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Land at Catesby Business Park, Balby Carr, Doncaster, South Yorkshire: an archaeological excavation 2002

Post-excavation assessment and research design

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1.0 Summary

An archaeological excavation of land at Catesby Business Park, Balby Carr, Doncaster, South Yorkshire (centred on NGR SE 5862 0058) was carried out by Birmingham University Field Archaeology Unit during July and August 2002. The work was commissioned by B & Q PLC in advance of the proposed development of the site, comprising the construction of a new retail store and associated access roads. The excavation followed a staged programme of evaluation comprising: desk-top assessment, geophysical survey and trial-trenching.

The excavation revealed a network of rectilinear ditches, probably dating to the Iron Age or Romano-British periods. This network of ditches formed the remains of a field system, similar to the 'brickwork' pattern field enclosures visible on aerial photographs of land to the south of the site and more widely across South Yorkshire and North Nottinghamshire. The 'brickwork' field system generally consists of many parallel boundaries aligned east-west or northeast-southwest dividing the land into long strips with shorter cross boundaries, often with sub-rectangular or curvi-linear enclosures containing traces of buildings situated within the field system complexes.

Two relatively large parallel east-west aligned linear ditches were probably the earliest elements of the field system. There was evidence for at least one episode of recutting of these ditches. Probably at the same time as the most southerly large east-west linear ditch was recut two smaller north-south orientated linear ditches were cut, forming a large field enclosure, to the south, with a possible entrance at the northeast corner. A smaller east-west aligned ditch may have formed part of another enclosure, extending beyond the west edge of the excavations. A sub-rectangular ditched enclosure was associated with the most northerly large east-west aligned linear ditch, with a possible entrance at the northeast corner. This enclosure or compound may, perhaps, have been a stock enclosure and it formed the north ditch of a possible droveway between enclosures or fields. The south ditch of the possible droveway was formed by a recut of the southern large east-west aligned linear ditch. A deep wide curvi-linear ditch extending beyond the west edge of the excavations could possibly be part of an enclosure with a different function, perhaps a settlement enclosure. A linear feature was also revealed at the extreme west edge of the excavation. Two pits were also excavated, one of which cut the sub-rectangular ditched enclosure.

A single unfinished Neolithic flint arrowhead was recovered, redeposited within the recut of one of the east-west aligned linear ditches. No pottery was recovered from the features described above, during the excavation. A fragment of waterlogged wood, probably birch or alder, with a human-made cut at one end was collected from the primary cut of the

same ditch during the trial-trenching and produced a calibrated radiocarbon date of 400BC-350AD (Wk 10973; 1999 ± 123 BP). Many of the ditches contained organic peaty fills with well-preserved waterlogged wood, from which further radiocarbon dates will be obtained.

The lack of animal bone and the paucity of evidence from the environmental samples for charred plant and crop processing waste remains indicates the potential for the excavation to provide evidence of the economy is limited. However, pollen and seeds were well preserved and the further analysis of these could provide evidence of the paleo-environment. Evidence from the plant remains indicated that the archaeological features were subject to waterlogging and organic remains survived well. Insect remains were abundant and well preserved and the study of these has a high potential for characterising the local palaeo-environment.

2.0 Introduction

The following report provides a post-excavation assessment of the results of an archaeological excavation of land at Catesby Business Park, Balby Carr, Doncaster, South Yorkshire and programme to bring the results to publication in accordance with the guidelines set out by English Heritage in *the Management of Archaeological Projects* (MAP 2). The work was undertaken by Birmingham University Field Archaeology Unit (BUFAU) in July and August 2002. The work was commissioned by B & Q PLC, in advance of the proposed development of the site, comprising the construction of a new retail store and associated access roads. The excavation was recommended as a condition of planning consent (Planning application number: 01/31/2567/P/FUL), in accordance with PPG 16 (DoE 1990), by South Yorkshire Archaeology Service (SYAS), archaeological advisors to Doncaster MBC. The work conforms to a project design prepared by BUFAU (BUFAU 2002) and approved by SYAS.

3.0 Site location and geology

The development site (Fig. 1, hereafter referred to as the site) is located approximately 3km southeast of Doncaster (centred on NGR SE 5862 0058). The site (Fig. 2) is bordered by: a ditch running parallel to White Rose Way to the east, the Division Drain to the south (which runs east-west across this area of the Carr), and arbitrary borders defined by the limits of the site and the location of proposed access roads to the west and north. The site covers an area of approximately 3 hectares and comprises a field formerly used as rough pasture. The site is fairly flat with a very slight gradual downward slope to the north, with a height of approximately 5m AOD.

The site is underlain by drift deposits consisting of alluvial clay. Below these are Solid Deposits comprising the Bunter Sandstone of the Permo-Triassic (British Geological Survey, 1:50,000 map sheet 88). Under these are Carboniferous rocks, including productive Coal Measures.

4.0 Archaeological background

An archaeological desk-based assessment of the site was carried out by BUFAU (BUFAU 2002a) and included the results of an aerial photographic study (Cox 2002). The findings of the assessment were that although no finds or features of archaeological interest were known within the site itself, a high concentration of occupation sites dating to the late Iron Age and Romano-British periods, visible on aerial photographs as crop marks, exist near to the site. These include enclosures and extensive 'brickwork' pattern field systems first recognised by the late Derrick Riley (Riley 1980). Finds of Romano-British artefacts have also been recorded close to the site. An undated soil-mark was visible, on an aerial photograph, in a field immediately to the east of the site. This soil-mark may be interpreted as either part of a ditched enclosure, a drainage feature or boundary feature.

Given this concentration of sites nearby, the proximity of the Roman town of *Danum* and the presence of Roman-British pottery kiln sites in the surrounding area, it was thought that there was potential for the existence of significant archaeological features within the site. Subsequent geophysical survey by Geophysical Surveys of Bradford (GSB 2002) revealed no clearly defined anomalies suggestive of buried archaeological remains, although a few pit-like anomalies were noted, which could possibly be of archaeological origin.

Following on from this work an archaeological evaluation was recommended by SYAS, on behalf of Doncaster MBC. The results of the evaluation (BUFAU 2002b), which involved the excavation of eighteen trial-trenches, revealed that several possible field boundary ditches, or perhaps enclosure ditches, not detected by geophysical survey or visible as crop-marks, existed within the site. These possible field boundary ditches appeared to be concentrated in the southern part of the development area and were found in Trenches 4, 6 10, 17 and 18 (Fig. 2). There was little dating evidence, but one ditch contained a fragment of waterlogged wood, from which a radiocarbon date was obtained. The radiocarbon date suggested this ditch was of Iron Age or Romano-British date. It was thought that some or all of the other possible field boundary or enclosure ditches could be a continuation of the network of Iron Age or Romano-British field boundary ditches and enclosures, present to the north and south of the site, highlighted in the desk-based assessment, and/or a continuation of the undated soil mark feature visible on aerial photographs to the east of the site.

The lack of animal bone and the paucity of evidence from the environmental samples for charred plant remains indicated the potential for any possible future excavations to provide evidence of the economy, by these means, was limited. However, pollen was fairly well preserved and had the potential to provide evidence of the palaeoenvironment. Evidence from the plant remains indicated that the archaeological features were subject to waterlogging and the recovery of waterlogged wood suggested there was considerable potential for the survival of organic remains. Insect remains were abundant and well preserved and had a high potential for understanding of the local palaeoenvironment.

The evaluation provided information concerning the existence of a previously unknown network of possible field boundary or enclosure ditches. Information was gained on their character, date, quality of survival, significance and archaeological potential. In the other areas of the site all the trenches proved to be either archaeologically sterile or contained drainage and/ or boundary features of probable post-medieval date.

It was concluded that the site is of local and regional archaeological importance and, as such, an archaeological mitigation strategy, by a scheme of archaeological excavation and recording was recommended by SYAS, on behalf of Doncaster MBC.

5.0 Aims

The primary objective of the archaeological excavation was to record the character and function of features identified in the evaluation, and where possible to ascribe dates and sequences to them. The specific aims of the archaeological excavation are to:

- characterise and date the archaeological features and deposits.
- attempt to recover samples of charred plant remains and animal bone, which may help to interpret the economic function of the site.
- recover samples of archaeobotanical material (pollen and plant macrofossils) and micro-fauna to characterise the local palaeoenvironment.
- recover samples suitable for scientific dating (eg; radiocarbon dating).
- to examine the place of the site in the landscape in the context of other sites in the locality and in the wider archaeological development of South Yorkshire.

6.0 Method

The fieldwork comprised the following programme and took place in the order set down below:

(1) An area of approximately 3 hectares. (Fig. 2, Plate 1) was stripped of topsoil and overburden. Two tracked 360° mechanical excavators, fitted with toothless ditching buckets, removed the topsoil and modern overburden. Soil from machine excavation was transported by articulated Hydrema type dump trucks, fitted with low pressure tyres to minimise tyre ruts, and temporarily stored adjacent to the site.

Machining was monitored by a qualified archaeologist at all times. The topsoil strip was down to the top of the uppermost archaeological deposit or to the top of the natural subsoil.

(2) Following completion of the topsoil stripping a site plan depicting all archaeological features on site was produced. Areas with archaeological features or deposits were surveyed using a Nikon C-100 total station in conjunction with Fastmap and Penmap digital mapping software. A base plan was produced, at a suitable scale, of all significant

archaeological features and deposits. This base plan was used to inform the sampling strategy.

(3) An on-site meeting was held with the archaeologist from SYAS and BUFAU's Site Director. In consultation with the archaeologist from SYAS a sampling strategy was formulated.

(4) A program of manual sample excavation was then undertaken. Subsequent cleaning and excavation, was by hand. Discrete archaeological features, such as pits were half sectioned, in the first instance. This was increased to full excavation of pits, where appropriate. This was decided in consultation with SYAS and BUFAU. Generally a minimum of 20% of the length of linear features, or a minimum of a 1m sample section, if the feature was less than 10m in length, was sample excavated although this amount varied, subject to consultation with SYAS. In particular, terminals and junctions of linear features were sample excavated to determine the stratigraphic relationships between features.

Recording was by means of pre-printed pro-formas for contexts and features, supplemented by plans (at 1:20 and 1:50), sections (at 1:10 and 1:20), and monochrome print and colour slide photography. Archaeological features were assigned consecutive numbers from F1 onwards and contexts were numbered from 1010 onwards. Where more than one section was been dug through a feature and it is mentioned in the text it has been assigned a prefix: LD (linear ditch, greater than 0.50m wide), CD (curvi-linear ditch, greater than 0.50m wide) or CG (curvi-linear gully, less than 0.50m wide).

