showed a very dark organic sandy loam topsoil 0.17m to 0.26m deep above gravel as described in Trench 17.

Features

None.

Trench 21

Alignment	**East/west**
Length	**28.7m**
Width	**1.5m**

Description

The section showed a dark brown organic sandy loam topsoil 0.19m to 0.28m deep above a layer of gravel as described in Trench 17.

Features

None.

Trench 22

Alignment	**East/west**
Length	**30.2m**
Width	**1.5m**

Description

The section showed a dark brown organic silty loam topsoil with an average depth of 0.26m above a natural orange/brown silt containing 45% very small to medium-sized water-worn stones (maximum 0.22m x 0.23m x 0.17m).

Features

None

Trench 23

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The stratigraphy is similar to Trench 22 with 0.17m to 0.33m of dark brown organic sandy loam above an orangey brown silt matrix containing 50% small to medium-sized water-worn stones.

Features

None.

Trench 24

Alignment	**North-east/south-west**
Length	**26m**
Width	**1.5m**

Description

The section showed a layer of dark brown organic sandy loam 0.16m to 0.23m in depth. For a distance of 9.5m, measured from the north-eastern end of the trench, the loam covered an orangey brown silt containing small to medium-sized sub-rounded stones (25%). The stone content increased gradually making up 60% of the deposit at the south-western end of the trench with some larger cobbles (0.27 x 0.13 x 0.17m).

Features

None

Trench 25

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a sandy dark brown loam topsoil 0.26m to 0.34m deep above a layer of small to medium grade gravels (70%) in an orangey brown sandy loam matrix.

Features

Between 17m and 19m from the northern end of the trench is a shallow, 0.12m deep depression in the gravels. It is filled with a very fine silty friable clay and medium-sized cobbles (70%). It seems most likely that the feature is a 'French' drain' formed by making a cut into the ground, and filling it with large stones. No artefacts were recovered.

Trench 26

Alignment	**East/west**
Length	**30m**
Width	**1.5m**

Description

The section showed a stony, dark brown organic 0.27m to 0.32m in depth above an orange/red silt containing 65% very small to medium-sized water-worn stones.

Features

None.

Trench 27

Alignment	**North-west/south-east**
Length	**31m**
Width	**1.5m**

Description

The section showed a layer of dark organic sandy loam topsoil 0.18m to 0.24m deep above an orange/brown silt containing 40% small to medium-sized sub-rounded stones.

Features

None.

Trench 28

Alignment	**North-west/south-east**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown silty loam topsoil, 0.11m to 0.27m deep, above a layer of small to medium-sized water-worn stones in an orangey brown silt matrix.

Features

None.

Trench 29

Alignment	East/west
Length	25.6m
Width	1.5m

Description

The section showed a dark brown sandy loam topsoil, 0.26m to 0.34m in depth, above an orangey brown silt containing 40% medium to small-sized gravels.

Features

None.

Trench 30

Alignment	**East/west**
Length	**30m**
Width	**1.5m**

Description

The section showed a mid to dark brown sandy loam topsoil 0.27m to 0.32m deep, above an orange/brown silt containing 40% river-worn stones.

Features

None.

Trench 31

Alignment	**East/west**
Length	**31m**
Width	**1.5m**

Description

The section showed a similar stratigraphy to Trench 30 with 0.19m to 0.24m of dark brown sandy loam over orange/brown silt with 60% gravel.

Features

None.

Trench 32

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown sandy loam 0.18m to 0.22m deep above an orange/brown silty colluvium containing 20% small to medium gravels. A 4m long sondage cut at the south-western end of the trench demonstrated that the colluvium continued to a depth of 0.8m, overlying gravels.

Features

None.

Trench 33

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown organic silty loam topsoil with an average depth of 0.27m, over a layer of orange brown colluvium containing up to 80% small to medium-sized gravels.

Features

None.

Trench 34

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of dark brown organic silty loam, 0.26m in depth, above orange brown colluvium with 35% medium to small water-worn and sub-angular stones.

Features

None.

Trench 35

Alignment	**North-west/south-east**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of dark brown silty loam topsoil, 0.24m to 0.35m in depth, above a mid-brown silty loam with very occasional small water-worn stones.

Features

None.

Trench 36

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of dark brown organic silty loam, between 0.21m and 0.28m in depth, over a layer of orange/brown silt.

Features

None.

Trench 37

Alignment	**East/west**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of mid to dark brown silty organic loam, between 0.21m and 0.27m in depth, above an orange brown silt.

Features

None.

Trench 38

Alignment	**East/west**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of mid to dark brown silty organic loam, between 0.26m and 0.29m in depth, above an orange brown silt.

Features

None

Trench 39

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of brown silty loam topsoil (0.3m deep) above a clean light brown silt with occasional stones

Features

None.

Trench 40

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a dark brown silty loam (0.3m deep) overlying mixed silt and gravel deposits.

Features

3m from the south-western end of the trench was a band of rocks 1.5m wide, thought to represent a grubbed-out hedge line.

Trench 41

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a very dark brown sandy loam topsoil, 0.16m to 0.27m in depth, above orange brown silt with very small to medium-sized gravels

Features

An old iron water pipe runs across the south-western end of the trench

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Trench 42

Alignment	North-east/south-west
Length	28.6m
Width	1.5m

Description

The section shows a layer of mid-brown organic silty loam, 0.14m to 0.21m in depth, above an orangey brown silt with occasional small sub-rounded and sub-angular stones.

