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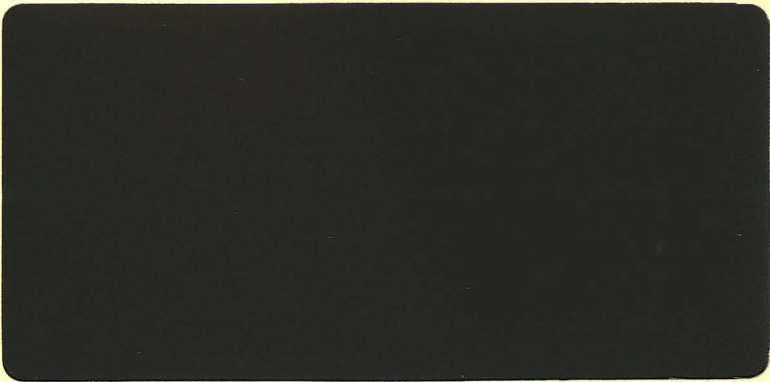
**ARCHAEOLOGICAL EVALUATION
OF THE MARKET DEEPING
BYPASS**

**VOLUME 1: INTRODUCTION AND RESULTS OF
THE EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE ROUTE**

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**ARCHAEOLOGICAL EVALUATION
 OF THE MARKET DEEPING
 BYPASS**

**VOLUME 1: INTRODUCTION AND RESULTS OF
 THE EVALUATION OF THE LINCOLNSHIRE
 SECTION OF THE ROUTE**

Work Undertaken For
 Environmental Consultancy Services

August 1999

Report compiled by Paul Cope-Faulkner
 and Dale Trimble

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settlements appear to be located on slightly elevated areas.

Between Market Deeping and the east end of the bypass route in Lincolnshire few archaeological deposits were recorded in the evaluation trenches. This paucity of archaeological remains is reflected by the scarcity of cropmarks plotted as part of the the Desk Top Assessment of the Lincolnshire section of the route. It is possible that this dearth of archaeological remains is environmentally determined as this area of the fen is known to have been inundated by floodwaters by at least the middle of the second millennium BC and continued as fen until the drainage schemes of the 18th and 19th century. Therefore, it may not be surprising that the only dateable archaeological remains discovered in the area east of Market Deeping are of Late Neolithic/Early Bronze date, before the area was inundated by floodwaters.

The importance of the archaeological deposits of the Welland Valley and adjacent fen edge are well attested. The archaeological deposits recorded during the evaluation of the route of the proposed Market Deeping bypass are diverse in date and type and the construction of the bypass will have a serious impact on the continued preservation of these remains and their potential to provide valuable archaeological data.

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1. SUMMARY

An archaeological evaluation of the Lincolnshire section of the route of the proposed Market Deeping bypass was undertaken between January and March 1996. The evaluation followed a desk based assessment of the archaeological implications of the construction of the bypass undertaken in 1992. The subsequent evaluation comprised geophysical survey, fieldwalking and trial trenching.

During the fieldwalking a discrete cluster of Roman pottery was identified in the area of a sub-rectangular shaped cropmark plotted from aerial photographs. The geophysical survey located several of the features identified on a sketch plot of the cropmarks along the route. However, some of the cropmarks identified by the Desk Top Assessment were not recorded as anomalies by the geophysical survey nor by the subsequent trial trenching. The evaluation identified several areas of enhanced archaeological importance including a possible Bronze Age barrow cemetery, an area of unidentified industrial activity dating to the Late Neolithic/Early Bronze Age period and an enclosure of Roman date, identified as the sub-rectangular cropmark on aerial photographs..

2. INTRODUCTION

2.1 Planning Background

In 1991 a desk based assessment of the archaeological implications of the construction of the Lincolnshire section Market Deeping bypass, South Kesteven district, Lincolnshire (Planning Application Number S56/756/92) was undertaken by Heritage Lincolnshire (Challands 1992 Appendix 1). The study included sketch plotting of cropmarks from aerial photographs, consultation of the county

S.M.R and other relevant sources and a programme of fieldwalking along selected areas of the proposed route. This study identified several archaeologically sensitive areas and as a result Lincolnshire County Council advised that a second stage of evaluation was required to inform an appropriate mitigation strategy for the archaeological remains along the bypass route. In 1993 an archaeological watching brief was undertaken by Heritage Lincolnshire during the excavation of a series of geotechnical pits along the Lincolnshire section of the proposed road (Taylor 1993 Appendix 2).

The evaluation was undertaken between the 29th January and the 15th March 1996 and comprised geophysical survey, fieldwalking and a programme of trial trenching. The project was commissioned by Engineering Consultancy Services of Lincolnshire County Council and undertaken by Archaeological Project Services. In accordance with a brief (Appendix 3) set by the Archaeology Section of LCC a specification for the project was produced by Archaeological Project Services (Appendix 4) and approved by the Archaeology section of LCC.

2.2 Topography and Geology

The Deepings are a cluster of villages surrounding the small town of Market Deeping, South Lincolnshire on the Cambridgeshire border, located to the north of the River Welland (Fig 1). Within Lincolnshire the route of the proposed bypass passes through the civil parish of Market Deeping, South Kesteven District, Lincolnshire, and extends across Ordnance Survey grid squares TF 10 NW, TF 11 SW and TF 11 SE (Fig 2). The underlying drift geology of the area is comprises chiefly glacio-fluvial river terrace and fen edge gravels overlying Oxford clays

The route extends through three topographic zones. At the eastern end is former fenland characterised by thin marine deposits and overlying peat. This gives way to 'upland' fen edge to the north of Market Deeping before the route swings south into the broad floodplain of the river Welland.

Three soil series are traversed by the proposed route (Soil Survey 1983). West of Market Deeping, and north from the Welland are Fladbury 1 association soils, pelo-alluvial gleys on the valley floor. A second area of this soil occurs on either side of Cross Road, northeast of Market Deeping (Hodge *et al.* 1984, 194). To the north and northwest of Market Deeping the bypass crosses Badsey 2 association soils, typical brown calcareous earths (*ibid.*, 101). The easternmost section of the bypass route traverses Clayhythe association soils. Developed on river terrace drift previously covered by now-degraded peat, calcareous humic gley soils comprise the Clayhythe association (*ibid.*, 148).

2.3 Archaeological Setting

The Lower Welland Valley has been recognised as one of the most important archaeological landscapes in the British Isles (Bradley 1984). The significance of the archaeological remains of this area was first publicised in '*A Matter of Time*', a comprehensive study of the archaeology of Lower Welland valley undertaken by the Royal Commission for Historical Monuments (R.C.H.M. 1960).

This survey outlined the extent, density and diversity of cropmarks in the area and stressed the threat to the continuing survival of the underlying archaeological deposits from mineral expansion, changes in agricultural land use and the expansion of urban areas.

Over the past three decades a number of

major excavations and other fieldwork projects have confirmed the conclusions of the Royal Commission. North of the river excavations have been undertaken on two complex Bronze Age burial monuments at Tallington and Deeping St. Nicholas. Large-scale open area excavations at Rectory Farm in West Deeping and at Welland Bank Quarry near Deeping St. James have recorded evidence of the division of the landscape into field systems by the Late Bronze Age.

The work of the Fenland Project has located, through extensive reconnaissance, many sites on the gravel deposits at the junction of the Lower Welland valley and the fen edge. Excavations at one of these sites located near Market Deeping has recorded a palaeochannel containing well preserved timbers, wood working debris and other organic material (Lane 1992). Pottery associated with these deposits suggests that the palaeochannel was active in the Early Iron Age. The site continued to be occupied through the Iron Age and into the Roman period. A small though important assemblage of Beaker pottery recovered during excavations at a second Fenland Project site near Deeping St. James provides solid evidence for Early Bronze Age settlement in the area (Lane 1994).

A desk-top assessment of the archaeological impact of the proposed bypass within Lincolnshire, revealed a similar pattern of visible archaeological remains as encountered in other parts of the Lower Welland valley. Areas of dense cropmarks punctuated by blank areas probably indicate that in some areas alluvial clays cover archaeological remains, preventing the formation of cropmarks. For the purposes of the evaluation, the areas of archaeological sensitivity identified by the Desk Top Assessment have been grouped into four zones (Fig 3).

1) A sub-rectangular cropmark plotted approximately 1km to the west of Market Deeping probably represents a form of ditched enclosure. The cropmark plot appears to indicate some remodelling of the enclosure. Two parallel linear cropmarks approach the enclosure from the southeast and appear to be aligned on its northeast corner. However, the character of these cropmarks differ from those of the enclosure and it is possible that they represent ditches from an earlier phase of landuse, possibly a prehistoric drove or trackway. Some 75m to the north a rectangular cropmark with two internal divisions probably represents a second ditched enclosure. However, a number of linear cropmarks plotted to the east and west of these possible enclosures are likely to represent former field boundaries from a range of periods.

2) A complex group of cropmarks plotted to the north of Market Deeping straddle the route, some falling within the area planned for a roundabout at the junction of the A15 and the proposed bypass. Six circular cropmarks were identified and it is likely that these represent ring ditches which once surrounded Bronze Age barrow mounds. It is likely that very little of any of these barrow mounds survive due to medieval and modern ploughing.

To the west of the area a number of irregular cropmarks do not form identifiable archaeological patterns and are most likely to represent cracks in the underlying natural gravel created by ice wedges during the post glacial period. A number of linear and rectilinear cropmarks identified to the west and east of this area probably represent field boundaries and enclosures from various periods, although it is generally believed that arrangements of this kind are of Roman date.

3) Approximately 450m to the east of this complex of cropmarks lies the Car Dyke, the

remains of a watercourse thought to be of Romano-British date which connected the River Witham near Lincoln to the Nene east of Peterborough (Whitwell 1970). William Stukely, the 18th century antiquarian, saw the watercourse operating as a canal carrying grain supplies from the Fens to the Roman army. However, more recent work by Simmons (1979) suggests that the feature may have operated as a catchwater drain within a larger system of drainage designed and operated by the Roman administration.

4) At the eastern end of the bypass route some 4km east of Market Deeping two parallel curvilinear cropmarks are thought to represent the ditches of the Saxon causeway which linked the Deepings to Spalding. To the northeast of this causeway is a cluster of six Bronze Age barrows recorded as earthworks during the Fenland Project. Excavations undertaken on one of these in 1991 recorded a complex monument of several phases which acted as a focus for burial and ceremony over at least 700 years (French 1994).

Evidence for medieval farming in the form of ridge and furrow earthworks has been recognised along much of the route of the proposed bypass and suggests a long period of arable landuse.

3. AIMS

The aims of the investigation were to locate archaeological deposits and determine, if present, their extent, state of preservation, date, type, vulnerability, documentation, quality of setting and amenity value. The results of the evaluation should enable the planning authority to design and implement an appropriate archaeological mitigation strategy for the archaeological remains likely to be encountered during the construction of the bypass.

4. METHODS

Geophysical survey using a fluxgate gradiometer was undertaken over three separate areas along the bypass route. These were followed by a fieldwalking survey over selected areas during which all artefacts were three dimensionally recorded. Although four areas were selected to be fieldwalked, the presence of crop stubble in one area prevented the survey being undertaken. Artefacts were collected from transects at 5 metre intervals and all finds individually numbered and plotted.

Finally, 31 trenches were opened along the bypass route (Figure 3). Within archaeologically blank areas the trenches were cut at 250m intervals. However, where fields were cropped this spacing was not always possible and trenches were placed at the edges of fields to minimise damage to crops. Eleven of the trenches were targeted at known features identified as cropmarks during the desk based assessment. Topsoil and other overburden was removed from all trenches by mechanical excavator using a straight toothless ditching bucket. The exposed surface of all trenches was then hoe cleaned and all archaeological features hand excavated. Each archaeological deposit or feature revealed within the trenches was allocated a unique reference number (context number) with an individual written description. During the post-excavation phase contexts from individual cuts or related deposits were combined into uniquely numbered groups starting at 2000. A photographic record was compiled and sections were drawn at a scale of 1:10/1:20 and plans at a scale of 1:20. Recording of deposits encountered during the evaluation was undertaken according to standard Archaeological Project Services practice.

Finds recovered from the deposits identified

in the evaluation were washed, marked and subjected to specialist analysis and a date assigned where possible. Records of the deposits and features recognised during the evaluation were also examined. A list of all contexts and interpretations appear as Appendix 5. Phasing was assigned based on artefact dating and the nature of the deposits and recognisable relationships between them. A stratigraphic matrix of all identified deposits was produced and forms part of the site archive.

5. RESULTS

5.1 Geophysical Survey Results

The full report detailing the findings of the geophysical surveys undertaken by Geophysical Surveys of Bradford can be found in Appendix 6.

Gradiometer surveys were undertaken over three separate areas, designated A, B and C. A 60m x 60m area was placed over the southern rectangular enclosure in Zone 1 and forms Area A. Area B was located in Zone 2 to the north of Market Deeping and measured 100m x 100m. This area was positioned to investigate an L-shaped arrangement of discrete pit like features and two possible ring ditches identified as cropmarks. Area C also falls within the Zone 2 and measured 100m x 60m. The area was located to investigate a group of linear cropmarks located at the proposed location of the roundabout at the junction of the bypass and the A15.

The results of the survey in Area A were particularly clear, showing anomalies consistent with the enclosure type cropmarks identified by aerial photography. The survey also identified a number of archaeological type features inside the enclosure, which probably represent pits and internal ditches. Very few of these type of anomalies were

located outside of the enclosure.

Within Area B no anomalies resembling the features recorded as cropmarks were identified. In fact, no archaeological-type features appear on the entire survey of this area. Some weak linear anomalies probably represent the remnants of ridge and furrow earthworks associated with medieval ploughing.

A number of weak anomalies identified in Area C have some archaeological potential. One of these appears as a broadly L-shaped linear feature resembling some of the cropmarks recorded from aerial photographs. Three other discrete anomalies recorded in this area may represent pits. It should be stressed that all of the anomalies in this area are very weak and interpretation is very tentative.

A number of explanations are possible for the lack of response in areas B and C. It may be that the features identified as cropmarks which fail to appear on the geophysical surveys contain fills which are not magnetically enhanced by comparison with the surrounding soil. This may occur if the fill of a ditch has been consistently waterlogged. Alternatively, the archaeological features plotted as cropmarks may have been ploughed away since the aerial photographs were taken.

5.2 Fieldwalking Results

Fields 2, 6, and 7 (Fig 3) were selected for fieldwalking on the strength of the results of the aerial photographic and geophysical surveys.

Only the northernmost part of Field 2 was walked as the remainder of this field was under dense grass cover. Field 6 was also under crop cover which restricted the areas surveyed to the access tracks created by

agricultural machinery. However, it was possible to walk the whole of field 7

Results of the fieldwalking survey are summarised in Figures 4 to 5 and a detailed list of artefacts collected appears in Appendix 7.

Field 2

In total 332 finds were collected from the surface of Field 2. These range in date from the prehistoric to the modern period and are distributed evenly across the survey area. Prehistoric artefacts are represented in this field by 8 flints. Six of these flints were retrieved from the northeast corner of the field.

Romano-British artefacts are well represented by 52 sherds of pottery including a single sherd of imported Samian ware. All of the other sherds appear to be locally produced hand made types. The finds are noticeably clustered in and around the sub-rectangular enclosure cropmark identified from the aerial photographic and geophysical surveys (Fig. 4). No Early or Middle Saxon artefacts were retrieved and Late Saxon finds were restricted to two sherds of Stamford ware pottery.

A total of 37 finds of medieval date were recovered from Field 2. These display an even distribution across the survey area are likely to have arrived on the field as a result of the manuring of arable fields. Post-medieval and modern artefacts were also collected from the field, but no clusters were evident.

Field 6

A total of 547 finds was collected from the surface of Field six. The relatively high number of artefacts retrieved from this field is probably due to the absence of any crop

cover on the field and generally good ground conditions. Prehistoric finds are represented by 23 flints. When plotted no patterning or clustering of these flints was visible, although there was an absence of find spots at the northeast corner of the field (Fig 5). However, the significance of prehistoric flint scatters recorded during fieldwalking is notoriously difficult to interpret without a sound understanding of background flint numbers. Consequently it is impossible to draw conclusions from the flints recovered from Field 6 except that they represent some kind of evidence for prehistoric activity in the area.

A single gunflint of probable post-medieval date was recovered.

Finds of Romano-British date from field 6 are represented by 27 sherds of pottery which cluster towards the northeast corner of the field, east of a circular cropmark identified from aerial photographs.

A single sherd of Early Saxon pottery was collected from field 6. However, the rarity and poor survival of this kind of pottery might suggest that this single sherd is of some significance. Late Saxon artefacts are represented by nine pieces of Stamford ware pottery. These are probably derived from manuring of arable fields.

When plotted the medieval finds formed a thin, generally uniform scatter in field 6, suggesting a distribution also created by manuring arable fields. A slight increase of material is noticeable towards the centre of the field and corresponds to a possible north south aligned headland.

Field 7

In total, 191 finds were collected during the survey of Field 7. This is less than in Field 6 but is possibly due to crop cover across most

of the area. Six prehistoric flints were retrieved, mostly from the eastern half of the field. As with the flint recovered from Fields 2 and 6, meaningful interpreting the distribution of this small assemblage is not possible. However, they do confirm a prehistoric presence in the area.

Romano-British material is represented by a small collection of 12 sherds of pottery, found mainly in two clusters near the northeast corner of the field, next to the remains of the Car Dyke. Three sherds of Saxon date were also retrieved from the field. Medieval and later pottery was recovered in a fairly uniform scatter across the field.

5.3 Excavation Results

A total of eight phases of archaeological deposits were recognised during the evaluation.

Phase 1	Natural deposits
Phase 2	Late Neolithic / Early Bronze Age deposits
Phase 3	Romano-British deposits
Phase 4	Anglo-Saxon deposits
Phase 5	Medieval deposits
Phase 6	Post-medieval deposits
Phase 7	Undated deposits
Phase 8	Modern deposits

Archaeological contexts are listed below and described. The numbers in brackets are the context groups assigned in the post-excavation process.

Phase 1 Natural Deposits

A yellow brown and brownish yellow sandy clay with gravel (2006) recorded in Trenches

1 and 2 probably represent a naturally formed alluvial deposit. A number of circular and oval features (Groups 2007, 2008, 2009 and 2010) defined at the surface of (2006) and containing light brown grey silty clay fills are thought to represent natural features, possibly formed under flood conditions.

A yellow and light brown clay and sandy clay represents the underlying natural deposits in Trenches 4 and 5 (2031). A group of sub-circular and sub-rectangular hollows containing a largely blue grey silty clay (Groups 2021, 2022, 2029, 2035 and 2152), recorded in these trenches are likely to be naturally formed. A linear feature (2026) with diffuse edges and an irregular base in Trench 5 probably represents a palaeochannel.

A 30mm thick mid light brown sandy clay deposit (2023) recorded at the west end of Trench 5 probably represents a phase of freshwater alluvial deposition. A light yellowish brown silty clay (2056) sealed the underlying natural deposits in Trench 6.

Yellow brown sand and gravel was recorded as the natural in Trenches 7, 8 and 31. This deposit represents the fen edge gravels of the area, thought to be of glacio-fluvial origin. In Trench 31 a 2.6m wide and 0.47m deep feature (2079) cutting this gravel is probably an ice wedge formed in peri-glacial conditions at the end of the last ice age. An oval feature located approximately 8m north of ice-wedge 2079 is also likely to represent a natural hollow. A layer of silty clay alluvium sealed 2079 and 2080.

Two more oval features cutting the natural natural sand and gravel 2067 in Trench 8 were identified as natural hollows.

A mixed yellowish brown deposit of silty sand, clayey sand and sandy gravel (2085) recorded in Trenches 9, 10 and 11 represents

the natural in this area

A layer of yellow brown sandy silt with gravel (2121) was recorded as the natural in Trench 13. A layer of light yellow brown clayey silt with gravel (2124) recorded at the base of Trenches 14 and 15 is very similar to the (2129) the natural recorded in Trench 16. This layer closely resembles (2115) recorded in Trenches 18 to 22.

A deposit of light yellowish brown silty clay (2099) recorded in Trench 23 represents the natural deposits in this area. In Trenches 24 and 25 natural deposits are represented by a deposit of light yellow silty sand (2132) which extends into in Trench 26 as (2138)..

Situated in the base of Trench 27 was a deposit of light yellowish and blueish grey clay. Sandy clay (2157) in Trench 27 was cut by a 10m wide, U-Shaped linear palaeochannel (2158) filled by a variety of silts, clays and humified peat. Frequent pieces of redeposited dehydrated wood were identified in the fills of the former watercourse. A layer of mid greyish brown clayey sand (2159) sealed the tertiary fill of the palaeochannel. Assessment of a monolith taken from the fills of the palaeochannel shows that the sediments contain abundant well preserved palynomorphs (N. Branch Volume 2)

Natural deposits recorded in Trench 28 are represented by alluvial deposits of yellow brown clay (2143) overlain by a grey clay (2142) and sealed by a layer of dark reddish brown clay (2141).

In Trench 29 a variable deposit of yellow silty sand (2149) forms the natural.

Phase 2 Late Neolithic / Early Bronze Age Deposits

Three partly exposed features recorded in Trench 23 are thought to represent pits associated with an as yet unidentified industrial process (Fig 6). Interpretation of these features is problematic as all extended beyond the limit of excavation. The pits represented in both groups (2096 and 2097) cut through the underlying natural deposits.

Group 2096 was 1.02m wide, 0.39m deep with vertical sides and a flat base. A 0.66m length of the feature was exposed in plan (Fig 7 Section 39). The primary fill of (2096) was a dark grey clayey silt overlain by a dark grey silty clay with frequent charcoal and burnt clay (2095). Charcoal from this deposit was radiocarbon dated to Cal BC 2450-1975 (Beta-94389; 3780 +/- 70 BP) (see Appendix 8 for further details).

The second pit is represented by Group (2098) and was located 1.5m northeast of (2096) (Fig 7 Section 38). This feature was 0.88m wide, 0.24m deep and contained a primary fill of mid yellow brown sandy silt overlain by a dark grey silty clay with frequent burnt clay and charcoal inclusions (2097).

A partially exposed feature located c.7m south of pit 2098 contained very similar fills with burnt clay and charcoal inclusions and probably represents a third pit (2109).

Also situated in Trench 23 were a number of smaller circular features of which four (2101), (2105), (2106) and (2107) were excavated (Fig 7 Sections 41 and 40). All of these defined at the surface of the natural layers as small circular patches of dark grey silt, some containing charcoal and burnt clay. These dark fills suggest some kind of association with the pits described above. Diameters of the features range from 0.17 to

0.42m and none was deeper than 0.17m deep. The most likely interpretation is that these represent the remains of post holes, although no obvious structure was identifiable.

A number of other unexcavated small circular features were recorded in Trench 23 are also likely to represent the remains of post holes.

Trench 9 was located to investigate a circular ring gully identified on aerial photographs and thought to represent a possible Bronze Age round barrow (Fig. 8). Within the trench this feature is thought to be represented by a southeast aligned 1.98m wide and 0.73m deep linear feature (2161) recorded over a length of 1.7m. In section (2161) displayed a V shaped profile (Fig. 9 Section 17).

Parallel to, and immediately east of ditch (2161), a 0.28m thick deposits of light brownish yellow sand and gravel, overlain by a light yellow brown silty sand (2162) possibly represent remnants of the barrow mound.

Overlying part of this gravel bank and filling ditch 2161 was a variable fill of light blueish brown clayey sand and blue grey and yellow brown sandy clay (2163). Interpreted as a secondary fill, this contained pottery of early Bronze Age date, a flint flake and bones of sheep and cattle. This was sealed by a mid yellow brown sandy clay tertiary fill (2164).

A west east aligned 1.8m wide and 0.75m deep linear feature cut through the natural deposits (2085) in Trench 11 probably represents the ring gully identified on aerial photographs in this area (Fig. 10). The mixed brown sandy silty clay (2086) secondary fill of this ditch contained fragments of Bronze Age pottery and bones of sheep and cattle.

Phase 3 Romano-British deposits

Trench 3 was positioned to investigate the possible enclosure identified on aerial photographs and also defined during the geophysical survey of Area A. This appears to be represented in the trench by (2019), a 1.2m deep and 7.5m wide ditch. The re-cutting of this ditch by (2017) suggests that the enclosure may have been in use over a considerable time-span. Pottery of mid to late third century date was recovered from the secondary fill (2016) of the re-cut. The archaeology in Trench 3 was covered by a thin layer of clay (2015) which is likely to represent river alluvium.

Trench 12 was positioned to investigate the Car Dyke, a major ancient watercourse of presumed Roman date which extends along the Lincolnshire fen edge. A 0.15m thick deposit of light brownish yellow sandy clay (2155) underlying a thin layer of gravel is thought to represent a buried soil buried beneath the remnants of one of the banks adjacent to the watercourse.

Phase 4 Anglo-Saxon deposits

The only evidence for the survival of deposits dating to the Anglo-Saxon period was identified in Trench 3. This is represented by pottery of 7th to 10th century date retrieved from the secondary fill (2013) of a 0.42m wide and 0.18m deep possible gully.

Phase 5 Medieval deposits

Two broad shallow linear features (2052 and 2053) recorded in Trench 6 are thought to represent furrows, remnants of former ridge and furrow from medieval strip farming. In Trench 7 (2074 and 2076) are also thought to represent the remains of ridge and furrow. A very similar west to east aligned linear feature (2066) recorded in Trench 8 is likely

to be of the same origin.

Phase 6 Post-medieval deposits

A west east aligned linear feature (2005) recorded in Trench 2 runs parallel to the current north boundary of field 2 and is likely to be modern in date. The secondary fill (2004) of this ditch contained 18th/19th century pottery and glass and fragments of sheep bone.

A rectangular feature cutting the natural (2085) in Trench 10 probably represents a post-medieval quarry pit. Post-medieval tile was recovered from the fill of the feature.

Phase 7 Undated deposits

A undated linear gully recorded in Trench 1 possibly functioned as a drain, while a much more substantial ditch identified in Trench 5 (2025) is likely to have served as field boundary. Two circular cuts recorded 3.5m apart in trench 5 (2028) and (2151) probably represent the remains of postholes.

A north south aligned linear feature (2042) recorded at the west end of Trench 4 probably represents a field boundary. A number of circular features (2044, 2046, 2049 and 2036) recorded to the east of ditch (2042) are thought to be post-holes. All contained similar fills suggesting that they all belong to the same phase. A shallow ditch (2040) recorded at the east end of Trench 4 probably served as a drain.

Cutting 2040 was another linear feature (2038). Aligned north to south, a length of 1.5m was exposed and a width of 0.48m and a depth of 90mm was recorded. Interpreted as a gully cut, this contained a blue grey silty clay fill (2037).

An L-shaped feature (2055) recorded in

Trench 6 probably represents the terminal of a ditch. Located c. 10m to the northwest of (2055) three circular features (2058, 2060 and 2062) were recorded. The dimensions and shape of these features suggests that they represent post holes, although no definite structure could be determined.

A linear ditch (2070) recorded in Trench 8 probably functioned as a field boundary. An oval feature (2071) only partially exposed within the trench is likely to represent a pit of indeterminate function.

An amorphous feature recorded in section cutting the alluvium in Trench 8 is of uncertain function. However, as the feature truncates the alluvium, it is likely to be of relatively recent date. An undated linear feature (2085) cut through natural in Trench 11 (2089) and terminated towards the centre of the trench. The feature probably functioned as a drain. A circular cut (2090) recorded 1m southwest of this gully represents a pit of indeterminate function.

An undated pit (2091) of uncertain function was also recorded in Trench 30. A linear feature recorded some 20m northwest of pit (2091) contained no finds and probably functioned as a boundary or field ditch. Two more undated boundary ditches (2118 and 2120) were recorded in Trench 13. Both contained a light greenish grey clayey silt, suggesting that they may be contemporary.

A linear ditch recorded in Trench 16 is likely to have served the same purpose as the two boundary ditches identified in Trench 13. A linear (2137) ditch recorded in Trench 26 is also likely to have been dug as some kind of field division. This ditch was sealed by a 0.4m thick layer of alluvial clay. This clay was overlain by a dark brown to black peat rich deposit.

Ditch 2137 was sealed by a layer of clayey

silt 0.4m thick (2135). Varying between reddish and yellow brown, this was interpreted as an alluvial deposit. This was further overlain by a 50mm thick peat rich deposit.

An undated linear ditch (2146) was also recorded at the west end of Trench 29. A semi-circular cut recorded to the east of ditch (2146) may represent the terminal of a second ditch..

Phase 8 Modern deposits

Situated in Trenches 1 and 2 was a light brown or yellow brown silty clay (2001) overlain by a brown clayey silt or sandy clay (2000). These deposits have been identified as the subsoil and topsoil respectively. A similar sequence of brownish yellow silty clay (2012) overlain by a dark brownish grey clayey silt (2011) represents topsoil and subsoil in Trench 3.

A linear feature (2031) recorded in Trench 4 contained a fired clay pipe and is a modern land drain. An oval feature truncated by the land drain appears to represent an animal burrow. The latest deposits in Trench 4 are represented by a layer of subsoil (2030) and topsoil (2020)

A discontinuous mid brown sandy silt (2051) formed the subsoil (2051) in Trench 6. This was overlain by a topsoil of dark brownish grey clayey silt (2050). In Trenches 7, 8 and 31 a layer of greyish brown silty clay (2064) formed the subsoil. A grey to greyish brown silty clay interpreted as the topsoil represents the topsoil in these trenches (2063).

Subsoil in Trenches 9, 10, 11 and 30 was recorded as a layer of brown varying to greenish and greyish brown sandy gravel and silty clay (2082). A brown silty and sandy clay (2081) forms the topsoil in these trenches. In Trench 12 the topsoil was

formed by a layer of mid to dark brown clayey sand (2156). In Trench 13 a dark grey clayey silt (2116) was identified as the topsoil.

In Trenches 14 and 15 a deposit of mid yellow brown clayey silt varying between 0.2m and 0.42m thick (2123) was interpreted as a subsoil layer. This was overlain by a dark brown clayey silt and silty clay topsoil (2122).

In Trench 16 was a layer of mid yellow brown silty clay subsoil (2126) sealed ditch (2128). The subsoil in Trench 18 was a brown clayey silt (2114). A brownish grey silty clay subsoil (2131) was recorded in Trenches 24 and 25. These layers were sealed by a layer of dark brown clayey silt recognised as topsoil (2125, 2113, 2094 and 2130).

A dark brown silt topsoil with a high organic content (2133) sealed the peat layer in Trench 26. The alluvium (2159) recorded in Trench 27 was overlain by a mid brown sandy silt topsoil (2160). A reddish brown clayey silt (2140) subsoil sealed the alluvium (2141) in Trench 28. This was overlain by a dark brown to black clayey silt topsoil (2139). Ditches 2146 and 2148 in Trench 28 were sealed by a dark brown silty clay topsoil (2144).

6. DISCUSSION

Archaeological remains dating from the Late Neolithic/Early Bronze Age, Romano-British, Anglo-Saxon and medieval periods were recorded during the archaeological evaluation of the proposed route of the Market Deeping bypass in Lincolnshire.

The fieldwalking phase of the project did not identify any significant clustering of prehistoric material within any of the areas walked, although thin scatters of worked

flint were recovered from all areas surveyed. However, concentrations of Romano-British material do appear to correspond with a sub-rectangular enclosure identified as a cropmark. The single sherd of Anglo-Saxon pottery recovered from Field 6 may be of some significance given the rarity of this kind of pottery.

The geophysical surveys confirmed the impressions from the cropmarks identified on aerial photographs that the rectilinear cropmark identified in Zone 1 probably represents a modified ditched enclosure. A number of anomalies were also detected within the enclosed area which are thought to represent pits and other sub-surface negative features. Within Zone 2 the geophysical surveys in areas B and C did not identify any anomalies comparable with the circular cropmarks plotted from aerial photographs. However, a linear anomaly identified in area C may relate to a group of rectilinear cropmarks plotted from aerial photographs.

The only trench along the route to reveal unsuspected remains was Trench 23. Here a group of pits and post holes associated with some kind of as yet unidentified industrial process was recorded. The pits contained abundant fired clay and charcoal and initial impressions were that a saltern had been discovered. However, inspection of the fired clay from the pits identified no forms comparable to those found within typical briquetage assemblages from other known salt making sites (T. Lane Appendix 13). One of the pieces of fired clay contained wattle impressions and may have been part of an oven or kiln like structure. A radio carbon age of Cal BC 2450-1975 (Beta-94389; 3780 +/- 70 BP) was obtained from charcoal recovered from the primary fill of the pit in Group (2096), dating the feature to the Late Neolithic/Early Bronze Age period. Assessment of the charcoal recovered during

sample processing supports the interpretation that an unidentified industrial process is represented by these remains. Wood was used as a fuel and species from wetland and dryland environments was readily available (Appendix 9 R Gale)

Sites of any type from this period are very rare both locally and nationally and the discovery of this site is of some importance. The absence of pottery, animal bone or other evidence of domestic occupation suggests that the site was primarily devoted to some kind of industrial activity. Although the site is located on the fen edge there is no evidence from the fired clay assemblage that the site was used for salt making.

Archaeological remains were absent from Trenches 31 and 8, both located to investigate features identified as crop marks within the putative barrow cemetery located to the north of Market Deeping. This might be explained by the tentative identifications of the cropmarks from the aerial photographs. There is a possibility that many archaeological features have been lost to ploughing since these aerial photographs were taken. However, a V-shaped ditch recorded in Trench 9 confirms the presence of the ring ditch cropmark identified in this area. If this ring ditch did once surround a barrow mound then very little, if any of the monument now survives. It is possible that layer (168) represents a buried soil sealed beneath the remnants of the mound but this interpretation is very tentative (Fig 9 Section 17).