A representative sample of datable archaeological features was selected for the collection of 20 litre soil samples for the recovery of archaeobotanical material (pollen and plant macrofossils), micro-fauna and charred plant remains. Suitable samples were taken for scientific dating, to be undertaken if necessary, after consultation with SYAS. The environmental sampling policy followed the broad guidelines contained in the BUFAU Guide to On-Site Environmental Sampling. Dr James Greig, English Heritage Archaeological Scientist, visited the site to advise on the sampling strategy.

Recovered finds were cleaned, marked and remedial conservation work will be undertaken where necessary. Treatment of all finds conformed to guidance contained within *A strategy for the care and investigation of finds* published by English Heritage and the document *Guidelines for the preparation of excavation archives for long term storage* published by UKIC. If appropriate, ferrous objects and a selection of non-ferrous objects were to be x-radiographed.

7.0 Excavation Results (Fig. 3)

The underlying natural subsoil was mainly yellow alluvial clay (1012). Tree boles and tree root holes, containing peaty soils, disturbed the surface of the natural subsoil.

A series of ditches cut the natural 1012, forming a recilinear pattern. The most northerly of these was an east-west aligned linear ditch (LD 1, Plate 2) which extended beyond the edges of the excavation. Ditch LD 1 was 0.95-1.70m wide and 0.42-0.65m deep and its profile varied significantly, but was generally either steep sided with a narrow slightly rounded base or steep sided with a flat base. Generally the fill of the ditch was a greyish silty clay with some waterlogged organic inclusions. There was evidence of a recut of the ditch in some sections, 0.50-2.20m wide and 0.30-0.62m deep, (Plate 3) often containing a peat-rich fill which was dark brown or black and was rich in waterlogged organic material.

Parallel to LD1, to the south, was another linear ditch (LD2, Plate 4). Ditch LD 2 was 0.70-1.70m wide and 0.32-0.76m deep, with steep sides and a flat base. The fill of ditch LD 2 varied, but was often a greyish silty clay with some waterlogged organic inclusions. A fragment of waterlogged wood (alder or birch), with a humanly made cut at one end, was recovered from the fill of ditch LD 2, during the trial-trenching. A calibrated radiocarbon date of 400BC-350AD (Wk 10973; 1999 $\pm$ 123 BP) was obtained from the waterlogged wood. As with LD 1 to the north, evidence of the recutting of the ditch was recorded in many sections (Plate 5). The recut ditch deviated from the course of the primary ditch to the west, where it curved to the northwest. The ditch recut was 0.70-1.40m wide and 0.30-0.62m deep and often contained a peat-rich fill, which was dark brown or black. It was rich in waterlogged organic material and contained an unfinished Neolithic flint arrowhead. The recut of ditch LD 2 formed the north ditch of a rectilinear ditched enclosure (EN 2) and was orientated parallel with the south ditch of another enclosure (EN 1) forming a possible droveway (Plate 6). The south side of EN 2 was probably located beyond the edge of excavation. The east ditch of EN 2 terminated at the northeast corner of the enclosure, forming a narrow entrance. The east and west ditches of enclosure EN 2 were 0.70-1.20m wide and 0.30-0.58m deep with a 'U'-shaped profile and they were filled with a grey silty clay and in some sections a peat-rich fill which was dark brown or black and was rich in waterlogged organic material.

A linear ditch (LD 3) was located at right angles to, and terminated close to the west side of enclosure EN 2. Ditch LD 3 was 0.75-1.14m wide and 0.36-0.48m deep, with a 'U'-shaped profile. It was filled with a grey silty clay and in some sections a peat-rich fill which was dark brown or black and was rich in waterlogged organic material. North of ditch LD 3 was a sub-circular pit (F117), 1.40m x 1.56m and 0.52m deep, with steep sides and a slightly rounded base. It was filled with a primary fill of silty grey clay and a final fill of black sandy silt.

North of enclosure EN 2 was a rectilinear ditched enclosure (EN 1). Linear ditch LD 1 formed the north side of the enclosure EN 1 and most of the west side was presumably located beyond the edge of excavation. The south side of enclosure EN 1 was on a parallel alignment with the recut of ditch LD 2 and the enclosure ditch terminated at the northeast corner of the enclosure, forming an entrance. The EN 1 enclosure ditch was 0.40-1.24m wide and 0.25-0.50m deep, with steep sides and a rounded base. It was filled mainly with a grey silty clay, but in a few places the fill was a dark brown or black, peat-like context which was rich in waterlogged organic material. There was evidence of a

recut of the ditch, which usually contained a dark brown or black peat-rich fill which was rich in waterlogged organic material.

A short curvilinear ditch (CD 2) was cut by enclosure ditch EN 1. Ditch CD 2 was 8.50m x 0.50-0.72m wide and 0.12-0.22m deep, and was filled with greyish brown silty clay. A curvilinear gully (CG 1) 4.0m x 0.40-0.50m wide and 0.10-0.20m deep, which was filled with greyish brown silty clay cut both ditches CD 2 and EN 1.

Enclosure ditch EN 1 was cut by a pit (F37, Plate 8), extending beyond the edge of excavation. 3.10m x at least 1.90m and approximately 0.90m deep, the base and lower sides of the pit were disturbed by tree roots and it was not fully excavated for safety reasons. It contained three silty fills all rich in waterlogged roots and other organic material.

Linear ditch LD 1 was cut by a curvilinear ditch (CD 1, Plate 7), possibly forming part of an enclosure, extending beyond the edge of excavations. Ditch CD 1 was 1.50-1.80m wide and 0.70-0.90m deep with steep sides and a slightly rounded base. Its primary fill was a grey clay, which was sealed by a peat-rich fill containing waterlogged organic material including some large fragments of wood. To the west of CD 1 was a north-south orientated linear ditch (LD 4), at least 10m long x 0.60m wide and 0.60m deep, with a peat-rich fill which was not fully excavated as part of it lay beyond the west edge of excavations.

The natural subsoil at the extreme south part of the site was overlain by a layer of dark brown silty clay (1011), sealed by the topsoil, containing sherds of late 18th or 19th century pottery. The presence of this layer may possibly be associated with the construction of the adjacent Division Drain during the post-medieval period and is probably the 'made ground', referred to in a geo-technical report on the site (Thomas and Callington 2001).

Post-medieval drainage features (Plate 2) were present in the form of linear, regularly spaced linear ditches on identical orientations to the 18th or 19th century field boundaries. These drainage ditches were on similar alignments with similar profiles and had identical peaty loam fills. The drainage features cut some of the rectilinear features described above and layer 1011. Several of these drainage features were sample excavated during the evaluation, in Trenches 9 and 16 and were found to have mainly vertical sides, with generally flat bases. The only finds recovered from these drainage features were post-medieval ceramic tile, post-medieval vessel glass, coal fragments an unidentifiable fragment of animal bone.

Layer 1011 and natural subsoil 1012 were sealed by dark brown sandy clay topsoil (1010), 0.15-0.35m deep.

8.0 Factual Data

Table 1: Quantification of site records archive

Record type	Evaluation	Excavation
Context records	58	169
Feature records	35	124
Trench records	18	-
Sample records	-	23
Assem. Summaries	12	12
A4 site drawings	18	73
Colour slide photos	47	184
Colour print photos	21	-
B & W print photos	48	169

9.0 Archive storage and curation

The archive is currently held at BUFAU and will be deposited with Doncaster Museum within a reasonable period, following the completion of the project, and subject to the agreement of the landowner.

10.0 The finds

Both the evaluation and excavation archive were considered for the purposes of this report.

Table 2: Finds quantification (evaluation and excavation)

Find type	**Quantity**
Post-medieval pottery	11
Animal bone	3
Ceramic tile	11
Ceramic brick	2
Clay pipe	2
Glass	4
Slag	2
Flint	1
Slate	1
Coal	6
Wood	11

10.1 The pottery by Annette Hancocks

Factual summary

The pottery assemblage consisted eleven sherds (45g) of post-medieval pottery, recovered from layer 1011, modern plough furrows or from tree boles. Diagnostic pieces

were rare, although blue and white transfer printed wares and a large fragment of manganese ware were recognised. These were dated to the late 18th or 19th century.

Statement of potential
No further work is recommended on these sherds.

10.2 Other finds by Annette Hancocks

A small and undiagnostic assemblage of clay pipe stem fragments, ceramic tile, glass and slag and a few pieces of coal represent the remaining find types recovered. The finds were recovered from the topsoil or from post-medieval drainage features. A few unidentifiable fragments of animal bone were also recovered from the post-medieval drainage features.

Statement of potential
No further work is recommended on these finds.

10.3 The flint by Lynne Bevan

Factual summary
An unfinished pre-form for a leaf-shaped arrowhead of Neolithic date, with extensive pressure flaking on the ventral surface, was recovered from the recut of ditch LD 2 (F9, 1025). The raw material used is a good quality translucent light brown flint.

Statement of potential
No further work is recommended on this piece.

10.4 The plant and insect remains by Marina Ciaraldi

Factual summary
23 soil samples were collected, for the recovery of plant and insect remains, during the excavation. 20 litre samples were collected from all the main features. The deposits sampled were mostly waterlogged. A previous report on the biological remains from the evaluation (BUFAU 2002b) indicated that plant and insect remains, as well as pollen, were well preserved and had good potential to answer questions about the nature of the site and its palaeoenvironment. Eight samples were processed and rapidly scanned for this assessment.

Small sub-samples of 300 ml of soil were dispersed in lukewarm water and poured onto a set of sieves (mesh sizes 1mm, 0.5 mm and 0.3 mm). Most of the samples were rather clayey and required the use of sodium hydrogen-bicarbonate to help break down the lumps of soil. The organic remains retained by the mesh were quickly scanned under a low power stereo microscope. Identification of the plant remains was carried out using the author's own reference collection. The presence of insects, charcoal or other categories of biological remains was also recorded.

The results of the preliminary analysis are summarised below (Table 3). Some of the samples from the excavation (EN 2 /F14, 1029, LD 1 /F55, 1077, LD 1 /F91, 1138, LD 1/ F98, 1139 and EN 1/ F99, 1148) are of a similar clayey soil type with little organic remains. The remaining samples had a peat-rich matrix and contained abundant biological remains (although often very fragmented). In all the samples there were indicators of the presence of water in the ditches (e.g. caddis larval cases, Cladocera's ephippia or *Ranunculus* subg. *Batrachium*).

