ARCHAEOLOGICAL EVALUATIONS PRIOR TO THE CONSTRUCTION OF A TRUNK WATER MAIN BETWEEN BARLBOROUGH AND HODTHORPE, DERBYSHIRE

DAVID KNIGHT AND VICKI PRIEST

TRENT & PEAK
ARCHAEOLOGICAL TRUST

ARCHAEOLOGICAL EVALUATIONS PRIOR TO THE CONSTRUCTION OF A TRUNK WATER MAIN BETWEEN BARLBOROUGH AND HODTHORPE, DERBYSHIRE (SK 48287751 - SK 55297656)

Authors: DAVID KNIGHT and VICKI PRIEST (T&PAT)

With contributions by Daryl Garton, Ruth Leary and Steve Malone (T&PAT)

May 1997

Project Code: STB

Filename: STB.RPT

Trent & Peak Archaeological Trust
University Park
Nottingham
NG7 2RD

Tel (0115) 951 4821
Fax (0115) 951 4824

CONTENTS

	Page
List of Figures	1
List of Plates	2
Summary	3
1. Introduction	4
1.1. Sites and Monuments Records	4
1.2. Creswell Heritage Trust watching brief	4
1.3. Project design	5
2. Test-pit transect	5
2.1. Methodology	5
a) Test-pit spacing	5
b) Methods of excavation	6
2.2. Test-pit stratigraphy	7
2.3. Prehistoric lithic scatters	9
2.4. Romano-British pottery concentrations	9
3. Geophysical Survey	10
4. Excavations of Romano-British pottery scatters	11
4.1. Trench 117	12
4.2. Trench 123	14
5. Watching brief. S. Malone	15
6. Romano-British pottery. R.S. Leary	15
7. Prehistoric lithic artefacts. D. Garton	18
8. Summary and conclusions	20
References	22
Acknowledgements	23
Appendices	
1. Catalogue of lithic artefacts. D. Garton	25
2. Romano-British pottery. R.S. Leary	27

LIST OF FIGURES

Fig.1 Location of pipeline and test-pit transect, sites recorded in Derbyshire SMR and finds located during Creswell Heritage Trust watching brief. Scale 1:20,000

Fig.2 Location of trial trenches and distribution of flintwork and Romano-British pottery obtained from test-pits. Scale 1:10,000

Fig.3 Stratigraphy of test-pits 1-32 and 104-116 (north-west of Whitwell village). Horizontal scale 1: 2500; vertical scale (test-pits) 1:50

Fig.4 Stratigraphy of test-pits 33-62 (north of Whitwell village). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

Fig.5 Stratigraphy of test-pits 63-91 and 124-127 (north of Hodthorpe village). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

Fig.6 Stratigraphy of test-pits 92-103 (Hodthorpe to Broad Lane). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

Fig.7 Sections of test-pits 119, 108, 33, 45, 53 and 54. Scale 1:20

Fig.8 Test-pit stratigraphy related to variations in topography. Horizontal scale 1:2500; vertical scale (test-pits) 1:50

Fig.9 Post-excavation plan of trench 117. Scale 1:200

Fig.10 Post-excavation plan of trench 123. Scale 1:100

Fig.11 Extent of geomagnetic survey. Scale 1:2500

Fig.12 Geomagnetic survey: geophysical interpretation. Scale 1:2500

Fig.13 Geomagnetic survey: archaeogeological interpretation. Scale 1:2500

Fig.14 Romano-British pottery from contexts 0001 (1: AEU, test-pit 61; 2: AEN, test-pit 115; 3: BAI, trench 117; 4: BFB, trench 123), 0002 (5: BDB, trench 117) and 0005 (6: BDT, trench 117)

LIST OF PLATES

Cover illustration: view SW along trench 117 after removal of topsoil, showing silty clay loam of layer 0005 in foreground: darker brown deposit cut by test-pit 115

Plate 1 Test-pit 108: colluvial accumulation in base of dry valley (augered 0.29m to bedrock)

Plate 2 Test-pit 68: topsoil above limestone bedrock and rubble

Plate 3 Test-pit 106: basal red clay beneath subsoil/colluvium and topsoil

Plate 4 View NE along trench 117, showing darker brown silty clay loam of layer 0005 after removal of topsoil and trowelling of exposed surface

Plate 5 Rubble layer beneath silty clay loam of layer 0005, looking NE along trench 117

Plate 6 SE-facing baulk section across ditches 0012, 0013 and 0014, trench 117

Plate 7 View SE along trench 123, showing fill of gully 0017 after removal of topsoil

Plate 8 Parallel gullies in trench 127 after removal of fill; gully 0027 to right of ranging rod

SUMMARY

* *This report summarises the results of a programme of test-pitting, geophysical survey and excavation carried out from July to September, 1992, along the proposed route of a pipeline constructed by Severn Trent Engineering across the Lower Magnesian Limestone escarpment of north-east Derbyshire between Barlborough and Hodthorpe (SK48287751-SK55297656). This was followed by a watching brief, focused on an area to the SW of Whitwell Wood where the pipeline traversed two Romano-British pottery scatters located during the earlier evaluation work.*

* *Test-pitting identified a thin background scatter of Mesolithic to Bronze Age flintwork within all arable and pasture fields which were intersected by the pipeline. The only possible concentration was recorded in pit 65, to the north-east of Whitwell. Topsoil in this pit incorporated five flint and chert artefacts suggesting a later prehistoric activity focus. Further test-pitting around this pit, however, yielded no additional material, indicating perhaps a cluster of very restricted size.*

* *Two significant concentrations of Romano-British pottery were recorded to the south-west of Whitwell Wood. The westernmost of these concentrations correlated with a Romano-British pottery scatter recorded during earlier fieldwalking of the pipeline route by Creswell Heritage Trust. Evaluation trenches revealed a number of gullies in the westernmost scatter, some possibly relating to Romano-British settlement. Most of the pottery in the easternmost scatter derived from a colluvial deposit, suggesting downslope movement of artefacts from a Romano-British activity focus upslope of the pipeline route. Despite the limited structural traces, the evaluations provided valuable additional evidence for Romano-British activity on the Magnesian Limestone escarpment of north-east Derbyshire. This complements the discovery of settlement enclosures of this period at nearby sites such as Scratta Wood and within Whitwell Wood.*

* *Pits excavated across a dry valley towards the western end of the test-pit transect incorporated significant depths of colluvium, over 0.5m thick in the valley bottom. This probably reflects clearance and ploughing of the Magnesian Limestone escarpment, whose well-drained and fertile soils may have been cultivated extensively from prehistoric times. Significant depths of colluvium were recorded in other pits located on the steeper slopes of the Magnesian limestone dipslope, and provide further evidence for gravitational movements of soil cleared of its protecting vegetation. Localised variations in the thickness of colluvium may reflect sub-surface variations in karst topography which are not evident at ground level.*

* *A number of test-pits yielded deposits of glacial clay above limestone. This is of considerable interest given that the drift deposits of this area are at present comparatively poorly known, and adds usefully to current knowledge of the Quaternary geology of the Lower Magnesian Limestone escarpment.*

1. INTRODUCTION

Trent & Peak Archaeological Trust was commissioned by Severn Trent Engineering in 1992 to evaluate the route of a pipeline constructed as a trunk main duplication over a distance of *c.*7.5km between an existing reservoir near Barlborough (SK48287751) and the junction of Broad Lane and the Mansfield Road (A60) near Hodthorpe (SK55297656). This followed a watching brief by Ian Wall of Creswell Heritage Trust, carried out during geological explorations along the proposed pipeline route (Wall, 1992). The project was managed for the Trust by David Knight and supervised in the field by Vicki Priest. The geophysical survey was conducted by Geoquest Associates, under the direction of Dr. Mark Noel, and the watching brief was carried out by Steve Malone. A full archive of this work, compiled by Vicki Priest, has been deposited in Sheffield City Museum, together with the finds. A copy of this report has been deposited in the Sheffield City Museum, the Derbyshire Sites and Monuments Record and Trent & Peak Archaeological Trust.

1.1. Sites and Monuments Records

A search of the Derbyshire Sites and Monuments Record (SMR) established that the pipeline would intersect or pass close to several known Neolithic and Bronze Age flint scatters (SMR 15140, 15142, 15145, 15203-4), one coinciding with the location of a worn Romano-British sherd (SMR 15205), between Whitwell Common and Hodthorpe (Fig.1). North of Whitwell village, a silver longcross penny of Edward I had previously been found near the proposed pipeline route (SMR 15160: Fig.1). The only other discovery worth noting is a scatter of three Neolithic/Bronze Age flint flakes found to the south of the pipeline route near its western termination (SMR 1113); these were found in the same area as a scatter of medieval pottery (SMR 1114), post-medieval sherds and clay pipe fragments (SMR 1115).

1.2. Creswell Heritage Trust Watching Brief

Geological explorations were carried out during February 1992 prior to construction of the pipeline. These involved the mechanical excavation of a series of 4x1m trial pits at intervals of *c.*200m along most of the proposed pipeline; access was denied from SK52187700 to SK 53037712, in two fields lying between Whitwell village and Whitwell Wood. A total of 30 trial pits was excavated, to depths of 0.35m to 2.5m. 28 of these pits were inspected for archaeological features by Ian Wall of Creswell Heritage Trust. All trial pits were backfilled immediately after recording. A 2m-wide strip along the pipeline corridor was fieldwalked where field conditions permitted. A full report on this work, including descriptions of the stratigraphy recorded in each trial pit and a catalogue of the fieldwalking finds, was submitted prior to commencement of the evaluations described in this report (Wall, 1992). A summary of the most significant archaeological discoveries is presented below.

No archaeological features or artefacts were recorded in the trial pits, but fieldwalking located a total of 21 finds, including three Romano-British sherds and five flints indicative of prehistoric activity (Fig.1). The pottery derived from the same field as the worn Romano-British sherd obtained from SMR 15205, and correlated with one of the two pottery scatters recorded during later test-pitting (Fig.2: trench 123). Fieldwalking located four struck flints within the pipeline corridor and one other during casual walking of areas away from the

pipeline (Fig.1). These included a microlith from SK54177688 (area of SMR 15142), interpreted as possibly an obliquely blunted point fragment deriving from Early Mesolithic activity (Section 7). Otherwise, however, the collection comprises only two waste flakes, a core and a flint chunk (Appendix 1.1). Three of the flints derived from or very close to areas which had previously yielded prehistoric flintwork (Fig.1: SMR 15142 & 15203-4), but discoveries beyond these known 'sites' indicate a wider distribution of flintwork. The remaining finds are of little interest, comprising modern pottery sherds, slag and bone or tooth fragments.

1.3. Project Design

Recommendations were made by the Derbyshire County Archaeologist, Dr. D. Barrett, that special attention be paid to the prior evaluation of several flint scatters recorded in the Sites and Monuments Record. The project was designed with this aim in mind, following a field visit and preliminary discussions on the proposed route with Mr. S. Shephard of Severn Trent Engineering.

All of the recorded flint scatters could represent foci of prehistoric activity, and it was recommended that those sites which were likely to be disturbed by the pipeline be investigated prior to its construction. The flintwork recorded in the SMR had not been obtained as a result of systematic fieldwalking, and it was advised that further work should be carried out to establish whether the recorded finds were components of a general background scatter or provided evidence of genuine concentrations. This question could have been investigated most economically by fieldwalking, but given the timescale of the proposed construction work a programme of test-pitting was recommended. It was decided to sample those lengths of the pipeline which crossed arable or pasture fields, on the grounds that these areas were least likely to have been disturbed by later activity, and to concentrate resources upon the eastern section of the pipeline (from Whitwell Common to Hodthorpe). This area included all of the flint scatters recorded in the SMR which were affected directly by the pipeline, and in addition provided a useful transect across a range of topographic units.

2. TEST-PIT TRANSECT

2.1. Methodology

a) Test-Pit Spacing

The interval between the test-pits along the pipeline route was determined by reference to the known density of lithic surface finds on the Magnesian Limestone escarpment of north-east Derbyshire. Few systematic fieldwalking surveys of this area have been carried out, but the available data suggest a low density scatter of Neolithic/Bronze Age flintwork over most fields, with occasional major concentrations of finds extending over an area of maximum dimensions between *c*.50m and *c*.300m (*cf* Knight, Garton and Leary, forthcoming). With the possible exception of a Late Upper Palaeolithic site which has been claimed at Mill Farm, Scarcliffe (Hart, 1984, 19-21), open-air sites of Palaeolithic date are unknown on the Magnesian Limestone escarpment. Hence the spacing interval required to locate these by test-

pitting remains a matter of guesswork. Mesolithic flint scatters are more common within the region (*ibid.*, 26-9) but are usually only *c.*5m in diameter, and unless clustered within areas are unlikely to be detected except by test-pits placed at very close intervals.

It was decided, in recognition of the difficulties of locating Palaeolithic and Mesolithic sites by test-pitting, that it would be more cost-effective to concentrate resources upon the location of Neolithic and Bronze Age activity foci. Current fieldwalking data suggested that a maximum spacing of 40m would be appropriate for the location of major sites of the Neolithic and Bronze Ages, and this spacing was adopted for areas away from the flint scatters recorded in the Derbyshire SMR. The known flint scatters, by contrast, were investigated in greater detail, employing test-pits spaced at intervals of 20m. This was aimed at establishing whether the recorded scatters were genuinely activity foci, warranting further evaluation, or merely the components of a background scatter of flintwork; it was hoped also to obtain additional artefacts which would assist in the dating of these scatters.

103 1x1m test-pits spaced at intervals of 20m or 40m were excavated eventually between Whitwell Common (SK51807703) and Broad Lane, Hodthorpe (SK54907672) over a total distance of 3.1km (Fig.1). Pit 65 yielded a density of flintwork which was unusually high compared to other pits in this transect (Fig.2). Towards the west of the test-pit transect were recorded two Romano-British pottery scatters (Fig.2), one correlating with a group of three Romano-British sherds located during earlier fieldwalking (Section 1.2). All these areas were investigated further by test-pitting, as described below:

Romano-British pottery scatters. The spacing between the test-pits was reduced to 10m within and to either side of each of the recorded pottery scatters, in order to obtain more information on the density and character of the material and to establish more precisely their spatial extent. Sieving produced significant additional material, including as many as eleven Romano-British sherds from pit 115 in Area B, and it was decided to investigate these scatters by trial trenching (Section 4).

Environs of test-pit 65. Four additional test-pits were dug, 2m to the west, north, east and south of pit 65, in order to establish the spatial extent of the artefact spread. None of these pits yielded flintwork, and it was decided, therefore, not to expend further resources on this area.

b) Methods of Excavation

The fill of each pit was removed by trowel in a series of *c.*50mm spits, in most cases down either to Magnesian Limestone bedrock or to limestone breccia. Upper colluvial and lower subsoil layers could not be distinguished in the field, and wherever time permitted subsoil/colluvial layers were wholly removed, either to limestone bedrock/breccia or into an intermittent glacial clay deposit. The latter was stratified above limestone bedrock, and was removed from only a sample of pits. Where pits were not excavated to the top of the bedrock, the depth to the underlying limestone was determined wherever possible by augering (depths shown in Figs 3-6).

The soil from each pit was sieved for finds through a 7mm mesh. Each pit was photographed and at least one face was drawn at a scale of 1:20. All artefacts were recorded by context,

and medieval or earlier finds were recorded individually and allotted a unique three-letter code. Post-medieval and modern finds were bulked by context division. Most pits yielded variable quantities of post-medieval or modern sherds and other material in the topsoil, much presumably derived from activities such as manuring and hence of limited archaeological interest. A small quantity of medieval pottery, most probably evidence of manuring, was also recovered from the topsoil, together with variable densities of prehistoric lithic artefacts and Romano-British pottery. The latter two categories of material are of particular archaeological interest, and are discussed in greater detail below (Sections 2.3 and 2.4).