Features

None

Trench 43

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of mid brown organic sandy loam (0.3m deep) with occasional small to medium pebbles, above an orangey brown colluvium.

Features

None.

Trench 44

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed a layer of dark brown silty loam, 0.24m to 0.28m in depth, overlying a mixed layer of orangey brown silty loam (20%) and very small to medium-sized gravels.

Features

None.

Trench 45

Alignment	**North/south**
Length	**30m**
Width	**1.5m**

Description

The section showed a 0.27m to 0.34m deep layer of dark brown organic silty loam above mixed orange brown silt and small to medium grade gravels (80%).

Features

None.

Trench 46

Alignment	**North-east/south-west**
Length	**30m**
Width	**1.5m**

Description

The section showed mid-brown silty loam (0.3m deep) above a clean, stone-free light brown silt.

Features

None

Trench 47

Alignment	East/west
Length	30m
Width	1.5m

Description

The section showed a dark brown silty loam topsoil with an average depth of 0.32m. In the western end of the trench was a layer of small to medium gravels which continued for 14.6m, giving way to a layer of pale orange silt.

Features

A circular cut (1.8m diameter) feature between 14.8m and 17.6m (from western end) was filled with some charcoal, burnt stone, and slag. No dating evidence was recovered.

Trench 48

Alignment	North-east/south-west
Length	30m
Width	1.5m

Description

The section showed a mid-brown silty loam (0.3m deep) above a clean stone-free layer of light brown silt.

Features

None.

Trench 49

Alignment	North-east/south-west
Length	30m
Width	1.5m

Description

Identical to 48.

Features

None

Trench 50

Alignment	North east/south-west
Length	30m
Width	1.5m

Description

Identical to Trench 48

Features

None

Trench 51

Alignment	North-west/south-east
Length	20m
Width	1.5m

Description

The section showed a dark brown silty loam (0.3m deep) above a mixed orange brown silt and gravel deposit.

Features

None.

Trench 52

Alignment	**North-west/south-east**
Length	**10m**
Width	**1.5m**

Description

The section showed a thin layer of dark brown silty loam (0.3m deep) above a mixed deposit of stone and mid-brown silt.

Features

None.

Trench numbers 53, 54 and 55 were not used.

TARGETED TRENCHES

Trench 56 (Fig 4)

Alignment	**North/south**
Length	**18m**
Width	**1.5m**

Description

This trench was cut from the crest of the western bank of the northern enclosure, towards the hillside, and across most of the trench natural gravel was exposed. At the northern end, however, rubble was exposed, overlying natural. The rubble produced five sherds of Roman mortaria, of late third or fourth century date, and is likely to represent material derived from the collapse and spread of the enclosure bank. At the southern end of the trench a pronounced break of slope was originally thought to be a ditch. This, however, lay 15m from the collapsed bank and is more likely to represent a natural topographical feature, subsequently buried by hillwash.

Trench 57 (Fig 4)

Alignment	**North-east/south-west**
Length	**20m**
Width	**1.5m**

Description

This trench was cut wholly across the interior of the south-western enclosure. Across much of the trench natural gravel was exposed but, at the south-western end, a spread (8m across) of darker, charcoal-rich loam overlying more regular cobbles and containing Roman pottery was identified. This was defined at its north-eastern end by a shallow gully filled with burnt soil, which extended across the trench, and at the other end by a steep-sided slot or gully, which terminated in the trench. This feature was also filled with burnt material, including numerous fragments of burnt clay or daub. Four pieces of Roman ceramic, including an amphora chip, were recovered from the trench. None, however, was closely datable.

Trench 58 (Figs 4, 5)

Alignment	**North-west/south east**
Length	**19m**
Width	**1.5m**

Description

This trench was cut through the interior of the south-western enclosure and across its western bank. No convincing features were found within the enclosure although there was a suggestion of remnant cobbling at the south-western end of the trench and a single sherd of Roman pottery was recovered from the surface of the natural gravel. The bank, however was seen to consist of boulders, resting on the natural, sealed by rubble. Some of this latter material was *in situ* but much of it had collapsed downslope. Roman pottery was also recovered from this deposit, and appeared to be of fourth century date.

Trench 59 (Fig 4)

Alignment	**East/west**
Length	**14m**

Width 1.5m

Description

Machining of the topsoil revealed natural gravel and no real trace of the southern boundary of the south-western enclosure. This may have been ploughed away or the rise visible in the field may represent a natural break of slope.

Trench 60 (Figs 4, 5)

Alignment	East/west
Length	9.3m
Width	1.5m

Description

This trench was cut across a modern field boundary to the north of the earthwork complex, in order to compare the form of the bank, in comparison with those of the enclosures. Dating evidence and traces of buried ground surfaces were also sought, although neither was forthcoming. The bank was seen to consist of a loose accumulation of earth, stones, and boulders, standing 0.5m high and resting on natural gravel. This can be contrasted with the tightly packed rubble seen in the sections through the enclosure banks.

Trench 61 (Fig 4)

Alignment	North-east/south-west
Length	2m
Width	2m

Description

Removal of the topsoil revealed a layer of rubble, *c* 0.15m thick, overlying natural gravel. The rubble appears to be the remains of collapsed bank, at the south-west corner of the northern enclosure.