The samples also contained macrofossils of alder (*Alnus* sp.), other fragments of wood, mosses and numerous insect fragments. The presence of small fragments of charcoal in samples from LD 1, F55/1077 and LD 2, F93/1141 (these samples were collected from locations near the curvi-linear ditch CD 1) may suggest that human occupation took place near to this part of the site. Perhaps this occupation may have been within the possible settlement enclosure ditch CD 1. No cultivated macro-remains of plants were recorded in any of the samples, however there is evidence of cereal pollen from the column sample (see Greig below).

Statement of potential

The good state of preservation of plant macrofossils, insect remains and other organic material suggests that the biological remains present in the samples have high potential, subject to relatively precise radiocarbon dated being obtained, to answer some of the questions highlighted below:

- understanding what was the nature of the agricultural use of the field system (e.g arable or pasture etc.)
- identifying what changes occurred in the surrounding environment, particularly in reference to an expansion of woodland after the abandonment of the site
- defining what was the nature of the possible enclosure defined by ditch CD 1 (e.g. settlement enclosure, stock enclosure or field enclosure) and its relationship with the field system

Their study, therefore, is very important, particularly because of the relatively poor understanding of the utilisation of the 'brickwork' field systems (English Heritage 1988 and Chadwick 1997).

Recommendations

On the basis of the results discussed above, it is recommended that further analysis should maximise the information by studying both plant and insect remains, as well as the pollen from samples CD 1, F56/1087; CD 1, F56/1088 and LD 2, F93/1141. It will be particularly important to understand the reasons for the differences between the two samples from CD 1/ F56. Insect and pollen remains from sample EN 1, F99/1148 should also be studied. This sample may provide more details on differences in the organic content of samples from different parts of the site and provide information on the nature of the Enclosure EN 1.

The waterlogged wood within ditch CD 1 and other features, should be identified, particularly as there is a possibility that it may derive from coppicing and managed woodland.

It will be important to select samples for radiocarbon dating only after the results of the analysis are available. This will enable the selection of samples which are best suited to show changes in the nature of the biological assemblages.

Table 3: List of plant and insect remains assessed

Structure/ feature	Context	Further analysis	Notes
EN 2 /F14	1029		Grey silty clay. Small fragments of charcoal. Ferrous-manganese concretions
LD 1/F55	1077		Dark brown silty clay. Small fragments of charcoal. Very fragmented organic remains. Some insect remains
CD1 /F56	1087	Seeds, insects, pollen	Dark brown fine silt., very organic. Very fragmented organic remains. Seeds: Umbelliferae, *Ranunculus* subg. *Batrachium*, *Carex* sp., Other: mosses, fragments of wood, buds. Abundant insect fragments: Caddis larval cases, Cladocera's ephippia.
CD 1 /F56	1088	Seeds, insects, pollen	Peat, very humic, lots of twigs. Similar to context 17003, F1701 (LD 2) examined during evaluation. Plant: numerous *Alnus* sp. seeds, buds and cones, seeds and thorns of *Rubus* sp., Umbelliferae, *Ranunculus* sp. Insects remains present: Caddis larval cases, Cladocera's ephippia.
LD 1 /F91	1138		Dark brown clayey peat. Very fragmented organic remains. Ferrous-manganese concretions. A few insects remains present
LD 1 /F98	1139		Dark brown clayey peat,.Very fragmented organic remains. Ferrous-manganese concretions. A few insect remains
LD 2 /F93	1141	Seeds, insects, pollen	Mottled clay and silt. Numerous macro-remains of wood and twigs. Very organic rich matrix. Seeds: Several seeds of *Ranunculus* subg. *Batrachium*, *Carex* sp., *Carduus/Cirsium*, *Polygonum* sp., *Stellaria* sp., Cyperaceae. Numerous mosses, fragments of leaves and some small fragments of charcoal. Insect remains present: Cladocera's ephippia
EN1 /F99	1148	Insects, pollen	Dark brown silty peat. Insect remains: abundant very fragmented remains, Cladocera's ephippia.

10.5 The pollen by James Greig

Factual summary

The main features exposed during the excavation were a network of ditches, which had mainly peaty or organic fills. The fills of these features were bulk sampled as part of the on-site environmental sampling strategy. The site was visited by the writer on August 22nd, 2002 and three of the features were sampled, mainly for pollen, at an interval of 2.5 cm. Ditch CD 1/ F65 had an 0.80m deep profile, and the lower 0.50m was sampled in monolith boxes. Ditch EN 1/ F79 had a 0.45m deep profile, and ditch LD1 /F91 was also 0.45m deep.

Nine samples were prepared for pollen analysis, three from each ditch, to show the state of pollen content and preservation in them, and therefore the potential for useful further work. Samples from CD1/ F65 were taken at depths of 10 cm, 40 cm and 70 cm, from EN 1/ F79 at 10 cm, 20 cm and 40 cm and from LD 1/ F91 at 10 cm, 20 cm and 40 cm. The pollen samples were processed using the standard method; about 1 cm^3 sub-sample was dispersed in dilute NaOH and filtered through a 70µm mesh to remove coarser material, which was then scanned under a stereo microscope, providing a few macrofossil identifications. The finer organic part of the samples was concentrated by swirl separation on a shallow dish. Fine material was removed by filtration on a 10µm mesh. The material was acetolysed to remove cellulose, stained with safranin and mounted on microscope slides in glycerol jelly. Counting was done with a Leitz Dialux microscope. Identification was carried out using the writer's own pollen reference collection, and was viewed with a Leitz Lablux microscope. The identifications were done to a level appropriate to an assessment. Standard reference works were used, notably Fægri and Iversen (1989) and Andrew (1984). The pollen is listed below (Table 4), with names and order of the taxa following Bennett (1994) and Kent (1992) respectively.

The material was mainly organic and peaty, with a little sand. There was usually very little organic residue from the samples on the 70µm mesh, although a few seeds were present, and beetle remains. Pollen was abundant and very well-preserved in all the samples, with the possible exception of EN 1/ F79, 40 cm. A large flora was present which should be informative.

The outline sequence from CD1/ F65

70 cm: The bottom of the sequence shows much *Alnus* (alder) and *Salix* (willow) pollen, probably from local carr woodland with alder and willow growing on the damp land of Balby Carr. There are also a few other small records of trees, which probably represent a background of trees and shrubs growing anywhere in the vicinity.

The relatively large amount of Poaceae (grasses) and *Plantago lanceolata* (ribwort plantain) together with records such as *Centaurea nigra* (knapweed) and *Ranunculus* (buttercups) shows that there was extensive grassland, maybe meadow, pasture or both. The land around the ditches seems to have been mainly grassland.

Fairly small amounts of Cyperaceae (sedges) and *Sparganium* (bur-reed) show that there were swampy conditions or wetland. Sedges grow in conditions ranging from aquatic to damp, but *Sparganium* usually grows in standing water, along riverbanks and in ditches. These plants may have been very local, perhaps just growing in and around the ditch itself. A *Carex* (sedge) seed and a thorn were found, showing that sedge and perhaps brambles were growing right on the spot. Study of macrofossils would show how much of the swamp flora was very local.

40 cm: the middle of the sequence shows a clear change with a great reduction in *Alnus* (alder) and *Salix* (willow) to more open grassy conditions. This probably represents clearance of woodland or an increase in grazing.

20 cm: the top of the sequence shows a return of *Alnus* (alder) and *Corylus* (hazel), probably from the re-growth of trees and shrubs. At the same time, there is evidence of arable farming from a Cerealia (cereal) pollen record, and grassland continues to be present. The, perhaps, very local swamp shows a great increase in Cyperaceae (sedge) and *Sparganium* (bur-reed) pollen, together with some aquatic records such as *Myriophyllum* (milfoil) which may show standing water at times, although maybe only in the ditch.

The sample from the evaluation, which has already been assessed, LD 2/ F1700 (Greig 2002), also showed signs of grassland, some arable land with crops and weeds, and some local swamp. It differed, however, in having far more signs of substantial woodland with *Quercus* (oak), *Tilia* (lime) and *Ulmus* (elm) as well as local alder being present on the carr. It therefore seems that pollen analysis, and other environmental work, can show how this landscape developed.

A considerable amount of work has been done on the Humberhead levels sites just to the east of Doncaster, such as Thorne moors, Hatfield Crowle and Rawcliffe and Goole (Van de Noort and Ellis 1997, Smith 1985). As these results are from natural deposits they show the less occupied part of the landscape, in contrast to Balby Carr which seems to have been an occupied landscape, showing human activities much more clearly.

Statement of potential

Initial results show that pollen is well preserved and abundant in the ditches sampled, and some seeds are also present. The surrounding landscape seems to have been mainly grassland, with varying amounts of alder and willow carr, and some arable farming. The environment changed significantly during the time in which deposits filled up curvi-linear ditch CD 1.

It is suggested that further work will give us a more detailed knowledge of these events. The seeds and especially pollen are well preserved and abundant and further study of these has good potential to provide us with information on the nature of the paleo-environment in the area of the site and can show the effect on the environment of human activity.

Recommendations

It would be worthwhile to do more pollen counts on the three samples from CD 1/ F65 discussed here in outline form, and to prepare and count six more samples to obtain results every 10 cm throughout the profile, thus showing the sequence of change in full detail. The results would need to be dated, and suitable material from this should be extracted from samples, preferably near the top and bottom of the sequence. It would be worth doing outline pollen counts on the other six pollen samples from EN 1/ F79 and LD 1/ F91 which have already been prepared, to see whether the results from these ditches are comparable to those already obtained from CD 1/ F65. Finally, if other bulk samples are to be studied for macrofossils and insect remains, pollen analyses should also be carried out to provide further information from them.

If the results of the radiocarbon dating of the samples were to suggest the filling of the ditches occurred during the post-Roman period, then the relative rarity of the pollen sequences would make them very important. This is a particularly interesting period, as so little is known about it and there seems to have been significant environmental changes (Baillie 2001).