It is thought that the ditches recorded in Trench 11 also represent barrow ring ditches. Bronze age pottery recovered from the secondary fill of this ditch supports this interpretation and the pottery and animal bone may indicate that a settlement was located nearby. The evaluation has confirmed that the ring ditches identified on

aerial photographs probably represent the remains of a Bronze Age barrow cemetery. If so, this group is one of several identified on this area of the fen edge. Other barrow cemeteries identified on the Welland gravels include a group at Deeping St. Nicholas and one at Market Deeping. To the south of the Welland barrow cemeteries appear to be distributed along the edge of Borough Fen in Cambridgeshire. These barrow groups indicate that the Welland valley and adjacent fen edge were attractive locations for communities in the Early and Middle Bronze Age, although settlement sites of this period have yet to be found in any numbers in this area.

Roman period archaeological deposits recorded during the evaluation are restricted to the ditch in Trench 3, and the remains of a gravel bank flanking the car Dyke recorded in Trench 12. The ditch in Trench 3 appears to have been recut and confirms the impression from the cropmarks and geophysical survey that this feature was modified at some stage. Despite the general acceptance of a Roman date for the construction of the Car Dyke all previous archaeological investigations have failed to retrieve firm evidence to support or refute this hypothesis. Any future opportunities to investigate this monument should concentrate on resolving the issues of date and function of the Car Dyke. The enclosure ditch in Trench 3 could not be fully excavated during the evaluation due to a very high water table. Dating evidence from the evaluation was determined from pottery collected from the upper fills of this feature. It is possible that organic deposits may be preserved in the basal layers of this ditch and any further work on the enclosure site should take this into account. Analysis of such deposits would help to determine the character of the local environment and possibly the function of the enclosure. The bypass corridor will pass through a very

small area of the interior of the enclosure, offering little chance to examine internal features. Late Saxon Stamford Ware pottery recovered from a gully in Trench 3 suggests that use of the enclosure may have continued into this period.

No remains associated with an original causeway across Deeping Fen were located at the eastern end of the bypass route.

Few deposits of high environmental potential were recovered during the evaluation. However, a palaeochannel located at the eastern end of the by-pass route in Trench 27 contains deposits which have considerable potential to aid palaeoenvironmental reconstruction (Volume 2). Assessment of the pollen preserved within the fills of the channel has shown high potential for palaeoenvironmental reconstruction. Given the paucity of this kind of data for the area the discovery of well preserved deposits with high potential for environmental analysis a rare chance has been presented for recovering information on past fenland environments.

The bypass evaluation has recorded a range of archaeological deposits which have some potential to address questions of how ancient communities utilised the fen edge. It is important to establish the nature of the industrial activity represented by the Neolithic/Bronze Age remains in Trench 23. Although no direct association with salt making has been established it is still possible that these remains are in some way connected with the process. This area of the fen edge was utilised for salt making in the late Bronze Age and Iron Age and it would not be surprising if the area was used for this industry in earlier times. Alternatively, the saline conditions necessary for salt making may not have prevailed during earlier periods. However, as salt making debris from this period has not been characterised

as yet, identification of production sites is problematical. The material recorded in Trench 23 may derive from an as yet unrecognised part of the salt making process.

The confirmation of a barrow cemetery on this part of the Fen edge adds to burgeoning evidence for the use of this part of the fen edge during the Early Bronze Age, perhaps even as a landscape for the dead (Parke-Pearson 1993). However, settlements of this date are likely to have left the most ephemeral remains and any subsequent work should not ignore the possibility of discovering sites undetected by this evaluation.

7. ASSESSMENT OF SIGNIFICANCE

For assessment of significance the *Secretary of State's criteria for scheduling ancient monuments* has been used (DoE 1990, Annex 4; see Appendix 10).

Period

Deposits dating to the Late Neolithic, Early Bronze Age, Roman and possibly the Anglo-Saxon period were discovered during the evaluation

Rarity

Industrial remains such as those located in Trench 23 of Late Neolithic and Early Bronze Age date are rare at local, regional and national level. A number of barrow cemeteries have been located in the area, although few have been excavated. Although not rare, few enclosures of the type identified during the evaluation have undergone excavation. The Car Dyke is unquestionably a rare and important monument.

Documentation

Records of archaeological sites and finds made in the Market Deeping area are kept in the Lincolnshire and Cambridgeshire Sites and Monuments Record. Further records are available in files maintained by Heritage Lincolnshire including those of the Community Archaeologist for South Kesteven.

Various synopses of archaeological survey and excavation exist for the Market Deeping area. Two site specific desk-top assessments have been undertaken (Heritage Lincolnshire 1992, Reynolds 1992). Furthermore, a watching brief report exists for the trial pits undertaken (Heritage Lincolnshire 1993). There is a full report detailing the results of the excavation of a Bronze Age round barrow at Deeping St. Nicholas (French 1994) and the results of the Fenland Survey which covered areas adjacent to the bypass route, are published in an East Anglian Archaeology monograph (Hayes and Lane 1992)

No historical synthesis is thought to exist for the Market Deeping area.

Group Value

Industrial sites of the type and date identified in Trench 23 are very rare and none are known in this area. Barrow groups, however, are a feature of the fen edge along the river Welland. As such the barrow cemetery identified to the north of Market Deeping is one of a geographically distinct distribution of Bronze Age funerary monuments. Roman enclosures of the type identified in Trench 3 are known on the fen edge although little is known of their internal arrangement and function. The Car Dyke is one of three major ancient watercourses known in the Fenland area, all thought to date to the Roman period. Although not

comparable in length to the Car Dyke, the Bourne Morton canal stretches over 6.5km kilometres and appears to have linked the town to the sea via a sinuous natural watercourse. A third feature thought to be an ancient canal extends into the fen from Rippingale. Extensive systems of linear and rectilinear cropmarks thought to represent Roman field systems and associated settlement features are known on the fen edge and should be considered with the Car Dyke and other watercourses as an integrated functioning landscape.

Palaeochannels are a feature of lowland river valleys and can contain important information for reconstruction of the palaeoenvironment. Many more are known to exist in the Welland valley but most have yet to be accurately mapped.

Survival/Condition

Many of the archaeological deposits recorded along the proposed bypass route survive in a precarious state. Little evidence for the survival of barrow mounds was recorded within the circular ring ditches discovered to the north of Market Deeping. All archaeological deposits located along the fen edge are likely to have undergone disturbance from medieval and modern ploughing. However, archaeological remains west of Market Deeping may be protected beneath layers of river alluvium, as was the case with the palaeochannel discovered in Trench 27

Fragility/Vulnerability

All archaeological deposits along the route will be fragile and vulnerable to disturbance from earthmoving activities likely to be undertaken as part of the bypass construction project. Topsoil stripping will disturb features cutting into natural gravel deposits and the cutting of roadside ditches

will destroy any deposits encountered. The cutting the roadside ditches is also likely to impact on the continuing survival of organic deposits within deeper archaeological features.

Diversity

Within the extensive area investigated a range of archaeological deposits has been identified. At the west end of the bypass route a Roman enclosure ditch was recorded with the potential to contain evidence of domestic or agricultural activities. A variety of deposits connected with funerary activities are likely to be recorded within or around the ring gullies discovered to the north of Market Deeping. These may include cremations, inhumation burials, mortuary structures and a variety of votive deposits. Industrial activities are represented by the pits in Trench 23 containing fired clay and charcoal. Post holes within the trench may represent buildings associated with industrial activities. Important deposits have been identified with a palaeochannel in Trench 27 at the eastern end of the bypass. These include peats and alluvium containing well preserved environmental indicators such as pollen, charcoal and wood fragments.

Potential

Many of the archaeological remains identified along the bypass route have considerable potential to provide information on past communities occupying the Welland valley and fen edge. Deposits recorded within the palaeochannel in Trench 27 can provide information on the local environment, possibly identifying changes induced by natural or human agencies. Although the remains recorded in Trench 23 represent an as yet unidentified activity, the dumped fired clay and charcoal recovered from the pits has considerable potential to inform on the particular methods and

techniques used in the process. The assessment of the charcoal has identified a range of species, suggesting that this material can provide information on which fuels were selected for this industry and also what species of trees and shrubs were available locally.

Although the barrow monuments identified during the evaluation are likely to be poorly preserved, they may provide information on Bronze age mortuary and funerary practices. Primary, and possibly secondary burials, cut into underlying natural deposits might survive as will the post holes of mortuary structures associated with the barrows. These monuments will provide important data to compare with those excavated at Tallington and Deeping St. Nicholas. Little of the interior of the Roman enclosure recorded in Trench 3 is likely to be investigated

8. EFFECTIVENESS OF TECHNIQUES

The gradiometer survey as a method of identifying archaeological remains had mixed results. In Field 2 the survey located a large portion of a square enclosure that matched aerial photograph plots. However, two other areas that were submitted to this survey, produced no evidence for archaeological remains in direct contrast to the aerial photographic evidence. As the technique produced good results in Area A which is located in an area of similar geology, it should be assumed that the results are a genuine reflection of the magnetic variations in the areas surveyed. Assuming that the cropmarks within these areas do represent ditches and pits, the lack of response may be explained by the absence of magnetically enhanced material within their fills. This would not be surprising given the anticipated funerary/ceremonial character of these features. The same effect would be expected of ditches forming a part of field

systems or territorial boundaries.

Fieldwalking produced quite reasonable results with Romano-British material being located over a sub-rectangular enclosure identified as a cropmark on aerial photographs. Earlier artefacts were low in quantity and conclusions could not be made easily.

The strategy of using trial trenches to locate and evaluate archaeological deposits was, on the whole, effective. However, due to the limited area exposed within an evaluation trench, some of the archaeological remains are of obscure functions and their associations not determined.

9. CONCLUSIONS

Archaeological investigations along the course of the bypass route were undertaken because of the known archaeology in the area.

Archaeological remains of Late Neolithic/Early Bronze Age, Early Bronze Age and Roman date were identified during the evaluation. It is notable that the only archaeological deposits recorded east of Market Deeping were the Late Neolithic/Early Bronze Age industrial remains revealed in Trench 23. The absence of remains of a later date in this area may be a result of an environment increasingly liable to flooding as a result of changes in mean sea level. Like many barrow cemeteries recorded in the area, those identified to the north of Market Deeping seem to deliberately occupy a Fen edge location. The barrows recorded during this evaluation should be regarded as part of a wider pattern of barrow cemeteries in Fen edge locations in Deeping Fen, Lincolnshire and Borough Fen, Cambridgeshire.

Despite the recording of extensive systems of cropmarks on the fen edge thought to date to the Roman period, few sites of this date have been excavated in the area. Therefore any excavation work undertaken on the enclosure located to the west of Market Deeping has the potential to add important new information on the nature of settlement on the fen edge during the Roman period. Any following work on the Car Dyke should concentrate on determining a date for the construction of the monument. Several sections have been excavated across the Car Dyke and have adequately defined its form but little is known of what date the monument was constructed beyond an assumed origin in the Roman period.

Archaeological evaluation of linear tracts of land such as the route of the Market Deeping bypass can be problematical. Long sections of these kind of developments can appear blank, raising questions as to how these areas are investigated. The evaluation of the Market Deeping bypass was undertaken in set stages with fieldwalking, geophysical survey and trial trenching following a desktop assessment. This strategy permitted the targeting of features located during the non-intrusive phases in addition to trenching at regular intervals. In the case of known archaeological features this strategy was successful. Archaeological features detected as cropmarks were usually located by the trenches, and in most cases dating evidence was recovered and the character, preservation and extent of the deposits determined.

However, most of the trenches excavated along the route of the bypass were placed at regular 250m intervals as a method of investigating apparently archaeologically blank areas. Archaeological features recorded in these trenches were few and mainly comprised undated ditches. However, deposits and features dating to the Late

Neolithic/Early Bronze Age were recorded towards the east end of the bypass route in Trench 23, and a palaeochannel containing potentially important environmental remains was identified in Trench 27. The possibility exists that some archaeological remains undetected by aerial photography or fieldwalking lie undiscovered between the trenches placed at 250m intervals. Equally, the areas devoid of cropmarks may reflect a genuine absence of archaeological deposits.

10. ACKNOWLEDGEMENTS

Archaeological Project Services wish to thank Engineering Consultancy Services who commissioned the investigation and analysis. The work was co-ordinated by Steve Haynes and Dale Trimble and this report was edited by Gary Taylor and Dave Start.

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Access to the County Sites and Monuments Record was provided by Mark Bennet of the Archaeology Section, Lincolnshire County Council. Jenny Stevens, the Community Archaeologist for South Kesteven District Council permitted examination of the relevant files.

11. PERSONNEL

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13. ABBREVIATIONS

Numbers prefixed with 'SMR' are the primary reference numbers used by the Lincolnshire Sites and Monuments Record, Archaeology Section, Lincolnshire County Council.

Numbers prefixed by 'SK' are the reference codes used by the Community Archaeologist for South Kesteven District Council.

G.S.B. Geophysical Surveys of Bradford

DoE refers to publications of the Department of the Environment

E.A.A. East Anglian Archaeology

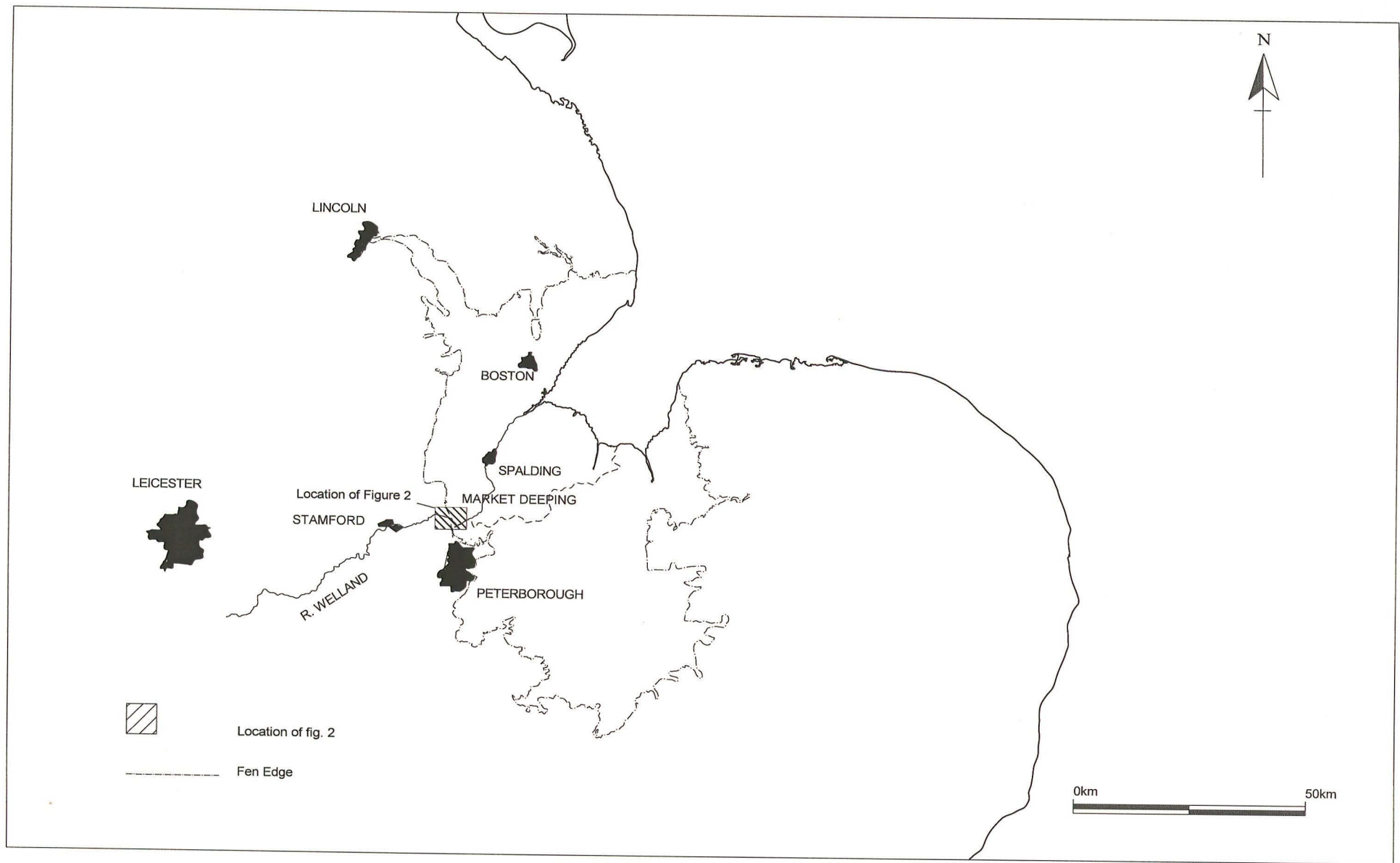


Fig. 1 Location

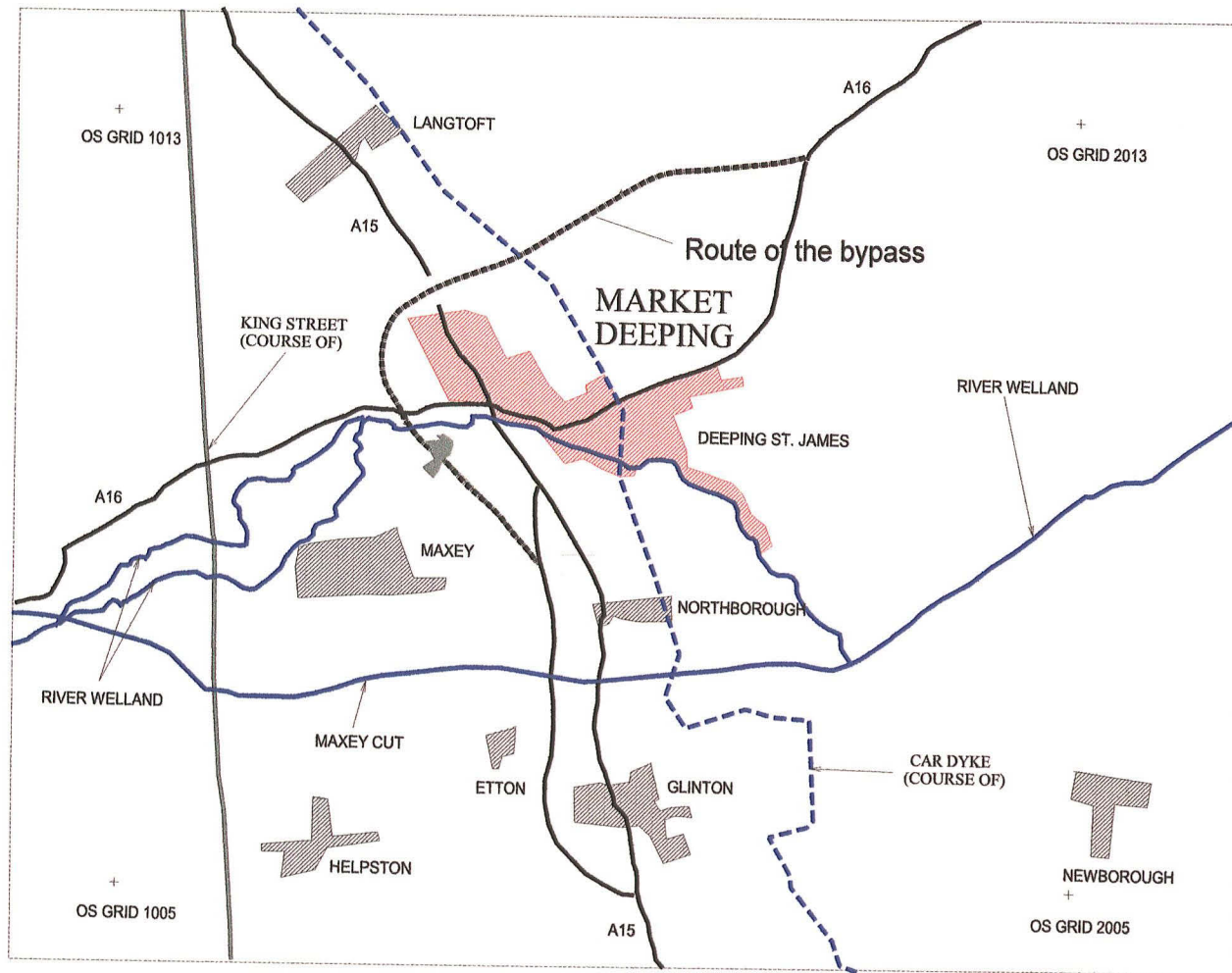


Figure 2. Route of the Market Deeping bypass.

Market Deeping Bypass (Lincolnshire Section) Evaluation Trench Location



TF 12000 9000

Figure 3 Archaeological zones and Trench Location

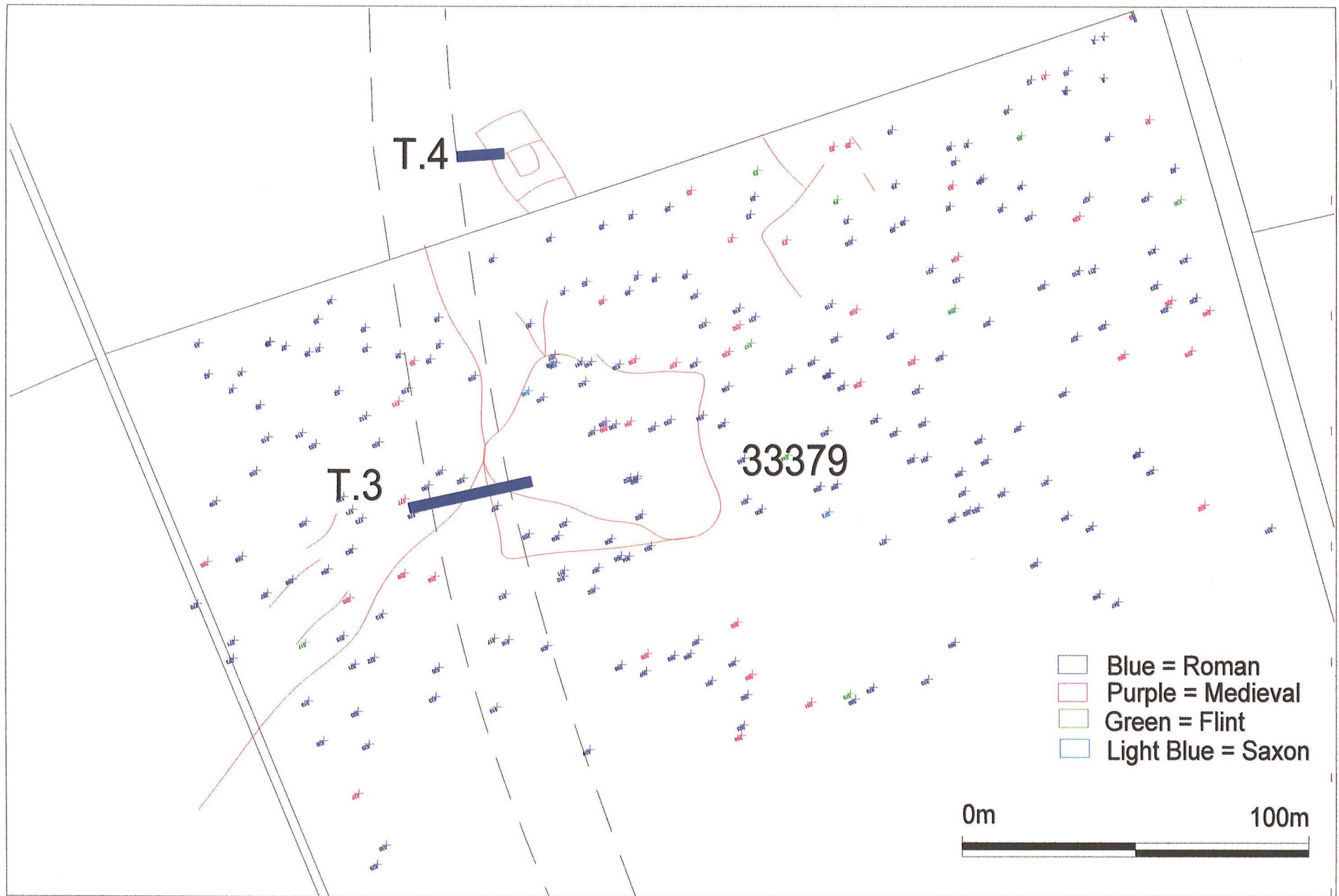
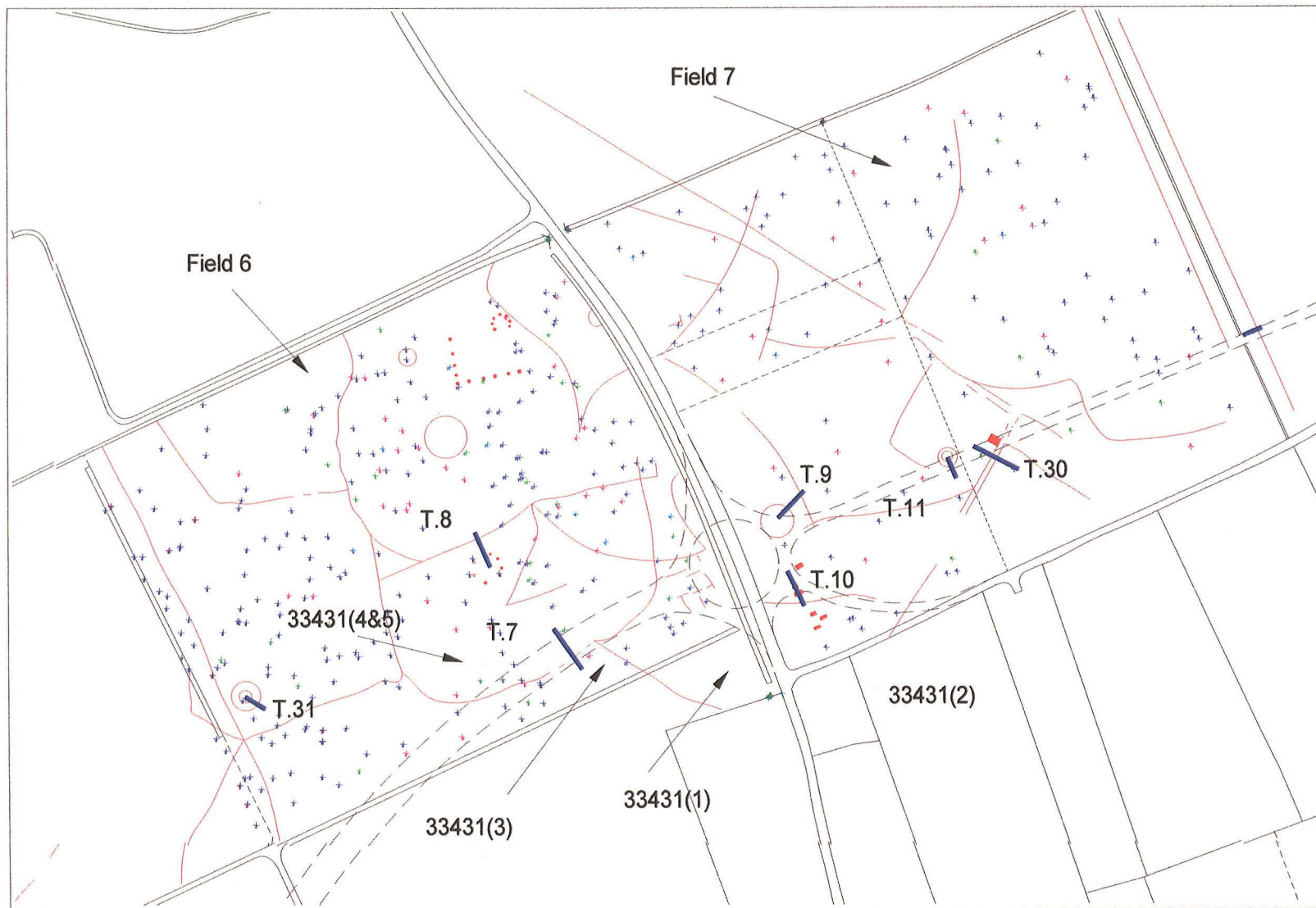


Figure 4 Plot of fieldwalking results in Zone 1 Field 2



- Blue = Roman
- Purple = Medieval
- Green = Flint
- Light Blue = Saxon

Figure 5 Fields 6 and 7, Fieldwalking Results



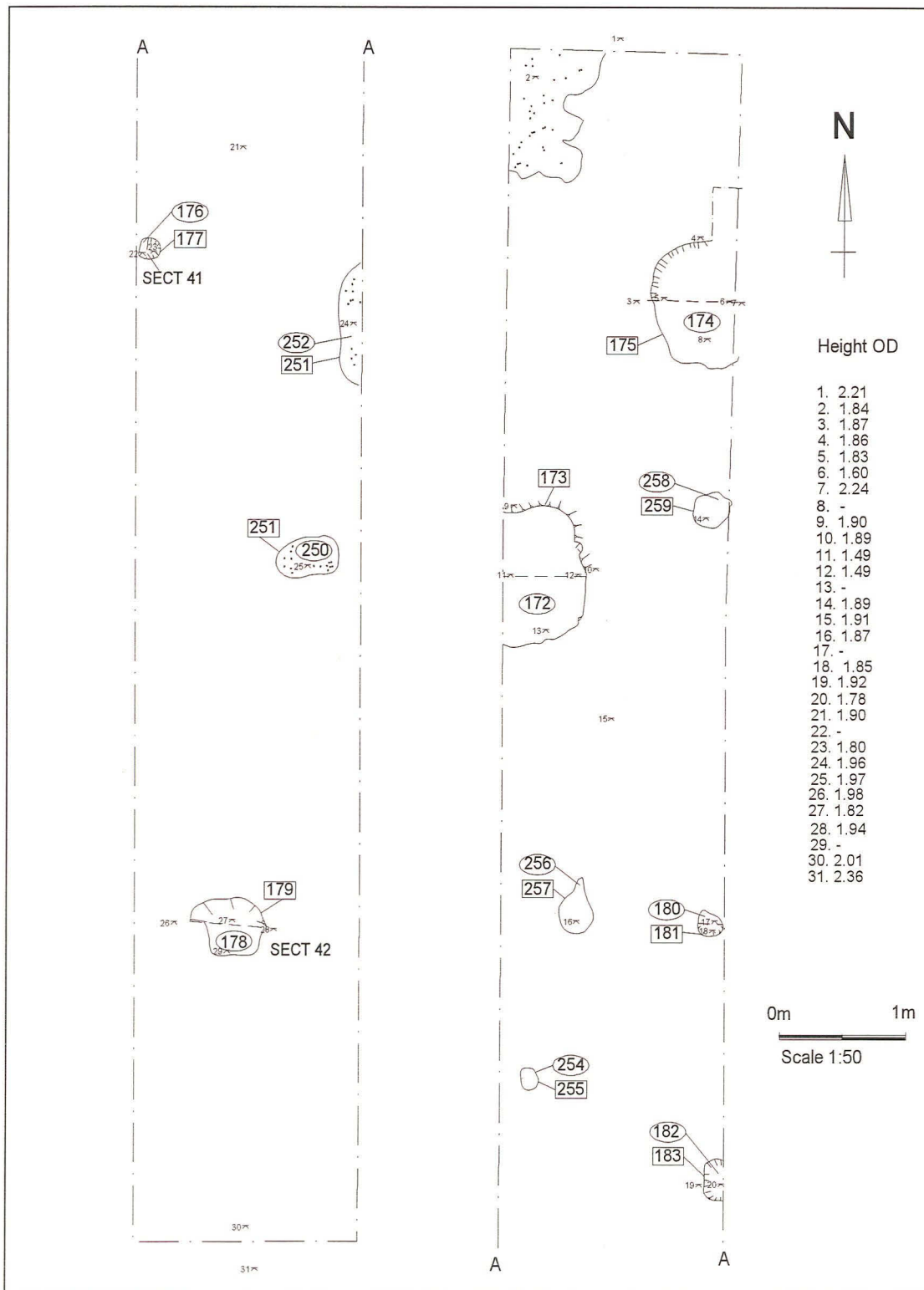


Figure 6 - Plan of Trench 23, Field 23.