2.2. Test-Pit Stratigraphy

The test-pit transect ran roughly from west to east, descending eastwards across the gently undulating dip-slope of the Lower Magnesian Limestone escarpment (Eden, *et al*, 1957, 141-6), and provided a valuable insight into the Quaternary geology of this area. Archaeological finds were confined to the topsoil.

Full details of the stratigraphy revealed during test-pitting are recorded in archive. The stratigraphy varied significantly in detail, but three main layers could be observed above Magnesian Limestone bedrock or limestone breccia. This stratigraphy is summarised diagrammatically in Figs 3-6, and is superimposed in Fig.7 upon a profile showing the relationship between stratigraphy and topography. These diagrams indicate the maximum thickness of each of the main layers above limestone bedrock/breccia, and although schematic provide a useful summary of the stratigraphic sequence. Several representative test-pit sections are shown in Fig.8 for the purposes of comparison (see also Plates 1-3).

The main stratigraphic units recorded during test-pitting may be summarised as follows:

Topsoil (layer 0001). This comprised generally a *c.*0.3m depth of silty clay loam or silty clay, varying in colour from dark brown (7.5YR 3/2; 7.5YR 3/4; 10YR 3/3) to dark yellowish brown (10YR 3/4; 10YR 4/4; 10YR 4/6) to dark greyish brown (10YR 4/2). It incorporated occasional small limestone fragments, rounded pebbles and variable quantities of charcoal, together with variable densities of prehistoric flintwork, pottery ranging in date from the Romano-British to modern periods, and a range of other modern debris (including brick, tile, clay pipe fragments, slag, metalwork and glass). Much of this mixed collection of artefacts had probably been redeposited by colluvial processes, to judge by the evidence obtained from excavation (Section 4), and the artefacts are unlikely to relate to *in situ* activity. 0001 was usually demarcated sharply from an underlying layer of subsoil/colluvium, but was occasionally stratified immediately above limestone bedrock/breccia or a clay layer with variable densities of clasts, interpreted below as most probably a glacial drift deposit (Plate 3).

Subsoil/colluvium (layer 0002). In most test-pits the topsoil overlaid a variable depth of silty clay loam/silty clay, differentiated from the topsoil mainly on the grounds of colour and occasionally by a slightly more clayey texture. It varied in colour from strong brown (7.5YR 4/6) to brown (7.5YR 4/4), reddish brown (5YR 4/4) or yellowish red (5YR 4/6). This layer incorporated occasional limestone fragments, derived from the Magnesian Limestone bedrock or from breccia deposits, and small rounded pebbles. It varied significantly in depth, as shown in Figs 3-6, in response largely to variations in topography (Fig.8). The layer was

thickest in a dry valley near the western end of the test-pit transect (Fig.3; Plate 1), where it appears to have been augmented by colluvial accumulations. On more exposed plateau surfaces, topsoil was often stratified directly above Magnesian Limestone or pockets of glacial drift, probably indicating soil depletion as a result of agricultural activity. This was particularly noticeable between pits 24 and 32, located on an elevated plateau surface. East of these pits, however, on a moderately steep slope leading towards the Worksop Road, significant thicknesses of 0002 were recorded, probably indicating soil accumulation as a result of colluviation (Fig.8: pits 33-39).

No stratigraphic changes were observed within this layer. However, the significant variations in thickness, particularly between valley and plateau locations, suggests that it may represent in some cases both an *in situ* subsoil and deposits accumulated as a result of colluviation.

Glacial Drift (layer 0003). Intermittent patches of clay were recorded towards the bottom of some pits, merging with overlying subsoil/colluvium or occasionally with topsoil (Plate 3). These deposits were commonly contained within hollows in the bedrock (*e.g.* Fig.7). The clay was occasionally mottled, and varied in colour from brown (7.5YR 5/4) or strong brown (7.5YR 4/6) to light reddish brown (5YR 6/3), reddish yellow (7.5YR 6/6), yellowish red (5YR 4/6) and dusky red (2.5YR 4/4). It incorporated decalcified Magnesian Limestone fragments and rounded pebbles, identified by Dr. C. O. Hunt (including 'Bunter' quartzite, vein quartz, Coal Measures Sandstone, coal, black metasedimentaries, honey coloured [Greensand?] chert and granitoid rock). This is best interpreted as a glacial drift deposit, since it contains lithologies not present locally (including the granitoid rock and chert). These drifts may have been reworked later by frost processes and pedogenic activity. The drift deposits are intermittent, and may survive mainly in sub-surface depressions on the Magnesian Limestone escarpment which have been least affected by subsequent weathering and erosion. Scattered patches of boulder clay have been recorded by the Geological Survey on the Magnesian Limestone escarpment (*Geological Survey of Great Britain*, 1:50,000 Series, Sheet 100; Eden *et al*, 1957, 158-9, fig.29), although none is shown at these locations, and their discovery adds usefully to knowledge of the spatial distribution and character of the glacial drift deposits overlying this geological formation. The drift was removed down to bedrock in a sample of pits to provide a drawn and photographic record of the stratigraphy. As shown in Figs 3-7, it was generally a very shallow deposit, surviving at most to a depth of only 0.2-0.3m.

Magnesian Limestone bedrock/rubble. The bases of most pits came down to solid Lower Magnesian Limestone of the Permian succession (Eden, *et al*, 1957, 141-6; *cf* Plate 8). The bedrock was degraded in some pits to a yellowish brown (10YR 6/4), brownish yellow (10YR 6/6), yellowish red (5YR 4/6; 5YR 5/8) or reddish brown (5YR 4/4) sand (layer 0004a). The limestone bedrock lay immediately beneath topsoil on some plateau areas, suggesting significant soil erosion as a result of intensive arable exploitation: a common phenomenon on the Magnesian Limestone escarpment of NE Derbyshire, where modern field levels are commonly well below the level of hedge or wall foundations. A layer of angular limestone rubble was observed at the bottom of some pits, particularly on the steeper slopes. This was interpreted as a scree deposit formed by frost weathering in periglacial conditions. A particularly extensive exposure of this limestone breccia was recorded in the base and sections of the easternmost trial trench, discussed in Section 4.1 below (Fig.2: trench 117),

where it provided a vivid demonstration of the impact of mass movement processes in periglacial conditions.

General Comments

The stratigraphic sequence described above is of particular interest in two main respects:

1. *Colluviation*. The test-pits provide important evidence for significant accumulations of colluvium in valley locations, and hence highlight areas where archaeological features and deposits might be expected to have survived the erosive impact of modern deep ploughing. The most significant area in this respect is the shallow dry valley located near the west end of the test-pit transect, where thicknesses of colluvium in excess of 0.5m were recorded (Plate 1). The date of this colluviation remains unclear, and further work would be required to establish its chronology.

2. *Glacial Drift*. The drift deposits on the Magnesian Limestone escarpment of north-east Derbyshire have not been extensively studied by geologists, and are at present poorly understood (*cf* Eden *et al*, 1957, 152). The survival along the test-pit transect of pockets of glacial drift (Plate 3) thus adds usefully to current knowledge of the Quaternary geological history of the region.

2.3. Prehistoric Lithic Scatters

Evidence for prehistoric activity was limited to a thin scatter of flint and chert, totalling only 31 pieces (Appendix 1.2). The only concentration of note was recorded in pit 65 (Fig.2) where sieving recovered two indeterminate fragments of struck flake, a flint spall, a calcined flint chip and a burnt chert chip. The apparent concentration was tested further by excavating an additional four test-pits, located 2m to the west, north, east and south of pit 65, but none of these yielded flint or chert artefacts. It was decided, therefore, not to expend further resources on this area.

The remaining flintwork, with the exception of a possible Early Bronze Age scraper from pit 27 and a probable Earlier Mesolithic obliquely blunted point from pit 48, consists entirely of waste flakes and other debitage. The circumstances of deposition of this material are unclear, but there is no suggestion of a major activity focus within the threatened area.

2.4. Romano-British Pottery Concentrations

44 Romano-British pottery sherds were recovered from the test-pits, exclusively from the topsoil (Appendix 2). The material could derive largely from manuring activity, but in two areas at the west end of the test-pit transect significantly larger concentrations were observed (Fig.1). The quantities of material are quite small (up to a maximum of 11 sherds per pit: pit 115), but the contrast with adjacent areas is marked. It is interesting also that the westernmost of the two scatters correlated with the location of three Romano-British sherds found during fieldwalking by Creswell Heritage Trust (Section 1.2).

Systematic fieldwalking on the Magnesian Limestone escarpment in adjacent parts of north-east Derbyshire has demonstrated a correlation between comparable low density artefact

scatters and Romano-British settlements (*e.g.* Hart, 1984, 96). On these grounds further evaluation work was undertaken to clarify the spatial extent of the pottery scatters and to establish whether they might correlate with sub-ploughsoil layers or features (Sections 3 and 4). The only other possible concentration was recorded in pit 48, which yielded a total of four sherds. However, none of the adjacent pits yielded Romano-British pottery, and it was decided to focus resources during evaluation upon the pottery scatters recorded at the western end of the test-pit transect.

3. GEOPHYSICAL SURVEY

A geomagnetic survey was carried out by S.M. Cousins and M. Conway of Geoquest Associates over the area shown in Fig.11, with the aim of locating dug features or other structural remains which might be associated with the Romano-British pottery scatters recorded during test-pitting. A full archive report on this work has been prepared by Dr. Mark Noel, and provides the basis of the summary presented below.

It was planned to carry out the geophysical survey prior to trenching of the pottery scatters, but unexpected timetabling problems required that excavation commence before completion of the geophysical survey. This explains the configuration of the geophysical test areas shown in Fig.11, which necessarily avoided certain areas where trenching had commenced. Despite this, the geophysical survey provided a valuable addition to the evaluation strategy, and assisted in interpretation of some of the rather enigmatic features recorded during excavation.

In the light of information obtained by fieldwalking and test-pitting, the main archaeological features anticipated on this site were those associated with Romano-British and possibly earlier settlement, including enclosure or field ditches and possibly buildings. Initial reconnaisance by geomagnetic surveying was recommended on the grounds that sufficient magnetic contrasts should exist between the Magnesian Limestone and feature fills or fired structures such as hearths and kilns to permit identification of associated archaeological features. It was decided, therefore, to investigate the pipeline route using a fluxgate gradiometer to detect variations in magnetic susceptibility and/or thermoremanent magnetism.

Geophysical measurements were made within the test areas shown in Fig.11. Values of geomagnetic field gradient were recorded at 1.0 x 1.5m intervals, enabling geophysical anomalies to be resolved down to a scale of 1-2m. The instrument used was a Geoscan FM36 fluxgate gradiometer with ST4 sample trigger. A parallel traverse scheme was used to minimise systematic errors in the data. The geophysical results were processed into a grey-scale image showing the residual geomagnetic anomalies. This plot is contained in archive, together with details of the computer processing of the field data. All four of the surveyed areas were characterised by weak geomagnetic anomalies (standard deviations of around 1.6nT/m). Some temporal noise was caused by traffic on the Worksop Road (B6043), immediately south of the survey area, but this did not significantly affect the data quality. 'Speckle' in the results at the western limit of the survey was caused by wind buffeting; this was reduced by applying a 3x3 box filter.

As a first stage in the interpretation, the geophysical map was classified into three characteristic styles of geophysical terrain, coloured green, blue and red on Fig.12.

Green: significant regions of anomalously high magnetic field gradient which might be associated with high susceptibility soil-filled structures such as pits or ditches.

Blue: areas of anomalously low magnetic field gradient, corresponding to features of low magnetic susceptibility, such as Magnesian Limestone. Some are linear (marked by broken blue lines) and interpretable as possible stone concentrations (*e.g.* marking headlands).

Red: strong dipolar anomalies (paired positive-negative). The most probable sources in this context are dumps of material with very high magnetic susceptibility or metallic iron contamination in the ploughsoil. The smaller examples are almost certainly due to objects such as horseshoes or ploughshares.

The major features to emerge from this survey are a series of sinuous positive anomalies which generally trend NW-SE. These have typical widths of 2-5m and are most conspicuous within the area north of Sunfield House, east of trench 123, where they can be seen to extend for distances of up to 50m. Dr. M. Noel suggested that they could reflect gullies in the underlying Magnesian Limestone, infilled by soil that has a relatively higher magnetic susceptibility, but interpretation remains problematic. One of the evaluation trenches overlapped the western end of the survey corridor (Fig.11: trench 123), and revealed several groups of closely spaced and intercutting gullies on the same alignment as these geophysical anomalies (Fig.10). An agricultural origin is suggested for these features (Section 4.2) and might be proposed as an explanation for some at least of the linear geophysical anomalies.

A second style of linear geophysical anomaly may be observed within the central 80 x 20m block of the survey. This comprises a series of regularly spaced pairs of positive and negative anomalies, trending roughly east-west, and extending for distances of up to 40m. Their wavelengths would be consistent with the remains of ridge and furrow cultivation, although their limited extent weighs against this hypothesis, and it was suggested by Dr. M. Noel that these geophysical features could again reflect the buried topography of the Magnesian Limestone. Trench 117 was dug through the easternmost 25m length of the survey area (Section 4.1), revealing a narrow undated gully (0007a) and a shallow scoop (0007b; Fig.9), but the origin of these anomalies remains unresolved.

A set of linear negative anomalies could be traced along the southern boundary of the main study area (north of Sunfield). It was suggested by Dr. M. Noel that these could represent a stony headland along an old field boundary, but further work would be required to investigate their origin.

4. EXCAVATIONS OF ROMANO-BRITISH POTTERY SCATTERS

Two 3m-wide trenches were excavated along the axis of the pipeline easement to investigate each of the main pottery concentrations. The westernmost of these, trench 123, extended

NW-SE for 100m between test-pits 1 and 6, while the second trench, 117, extended SW-NE for 143m from test-pit 110 to 12m NE of test-pit 23 (Fig.2; see Fig.3 for locations of test-pits). The topsoil from each trench was removed mechanically, employing a 6ft ditching bucket on the rear actor of a JCB. The exposed surface was cleaned manually, and the trowelled surface was drawn at a scale of 1:50. All trench sections were cleaned by spade and trowel. Further excavation was carried out as described in the following two sections. Representative baulk sections, all sections across archaeological features and plans of selected archaeological features and deposits were drawn at a scale of 1:20. A full photographic and documentary record was made, employing the conventions described in the *T&PAT Field Recording Manual*. All of the finds were recorded individually and ascribed unique three-letter codes.

4.1. Trench 117 (Fig.9)

A *c.*0.2-0.3m depth of topsoil (0001) was removed mechanically, revealing along most of the trench an expanse of predominantly brown (7.5YR 4/4), strong brown (7.5YR 4/6) or reddish brown (5YR 4/4) silty clay loam or silty clay equivalent to the sub-ploughsoil layer 0002 which was revealed during excavation of the test-pits. On the higher ground towards the NE, where erosion appears to have been the dominant geomorphic process, 0002 seems best interpreted as an *in situ* subsoil, but towards the lower ground there may have been significant augmentation of this layer by colluviation (*cf* Section 2.2). Occasional mainly NW-SE ploughmarks, cut into the top of 0002 and especially prominent on the higher ground towards the NE end of the trench, indicated significant modern plough penetration, particularly on the higher valley slopes. Small irregular patches of clay could also be observed at this level, mainly towards the SW end of the trench; these compared in terms of colour, texture and clast content to layer 0003 of the test-pits, and as argued above are best interpreted as patches of glacial drift (Section 2.2). Patches of weathered limestone or solid Magnesian Limestone bedrock could be observed in the trench base, particularly in the NE part of the trench where the ground rose towards the plateau crest.