Table 4: list of pollen and spores from, CD 1/ F65

Sample depth	20cm	40cm	70cm	
Spores				
Pteridium	4	1	3	bracken
Polypodium	1	-	-	polypody
Pollen				
Pinus	1	1	+	pine
Ranunculus-tp.	-	1	1	buttercups
Urtica	-	1	-	nettle
Fagus	-	+	1	beech
Quercus	4	3	2	oak
Betula	1	1	1	birch
Alnus	22	3	44	alder
Corylus	6	1	1	hazel
Chenopodiaceae	1	-	+	goosefoot
Rumex-tp.	9	1	1	docks and sorrels
Tilia	+	-	-	lime
Salix	2	1	9	willow
Brassicaceae	-	2	-	crucifers
Ericales	+	+	1	heathers
Filipendula	-	5	-	meadowsweet
Potentilla	-	2	-	cinquefoil
cf. *Agrimonia*	-	5	-	? agrimony
Myriophyllum sp.	1	-	-	milfoil
Rhamnus catharticus	1	1	-	purging buckthorn
Hedera	-	-	-	ivy
Apiaceae	3	4	-	umbellifers
Solanum dulcamara	-	1	-	nightshade
Plantago lanceolata	1	3	6	ribwort plantain
Fraxinus	-	1	1	ash
Mentha	-	-	+	mints
Sambucus nigra	2	-	-	elder
Cirsium-tp	1	-	-	thistles
Centaurea nigra	-	-	+	knapweed
Lactuceae	1	-	1	a group of composites
Aster-tp	2	+	+	daisies etc
Alisma	-	+	-	water plantain
Cyperaceae	85	11	12	sedges
Poaceae	32	13	30	grasses
Cerealia-tp.	1		-	cereals
Sparganium tp.	19	-	2	bur-reed
Typha	1	-	-	reedmace
Total land pollen	**91**	**44**	**99**	

Key: + present

11.0 Achievement of project aims

The opportunity will be taken here to briefly assess the outcome of the project's original aims and objectives, as laid out above in Section 5.0.

The only datable evidence of earlier prehistoric activity encountered on the site, was single an unfinished flint arrowhead of Neolithic date which was redeposited in one of the linear ditches (LD 2).

The excavation was able to clarify the spatial layout of the site in a way that was not altogether apparent from the evaluation and to characterise the archaeological features. Two relatively large east-west aligned linear ditches (LD1 and LD2) were probably the earliest elements of the field system and ran parallel to each other. There was evidence for at least one episode of recutting of these ditches. Probably at the same time as the most southerly large east-west linear ditch (LD 2) was recut two smaller north-south orientated linear ditches were cut, forming a large field enclosure (EN 2), to the south, with a possible entrance at the northeast corner. A smaller east-west aligned ditch (LD 3) may have formed part of another enclosure, extending beyond the west edge of the excavation. A sub-rectangular ditched enclosure (EN 1) was associated with the most northerly large east-west aligned linear ditch LD 1, with a possible entrance at the northeast corner. This enclosure may perhaps have been a stock enclosure or compound, although the possible corner entrance may suggest a stock enclosure is more likely (Pryor 1998). If EN 1 functioned as a stock enclosure, it would presumably have had an associated bank and possibly a hedge, although no evidence of this was identified, during the excavation. The south side of Enclosure EN 1, formed the north ditch of a possible droveway between enclosures or fields, with the south droveway ditch being formed by a recut of the east-west aligned linear ditch LD 2. A deep wide curvilinear ditch (CD 1) extending beyond the west edge of the excavations, which was constructed at a later date than linear ditch LD 1, could possibly be part of an enclosure with a different function, possibly even a settlement enclosure. This interpretation is based on its different morphology and profile and the proximity of a large pit (F37), possibly used for storage or rubbish disposal. Linear feature (LD 4) which was located at the extreme west edge of the excavation, may be either an internal feature, within the possible settlement enclosure, or the west side of the sub-rectangular ditched enclosure EN 1.

The network of ditched field enclosures, potential stock enclosure and droveway and possible settlement enclosure, excavated during the project, are part of an extensive landscape of field systems and enclosures known through aerial photography. The project has demonstrated that evidence of these field systems survives, even in areas where aerial photography and geophysical survey had previously failed to locate archaeological features.

The possibility of carrying out phosphate survey and analysis, to aid identification of areas of possible droveways and stock enclosures, was considered during the excavation. However, due to large areas of the site flooding immediately after topsoil stripping this technique was not used, as it would not have yielded good results.

Despite the excavation of approximately 20 % of the ditches by length, no pottery or animal bone was recovered from the significant archaeological features. However, waterlogged wood was recovered from some of the ditch fills. A calibrated radiocarbon date of 400BC-350AD (Wk 10973; 1999 ± 123 BP, BUFAU 2002b) was obtained from waterlogged wood recovered from ditch LD 2, during the evaluation. This suggests ditch LD 2 is of Iron Age or Romano-British date and the other associated linear ditch features are probably of a similar date. Although no ceramic or bone artefacts were recovered, samples of waterlogged wood were taken which are suitable for radiocarbon dating. The species type and size of the waterlogged wood samples makes them unsuitable for dendro-chronological dating.

Environmental samples were collected for the recovery of plant remains, pollen and animal bone. The assessment found charred plant remains were not present in the samples assessed and this, together with the absence of animal bone, means the potential for the study of the economic function of the site, by this means, is limited. However, pollen and insect remains were well-preserved and abundant and seeds were also present. Study of these remains will help to characterise the local paleoenvironment.

12.0 Updated research design

The network of ditched field enclosures recorded at Balby Carr appear to be part of an extensive landscape of 'brickwork' pattern field systems, which date to the later prehistoric and early Roman-British period. These have been documented by Riley (1980), through aerial photography and they extend from North Nottinghamshire to South Yorkshire, being particularly concentrated on the Bunter sandstone geology. Many of the field systems appear to be associated with enclosures and other cropmarked features. They are termed 'brickwork' pattern because they consist of many parallel boundaries dividing the land into long strips which are cut into rectangles by short cross boundaries (Riley 1977). On the low-lying Loversall and Potteric Carr, of which Balby Carr is part, Riley (1977) notes that these fields were of a slightly different morphology to elsewhere, being less regular.

The work at Balby Carr has provided an opportunity to investigate part of such a field system, an associated smaller sub-rectangular ditched enclosure, possibly a stock enclosure, and a droveway. The excavation may have also located the edge of a possible settlement enclosure situated amongst the field system, similar to those visible on aerial photographs of land to the south of the site. Relatively few published large scale excavations have been carried out on the 'brickwork' field systems in South Yorkshire, and there is good potential for the study of the data collected to increase our knowledge of Iron Age and Romano-British settlement and farming in the area.

The lack of pottery makes the precise date of the archaeological features difficult to ascertain. However, relatively precise dating and the establishment of a site chronology for the field system and possible settlement enclosure should be achieved, by a

programme of radiocarbon dating of selected samples of charcoal and waterlogged wood from the samples recovered during the excavation.

The absence of animal bone and the paucity of evidence from the environmental samples, for charred plant remains and crop processing waste indicates that the potential for the excavation to provide evidence of the economy is limited. However, pollen and seeds were well preserved and the further analysis of these will provide evidence of the paleo-environment and human activity within it. Evidence from the plant remains indicated that the archaeological features were subject to waterlogging and organic remains survived well. The recovery of waterlogged wood suggested that there was considerable potential for the survival of organic remains, however other types of organic material were not found. The identification and analysis of the waterlogged wood may provide evidence of managed woodland. Insect remains were abundant and well preserved and the study of these has a high potential for characterising the local palaeoenvironment. The further study of the pollen should increase our understanding as to what was the nature of the agricultural use of the field system (e.g arable or pasture etc.) and help identify what changes occurred in the surrounding environment.

Further study will examine the place of the site in the wider landscape and in the context of other sites in the locality and in the archaeological development of South Yorkshire and North Nottinghamshire.

13.0 Proposed Publication Synopsis

The results of the work will be summarised in the appropriate issue of *Archaeology in South Yorkshire.* Publication of a summary report in the *Yorkshire Archaeological Journal* is proposed.
Structure of final report:

The excavation of an Iron Age and Roman site at Balby Carr, Doncaster, South Yorkshire
By Laurence Jones
With contributions by Marina Ciaraldi, James Greig and David Smith.

Summary 200 - words.

Acknowledgements - 100 words.

Introduction - the site and its landscape setting, background to the excavation. 500 words. 1 figure.

The Results - an illustrated account outlining main features and site characteristics. 1000 words. 4-6 figures. 4 photos.

Specialist Reports

Flint by Lynne Bevan 50 words.
Plant remains by Marina Ciaraldi. 500 words. 1 table.
Pollen by James Greig 1000 words 2 tables
Insect remains by David Smith 500 words. 1 table
Wood identification by Rowena Gale 250 words 1 table

Discussion - 500 words. 1 figure.

References

14.0 Proposed post-excavation task list

Overall Project management (L.J)

Preparation of first draft report (Task 1) (L.J)

Co-ordination of specialists (Task 2) (L.J)

Selection and despatching of samples for radiocarbon dating (Task 3) (M.C/ L.J)

Preparation of flint, waterlogged wood, pollen, insect remains and wood identification reports (Task 4) (L.B., M.C, J.G, D.S and R.G)

Library research and text integration (Task 5) (L.J)

Preparation of site drawings (Task 6) (N.D)

Preparation of finds drawings (Task 7) (N.D)

Editing of first draft report (Task 8) (A.J)

Amendments to first draft (Task 9) (L.J)

Proof reading and publication (Task 10) (L.J)

Arrangements for final deposition of archive and finds (Task 11) (K.M)

L.J Laurence Jones, A.J Alex Jones, M.C Marina Ciaraldi, J.G James Greig, D.S David Smith, R. G Rowena Gale, N.D Nigel Dodds, K.M Karen Muldoon.

15.0 Acknowledgements

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The illustrations were prepared by Nigel Dodds. The project was monitored by Roy Sykes, Archaeologist for South Yorkshire Archaeology Service. This report was edited by Alex Jones.