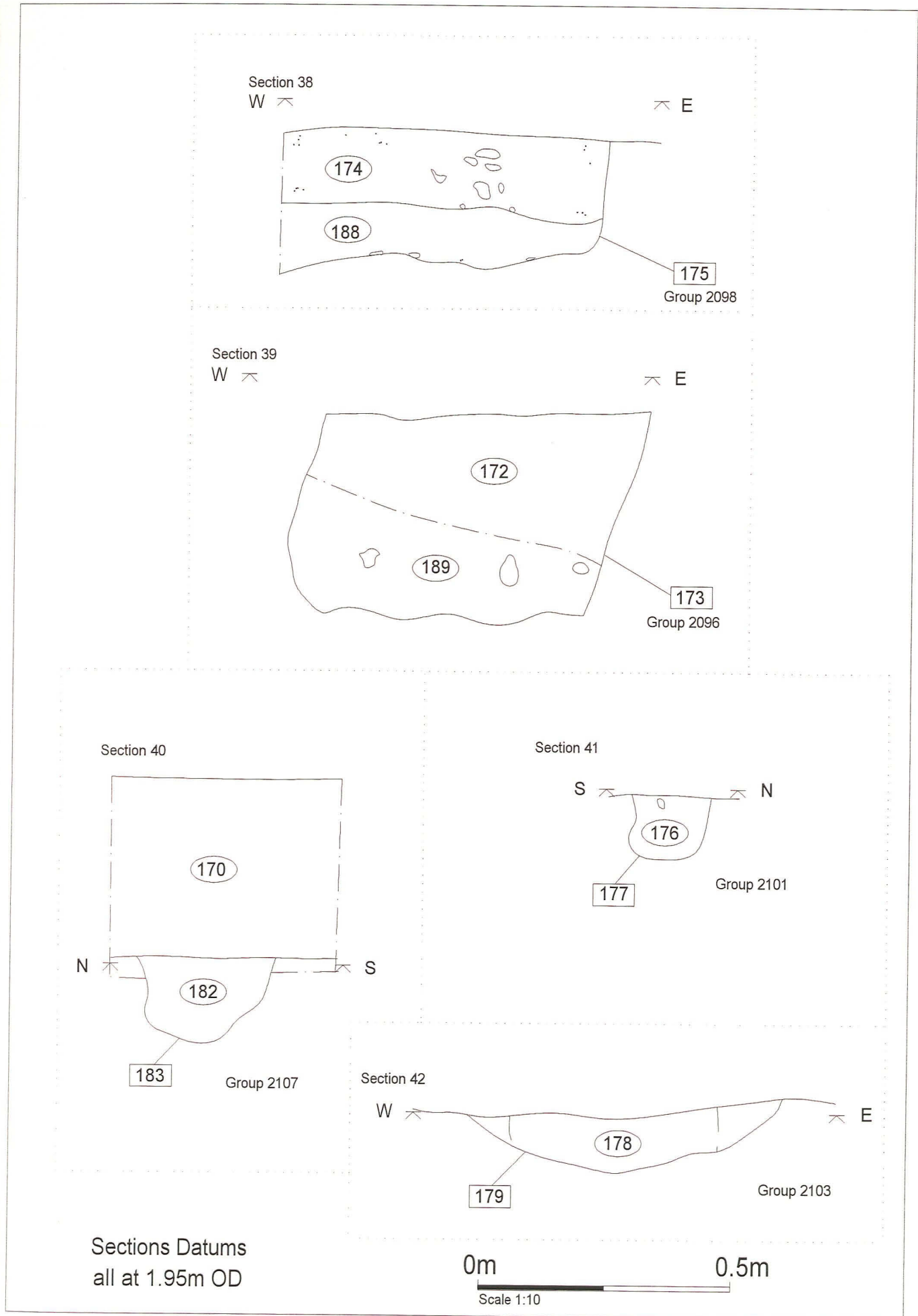


Figure 7 - Trench 23 Sections

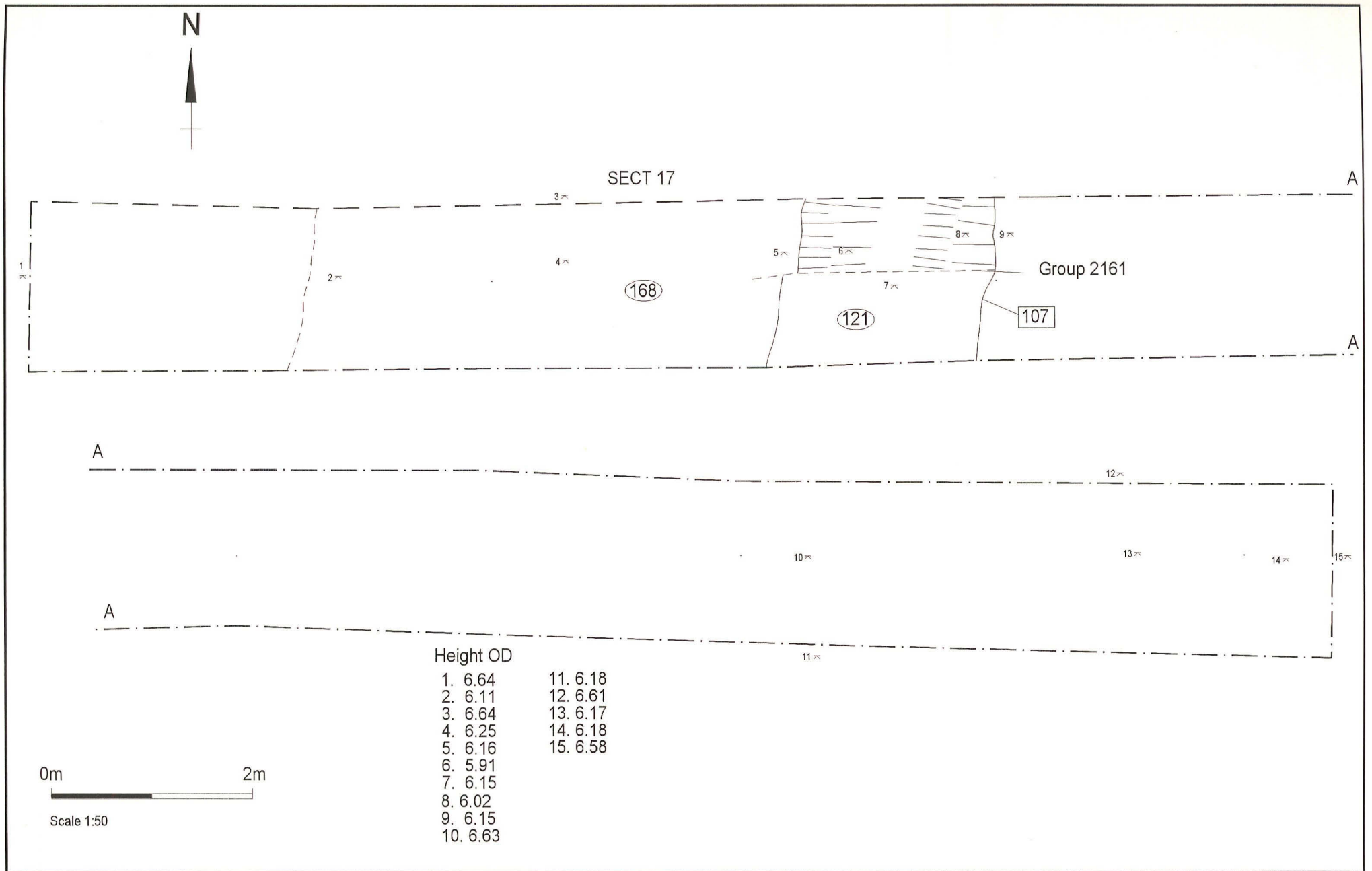


Figure 8 - Plan of Trench 9

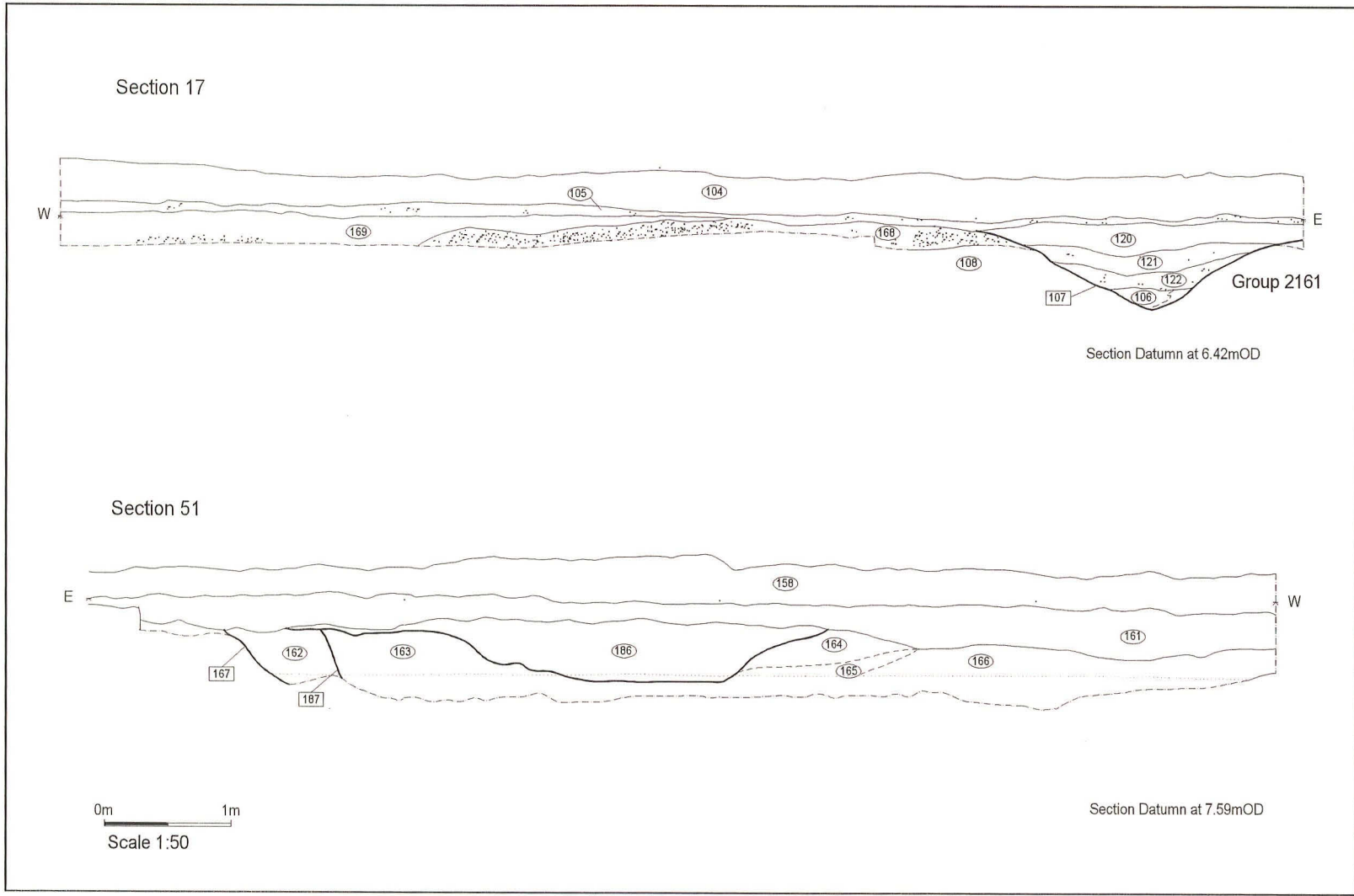


Figure 9 - Sections 17 and 51

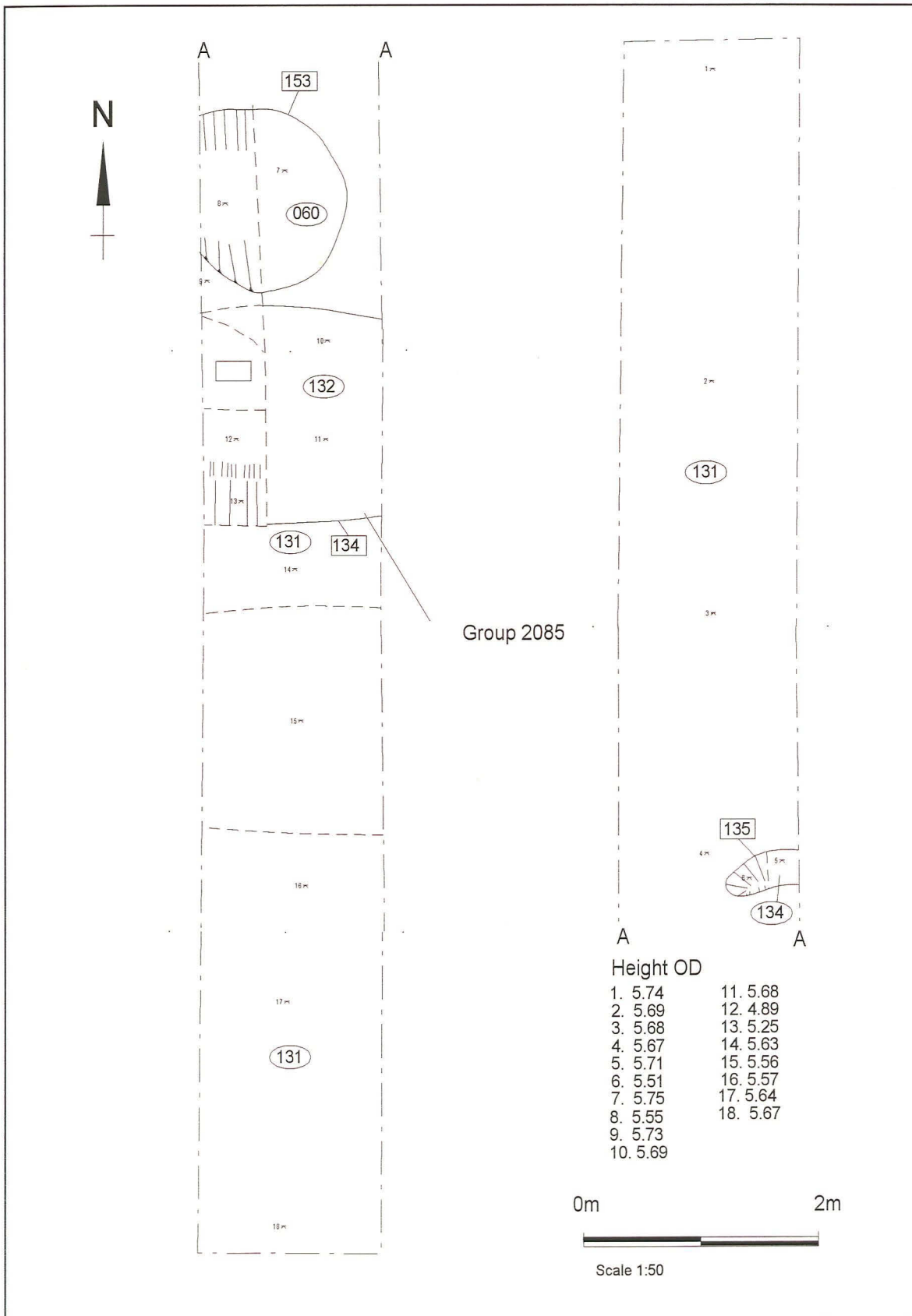
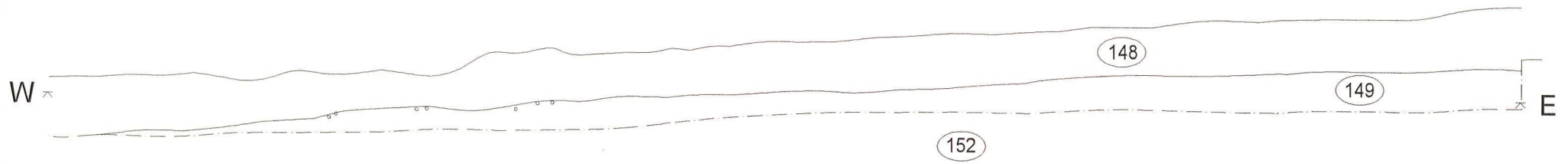


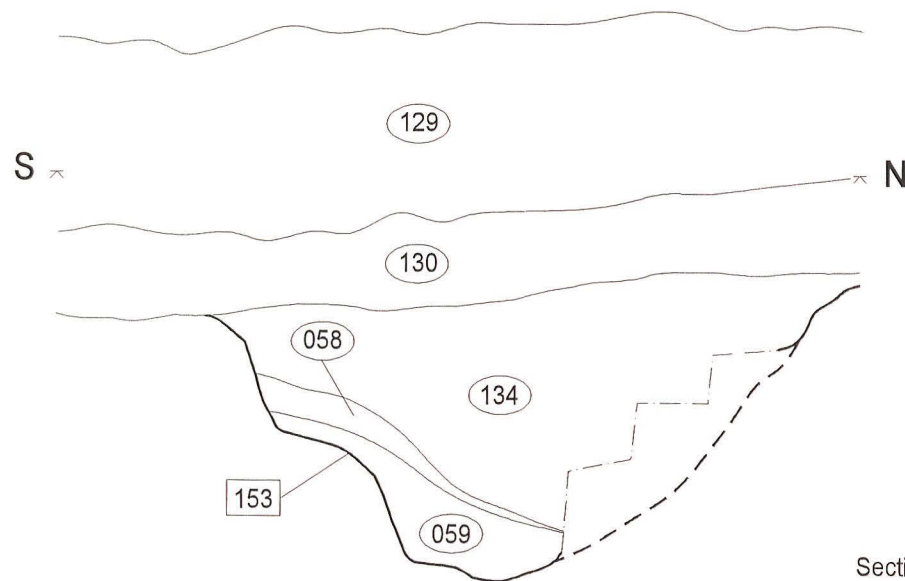
Figure 10 - Plan of Trench 11

Section 49



Sections Datum 5.19m OD

Section 34



Scale 1:20

Sections Datums 6.03m OD

Figure 11 - Trench 11 Sections 34 and 49

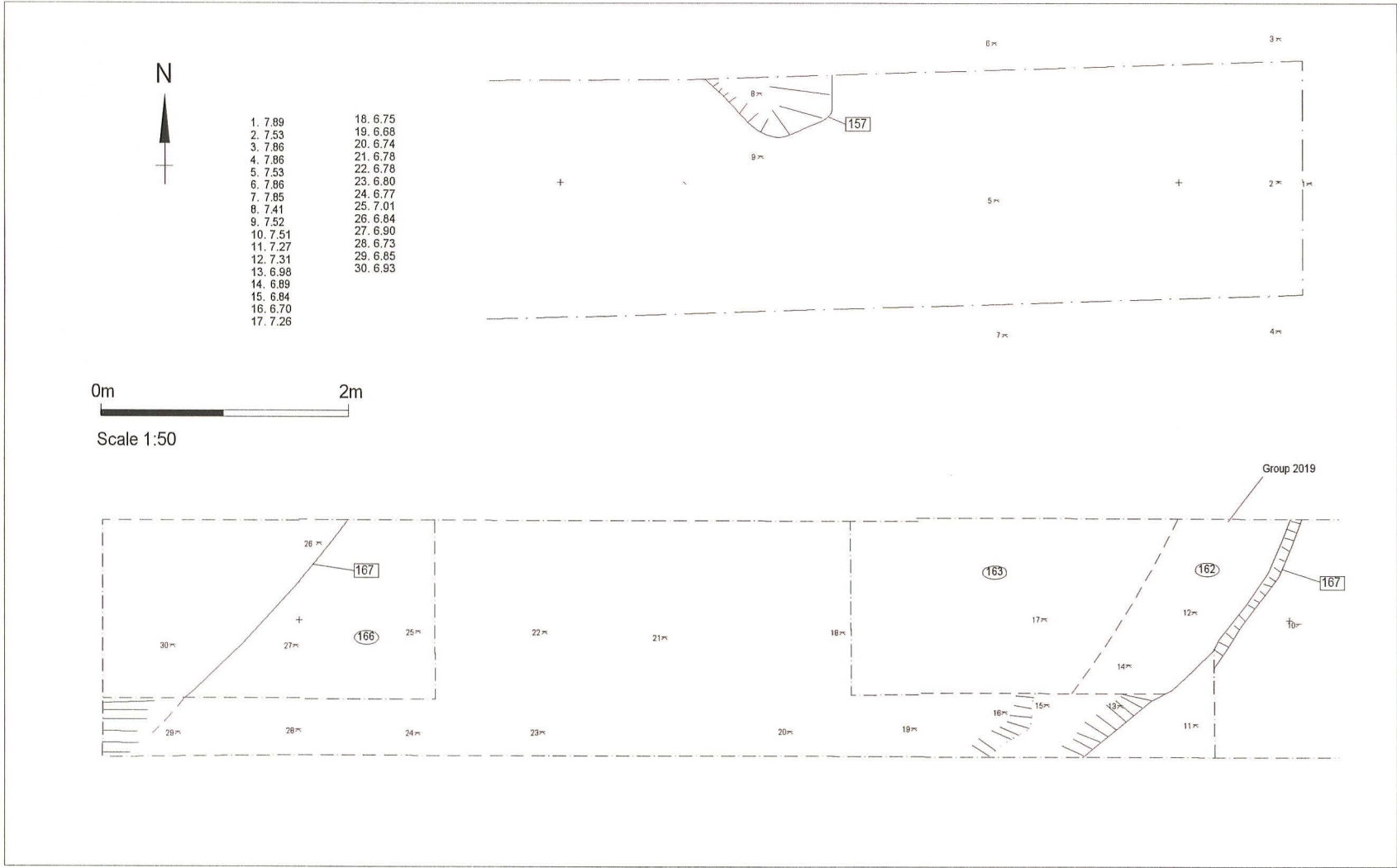


Figure 12 - Plan of Trench 3.



Plate 1: Starting the
machining of the
Trenches

Plate 2: Trench 10
after machining



Plate 3: The
Palaeochannel in
Trench 27

Plate 4: Trench 23.
Late Neolithic/Early Bronze Age
pit containing ashy fills and fired clay



Plate 5: Excavation underway
in Trench 23

Plate 6: Trench 9. Bronze Age
barrow ring ditch

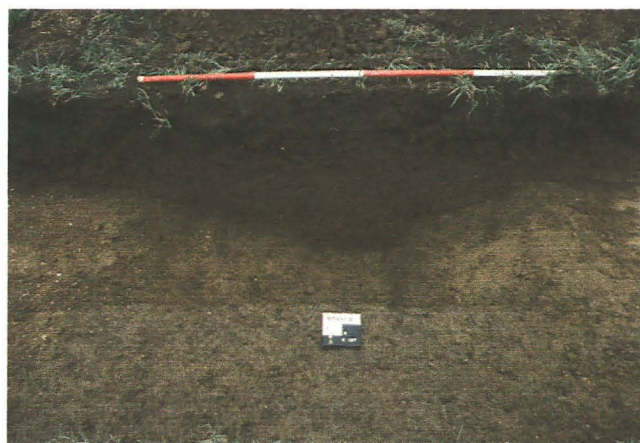


Plate 7: Zone 2. Cropmarks to the north of Market Deeping, west of the A15 looking southwest. The circular cropmarks probably represent Bronze Age ring ditches. The irregular cropmarks are most likely to mark the positions of ice wedges created during the last post-glacial period. Also visible to the right of the picture are rectilinear patterns which probably represent field systems of Roman date.



Plate 8: Romano-British enclosure ditch in Trench 3. Underwater



Plate 9 Section of Romano-British ditch in Trench 3. Underwater

APPENDIX 1

**DESKTOP EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

**by Norma Challands
for Heritage Lincolnshire**

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INTRODUCTION

Heritage Lincolnshire has been commissioned by Lincolnshire County Council, through the County Archaeologist, Mr. Steve Catney, to undertake a preliminary documentary assessment of the archaeological impact of the proposed route of the A15/A16 Market Deeping Bypass through Lincolnshire (ref. Lincolnshire County Council drawings A3322/63 and A3322/64, May 1992).

Methods

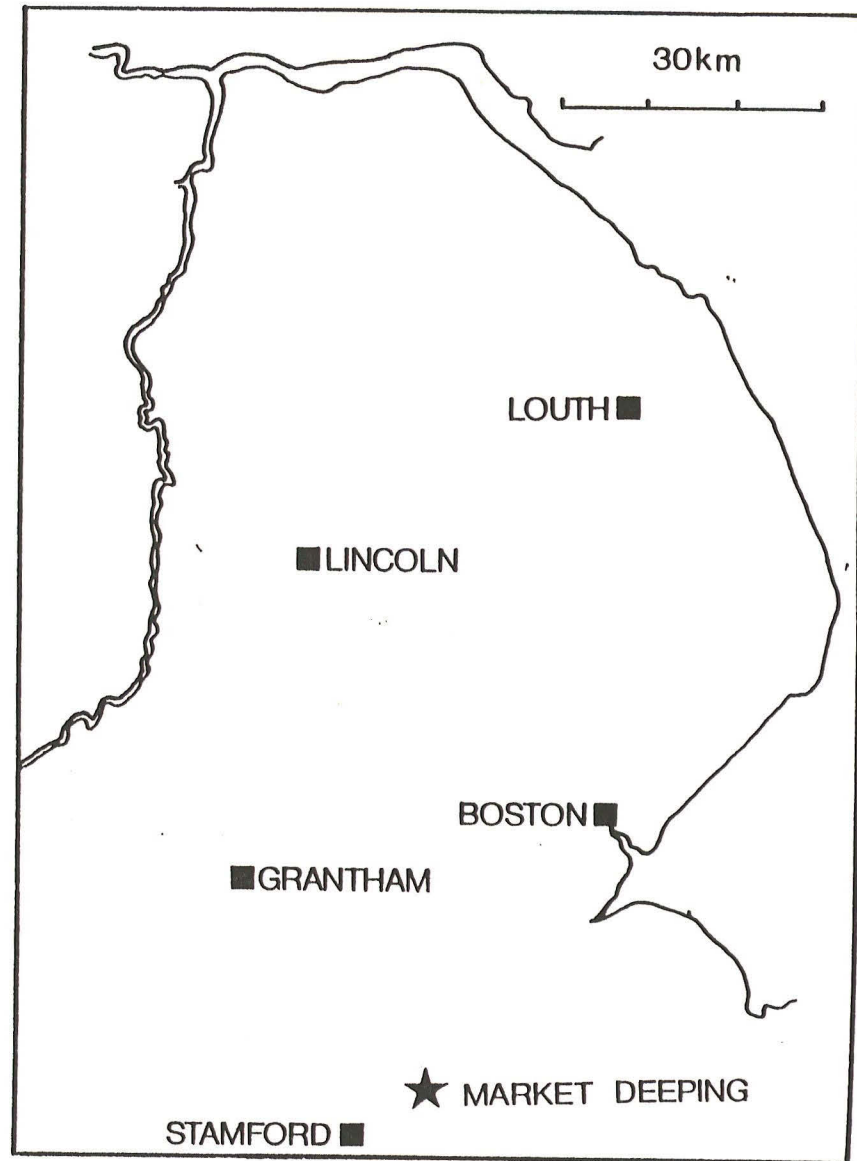
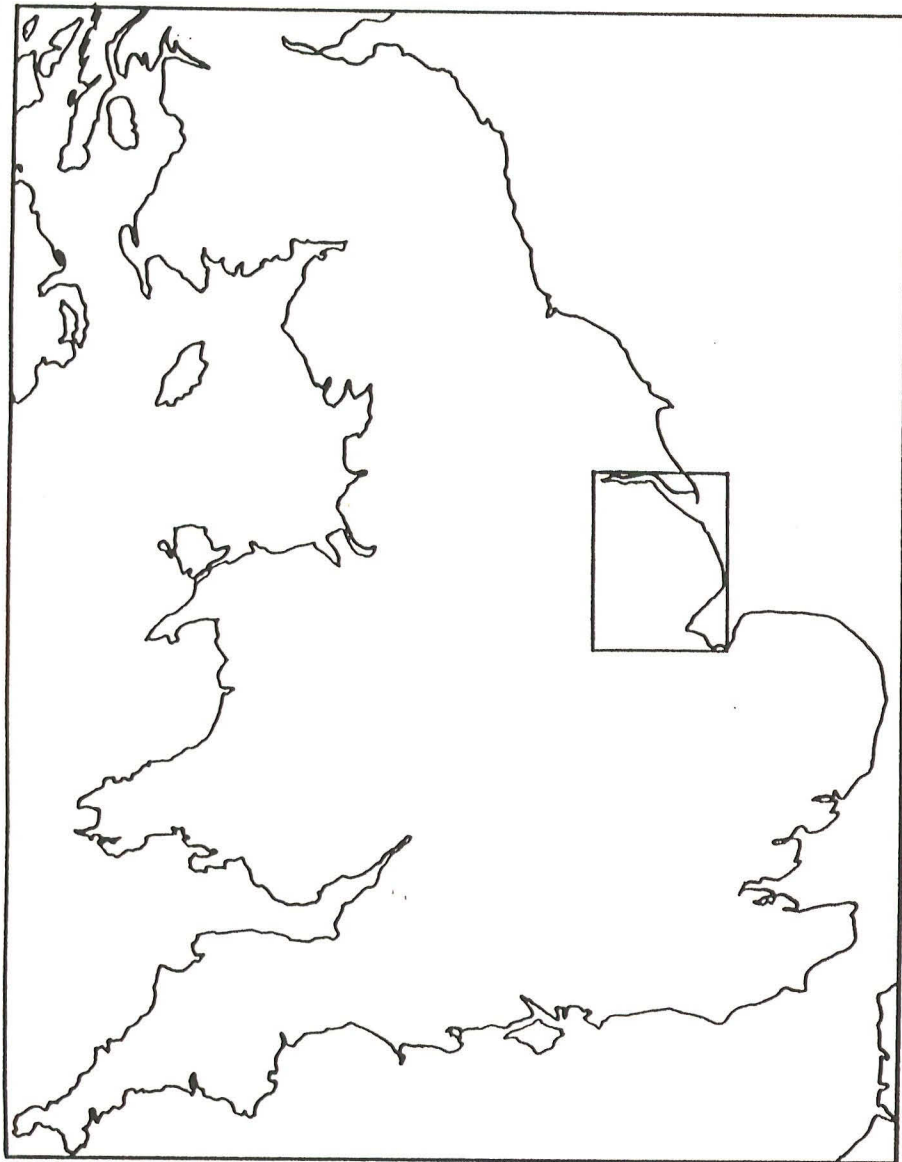
Information on archaeological sites lying on, or close to, the proposed route of the bypass has been obtained in the following ways: fieldwalking survey; field visits; consultation with local Heritage Societies; a search of the records of Heritage Lincolnshire; analysis of aerial photographs; research in the Peterborough and Market Deeping libraries and consultation with the Lincolnshire County Archaeologist. Additional information has been kindly provided by Mr. Tony Hurley, the Community Archaeologist for South Kesteven and Roger Palmer of the Cambridge Air Photo Service.

Location

The proposed route runs from the river Welland, west of Market Deeping, (TF131098), approximately northwards and then eastwards, crossing the A15 north of Market Deeping. The bypass route continues in a north easterly direction utilising most of the route of Northfield Road and part of Sharpe's Road to join the A16 (TF174129). From the Welland to the A15 the road will be dual carriageway, and from the A15 to the A16 it will be a single carriageway.

The topography traversed by the proposed route is virtually flat and mostly under arable cultivation. The underlying river and fen-edge gravels are overlain by alluvium close to the Welland and by thin fen deposits at the northern end of the route, the Deeping Common/Fen area, where extinct ancient watercourses are present.

Fig.1
Location



THE ARCHAEOLOGY

ARCHAEOLOGICAL FEATURES ON AND ADJACENT TO THE PROPOSED ROUTE OF THE BYPASS

The information assembled is illustrated on copies of the Lincolnshire County Council bypass drawings (A3322/63 and 3322/64, May, 1992) and discussed in the text that follows.

To facilitate location on the drawings, and to clarify the textual descriptions, the archaeological features are grouped in "Archaeological Areas" (AA'S).

Information from the Sites and Monuments Records (SMR) that is additional to the aerial photographic evidence is located on the drawings by an "X" followed by the SMR number.

The field numbers in the following text refer to the Ordnance Survey field numbering system.

AA1

In 1740, two Roman swords, two daggers and the iron frame of a tablet of a vexillum (military standard) were found in the river Welland. The proposed route crosses the river at the approximate location (given on the SMR as TF 1310) of the finds mentioned above.

AA2

Aerial photographs show, within Field 8434, a broad ditched enclosure with regular sides and rounded corners. Associated linear features (and possibly adjacent enclosures) extend into Field 7754 to the north.

Further cropmarks have been seen in this area, but aerial photographs from R.C.H.M.E. (Swindon) arrived too late for inclusion in this assessment.

AA3

Within this area, aerial photographs show a double-ditched track, possibly a drove way, orientated approximately east-west and probably continuing into the adjacent field to the east (Field 7467) which is in the path of the bypass.

AA4

At the western end of Field 0006/4700, aerial photographs reveal linear ditches approximately at right-angles to, and terminating at, an irregular linear ditch which

runs north-east/south-west. Parallel to the irregular ditch, to the south, is a possible droveway and enclosure with apparent corner entrances. Close to the southern terminal of the droveway is an apparent large circular pit or possible remnant of an upstanding mound. Further linear ditches lie south-east of the droveway, maintaining a similar orientation.

Slightly to the north of centre, in the eastern area of Field 0006, is a large, approximately 35m diameter ring-ditch. Further to the north lies a second ring-ditch of approximately 12m diameter. To the east, a series of pits appear to form an "L" shape and, further to the east, form a horseshoe shape. East of those features, and on the edge of the field, are the remnants of a ring-ditch, cut by road improvements to the A15. Close to the drain that traverses Field 0006 in a north-south direction, is a double ring ditch, possibly indicating the remains of a Neolithic or Early Bronze Age ovoid barrow.

The whole of the eastern part of Field 0006 is traversed by interlinking irregular ditches. In the south they form a sub-rectangular enclosure with an apparent entrance in the south-east. Within this enclosure are a number of pits forming a horseshoe arrangement. It is possible that the "ditches" forming this enclosure, and the similar, almost circular, enclosure immediately to the north, are geological in origin, being formed by ice wedge polygons.

In the south-east corner of the field is a probable field system complex of several short linear ditches, some intersecting at right-angles. There also appears to be evidence of medieval quarrying.