Excavations near the SW end of the trench revealed, immediately beneath the topsoil, the truncated remains of a shallow and approximately U-shaped NW-SE gully, up to *c.*0.3m wide but surviving to a maximum depth of only 40mm, and filled with a brown (10YR 4/3) silty loam (0007a). This gully may have been cut or have truncated another feature, represented by a shallow scoop surviving to a similar depth (0007b), but no clear fill distinctions could be observed. Neither feature yielded any finds, but an association with Romano-British activity is not impossible.

Approximately 15m to the NE of these features an irregular band of dark silty clay loam was observed crossing the trench approximately at right angles (0008). This extended along the north baulk for *c.*9m and along the south baulk for *c.*5m, and could be differentiated from layer 0002 by its slightly darker colour (7.5YR 4/4, compared to 5YR 4/4 for adjacent deposits of 0002). The band of darker material occupied the zone between test-pits 106 and 112, and by chance, therefore, had not been exposed in any of the test-pit sections. Further excavation was carried out on the grounds that the deposit might represent the fill of a feature or features related to Romano-British activity. As will be argued below, however, a later origin would seem more likely.

A 1m-wide strip was excavated manually along the north baulk, with the aim of establishing the origin of this deposit. Layer 0008 was removed stratigraphically by mattock and trowel, revealing beneath a 0.3-0.5m thickness of this deposit three approximately parallel ditches running roughly NW-SE across the trench and extending laterally over a zone *c.*5m wide (0012-0014; Plate 6). The surface was planned at this level and the feature fills were fully excavated stratigraphically. A 1m-wide box trench was excavated mechanically along the north baulk, following completion of the post-excavation plan, to check that all archaeological features and deposits had been fully excavated and recorded. This revealed no additional archaeological deposits, and after trowelling of the baulk section a 1:20 drawing of this section was prepared. The box trench established beyond doubt that the features had been cut into a localised deposit of predominantly red (2.5YR 3/4 & 4/4) or light reddish brown (5YR 6/3) clay (Plate 6), interpreted as glacial in origin, stratified beneath 0002. Some patches of a similar clay could also be observed either side of 0008 at the sub-ploughsoil level, indicating the uneven surface of this probable drift deposit.

The ditches survived to depths of *c.*0.2m (0013) and *c.*0.4m (0012 & 0014), and varied in width from *c.*0.8 to 1.5m. 0013 was approximately U-shaped where sectioned, but the other features preserved steep and sometimes vertical sides with flat (0014) or irregular (0012) bases. Both 0012 and 0014 preserved evidence in their fills of at least one phase of recutting, while 0012 had been recut on its eastern side by 0013. Three post-medieval sherds, a modern iron nail and tile fragment, and a piece of bone were recovered from deep within 0008 (15-20 cm depth within a layer *c.*40cm thick), but no artefacts were recovered from the individual ditch fills. The fills of these features may well have been spread by later ploughing to create the more extensive deposit, 0008, which betrayed their presence at sub-ploughsoil level, and the post-medieval and modern finds could have been derived from these features or incorporated later. No evidence was obtained for an association with Romano-British activity, and a search was made of early maps to establish whether the features might relate to an old field boundary or other more recent features. The earliest detailed maps of the area, however, including a plan accompanying the Whitwell Enclosure Award of 1823, Sanderson's 1835 *Map of the Country Around Mansfield* and the 1839 Tithe Map, provide no evidence of field boundaries at this location. Examination of the 1875 Ordnance Survey first edition 6" map and of later Ordnance Survey maps shows a path running NW-SE across the field at approximately this location, but whether this was associated with ditches is impossible to ascertain.

The most significant find in trench 117 was the discovery towards its NE end, either side of test-pit 115, of a *c.*12m wide band of a predominantly dark yellowish brown (10YR 4/4) silty clay loam (0005), incorporating occasional rounded pebbles and limestone fragments and a surprisingly large number of Romano-British sherds (Section 6; Fig.9; Plates 4-5). The high sherd density was reflected also in pit 115, from which was obtained a remarkable total of eleven Romano-British sherds. Together with the adjacent pit 22, immediately downslope of 0005, 115 stands out clearly from other test-pits by merit of the density of finds. Layer 0005 could not be differentiated from the overlying topsoil, but merged along its SW and NE edges with a significantly stonier strong brown silty clay loam (7.5YR 4/6), correlating with layer 0002 in the test-pits. Layer 0005 was excavated completely in successive 5cm spits, on the grounds that it might represent feature fill - potentially a wide ditch, or several recut ditches, infilled with significant quantities of pottery. A 1:20 plan was drawn after the removal of topsoil and at the base of the first, second and third spits. The layer extended

vertically, beneath the topsoil, for only *c.*15cm, and removal of the third spit revealed a layer (0011) with a comparable soil matrix but a very high density of mainly angular limestone rubble (Plate 5). This layer was interpreted as either a natural scree or, less likely, the top of a rubbly ditch fill, formed perhaps by quarrying for a now ploughed-out rubble bank. It was decided to test this possibility by excavating the layer stratigraphically from a sample trench, 9m long by 1.5m wide, adjacent to the south baulk. This showed the rubble to occupy a shallow but irregular depression, the base of which was formed by solid limestone strata, and it was concluded that the rubble had most likely accumulated in a natural karstic depression as a scree formed by frost weathering in periglacial conditions. This does not explain the high densities of Romano-British pottery obtained from the upper silty clay loam (0005), unless the upper deposits had accumulated as a result of the downslope movement of soil and artefacts, possibly from a settlement focus upslope of the excavation trench. This mechanism is rendered more likely by the location of 0005 immediately below a pronounced break in slope: an ideal location for the accumulation of soil and other material transported downslope by gravitational forces. The colluvial interpretation, it may be noted, would be supported by the results of the geophysical survey, for this revealed no evidence of a ditch to the north or south of the trench (Section 3). The mixed nature of the collection of Romano-British pottery obtained from this context would also support this hypothesis (Section 6.2).

4.2. Trench 123 (Fig.10)

A *c.*0.2-0.3m thickness of topsoil (0001) was removed mechanically from trench 123. The topsoil overlay solid or weathered limestone bedrock for much of the westernmost 35m of the trench, where plough erosion and soil loss may have been most severe (Plate 7). Patches of solid limestone bedrock or weathered limestone were recorded elsewhere in the trench, but the sub-ploughsoil layer comprised for much of the remainder of the trench a predominantly strong brown (7.5YR 4/6) silty clay loam or silty clay equivalent to layer 0002 in trench 117. The trench was sited mainly on the higher and more exposed plateau surface, and it seems likely that 0002 represents here an *in situ* subsoil, depleted probably by plough erosion and downslope soil movements. A series of mainly small and irregular patches of clay could be observed beneath the topsoil in the SE half of the trench. These compared in terms of colour, texture and clast content to layer 0003 in trench 117, and as in that trench are best interpreted as patches of glacial drift (Section 2.2). Evidence for modern plough penetration is provided by several ploughmarks, cut into the top of 0002 and on approximately the same alignment as gully 0017.

The most perplexing dicovery in this trench was a series of mainly NW-SE gullies, clearly visible at the base of the ploughsoil. These are of uncertain origin, and it remains unclear whether any should be associated with the Romano-British activity implied by the sherds retrieved from the topsoil. A minimum of 14 narrow and closely spaced NW-SE gullies, commonly intercutting, was recorded in the eastern half of the trench (Fig.10: 0020- 0021, 0023-0032; Plate 8). All but two of these gullies (0031 & 0032) were totally excavated, but none yielded any finds. They varied from only *c.*0.15m to 0.6m wide by between 0.08m and 0.36m deep, and were either irregular or roughly U-shaped in profile. The irregularities in the profile seem to reflect mainly the character of the limestone bedrock, and where dug into 0002 or 0003 a more regular U-shaped profile may be discerned. The absence of artefacts, their close spacing and consistent orientation, and the evidence from the geophysical survey

that comparable features may have extended to the east of the trench, raise difficult questions regarding their origins and functions. Some might, as suggested by Dr. M. Noel, represent natural fissures in the limestone bedrock. However, the identification of several gully recuts and the regular U-profiles of some features (*e.g.* gully 0030) leaves little doubt that most, if not all, are of anthropogenic origin. No parallels for this arrangement may be found on Romano-British sites in this region, and an alternative possibility, in view of their close spacing, common alignment and lack of finds, is that they relate to more recent agricultural activities associated, for example, with subsoiling or field drainage.

Excavations revealed two other shallow gullies, both aligned at a different angle to the NW-SE gullies described above and hence meriting separate consideration. The first of these, gully 0017, ran roughly west-east, and yielded two Romano-British sherds. It was cut into limestone bedrock, and was very shallow ($<$ 10cm deep) and of irregular cross-section and plan (Plate 7). Its irregularity may indicate a natural origin, possibly as a fissure into which topsoil had been incorporated, or alternatively it might be of more recent agricultural origin. In this latter respect, it may be significant that the gully ran parallel with a ploughmark, recorded *c.*2m to its NE. Another shallow gully, 0016, was recorded at right angles to 0017, but their relationship, unfortunately, could not be determined. Gully 0016 yielded two Romano-British sherds and two heat-affected stones, possibly deriving from cooking activities, and an association with Romano-British activity is possible. Insufficient of the feature was exposed, however, to establish beyond doubt its origin or function.

Attention should be drawn finally to a shallow pit, 0019, which yielded several fragments of fired clay. No other finds were recovered, and its function and date remain in doubt.

5. WATCHING BRIEF. S. MALONE

A watching brief was conducted during pipeline construction on the section of the pipeline which cut the Romano-British pottery scatters. This involved inspection of the contractors' trenches where they coincided with trenches 117 and 123 (Fig.2) and the area between them (total length c.0.9km). This demonstrated a comparable stratigraphy to that recorded during test-pitting and trenching, but no additional features were observed in the trench sides. No other Romano-British finds were recovered, but the circumstances of excavation were not favourable for the recognition or retrieval of such material.

6. ROMANO-BRITISH POTTERY. R.S. LEARY

96 Romano-British sherds were obtained from the test-pits and evaluation trenches, mostly small and abraded. These are listed by context in Appendix 2, which includes also details of the form type series and a list of codes employed in the pottery recording sheets. Details of the fabric types referred to in the following discussion are listed below:

BB1: As Williams, 1977.

BSA2: black with reddish brown core. Hard with smooth feel and irregular fracture. Moderate, well-sorted, medium-sized, subangular quartz; rare, medium-sized, subangular, brown inclusions, probably iron oxides.

CTB1: buff. Hard with rough feel and laminar fracture. Abundant, ill-sorted, platey, white inclusions, shell; sparse, medium-sized, subangular, quartz and rounded, brown and black inclusions, iron oxides. First century shell-gritted ware.

DBY: Derbyshire Ware (as Kay, 1962).

FLA1: white or pinkish white. Soft with smooth feel and conchoidal fracture. Rare, very fine, rounded, orange or brown inclusions.

FLA2: white with yellowish self-slip. Hard with smooth feel and fairly smooth fracture. Sparse, ill-sorted, medium to coarse, subangular quartz; moderate, ill-sorted, medium to coarse, rounded, brown or black inclusions, probably iron oxides; moderate, well-sorted, very fine platey shiny inclusions, mica.

GRA1: grey, often with darker grey or brown core. Soft with smooth feel and fracture. Sparse, fine, subangular quartz. Compare fine wares from kilns at Derby Racecourse.

GRA2: grey, sometimes with grey core. Soft with fairly smooth feel and finely irregular fracture. Sparse, well-sorted, fine, subangular, clear and opaque quartz. Sandier than GRA1.

GRB1: general group of grey medium-sandy wares.

GRB2: grey. Hard with rough feel and finely irregular fracture. Moderate, well-sorted, medium-sized, subangular quartz; sparse, ill-sorted, coarse to fine, platey vesicles and white inclusions; sparse, medium-sized, rounded black-brown inclusions, probably iron oxides.

GTA4: brown or grey with grey core. Hard with sandy feel and irregular fracture. Abundant, well-sorted, medium-sized, subangular quartz; rare, coarse, platey vesicles; rare, ill-sorted, coarse to medium-sized, rounded and subangular grey and buff inclusions, probably grog. Trent Valley type ware (Todd 1968).

GTA5: grey. Hard and lumpy with leathery feel and irregular fracture. Sparse to moderate, well-sorted, medium-sized, subangular quartz; moderate, ill-sorted, medium to coarse, subangular, grey and buff grog inclusions. Trent Valley type fabric.

OAB1: pink or orange. Hard with sandy feel and irregular fracture. Moderate, well-sorted, medium-sized, subangular quartz; sparse, medium-sized, rounded, orange and brown inclusions, probably iron oxides.

OBC1: buff or yellow. Soft with rough feel and irregular fracture. Moderate, ill-sorted, coarse to medium-sized, subangular quartz; sparse, ill-sorted, rounded, red and brown inclusions (iron oxides).

TS: samian.

Six vessels are illustrated (Fig.14) and are listed in a catalogue at the end of this report.

6.1. Pottery from Test-Pits

44 sherds were obtained from the test-pits, exclusively from the topsoil (0001). Of these, eleven derived from pit 115, either from spit 5 (20-25cm depth) or from spit 6 (25-30cm depth); this was dug through layer 0005, discussed in Section 4.1, and hence the sherds may

have been redeposited from an upslope settlement focus. These comprised five cupped rim sherds in DBY, bodysherds in BB1 and GRB1 and a sherd from a GRB1 dish with triangular rim (Fig.14.2). Three more DBY sherds and one GRB1 sherd derived from layer 0001 of pit 22, immediately downslope of 0005, and were probably deposited by the same mechanism. A basal sherd from a samian bowl and a GRB1 sherd were recovered from other pits within the area of trench 117 (pits 104 and 114 respectively), and one GRB1 sherd was obtained from pit 107, immediately beyond the SW end of trench 117. Six of the remaining sherds derived from pits within trench 123 (pits 2-5, 119) and comprised part of a BB1 dish and sherds of DBY, CTB1, OAB1, BSA2 and GRB1. Six more sherds, of GRB1, FLA1, FLA2 and DBY, were recovered from pits located on the valley slopes between trenches 117 and 123. The remaining 14 sherds were scattered throughout the pipeline corridor (Fig.2), with a possible concentration in pit 48, to the NE of Whitwell village (four sherds of GRB1, DBY and BB1, including a GRB1 everted-rim jar). The remaining sherds included undiagnostic sherds of GRB1, FLA2, GRA2, OAB1, samian and a GRB1 deep bowl with bead rim (Fig.14.5).

6.2. Pottery from Excavations

Trench 117

Most of the 52 sherds which were recovered from the evaluation trenches derived from trench 117, and of these the great majority derived from context 0005 (25 sherds), the underlying layer 0006 (BFG) or from adjacent parts of the trench (Fig.9). The pottery from 0005 comprised sherds of GRB1 (including a sherd similar in fabric to Derby Racecourse products), DBY, BB1 and GTA4&5, together with a rebated-rim jar in OBC1 (Fig.14.6). The heterogeneous character of the pottery from 0005 is as would be expected had the material accumulated over a protracted time period as a result of colluviation, and hence the pottery would support the interpretation of 0005 as a colluvial accumulation.

Trench 123

Only six sherds were recovered from trench 123 (Fig.10), providing a marked contrast, therefore, with trench 117. Four sherds, all of undiagnostic GRB1, derived from gullies 0016 (BFC; BFD) and 0017 (BFA; BFI); the remaining sherds derived either from layers 0001 (BFB) or 0002 (BFF) and comprised a GRB1 hooked-rim from a shouldered jar or bowl (BFB: Fig.14.4) and an undiagnostic bodysherd in CTB1 (BFF).