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Appendix 1: list of contexts and features

Strat unit	Feature num	Structure num	Feature keyword	Description of strat unit	X coordinate	Y coordinate	Env Sample num
1010			LAYER	Topsoil			
1011			LAYER	Natural			
1012			LAYER	Subsoil			
1013	F0010	LD 2	DITCH	Fill of ditch			
1014	F0011	LD 2	DITCH	Fill of ditch			B/S#1 C14#1,23B
1015	F0001	LD 2	DITCH	Fill of ditch			
1016	F0003	LD 2	DITCH	Fill of ditch			
1017	F0002	LD 2	DITCH	Fill of ditch			
1018	F0002	LD 2	DITCH	Fill of ditch			
1019	F0004	LD 2	DITCH	Fill of ditch			
1020	F0005	LD 2	DITCH	Fill of ditch			
1021	F0006	LD 2	DITCH	Fill of ditch			
1022	F0006	LD 2	DITCH	Fill of ditch			
1023	F0007	LD 2	DITCH	Fill of ditch			
1024	F0008	LD 2	DITCH	Fill of ditch			B/S # 2
1025	F0009	LD 2	DITCH	Fill of ditch			B/S # 3
1026	F0012	EN 2	DITCH	Fill of ditch			
1027	F0013	EN 2	DITCH	Fill of ditch			
1028	F0010	LD 2	DITCH	Fill of ditch			
1029	F0014	EN 2	DITCH	Fill of ditch			B/S # 4
1030	F0015	LD 2	DITCH	Fill of ditch			
1031	F0015	LD 2	DITCH	Fill of ditch			
1032	F0018	LD 2	DITCH	Fill of ditch			
1033	F0017	EN 2	DITCH	Fill of ditch			
1034	F0018	EN 2	DITCH	Fill of ditch			
1035	F0019	EN 2	DITCH	Fill of ditch			
1036	F0020	LD 3	DITCH	Fill of ditch			
1037	F0020	LD 3	DITCH	Fill of ditch			
1038	F0021	LD 3	DITCH	Fill of ditch			
1039	F0022	LD 3	DITCH	Fill of ditch			C14 # 3
1040	F0024	EN 2	DITCH	Fill of ditch			
1041	F0025		DRAIN	Fill of drainage ditch			
1042	F0026	EN 2	DITCH	Fill of ditch			
1043	F0027	EN 2	DITCH	Fill of ditch			
1044	F0023	EN 2	DITCH	Fill of ditch			
1045	F0023	EN 2	DITCH	Fill of ditch			
1046	F0028	EN 1	DITCH	Fill of ditch			
1047	F0029	LD 3	DITCH	Fill of ditch			B/S # 5
1048	F0029	LD 3	DITCH	Fill of ditch			
1049	F0030	EN 1	DITCH	Fill of ditch			
1050	F0030	EN 1	DITCH	Fill of ditch			
1051	F0031	EN 1	DITCH	Fill of ditch			B/S # 22
1052	F0032	LD 2	DITCH	Fill of ditch			
1053	F0033	LD 2	DITCH	Fill of ditch			
1054	F0034		NATURAL HOLLOW	Fill of natural hollow			
1055	F0035	EN 1	DITCH	Fill of ditch			
1056	F0036	EN 1	DITCH	Fill of ditch			
1057	F0037		PIT	Fill of pit			C14 # 7
1058	F0038	EN 1	DITCH	Fill of ditch			
1059	F0039	EN 1	DITCH	Fill of ditch			
1060	F0040	EN 1	DITCH	Fill of ditch			
1061	F0041	EN 2	DITCH	Fill of ditch			
1062	F0041	EN 2	DITCH	Fill of ditch			
1063	F0041	EN 2	DITCH	Fill of ditch			
1064	F0042	EN 1	DITCH	Fill of ditch			B/S # 7
1065	F0043	EN 1	DITCH	Fill of ditch			B/S # 6
1066	F0045	EN 1	DITCH	Fill of ditch			
1067	F0045	LD 2	DITCH	Fill of ditch			
1068	F0045	LD 2	DITCH	Fill of ditch			
1069	F0045	LD 2	DITCH	Fill of ditch			C14 # 6
1070	F0046	EN 1	DITCH	Fill of ditch			
1071	F0047	CD 2	DITCH	Fill of ditch			
1072	F0048	CG 1	GULLY	Fill of gully			
1073	F0049	CG 1	GULLY	Fill of gully			
1074	F0046	EN 1	DITCH	Fill of ditch			
1075	F0050	EN 2	DITCH	Fill of ditch			B/S # 21
1076	F0045	LD 2	DITCH	Fill of ditch			
1077	F0055	LD 1	DITCH	Fill of ditch			B/S # 9
1078	F0055	LD 1	DITCH	Fill of ditch			
1079	F0051	CG 1	GULLY	Fill of gully terminal			
1080	F0052	CD 2	GULLY	Fill of gully terminal			B/S # 10

Strat unit	Feature num	Structure num	Feature Keyword	Description of strat unit	X coordinate	Y coordinate	Dry Sample num
1051	F0053	CD 2	DITCH	Fill of ditch terminal			
1052	F0054	CG 1	GULLY	Fill of gully terminal			B/S # 14
1083	F0037		PIT	Fill of pit			B/S # 8
1084	F0037		PIT	Fill of pit			
1085	F0057	CD 1	DITCH	Fill of ditch			
1086	F0058		NATURAL HOLLOW	Fill of natural hollow			
1087	F0056	CD 1	DITCH	Fill of ditch			B/S # 11 W/S # 1
1088	F0055	CD 1	DITCH	Fill of ditch			B/S # 12
1089	F0057		DITCH	Fill of ditch			
1090	F0058		NATURAL HOLLOW	Fill of natural hollow			
1091	F0059	LD 1	DITCH	Fill of ditch			
1092	F0060	LD 1	DITCH	Fill of ditch			
1093	F0060	LD 1	DITCH	Fill of ditch			
1094	F0061	LD 1	DITCH	Fill of ditch			
1095	F0062	LD 2	DITCH	Fill of ditch			
1096	F0063	LD 2	DITCH	Fill of ditch			
1097	F0063	LD 2	DITCH	Fill of ditch			
1098	F0064	LD 1	DITCH	Fill of ditch			
1099	F0064	LD 1	DITCH	Fill of ditch			B/S # 13 C14 # 5
1100	F0065	CD 1	DITCH	Fill of ditch			
1101	F0065	CD 1	DITCH	Fill of ditch			
1102	F0065	CD 1	DITCH	Fill of ditch			C14 # 4
1103	F0067	LD 1	DITCH	Fill of ditch			
1104	F0066	CD 1	DITCH	Fill of ditch			
1105	F0062	LD 2	DITCH	Fill of ditch			
1106	F0069	LD 1	DITCH	Fill of ditch			
1107	F0067	LD 1	DITCH	Fill of ditch			
1108	F0067	LD 1	DITCH	Fill of ditch			
1109	F0070	LD 1	DITCH	Fill of ditch			
1110	F0071	LD 1	DITCH	Fill of ditch			
1111	F0072	EN 1	DITCH	Fill of ditch			
1112	F0073		NATURAL HOLLOW	Fill of natural hollow			
1113	F0074	LD 4	DITCH	Fill of ditch			
1114	F0075		NATURAL HOLLOW	Fill of natural hollow			
1115	F0076	LD 4	DITCH	Fill of ditch			
1116	F0072	EN 1	DITCH	Fill of ditch			
1117	F0078	EN 1	DITCH	Fill of ditch			
1118	F0079	EN 1	DITCH	Fill of ditch terminal			
1119	F0079	EN 1	DITCH	Fill of ditch terminal			
1120	F0080	LD 2	DITCH	Fill of ditch			B/S # 15
1121	F0080	LD 2	DITCH	Fill of ditch			B/S # 16
1122	F0080	LD 2	DITCH	Fill of ditch			
1123	F0077	LD 2	DITCH	Fill of ditch			
1124	F0077	LD 2	DITCH	Fill of ditch			
1125	F0077	LD 2	DITCH	Fill of ditch			
1126	F0081	EN 1	DITCH	Fill of ditch			
1127	F0082	LD 1	DITCH	Fill of ditch			
1128	F0083	LD 1	DITCH	Fill of ditch			C14 # 10
1129	F0084	LD 3	DITCH	Fill of ditch terminal			
1130	F0085	LD 2	DITCH	Fill of ditch			C14 # 9
1131	F0085	EN 2	DITCH	Fill of ditch terminal			
1132	F0085	LD 2	DITCH	Fill of ditch			
1133	F0087	LD 2	DITCH	Fill of ditch			
1134	F0088	EN 2	DITCH	Fill of ditch terminal			
1135	F0089	EN 2	DITCH	Fill of ditch			
1136	F0090	LD 1	DITCH	Fill of ditch			
1137	F0090	LD 1	DITCH	Fill of ditch			
1138	F0091	LD 1	DITCH	Fill of ditch			B/S # 17
1139	F0098	LD 1	DITCH	Fill of ditch			B/S # 18
1140	F0092	LD 2	DITCH	Fill of ditch			
1141	F0093	LD 2	DITCH	Fill of ditch			B/S # 19
1142	F0094	LD 1	DITCH	Fill of ditch			
1143	F0095	EN 1	DITCH	Fill of ditch			
1144	F0095	EN 1	DITCH	Fill of ditch			
1145	F0096	EN 1	DITCH	Fill of ditch			
1146	F0096	EN 1	DITCH	Fill of ditch			
1147	F0097	EN 2	DITCH	Fill of ditch			
1148	F0099	EN 1	DITCH	Fill of ditch			B/S # 20
1149	F0099	EN 1	DITCH	Fill of ditch			
1150	F0100		NATURAL HOLLOW	Fill of natural hollow			
1151	F0101		NATURAL HOLLOW	Fill of natural hollow			