SMR 33431 gives the following information relevant to area (AA4):

- | | |
|-----------------------|--|
| (1) NGR TF132114 | Circular Cropmark seen from the road. |
| (2) NGR TF133113 | Intersecting straight and curved ditch lines - to an irregular enclosure with one rectangular corner attached. A circle in the area. |
| (3) NGR TF131114 | Circular Cropmark seen from the road. |
| (4 & 5) NGR TF 130114 | Ring-ditches. |

AA5

Aerial photographs show that one of the irregular ditches in the east of AA4 appears to continue into Field 1947, on the east of the A15. Approximately parallel, and at right-angles to, are further interlinking irregular linear ditches, some extending into Field 2828 to the south and into Field 4445 to the east.

In the south-west corner of Field 1947, is a "T" shaped ditch, the length of the axis E-W being approximately 10m.

Aerial photographs also clearly show a ring-ditch, approximately 15 m diameter, close to the centre of the western boundary of Field 2828.

A possible double ring-ditch, within an enclosure with corner entrances and a double ditch (droveway?) on its south-east and north-east sides, straddles the boundary of Fields 2828 and 4445. A rectangular pit in the centre of the south-eastern side may be of geological origin. The outer of the two north-eastern ditches of the enclosure continues south-east. Parallel to the outer ditch described above is a single ditch running from the centre of the eastern side of the enclosure.

In the south-west corner of Field 2828 there are at least 6 large (approx. 6m x 4m) pits - date and function unknown.

AA6

The Car Dyke bounds Field 4445 on its eastern side. Parchmarks revealed on aerial photographs show the remains of the gravel banks running north from Northfield Road. Adjacent to the northern side of Langtoft Drain, joining the eastern side of the Car Dyke, are further parchmarks probably indicating a contemporary adjoining dyke. The proposed bypass route traverses the Car Dyke.

AA7

Aerial photographs show several ditches in Fields 9364 and 8752 defining, what appears to be, an irregular semi-circular enclosure with two radial ditches.

The Sites and Monuments Record (Number 33432) notes that an Early Bronze Age axe-hammer was found in Field 8752.

Within Field 8313, aerial photographs show a circular feature. However, this may be of modern origin.

AA8

Within the eastern part of Field 3467 aerial reconnaissance reveals a series of interconnecting linear ditches. Towards the south-eastern corner of this part of the field, these form three sides of an enclosure. A possible entrance is also discernible close to the south-eastern corner and a large pit is visible adjacent to the south-west corner of this enclosure.

Further cropmarks have been seen in this area, but aerial photographs from R.C.H.M.E. (Swindon) arrived too late for inclusion in this assessment.

AA9

A ploughed down mound of approximately 40 m diameter has been recorded in Field 5197 (behind Oat Sheaf House). Geophysical survey indicates that this is a barrow, and numerous worked flints have been discovered in close proximity. Oat Sheaf House is also built on a barrow. The ring-ditch in Field 4100 is a multi-phase barrow excavated by Heritage Lincolnshire in 1991. A second barrow in this field was destroyed when the farmer excavated a small lake. During the work a third ring ditch, with a cremation, was recorded.

DEN 3 and SK56.03 (Field 6760) both denote scatters of worked flints, some burnt and some probably of Bronze Age date.

An extinct watercourse appears to skirt the gravel ridge on which at least five barrows are known.

To the west of Oat Sheaf House, in Field 3100, part of the original causeway between Market Deeping and Spalding may survive. The outline of a bend, bypassed and indicated as a bank, appears on the first edition Ordnance Survey map surveyed in c. 1820. The parish boundary between Market Deeping and Deeping St. Nicholas appears to follow the line of the bank.

The proposed route crosses the probable causeway and the extinct watercourse.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF THE BYPASS ROUTE.

The easily-worked and well-drained soils overlying the gravels are known to have been densely populated in the past. Aerial survey from the 1960's onwards, has revealed abundant evidence of human presence on the river and fen-edge gravels of the Welland Valley in the area east of Stamford, to the north, west and south of Market Deeping, at Langtoft, West Deeping and Maxey respectively.

Close to the north eastern end of the proposed route (AA9), two barrows, at Oat Sheaf House and Little Duke Farm (French, 1991; Wainwright, 1991, p 22-25), lie on a low gravel ridge. Three other barrows are known in this vicinity. Scatters of worked flints, (some burnt) of probable Bronze Age date, have been found nearby. Burnt flints, especially in the region of ancient watercourses, can be indicative of settlements.

Immediately west of the barrows (AA9), and thus to the north of the proposed route and not within the area covered by the drawings for the project, (between O.S. grid references TF1615-1749E and TF1304-1390N), several other barrows and numerous flint scatters were recorded during the Fenland Survey. Within the same area, linear ditches, an enclosure and a ring ditch can be seen on aerial photographs. Isolated flint scatters, barrows and enclosures are known to exist to the south of the route.

FIELDWALKING RESULTS

Those areas of the proposed route of the bypass which were available for fieldwalking were examined. The total width of the proposed easement was examined and surface finds were recovered and recorded by reference to a system of 10 m grids which was established over the area under examination.

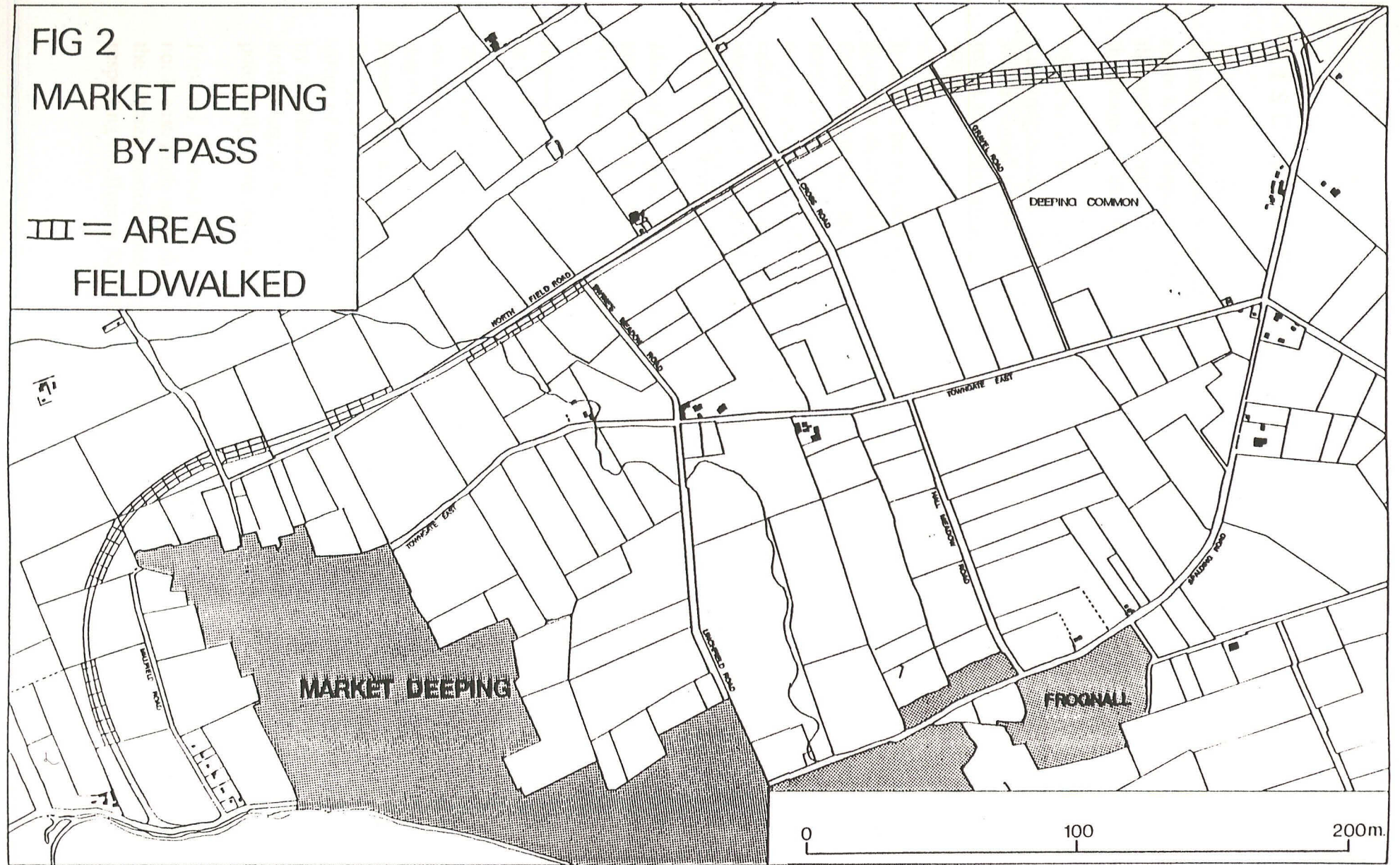
The conditions for fieldwalking were, in the case of many fields, not ideal, with partial crop cover in many places. In other instances it was not possible to survey the fields due to total coverage of the ground by crops or the fields being under pasture. Approximately two thirds of the proposed route was examined.

The quantity of surface finds recovered from the fieldwalking survey was small for an area of such intense archaeological activity. The finds ranged, in date, from Roman to medieval and were predominately recovered from the eastern end of the route. The reasons for the paucity of finds may be explained by the poor conditions for fieldwalking and the extensive areas of alluviation on the northern and eastern parts of the route. The alluvium seals the archaeological deposits and prevents disturbance by ploughing. This very fact suggests that those deposits present will be in an excellent state of preservation.

FIG 2

MARKET DEEPING
BY-PASS

III = AREAS
FIELDWALKED



DISCUSSION

Aerial survey has confirmed (AA's 2-8 inclusive) that the known prehistoric and Roman landscape to the north, west and south of Market Deeping extends across the route of the bypass. The density and complexity of the cropmarks and, therefore, the archaeological importance of this area, is considered to be second only to that of the Thames Valley (Lambrick and Robinson, 1979; Benson and Miles, 1974).

The Car Dyke (AA6) is a major Roman watercourse, running from Waterbeach, Cambridgeshire, to Washingborough near Lincoln. Until recently, the Car Dyke was assumed to have been a Roman Canal primarily used for transportation but recent research favours its primary use as a catchwater drain. (Zeffertt and Thorpe, 1989)

It cannot be assumed that the areas on the bypass route for which no information is given are devoid of archaeological activity. Not all relevant areas were available for fieldwalking, and many fields are overlain by medieval ridge and furrow which can mask evidence of earlier activity. Aerial photographs reveal archaeological features only at certain times of the year, and only where suitable crops are present. So called periglacial activity and oblique camera angles can mask much detail on the photographs. In areas of alluvial cover and skirtland, aerial photographs will only show underlying archaeological features in the very driest of summers.

Most of the gravels beneath the alluviated and skirtland areas were not buried until after the Bronze Age, and were thus available for human settlement before that time. The recovery of Roman artefacts from the Welland (AA1) indicates human presence in the adjacent alluviated areas. Moreover, 'ritual' deposits of artefacts have been recovered from many rivers and 'wet places', for instance the Thames and the ancient course of the Nene.

The existence, in the north, south and east of Deeping Fen/Common, of prehistoric remains, as well as the discovery in 1807 of a Roman coin-hoard and skeleton, and a dug-out boat in 1839, strongly indicate the likely presence of archaeological remains beneath the fen deposits in the apparently "blank" areas at the north eastern end of the bypass route. It can be predicted that such remains would be well-preserved by virtue of the overlying deposits and the associated waterlogging - as was evidenced by the Heritage Lincolnshire, excavation in Deeping Common in 1992. Hence, the archaeological sites existing beneath the protective alluvium and fen deposits are potentially more important than their visible counterparts.

Previous fieldwork in the lower Welland valley has noted a tendency towards a north-east/south-west alignment for prehistoric and early Roman features. Later in the Roman period, there appears to be a shift towards a north-south alignment, respecting the Roman King Street. Previous fieldwork has also shown a tendency for

'ritual' prehistoric sites to be concentrated in the south of Welland valley, and for settlement sites to be concentrated in the north.

The apparent paucity of evidence from the Saxon and later periods can perhaps be partially explained by the gradual concentration of settlement on the higher ground in response to the rising watertable during those periods. The town of Market Deeping is known to have been established in Saxon times. The cropmarks revealed by aerial photography are heavily biased in favour of the ditches and walls of the prehistoric and Roman periods. The remains of the less substantial wooden structures of Saxon and later periods may exist but may not be visible as cropmarks.

The recommendations given in the next section of this assessment will necessarily apply to the archaeology on the northern route of the bypass, in Lincolnshire. Similar consideration should be given to the proposed southern route that falls within Cambridgeshire.

CONCLUSIONS

1. In the light of recent knowledge (Ref. French and Pryor - forthcoming), there is a need to take a landscape perspective in assessing the important and complex areas of early human activity in the lower Welland Valley.
2. It is essential that reasonable efforts are made to locate archaeological features masked by alluvial and fen deposits.
3. Allowance should be made for adequate archaeological examination of the Car Dyke, the Saxon causeway and the extinct watercourse.
4. In order to maximise the interpretation and understanding of the ancient landscapes of the lower Welland valley, the archaeological research and fieldwalking undertaken for the northern route of the bypass should be correlated with that undertaken for the southern route.
5. The density and complexity of the prehistoric and Roman landscape features in the lower Welland valley suggests that any changes to the planned route effected in order to avoid archaeological features would be pointless. In avoiding specific features, any new route for the Market Deeping Bypass would traverse different, but equally important, archaeological remains.
6. A co-ordinated programme of archaeological survey and evaluation should be carried out to enable the full archaeological implications of the proposed construction works to be assessed. An appropriate mitigation strategy can then be drawn up and implemented prior to the start of construction works.

RECOMMENDATIONS

For the purpose of discussion and recommendation, the study area has been zoned as follows:

- Zone 1** Areas which contain known archaeological features forming a continuing part of the lower Welland valley prehistoric and Roman landscape. These areas fall within the following "Archaeological Areas" - AA's 2, 4, 5 and 8.
- Zone 2** Apparent "blank" areas - within which archaeological features may be masked by fen and alluvium deposits.
- Zone 3** Specific archaeological features:
- a) AA6 The Car Dyke
 - b) AA9 I) The causeway
 II) The extinct watercourse

It is recommended that the following survey and evaluation work be undertaken in order to produce a detailed schedule of the archaeological fieldwork required prior to construction of the bypass.

- Zone 1**
- 1) Geophysical survey to verify location and amplify detail and extent of the major cropmark features, and to aid differentiation of geological and archaeological features (the latter particularly in AA4).
 - A) Fluxgate gradiometer survey within the areas affected by the road and in limited adjacent areas.
 - B) Resistivity survey, if necessary and dependent on the results from survey A above, to amplify structural details of specific features.

2) Completion of fieldwalking.

3) Sample machine trenching of the areas defined in (1) and features located by magnetic survey, to determine the nature of preservation and date of selected features

Zone 2 1) Completion of fieldwalking.

2) Random machine trenching to check for the existence of archaeological remains in the apparent blank areas. A 2% sample is generally accepted to be adequate.

Zone 3 Fluxgate magnetometer survey to determine the precise location and extent of the three specific archaeological features noted.

As a general recommendation, whilst carrying out the trenching procedures recommended for Zones 1 and 2, the opportunity should be taken to gain information on the extent of the alluvial cover by taking soil samples and recording soil profiles.

PRESENTATION OF EVALUATION RESULTS

- a] A report detailing the findings of the survey and evaluation should be drawn up. This report should include the results of the evaluation including text, geophysical survey plots and interpretations, location plan of trenches, plans and sections.
- b] The report should indicate the predicted location, extent and depth of significant archaeological deposits within the study area.
- c] All records from the project should be archived to the level outlined in the Management of Archaeological Projects, Appendix 3, English Heritage, 1991.
- d] The landowners should be encouraged to deposit the artefacts and project archive at the Lincolnshire City and County Museum in accordance with the Museum's Criteria for the Acceptance of Archaeological Material.
- e] The report should be supported by a separate document outlining a strategy for mitigating the effects of the proposed works upon any significant archaeological remains including details of resources required and timescale.

A C K N O W L E D G E M E N T S

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APPENDIX 2

**ARCHAEOLOGICAL WATCHING BRIEF OF
GEOTECHNICAL PITS ALONG THE
ROUTE OF THE LINCOLNSHIRE SECTION
MARKET DEEPING BYPASS**

by Gary Taylor

**ARCHAEOLOGICAL WATCHING BRIEF
OF GEOTECHNICAL PITS
ALONG THE ROUTE OF
THE MARKET DEEPING BYPASS,
LINCOLNSHIRE**

Work Undertaken For
Engineering Consultancy Services

December 1993

Heritage Trust of Lincolnshire
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Charity No: 1001463. Company No: 2554738 (England)

MDB 93

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1. SUMMARY

An archaeological watching brief was undertaken during the excavation of trial pits along the route of the proposed Market Deeping bypass, Lincolnshire. The course of the road crosses the Car Dyke Romano-British waterway and passes through areas of dense cropmarks recorded on aerial photographs. These cropmarks are considered to represent the remains of archaeological sites of prehistoric and Roman date.

Archaeological recording of 25 of the 36 test pits revealed that natural deposits dipped to the south towards the River Welland and, with a more pronounced decline, eastward towards the extent of marine deposits. An ice wedge and a possible extinct stream channel were also identified. Immediately east of the A15 road, one side of a ditch, probably an old field boundary, was recorded. Possible road make-up layers were observed alongside North Field Road, northeast of Market Deeping. None of the archaeological features recorded on aerial photographs, or any associated remains, were clearly recognised.

2. INTRODUCTION

Between 28 September and 7 October 1993, a series of 49 test pits, 36 of them in Lincolnshire, was excavated along the route of the proposed Market Deeping bypass (Fig. 1). A total of 25 of the Lincolnshire group was examined archaeologically. The remaining eleven test pits were dug by the engineering contractors outside normal working hours when there was no archaeological presence on site. Consequently, these trial holes were not recorded.

The route of the proposed bypass is located

in the civil parish of Market Deeping, South Kesteven district, Lincolnshire (Fig. 2), and stretches across Ordnance Survey grid squares TF 10 NW, TF 11 SW and TF 11 SE.

Three soil series are traversed by the proposed route (Soil Survey 1983). West of Market Deeping, and north from the Welland up to test pit 16, are Fladbury 1 association soils, pelo-alluvial gley soils on the valley floor. A second area of this soil association occurs between trial trenches 32 and 36 (Hodge *et al.* 1984, 194). Between test pits 17 and 32, northwest and north of Market Deeping, the bypass route crosses Badsey 2 association soils, typical brown calcareous earths over calcareous gravel (*ibid.*, 101). East of trial hole 36, Clayhythe association soils occur. Developed on river terrace drift previously covered by now-degraded peat, calcareous humic gley soils comprise the Clayhythe association (*ibid.*, 148).

Broadly in the vicinity of test pits 16 and 17, cropmarks of rectangular enclosures and linear ditches are recorded on aerial photographs. Northwest and north of Market Deeping, in the area of trial holes 20 through 26, is a large complex of cropmarks. Towards the western limit of this band of cropmarks are rectangular field systems and driveways. These may be of Iron Age or later date. Further east are ring ditches, possibly of Bronze Age burial mounds, and rectangular and subcircular pit arrangements. A rectangular enclosure with adjacent trackways and field systems, possibly Iron Age or Romano-British, occur at the eastern limit of this band of cropmarks. Additionally, a large group of interlinked irregular ditches spreads across the area. Possibly geological in origin, these may have been formed by ice wedge polygons.

North of North Field Road in the area of

test pits 29 to 31 are cropmarks of a ring ditch (SK 56.104), a rectangular enclosure (SK 56.102) and irregular ditches that are possibly geological in origin. An Early Bronze Age axe-hammer (CCM SMR 33432) was recovered from the area of these latter, apparently natural, features. Cropmarks to the north of trial trench 36 apparently represent a field system and a possible geological feature. Flintwork, probably dating to the Bronze Age, has been recovered from close to test pit 42B.

At the extreme eastern limit of the bypass route are cropmarks and earthwork of round barrows, probably of Bronze Age date. Contemporary flintwork has also been found in the vicinity. An extinct watercourse also traverses this area (Heritage Lincolnshire 1992, 3-6).

Additionally, the Car Dyke, a Romano-British waterway that connected the River Witham near Lincoln with the Nene east of Peterborough (Whitwell 1970, 57), is crossed by the bypass route just north of Market Deeping.

3. METHODOLOGY

Excavation of the test trenches was undertaken by the engineering contractors using a mechanical digger. Each test pit was 0.60 by 2.00m in extent and averaged 2m in depth. Following excavation, the sides of the trenches were examined and recorded according to standard Heritage Trust of Lincolnshire practice. No relationship to Ordnance Survey datum was established. Consequently, depths of strata and other features encountered in the test pits were recorded with respect to the present ground level at each individual trench. For the purposes of subsequent analysis, these ground surface heights were equalised (Fig. 3).

No artefacts were recovered from the test pits. However, finds on the field surfaces in the vicinity of each trial trench were collected.

4. ANALYSIS

Records of the deposits and features identified during the watching brief were examined. Phasing was assigned based on the nature of the deposits and recognisable relationships between them. A total of three phases was identified:

Phase 1	Natural deposits
Phase 2	Undated archaeological deposits
Phase 3	Modern deposits

Phase 1 Natural Deposits

Deposits of banded sands and gravels (3, 8, 13, 15, 17, 19, 20, 24, 26, 27, 28, 30, 32, 33, 34, 35, 38, 41, 45, 48, 52, 57, 61, 64) were encountered in each test pit. With respect to the present ground surface, the surface of the natural deposits undulated across the area. From the River Welland, west of Market Deeping, the surface of natural rose gently to the north. A pronounced depression in the surface of natural was observed in test pit 22 (Fig. 3), a little to the northwest of Market Deeping. This indentation is tentatively interpreted as an ice wedge.

Between test pits 32 and 36, a gentle concavity, considered having been caused by an extinct stream channel, occurs in the surface of natural.

From test pit 36 eastward, the surface of natural dips appreciably. Compared with the ground surface, the height of natural reduces by approximately 1.20m over the c. 1.5km between trial pits 36 and 45 (Fig. 3).

Silts or subsoil deposits (2, 4, 5, 6, 7, 12, 14, 16, 18, 21, 22, 23, 25, 31, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 50, 51, 53, 54, 55, 56, 60, 62, 63, 65, 66) occur above the natural sands and gravels in most of the test pits. Clay layers (6, 7) infill the apparent ice wedge observed in trial pit 2.

Above the natural in trial trenches 36 through to 45, a gradual development of silt deposition was observed (Fig 3). Only one layer occurred between natural gravel and topsoil at the most westerly point in the series (test pit 36). At the eastern limit (test pit 45), four layers existed between topsoil and gravel. These silt layers, which wedged out to the west, probably are alluvial in origin. In the two most easterly trenches (test pits 44 and 45) deposits of blue clay (51, 56) were encountered immediately above the natural gravels.

Phase 2 Undated Archaeological Deposits

In test pit 22, the east side of an apparently north-south aligned feature (59) was observed cutting natural gravels (Fig. 3). Although undated, this feature is interpreted as a ditch or gully.

A layer of fragmented sandstone (11), overlaid by deposits of gravelly sand (9, 10), was examined in trial pit 31. Located alongside North Field Road, these deposits are tentatively considered to represent spreads of road construction material, possibly from an earlier alignment of the highway.

Phase 3 Modern Deposits

Topsoil (1) that averaged 0.3 - 0.4m in thickness provided the uppermost deposits across the area. In test pit 38, topsoil (29) mixed with fragments of brick, glass and wood, occurred to a depth of 0.73m, coming down directly onto natural gravel. Located immediately next to Gravel Road,

this test pit examined the roadside verge and a backfilled dyke, hence the mixed nature and increased depth of the topsoil.

Finds of pottery and ceramic tile were recovered from the field surfaces close to the trial holes. This material was mostly of 19th and 20th century date. However, a scatter of Romano-British sherds, Late Saxon Stamford ware and fragments of 14th century pottery were found. Pieces of 16th century Bourne ware were recovered from the proximity of trench 26 and a flint core rejuvenation flake was found near to trial pit 31.

5. DISCUSSION

Variety in the height of natural as observed in the test pits, probably results in most instances from glacio-fluvial action. A pronounced, localised, drop in the surface of natural in test pit 22 is tentatively interpreted as caused by an ice wedge.

A broad, shallow depression in the surface of the natural gravels was identified between test pits 32 and 36. This scoop broadly coincides with the location of a tongue of Fladbury 1 Association soils. Developed on river alluvium these soils may, together with the lowering of the natural surface, signify the location of an extinct tributary of the River Welland.

Gradual reduction in the height of the surface of natural occurred east of test pit 36. Associated with this decrease was a series of silt and clay layers that thickened, and increased in number, towards the east. This lowering of the natural surface and alluviation represents the extent of marine deposits resulting from periodic inundation of the area. A layer of blue clay, occurring just above natural gravel in the two most easterly trenches, may have been deposited in standing water.

Located immediately east of the present A15 road, this linear feature may represent a field boundary or drainage dyke from earlier land parcelling.

All the artefacts recovered from the field surfaces could have derived from manuring scatter.

6. CONCLUSIONS

Variations in the level of the natural gravels were observed during the watching brief. Much of this diversity was apparently due to glacio-fluvial action. Features resulting from the effect of these natural agencies included an ice wedge and a possible extinct stream channel. Additionally, reductions in the height of the surface of natural occurred, reflecting the proximity of the River Welland and the extent of marine deposits.

None of the archaeological features recorded as cropmarks on aerial photographs were identified during the watching brief. However, a probable field boundary ditch, and layers of possible road construction materials were encountered.

7. ACKNOWLEDGEMENTS

This report was edited by Steve Haynes, who also coordinated the work, and Dave Start. Access to the relevant parish files was permitted by Ruth Waller, the South Kesteven Community Archaeologist.

8. PERSONNEL

Project Manager: Steve Haynes
Supervisor (fieldwork): David Brown
Finds Processing: Denise Buckley
Post-excavation Analyst: Gary Taylor

9. BIBLIOGRAPHY

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10. ABBREVIATIONS

Numbers prefixed by 'CCM SMR' are the primary reference numbers used by the City and County Museum, Lincoln, Sites and Monuments Record.

Numbers prefixed by 'SK' are the reference numbers used by the South Kesteven Community Archaeologist.

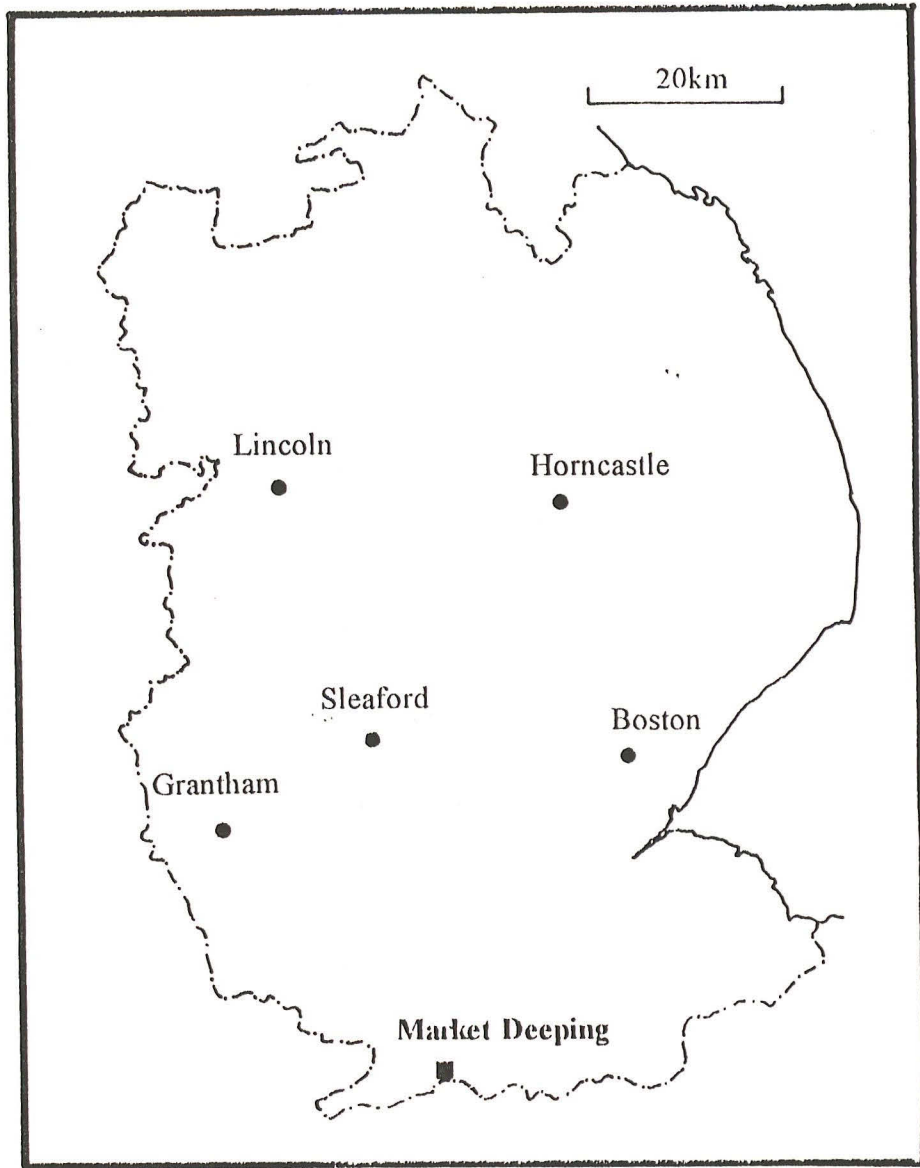
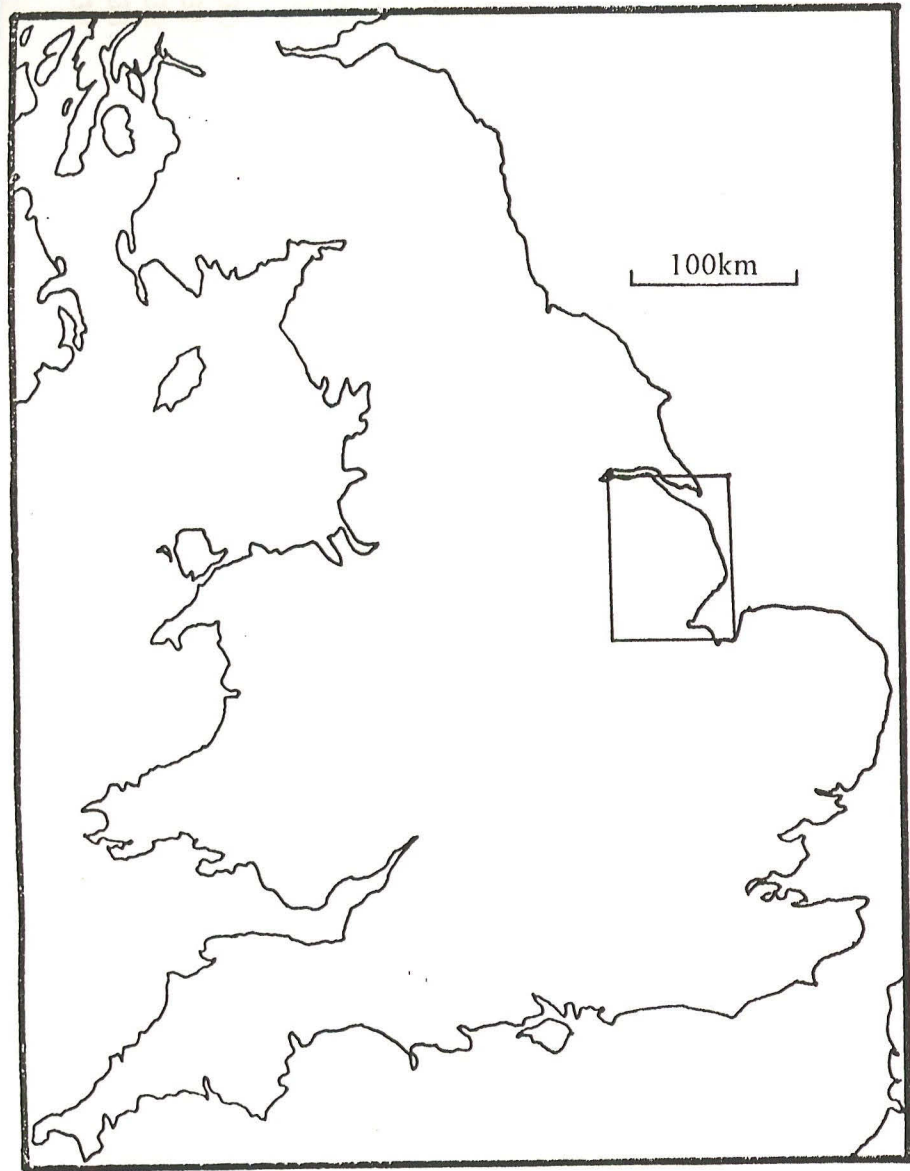


FIG. 1 GENERAL LOCATION PLAN

APPENDIX 1

CONTEXT DESCRIPTIONS

Number	Trial pit	Description
1	All pits except 38	Mid brown silty clay with small stones.
2	16	Orange brown silty clay with grey clay 'lumps'.
3	14, 16, 17, 22, 24, 25, 26	Sand and gravel.
4	17	Orange brown silty clay with grey clay 'lumps' and occasional small stones.
5	14, 17	Orange brown silty clay with grey clay 'lumps' and frequent small stones.
6	22, 25, 26	Brown clay with lenses of orange grey sand.
7	22	Orange grey clay.
8	14, 25, 26 31	Grey to dark yellow and orange sand and gravel.
9	31	Orange brown sand with frequent gravel.
10	31	Orange brown sand.
11	31	Brown orange fragmented sandstone with occasional gravel.
12	33, 34	Orange brown silty clay with moderate sand and clay pockets and frequent small stones.
13	33	Silty sand and gravel.
14	23	Sandy clay.
15	23	Sand and gravel.
16	28	Silty clay with occasional gravel.
17	28	Sand and gravel.
18	32	Silty clay with moderate pebbles.
19	32	Sand and gravel.
20	34	Sand and gravel.
21	35	Orange brown clayey sand.
22	35	Silty sand and gravel.
23	35	Light grey sand.
24	35	Orange sand and gravel
25	36	Orange brown silty clay.
26	36	Orange brown silty clay with gravel and sand.
27	36	Grey brown sand and gravel.
28	36	Orange brown sand and gravel.
29	38	Brown silty clay with moderate brick, occasional glass and frequent wood fragments.
30	38	Orange brown sand and gravel.
31	39	Orange brown silty clay with occasional root activity.
32	39	Orange brown sand and gravel.
33	39	Grey orange sand and gravel.
34	39	Orange brown sand and gravel.