6.3. General Comments

Approximately 66% of the pottery was of grey ware, with smaller quantities of Derbyshire ware, white ware (used predominantly for flagons), black burnished ware, samian, calcite-gritted ware and grog-tempered wares of the type known as Trent Valley ware (Todd, 1968). The earliest sherds derive from calcite-gritted and grog-tempered wares dating to the first century (Todd 1968), one of which is rilled. Trent Valley ware is uncommon in this area, where the first-century wares tend to be calcite gritted. A rebated-rim jar in a rather pimply buff ware similar to Brassington's pre-Derbyshire ware (Fig.14.6; see Dool *et al* 1985, 90 and 91 no. 6) dates to the first or earlier second century, as must a footring from a samian bowl. A black-burnished (BB1) dish or bowl dates from AD120 or later; a dish with a triangular rim dates from the late second century, continuing as the main type into the fourth century (Fig.14.2; Samuels 1980, 191). The remaining vessels date from the mid-second to

the fourth century and comprise two everted-rim jars (Fig.14.3), two deep bowls with bead rims (Fig.14.1,5), one bowl with a hooked rim (Fig.14.4), one very abraded sherd, apparently from a reeded handle in grey ware, and two true Derbyshire ware cupped rim jars.

The pottery from north Nottinghamshire and north-east Derbyshire tends to be extremely conservative in style over the second, third and fourth centuries, and unless wares imported from outside the region are present it is difficult to discern gaps in occupation. This small collection could thus imply activity in the area, possibly at several foci, over a protracted time period, although the absence of colour-coated wares might signify a decline in the level of activity in the third and fourth centuries. The presence of such small quantities of fine and imported wares suggests relatively unromanised communities, inviting comparison in this respect with nearby settlements such as Dunston's Clump (Garton 1987), Menagerie Wood (Garton *et al*, 1988) and Scratta Wood site 2 (R.S. Leary, unpublished archive report).

6.4. Catalogue of Illustrated Pottery

1: GRB1 small, deep bowl with bead rim. This type was made at the Trentside and Doncaster kiln groups (Buckland *et al*, 1980, 161, types Hc and d) from the second to the fourth centuries with little typological change. AEU (pit 61).
2: GRB1 curved-wall dish with triangular rim. This was a common form and Buckland *et al* note that triangular rims are a late feature from the early third century (*ibid.*, 155, type Ca). AEN (pit 115).
3: GRB1 small, everted-rim jar. Variant of common everted rim jar which superseded globular jar forms during the second century and continued in use throughout the third and fourth centuries. BAI (trench 117, 0001).
4: GRB1 deep shouldered bowl with hooked rim (*cf* Buckland *et al*, 1980, type Hc); dating as no. 1. BFB (trench 123, 0001).
5: GRB1 large, deep bowl with flattened bead rim. As no. 1. BDB (trench 117, 0002).
6: OBC1 rebated rim jar similar to 'pre-Derbyshire' ware (Brassington 1971, nos. 226-52) dating from the late first to the late second/early third century at Derby (Dool *et al* 1985, table 4). BDT (trench 117, 0005).

7. PREHISTORIC LITHIC ARTEFACTS. D. GARTON

7.1. Fieldwalking Finds

Five pieces of struck flint were recovered from the fieldwalking carried out by Creswell Heritage Trust along the pipeline route (Appendix 1.1). Most of these are undatable, but the microlith fragment from SK54177688 (near test-pit 84) is part of a probable obliquely blunted point of Earlier Mesolithic date. The restricted corridor that was fieldwalked (2m) and the variable ground conditions prevent direct comparison with other fieldwalking exercises. However, the low number of flints recovered suggests that no clusters of material were present, merely a background scatter.

7.2. Test-Pits

Too few pieces were recovered from the test-pits for any but the most tentative comments to be made (Appendix 1.2). All flintwork derived from the modern ploughsoil (0001).

Typology

The flintwork includes a classic Early Bronze Age type horseshoe scraper of thumbnail size from pit 27 (AAO) and a probable Earlier Mesolithic obliquely blunted point microlith with a snapped tip from pit 48 (ABO). There is little flintwork which could belong with the scraper, but two small blades, possibly of Mesolithic origin, were also recovered from pits 8 and 87 (ABT and ABA).

Distribution

The density of lithic artefacts from the test-pits is very low, comprising 29 flints and two chert artefacts from only 20 pits spread throughout the pipeline route (Fig.2). Most pits yielded only one flint. Three pits incorporated two flints, while pit 65 yielded four flints plus one chert artefact. On the basis of current work by the author on the density of the excavated flint scatter from Lismore Fields, Buxton, where $1m^2$ grid-squares with less than 3 flints formed part of the background scatter between activity and knapping areas, only those test-pits with three or more items may be significant. This limits the test-pits of interest to no. 65. No additional flintwork was recorded in pits dug 2m to the north, south, west and east of this pit, and hence an extremely small and localised scatter may be indicated.

It was recognised that the 20m spacing of test-pits would miss small, isolated flintwork-clusters like those represented in pit 65, but larger spreads of material over *c.*50m across, like those pinpointed by the Elmton fieldwalking survey (Knight *et al.* in prep.), should have been located had they been present along the route.

7.3. Excavations

Only three lithic artefacts were recovered from the evaluation trenches (appendix 1.3). All derived from layer 0002 of trench 117. One was an end-and-side scraper, which because of its irregular, thick, form made on a flake struck with a hard hammer, is probably of Bronze Age date. The other two pieces, comprising a burnt chunk and a flake fragment, are undatable.

7.4. Raw Materials

The predominant raw material is a brown/grey translucent flint, with variable degrees of cortication (*sensu* Shepherd, 1972, 115). The two probable microlith fragments from fieldwalking and pit 48 are both heavily corticated, with the later scrapers having a speckled cortication, but given the calcareous soils overlying the Magnesian Limestone bedrock their condition may not wholly be an indicator of age. The flint is similar in both raw material type and its generally small size to that recovered from fieldwalking in Elmton parish some 2km to the south (Knight *et al.* in prep.). There, the flint is from small nodules assumed to come from the Trent river gravels and its tributaries. The chert flake from pit 23 is similar

to cherts from the Carboniferous Limestone some 20km to the west, though a natural chert pebble fragment collected whilst fieldwalking suggests that cherts may be incorporated within the local drift deposits (a possibility also noted at Elmton: Knight *et al.* in prep.). It is unclear, therefore, whether this chert resource was transported or merely collected locally in this instance.

7.5. Date and Interpretation

Given the comparative rarity of Earlier Mesolithic material in this area, the occurrence of two probable microlith fragments from fieldwalking and pit 48 is of considerable local interest. They were found some 750m apart, and so cannot be considered as a single 'site' or even from a single event. Given that microliths are traditionally interpreted as the barbs from hunting equipment, a scattered distribution might be expected.

The only other datable artefacts are the two scrapers from pit 27 and trench 117. These are very different in form, but both are typical of Early Bronze Age or Bronze Age assemblages. They were found within 200m of each other, but do not appear to represent any cluster of activities. They must therefore be interpreted as casual deposition or losses away from the major flint-using areas.

8. SUMMARY AND CONCLUSIONS

Test-pitting identified a thin background scatter of Mesolithic to Bronze Age flintwork within all arable and pasture fields which were traversed by the pipeline. The only possible concentration was recorded in pit 65, to the north-east of Whitwell village (Fig.2). Topsoil in this pit incorporated five flint and chert artefacts which could derive from a later prehistoric activity focus. An additional four test-pits were dug, 2m to the north, south, west and east of pit 65, with the aim of establishing the spatial extent of the artefact spread. These yielded no additional material, indicating perhaps a cluster of very restricted size.

Two significant concentrations of Romano-British pottery were recorded to the south-west of Whitwell Wood, one correlating with a pottery scatter recorded during earlier fieldwalking of the pipeline route by Creswell Heritage Trust. Evaluation excavations revealed a number of gullies in the westernmost scatter (trench 123), some of which could possibly relate to Romano-British settlement; the majority of these, however, would seem to be of more recent agricultural origin. Most of the pottery was recovered from trench 117, and may derive mainly from a colluvial deposit accumulated in a natural karstic depression (Fig.9: layer 0005). This could indicate downslope movement of artefacts, possibly from a hitherto undetected Romano-British occupation focus upslope of the pipeline route. The Magnesian Limestone escarpment of north-east Derbyshire appears to have been fairly extensively settled in the Romano-British period, to judge by the discovery nearby of settlements at Barlborough (Hart, 1984, 96, Plate 3), Scratta Wood (Challis and Harding, 1975, i, 94, 136-7) or Whitwell Wood (Knight, 1986) and further afield at Shirebrook (Kay, 1951) or Scarcliffe Park (Lane, 1973). The present evaluations indicate agricultural exploitation of the area immediately south of Whitwell Wood in this period, together possibly with settlement, and

in this respect have added significantly to our knowledge of the distribution of Romano-British activity in this region.

The evaluations have also contributed to an understanding of the impact of colluviation upon the landscape of this region and the character and extent of the glacial drift deposits which occur in pockets on the Magnesian Limestone escarpment.

Pits excavated across a dry valley towards the western end of the test-pit transect incorporated significant depths of colluvium, well over 0.5m thick in the valley bottom. This probably reflects clearance and ploughing of the Magnesian Limestone escarpment, whose well-drained and fertile soils may have been cultivated extensively from prehistoric times. Significant depths of colluvium were recorded in other pits located on the steeper slopes of the Magnesian limestone escarpment, and provide further evidence for gravitational movements of soil cleared of its protecting vegetation. Localised variations in the thickness of colluvium may reflect sub-surface variations in the karst topography which are not evident at ground level.

A number of test-pits, mainly towards the west, yielded basal clay deposits interpreted as glacial drift. This is of considerable interest given that the drift deposits of this area are at present comparatively poorly known, and adds usefully to current knowledge of the Quaternary geology of the Lower Magnesian Limestone escarpment of north-east Derbyshire.

REFERENCES

Brassington, M. (1971) 'A Trajanic kiln complex near Little Chester, Derby, 1968'. *Antiquaries Journal* 51, 36-9.

Buckland, P.C., Magilton, J.R. and Dolby, M.J. (1980) 'The Roman pottery industries of south Yorkshire'. *Britannia* 11, 145-64.

Challis, A.J. and Harding, D.W. (1975) *Later Prehistory from the Trent to the Tyne.* Oxford: British Archaeological Reports 20.

Dool, J., Wheeler, H., *et al.* (1985) 'Roman Derby: Excavations 1968-1983'. *Derbyshire Archaeological Journal* 105.

Eden, R.A., Stevenson, I.P. and Edwards, W. (1957) *Geology of the Country around Sheffield.* London: HMSO.

Garton, D. (1987) 'Dunston's Clump and the brickwork plan field systems at Babworth, Nottinghamshire: excavations 1981'. *Transactions Thoroton Society Nottinghamshire* 91, 16-73.

Garton, D., Hunt, C.O., Jenkinson, R.D.S. and Leary, R.S. (1988) 'Excavations at a Romano-British cropmark enclosure near Menagerie wood, Worksop, Nottinghamshire'. *Transactions Thoroton Society Nottinghamshire* 92, 22-33.

Hart, C. (1984) *The North Derbyshire Archaeological Survey.* Sheffield City Museums.

Kay, S.O. (1951) 'A Romano-British site at Shirebrook'. *Derbyshire Archaeological Journal* 71, 79-80.

Kay, S.O.(1962) 'Romano-British pottery kilns at Hazelwood and Holbrook, Derbyshire'. *Derbyshire Archaeological Journal* 82, 21-42.

Knight, D. (1986) Survey of Two Earthwork Enclosures in Whitwell Wood, Derbyshire. Creswell Crags Visitor Centre.

Knight, D., Garton, D. and Leary, R.S. (forthcoming) 'The Elmton fieldwalking survey: prehistoric and Romano-British artefact scatters'. *Derbyshire Archaeological Journal.*

Lane, H.C. (1973) *Surveys and Excavation of a Romano-British Rural Settlement at Scarcliffe Park, East Derbyshire.* Derwent Archaeological Society Report 1.

Noel. M. (1992) Geophysical Surveys on the Proposed Route of a Pipeline near Barlborough, Derbyshire. Geoquest Associates.

Orton, C.R. (1980) 'Introduction to the pottery reports'. In D.M.Jones *Excavations at Billingsgate Buildings 'Triangle', Lower Thames Street, 1974*. Transactions Middlesex Archaeological Society Special Paper 4, 37-8.

Peacock, D.P.S. (1977) *Pottery and Early Commerce: Characterisation and Trade in Roman and Later Ceramics*. London.

Samuels, J. (1980) The Production of Roman Pottery in the East Midlands. Unpublished PhD Thesis, University of Nottingham.

Shepherd, W. (1972) *Flint. Its Origin, Properties and Uses*. Faber & Faber, London.

Todd, M. (1968) 'Trent Valley ware: a Roman coarse ware of the middle and lower Trent'. *Transactions Thoroton Society Nottinghamshire* 71, 38-41.

Wall, I. (1992) Lowtown to Barlborough Pipeline. Phase 1 Watching Brief: Site Observations. Creswell Heritage Trust.

Williams, D.F. (1977) 'The Romano-British black-burnished industry: an essay on characterization by heavy mineral analysis'. In D.P.S. Peacock (ed.) *Pottery and Early Commerce*. Seminar Press, London, 163-220.

Young, C. J., ed. (1980) *Guidelines for the Processing and Publication of Roman Pottery from Excavations*. Directorate of Ancient Monuments and Historic Buildings Occasional Paper 4. London.

ACKNOWLEDGEMENTS

The authors wish to extend their thanks to Severn Trent Engineering for funding the work described in this report, and in particular to Mr. S. Shephard for expediting this work. Gratitude is also expressed to Mr. D. Barber, Mr. I. Calverley, Mr. G. Ellis, Mr. G.A. Mellars, Salmon & Sons, Mr. C. Walker and Mr. H.M. Warrener for facilitating land access in advance of pipeline construction. Information on the watching brief carried out by Creswell Heritage Trust was provided by Ian Wall. Dr. D. Barrett supplied details of sites recorded in the Derbyshire SMR and advised on the evaluation strategy. Thanks are also extended to Dr. M. Noel and his colleagues at Geoquest Associates for carrying out the geophysical survey, and to Steve Malone for conducting the watching brief. The test-pitting and excavations were carried out with the assistance of Alison Kennett (Assistant Project Supervisor) and Colin Forcey, Crispin Flower, Susan Hall, John Hamshaw-Thomas, Paul Killeen, Malcolm Lillie, Noel Lockyer, Karl Magee, Christopher Pickard, Joanna Sturgess and Alistair Tait. Dr. Chris Hunt assisted with interpretation of the geological deposits revealed during test-pitting and excavation, and provided a specialist geological report preserved in the site archive. Other specialist reports have been provided by Daryl Garton (lithics) and Ruth Leary (Romano-British pottery). The drawings accompanying this report were prepared by Jane Goddard (Figs 2, 9-10 & 14), Richard Sheppard (Fig.1) and Caroline

Wickham (Figs 3-8), the last of whom also made final revisions to all other drawings. Valuable comments on the features exposed during excavation were made by Dr. Dave Barrett, Gavin Kinsley, Terry Pearce and John Walker. Eileen Appleton assisted in the final production of the report.