Strat unit	Feature num	Structure num	Feature keyword	Description of strat unit	X coordinate	Y coordinate	Env Sample num
1152	F0102	LD 2	DITCH	Fill of ditch			
1153	F0103	LD 2	DITCH	Fill of ditch			
1154	F0104		NATURAL HOLLOW	Fill of natural hollow			
1155			NATURAL HOLLOW	Fill of natural hollow			
1156	F0105	LD 2	DITCH	Fill of ditch			
1157	F0105	LD 2	DITCH	Fill of ditch			
1158	F0106		NATURAL HOLLOW	Fill of natural hollow			
1159	F0107	EN 2	DITCH	Fill of ditch			
1160	F0108	LD 2	DITCH	Fill of ditch			
1161	F0109	LD 2	DITCH	Fill of ditch			
1162	F0110		NATURAL HOLLOW	Fill of natural hollow			
1163	F0114	LD 2	DITCH	Fill of ditch			
1164	F0115		NATURAL HOLLOW	Fill of natural hollow			
1165	F0117		PIT	Fill of pit			
1166	F0117		PIT	Fill of pit			B/S # 23
1167	F0119		NATURAL HOLLOW	Fill of natural hollow			
1168	F0119		NATURAL HOLLOW	Fill of natural hollow			
1169	F0121		NATURAL HOLLOW	Fill of natural hollow			
1170	F0122		NATURAL HOLLOW	Fill of natural hollow			
1171	F0123		NATURAL HOLLOW	Fill of natural hollow			
1172	F0111		NATURAL HOLLOW	Fill of natural hollow			
1173	F0112		NATURAL HOLLOW	Fill of natural hollow			
1174	F0113		NATURAL HOLLOW	Fill of natural hollow			
1175	F0116		NATURAL HOLLOW	Fill of natural hollow			
1176	F0118		NATURAL HOLLOW	Fill of natural hollow			
1177	F0120		NATURAL HOLLOW	Fill of natural hollow			
1178	F0124		NATURAL HOLLOW	Fill of natural hollow			
4007	F0400	EN 2	DITCH	Fill of ditch			
5003	F0500		DITCH	Fill of ditch			
5004	F0500		DITCH	Fill of ditch			
6012	F0604		NATURAL HOLLOW	Fill of natural hollow			
6016	F0604		NATURAL HOLLOW	Fill of natural hollow			
6018	F0600	EN 2	DITCH	Fill of ditch			
10008	F1000	LD 1	DITCH	Fill of ditch			
10010	F1000	LD 1	DITCH	Fill of ditch			
10011	F1000	LD 1	DITCH	Fill of ditch			
17004	F1700	LD 2	DITCH	Fill of ditch			
18010	F1802	EN 1	DITCH	Fill of ditch			
18011	F1804	LD 2	DITCH	Fill of ditch			
18012	F1804	LD 2	DITCH	Fill of ditch			
18013	F1804	LD 2	DITCH	Fill of ditch			
F0001	F0001	LD 2	DITCH	Cut of ditch	58694	466	C14 # 1, 2 & 8
F0002	F0002	LD 2	DITCH	Cut of ditch	58654	463	
F0003	F0003	LD 2	DITCH	Cut of ditch	58654	463	
F0004	F0004	LD 2	DITCH	Cut of ditch	58638	462	
F0005	F0005	LD 2	DITCH	Cut of ditch	58638	462	
F0006	F0006	LD 2	DITCH	Cut of ditch	58615	458	
F0007	F0007	LD 2	DITCH	Cut of ditch	58615	458	
F0008	F0008	LD 2	DITCH	Cut of ditch	58674	465	B/S # 2
F0009	F0009	LD 2	DITCH	Cut of ditch	58674	465	B/S # 3
F0010	F0010	LD 2	DITCH	Cut of ditch	58665	464	
F0011	F0011	LD 2	DITCH	Cut of ditch	58665	464	B/S # 1
F0012	F0012	EN 2	DITCH	Cut of ditch	58630	452	
F0013	F0012	EN 2	DITCH	Cut of ditch	58630	452	
F0014	F0014	EN 2	DITCH	Cut of ditch	58633	441	B/S # 4
F0015	F0015	LD 2	DITCH	Cut of ditch	58607	458	
F0016	F0016	LD 2	DITCH	Cut of ditch	58607	458	
F0017	F0017	EN 2	DITCH	Cut of ditch	58633	441	
F0018	F0018	EN 2	DITCH	Cut of ditch	58650	387	
F0019	F0019	EN 2	DITCH	Cut of ditch	58650	387	
F0020	F0020	LD 3	DITCH	Cut of ditch	58509	424	
F0021	F0021	LD 3	DITCH	Cut of ditch	58526	426	
F0022	F0022	LD 3	DITCH	Cut of ditch	58518	425	C14 # 3
F0023	F0023	EN 2	DITCH	Cut of ditch	58638	428	
F0024	F0024	EN 2	DITCH	Cut of ditch	58646	400	
F0025	F0025		DRAIN	Cut of modern drainage ditch	58646	400	
F0026	F0026	EN 2	DITCH	Cut of ditch	58942	414	
F0027	F0027	EN 2	DITCH	Cut of ditch	58942	414	
F0028	F0028	EN 1	DITCH	Cut of ditch	58530	457	
F0029	F0029	LD 3	DITCH	Cut of ditch	58530	427	B/S # 5
F0030	F0030	EN 1	DITCH	Cut of ditch	58553	455	

Strat unit	Feature num	Structure num	Feature keyword	Description of strat unit	X coordinate	Y coordinate	Env Sample num
F0031	F0031	EN 1	DITCH	Cut of ditch	58553	456	B/S # 22
F0032	F0032	LD 2	DITCH	Cut of ditch	58523	452	
F0033	F0033	LD 2	DITCH	Cut of ditch	58523	452	
F0034	F0034		NATURAL HOLLOW	Natural ho low	58511	411	
F0035	F0035	EN 1	DITCH	Cut of ditch	58575	459	
F0036	F0036	EN 1	DITCH	Cut of ditch	58575	459	
F0037	F0037		PIT	Cut of pit	58518	463	B/S # 8 C14 # 7
F0038	F0038	EN 1	DITCH	Cut of ditch	58519	462	
F0039	F0039	EN 1	DITCH	Cut of ditch	58541	457	
F0040	F0040	EN 1	DITCH	Cut of ditch	58541	457	
F0041	F0041	EN 2	DITCH	Cut of ditch	58545	437	
F0042	F0042	EN 1	DITCH	Cut of d tch	58591	464	B/S # 7
F0043	F0043	EN 1	DITCH	Cut of d.tch	58591	464	B/S # 6
F0045	F0045	LD 2	DITCH	Cut of ditch	58583	456	C14 # 6
F0046	F0046	EN 1	DITCH	Cut of ditch	58591	474	
F0047	F0047	CD 2	DITCH	Cut of ditch	58593	474	
F0048	F0048	CG 1	GULLY	Cut of gully	58592	473	
F0049	F0049	CG 1	GULLY	Cut of gully	58589	473	
F0050	F0050	EN 2	DITCH	Cut of ditch	58547	424	B/S # 21
F0051	F0051	CG 1	GULLY TERMINAL	Cut of gully terminal	58592	472	
F0052	F0052	CD 2	DITCH TERMINAL	Cut of gully terminal	58586	472	B/S # 10
F0053	F0053	CD 2	DITCH TERMINAL	Cut of ditch terminal	58593	474	
F0054	F0054	CG 1	GULLY TERMINAL	Cut of gully terminal	58590	474	B/S # 14
F0055	F0055	LD 1	DITCH	Cut of ditch	58567	513	B/S # 9
F0056	F0056	CD 1	DITCH	Cut of ditch	58517	482	B/S#11&12 W/S#1
F0057	F0057	CD 1	DITCH	Cut of ditch	58519	504	
F0058	F0058		NATURAL HOLLOW	Root disturbance	58555	490	
F0059	F0059	LD 1	DITCH	Cut of ditch	58640	527	
F0060	F0060	LD 1	DITCH	Cut of ditch	58640	527	
F0061	F0061	LD 1	DITCH	Cut of ditch	58580	516	
F0062	F0062	LD 2	DITCH	Cut of ditch	58543	453	
F0063	F0063	LD 2	DITCH	Cut of ditch	58543	452	
F0064	F0064	LD 1	DITCH	Cut of ditch	58517	508	B/S # 13 C14 # 5
F0065	F0065	CD 1	DITCH	Cut of ditch	58517	506	
F0066	F0066	CD 1	DITCH	Cut of ditch	58521	492	C14 # 4
F0067	F0067	LD 1	DITCH	Cut of ditch	58610	522	
F0068	F0068	LD 2	DITCH	Cut of ditch	58543	453	
F0069	F0069	LD 1	DITCH	Cut of ditch	58610	522	
F0070	F0070	LD 1	DITCH	Cut of ditch	58532	510	
F0071	F0071	LD 1	DITCH	Cut of ditch	58532	510	
F0072	F0072	EN 1	DITCH	Cut of ditch	58563	459	
F0073	F0073		NATURAL HOLLOW	Natural hollow	58517	489	
F0074	F0074	LD 4	DITCH	Cut of ditch	58515	493	
F0075	F0075		NATURAL HOLLOW	Root d sturbance	58516	493	
F0076	F0076	LD 4	DITCH	Cut of ditch	58515	493	
F0077	F0077	LD 2	DITCH	Cut of d tch	58552	453	
F0078	F0078	EN 1	DITCH	Cut of gully	58563	459	
F0079	F0079	EN 1	DITCH	Cut of ditch terminal	58587	513	
F0080	F0080	LD 2	DITCH	Cut of ditch	58565	454	B/S # 15&16
F0081	F0081	EN 2	DITCH	Cut of ditch	58552	403	
F0082	F0082	LD 1	DITCH	Cut of ditch	58542	511	
F0083	F0083	LD 1	DITCH	Cut of d tch	58542	511	C14 # 10
F0084	F0084	LD 3	DITCH	Cut of ditch termina	58544	427	
F0085	F0085	LD 2	DITCH	Cut of ditch	58628	460	C14 # 9
F0086	F0086	EN 2	DITCH	Cut of ditch terminal	58628	459	
F0087	F0087	LD 2	DITCH	Cut of ditch	58628	460	
F0088	F0088	EN 2	DITCH	Cut of ditch terminal	58628	459	
F0089	F0089	EN 2	DITCH	Cut of ditch	58556	390	
F0090	F0090	LD 1	DITCH	Cut of ditch	58504	518	
F0091	F0091	LD 1	DITCH	Cut of ditch	58625	524	B/S # 17
F0092	F0092	LD 2	DITCH	Cut of ditch	58531	452	
F0093	F0093	LD 2	DITCH	Cut of ditch	58531	452	B/S # 19
F0094	F0094	LD 1	DITCH	Cut of ditch	58567	513	
F0095	F0095	EN 1	DITCH	Cut of ditch	58590	465	
F0096	F0096	EN 1	DITCH	Cut of ditch	58591	484	
F0097	F0097	EN 2	DITCH	Cut of ditch	58551	409	
F0098	F0098	LD 1	DITCH	Cut of ditch	58625	524	B/S # 18
F0099	F0099	EN 1	DITCH	Cut of ditch	58589	504	B/S # 20
F0100	F0100		NATURAL HOLLOW	Root disturbance	58579	475	
F0101	F0101		NATURAL HOLLOW	Natural gully	58533	414	
F0102	F0102	LD 2	DITCH	Cut of ditch	58520	451	