APPENDIX 1

35	39	Grey sand.
36	42	Grey orange-brown silty clay with occasional pockets of sand.
37	42	Orange brown-grey silty clay with occasional gravel pockets.
38	42	Orange brown-grey sand and gravel.
39	42b	Grey brown silty clay.
40	42b	Orange brown silty clay with occasional root action.
41	42b	Orange brown sand and gravel.
42	43	Grey orange-brown silty clay with occasional root action.
43	43	Brown grey silty clay.
44	43	Grey orange-brown clay.
45	43	Grey orange-brown sand and gravel.
46	43b	Orange grey silty clay with occasional root action.
47	43b	Orange brown sandy clay with occasional root action.
48	43b	Sand and gravel.
49	44	Orange brown sandy clay with moderate root action.
50	44	Orange brown sandy clay with occasional root action.
51	44	Grey blue clay with occasional root action.
52	44	Light brown sand and gravel.
53	45	Grey brown silty clay with moderate root action.
54	45	Orange brown sandy clay with occasional root action.
55	45	Orange brown silty sand.
56	45	Grey blue clay with moderate pebbles.
57	45	Orange brown sand and gravel.
58	24	Orange brown silty sandy clay with frequent gravel, fill of 59.
59	24	Cut feature.
60	43a	Orange brown sandy clay.
61	43a	Orange brown sand and gravel.
62	42a	Orange brown silty clay.
63	42a	Orange brown sandy clay.
64	42a	Sand and gravel.
65	43a	Dark brown silty clay.
66	43a	Grey brown clay.

APPENDIX 2

1 Sherd of greyware	Romano-British
1 Fragment of field drain	undated
1 Sherd of grey-slipped redware	?Romano-British
1 Sherd Stamford ware	Late Saxon
2 Sherds of brown glazed earthenware	Post-medieval
4 Sherds of black glazed earthenware	19th century
1 Fragment of brick	undated
1 Sherd of brown glazed earthenware	Post-medieval
1 Sherd of black glazed earthenware	19th century
1 Fragment of pantile	Post-medieval
9 Fragments of brick	undated

APPENDIX 3

**BRIEF FOR ARCHAEOLOGICAL EVALUATION OF THE
LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

BRIEF FOR AN ARCHAEOLOGICAL EVALUATION,
MARKET DEEPING BYPASS.
Archaeology Section, Lincolnshire County Council.

1. SUMMARY.

- 1.1 This document is the detailed brief for archaeological work to be undertaken on a scheme of highway construction at Market Deeping by E.C.S Ltd. It sets out the requirements for a full field evaluation to be carried out in order to define the character and extent of the archaeological remains within the proposed development area. Evaluation offers an efficient and effective way of retrieving such information. Guidelines on such matters are set out in D.O.E. Planning Policy Guidance Note 16 (1990).
- 1.2 This brief should be used by archaeological contractors as the basis for the preparation of a detailed archaeological project design. In response to this brief contractors will be expected to provide details of the proposed scheme of work, to include the anticipated working methods, timescales and staffing levels.
- 1.3 The detailed specification will be submitted to the company above subject to the approval of the Archaeological Officer of Lincolnshire County Council. If more than one, the client will be free to choose between those specifications which are considered by the planning authority to adequately satisfy this brief.

2. SITE LOCATION AND DESCRIPTION.

- 2.1 Market Deeping is situated on the north bank of the River welland in the south Lincolnshire Fens. It has long been closely associated with its neighbouring parish of Deeping St James and clearly owes its location to the convenience of a river crossing.
- 2.2 Recent research (Hayes and Lane 1992) indicates that Market Deeping is situated on a gravel fan. Deposits indicate periodic flooding of the broad flood plain. Further north, along the fen edge, the soils are darker and more humose. The landscape is relatively flat and lies at an altitude of only 8m above sea level. As the soils are so fertile much of the land is intensively farmed today.

3. PLANNING BACKGROUND.

- 3.1 The bypass scheme is being prepared by Engineering Consultancy Services for Lincolnshire County Council. The scheme was granted deemed planning permission by Lincolnshire County Council on 19th October 1992, subject to a number of conditions. One condition ensures the implementation of an archaeological scheme of works, to be approved by the County Council, to "ascertain, record and preserve the archaeological content of the site".

4. ARCHAEOLOGICAL BACKGROUND.

- 4.1 Over the last two decades, research has shown the Welland Valley to be one of the richest archaeological zones in England. Aerial photographs reveal a tantalising glimpse of the buried prehistoric and later features. More tantalising still are other areas where fragments of landscape lie buried beneath deep alluvium. The level of preservation of archaeological matter in such circumstances is high as is illustrated at Flag Fen and Etton, both in Cambridgeshire.
- 4.2 The area has been subject to some recent research by English Heritage through the Fenland

Survey project. A desk top study of this scheme has also been undertaken and soil test-pitting observed. The desk top study identified several areas of extremely dense archaeological cropmarks. Fieldwalking proved ineffectual but this may have been due to field conditions and much archaeology being sealed beneath deep alluvium.

5. REQUIREMENT FOR WORK.

- 5.1 In order that the archaeological implications of this scheme are fully appreciated, prior to groundworks commencing a full archaeological field evaluation must be carried out. If any archaeological discovery is made it will be accommodated within the scheme and preservation *in situ* be given due consideration. Preservation by record is considered an action of last resort.
- 5.2 The purpose of the archaeological evaluation should be to gather sufficient information to establish the presence/absence, extent, condition, character, quality and date of any archaeological features, structures, deposits, artefacts or ecofacts.
- 5.3 Where relevant, the archaeological evaluation should attempt to address the relationship between any upstanding structure and the buried archaeology.
- 5.4 If upstanding earthwork remains or buildings form a part of the archaeological record these must be considered part of the evaluation phase. Such remains should be surveyed to a standard and level of accuracy in line with the recording of the buried remains.

6. STAGES OF WORKS AND TECHNIQUES.

- 6.1 The archaeological evaluation must incorporate, and make reference to, evidence gathered during the desk-top assessment. Information therein has helped in the formulating of this brief. All such data should facilitate the formation of a statement of aims and objectives.
- 6.2 The field evaluation phase of this scheme will be expected to follow the broad outline given below:
 - 6.2.1 detailed fieldwalking of field units containing features identified from air photo plotting;
 - 6.2.2 the excavation of evaluation trenches on identified archaeological features which will be considerably disturbed by the current road alignment, this should identify archaeological deposits and features therein should be augered. A contingency should allow for sampling of features following discussion with the County Archaeological Officer. Trenches will be 1.5m to 1.8m wide and either 15m or 30m in length. Trenching may be altered after the report of the geothermal imaging is available;
 - 6.2.3 the excavation of evaluation trenches on a systematic pattern (every 250m) in areas where no archaeological features have previously been identified. These trenches should be excavated to natural to ensure lack of archaeology or to adequately sample archaeological features if located. Trenches will be 1.5m to 1.8m wide and either 15m or 30m in length. The scheme of trenching may be altered after the report on the geothermal imaging is available;
 - 6.2.4 in those locations identified on the plan, a sample of survey by magnetometer should be undertaken to a maximum of two days;
 - 6.2.5 geothermal imaging of the bypass route to enhance the existing air photograph record (to be arranged by the County Archaeological Officer separately) this may necessitate alteration to the scheme of trial trenching.

- 6.3 The trench scheme as designed requires the excavation of 31 trenches (10 of 30m length and 21 at 15m length). A contingency of 10% should allow for the possible alteration of trench design due to results from the geothermal imaging.
- 6.4 The evaluation should also take into account environmental evidence and provide an assessment of the viability of such information should further archaeological work be carried out. It is expected that the specification will contain a strategy for the environmental sampling to be undertaken during the evaluation. The environmental implications of fieldwork must be borne in mind and issues such as the relationship of archaeology to palaeo-channels addressed.

7. METHODS.

- 7.1 In consideration of methodology the following details should be given in the contractor's specification:
- 7.1.1 a projected timetable for the various stages of work;
 - 7.1.2 the staff structure and numbers, including a list of all specialists and their respective roles;
 - 7.1.3 a statement on Health and Safety policy and site security;
 - 7.1.4 a full description of the field survey techniques to be used, including such details as plotting conventions, transect spacing, presentation of geophysical and statistical data and the plotting of aerial photographs.
- 7.2 Excavation is a potentially destructive technique and the specification should include a detailed reasoning behind the application of this technique. The following factors should be borne in mind:
- 7.2.1 the most recent archaeological deposits are not necessarily the least important and this should be considered when determining the level to which machining will be carried out;
 - 7.2.2 the machine should be used to remove topsoil down to the first archaeological horizon;
 - 7.2.3 the use of an appropriate machine with a 1.8m wide, toothless ditching blade;
 - 7.2.4 the supervision of all work by an archaeologist;
 - 7.2.5 when archaeological features are revealed by machine these will be cleaned by hand;
 - 7.2.6 a representative sample of every archaeological feature must be excavated by hand (although the depth of surviving deposits must be determined, it is not expected that every trench will be excavated to natural);
 - 7.2.7 all excavations must be carried out with a view to avoiding features which may be worthy of preservation;
 - 7.2.8 any human remains encountered must be left *in situ* and only removed if absolutely necessary. The contractor must comply with all statutory consents and licenses under the Burial Act 1857 and subsequent legislation regarding the exhumation of human remains. It will also be necessary to comply with all reasonable requests of interested parties as to the method of removal, reinterment or disposal of the remains or associated items. Attempt must be

made at all times not to cause offence to any interested parties.

- 7.3 It is expected that an approved recording system will be used for all on-site and post fieldwork procedures. The recording procedure must take into account the long term archival requirements of archaeological records. Due attention must be given to the drawn and photographic record. Both artefacts and ecofacts must be handled in a way sympathetic with the requirements of the document "*Guidelines for the transfer of project archives*" produced by City and County Museum, Lincoln and in line with national guidelines as detailed therein.

8. MONITORING ARRANGEMENTS.

- 8.1 Curatorial responsibility for this project lies with the Archaeological Officer of Lincolnshire County Council. He should be given at least seven days notice, in writing, of the proposed date of commencement of site work and may exercise his prerogative of monitoring fieldwork.

9. REPORTING REQUIREMENTS.

- 9.1 The final report should be preceded by a summary report of all previously identified archaeological features, sites and finds.

- 9.2 The evaluation report which should be a straight-forward account of the fieldwork carried out. Ideally it should be produced within 2 months of the completion of the fieldwork phase. If this is not possible then the County Archaeological Officer must be consulted at the earliest possible opportunity. The report should include:

- 9.2.1 computer generated plots of geophysical survey data and interpretation;
- 9.2.2 distribution plots, analysis and interpretation of fieldwalking and other data;
- 9.2.3 plans of the trench layout;
- 9.2.4 section and plan drawings, with ground level, Ordnance Datum, vertical and horizontal scales as appropriate;
- 9.2.5 plans of actual and potential deposits;
- 9.2.6 specialist descriptions of artefacts and/or ecofacts;
- 9.2.7 a consideration of the evidence within the wider landscape setting;
- 9.2.8 a consideration of the archaeology within its local, regional and national context;
- 9.2.9 a critical review of the effectiveness of the methodology;
- 9.2.10 a projected timetable for the completion and final location of the site archive (if not already undertaken);
- 9.2.11 all relevant information which will aid the Archaeological Officer in the interpretation of the archaeology and the likely disturbance the scheme will have upon it.

- 9.3 A copy of the evaluation report must be deposited with the Lincolnshire Sites and Monuments Record, the Lincolnshire County Council Department of Highways and Planning and Engineering Consultancy Services.

10. ARCHIVE DEPOSITION.

- 10.1 Arrangements must be made with the land-owner(s) and/or developers and the City and County Museum, Lincoln for the deposition of the object and paper archive. Preliminary discussion must take place prior to fieldwork commencing to determine format and content of archive. Such matters are largely set out in the document "*Guidelines for the transfer of project archives*".
- 10.2 For deposition of project archive in the City and County Museum, Lincoln an accession number must be obtained prior to commencement of fieldwork.

11. PUBLICATION AND DISSEMINATION.

- 11.1 The deposition of a copy of the project report (or interims) with the Lincolnshire Sites and Monuments Record will be deemed to put all information in the public domain, unless a request is made for confidentiality. If material is to be held in confidence a timescale must be agreed with the Archaeological Officer of Lincolnshire County Council. It is expected this shall not exceed six months.
- 11.2 A short note should be presented to the editor of Lincolnshire History and Archaeology and consideration given to a full account being published in due course.

12. ADDITIONAL INFORMATION.

- 12.1 This document attempts to define the best practice expected of an archaeological evaluation but cannot fully anticipate the conditions that will be encountered as work progresses. If requirements of the brief cannot be met they should only be excluded after attainment of the written approval of the Archaeological Officer of Lincolnshire County Council.
- 12.2 On the basis of the final report of the evaluation, it is expected that a strategy for the mitigation of the threat to the archaeological remains identified therein will be produced. This should be produced to satisfy the requirements of the planning consents attained thus far.

27th October 1993.

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APPENDIX 4

**SPECIFICATION FOR ARCHAEOLOGICAL EVALUATION
OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

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1.0 INTRODUCTION

1.1 This document comprises a proposed specification for the field evaluation of the Lincolnshire section of the Market Deeping By-Pass.

1.2 Following the requirements of the archaeological brief, this document contains the following parts:

Aims and objectives

Stages of work and methodologies

List of specialists

Programme of works and staffing structure of the project

2.0 DESCRIPTION OF THE SCHEME AND ITS TOPOGRAPHIC SETTING

2.1 The Market Deeping by-pass consists of a single carriageway route approximately 6km long. East of the A15 the easement is 32m wide and 46m wide west of the A15. Additionally, the by-pass also has roundabouts and spurs to feed other roads. The by-pass, which extends into Cambridgeshire, commences at its southern end at the River Welland, east of Bell Farm curves around the western side of Market Deeping joining the A15 north of Market Deeping. Crossing the A15 and continuing along the north side of North Field Road the by-pass crosses North Field Road north of the disused camp site to the north of Market Deeping. The by-pass then follows the southern line of North Field Road and curves to the south and joins Little Wood Drove at the junction of Littlewood Drove and Cradge Bank where it ends.

2.2 The by-pass will transect the area known as Deeping Common. At the eastern end of the by-pass the area lies at approximately 3.80m OD and 8.0m at its south-western end. This change in height is not easily discernible from the ground, but is likely to be the result of Market Deeping lying on a gravel island.

2.3 The area through which the by-pass passes is liable to flooding and high water table levels as attested by the considerable number of drainage ditches present in the area: although reduced by the cumulative effect of mineral extraction and agriculture. The area is currently under mixed agricultural uses, varying from grass to intensive arable.

3.0 SOILS AND DRIFT GEOLOGY

3.1 South and south west of Market Deeping, the route passes through pelo-alluvial gley soils located on the floor of the Welland Valley (Fladbury 1 Association Soils).

3.2 To the west and north of Market Deeping, the route crosses brown calcareous

earths developed over calcareous gravels (Badsey 2 Association Soils), that are located at the fen margin.

3.3 The route then passes through a wedge of Fladbury 1 association soils, on Deeping Common.

3.4 For the last 2km eastwards, the route then traverses an area of Clayhithe Association Soils, calcareous humic gley soils on river terrace drift that was formerly covered by peat that has now wasted.

4.0 THE ARCHAEOLOGY

4.1 Overview

4.1.1 The Lower Welland Valley represents one of the most important archaeological landscapes within the British Isles. As in other river valleys, most notably the upper Thames, its gravel terraces with rapid drainage of surface water have proved attractive to communities throughout all archaeological periods. With almost exclusive use of the valley as arable land, the near complete pattern of millennia of cropmarks is visible for the air. Many of the gaps in the cropmarks are the direct result of episodes of flooding of the main and sub-channels of the river. Alluvial deposition has sealed certain tracts of the landscape. Beneath it lies archaeology relatively undisturbed by cultivation or the erosive effects of weathering. To understand these complex, superimposed cropmarks more fully and their changing patterns through time, it is necessary to understand as much as possible about not only the communities who created them but also about their contemporary landscapes and their environments. Archaeological features preserved beneath the alluvium offer a rare opportunity to significantly enhance our understanding of the past by their completeness and the indications of past environmental conditions contained within their fills. Until relatively recent artificial lowering of the ground water levels many of the features remained fully waterlogged. Thus, general organic debris survived to chart palaeo-environmental, ecological and economic changes through time.

4.1.2 The Lower Welland Valley was one of the areas studied by the Royal Commission. Their publication A Matter of Time (RCHM 1960) outlined the extent, density and diversity of the cropmarks whilst highlighting the potential loss of information through continuing and expanding mineral extraction. With the exception of the excavation of a remarkable Bronze Age round barrow by W.G. Simpson at Tallington (6km from West Deeping), the majority of previous examination has been carried out south of the Welland, particularly in the Maxey area where a series of open area investigations in advance of quarrying have revolutionised understanding of the area's prehistory. Much of this work was updated and published in 1985 in a volume dedicated to the area (Pryor et al). Since then a Neolithic causeway enclosure, partly sealed by alluvium has been excavated at Etton (4km to the south of Market Deeping) by the Fenland Archaeological Trust, again in advance of quarrying. This monument was for the most part sealed by alluvium deposited by an extinct meander of the river. A

remarkable series of placed deposits of artefacts such as stone axes and bones were found in backfilled segments of ditches. The ditch bottoms remained wet and contained brushwood and many more organic deposits.

4.1.3 The work of the Fenland Project, firstly extensive reconnaissance survey and latterly selective excavation, has shed more light on the broad fan of gravels where the Welland meets the Fen edge. An Iron Age and Roman settlement by a palaeochannel at Market Deeping has yielded an extraordinary array of floral and faunal evidence, particularly for the Iron Age (Lane 1992). Similarly, in Deeping St James, a Bronze Age and Iron Age settlement in the alluviated valley floor, has hut circles and deep, waterlogged pits. Although only small-scale excavations, these sites have demonstrated the potential of archaeology in the Lower Welland Valley to produce a full range of palaeoenvironmental data. The Fenland Project sites are specifically aimed at answering questions of management and preservation of sites but they have served to demonstrate that the Lower Welland Valley is one of the few areas where the archaeological patterns are both extensive (as seen from the air) and in many cases well-preserved with good environmental data.

4.1.4 Evaluation of the Rectory Farm site (1.5km to the west of the by-pass route), has further indicated the potentially rich nature of the archaeological deposits in the Lower Welland Valley. The site has shown that intermittent occupation over several millenia is present and that the effects of alluviation mask archaeological deposits. Evaluation of this site has confirmed work elsewhere in the area and has shown that apart from a diversity of archaeological features the area is rich in environmental material.

4.1.5 The valley is an area where extensive cropmarks are intermittently masked by alluvial blankets which seal, but preserve sites. There is no evidence to suggest that the alluvial areas are archaeologically barren. Such phenomena means, good cropmarks and good preservation rarely coincide. Where they do, as in the Welland Valley, they single out areas of exceptional archaeological potential, not only locally but in regional and national terms.

4.1.6 In the way that the 'ceremonial' Neolithic landscape around Maxey has been identified and interpreted (Pryor et al 1985), so some of the other key questions can now be addressed - How much continuity is there in the landscape? How can this be identified? Period specific questions such as the true nature of the Iron Age/Roman interface in rural area can be answered in the Welland Valley where, although the periods were not heavily represented in the excavations around Maxey, evidence was forthcoming in the fieldwalking of the area.

4.2 Detailed to By-Pass Route

4.2.1 The desktop assessment of the by-pass route revealed a similar pattern of activity to that encountered in other parts of the Lower Welland Valley: dense concentrations of cropmarks punctuated by 'blank' areas resulting from the

masking of the archaeological features and deposits by alluviation. Although some of the cropmarks recorded are likely to be geological features, this does not detract from the dense pattern of archaeological activity present.

4.2.2 Three distinct concentrations of cropmarks in the line of the by-pass were identified during the desktop assessment. By reference to the archaeological areas detailed in the site plans annexed to the desktop assessment these may be interpreted as:

4.2.2.1 AA2 What appears to be two superimposed rectangular enclosures on different alignments. Two short lengths of ditch extend from the northern edge of one of the enclosures. To the west of the enclosures and bordering the western side, a substantial linear feature orientated broadly north-south and extending beyond the limit of the by-pass easement.

4.2.2.1.1 To the north a rectangular feature with an apparently open southern end. The enclosure contained two internal partitions dividing the enclosure into three roughly equal sections. Against the northern edge of the northern partition, approximately half way along, its length, is a small rectangular cropmark.

4.2.2.1.2 Surrounding the cropmarks on the route of the by-pass, a concentration of linear features probably field boundaries, were identified, suggesting intensive use of the area.

4.2.2.2 AA4-AA6 A complex arrangement of cropmarks which appears to represent several distinct types of activity. The most dominant feature of the area is a mass of linear, sub-linear and curved features. These may represent either geological features or field boundaries.

4.2.2.2.1 Short lengths of ditches with, occasionally, short branches at right angles. Similar features are present on the Rectory Farm site. The function of these is unclear.

4.2.2.2.2 A small cluster of roughly rectangular features, the function of which is unclear.

4.2.2.2.3 Two features consisting of two concentric circles. A similar feature is present outside of the by-pass easement. These are likely to represent barrows.

4.2.2.2.3 Fragments of field system consisting of two fields orientated roughly northwest-southeast. These are separated by what appears to be drove ways or access routes to the south and east.

4.2.2.2.5 To the east of the complex described above is the Car Dyke.

Currently this is represented by a water channel forming a field boundary. In its original form, by reference to other sections which are better preserved, it would have formed a substantial channel flanked by banks.

- 4.2.2.2.6 The complex of cropmarks identified in this area extends beyond the limit of the easement and forms a significant pattern of previous land use. The clarity of the cropmarks may be the result of the area forming a relatively high point in the surrounding Fen. This assumption is supported by the relatively high concentrations of gravel in the soil in this area
- 4.2.2.2.7 North-west of AA4 a complex of cropmarks consisting of linear features were identified. It would appear that these form a system of superimposed field boundaries.
- 4.2.2.2.8 AA9. This area represents the Saxon causeway which formed a passage way across the Fens.
- 4.2.2.3 Overall, the cropmark evidence points to an intensive and prolonged occupation of the area. In those areas where the alluvial cover is minimal the density of these features is clearly visible, and it may be assumed that archaeological features are buried beneath alluvial cover in the apparently blank areas. This working hypothesis is in part supported by the cropmarks in area AA9 which, at the closest point, are 40m north of the by-pass and appear to form enclosures and field systems.
- 4.2.2.4 In OS field number 2200, immediately south of the proposed roundabout at the A15 junction, is a well preserved portion of ridge and furrow. It may be assumed that although evidence for this agricultural activity has been destroyed elsewhere, the effects and remnants of such 'agricultural regime' may be encountered in other areas.

5.0 AIMS AND OBJECTIVES

5.1 General

5.1.1 The aim of the evaluation (as a whole) will be to gather sufficient information to determine the presence or absence of archaeology within the by-pass route to enable the Archaeology Section, Lincolnshire County Council to formulate a scheme for the preservation of these remains.

5.1.2 The objectives will be to establish:

the presence/absence nature density, sequence, gather environmental data relating to past human exploitation of the area and date of archaeological activity within the route of the by-pass.

5.2 Specific to areas of investigation

5.2.1 The location of the trial trenches has been designed by the Archaeology Section, Lincolnshire County Council. Apart from the investigation of the archaeological features identified during the desktop assessment the evaluation will enable the identification and examination of archaeological features not identified during other phases of archaeological assessment.

5.2.2 The objectives for each trench are:

5.2.2.1 Trenches 1 and 2 These trenches are located in an apparently archaeologically blank area at the southern end of the bypass. The apparent lack of archaeological feature is likely to be the result of the deposition of silts from the River Welland. A similar pattern of silting was identified on the Rectory Farm site to the west of the by-pass.

5.2.2.2 Objectives: To assess the nature of any archaeological features and deposits present and to retrieve information relating to the depth and extent of any alluvial deposits that may mask the archaeological deposits present.

5.2.2.3 Trench 3 This is located over what appears to be an enclosure and part of a field system.

5.2.2.4 Objectives: Determine the nature, extent and recover dating evidence for the apparent enclosure and ditch to the west.

5.2.2.5 Trench 4 Investigation of the rectangular cropmark and the northern dividing ditch.

5.2.2.6 Objective Gather dating evidence and determine the nature, including any internal features, of the enclosure. If possible determine the relationship of the northern internal partition to the western side of the enclosure.

5.2.2.7 Trench 5-7 These trenches are located in an apparently archaeologically blank area between AA2 and AA4.

5.2.2.8 Objectives: Investigation and the determination of the presence, date, nature and sequence of the archaeological deposits in this apparently blank area. The paucity of archaeological features in this area may result from a covering of alluvium, therefore the trenching will determine the extent and depth of such deposits.

5.2.2.9 Trench 8 Trench positioned across a possible field boundary and a circular feature formed of pits which may represent a henge.

- 5.2.2.10 Objectives: Determine the nature and date of the circular feature and any associated remains. Ascertain the date of the linear feature to the north.
- 5.2.2.11 Trench 9 The trench is located across a circular feature that appears to be barrow and a field boundary forming part of a larger complex of cropmarks.
- 5.2.2.12 Objectives: Gather sufficient information to enable a determination of the date and function of the circular feature and any associated remains. Determine the date and function of the linear feature.
- 5.2.2.13 Trench 10 The trench is located over two rectangular (uninterpretable) features which form part of a larger group, and possible field boundary
- 5.2.2.14 Objectives: Gather sufficient information to enable the determination of the date, form and function of the rectangular features. Gather dating evidence for the linear feature to the east of these.
- 5.2.2.15 Trench 11 The trench is located over a circular feature with two concentric ditches. This feature may represent a ploughed out barrow.
- 5.2.2.16 Objectives: Determine the nature of the archaeological features identified during the assessment and gather dating evidence for these. The location of ancillary features such as post holes or pits as this will provide further information for the determination of the function of this feature.
- 5.2.2.17 Trench 12 The trench is immediately east of the Car Dyke and may provide evidence of the eastern bank evidence of which is preserved in other section of this feature.
- 5.2.2.18 Objectives: Clarification of the possible location of the eastern bank of the Car Dyke, or feature associated with it. The identification and quantification of any other features which may be sealed by the bank or are otherwise present in the area.
- 5.2.2.19 Trenches 13-28 These trenches are located in the area which revealed no cropmarks, probably due to the presence of silt covering and therefore masking the archaeological features.
- 5.2.2.20 Objectives: The trenches will be excavated to establish the extent and depth of this silt and to determine the nature of any archaeological features present below these silts. Additionally, the nature of the environmental survival in this area will be determined. In other parts of the Welland Valley the alluviated areas have

proven to have excellent survival of the archaeological deposits and associated environmental material.

- 5.2.2.21 Trench 29 The trench is located over the Saxon causeway. The trench will provide a sequence of the construction and maintenance of this feature. Additionally, the causeway is likely to seal buried soil horizons that will provide important environmental data and which may seal earlier archaeological features.
- 5.2.2.22 Objectives: Gather sufficient information to determine the nature of construction, date and evidence of repairs or maintenance of the bank. The feature is likely to seal earlier archaeological features, therefore the investigation of this trench
- 5.2.2.23 Trench 30 The trench is located over two parallel ditches which may be a driveway or an access route between tow fields. The features to be investigated form part of a much larger area of activity.
- 5.2.2.24 Objectives: To provide dating evidence for the features identified in the assessment.
- 5.2.2.25 Trench 31 The trench is located over a circular feature with two concentric ditches which may be a barrow.
- 5.2.2.26 Objectives: Establish the nature of the archaeological features present and recover dating evidence. Additionally, the location of other features, such as post holes or pits which will provide supplementary information to enable the determination of the date, sequence and function of this feature.

6.0 GEOPHYSICAL SURVEY

6.1 Reasoning for this technique

- 6.1.1 Three discreet area have been selected for geophysical survey by the Archaeology Section Lincolnshire County Council. Give that the aim of the proposed work is to accurately locate features recorded on aerial photographs (and by other means) the use of fluxgate gradiometry has been selected.

Magnetic susceptibility will not provide the detailed information required and, unless there are any overriding geological or other reasons for using resistivity, the resistance technique has no advantage over the gradiometer. Work in the vicinity of Market Deeping has demonstrated that gradiometry is ideally suited for not only rapid but also accurate evaluation of the type of features recorded in the aerial photographs.

6.2 Methodology

- 6.2.1 The survey area will be divided into 20m squares and then 800 readings will be logged per square for gradionmetry. It is possible that the suspected post-pit features may require a more intensive sampling interval to locate the individual pits. Field test would be carried out to evaluate whether four readings per metre would be of greater value than the usual two readings.

6.3 Report

- 6.3.1 A report will be prepared on completion of the survey detailing the methodologies used and the results of the work. The areas and nature of archaeological activity will be shown on a series of computer generated plots and the anomalies encountered will be interpreted.

7.0 **FIELDWALKING**

7.1 Reasoning for this technique

- 7.1.1 Fieldwalking has been selected as a field technique as it is a means of rapidly identifying any surface concentrations of archaeological material present within the plough soil. The technique therefore facilitates the identification of potential archaeological sites and will complement the results of the desktop assessment. The limiting factor on the effectiveness of this technique is the condition of the surface of the site that must be ploughed and weathered, and with minimal crop coverage.

- 7.1.1.2 Due to low concentrations of surface artefacts recovered during fieldwalking as part of the desktop assessment an intensive programme of fieldwalking will be undertaken. This will enable a quantitative assessment of the material recovered.

7.2 Site Operation

- 7.2.1 The areas where cropmarks were identified during the desktop assessment will be investigated, this being OS field numbers: 8434; 1852; 2826 and 3100. In each case the entire area of the field will be examined.

The survey will be undertaken using the walk through method based on transect spaced at 5m. Finds recovered from the surface of the fields will be referenced to their position along each transect. The walking to enable the identification of spacial distributions and concentrations of artefacts.

7.3 Analysis

- 7.3.1 On completion of the fieldwalking all finds will be washed and marked according to the grid square from which they were recovered. The finds will be sent for specialist identification and dating.

7.4 Report

- 7.4.1 On completion of the specialist work, the density of the finds by type and date will be plotted. This will enable the identification of concentrations of artefacts that may suggest the presence of buried archaeological features. The results of the fieldwalking will be linked to those from the desktop assessment to enhance the results of both phases of work. The report will also note the state of each field at the time of the survey. This will enable an indication of the effectiveness of the survey and allow the value of the data to be assessed.

8.0 TRIAL TRENCHING

8.1 Reasoning for this technique

- 8.1.1 Trial trenching enables the *in situ* determination of the sequence, date, nature, depth, environmental potential and density of archaeological features present on the site.

8.2 General Considerations

- 8.2.1 All work will be undertaken following statutory Health and Safety requirements in operation at the time of the evaluation.

- 8.2.2 The work will be undertaken according to the relevant codes of practice issued by the Institute of Field Archaeologists

- 8.2.3 Excavation of the archaeological features exposed will only be undertaken as far as is required to determine their date, sequence, density and nature. Not all archaeological features exposed will be excavated. However, the evaluation will, as far as is reasonably practicable, establish the depth of the archaeological sequence present on the site.

- 8.2.4 As required by the brief in those areas where required excavation of the trenches will be undertaken to the level of the natural deposits to ensure that the full sequence of archaeological deposits is recovered.

- 8.2.5 Open trenches will be marked by hazard tape attached to road irons or similar poles. Subject to the consent of the County Archaeological Officer and following the appropriate recording the trenches particularly, those of any depth, will be backfilled as soon as possible to minimise any health and safety problems.

- 8.2.6 To ensure that a reasonable number of trenches are open at one time it is proposed that the trenches west and inclusive of trench 12 will be investigated first followed by those to the west. Subject to the approval of the County Archaeological Officer the trenches on the western sector will be backfilled as soon as possible.

- 8.2.7 A mobilisation period of one day has been included to enable the setting-up of the

site offices and pegging out of the trenches.