APPENDIX 2
THE FINDS

Lancaster Business Park: L97/007

Catalogue

Trench	Description	Date
1	One fragment clay pipe stem One vessel fragment, redware with white interior slip and colourless glaze	Nineteenth century
2	One fragment mid-grey flint, possibly blade core or waste	Prehistoric
3	-	-
4	One fragment clay pipe stem One vessel fragment redware	Nineteenth century
5	Two small vessel fragments white earthenware One vessel fragment hand-painted white earthenware One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment painted white earthenware One vessel fragment stoneware One vessel fragment dark green glass mould-blown beer bottle	Late nineteenth century Nineteenth century Late nineteenth/Early twentieth century
6	-	-
7	One vessel fragment grey stoneware Two vessel fragments redware with slip-trailed lines and colourless glaze One vessel fragment redware, black glaze Two vessel fragments blue and white underglaze transfer-printed earthenware Two vessel fragments creamware One vessel fragment pearlware One vessel fragment cream yellow earthenware One vessel fragment secondary fired One vessel fragment dark green brown wine/beer bottle	Nineteenth century Nineteenth century Nineteenth century Early nineteenth century Mid-late eighteenth century Late eighteenth century Late eighteenth century
8	One fragment clay pipe bowl One vessel fragment creamware	Late eighteenth century-Early nineteenth century
9	One fragment clay pipe stem One fragment flower pot Two vessel fragment redware with colourless glaze One vessel fragment dark green brown glass wine beer bottle 2 cockle valves, *Cerastoderma edule*	Nineteenth century Late eighteenth - Early nineteenth century

10	One fragment clay pipe stem One vessel fragment white earthenware One vessel fragment bluish-white glazed earthenware - tin-glazed? One vessel fragment redware, black glaze One vessel fragment redware, very hard-fired, internal black glaze very bubbly - probably waster. Jar or jug base	Eighteenth century Nineteenth century Eighteenth or Nineteenth century
11	One vessel fragment brown (Notts) stoneware One vessel fragment blue and white underglaze transfer-printed earthenware	Eighteenth century Late eighteenth Nineteenth century
12	One fragment clay pipe stem One vessel fragment late slip-decorated earthenware, beige fabric with blue, brown, white swirled decoration	Early nineteenth century
13	Two vessel fragments clay pipe stem One fragment plain clay pipe bowl One vessel fragment beige earthenware One vessel fragment white earthenware One vessel fragment white china One vessel fragment late brown stoneware One vessel fragment blue and white slip-decorated earthenware One vessel fragment redware, black glaze One vessel fragment dark olive green glass wine/beer bottle One vessel fragment opaque white glass One fragment colourless sheet window glass One fragment soft-fired brick	Eighteenth century Nineteenth century Nineteenth century Nineteenth century Nineteenth century Nineteenth century Nineteenth century Late eighteenth century Twentieth century Twentieth century
14	One fragment clay pipe stem Four vessel fragments creamware Two vessel fragments late grey stoneware One vessel fragment white salt-glazed stoneware One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment redware, slip trailed colourless glaze One fragment modern sheet glass	Mid-late eighteenth century Eighteenth century Late eighteenth/ Nineteenth century Nineteenth century Twentieth century
15	One fragment clay pipe stem One vessel fragment redware, black glaze Four vessel fragments white china (diamond mark) One vessel fragment pearlware One vessel fragment pearlware plate with blue shell edge	Nineteenth century Nineteenth century Late eighteenth Nineteenth century Late eighteenth century
16	Three fragments clay pipe stem (one roller stamped) One vessel fragment redware, slip decorated, colourless glaze One vessel fragment late grey stoneware Two vessel fragments pearlware Two vessel fragments creamware Two vessel fragments white earthenware (black printed) Five vessel fragments blue and white underglaze transfer-printed earthenware One vessel fragment pearlware with blue shell edge One fragment sheet window glass	Nineteenth century Nineteenth century Late eighteenth century Mid-late eighteenth century Nineteenth century Late eighteenth Nineteenth century Late eighteenth century Nineteenth century

17	One vessel fragment cream fabric with black internal glaze One vessel fragment redware, colourless glaze One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment white bone china One vessel fragment natural bluish mould-blown bottle One fragment bluish sheet glass	Nineteenth century Nineteenth century Late eighteenth Nineteenth century Nineteenth century Late nineteenth Early twentieth century Nineteenth century
18	One vessel fragment white salt-glazed stoneware One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment printed white earthenware One fragment very hard-fired ?quarry tile	Late eighteenth century Late eighteenth Nineteenth century Late nineteenth century
19	One vessel fragment white china One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment opaque white glass	Nineteenth Twentieth century Nineteenth/ Twentieth century Twentieth century
20	One vessel fragment late grey stoneware One vessel fragment redware, black glaze One vessel fragment white earthenware blue shell edge One vessel fragment late slip decorated white earthenware One vessel fragment creamware fabric with thick blue glaze	Nineteenth century Nineteenth century Late eighteenth century Nineteenth century Nineteenth century
21	Three vessel fragments white earthenware (includes tea cup)	Nineteenth century
22	One vessel fragment brown (Notts) stoneware Three vessel fragments greyish paste porcelain One vessel fragment redware with white slip and glaze Three vessel fragments redware, black glaze One vessel fragment redware with slip trailed decorated and colourless glaze One vessel fragment green and white underglaze transfer-printed earthenware Three vessel fragments pearlware Two vessel fragments creamware One vessel fragment cream yellow earthenware One fragment sheet glass	Eighteenth century? Eighteenth Nineteenth century Nineteenth century Nineteenth century Nineteenth century Late eighteenth Nineteenth century Late eighteenth century Nineteenth century Nineteenth Twentieth century