Strat unit	Feature num	Structure num	Feature keyword	Description of strat unit	X coordinate	Y coordinate	Env Sample num
F0103	F0103	LD 2	DITCH	Cut of ditch	58520	455	
F0104	F0104		NATURAL HOLLOW	Root disturbance	58529	474	
F0105	F0105	LD 2	DITCH	Cut of ditch	58681	465	
F0106	F0106	EN 2	NATURAL HOLLOW	FILL OF fill of natural hollow	58548	462	
F0107	F0107	EN 2	DITCH	Cut of ditch	58551	409	
F0108	F0108	LD 2	DITCH	Cut of ditch	58595	457	
F0109	F0109	LD 2	DITCH	Cut of ditch	58595	457	
F0110	F0110		NATURAL HOLLOW	Root disturbance	58537	480	
F0111	F0111		NATURAL HOLLOW	Natural gully	58537	416	
F0112	F0112		NATURAL HOLLOW	Natural gully	58542	410	
F0113	F0113		NATURAL HOLLOW	Root Disurbace	58521	413	
F0114	F0114	LD 2	DITCH	Cut of ditch	58689	465	
F0115	F0115		NATURAL HOLLOW	Root disturbance	58538	439	
F0116	F0116		NATURAL HOLLOW	Natural gully	58534	424	
F0117	F0117		PIT	Cut of pit	58540	435	B/S # 23
F0118	F0118		NATURAL HOLLOW	Natural gully	58525	409	
F0119	F0119		NATURAL HOLLOW	Natural gully	58507	408	
F0120	F0120		NATURAL HOLLOW	Natural gully	58515	420	
F0121	F0121		NATURAL HOLLOW	Natural gully	58520	408	
F0122	F0122		NATURAL HOLLOW	Natural gully	58516	407	
F0123	F0123		NATURAL HOLLOW	Natural gully	58509	406	
F0124	F0124		NATURAL HOLLOW	Natural gully	58530	505	
F0400	F0400	EN 2	DITCH	Cut of ditch	58551	407	
F0500	F0500		DITCH	Cut of ditch	58523	460	
F0600	F0600	EN 2	DITCH	Cut of ditch	58591	474	
F0604	F0604		NATURAL HOLLOW	Root disturbance	58579	475	
F1000	F1000	LD 1	DITCH	Cut of ditch	58597	519	
F1700	F1700	LD 2	DITCH	Cut of ditch	58680	464	
F1802	F1802	EN 1	DITCH	Cut of ditch	58558	459	
F1804	F1804	LD2	DITCH	Cut of ditch	58558	453	
F1801	F1801	EN 1	DITCH	Cut of ditch	58558	459	
F1803	F1803	LD 2	DITCH	Cut of ditch	58554	454	
F0601	F0601	CD 2	DITCH	Cut of ditch	58593	474	
F0602	F0602	CG 1	GULLY	cut of gully	58590	474	
F0603	F0603	EN 1	DITCH	cut of ditch	58591	474	
18002	F1801	EN 1	DITCH	fill of ditch			
18003	F1803	LD 2	DITCH	fill of ditch			
6019	F0601	CD 2	DITCH	fill of ditch			
6020	F0602	CG 1	GULLY	fill of gully			
6021	F0603	EN1	DITCH	fill of ditch			
6019	F0603	EN1	DITCH	fill of ditch			

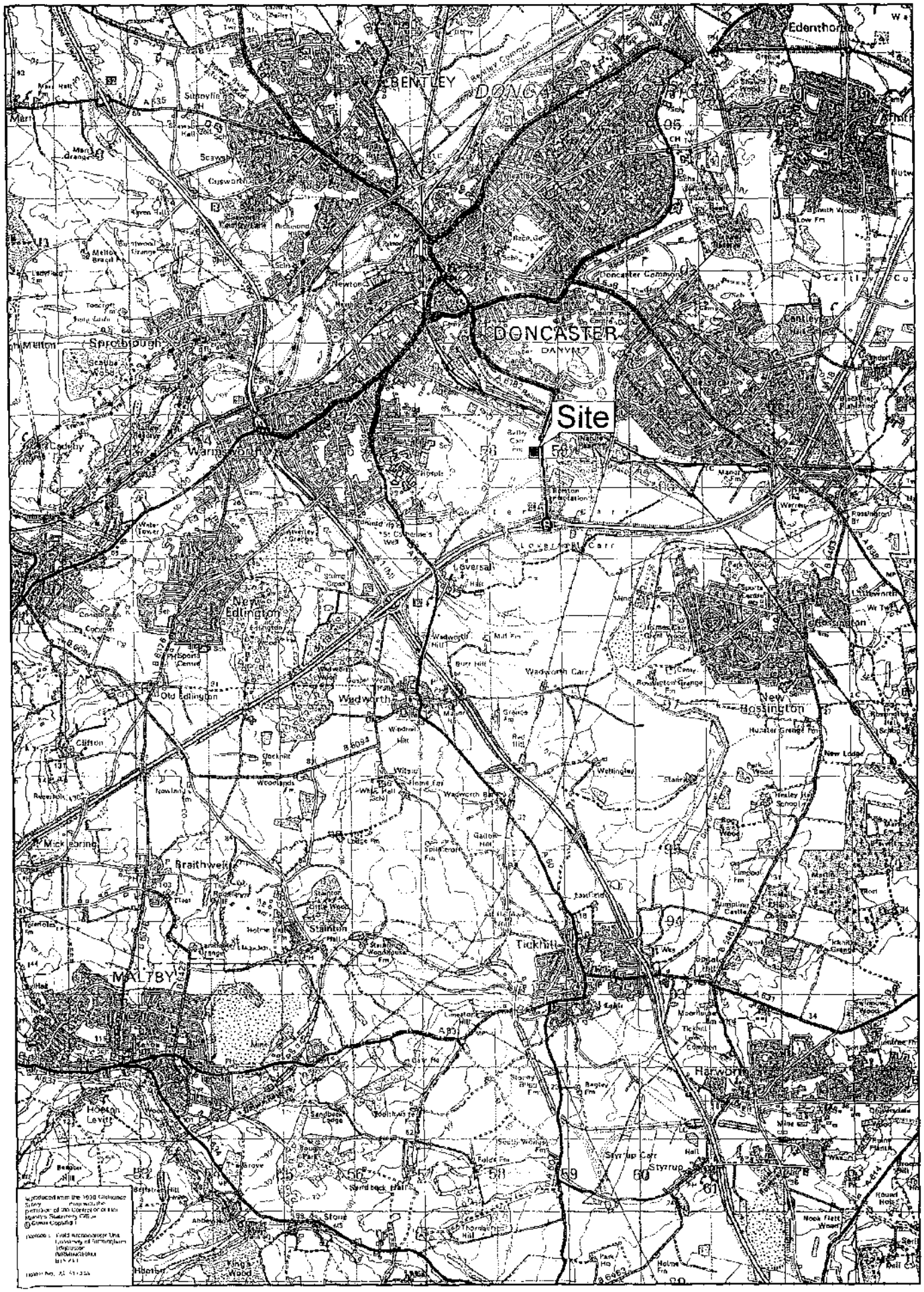
Site
DONCASTER
BENTLEY
Edenthorpe
Sprotbrough
Warmsworth
Loversall
New Edlington
Old Edlington
Wadworth
New Hossington
Braithwell
Stainton
Tickhill
MALTBY
Harworth
Styrrup
Hooton Levitt
Clifton
Micklebring

Fig.1

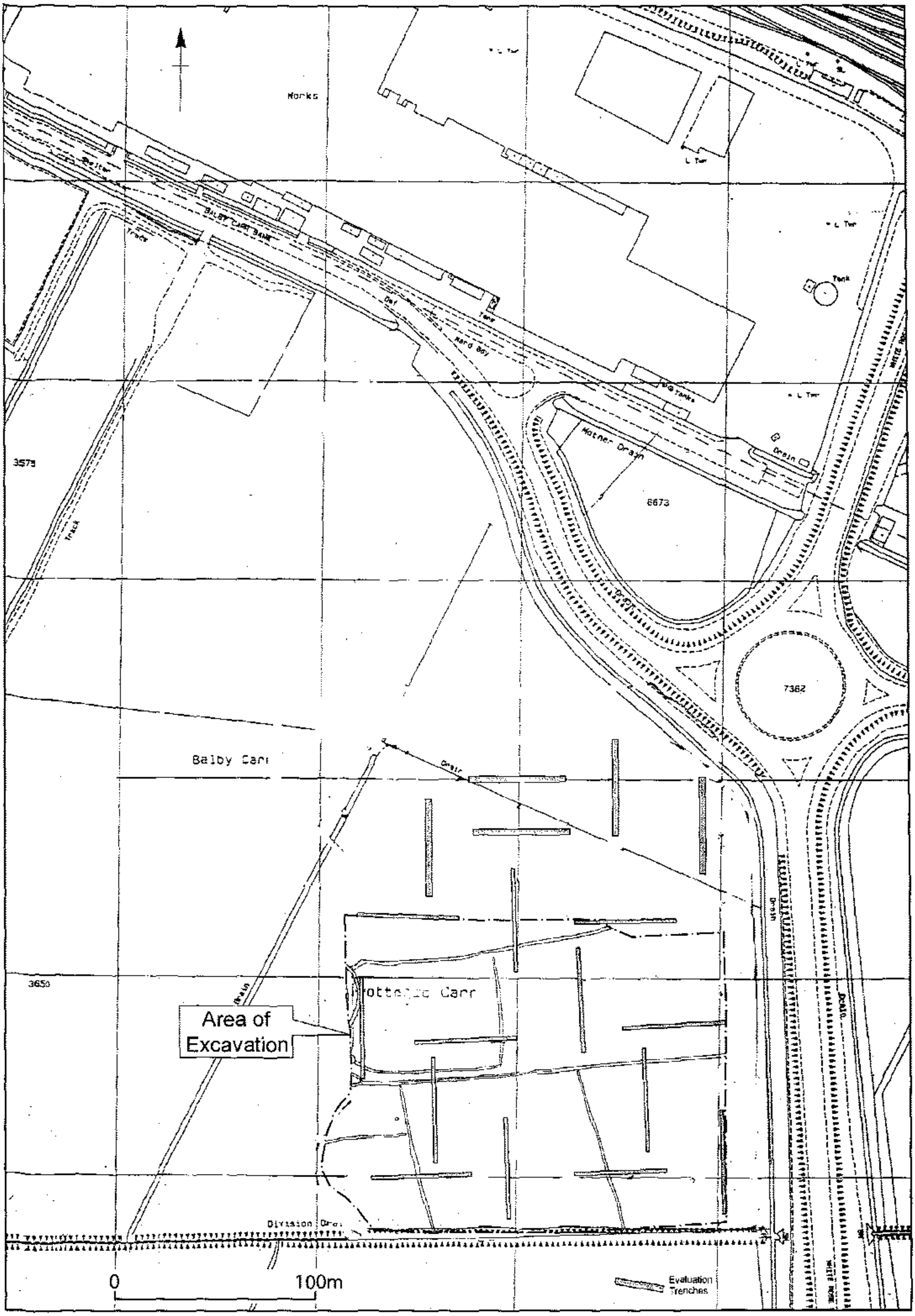
Works
Balby Carr
Area of Excavation
Mother Drain
Track
Drain
Tank
3575
3650
6673
7362
0
100m
Evaluation Trenches