8.3 Methodology

- 8.3.1 Removal of the top soil and any other overburden will be undertaken by mechanical excavator using a toothless ditching bucket. To ensure that the correct amount of material is removed and that no archaeological deposits are damaged, this work will be supervised by Archaeological Project Services. On completion of the removal of the overburden, nature of the underlying deposits will be assessed by hand excavation before any further mechanical excavation that may be required. Thereafter, the trenches will be cleaned by hand to enable the identification and analysis of the archaeological features exposed.
- 8.3.2 Investigation of the features will be undertaken only as far as required to determine their date, form and function. The work will consist of half or quarter sectioning of features as required and, where appropriate, the removal of layers. Should features be located which may be worthy of preservation *in situ*, excavation will be limited to the absolute minimum, (ie the minimum disturbance necessary) to interpret the form, function and date of the features.
- 8.3.3 The archaeological features encountered will be recorded on Archaeological Project Services pro-forma context record sheets. The system used is the single context method by which individual archaeological units of stratigraphy are assigned a unique record number and are individually described and drawn.
- 8.3.4 Plans of features will be drawn at a scale of 1:20 and sections at a scale of 1:10. Should individual features merit it, they will be drawn at a larger scale.
- 8.3.5 Throughout the duration of the trial trenching a photographic record consisting of black and white prints (reproduced as contact sheets) and colour slides will be compiled. The photographic record will consist of:
- the site before the commencement of field operations;
 - the site during work to show specific stages of work, and the layout of the archaeology within individual trenches
 - individual features and, where appropriate, their sections
 - groups of features where their relationship is important
 - the site on completion of field work
- 8.3.6 Should human remains be encountered, they will be left *in situ* with excavation being limited to the identification and recording of such remains. The appropriate Home Office licences will be obtained and the local environmental health department and the police informed.
- 8.3.7 Finds collected during the fieldwork will be bagged and labelled according to the individual layer from which they were recovered ready for later washing and

analysis.

- 8.3.8 The spoil generated during the evaluation will be mounded along the edges of the trial trenches with the top soil being kept separate from the other material excavated for subsequent backfilling.
- 8.3.9 The precise location of the trenches within the site and the location of site recording grid will be established by an EDM survey.

9.0 ENVIRONMENTAL ASSESSMENT

9.1 Proposed Strategy

9.1.1 Team composition

9.1.1.1 The strategy for environmental archaeology will be implemented by a team of carefully selected specialists. The individuals are experienced and highly regarded in their fields of study; and many possess detailed local knowledge.

9.1.1.2 The team will be co-ordinated by Dr Helen Keeley, formerly Head of the Environmental Studies Branch, Ancient Monuments Laboratory English Heritage (1973-1993)

9.1.1.3 Key personnel will include:

- Dr Barbara Brayshay (pollen)
- Dr Michael Charles (charred plant remains)
- Dr Paul Halstead (animal bones)
- ✓ Jennifer Hillam (dendrochronology)
- Dr Andrew Howard (geomorphology and soils)
- ✓ Maisie Taylor (wood technology)
- ✓ Dr Patricia Wagner (insects and molluscs)

9.2 Aims and Objectives

9.2.1 The purpose of the environmental strategy is to gather sufficient information to establish the presence/absence, extent, condition, character, quality and date of any ecofactual material on the line of the proposed by-pass. Data will be gathered to allow an assessment to be made of the potential for analysis, in the event of further archaeological work proving necessary.

9.2.2 The procedures for assessment and review will follow those laid down in **Management of Archaeological Projects**, English Heritage (1991). The project is conceived as a phased exercise, with review or assessment following the completion of each phase. Each phase will comprise three key elements.

9.2.3 1. Problem definition

2. Assessment of existing data

3. Recommendations for ways to resolve ways to resolve questions arising out of the assessment.

9.2.4 The primary objective in this first stage evaluation is to locate sites or groups of sites where the potential is greatest for further environmental research. The close siting of evaluation trenches within dense cropmark features will allow a nested series of site investigations to take place. If the evaluation trenches succeed in locating and broadly characterising buildings, enclosure, field-systems and driveway boundaries it may be possible to create a broad 'stratigraphic chain' across the countryside.

9.2.5 The potential for environmental archaeology is an important element in the ranking of overall site significance, and could form part of a matrix comprising:

- 9.2.6
1. The quality of deposits, ie. the integrity of contextual relationships and artefactual content.
 2. The degree of preservation, eg. organic survival, variable pH level, phosphate levels.
 4. The spatial distribution of palaeoenvironmental remains, ie. especially potential economic indicators such as charred plant remains and animal bone.

9.2.7 The proposed strategy for recording has two broad aims:

1. General landscape reconstruction. A geomorphological model will be devised for the river valley. This will pay particular attention to the development of the floodplain and terraces, to the location of palaeo-channels, and to the relationship of alluvium and valley sediments to archaeological features.
2. The recovery and assessment of ecofactual material from archaeological features. This is intended to evaluate evidence for palaeo-economic activity, eg. evidence for crop husbandry, etc. The potential for assessing land-use patterns through pollen analysis will also be integrated into this work. The material collected will be retained so as to allow further analyses as necessary.

9.3 Geomorphological modelling

9.3.1 The programme of geomorphological modelling will be undertaken by Dr Andrew Howard, in consultation with Dr Helen Keeley. The following elements may be identified

- 9.3.2
1. Desk-top assessment to examine existing data including geological and soil maps, previous published and unpublished research and borehole data.

2. A field visit to assess the locality
3. Monitoring of the trial trenches and logging of sections within them. Many of the trenches are likely to pass through similar material, so strategic monitoring might be possible after ground inspection.
4. A programme of augering to supplement information derived from the trial trenches.
5. Sedimentological assessment of samples collected during monitoring and augering (primarily particle size analysis)

9.3.3 The initial phase would involve a small desk-top assessment to examine and appraise existing data. Aside from the sources listed above, ie. geological and soil maps and borehole data, a search would also be made at the National Geoscience Data Centre of the British Geological Survey.

9.3.4 Borehole records would be supplemented and their descriptions validated by the drilling of a number of selected auger holes using a Dutch Head ring. The excavated trench sections would be hand cleaned, recorded using standard sedimentological nomenclature and the sediments would be grouped into facies types, prior to an assessment being made of their genesis. If sufficient borehole data exists, modelling of the bedrock and alluvium interface will be undertaken to study the geometry of sediment bodies using computer software.

9.4 Sampling material from archaeological features

9.4.1 The major categories of environmental evidence likely to be present within archaeological features are:

- Animal bone
- Plant Macro fossils
- Pollen
- Molluscs
- Soils micro morphology
- Insects
- Dendrochronology
- Wood technology

9.4.2 In general principle as much on-site sampling and assessment will be undertaken as possible. Archaeological Project Services will employ an experienced archaeologist to supervise the taking of samples and liaise with ARCUS specialists. Provision has been made for a number of specialist site visits, so as to ensure academic integrity.

9.4.3 For reconstruction of palaeo-economic systems priority will be given to samples of known date and context. All visible structural features, eg. floors layers in pits and middens, will be sampled. A sub-sample of each residue will be sorted

at this stage and the remainder retained, to allow further work.

- 9.4.4 A combination of sampling techniques will be used according to each trenches circumstances; lateral transects, sample columns and spot sampling using monolith tins and kubiena boxes, for example, may be employed for the recovery of soil, pollen, insect and mollusc remains.
- 9.4.5 Linear features, eg. drainage ditches will be samples in continuous sample columns at regular intervals and/or by spot samples, according to stratigraphy.
- 9.4.6 This systematic approach, accompanied by judgmental sampling will complement the sue of wet and dry sieving apparatus and will ensure a constant check, by variety of means on the deposits in each feature. On site assessment of potential will be followed up by laboratory subsampling (assessment only) for pollen, insects and mollusc remains.

9.5 Wood technology and dendrochronology

- 9.5.1 Advice has been obtained from Massie Taylor, a leading British waterlogged wood specialist with in-depth local knowledge. The flowing considerations will guide the programme of wood sampling:
- 9.5.2
1. The wood will be examined *in-situ* where ever possible; this has important implications for the condition of the material and leads to more effective retrieval of data.
 2. The method of field recording will be sufficient to assess the productivity of possible future studies on species selection, woodworking technology, woodland studies, environmental reconstruction and tree ring dating. Samples for future study will be gathered and stored, where absolutely necessary.
 3. The recording methods used will be comparable to those employed on nearby sites, such as Etton and Maxey by the Fenland Archaeological Trust. This will once again lead to enhanced data retrieval and regional compranda.

10.0 POST EXCAVATION AND REPORT

10.1 Stage 1

- 10.1.1 On completion of site operations, the records and schedules produced during the trial trenching will be checked and ordered to ensure that they form a uniform sequence constituting a level II archive. A stratigraphic the recovery of soil, pollen insect and mollusc remains. ic matrix of the archaeological deposits and features present on the site will be prepared. All photographic material will be catalogued: the colour slides will be labelled and mounted on appropriate hangers and the black and white contact prints will be labelled. in both cases the labelling will refer to schedules identifying the subject/s photographed.

10.1.2 All finds recovered during the trial trenching will be washed, marked, bagged and labelled according to the individual layer from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to the conservation laboratory at the City and County Museum, Lincoln.

10.2 Stage 2

10.2.1 Detailed examination of the stratigraphic matrix to enable the determination of the various phases of activity on the site.

10.2.2 Finds will be sent to specialists for identification and dating.

10.3 Stage 3

10.3.1 On completion of stage 2, a report detailing the findings of the evaluation will be prepared. This will consist of:

A description of the archaeological setting of the study area with reference to the desktop study

Description of the topography of the evaluation area

Description of the methodologies used during the evaluation and discussion of their effectiveness in the light of the findings of the evaluation.

A text describing the findings of the evaluation.

Plans of the trenches showing the archaeological features exposed. If a sequence of archaeological deposits is encountered separate plans for each phase will be produced.

Sections of the archaeological features.

Interpretation of the archaeological features exposed and their context within surrounding landscape.

Specialist reports on the finds from the site.

Appropriate photographs of specific archaeological features.

A summary of the findings of the evaluation.

A critical review of the effectiveness of the techniques used during the evaluation.

11.0 **ARCHIVE**

11.1 The documentation, finds, photographs and other records and material generated during the evaluation will be sorted and ordered into the format acceptable to the

City and County Museum, Lincoln. This sorting will be undertaken according to the document titled *Conditions for the Acceptance of Project Archives* for long term storage and curation.

12.0 PUBLICATION

12.1 A report of the findings of the evaluation will be published in Heritage Lincolnshire's annual report for 1993 and the journal of the Society for Lincolnshire History and Archaeology. The scope of such publication is dependent upon the results of the evaluation.

13.0 LIST OF SPECIALIST TO BE USED DURING THE PROJECT

<u>Task</u>	<u>Body to be undertaking the work</u>
Conservation	City and County Museum, Lincoln.
Pottery Analysis	To be appointed dependant upon the date of the material recovered.
Other Artefacts	To be appointed dependant upon the date of the material recovered.
Geophysical Survey	Geophysical Surveys of Bradford.
Human Remains Analysis	University of Sheffield.
Environmental Analysis	University of Sheffield

ENVIRONMENTAL ASSESSMENT PROGRAMME OF WORKS

GEOMORPHOLOGY

Desktop assessment

Two days at the British Geological Survey, and the collection of borehole data.
Two days data accumulation from other sources
1 day site visit

Fieldwork

7 Days recording sections.
3 days with assistant for augering, including travel and equipment.

Compilation of report

8 days analysis and formulation of report.

SOILS

Site visits, 2 days plus travel.
Assessment of sedimentology 3 days.

POLLEN

Site Visit 1 days travel.

Assessment of 10 samples.

INSECTS AND MOLLUSCS

Site visit 1 day.

Assessment 10 days.

PLANT MACRO FOSSILS

Site visit 2 days.

Assessment of 20 samples.

ANIMAL BONES

Assessment of excavated material 6 days.

WOOD TECHNOLOGY AND DENDROCHRONOLOGY

Site visits 4 days.
Assessment 2 days.

TEAM CO-ORDINATION

3 days for site visits.
3 days for liaison and report co-ordination.

It is the intension to integrate the environmental works with the programme of trial trenching.

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APPENDIX 5

**LIST OF CONTEXTS FROM THE ARCHAEOLOGICAL
EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING
BYPASS**

Cntxt No	Field	Trench	Description	Interpretation	Ins	Section	Plan	Sample	Group No
1	1	1	Grey Brown clayey silt	Topsoil	DB	12	1		2000
2	1	1	Mid grey silty clay	Fill of 3	"	12	1		2009
3	1	1	Circular cut	Posthole	"	12	1		2009
4	1	1	Lgt grey silty clay	Fill of 5	"		1		2010
5	1	1	Ovoid cut	Poss pit	"		1		2010
6	1	1	Lgt brown silty clay	Subsoil	"	12,14			2001
7	1	1	Grey brown silty clay	Fill of 10	"	14	1		2008
8	1	1	Brown grey silty clay	Fill of 9	"				2007
9	1	1	Circular cut	Natural feature	"				2007
10	1	1	Linear cut	Poss ditch	HM	14	1		2008
11	1	2	Brown sandy clay	Topsoil	PCF	3			2000
12	1	2	Yellow brown silty clay	Subsoil	"	3			2001
13	1	2	Brown yellow silty clay	Fill of 16	"	1			2004
14	1	2	Brown yellow clay	Fill of 16	"	1			2004
15	1	2	Lgt brown clay	Fill of 16	RA	2	3		2004
16	1	2	Linear cut	Ditch	"	2	3		2005
17	1	2	Brown yellow sandy clay	Natural	PCF	2	3		2006
18	3	5	Lgt grey silty clay	Fill of 19	NH	4	4		2021
19	3	5	Sub-circular cut	Natural feature	"	4	4		2021
20	3	5	Blue grey silty clay	Fill of 21	"	5	4		2022
21	3	5	Linear cut	Natural feature	"	5	4		2022
22	3	5	Brown sandy clay	Subsoil	"		4		2023
23	3	5	Yellow brown silty clay	Fill of 24	"	11	4		2024
24	3	5	Linear cut	Ditch?	"	11	4		2025
25	3	5	Blue grey silty clay	Fill of 26	"	7	4		2026
26	3	5	Linear? cut	Natural feature	"	7	4		2026
27	3	5	Dk brown sandy clay	Fill of 28	"	6	4		2027
28	3	5	Sub-circular cut	Posthole	"	6	4		2028
29	3	5	Blue grey silty clay	Fill of 30	"	8	4		2029
30	3	5	Rectangular cut	Natural feature	"	8	4		2029
31	3	5	Dk brown sandy silt	Topsoil	"	4,11	4		2020
32	3	4	Linear cut	Ditch?	CB		9		2040
33	3	4	Blue grey silty clay	Fill of 32	"		9		2039
34	3	4	Linear cut	Gully?	"		9		2038
35	3	4	Blue grey silty clay	Fill of 34	"		9		2037
36	3	4	Amorphous cut	Natural feature	"		9		2035
37	3	4	Blue grey silty clay	Fillof 36	"		9		2035
38	3	4	Grey blue silty clay	Fill of 39	SRP		9		2036
39	3	4	Circular cut	Poss pit	"		9		2036
40	3	4	Grey blue silty clay	Fill of 43	"		9		2034
41	3	4	Grey brown clay silt	Fill of 42	"		9		2032
42	3	4	Linear cut	Field drain	"		9		2032
43	3	4	Circular cut	Animal burrow	"		9		2034
44	3	4	Lgt yellow sandy clay	Misc deposit	"		9		2033
45	3	4	Linear cut	Poss ditch	"		9		2042
46	3	4	Grey blue silty clay	Fill of 45	"		9		2041
47	3	4	Amorphous cut	Poss pit	"		9		2047
48	3	4	Grey blue silty clay	Fill of 47	"		9		2047
49	3	4	Ovoid cut	Poss posthole	"		9		2044
50	3	4	Grey blue silty clay	Fill of 49	"		9		2043
51	3	4	Circular cut	Poss pit	"		9		2046
52	3	4	Grey blue silty clay	Fill of 51	"		9		2045
53	3	4	Circular cut	Poss pit	"		9		2049
54	3	4	Blue grey silty clay	Fill of 53	"		9		2048
55	3	4	Yellow sand and gravel	Natural	"		9		2031
56	3	4	Dk brown silty clay	Topsoil	"				2020
57	3	4	Lgt brown silty clay	Subsoil	"				2030
58	7	11	Yellow brown sandy silt	Fill of 133	PCF	34			2086
59	7	11	Grey brown silty clay	Fill of 133	"	34			2086
60	7	11	Yellow brown silty clay	Fill of 153	"	34	16		2090
61	1	1	Lgt grey silty clay	Fill of 62	DB		1		2002
62	1	1	Linear cut	Gully	"		1		2003
63	3	5	Blue grey sandy clay	Fill of 64	NH	9	4		2150

64	3	5	Circular cut	Posthole	"	9	4	2151
65	3	5	Lgt blue sandy clay	Fill of 66	"		4	2152
66	3	5	Rectangular cut	Natural feature	"		4	2152
67	3	5	Lgt brown sandy clay	Natural	"	4,11	4	2031
68	1	2	Dk grey clay	Fill of 16	RA	2	3	2004
69	1	1	Yellow brown sandy clay	Natural	CM	13,14		2006
70	6	8	Grey clayey silt	Topsoil	DB	15,16,27		2063
71	6	8	Yellow brown sand gravel	Fill of 72	CB	27	5	2065
72	6	8	Linear cut	Furrow	"	27	5	2066
73	6	8	Grey silty sand	Fill of 74	DB		5	2068
74	6	8	Amorphous cut	Natural feature	"		5	2068
75	6	8	Grey brown clayey silt	Fill of 76	"	15	5	2069
76	6	8	Linear cut	Ditch cut	"	15	5	2070
77	6	8	Grey brown clayey silt	Fill of 78	"	15	5	2071
78	6	8	Ovoid cut	Poss pit	"	15	5	2071
79	6	8	Blue grey silty clay	Fill of 80	CB	16	5	2072
80	6	8	Ovoid cut	Natural feature	"	16	5	2072
81	6	8	Yellow brown sandy gravel	Natural	"		5	2067
82			Unused context					
83			Unused context					
84			Unused context					
85	4	6	Brown grey clay silt	Topsoil	CM		6	2050
86	4	6	Brown sandy silt	Subsoil	"		6	2051
87	4	6	Grey sandy clay	Fill of 88	"		6	2054
88	4	6	Linear? cut	Poss ditch	"		6	2055
89	4	6	Grey brown sandy silt	Fill of 90	"		6	2057
90	4	6	Sub-circular cut	Posthole	"		6	2058
91	4	6	Grey brown sandy silt	Fill of 92	"		6	2059
92	4	6	Sub-circular cut	Poss posthole	"		6	2060
93	4	6	Grey brown sandy silt	Fill of 94	"		6	2061
94	4	6	Ovoid cut	Poss posthole	"		6	2062
95	4	6	Linear cut	Furrow?	"		6	2052
96	4	6	Linear cut	Furrow?	"		6	2053
97	6	7	Dk brown silty clay	Topsoil	HM	25,26	11,12	2063
98	6	7	Grey brown silty clay	Subsoil	"			2064
99	6	7	Yellow brown sandy gravel	Natural	"		11,12	2067
100	6	7	Linear cut	Furrow?	"	25	11	2074
101	6	7	Grey brown silty clay	Fill of 100	"	25	11	2073
102	6	7	Linear cut	Furrow?	"	26	11	2076
103	6	7	Grey brown silty clay	Fill of 102	"	26	11	2075
104	7	9	Dk brown sandy clay	Topsoil	NH	17	7	2081
105	7	9	Brown sandy gravel	Subsoil	"	17	7	2082
106	7	9	Blue clayey sand	Fill of 107	"	17	7	
107	7	9	Linear cut	Ditch	"	17	7	
108	7	9	Yellow brown silty sand	Natural	"	17	7	2085
109	6	31	Grey brown silty clay	Topsoil	MG	30		2063
110	6	31	Grey brown silty clay	Subsoil	"	30		2064
111	6	31	Yellow brown sand	Natural	"	30	14	2067
112	6	31	Yellow brown silty clay	Fill of 119	"	30	14	2077
113	6	31	Lgt brown clay	Fill of 118	"	30	14	2079
114	6	31	Brown silty clay	Misc deposi	"	30		2078
115	6	31	Yellow brown silty clay	Misc deposit	"	30		2078
116	6	31	Grey brown sandy silt	Fill of 117	"	28,29	14	2080
117	6	31	Ovoid cut		"	28,29	14	2080
118	6	31	Linear cut	Natural? feature	"	30	14	2079
119	6	31	Linear cut	Natural? feature	"	30	14	2077
120	7	9	Yellow brown sandy clay	Fill of 107	NH	17	7	
121	7	9	Blue grey sandy clay	Fill of 107	"	17	7	
122	7	9	Yellow sandy clay	Fill of 107	"	17	7	
123	7	10	Rectangular cut	Quarry pit	RA	24	10,13	2084
124	7	10	Dk brown sandy gravel	Subsoil	"	24	10	2082
125	7	10	Lgt brown sandy clay	Fill of 123	"	24	10	2083
126	7	10	Grey brown sandy clay	Fill of 123	"	24	10	2083
127	7	10	Grey brown sandy clay	Fill of 123	"	24	10	2083

128	7	10	Dk brown sandy clay	Topsoil	"	24	10	2081
129	7	11	Brown grey silty clay	Topsoil	PCF	34		2081
130	7	11	Green brown silty clay	Subsoil	"	34		2082
131	7	11	Yellow sand and gravel	Natural	"		16	2085
132	7	11	Green brown sandy clay	Fill of 133	"	34	16	2086
133	7	11	Linear cut	Ditch cut	"	34	16	2087
134	7	11	Grey brown silty clay	Fill of 135	"	32	16	2088
135	7	11	Linear cut	Gully cut	"	32	16	2089
136	7	30	Cut		RA	31	15,30	2091
137	7	30	Grey clay	Fill of 136	"	31	15,30	2091
138	7	30	Brown silty clay	Topsoil	MG	37	30	2081
139	7	30	Brown silty clay	Subsoil	"	37	20,30	2082
140	7	30	Yellow brown sandy gravel	Natural	HM	37	30	2085
141	7	30	Linear cut	Ditch	"	37	20,30	2093
142	7	30	Grey silty clay	Fill of 141	"	37	20,30	2092
143	9	13	Grey clayey silt	Topsoil	DB			2116
144	9	13	Green grey clayey silt	Fill of 145	"		17	2117
145	9	13	Linear cut	Ditch	"		17	2118
146	9	13	Green grey clayey silt	Fill of 147	"		17	2119
147	9	13	Linear cut	Gully	"		17	2120
148	8	12	Dk brown clayey sand	Topsoil	NH	33,49	18	
149	8	12	Yellow brown sandy clay	Bank remnant	"	49	18	
150	8	12	Blue grey sandy clay	Fill of 151	"	33	18	
151	8	12	Amorphous cut	Natural feature	"	33	18	
152	8	12	Yellow brown sand	Natural	"	33	18	
153	7	11	Amorphous cut	Uncertain feature	PCF	34	16	2090
154	4	6	Yellow brown silty clay	Natural	CM		6	2056
155	9	13		Natural	DB		17	2121
156	2	3	Grey silty clay	Fill of 157	CM	36	19	2013
157	2	3	Cut	Gully? cut	"	36	19	2014
158	2	3	Brown grey clayey silt	Topsoil	PCF	36,51		2011
159	2	3	Brown yellow silty clay	Subsoil	"	36,51		2012
160	2	3	Grey silty clay	Fill of 157	CM	36	19	2013
161	2	3	Brown clayey silt	Fill of 187	"	51		2015
162	2	3	Brown grey sandy silt	Fill of 167	"	51		2018
163	2	3	Brown grey clayey silt	Fill of 187	"	51		2016
164	2	3	Grey silty clay	Fill of 187	"	51		2016
165	2	3	Grey clayey silt	Fill of 187	"	51		2016
166	2	3	Brown grey sandy silt	Fill of 187	"	51		2016
167	2	3	Linear cut	Ditch	"	51		2019
168	7	9	Yellow brown sandy gravel	Gravel bank	NH	17	7	
169	7	9	Yellow brown silty sand	Mound?	"	17	7	
170	21	23	Brown sandy silt	Topsoil	CM			2094
171	21	23	Yellow brown silty clay	Natural	CB			2099
172	21	23	Dk grey silty clay	Fill of 173	"		21	2095
173	21	23	Semi-circular cut	Pit	"		21,23	2096
174	21	23	Dk grey silty clay	Fill of 175	"		21	2097
175	21	23	Semi-circular cut	Pit	"		21,23	2098
176	21	23	Dk grey silty clay	Fill of 177	"		21	2100
177	21	23	Circular cut	Posthole	"		21,23	2101
178	21	23	Dk grey silty clay	Fill of 179	"		21	2102
179	21	23	Circular cut	Posthole	"		21,23	2103
180	21	23	Grey clayey silt	Fill of 181	CM		21	2104
181	21	23	Sub-circular cut	Posthole	"		21	2105
182	21	23	Dk grey clayey silt	Fill of 183	"	40	21	2106
183	21	23	Sub-circular cut	Posthole	"		21	2107
184	22	24	Dk brown sandy silt	Topsoil	NH		22	2130
185	22	24	Yellow silty sand	Natural	"		22	2132
186	2	3	Dk brown clayey silt	Fill of 187	CM	51		2016
187	2	3	Linear cut	Re-cut of 167	"	51		2017
188	21	23	Yellow brown sandy silt	Fill of 175	PCF	38	21	2097
189	21	23	Grey clayey silt	Fill of 173	CM		21	4 2095
190	29	28	Dk brown clayey silt	Topsoil	RA		37	2139
191	29	28	Red brown clayey silt	Subsoil	"		37	2140

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Appendix

192	29	28	Red brown clay	Natural	"		37		2141
193	29	28	Grey clay	Natural	"		37		2142
194	29	28	Yellow brown clay	Natural	"		37		2143
195	30	29	Linear cut	Ditch	CB	45	24		2146
196	30	29	Dk brown clayey silt	Fill of 195	"	45	24		2145
197	30	29	Semi-circular cut	Ditch/pit	SRP	45	24		2148
198	30	29	Green grey sandy silt	Fill of 197	"	45			2148
199	30	29	Dk brown clayey silt	Fill of 197	"	45	24		2147
200	28	27	Brown sandy silt	Topsoil	NH	43	23		
201	28	27	Grey brown clayey sand	Subsoil	"	43	23		
202	28	27	Grey silty clay	Fill of 249	"	43	23		
203	28	27	Blue grey silty clay	Fill of 249	HM	43	23		
204	28	27	Brown grey clayey silt	Fill of 249	"	43	23		
205	28	27	Yellow grey clay	Natural	"	43	23		
206	28	27	Blue grey sandy clay	Natural	"	43	23		
207	28	27	Grey brown silty clay	Fill of 249	"	43	23		
208	30	29	?	Cut	SRP				
209	30	29	Dk brown silty clay	Topsoil	"	45			2144
210	30	29	Yellow grey silty sand	Natural	"	45	24		2149
211	14	16	Dk brown sandy silt	Topsoil	CB		26		2125
212	14	16	Yellow brown silty clay	Subsoil	"		26		2126
213	10	14	Dk brown clayey silt	Topsoil	HM		25		2122
214	10	14	Yellow brown silt	Subsoil	"		25		2123
215	14	16	Linear cut	Ditch	SRP	46	26		2128
216	14	16	Dk brown sandy silt	Fill of 215	"	46	26		2127
217	13	15	Dk brown silty clay	Topsoil	CB		27		2122
218	13	15	Yellow brown silty clay	Subsoil	"		27		2123
219	13	15	Yellow brown clayey silt	Natural	"		27		2124
220	15	18	Dk brown clayey silt	Topsoil	HM		29		2113
221	15	18	Grey brown clayey silt	Subsoil	"		29		2114
222	27	26	Dk brown silt	Topsoil	CB		28		2133
223	27	26	Dk brown peat	Peat deposit	"		28		2134
224	27	26	Yellow brown clayey silt	Subsoil	"		28		2135
225	27	26	Dk grey clayey silt	Subsoil	"		28		2135
226	27	26	Yellow silty clay	Natural	"		28		2138
227	27	26	Linear cut	Ditch	SRP	44	28		2137
228	27	26	Blue grey silty clay	Fill of 227	"	44	28		2136
229	15	18	Grey brown silty clay	Natural	HM		29		2115
230	15	18	Yellow brown sandy gravel	Natural	"		29		2115
231	15	18	Dk grey clayey silt	Natural?	"		29		2115
232	14	16	Yellow brown clayey silt	Natural	CB		26		2129
233	25	25	Dk brown silt	Topsoil	"		34		2130
234	25	25	Brown grey silty clay	Subsoil	"		34		2131
235	25	25	Yellow silty clay	Natural	"		34		2132
236	17	20	Dk brown silt	Topsoil	"		36		2113
237	17	20	Yellow brown silty clay	Subsoil	"		36		2114
238	17	20	Yellow brown clayey silt	Natural	"		36		2115
239	16	19	Lgt brown clayey silt	Natural	RA		33		2115
240	16	19	Lgt brown clayey silt	Natural	"		33		2115
241	16	19	Yellow brown silty clay	Natural	"		33		2115
242	16	19	Brown grey gravel clay	Natural	"		33		2115
243	16	19	Dk brown clayey silt	Topsoil	"		33		2113
244	16	19	Brown clayey silt	Subsoil	"		33		2114
245	19	21	Dk brown silt	Topsoil	PCF		32		2113
246	19	21	Yellow brown clayey silt	Natural	"		32		2115
247	20	22	Lgt grey clayey silt	Topsoil	DB				2113
248	20	22	Yellow brown clayey silt	Natural	"				2115
249	28	27	Linear cut	Palaeochannel	PCF				
250	21	23	Grey sandy clay	Fill of 251	PCF		21		2108
251	21	23	Oval cut	Posthole	"		21		2108
252	21	23	Dk grey silty clay	Fill of 253	"		21		2109
253	21	23	Possible cut	Possible pit	"		21		2109
254	21	23	Dk grey silty clay	Fill of 255	"		21		2110
255	21	23	Circular cut	Posthole	"		21		2110

256	21	23	Dk grey silty clay	Fill of 257	"	21	2111
257	21	23	Circular cut	Posthole	"	21	2111
258	21	23	Dk grey silty clay	Fill of 259	"	21	2112
259	21	23	Circular cut	Posthole	"	21	2112

APPENDIX 6

**REPORT ON THE GEOPHYSICAL
SURVEY OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

SITE SUMMARY SHEET

96 / 09 Market Deeping Bypass

NGR: Various, see text.

Location and topography

Two of the survey areas are situated directly to the north of Market Deeping, Lincolnshire, while a third lies to the west of the town. All of the fields were flat, although the northern survey areas were ploughed and the western site under a young crop.

Archaeology

The survey lies within an area of known archaeological sites. In particular the three survey areas (A-C) were positioned over cropmarks that suggest settlement and related activities.

Aims of Survey

The geophysical survey was undertaken in order to identify the cropmarks at particular points along the proposed Market Deeping Bypass. Experience from many surveys in the area (for example Rectory Farm, Geophysical Survey of Bradford Report Number 91/67) indicated that fluxgate gradiometer survey would be the best technique in this case. The geophysical survey forms part of a wider archaeological evaluation being undertaken by **Archaeological Project Services**.

Summary of Results *

The results from the three surveys are variable. In Area A the gradiometer survey has indicated clear supportive evidence for the aerial photographic interpretation, with part of an enclosure being detected. However, in Areas B and C, the geophysical data cannot confirm the aerial evidence. It is uncertain if this is due to pedological factors or a genuine lack of archaeology in the survey areas.

* It is essential that this summary is read in conjunction with the detailed results of the survey.

SURVEY RESULTS

96 / 09 Market Deeping Bypass

1. Survey Area

- 1.1 The approximate location of the survey areas is shown in Figure 1 at a scale of 1:25000.
- 1.2 The survey grid was set out and tied-in by **Geophysical Surveys of Bradford** using an EDM. Details of the tie-in information have been lodged with the client. Pegs have been left *in situ* to facilitate relocation of the grid and these are noted on the tie-in sheet.

2. Display

- 2.1 The exact position of each survey area is shown on 1:2500 Ordnance Survey maps.
- 2.2 The data are displayed as XY traces, dot density plots and grey scale images at a scale of 1:500. A digitised interpretation for each survey area is included at the same scale.
- 2.3 The display formats referred to above are discussed in the *Technical Information* section, at the end of the text. A list of figures is provided at the start of the diagrams.

3. General Considerations - Complicating factors

- 3.1 In general, conditions on the sites were good, although walking was difficult due to rain.
- 3.2 The soils in all three survey areas can be grouped as typical brown calcareous earths and are characteristic of the Badsey 2 association (511i). Such soils typically comprise well drained calcareous fine loams over a parent of limestone terrace and lacustrine gravels and it is common that such soils are affected by groundwater. This is especially likely in Area A, which may also comprise an alluvial overburden. Such soils can give moderate to fair gradiometry results, however, the high water table is likely to diminish the enhancement of any anomalies associated with features beneath the watertable. Consequently, anomalies within the topsoil above the water table will tend to dominate the data set. Under some conditions it may not be possible to consider absence of anomalies to equate with absence of archaeology.

4. Results of Survey

4.1 Area A

NGR: TF128104. Figures A.1-5

4.1.1 This survey area is situated over part of an enclosure identified by aerial photography (see Figure A.1).

4.1.2 The results are particularly clear, indicating that the survey has covered three sides of the enclosure. The northern enclosure ditch produced strong anomalies, up to 10nT in magnitude. In general there is a lack of archaeological type anomalies outside of the enclosure. Inside the enclosure can be seen a number of pits and some lengths of internal ditches.