APPENDIX 1

LITHIC ARTEFACTS

LITHIC CATALOGUE. D. GARTON

1. Material from Creswell Heritage Trust Fieldwalking

NGR		*CODE*	*MAT*	*?BURNT*	*CORT*	*FORM*	*CORE*	*REJ*	*USED*	*TOOL-TYPE*
48607735	1	F	-	-	N					
48867719	4	F	-	H	I					
50777713	6	F	-	H	K					
52107712	14.1	F	-	H	-	U				
52097700	14.2	F	-	H	N					
51967701	15	C	-	-	N					
53867694	16	F	-	-	N					
54177688	18	F	-	H	B	-	-	-	MIC FRG ?OBP	
54177688	19	F	-	H	?N ROLLED					
52907703	21	F	-	-	F BASHED					

2. Material from Test-Pits

T-PIT	*CODE*	*MAT*	*?BURNT*	*CORT*	*FORM*	*CORE*	*REJ*	*USED*	*TOOL-TYPE*
4	ACK	F	B	-	I				
7	AFG	F	C	-	F				
8	ABT	F	-	H	B				
8	ABY	F	B	-	I				
10	ABX	F	B	-	I				
18	ACM	F	-	-	K Plough bashed or used as wedge?				
21	AAY	F	-	L	I				
21	AAX	F	-	L	I				
23	AAZ	C	-	-	F				
27	AAO	F	-	L	F	-	-	-	SC HSS TMB
28	AAM	F	-	H	K				
29	AAN	F	-	-	S				
36	ABN	F	C	-	L				
39	ABM	F	-	-	I				
42	ABI	F	-	-	F				
44	ABJ	F	-	H	F				
44	ABK	C	-	-	- Industrial waste				
48	ABO	F	-	H	L	-	-	R+L	MIC ?OBP FRAG
59	ABL	F	-	-	K/?N				
62	AAE	F	-	-	I				
65	AAH	F	C	-	I				
65	AFE	F	C	-	P				
65	AFE	C	B	-	P				
65	AAI	F	-	H	S Rolled edges				
65	AAG	F	-	H	I				
69	AAJ	F	-	L	F	-	-	D+R	
73	AFF	Cannel coal?							
79	ABE	F	-	H	B	-	-	R	
79	ABG	F	-	H	F				
87	ABA	F	-	H	B				
93	ABB	F	-	H	F				
95	ABC	F	-	-	P				
97	ABD	F	-	-	F				

3. Material from Exavations (Trench 117)

NGR	CTXT	MAT	?BRNT	CORT	FORM	CORE	REJ	USED	TOOL-TYPE
687000056 0002 (BAT)	F	B	-	K					
0198800215 (BBM)	0002	F		L	L				
0477500225 (BDF)	0002	F		L	F				SC E/S

Abbreviations

NGR = National Grid Reference
T-PIT = test-pit number
CODE = artefact code
MAT = raw material type
F= flint
C= chert
?BURNT = only recorded if item is burnt
B = burnt (i.e. hackly fracture/internal cracking)
C = calcined (white, crazed surface)
CORT = corticated
H = high (whole surface heavily corticated)
L = low (specks, or edges only or slight cortication)
FORM = form of piece
F = flake
B = blade i.e. breadth:length ratio of <2:5
L = blade-like flake, i.e. narrow flake with parallel sides
P = chip, i.e. broken unidentifiable piece
I = indeterminate fragment of struck flake
S = spall, i.e. flake under 10mm in length
K = chunk, i.e. irregular piece with struck and thermal scars
N = natural fragment
CORE = core form
U = unclassified
REJ = core rejuvenation flake
USED = used flakes and blades
position of use-wear recorded (bulb at base, dorsal surface uppermost)
R = right side
L = left side
D = distal end
TOOL TYPE = typological form of retouched items
MIC FRG = microlith fragment
OBP = obliquely blunted point
SC,HSS,TMB = scraper, of horseshoe shape, of thumbnail size
SC E/S = end and side scraper
PLE = piercer, light retouch, elongated point
IPT = impact snap

APPENDIX 2

ROMANO-BRITISH POTTERY

ROMANO-BRITISH POTTERY ARCHIVE. R.S. LEARY

The archive comprises details of the method of fabric classification, the form type series with verbal descriptions; references to published parallels; pottery recording sheets; list of codes used in the pottery recording sheets; quantification table of the fabrics represented on the site using sherd count values.

FABRICS

The sherds were examined under a x30 microscope and classified on the basis of their colour, hardness, feel, fracture, and the type, quantity, sorting, shape and size of inclusions (Young, 1980; Peacock, 1977).

Colour: narrative description only

Hardness: after Peacock, 1977
- soft - can be scratched by a finger nail
- hard - can be scratched with a penknife blade
- very hard - cannot be scratched with a penknife blade

Feel: tactile qualities
- smooth - no irregularities felt
- rough - irregularities felt
- sandy - grains can be felt across the surface
- leathery - smoothed surface like polished leather
- soapy - smooth feel like soap

Fracture: visual texture of fresh break, after Orton 1980
- smooth - flat or slightly curved with no visible irregularities
- irregular - medium, widely spaced irregularities
- laminar - 'stepped' appearance
- hackly - large and generally angular irregularities

Inclusions:

Type: after Peacock 1977

Frequency: indicated on a 4-point scale - abundant, moderate, sparse and rare where abundant indicates the break is packed with an inclusion and rare indicates the break has only one or two of an inclusion

Sorting: indicates the homogeneity of size of inclusion

Shape: after Orton 1980
- angular - convex shape, sharp corners
- subangular - convex shape, rounded corners
- rounded - convex shape, no corners
- platey - flat

Size :
- fine - 0.1-0.25mm
- medium - 0.25-0.5mm
- coarse - 0.5-1mm
- very coarse - 1mm or greater

FORMS

The classification is hierarchical, and alphanumeric codes are used. The first letter denotes the class of vessel, the second denotes the specific form, and the number denotes the rim form. The type series is part of a larger type series being developed for the region. Each type is described and reference is made to published parallels. Sherds with no adequate published parallels are illustrated.

Form Classes

E: wide-mouthed jars/bowls

EA1: deep bowl with bead rim. Made at the Trentside and Doncaster kiln groups (Buckland *et al*, 1980, 161 type Hc and d) from the second to the fourth centuries with little typological change.

EA2: deep shouldered bowl with hooked, bead or everted rim. *Cf* Buckland *et al* 1980, type Hc, dating as EA1.

L: medium-necked jars

LA2: rebated rim jar similar to 'pre-Derbyshire' ware (Brassington 1971, nos. 226-52) dating from the late first to the late second/early third century at Derby (Dool *et al* 1986, table 4).

LA6: cupped rim jar; typical Derbyshire ware form (Kay 1962) dating mid-second to fourth century.

LA13: everted rim jar, thickening towards tip. Variant of common everted rim jar which superseded globular jar forms during the second century and continued in use throughout the third and fourth centuries.

LA24: everted rim jar with smoothly everting rim approximating a cavetto rim. Dating as LA13.

POTTERY RECORDING SHEETS

The pottery recording sheets list the pottery fabrics and forms from each context. Column 1 records the find code, 2 the test-pit number, 3 the context number, 4 the fabric, 5 the sherd count, 6 the part of the vessel present, 7 the rim diameter, 8 the percentage of rim present, 9 the decoration technique and motif, 10 the position on the pot occupied by the decoration, 11 the condition of the sherd and 12 the drawing number. The following abbreviations and codes are used in addition to the above fabric and form codes:

Fabric:	UNK:	unknown
	TS:	Samian
Form:	DSH:	dish
	FRB:	footring base
	RB3:	three ribbed handle
Part:	PRO:	profile
	R+B:	rim and bodysherd
	BDY:	diagnostic bodysherd
	BDX:	undiagnostic bodysherd
	BAS:	base
	B+B:	base and bodysherd
	SCR:	scraps
	HA:	handle
	FLA:	flange

Decoration:

Technique:	BNH:	burnished
	RIL:	rilled
	CB:	combed
	IND:	indented
	GRV:	grooved
Motif:	LAT:	lattice
	SGE:	single
	WVY:	wavy line
	LIN:	linear
Position:	AOO:	all over outside
	AO:	all over
	OSR:	outside rim
	ISR:	inside rim
	TOR:	top of rim
	OSN:	outside neck
	OSH:	outside shoulder
	OUB:	outside upper body
	OMB:	outside middle body
	OLB:	outside lower body
	OSB:	outside body
	ISB:	inside body
Condition:	VAB:	very abraded
	DIS:	distorted

FIND CODE	TRENCH/ TEST PIT	CONTEXT	FABRIC	COUNT	FORM	PART	RIM DIAMETER	RIM %	DECORATION TYPE AND POSITION		CONDITION	DRAWING NUMBER
ACJ	2	0001	BB1	1	?DSH	BDY			BNH	OSB		
ACR	2	0001	CTB1	1		BDX						
AEC	3	0001	OAB1	1		SCR						
ACG	4	0001	BSA2	1		BDY			BNH LAT	OSB		
ACI	5	0001	GRB1	1		BDX						
ACF	7	0001	FLA2	1		BDX						
ABU	8	0001	DBY	1		BDX						
ACC	10	0001	GRB1	1		BDX						
ACD	10	0001	GRB1	1		BDX					VAB	
AFC	16	0001	FLA1	1		BDX						
AFD	16	0001	FLA2	1		BDX						
AFB	22	0001	DBY	1		BDX						
AAR	22	0001	GRB1	1		SCR					VAB	
AAS	22	0001	GRB1	1		SCR						
AAT	22	0001	GRB1	1		BDX						
AFA	37	0001	GRB1	1		BDX						
AEY	48	0001	BB1?	1		SCR						
AEZ	48	0001	DBY	1		BDX						
AEW	48	0001	GRB1	1	LA13	RIM	14	6				
AEX	48	0001	GRB1	1		BDX						
AEV	54	0001	FLA2	1		BDX						
AAD	59	0001	GRA2	1		BDX						
AEU	61	0001	GRB1	1	EA1	R+B	22	5				1
AET	68	0001	OAB1	1		BDX						
AES	72	0001	GRA1	1		BDX						
AAK	73	0001	GRB1	1		BDX					VAB	
AAL	73	0001	GRB1	1		SCR					VAB	
AEA	75	0001	TS	1		SCR						
ABF	80	0001	GRA2	1		BDX						
AEQ	104	0001	TS	1	FRB	BAS						
AEP	107	0001	GRB1	1		BDY			BNH LIN	OSB		
AEO	114	0001	GRB1	1		BDX						
AEF	115	0001	BB1	1		BDX						
AED	115	0001	DBY	1	LA6	RIM	14	4				
AEG	115	0001	DBY	1	LA6	RIM	16	2				
AEI	115	0001	DBY	1	LA6	RIM		2				
AEJ	115	0001	DBY	1	LA6	RIM	16	5				
AEE	115	0001	GRB1	1		BDX						
AEH	115	0001	GRB1	1		BDX						
AEK	115	0001	GRB1	1		SCR						
AEL	115	0001	GRB1	1		BDX						
AEM	115	0001	GRB1	1		BDX						
AEN	115	0001	GRB1	1	BC7	R+B	19	6				2
BAA	117	0001	GRB1	1		BDX						
BAB	117	0001	GRB1	1		BDX						
BAC	117	0001	GRB1	1		BDX						
BAD	117	0001	GRB1	1		BDX						
BAE	117	0001	GRB1	1	RB3?	HA						
BAF	117	0001	GRB1	1		SCR						
BAG	117	0001	GRB1	1		BDX						
BAH	117	0001	GRB1	1		BDX						
BAI	117	0001	GRB1	1	LA24	R+B	12	24				3

FIND CODE	TRENCH/ TEST PIT	CONTEXT	FABRIC	COUNT	FORM	PART	RIM DIAMETER	RIM %	DECORATION TYPE AND POSITION		CONDITION	DRAWING NUMBER
BAX	117	0002	GRB1	1		BDY			IND	OSB	IND or DIS	
BAY	117	0002	GRB1	1		BDY			IND	OSB		
BAZ	117	0002	GRB1	1		BDX						
BBA	117	0002	GRB1	1		BDX						
BBD	117	0002	GRB1	1		BDX						
BBF	117	0002	GRB1	1		BDX						
BBG	117	0002	GRB1	1	DSH	BAS						
BBH	117	0002	GRB1	1		BDX						
BBL	117	0002	GRB1	1		BDX						
BDB	117	0002	GRB1	1	EA1	RIM	28	8				5
BBE	117	0002	GTA5?	1		BDX					VAB Rather rough	
BDU	117	0005	BB1	1		BDX						
BCF	117	0005	DBY	1		BDX						
BDJ	117	0005	DBY	1		BDX						
BAK	117	0005	GRA2	1		BDX						
BAJ	117	0005	GRB1	1		BDX						
BAO	117	0005	GRB1	1		BDX						
BAP	117	0005	GRB1	1		SCR					VAB	
BAQ	117	0005	GRB1	1		BDX						
BAR	117	0005	GRB1	1		BDY			GRV SGE	OSB		
BAS	117	0005	GRB1	1		BDX						
BAV	117	0005	GRB1	1		BDX						
BAW	117	0005	GRB1	1		BDX						
BBP	117	0005	GRB1	1		BDX						
BBZ	117	0005	GRB1	1		BDX					VAB	
BCM	117	0005	GRB1	1		BDX						
BCN	117	0005	GRB1	1		BDX						
BCO	117	0005	GRB1	1		BDY			CB WVY	OSB		
BCQ	117	0005	GRB1	1		BDX						
BCX	117	0005	GRB1	1		BDY			GRV SGE	OSB		
BDH	117	0005	GRB1	1		BDX						
BEC	117	0005	GRB1	1		BDX						
BCG	117	0005	GTA4	1		BDX					VAB	
BAN	117	0005	GTA5	1		BDY			RIL	OSB		
BCS	117	0005	GTA5	1		BDX						
BDT	117	0005	OAB1	1	LA2	R+B	10	10				6
BFG	117	0006	GRB1	1		BDX						
AFZ	119	0001	GRB2	1		BDX						
BFB	123	0001	GRB1	1	EA2	RIM	26	5				4
BFF	123	0002	CTB1	1		BDX						
BFC	123	0016	GRB1	1		BDX						
BFD	123	0016	GRB1	1		BDX						
BFA	123	0017	BB1	1		BDX						
BFI	123	0017	GRB2	1		BDX						
TOTAL				96								

ILLUSTRATIONS

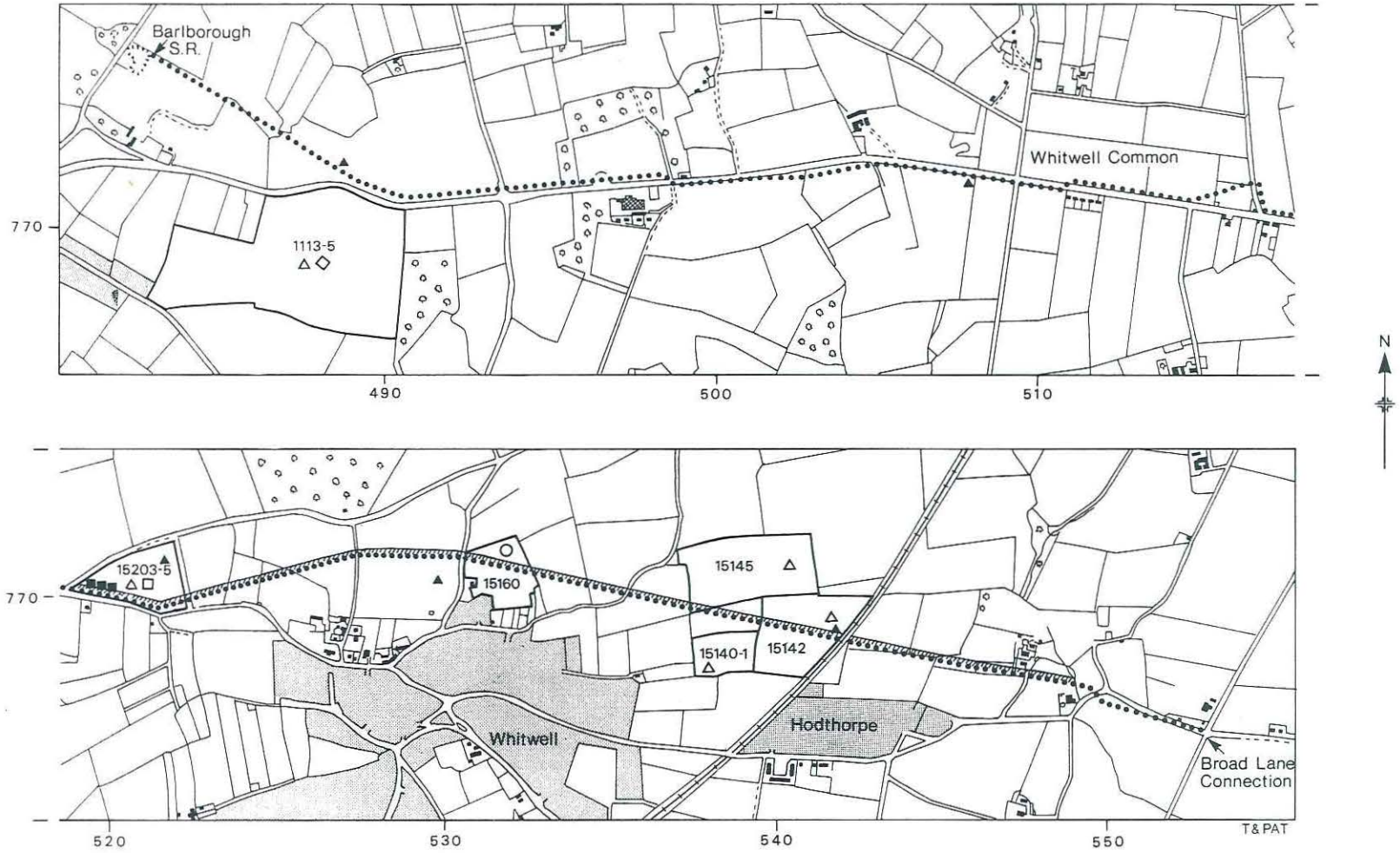


Fig. 1 Location of pipeline and test-pit transect, sites recorded in Derbyshire SMR and finds located during Creswell Heritage Trust watching brief. Scale 1:20,000