23	One fragment clay pipe stem One vessel fragment grey stoneware Three vessel fragments redware One vessel fragment creamware One vessel fragment bone china Five vessel fragments white earthenwares Two vessel fragments blue and white underglaze transfer-printed earthenware One vessel fragment china, blue glaze One vessel fragment fully reduced green-glazed ware One vessel fragment natural bluish glass One vessel fragment brown glass	Nineteenth century Nineteenth century Mid-late eighteenth century Nineteenth century Nineteenth century Late eighteenth century Nineteenth century Fourteenth-Sixteenth century Nineteenth century Nineteenth Twentieth century
24	One vessel fragment grey stoneware One vessel fragment white earthenware One vessel fragment modern colourless glass One fragment abraded long-bone	Late nineteenth /Early twentieth century Twentieth century? Twentieth century
25	One fragment clay pipe stem One vessel fragment grey stoneware Two vessel fragments china Six vessel fragments white earthenwares	Nineteenth century Nineteenth century Nineteenth century
26	Three fragments clay pipe stem Two vessel fragments salt-glazed sanitary wares One vessel fragment redware, colourless glaze One vessel fragment grey stoneware	Nineteenth century Nineteenth century Nineteenth century
27	One fragment clay pipe stem One vessel fragment redware, very laminated fabric, thick black glaze One vessel fragment thin, hard-fired redware, black glaze Two vessel fragments creamware One vessel fragment blue and white underglaze transfer-printed pearlware Two fragments brick Two modern golf balls	Mid-late eighteenth Nineteenth century Eighteenth century Late eighteenth Nineteenth century Late eighteenth/ Early nineteenth century 1990s
28	Four vessel fragments redware, colourless glaze One vessel fragment modern substance, unidentified	Nineteenth century Twentieth century
29	Four vessel fragments redware with colourless speckled glaze One vessel fragment bluish blue and white underglaze transfer-printed earthenware One vessel fragment white earthenware imitating scratch blue	Early nineteenth century Late eighteenth Early nineteenth century Early nineteenth century?

30	One vessel fragment Westerwald stoneware (cobalt blue and sgraffito decoration) One vessel fragment cream yellow earthenware Two vessel fragments heat affected ?white earthenware One fragment thin colourless sheet glass	Mid eighteenth century Nineteenth century Twentieth century
31	One vessel fragment redware, black glaze, highly laminated fabric One vessel fragment redware, glaze missing One vessel fragment redware, slip decorated, colourless glaze Three vessel fragments blue and white underglaze transfer-printed earthenware	Nineteenth century Nineteenth century Nineteenth century Late eighteenth Nineteenth century
32	One vessel fragment redware, colourless glaze. Jug?	Nineteenth century
33	Two vessel fragments blue and white underglaze transfer-printed earthenware	Late eighteenth Nineteenth century
34	Two vessel fragments creamware One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment redware, black glaze One fragment coke	Mid-late eighteenth century Late eighteenth Nineteenth century Nineteenth century
35	One fragment clay pipe stem One vessel fragment redware, colourless glaze Three vessel fragments blue and white underglaze transfer-printed earthenware Two vessel fragments blue and white tin glaze One vessel fragment china Six vessel fragments white earthenware	Nineteenth century Late eighteenth Nineteenth century Eighteenth century[29] Nineteenth century
36	-	-
37	One fragment clay pipe stem One vessel fragment white earthenware blue shell edge plate One vessel fragment redware, black glaze One vessel fragment redware, colourless glaze One vessel fragment redware, highly laminated fabric One vessel fragment secondary fired white stoneware Two vessel fragments blue and white underglaze transfer-printed earthenware One vessel fragment earthenware, blue exterior, white interior One fragment brick One fragment natural very pale green sheet window glass	Late eighteenth century Nineteenth century Nineteenth century Nineteenth century Late eighteenth century Late eighteenth Nineteenth century Nineteenth century Nineteenth century
38	-	-
39	One fragment clay pipe stem One vessel fragment white salt-glazed stoneware Two vessel fragments creamware One vessel fragment late grey stoneware One vessel fragment dark olive green glass wine beer bottle One vessel fragment dark olive green glass wine beer bottle One vessel fragment (approx. half) pipe clay wig curler, stamped WB beneath a debased crown	Mid-late eighteenth century Mid-late eighteenth century Nineteenth century Nineteenth century Late eighteenth century 1700 - 1780