Fig.2

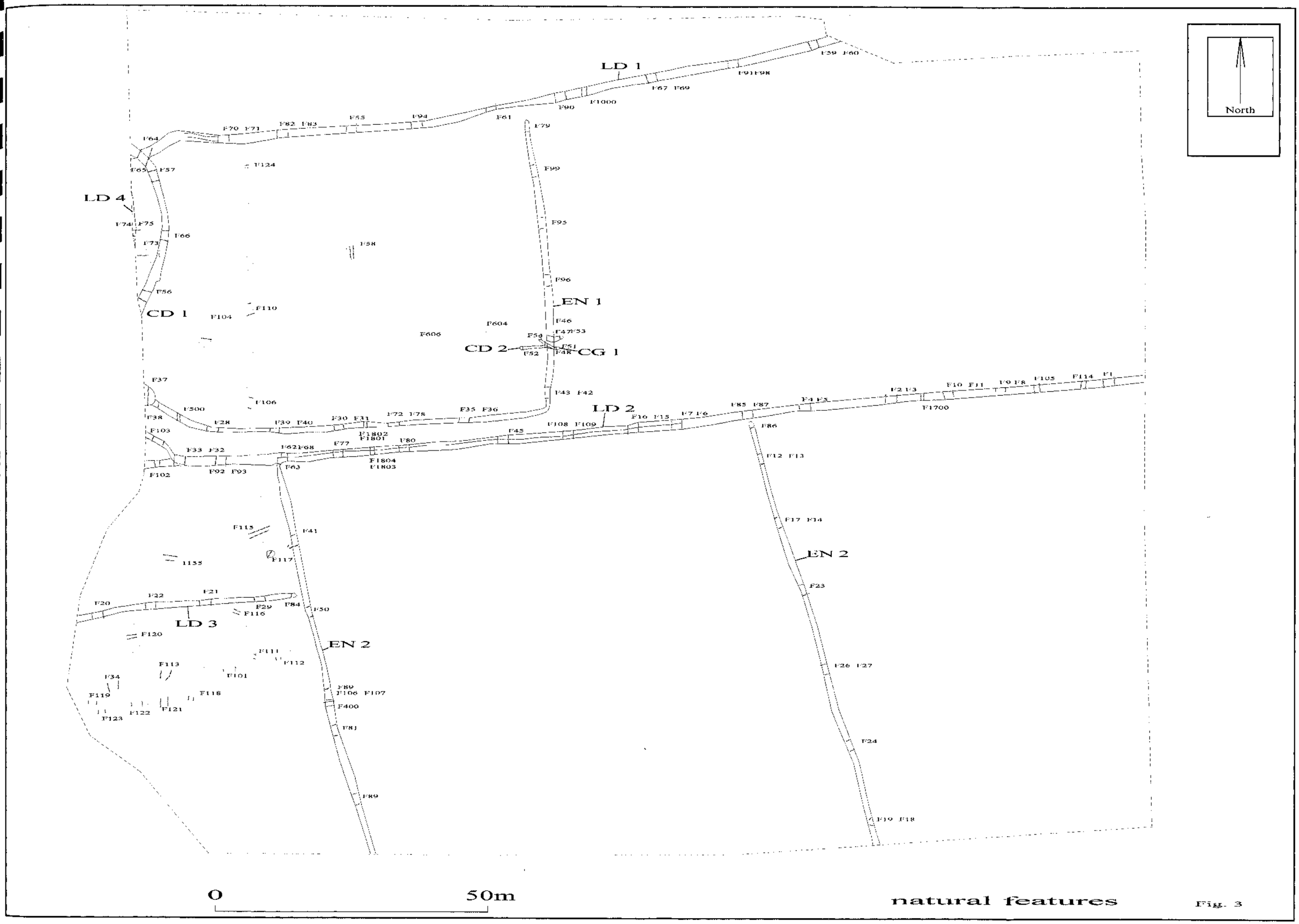
North
LD 1
LD 4
LD 2
LD 3
CD 1
CD 2
CG 1
EN 1
EN 2
EN 2
F59 F60
F91 F98
F67 F69
F90
F1000
F61
F79
F64
F70 F71
F82 F83
F55
F94
F124
F65
F57
F99
F74
F75
F66
F95
F73
F58
F56
F96
F110
F104
F606
F604
F46
F47 F53
F54
F51
F52
F48
F37
F106
F43 F42
F500
F38
F28
F39 F40
F30 E31
F72 F78
F35 F36
F108 F109
F16 F15
F7 F6
F85 F87
F4 F5
F2 F3
F10 F11
F9 F8
F105
F114
F1
F1700
F103
F1802
F1801
F80
F45
F86
F33 F32
F62 F68
F77
F12 F13
F1804
F1803
F63
F102
F92 F93
F115
F41
F117
1155
F17 F14
F23
F22
F21
F20
F29
F84
F50
F116
F120
F111
F112
F113
F101
F34
F89
F106 F107
F119
F118
F400
F122
F121
F123
F88
F26 F27
F24
F89
F19 F18
0
50m
natural features

Fig. 3

Plate 1: The site from White Rose Way, looking northwest.

Plate 2: Linear ditch LD1 under excavation with regularly spaced post-medieval ditches visible, looking south.

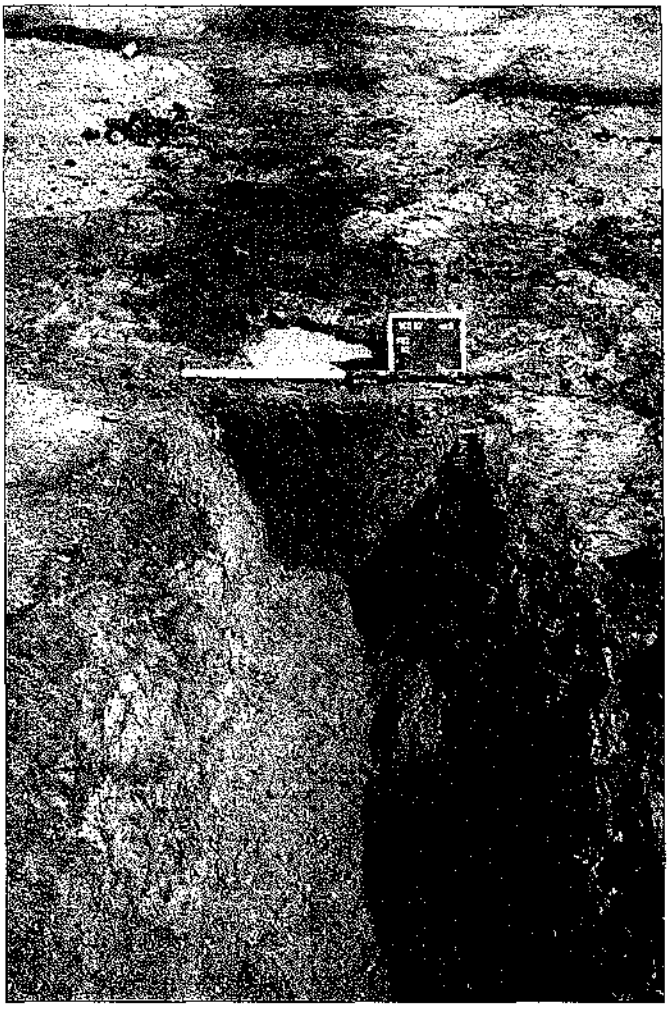

Plate 3: Linear ditch LD1 showing recut, west facing section.

Plate 4: Linear ditch LD2 under excavation, looking northwest.

Plate 5: Linear ditch LD2 showing recut, west facing section.

Plate 6: Possible droveway between LN1 and LD2, looking east.

Plate 7: Curvi-linear ditch CD2 cutting linear ditch LD1, looking south.

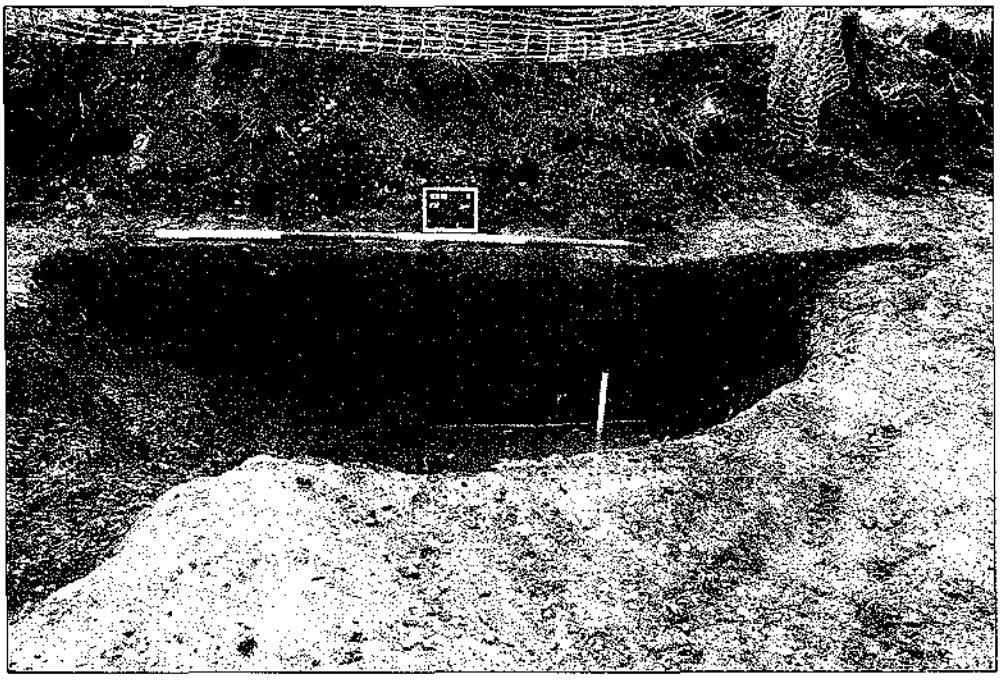

Plate 8: Pit F37, east facing section.