4.2 Area B

NGR: TF130113. Figures B.1-5

4.2.1 This block is situated over a series of cropmarks that suggest two circular features and a possible pit alignment (see Figure B.1).

4.2.2 From an archaeological point of view, the results from this area are particularly disappointing. There is no evidence for either of the circular features or the pit alignment. In fact, there are no clear archaeological type anomalies within this quiet data set. The only clear anomalies are the product of ferrous material that is likely to be situated in the topsoil. An area of increased magnetic disturbance can be seen at the northern edge of the survey, but it is most probably the product of modern dumping. The weak linear anomalies, that can only be seen clearly on the grey scale, are likely to be either the remnants of ridge and furrow or more recent ploughing.

4.3 Area C

NGR: TF132112. Figures C.1-4

4.3.1 The cropmarks identified in this area appear to represent a concentration of linear features.

4.3.2 The results from this survey are slightly more encouraging than for the previous section. The strongest anomalies are adjacent to the A15 road, and are the product of the gallop around the edge of the ploughed field. However, there are a number of weak anomalies that may have some archaeological potential. It must be stressed that these anomalies are ephemeral and, therefore, the interpretation is very tentative.

5. Conclusions

- 5.1 The results from the three surveys are variable. Area A has produced clear results that support the cropmark evidence. Area B has provided no archaeological evidence at all. Area C has indicated some responses that have been identified as being of archaeological interest.
- 5.2 Of some concern are the two surveys B and C, which are situated in the same field. The overall lack of response in these two areas is surprising given the cropmark evidence and the positive results from previous surveys in the locality. A number of explanations are possible for the apparent lack of success. It may be that the material within the fill of the ditches is not magnetically enhanced by comparison to the surrounding soil. As illustrated in Section 3.2 this may be the case if the fill of the ditch has been consistently waterlogged. An alternative explanation is that the ditches may have been ploughed away since the aerial photographs were taken.

Project Co-ordinator: Dr C F Gaffney
Project Assistants: Dr C Adam, J Nicholls and A Shields

Date of Survey: 18th January 1996
Date of Report: 2nd February 1996

TECHNICAL INFORMATION

The following is a description of the equipment and display formats used in **GEOPHYSICAL SURVEYS OF BRADFORD** reports. It should be emphasised that whilst all of the display options are regularly used, the diagrams produced in the final reports are the most suitable to illustrate the data from each site. The choice of diagrams results from the experience and knowledge of the staff of **GEOPHYSICAL SURVEYS OF BRADFORD**.

All survey reports are prepared and submitted on the basis that whilst they are based on a thorough survey of the site, no responsibility is accepted for any errors or omissions.

Magnetic readings are logged at 0.5m intervals along one axis in 1m traverses giving 800 readings per 20m x 20m grid, unless otherwise stated. Resistance readings are logged at 1m intervals giving 400 readings per 20m x 20m grid. The data are then transferred to portable computers and stored on 3.5" floppy discs. Field plots are produced on a portable Hewlett Packard Thinkjet. Further processing is carried out back at base on computers linked to appropriate printers and plotters.

Instrumentation

(a) Fluxgate Gradiometer - Geoscan FM36

This instrument comprises of two fluxgates mounted vertically apart, at a distance of 500mm. The gradiometer is carried by hand, with the bottom sensor approximately 100-300mm from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is conventionally measured in nanoTesla (nT) or gamma. The fluxgate gradiometer suppresses any diurnal or regional effects. Generally features up to one metre deep may be detected by this method.

(b) Resistance Meter - Geoscan RM4 or RM15

This measures the electrical resistance of the earth, using a system of four electrodes (two current and two potential.) Depending on the arrangement of these electrodes an exact measurement of a specific volume of earth may be acquired. This resistance value may then be used to calculate the earth resistivity. The "Twin Probe" arrangement involves the pairing of electrodes (one current and one potential) with one pair remaining in a fixed position, whilst the other measures the resistance variations across a fixed grid. The resistance is measured in Ohms and the calculated resistivity is in Ohm-metres. The resistance method as used for area survey has a depth resolution of approximately 0.75m, although the nature of the overburden and underlying geology will cause variations in this generality. The technique can be adapted to sample greater depths of earth and can therefore be used to produce vertical "pseudo sections".

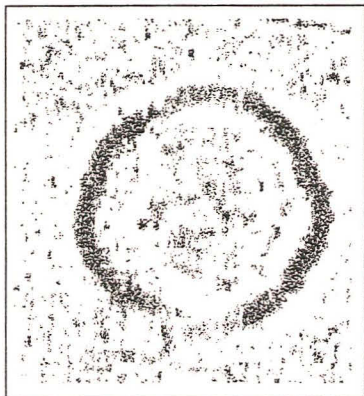
(c) Magnetic Susceptibility

Variations in the magnetic susceptibility of subsoils and topsoils occur naturally, but greater enhanced susceptibility can also be a product of increased human/anthropogenic activity. This phenomenon of susceptibility enhancement can therefore be used to provide information about the "level of archaeological activity" associated with a site. It can also be used in a predictive manner to ascertain the suitability of a site for a magnetic survey. The instrument employed for measuring this phenomenon is either a field coil or a laboratory based susceptibility bridge. For the latter 50g soil samples are collected in the field.

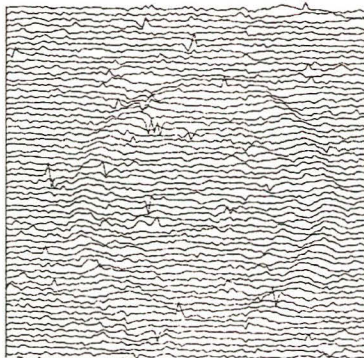
Display Options

The following is a description of the display options used. Unless specifically mentioned in the text, it may be assumed that no filtering or smoothing has been used to enhance the data. For any particular report a limited number of display modes may be used.

(a) Dot-Density



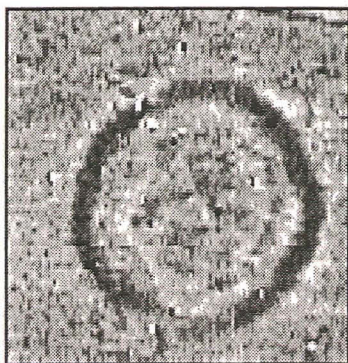
In this display, minimum and maximum cut-off levels are chosen. Any value that is below the minimum cut-off value will appear white, whilst any value above the maximum cut-off value will appear black. Any value that lies between these two cut-off levels will have a specified number of dots depending on the relative position between the two levels. The focus of the display may be changed using different levels and a contrast factor (C.F.). Usually the C.F. = 1, producing a linear scale between the cut-off levels. Assessing a lower than normal reading involves the use of an inverse plot. This plot simply reverses the minimum and maximum values, resulting in the lower values being presented by more dots. In either representation, each reading is allocated a unique area dependent on its position on the survey grid, within which numbers of dots are randomly placed. The main limitation of this display method is that multiple plots have to be produced in order to view the whole range of the data. It is also difficult to gauge the true strength of any anomaly without looking at the raw data values. This display is much favoured for producing plans of sites, where positioning of the anomalies and features is important.



(b) X-Y Plot

This involves a line representation of the data. Each successive row of data is equally incremented in the Y axis, to produce a stacked profile effect. This display may incorporate a hidden-line removal algorithm, which blocks out lines behind the major peaks and can aid interpretation. Advantages of this type of display are that it allows the full range of the data to be viewed and shows the shape of the individual anomalies. Results are produced on a flatbed plotter.

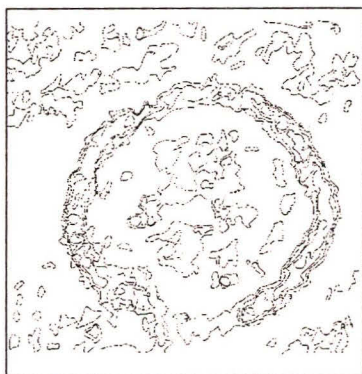
Display Options cont'd



(c) Grey-Scale

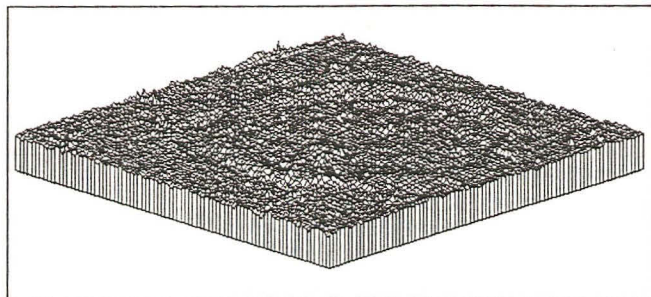
This format divides a given range of readings into a set number of classes. These classes have a predefined arrangement of dots or shade of grey, the intensity increasing with value. This gives an appearance of a toned or grey scale.

Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. While colour plots can look impressive and can be used to highlight certain anomalies, grey-scales tend to be more informative.



(d) Contour

This display format is commonly used in cartographic displays. Data points of equal value are joined by a contour line. Closely packed contours indicate a sharp gradient. The contours therefore highlight an anomalous region. The range of contours and contour interval are selected manually and the display is then generated on the computer screen or plotted directly on a flat bed plotter / inkjet printer.



(e) 3-D Mesh

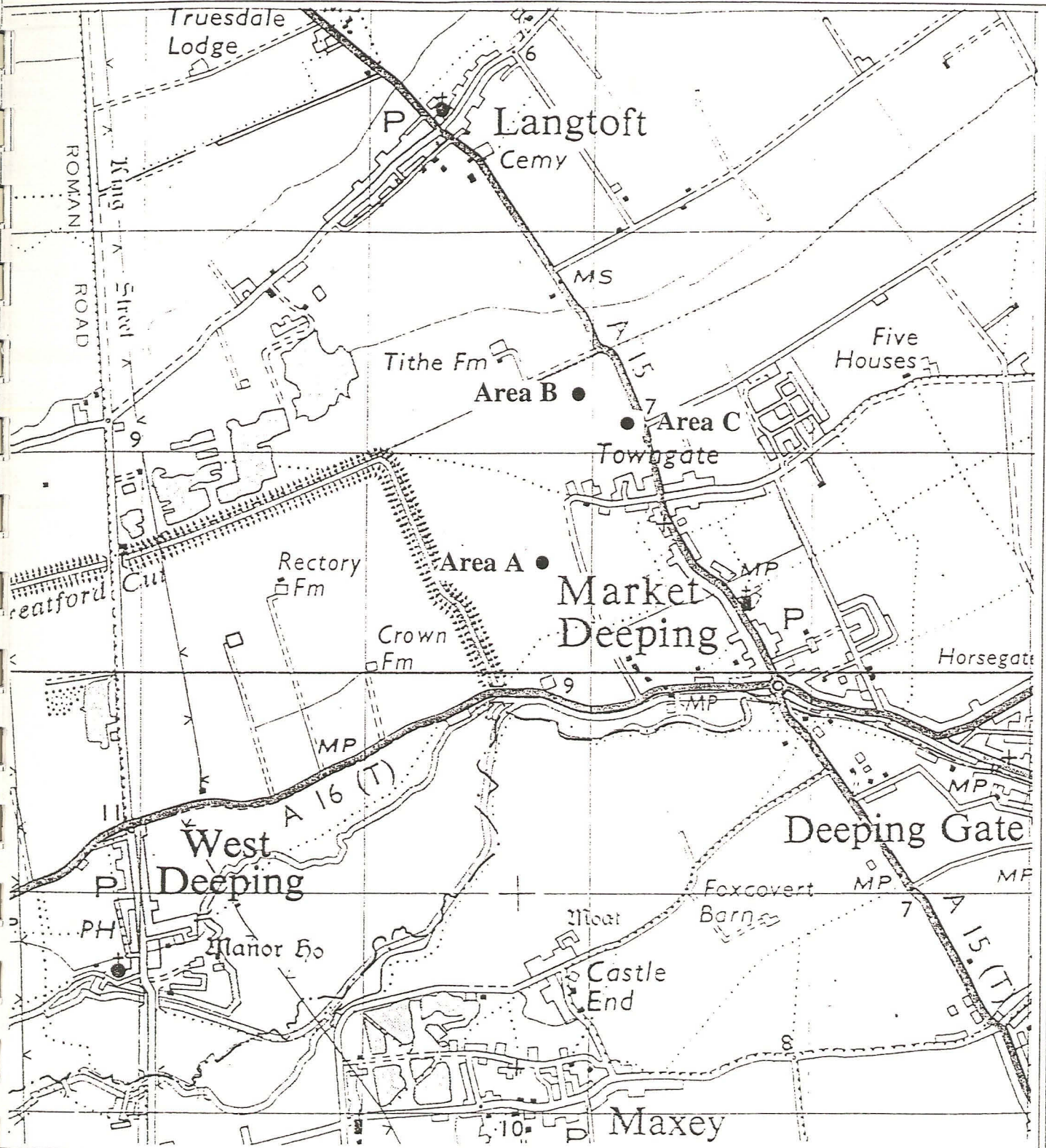
This display joins the data values in both the X and Y axis. The display may be changed by altering the horizontal viewing angle and the angle above the plane. The output may be either colour or black and white. A hidden line option is occasionally used (see (b) above).

LIST OF FIGURES

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MARKET DEEPING BYPASS

Location of Survey Areas



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SURVEY MAP WITH THE PERMISSION
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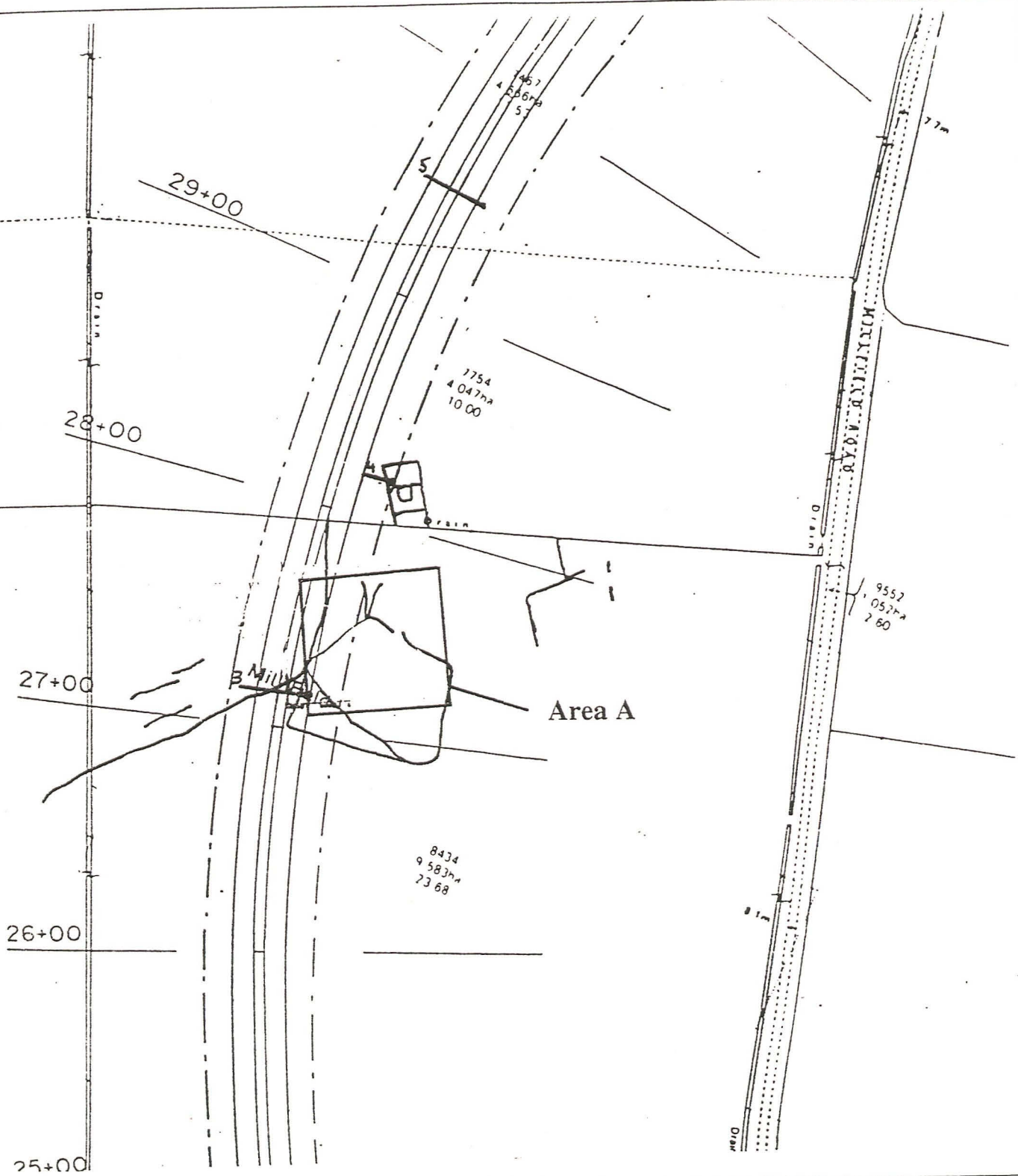


1:25000

Figure 1

MARKET DEEPING BYPASS

Location of Area A

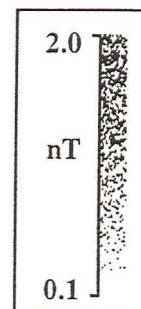
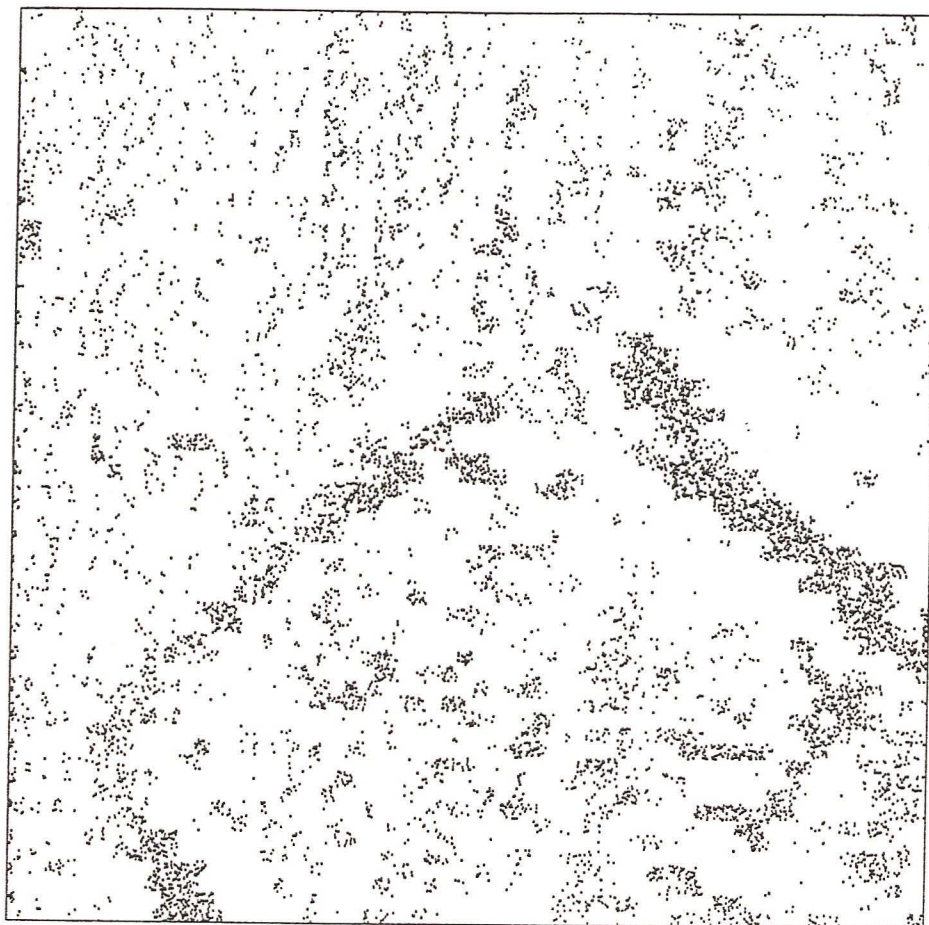


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1:2500

Figure A.1



Market Deeping Area A

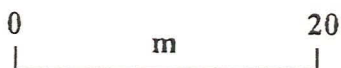
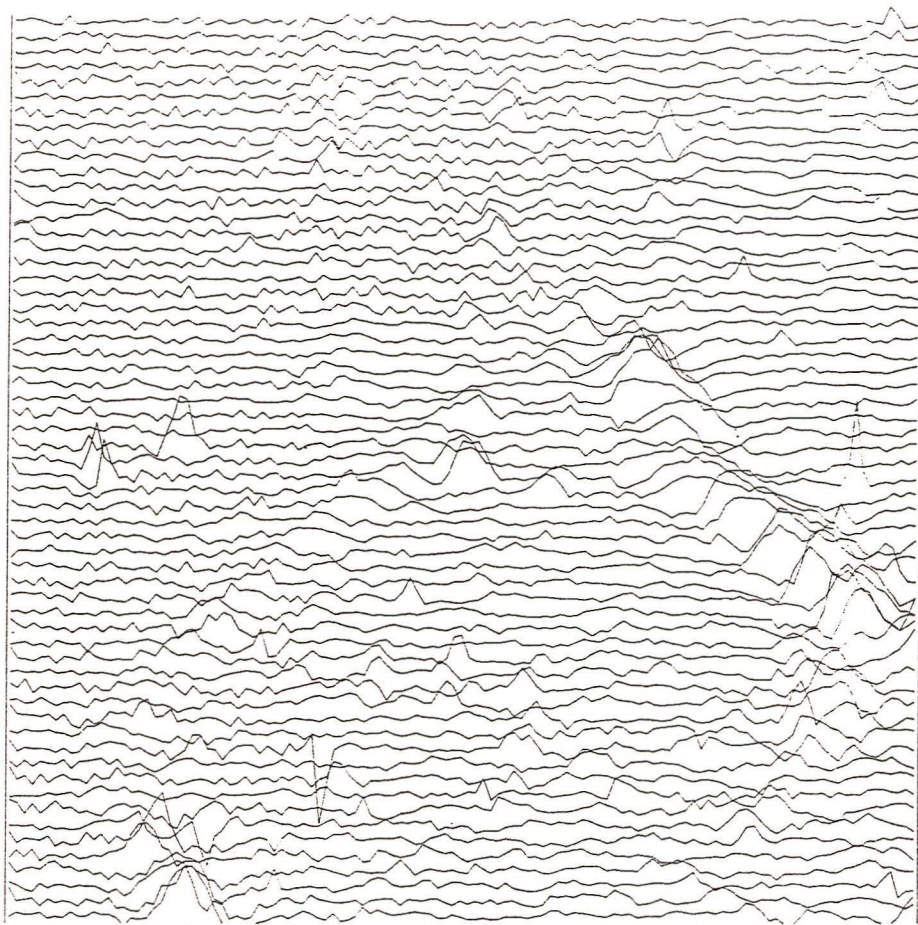


Figure A.2



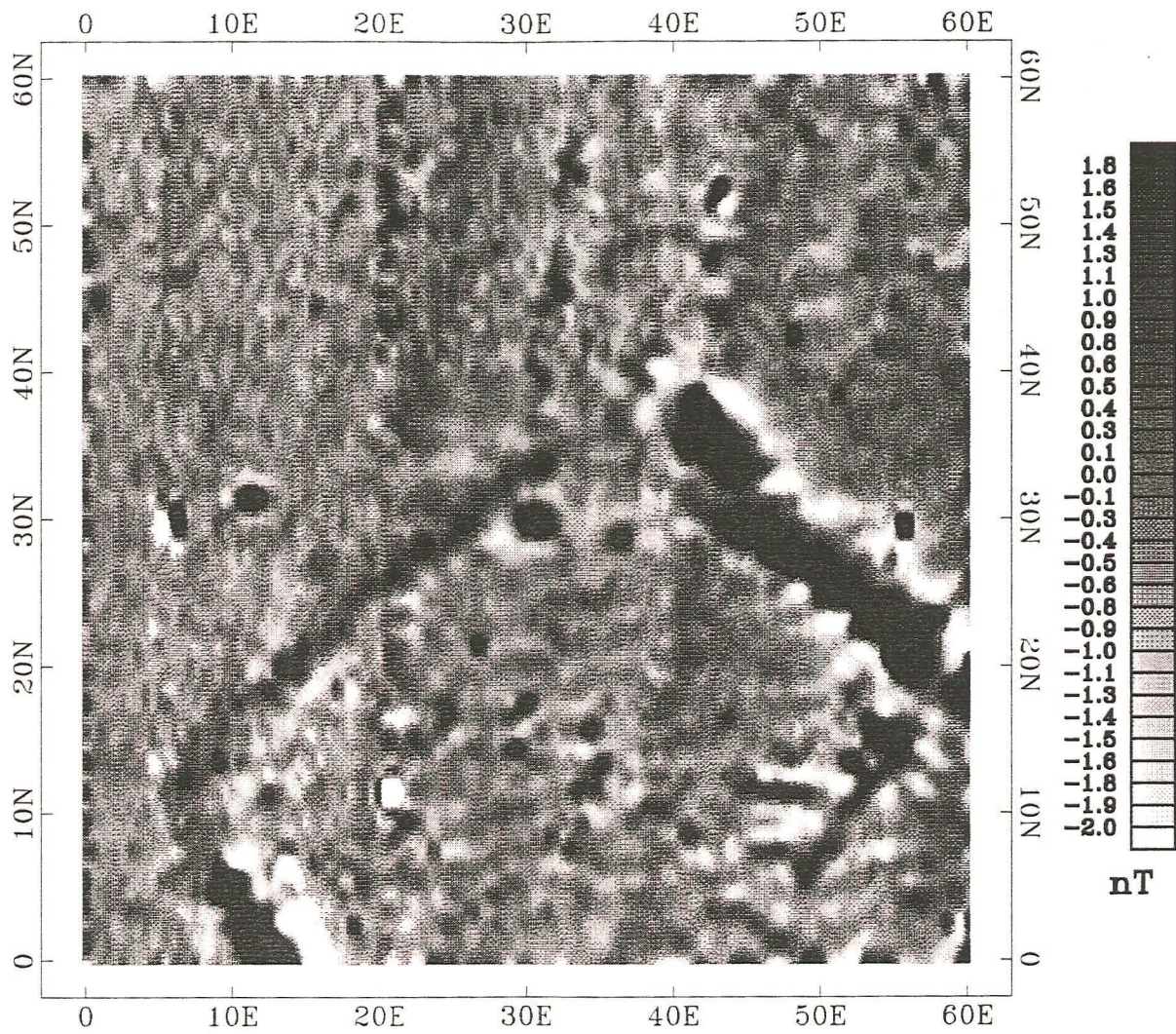
15 nT

Market Deeping Area A



0 m 20

Figure A.3

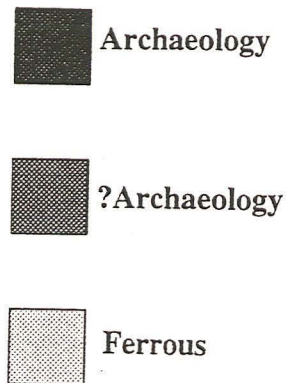


Market Deeping

Area A



Figure A.4



Market Deeping Area A

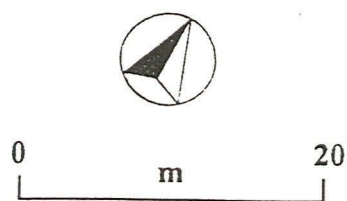
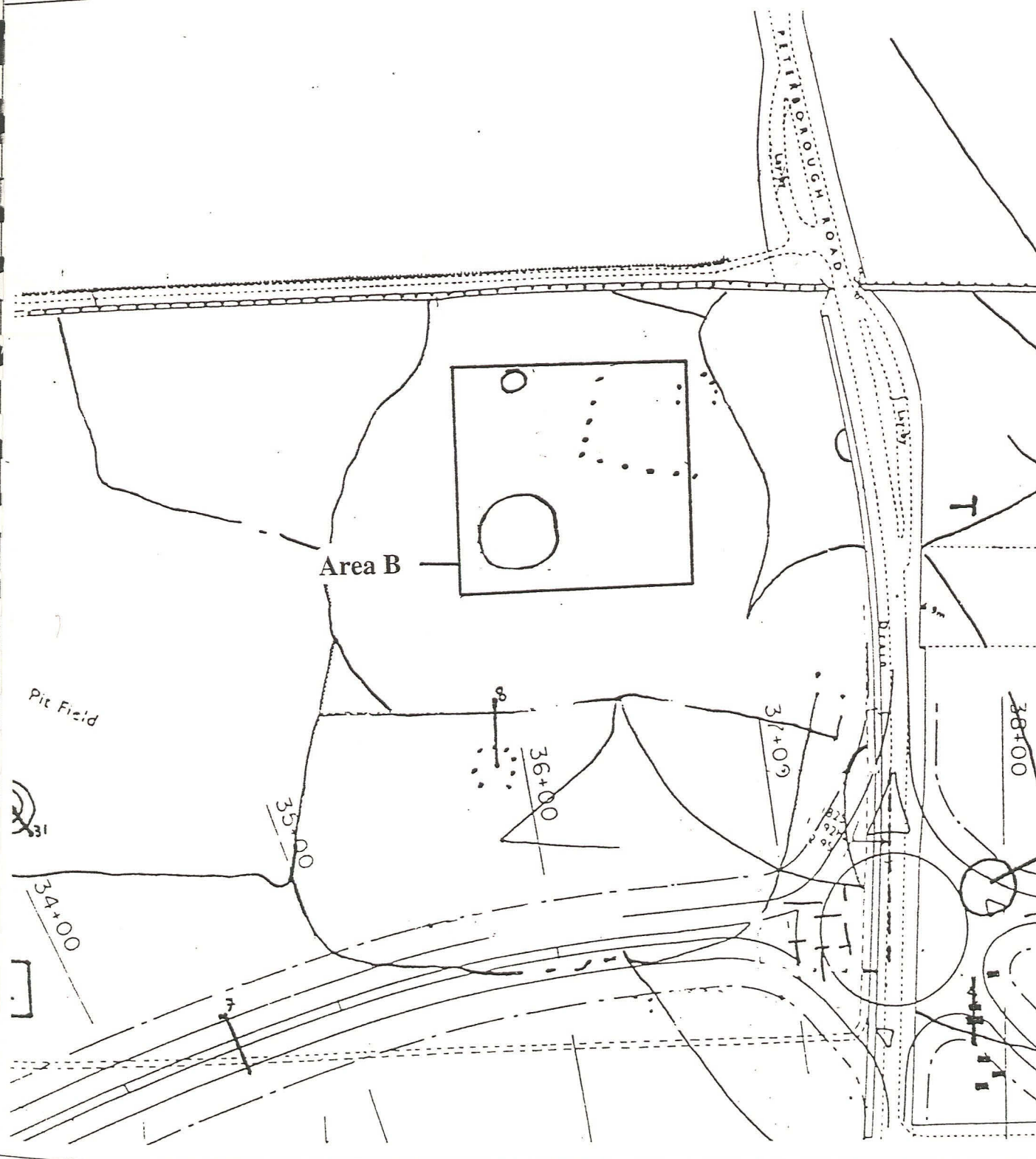