40	-	-
41 (subsoil)	One fragment clay pipe bowl, plain with short spur One vessel fragment redware, black glaze, jug lip	1700 - 1770 Eighteenth century
41 (top subsoil)	Two fragments clay pipe stem One vessel fragment redware, slip decorated, colourless glaze Four vessel fragments pearlware Two vessel fragments blue fabric and glaze One vessel fragment white earthenware One vessel fragment redware, colourless glaze One vessel fragment redware black glaze One vessel fragment redware, black glaze chamber pot	Nineteenth century Nineteenth century Late eighteenth Nineteenth century Nineteenth century Nineteenth century Nineteenth century Nineteenth century Late eighteenth century
42	One vessel fragment cream yellow earthenware Five vessel fragments redware, black glaze One vessel fragment salt-glazed stoneware One vessel fragment unglazed redware with slip decorated Two vessel fragments ??tin-glazed - thick opaque blue-white glaze with dark blue decoration on very soft cream fabric One vessel fragment hand painted tin-glazed ware? One vessel fragment white ware, with printed overglaze decoration Eight vessel fragments blue and white underglaze transfer-printed earthenware One vessel fragment earthenware, bluish glaze with dark vertical stripes	Nineteenth century Nineteenth century Mid-late eighteenth century Nineteenth century Eighteenth century? Eighteenth century? Nineteenth century Late eighteenth Nineteenth century Nineteenth century
43	Two vessel fragments redware, black glaze One vessel fragment redware, colourless glaze One vessel fragment creamware One vessel fragment white salt-glazed stoneware Four vessel fragments blue and white underglaze transfer-printed earthenware Four vessel fragments white earthenware	Nineteenth century Nineteenth century Mid-late eighteenth century Mid-late eighteenth century Late eighteenth Nineteenth century
44	Three vessel fragments redware, slip decorated, colourless glaze One vessel fragment redware, black glaze One vessel fragment blue and white underglaze transfer-printed earthenware One vessel fragment white earthenware One vessel fragment dark olive green glass wine beer bottle	Nineteenth century Nineteenth century Late eighteenth Nineteenth century Nineteenth century Late eighteenth Early nineteenth century
45	One vessel fragment grey glazed earthenware One vessel fragment creamware	Nineteenth century Mid-late eighteenth century
46	-	-
47	Three fragments smithing slag	
48	-	-
49	-	-
50	-	-
51	-	-
52	-	-

56	Five joining vessel fragments, mortarium, white fabric with black trituration grits	Third/Fourth century
57	Seven fragments charcoal One chip amphora fabric One fragment highly fired clay One vessel fragment ?greyware Three fragments coal One fragment winkle shell *L littoralis* Two small fragments ?forging slag Four fragments ironwork, highly corroded, not identifiable Five very small fragments fired clay Two vessel fragments vessel very soft sandy fabric, oxidised surfaces with reduced pale grey centre	 Romano-British Romano-British Romano-British?
57 (fill 4, cut 5)	16 fragments highly fired clay, probably from hearth or kiln-type structure, imprints of small rounded stones, organic temper and small laths.	
58	One fragment worked stone	
58 (cobbles east end)	One vessel fragment, rim calcite gritted, probably Huntcliff ware One vessel fragment oxidised fabric One vessel fragment, natural blue green glass, rim of prismatic? mould blown vessel	Fourth century Romano-British First to third century
59	-	-
60	-	-
61	Two fragments (joining) pierced iron strap One vessel fragment oxidised salmon pink sandy fabric	 Romano-British

Trench summaries

Trench 1: two fragments were recovered, both are fairly undiagnostic nineteenth century material.

Trench 2: a single fragment of flint, probably debitage, was recovered. This probably represents 'background noise'.

Trench 3: no finds.

Trench 4: two fragments were recovered, both are fairly undiagnostic nineteenth century material.

Trench 5: seven fragments were recovered. Most derive from common domestic table and kitchen ceramic wares of late nineteenth century date, the date being confirmed by the presence of an embossed green glass beer bottle clearly blown in a multi-piece mould; this form of manufacture was developed in the late nineteenth century and continued in common use into the twentieth.

Trench 6: no finds.

Trench 7: 12 fragments were recovered, mostly deriving from common domestic table and kitchen ceramic wares of later eighteenth century or nineteenth century date. The single fragment of a dark olive green wine bottle is clearly from a late eighteenth century form of this vessel.

Trench 8: two fragments were recovered. One, a clay pipe stem fragment is fairly undiagnostic, whilst the other, a small fragment of creamware, suggests a mid to late eighteenth century date.

Trench 9: seven fragments were recovered, including clay pipe stems, and flowerpot. Undiagnostic kitchen wares suggest a general nineteenth century date, perhaps refined by a wine bottle fragment of late eighteenth to early nineteenth century form. Two small cockle shells presumably reached the site in either domestic food debris, or through the use of seaweed as manure, Morecambe Bay being an obvious source for the latter.

Trench 10: five fragments were recovered, mostly deriving from common domestic table and kitchen ceramic wares of later eighteenth or nineteenth century date. One fragment may be from an earlier eighteenth century tin-glazed vessel, and another, a jug or jar base in a very high-fired redware, with badly over-fired glaze, is probably a waster from a local production site. As, however, the vessel appears to have remained usable and therefore saleable, it is not possible to suggest the immediate proximity of a kiln site.

Trench 11: two fragments were recovered, both fairly undiagnostic late eighteenth to nineteenth century material.

Trench 12: two fragments were recovered, both fairly undiagnostic nineteenth century material.

Trench 13: 13 fragments were recovered, deriving, in the main, from table and kitchen ceramic wares of late nineteenth and twentieth century date.

Trench 14: 11 fragments were recovered. The group is mixed with tablewares of mid - late eighteenth century date, including white salt-glazed stoneware, and modern sheet window glass.

Trench 15: eight fragments were recovered, all deriving from table and kitchen ceramic wares of later eighteenth and nineteenth century date.

Trench 16: 18 fragments were recovered, most deriving from table and kitchen ceramic wares of later eighteenth and nineteenth century date. One of the four fragments of clay tobacco pipe stem bears faint roller-stamped decoration.

Trench 17: six fragments were recovered, all, including vessel and window glass, of nineteenth century date.

Trench 18: four fragments were recovered, all fairly undiagnostic nineteenth century material.