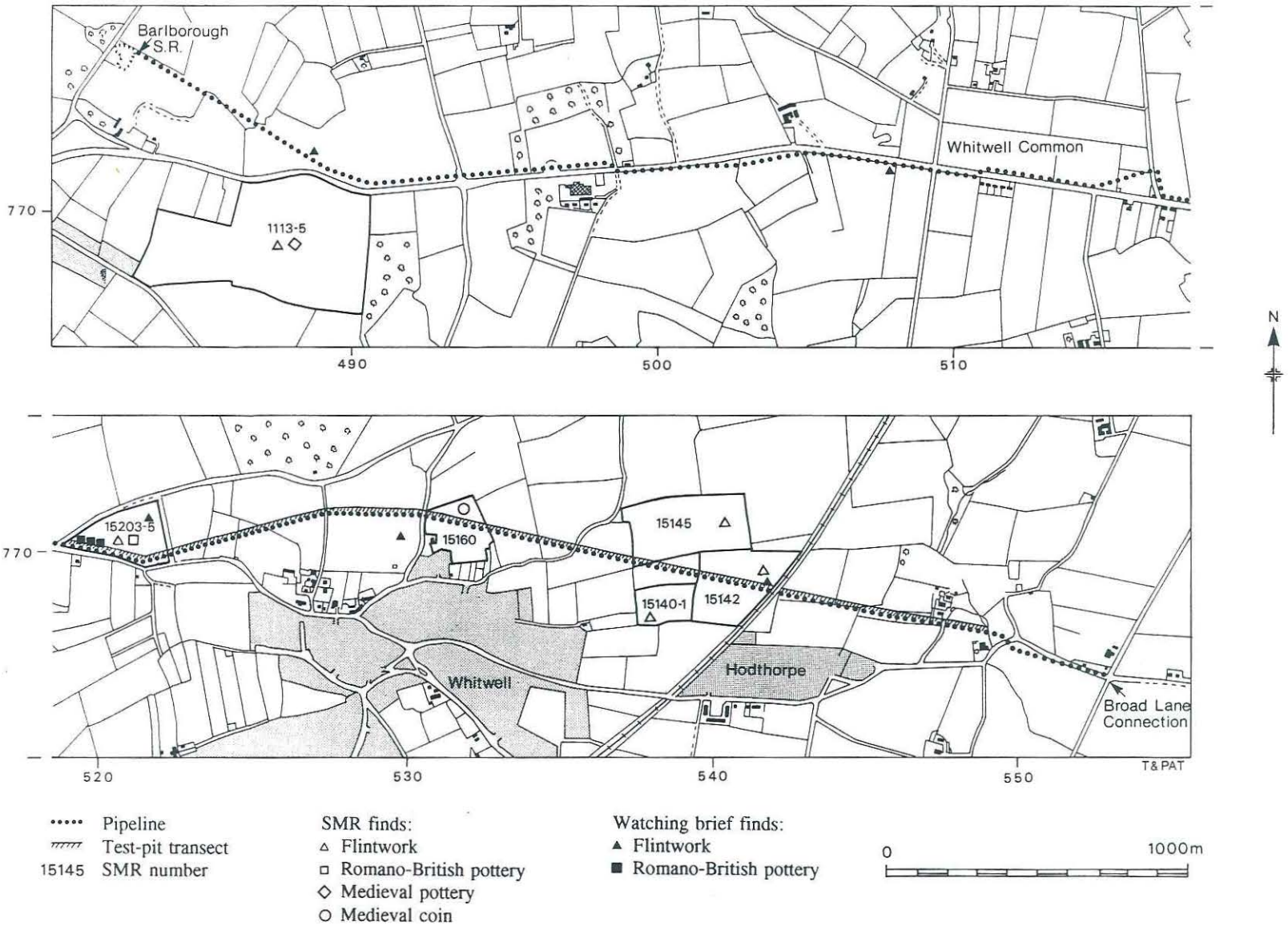


Fig.1 Location of pipeline and test-pit transect, sites recorded in Derbyshire SMR and finds located during Creswell Heritage Trust watching brief. Scale 1:20,000

Fig.2 Location of trial trenches and distribution of flintwork and Romano-British pottery obtained from test-pits. Scale 1:10,000

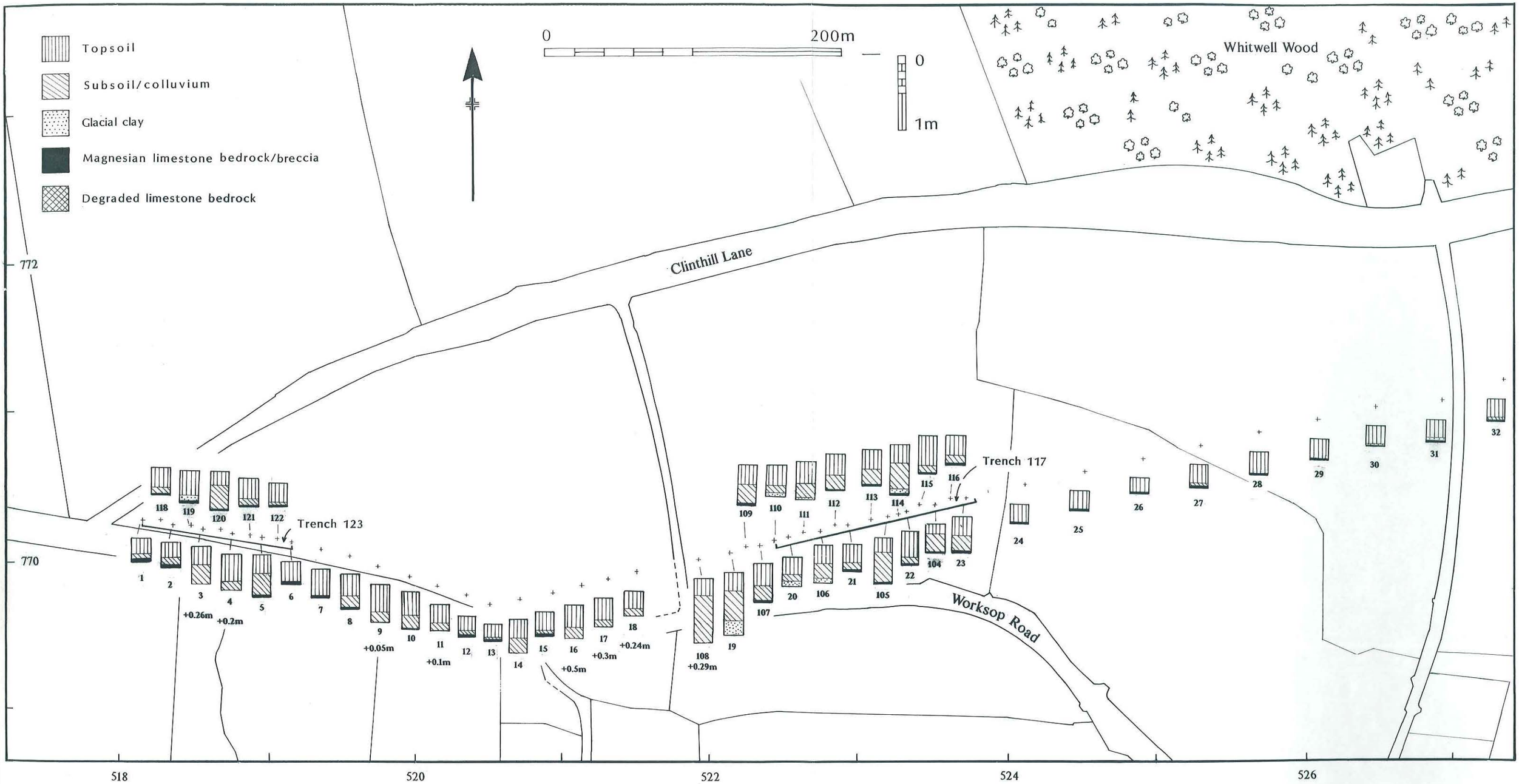


Fig.3 Stratigraphy of test-pits 1-32 and 104-116 (north-west of Whitwell village). Horizontal scale 1: 2500; vertical scale (test-pits) 1:50

Fig.4 Stratigraphy of test-pits 33-62 (north of Whitwell village). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

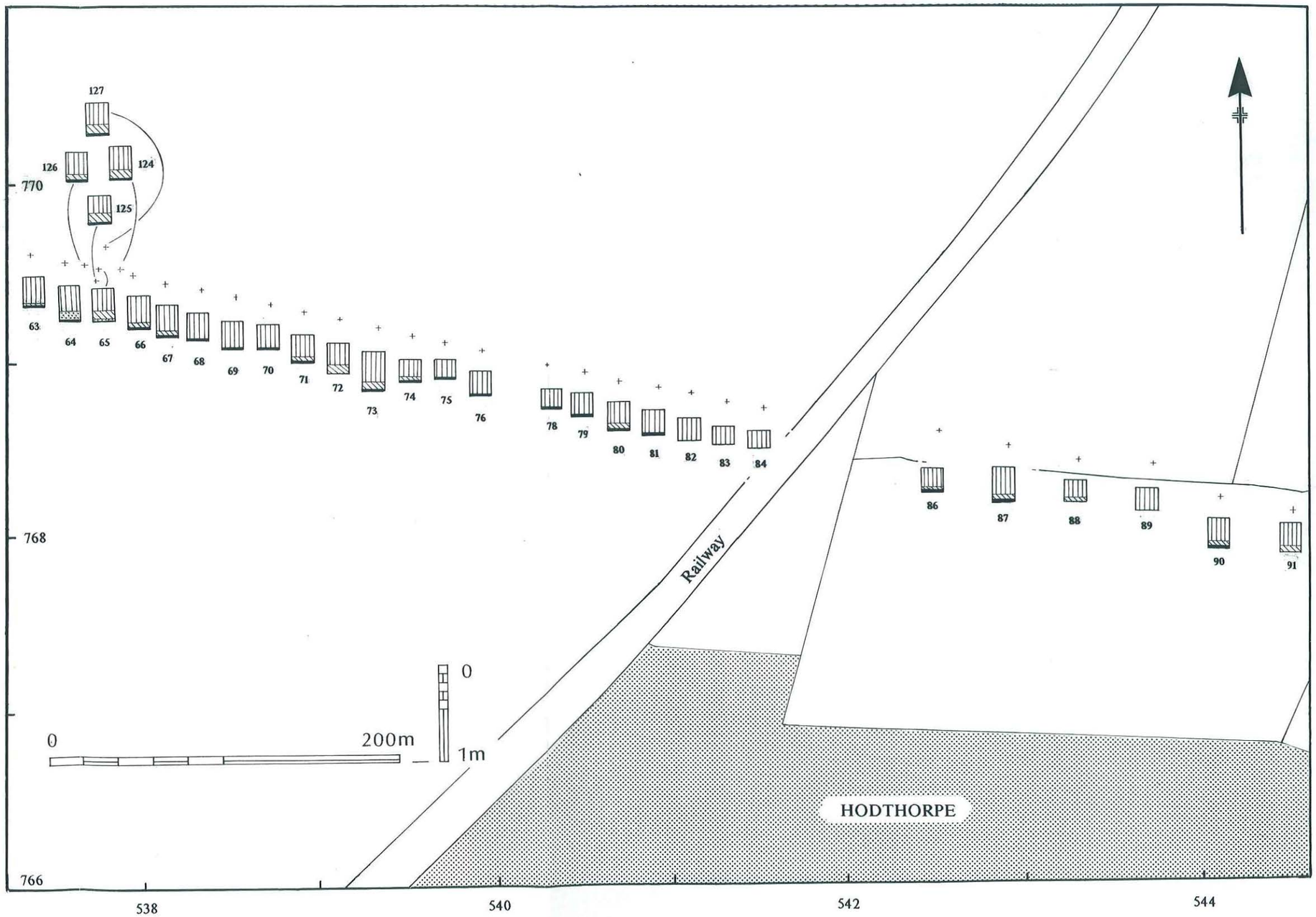


Fig.5 Stratigraphy of test-pits 63-91 and 124-127 (north of Hodthorpe village). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

Fig.6 Stratigraphy of test-pits 92-103 (Hodthorpe to Broad Lane). Horizontal scale 1:2500; vertical scale (test-pits) 1:50