Trench 19: three fragments were recovered, all of later nineteenth or twentieth century date.

Trench 20: five fragments were recovered, all fairly undiagnostic late eighteenth or nineteenth century material.

Trench 21: three fragments were recovered, all fairly undiagnostic nineteenth century ceramic table wares.

Trench 22: 17 fragments were recovered, most fairly undiagnostic later eighteenth and nineteenth century material.

Trench 23: 18 fragments were recovered, which form a mixed group for the most part dating to the later eighteenth century or later. There is, however, a single fragment of medieval pottery, a fully reduced green-glazed ware fragment, of fourteenth century or later date. The fragment is much abraded and likely to have been deposited via an agricultural vector.

Trench 24: four fragments were recovered, all late in date, probably twentieth century. The group includes a single fragment of badly abraded animal long bone.

Trench 25: six fragments were recovered, all fairly undiagnostic nineteenth century material.

Trench 26: six fragments were recovered. Apart from salt-glazed drains, all are fairly undiagnostic nineteenth century material.

Trench 27: ten fragments were recovered, apart from two golf balls (vintage 1990s) all are fairly undiagnostic late eighteenth to nineteenth century table and kitchen ceramic wares.

Trench 28: five fragments were recovered, all fairly undiagnostic nineteenth century material.

Trench 29: six fragments were recovered. Mostly fairly undiagnostic, perhaps early nineteenth century material. One small bowl fragment is, or imitates, late scratch blue wares, and may thus be of late eighteenth century date.

Trench 30: five fragments were recovered, mostly fairly undiagnostic nineteenth or twentieth century material. There is, however, a single relatively large fragment of late German stoneware, probably from Westerwald, decorated in cobalt blue, which is probably of mid-eighteenth century date.

Trench 31: six fragments were recovered, all fairly undiagnostic nineteenth century material.

Trench 32: one fragment was recovered; it derived from a redware jug of late date, probably nineteenth century.

Trench 33: two fragments were recovered, both fairly undiagnostic nineteenth century material.

Trench 34: five fragments were recovered. Four are of mid-late eighteenth or nineteenth century date, the fifth is a small fragment of cinder or coke.

Trench 35: 14 fragments were recovered, most fairly undiagnostic nineteenth century material. Two fragments may be tin-glazed, and therefore of eighteenth century date.

Trench 36: no finds.

Trench 37: 11 fragments were recovered, all fairly undiagnostic late eighteenth to nineteenth century material.

Trench 38: no finds.

Trench 39: eight fragments were recovered, the majority of this group appearing to date to the eighteenth century. They include a dark olive green wine bottle of later eighteenth century form, a fragment of fine white salt-glazed stoneware, and approximately half of a pipe clay wig curler, dated 1700-1780.

Trench 40: no finds.

Trench 41: 13 fragments were recovered from topsoil subsoil, and a further two from subsoil. Most are fairly undiagnostic nineteenth century material. The material from the subsoil, however, comprises a clay pipe bowl of eighteenth century form (1700-1770), and part of an eighteenth century redware jug, and amongst the other group is part of the rim of a black-glazed redware chamber pot of late eighteenth century form, together perhaps suggesting a significant eighteenth century component to the group.

Trench 42: 21 fragments were recovered, all fairly undiagnostic late eighteenth to nineteenth century material.

Trench 43: 13 fragments were recovered, mostly fairly undiagnostic nineteenth century material. There are, however, fragments of creamware, and of white salt-glazed stoneware, which can be dated to the mid-late eighteenth century.

Trench 44: seven fragments were recovered, mostly fairly undiagnostic nineteenth century material. There is a single fragment of dark olive green wine bottle of later eighteenth century form.

Trench 45: two fragments were recovered, both fairly undiagnostic mid-late eighteenth to nineteenth century material.

Trench 46: no finds.

Trench 47: three fragments were recovered, all smithing slag.

Trench 48: no finds.

Trench 49: no finds.

Trench 50: no finds.

Trench 51: no finds.

Trench 52: no finds.

Trench 56: five joining fragments of the base of a single worn Romano-British mortarium were recovered. The fabric and nature of the trituration grits suggest a later third or fourth century date. Although abraded, the presence of several joining fragments of a vessel broken in antiquity suggests that it has not moved far from its original place of deposition.

Trench 57: 44 fragments were recovered, of which only four derived from ceramic vessels; the remainder included incidentally fired clay, charcoal and coal. A small group of fragments of fired clay was recovered from fill 4 of cut feature 5; all have been fired to a very high temperature, suggesting that they may originally have formed part of a structure such as a hearth or kiln. The fragments, although small, retained imprints of small rounded stones and organic material used as a temper in the original material, and imprints of narrow wooden laths clearly derive from a structural element, possibly framework, of the structure. The fragments of ceramic vessel were all small and abraded, one may have been a chip of amphora, the others possibly locally produced greyware, one possibly refired. Other material included slag, small fragments of ironwork, and a

winkle shell. Although poorly preserved, the group suggests an unequivocal Romano-British presence in this area.

Trench 58: four fragments were recovered. Two are from ceramic vessels, one the rim of a jar in calcite-gritted fabric, probably Huntcliff ware, of fourth century date; the other is undiagnostic although without doubt Romano-British. There is also part of the turned-out rim of a glass storage bottle, probably mould-blown, of first to third century date. The fourth fragment was of unworked stone.

Trench 59: no finds.