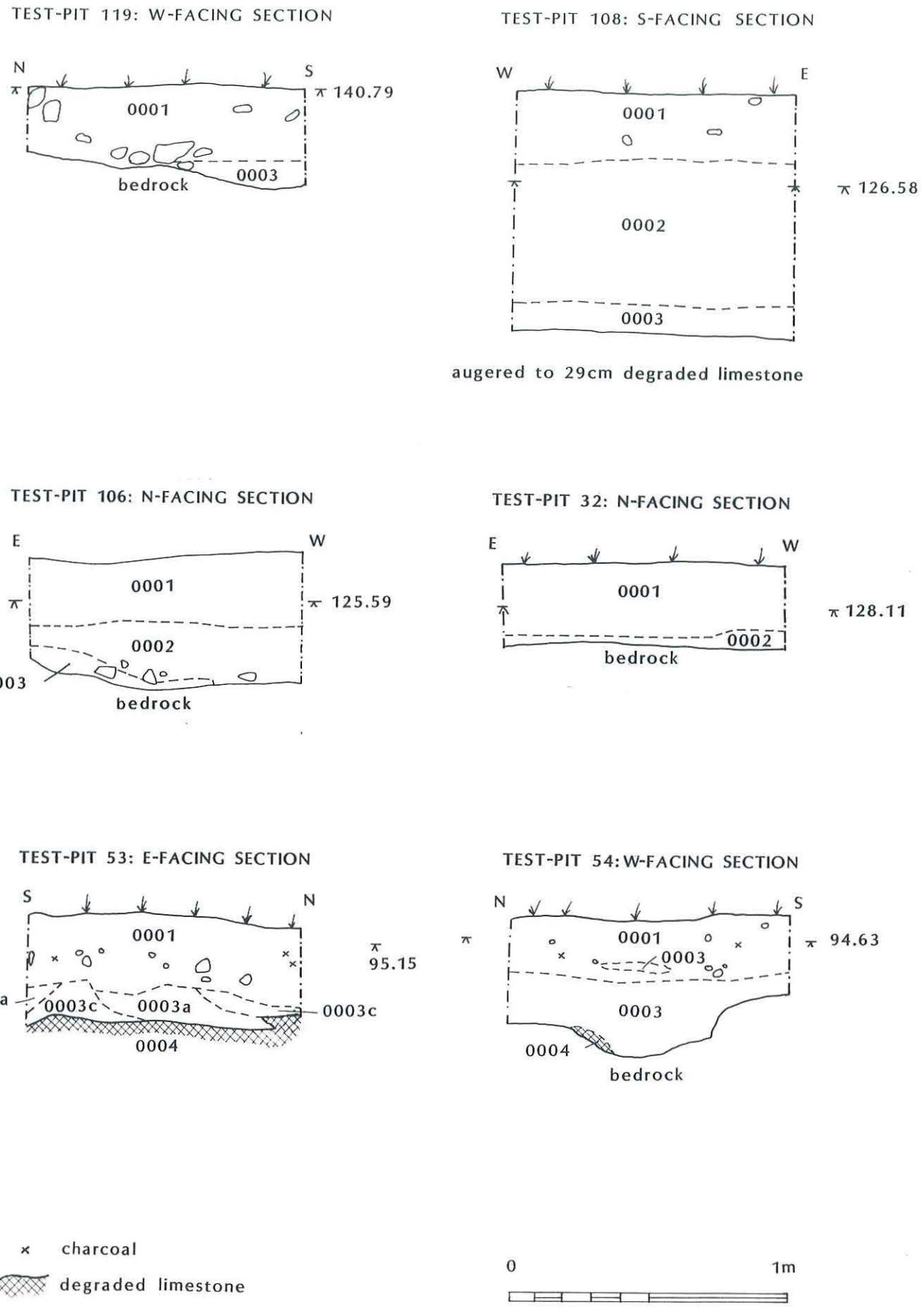


Fig.7 Sections of test-pits 119, 108, 106, 32, 53 and 54. Scale 1:20 (0001: topsoil; 0002: subsoil/colluvium; 0003: glacial clay; 0004: weathered limestone bedrock)

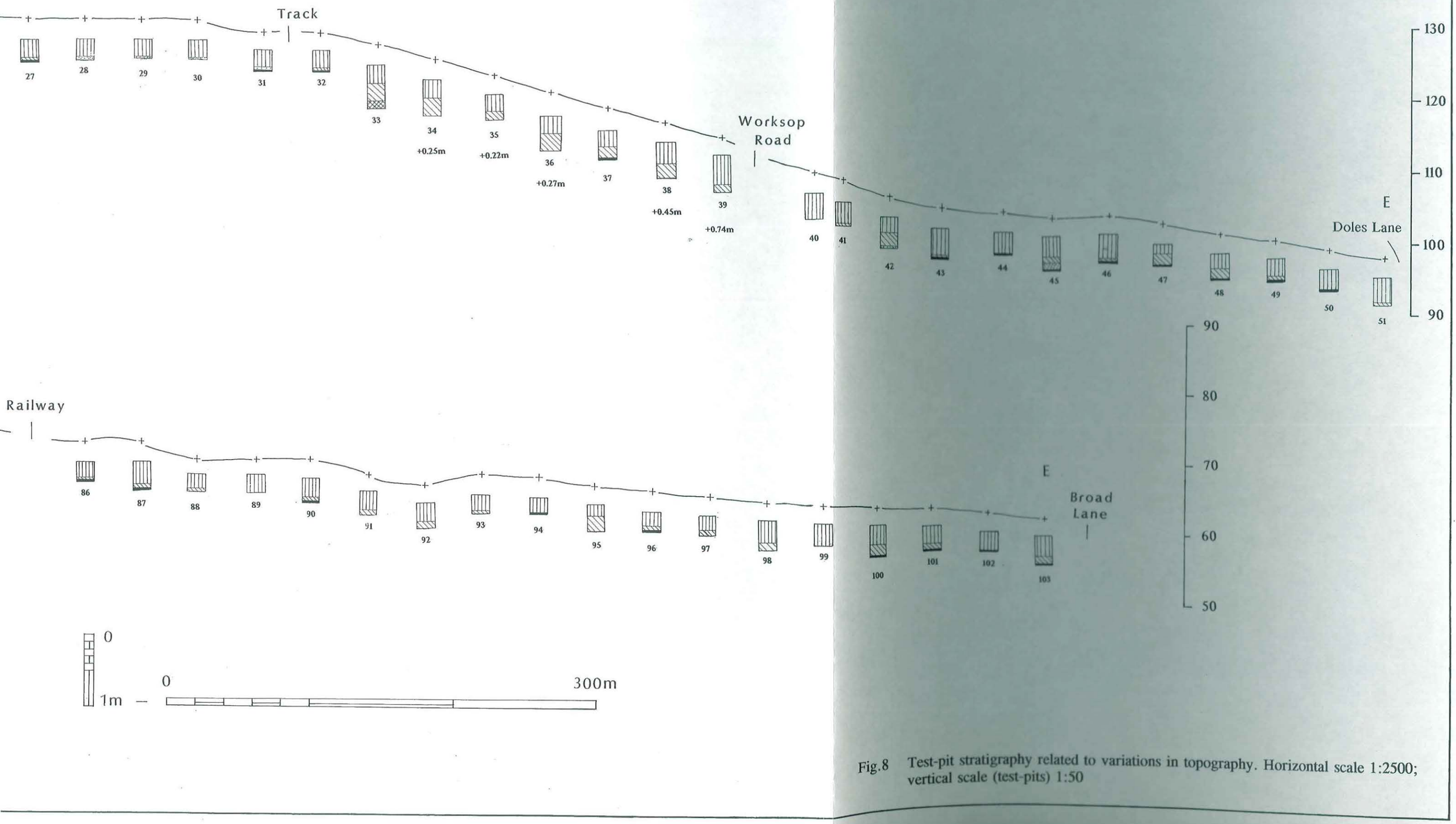
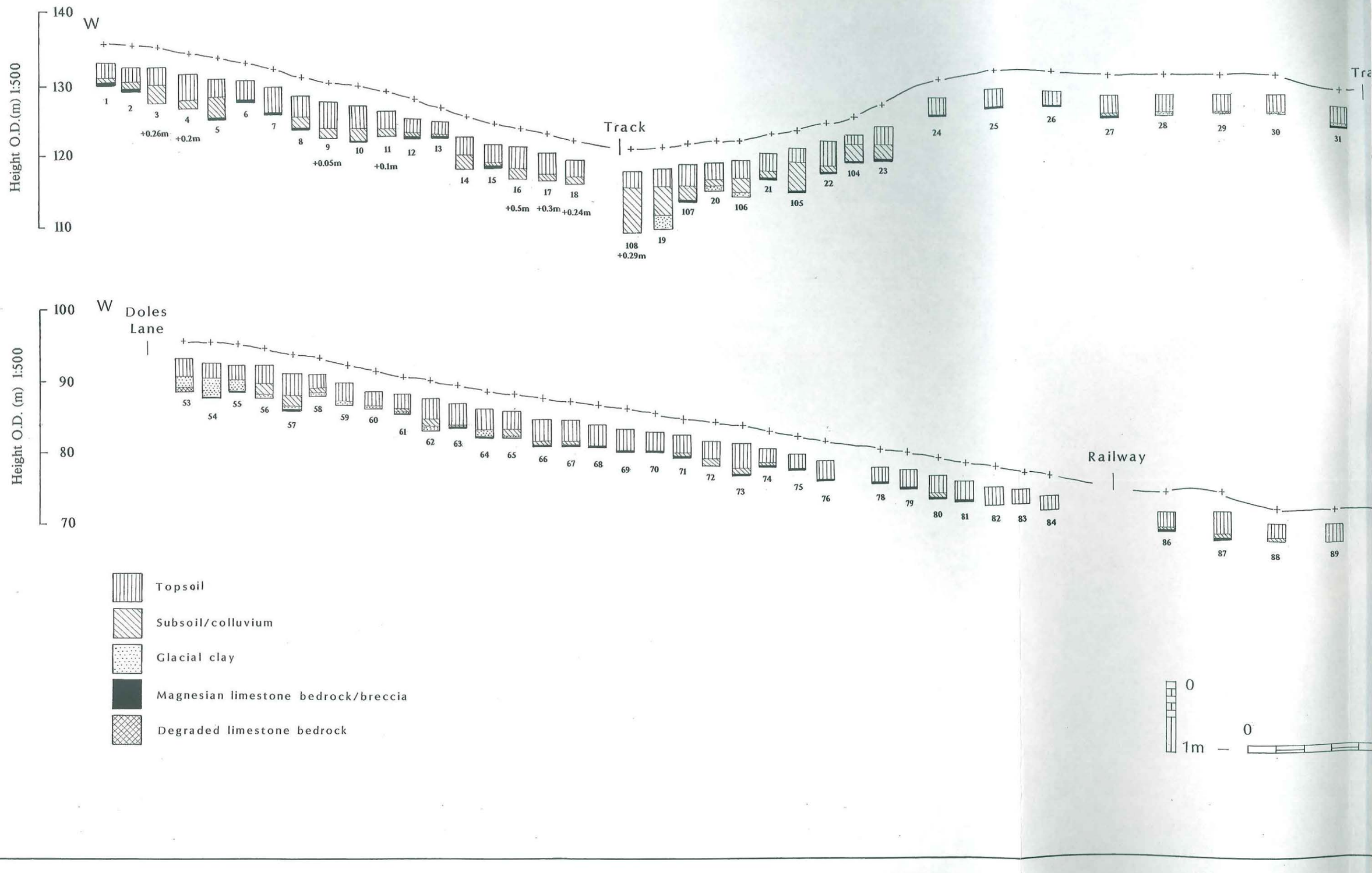


Fig.8 Test-pit stratigraphy related to variations in topography. Horizontal scale 1:2500; vertical scale (test-pits) 1:50


Height O.D.(m) 1:500
140
130
120
110
W
Track
Tra
1
2
3
+0.26m
4
+0.2m
5
6
7
8
9
+0.05m
10
11
+0.1m
12
13
14
15
16
+0.5m
17
+0.3m
18
+0.24m
108
+0.29m
19
107
20
106
21
105
22
104
23
24
25
26
27
28
29
30
31
Height O.D. (m) 1:500
100
90
80
70
W
Doles
Lane
Railway
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
78
79
80
81
82
83
84
86
87
88
89
Topsoil
Subsoil/colluvium
Glacial clay
Magnesian limestone bedrock/breccia
Degraded limestone bedrock
0
1m
0

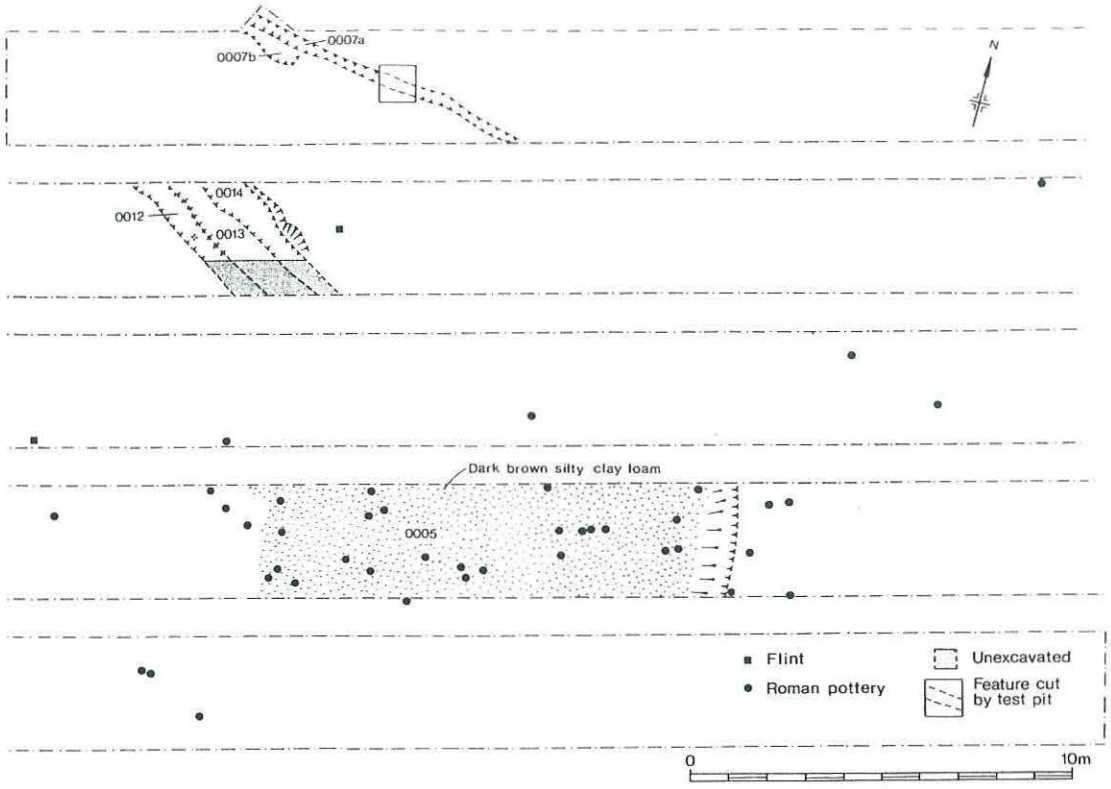


Fig.9 Post-excavation plan of trench 117. Scale 1:200

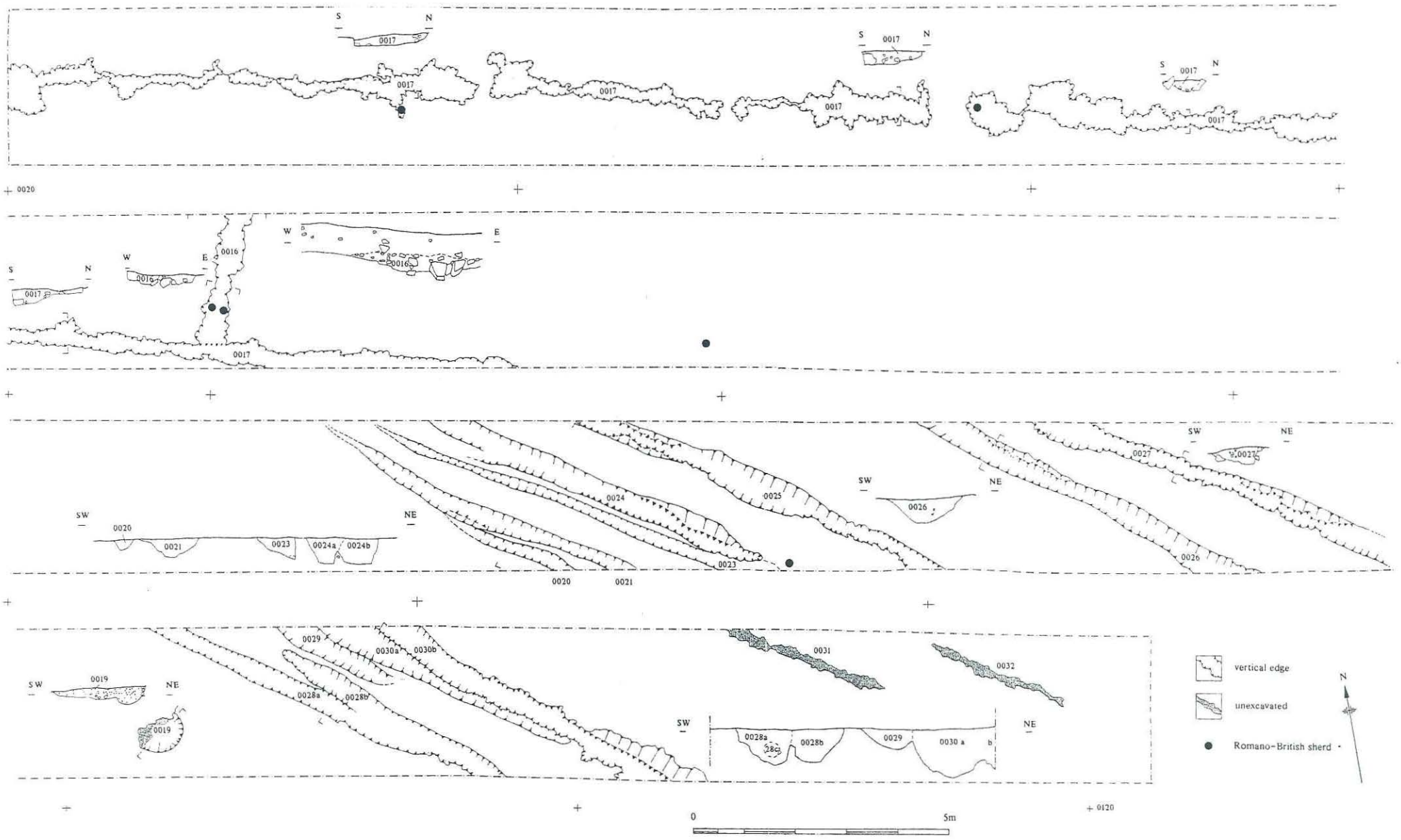


Fig.10 Post-excavation plan of trench 123. Scale 1:100 (sections 1:40)