Trench 60: no finds.

Trench 61: three fragments were recovered. Two are of a single fragment of narrow pierced iron strap, the third a small and abraded fragment of a sandy oxidised fabric, probably Romano-British.

APPENDIX 3
PROJECT DESIGN

December 1996

Lancaster University Archaeological Unit

LANCASTER BUSINESS PARK, COTTAM'S FARM

LANCASTER

LANCASHIRE

ARCHAEOLOGICAL EVALUATION

Proposals

The following project design is offered in response to a request from Mr K Little of Wiggins Group plc. for an archaeological evaluation in advance of a proposed business park development at Cottam's farm, on the outskirts of Lancaster, Lancashire

1. INTRODUCTION

The site of proposed business park development at Cottam's Farm lies on the edge of modern Lancaster, within the medieval township of Bulk. Whilst well beyond the extent of Roman and medieval urban development, the general area has nevertheless provided evidence of prehistoric, and potentially Roman, activity, with major earthworks of possible Roman military origin being contained within the southern limit of the development area.

An initial archaeological assessment provided evidence not only of these earthworks but also demonstrated that there is the potential for sub-surface survival of material, particularly of prehistoric to medieval date. Consequently, discussions with the Lancashire Archaeology Service have resulted in a request for an archaeological evaluation, preferably in advance of the submission of a planning application. This should firstly assess the date and nature of the earthworks highlighted by the initial assessment, and also determine the presence or absence of any sub-surface remains in other parts of the site. Should deposits be found in these circumstances, then the quantity, period, and quality of such deposits should be assessed in the context of the surrounding landscape.

The Lancaster University Archaeological Unit has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects during the past 15 years. Evaluations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeologists (IFA) Code of Conduct. Work in the vicinity has included numerous assessments, evaluations, and excavations in Lancaster, and also on the nearby Shell Chemicals UK Ltd, North West Ethylene Pipeline.

2. OBJECTIVES

The following programme has been designed to provide an accurate archaeological evaluation of the designated area, within its broader context. The required stages to achieve these ends are as follows:

2.1 Field Evaluation

A limited programme of trial excavations will be undertaken to establish the nature and date, if possible, of the identified earthworks within the development area, and the presence or absence of archaeological deposits within other parts the study area, and then to assess the nature, extent, chronology, and preservation of any archaeological deposits encountered. Suitable samples recovered will be assessed for their palaeoenvironmental potential.

2.2 Evaluation Report

A written evaluation report will assess the significance of the data generated by this programme within a local and regional context. It will advise on the mitigation measures necessary to protect and or record (to appropriate levels) identified archaeological features and deposits, including any appropriate further evaluation, excavation, and recording strategies.

3. METHOD STATEMENT

The following work programme is submitted in line with the stages and objectives of the archaeological work summarised above.

3.1 Field Evaluation

3.1.1 Access
Liaison for basic site access will be undertaken with the client. The precise location of any services within the study area will also be established.

3.1.2 Intensive evaluation
Trial trenching will be required to target the two earthworks identified in the southern part of the development area, identified by documentary evidence (LUAU 1996) and also the distinctive field boundary that appears to truncate the eastern of them. The County Archaeology Service requires the excavation of six trenches of varying length, but consistent 1.6-1.8m width, totalling approximately 200m length. Their precise positions would be established in conjunction with the client and County Archaeology Service. The aim of this work would be to establish if possible the nature and date of the features, whether they are contemporary with each other, and any stratigraphical links. At least some of the trenches would be positioned to investigate the presence of possible internal features. Initial topsoil strip would be by machine, but excavation beneath the topsoil would be by hand. All other methodology and recording techniques would be as described below (3.1.4).

3.1.3 Greenfield evaluation
This programme of trenching will establish the presence or absence of any previously unsuspected archaeological deposits in other parts of the development area and, if established, will then briefly test their date, nature, and quality of preservation. This element of the trial trenching is invaluable in order to assess the potential for surviving archaeological deposits which are not visible on the surface. This also reduces the possibility of the discovery of any important archaeological features during groundworks, so as to minimise the possibility of any disruption at that late stage.

The 'greenfield' trenching would be undertaken using a conventional 30m alternate trench configuration (although some adjustments may be necessary to avoid such elements as the high pressure gas main, mature trees, field boundaries, and the scarp

slope) which provides a 3.5% coverage of the investigated area. This would involve the excavation of trenches measuring 30m in length, by approximately 2m in width, and the orientations of the trenches would be varied to improve the likelihood of them crossing linear features. There is approximately 8.9 hectares of ground, which would necessitate the excavation of about 55 trenches. The precise locations of the trenches would be determined in discussions with the client and the Lancashire Archaeology Service at the outset of the project.

3.1.4 Methodology

To maximise the speed and efficiency of the operation the removal of overburden will be undertaken by machine (with a standard five or six foot toothless ditching bucket), although in areas where significant remains are encountered elements may be hand dug.

All trenches will be excavated in a stratigraphical manner, whether by machine or by hand. Excavation will normally be limited to the upper surface of significant archaeological deposits, unless further work is regarded by ourselves and the Local Planning Authority (or their representative) as essential in order to complete the full evaluation. Trenches will be accurately located with regard to surrounding features, by use of a total station survey instrument or GPS as appropriate.

Full regard will, of course, be given to all constraints (services etc) during the excavation of the trenches, as well as to all Health and Safety considerations. LUAU provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1991) and risk assessments are implemented for all projects. As a matter of course LUAU uses a U-Scan device prior to any excavation to test for services. It is assumed that the client will provide any available information regarding services within the study area, if available.

Land disturbed as a result of this work will be reinstated to the Client's satisfaction, although LUAU as a matter of course replaces material in a stratigraphic manner and relays the surface, if possible. It is presumed that the Client will have general responsibility for site security. LUAU would, however, take responsibility for temporary fencing arrangements to exclude livestock or any other farming activities. In addition, any deep sections of open trench would be fenced off to prevent any accidents occurring to LUAU client staff.

3.1.5 Timetable

All excavation will be undertaken within constraints agreed with the client.

3.1.6 Recording

All information identified in the course of the site works will be recorded stratigraphically, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

Results of the field investigation will be recorded using a system, adapted from that used by Central Archaeology Service of English Heritage. The archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:50, 1:20, and 1:10). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration. Samples will be collected for technological, pedological, palaeoenvironmental and chronological analysis as appropriate, but it is only intended to process such material for assessment at this stage. If necessary, access to conservation advice and facilities can be made available. LUAU maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.

3.2 Evaluation Report

3.2.1 Archive

The results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. LUAU conforms to best practice in the preparation of project archives for long-term storage. The expense of preparing such an archive is part of the project cost, but only represents a very small proportion of the total. This archive can be provided in the English Heritage Central Archaeology Service format, both as a printed document and on computer disks as ASCII files, and a synthesis (in the form of the index to the archive and the report) will be included in the Lancashire Sites and Monuments Record. A copy of the archive can also be made available for deposition with the National Archaeological Record. LUAU practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office (Preston), and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with the County Museums Service. The actual details of the arrangements for the deposition loan and long term storage of this material will be agreed with the landowner and the receiving institution. Wherever possible, LUAU recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered.

3.2.2 Evaluation report

One bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further copy submitted to the Local Planning Authority County Archaeology Service, if required by the Client. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. Any finds recovered from the excavations will be assessed with reference to other local material and any particular or unusual features of the assemblage will be highlighted and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work, but not examined in detail.

This report will identify areas of defined archaeology, the location of trenches, and whether the results of the sampling were positive or negative. An assessment and statement of the actual and potential archaeological significance of the site within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans if appropriate; it can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion. The report will be in the same basic format as this project design; a copy of the report can be provided on 3.5" disk (IBM compatible format).

3.2.3 Proposals

The report will make a clear statement of the likely archaeological implications of the proposed business park development. It will highlight whether, as a first option, the preservation *in situ* of significant archaeological features should take place and possible strategies for the mitigation of the impact of the development will be considered. When preservation is neither possible, nor practical, a further stage of archaeological work may be required. In this case, recommendations for such mitigation measures will be submitted. It should also be made clear that the results of this archaeological evaluation should only be considered as representative of the below ground archaeological potential of those areas presently accessible for trial trenching.

3.2.4 Confidentiality

The evaluation report is designed as a document for the specific use of the Client, for the particular purpose as defined in the project design, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

3.3 Project Monitoring

3.3.1 Wiggins Group plc
LUAU will consult with the Client regarding access to land within the study area. Whilst the work is undertaken for the Client, the Local Planning Authority (or their representative) will be kept fully informed of the work and its results. Any proposed changes to the project design will be agreed with him in coordination with the Client. LUAU will arrange a preliminary meeting, if requested, and the Lancashire County Archaeologist will be informed in writing at the commencement of the project.

3.3.2 Lancashire Archaeology Service
Any proposed changes to the project design will be agreed with the Local Planning Authority (or their representative) in coordination with the client. LUAU will arrange a preliminary meeting, if required, and the Lancashire SMR will be informed at the commencement of the project.

4. WORK TIMETABLE

The phases of work would comprise:

4.1 Evaluation
A 15 day period is required to undertake the trenching programme.

4.2 Prepare evaluation report
A 10 day period would be required to complete this element.

LUAU can execute projects at very short notice once an agreement has been signed with the client. LUAU would be able to submit the report to the client within six weeks from the commencement of the project.

5. OUTLINE RESOURCES

The following resource base will be necessary to achieve the proposals detailed above.

5.1 Evaluation
7 man-days Project Officer
7 man-days Project Supervisor
7 man-days Project Assistant
7 man-days Project Assistant
Finds and environmental assessments as necessary

5.2 Evaluation report
5 man-days Project Officer
5 man-days Project Supervisor

2 man-days Draughtsman

The project will be under the direct line management of **Rachel Newman** (Unit Assistant Director), to whom all correspondence should be addressed, although **Jamie Quartermaine** (Unit Project Manager) may undertake day-to-day management, depending on the timing of the work.

PROJECT COSTINGS

Lancaster Business Park Proposed Business Park Development Site, Lancaster, Lancashire
Archaeological Evaluation

Date: 19th December 1996

The total cost quoted is a fixed price, inclusive of all management, overheads, and other disbursement costs (travel and expenses), to undertake the programme of work as defined in this project design. Any other variations from this programme of work at the clients' direction will require recosting.

Total Costs **£ 6625.32**

Notes:

1. Salaries and wages inclusive of NI, Superannuation and overheads
2. Total costs exclusive of VAT
3. All costs at 1996/1997 prices
4. Project duration beyond 31-07-1997 will require adjustment for inflation
5. Costs include plant hire by LUAU

Signed.....

Date.....