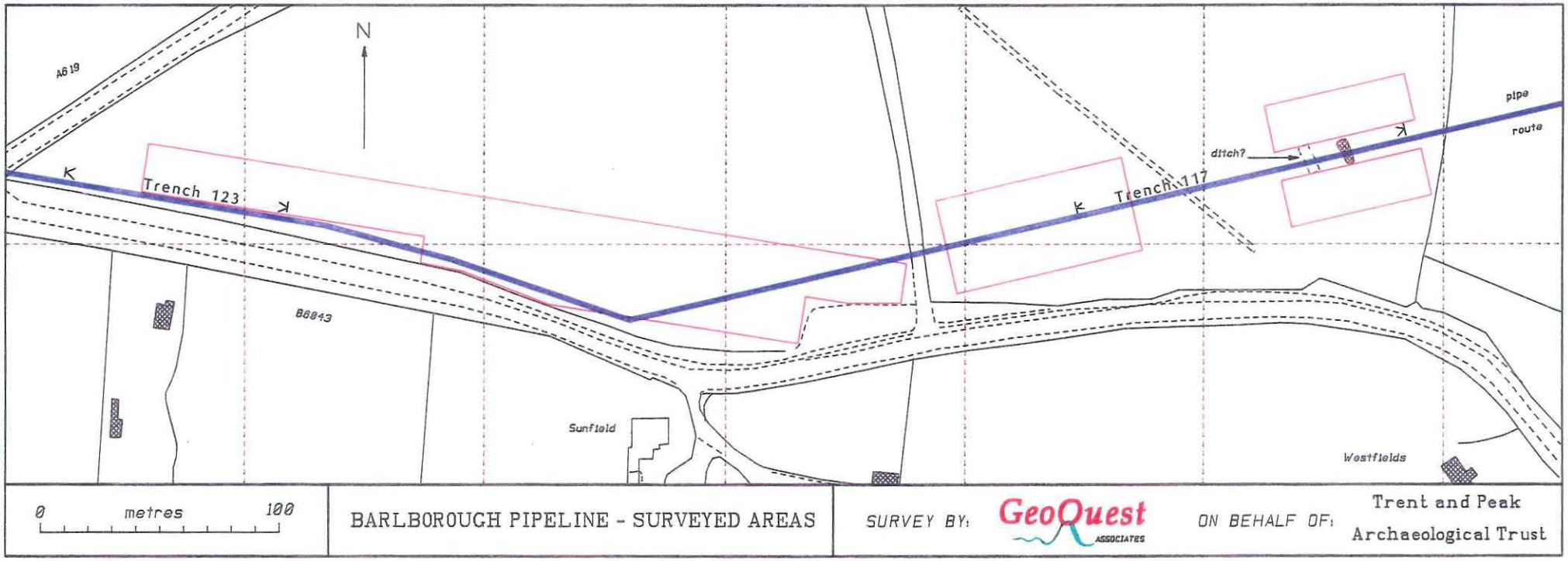


Fig.11 Extent of geomagnetic survey. Scale 1:2500

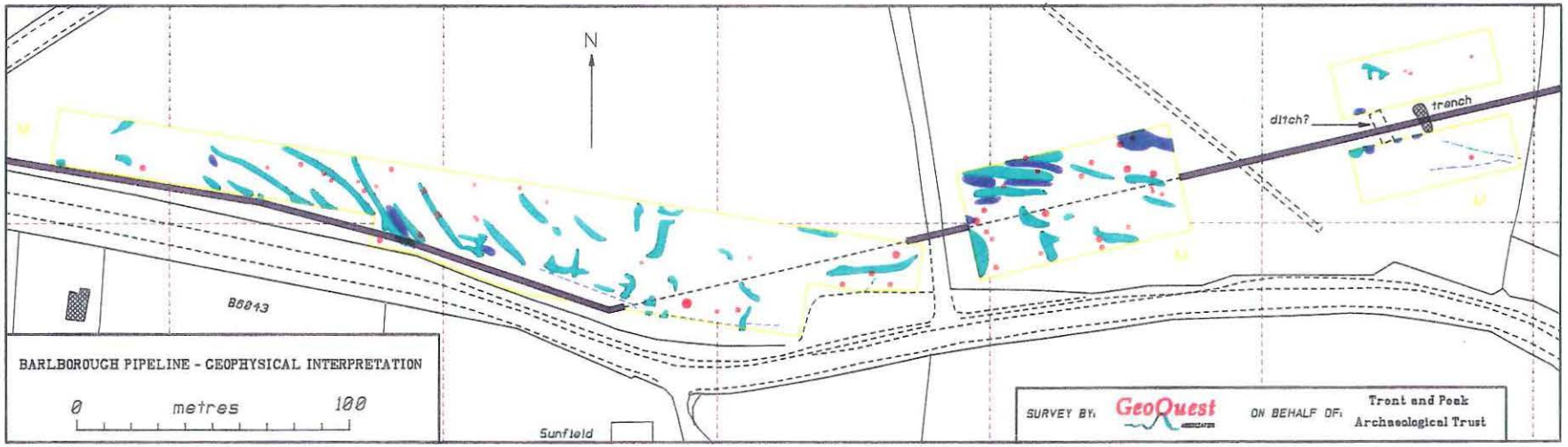


Fig.12 Geomagnetic survey: geophysical interpretation. Scale 1:2500

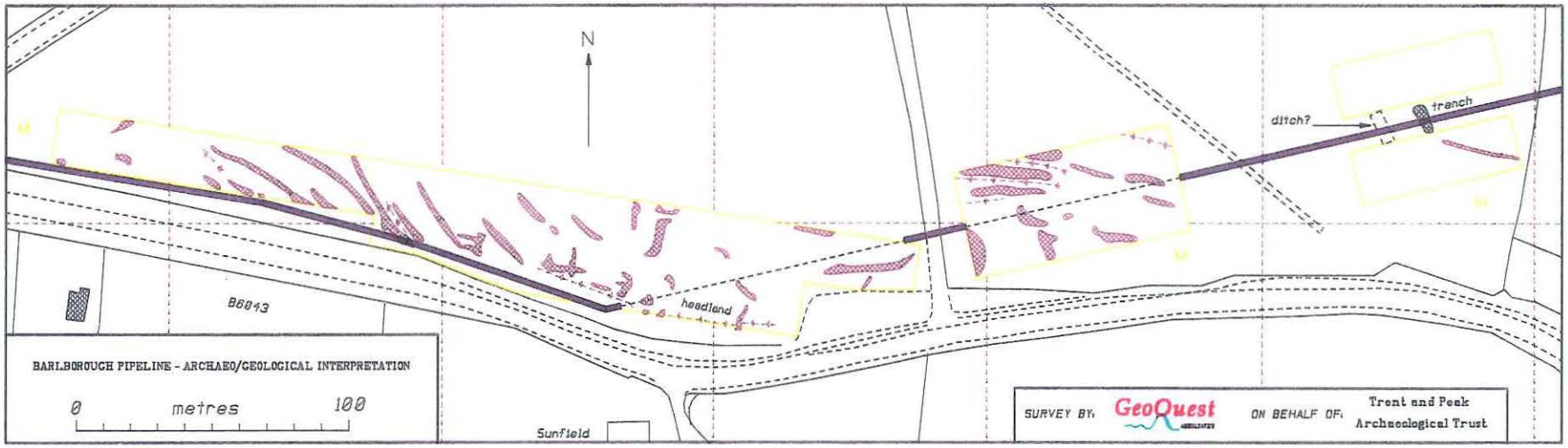


Fig.13 Geomagnetic survey: archaeogeological interpretation. Scale 1:2500

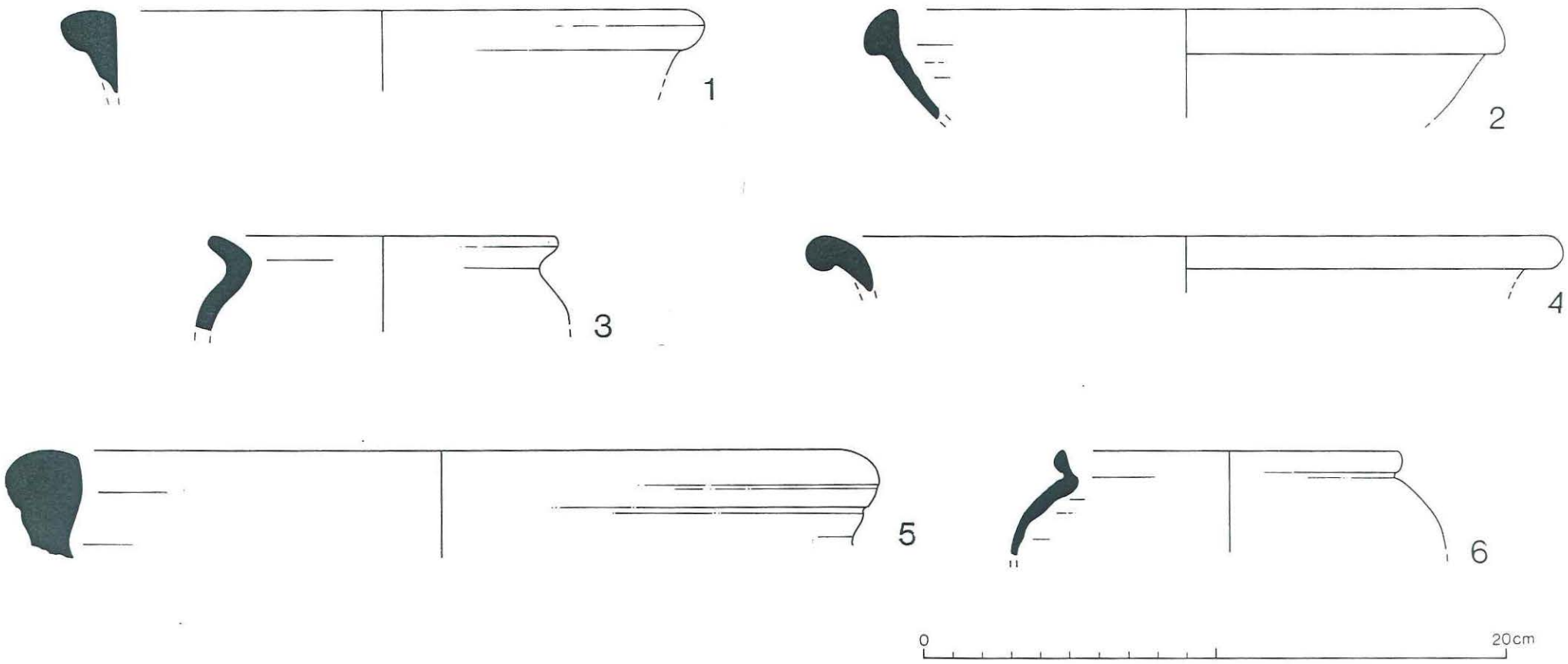


Fig.14 Romano-British pottery from contexts 0001 (1: AEU, test-pit 61; 2: AEN, test-pit 115; 3: BAI, trench 117; 4: BFB, trench 123), 0002 (5: BDB, trench 117) and 0005 (6: BDT, trench 117)

Plate 1. Test-pit 108: colluvial accumulation in base of dry valley (augered 0.29m to bedrock)

Plate 2. Test-pit 68: topsoil above limestone bedrock and rubble

Plate 3. Test-pit 106: basal red clay beneath subsoil/colluvium and topsoil

Plate 4. View NE along trench 117, showing darker brown silty clay loam of layer 0005 after removal of topsoil and trowelling of exposed surface

Plate 5. View of rubble layer beneath silty clay loam of layer 0005, looking NE along trench 117

Plate 6. SE-facing baulk section across ditches 0012, 0013 and 0014, trench 117

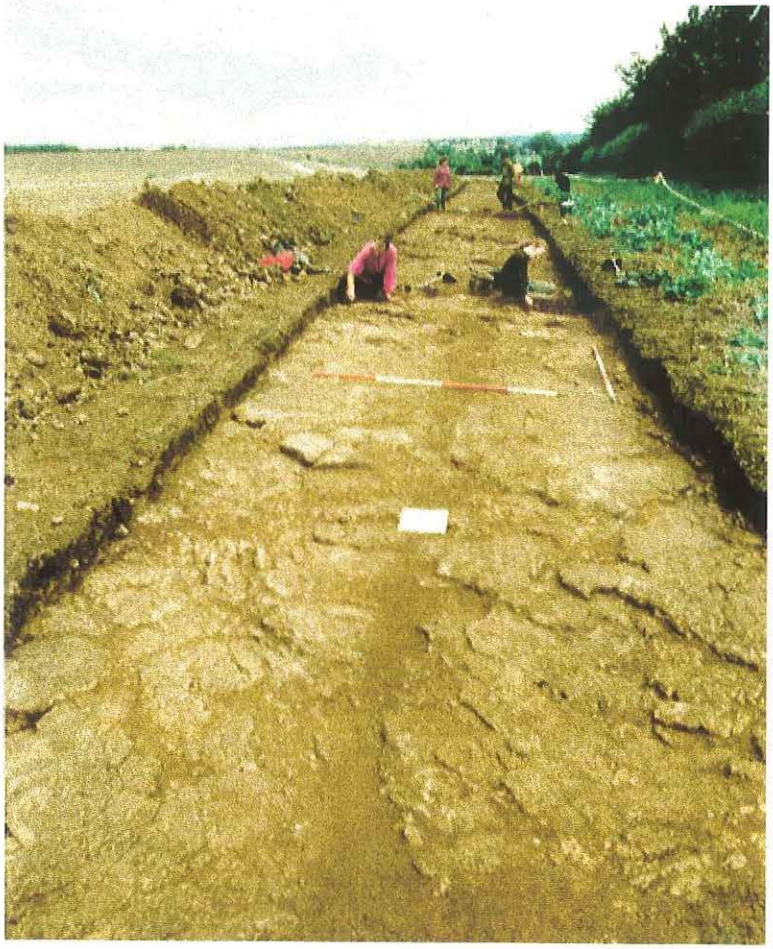


Plate 7. View SE along trench 123, showing fill of gully 0017 after removal of topsoil

Plate 8. Parallel gullies in trench 127 after removal of fill; gully 0027 to right of ranging rod