Figure A.5

MARKET DEEPING BYPASS

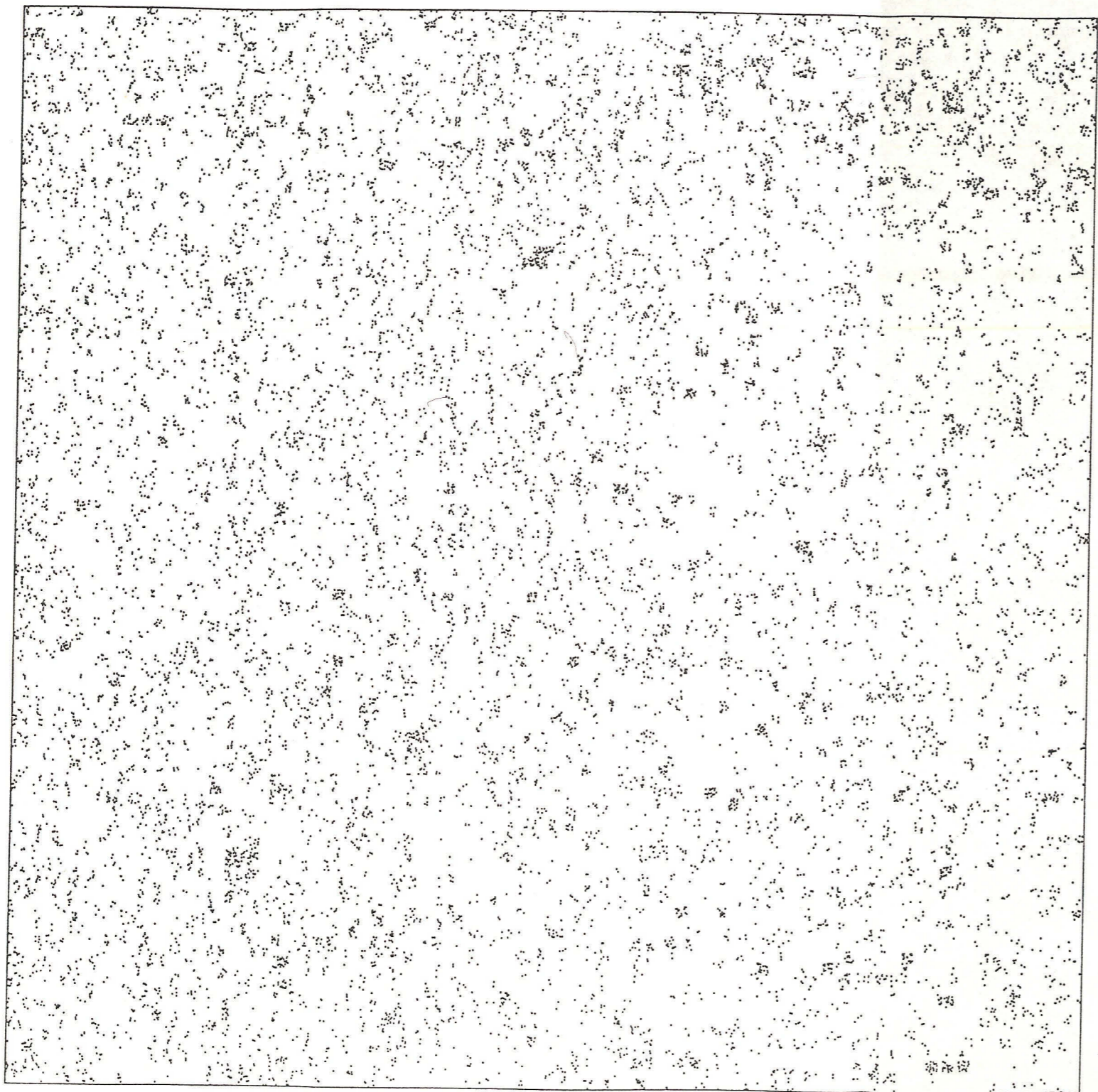
Location of Area B



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Figure B.1



Market Deeping Area B

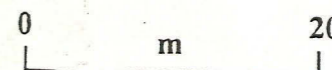
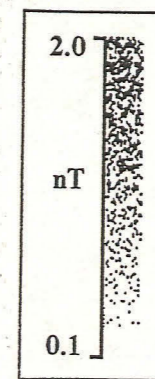
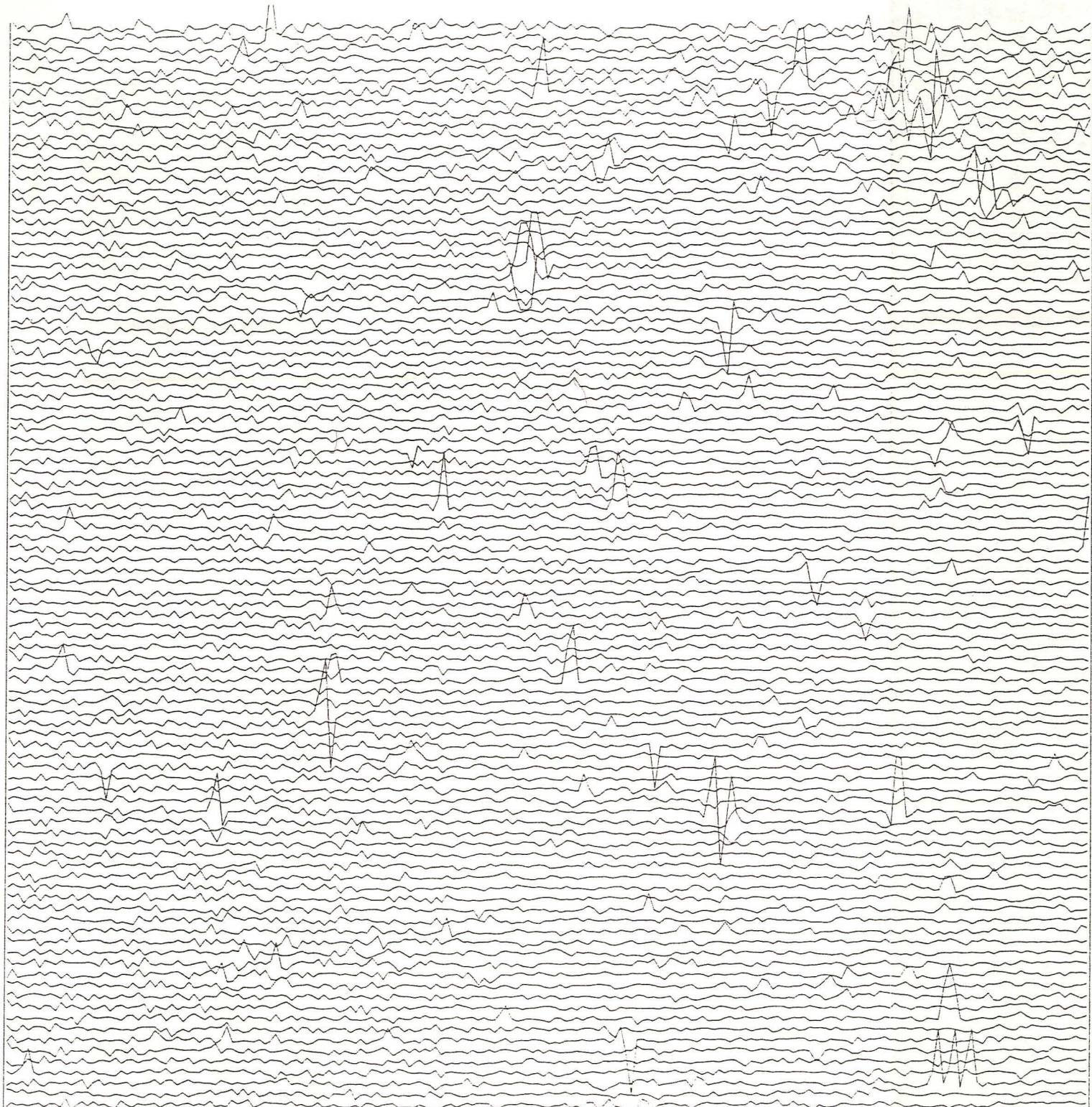


Figure B.2



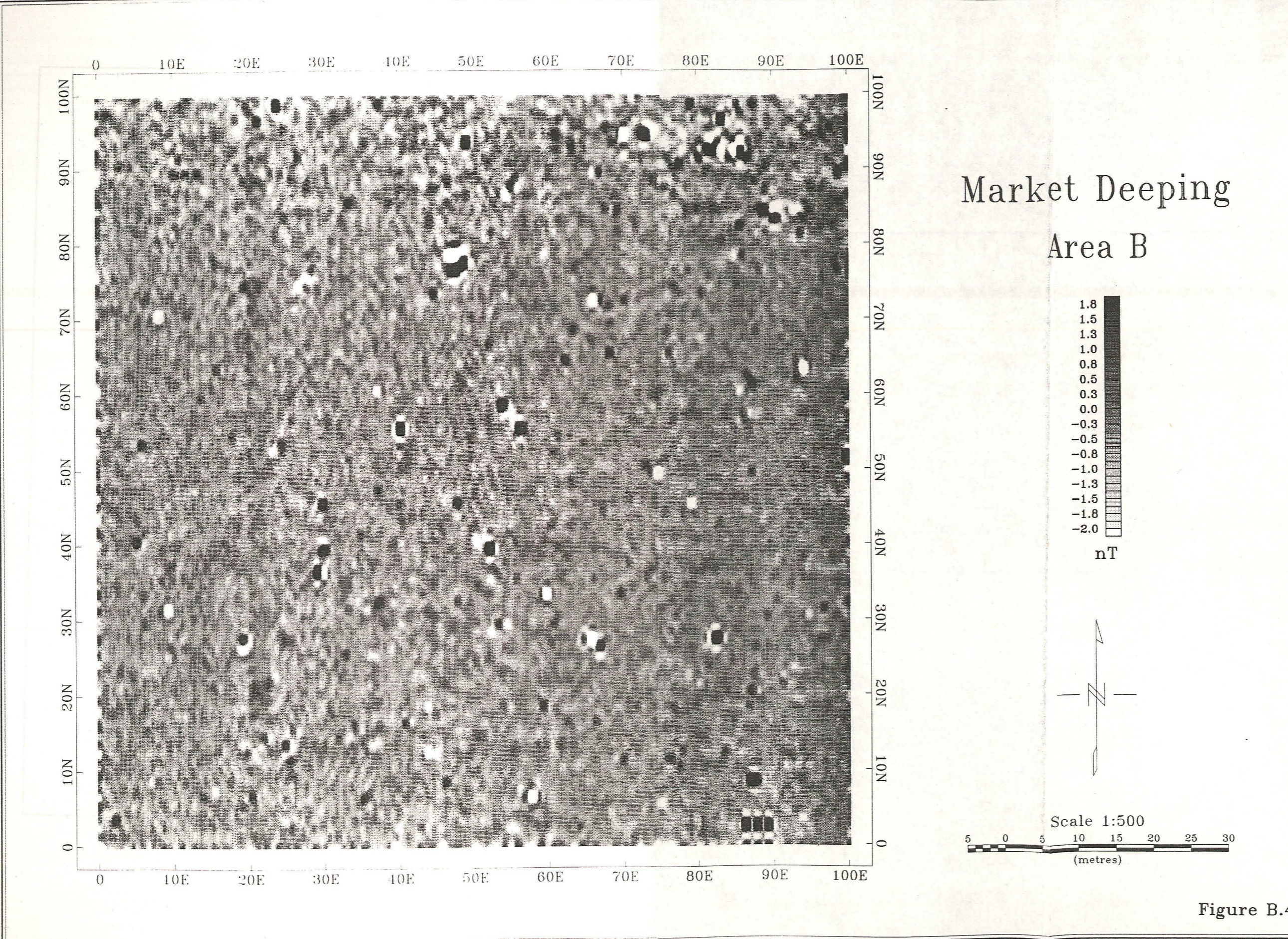
Market Deeping Area B

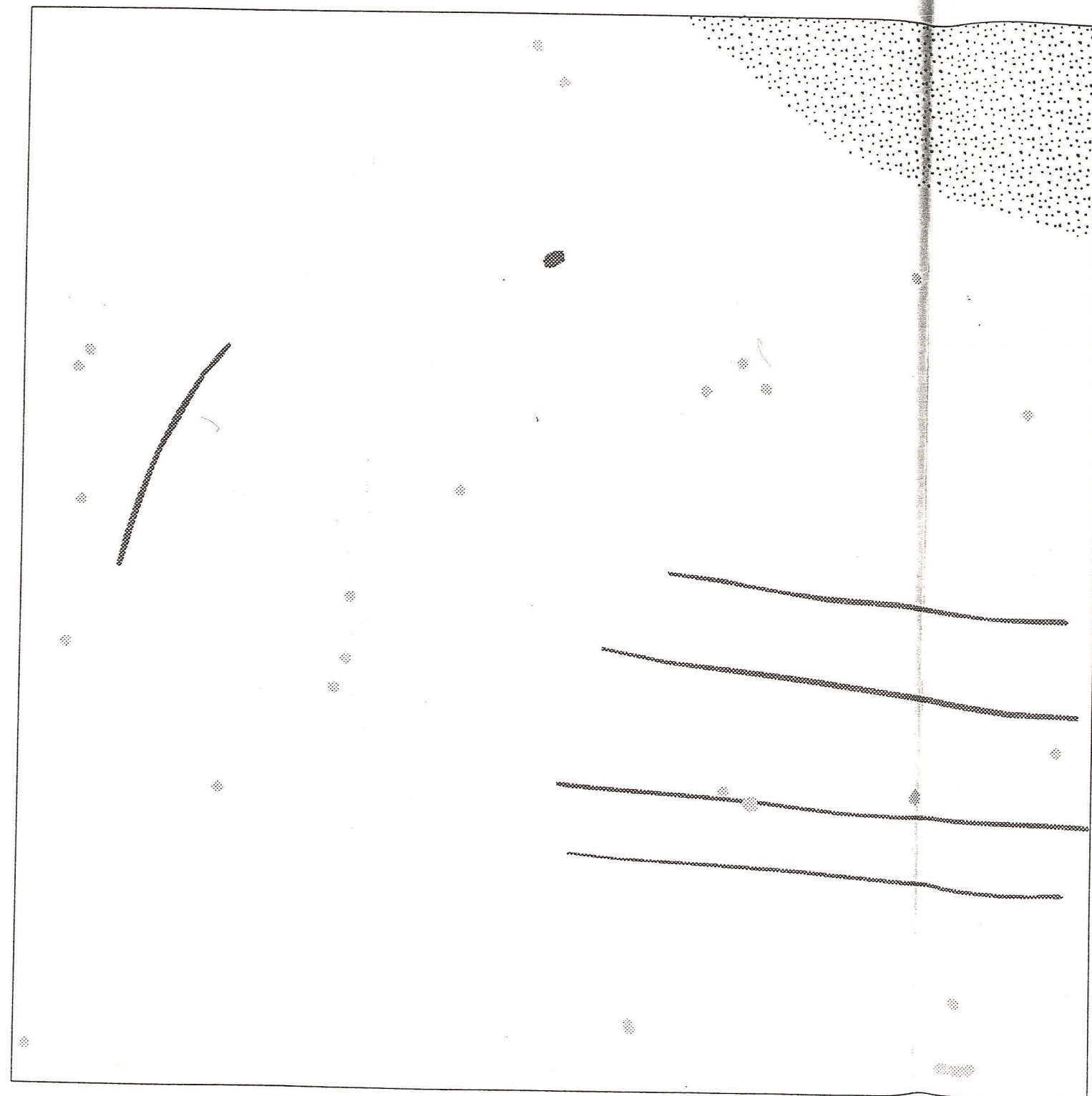
15 nT






0 m 20

Figure B.3





Market Deeping Area B

-  ?Archaeology
-  Area of Disturbance
-  Ferrous

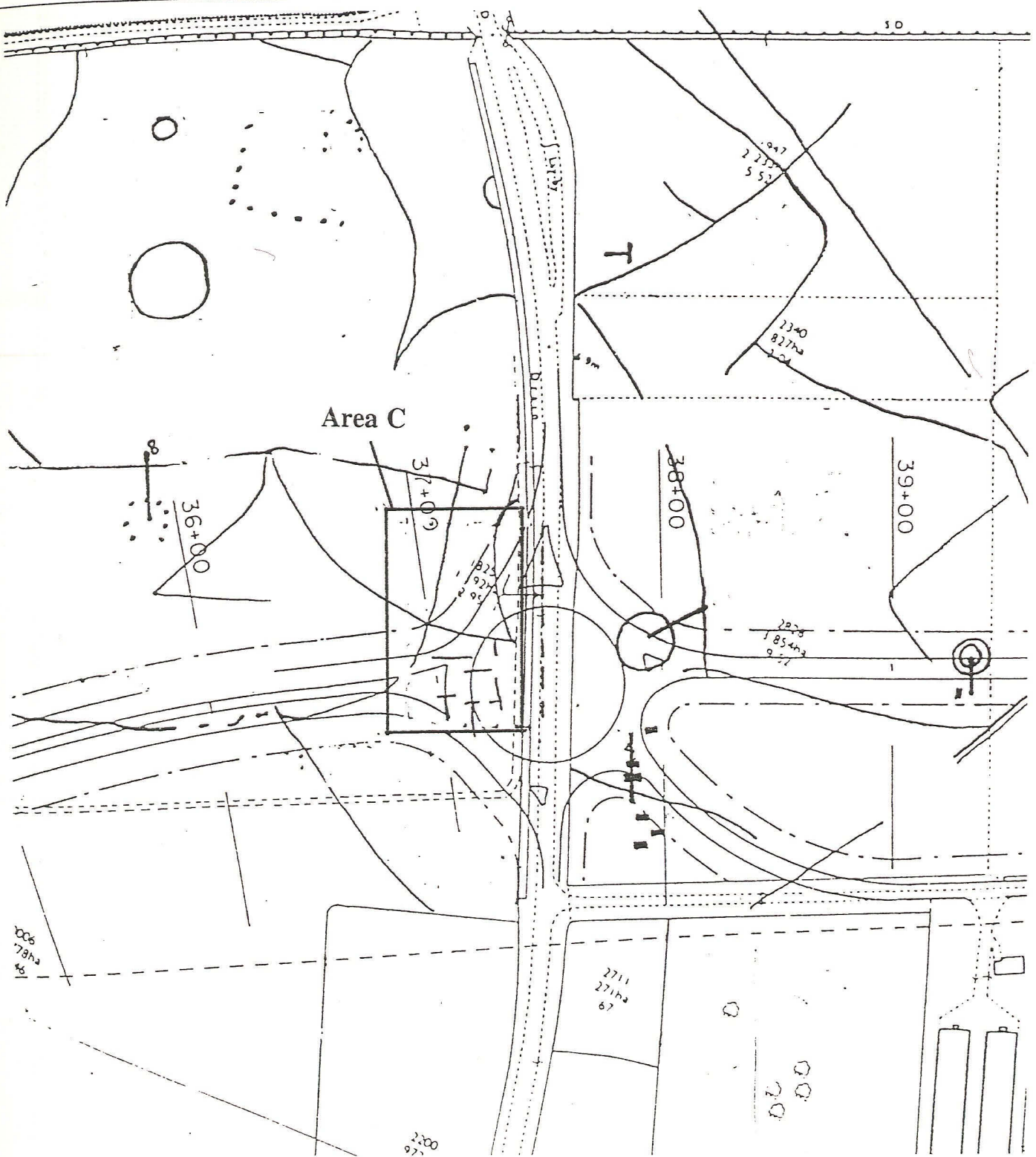


0 m 20

Figure B.5

MARKET DEEPING BYPASS

Location of Area C

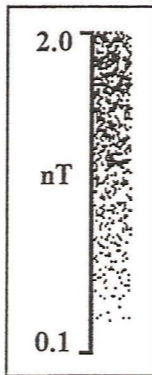
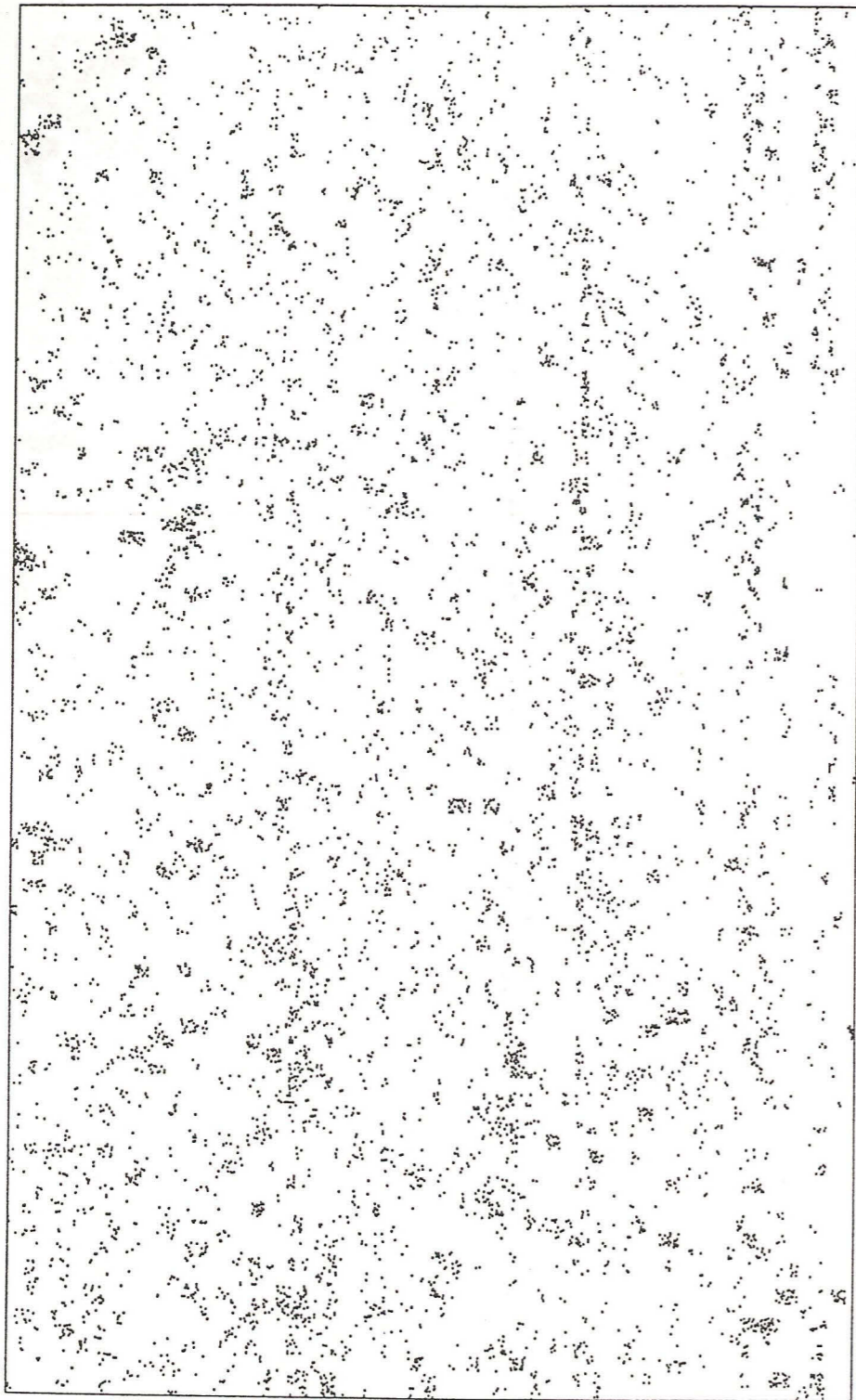


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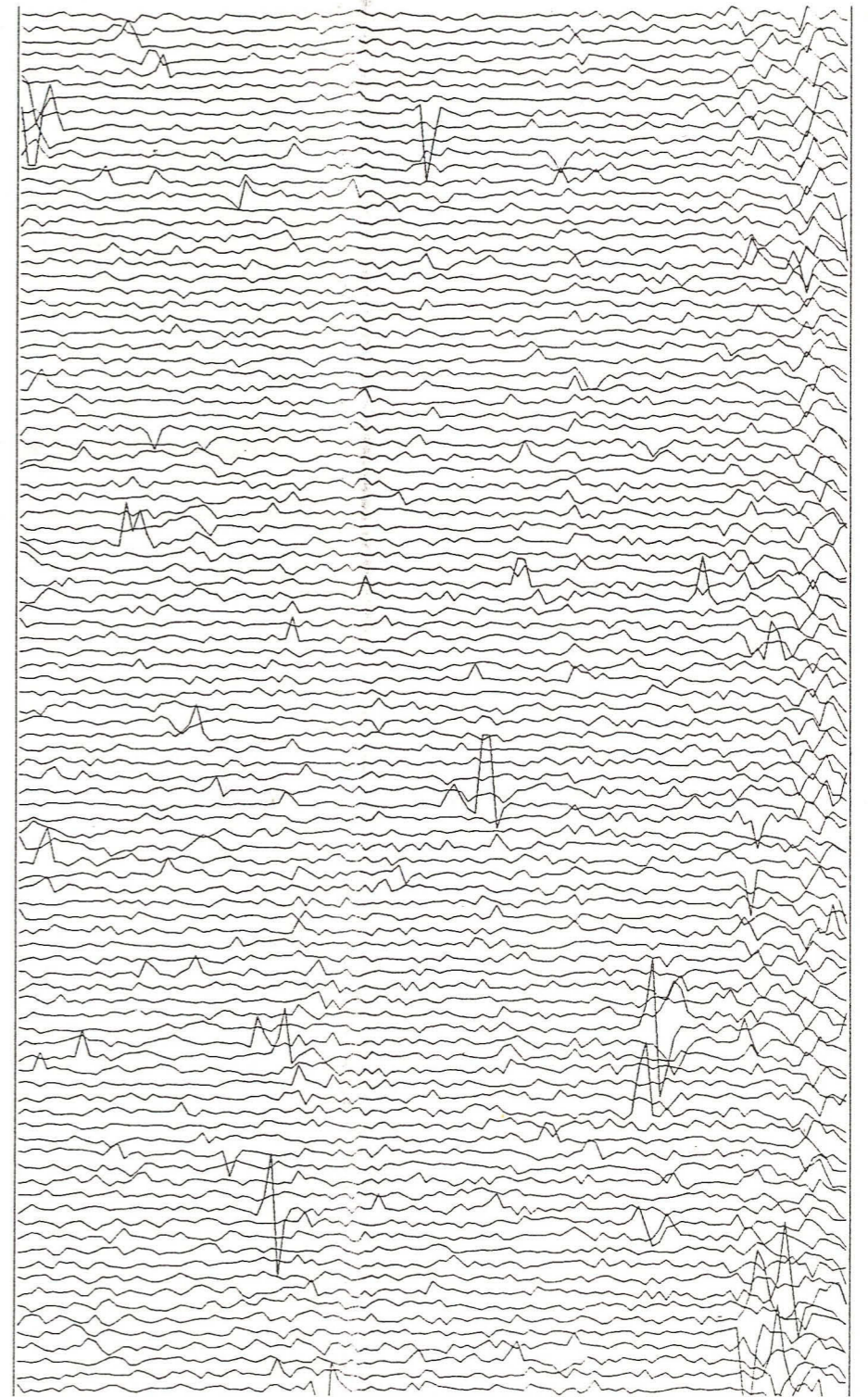


1:2500

Figure C.1



15 nT

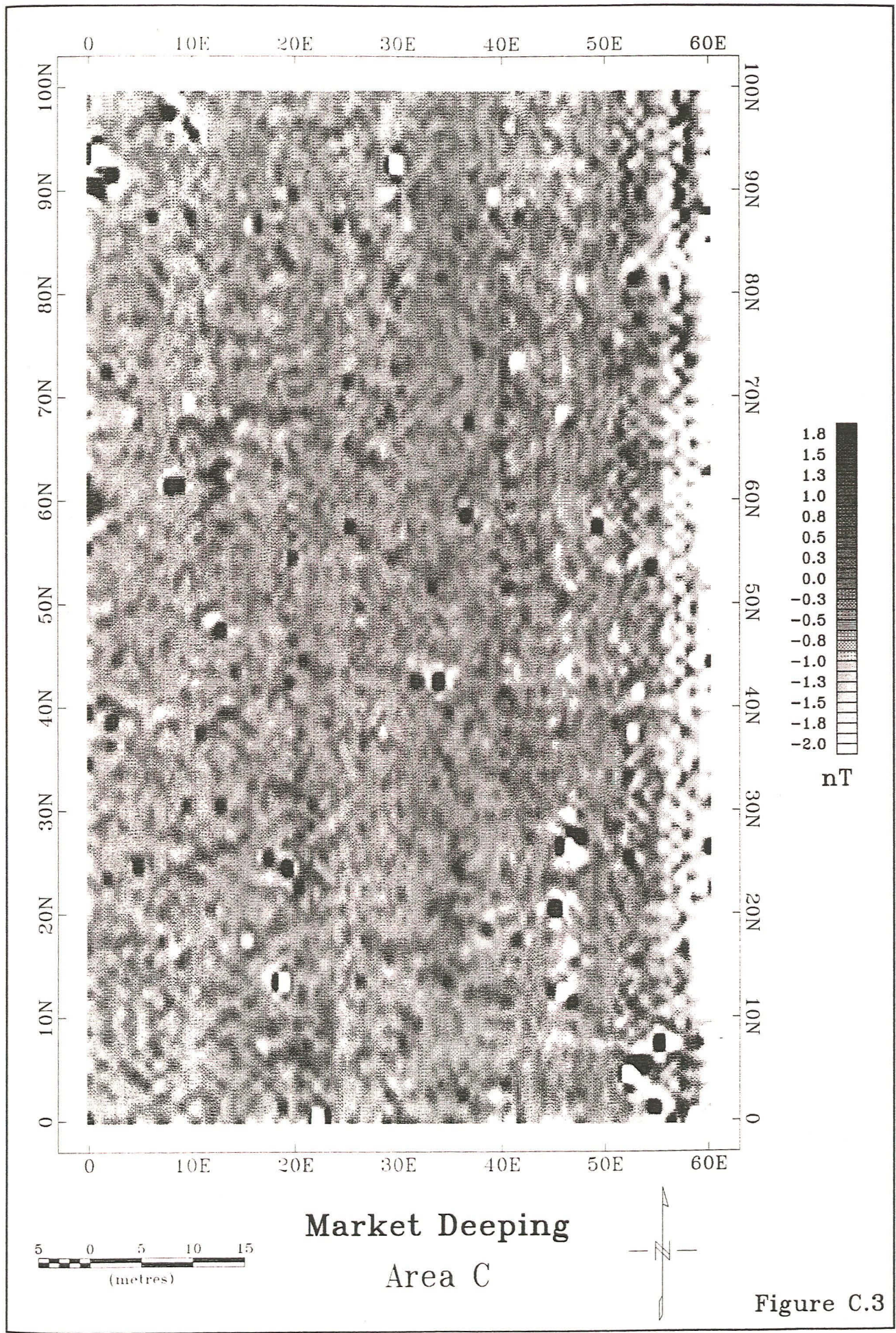


0 m 20

Market Deeping Area C

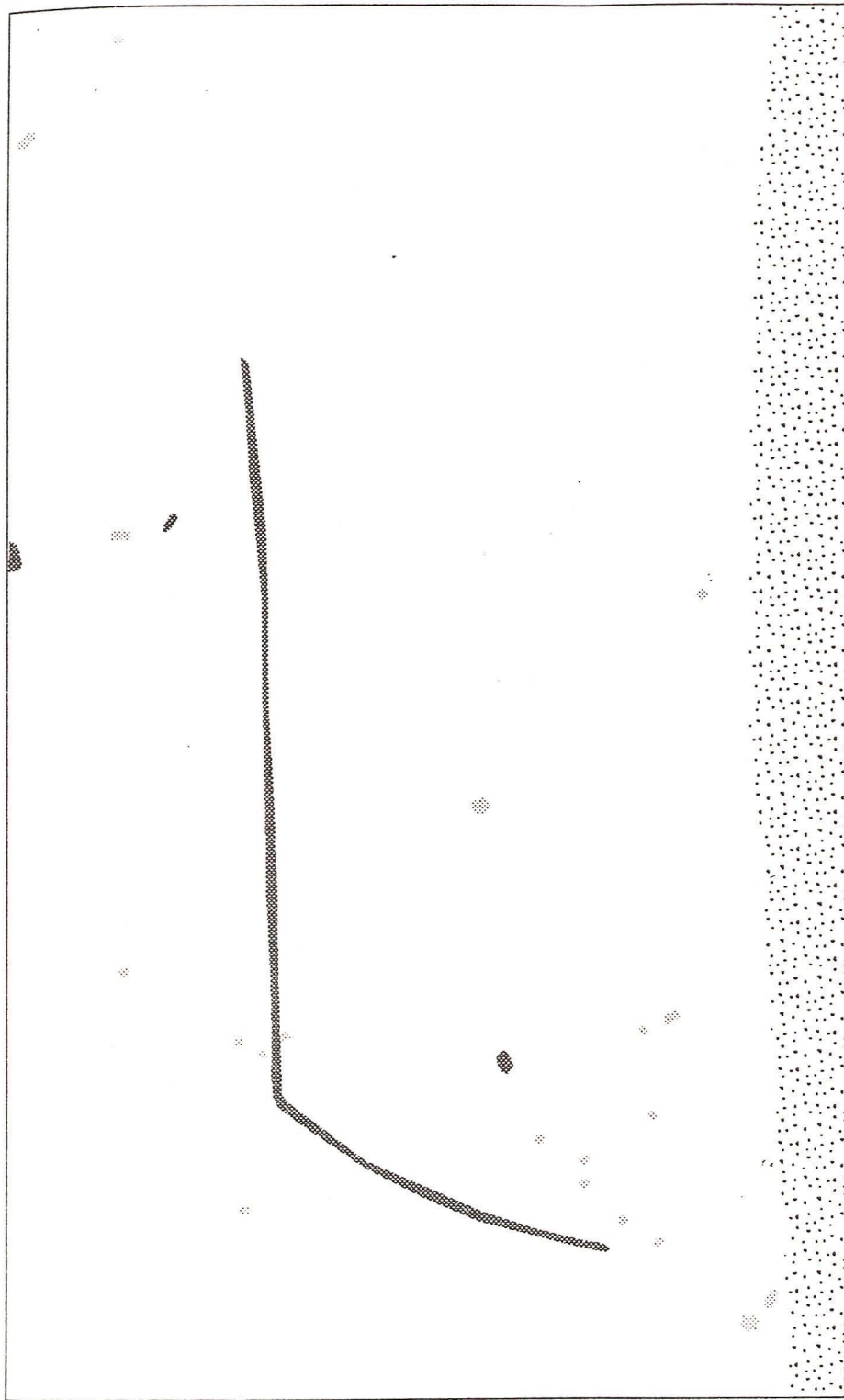





Figure C.2



Market Deeping
Area C

Figure C.3



-  ?Archaeology
-  Gallop
-  Ferrous

Market Deeping Area C



0 m 20

Figure C.4

APPENDIX 7

**CATALOGUE OF FINDS FROM THE
FIELDWALKING CONDUCTED AS PART OF THE
EVALAUTION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

THE FIELDWALKING FINDS

Hilary Healey

Field 2

1. Pot, Bourne D ware, Post-med.
2. Pot, Bourne D ware, Post-med
3. Pot, modern.
4. Pot, Midlands Purple, modern.
5. Discarded.
6. Pot, Bourne D ware, Post-med.
7. Tile/brick.
8. Pot, Glazed red earthenware, Post-med.
9. Pot, Bourne D ware, Post-med.
10. Pot, Bourne D ware, Post-med.
11. Pot, medieval.
12. Pot, Grey ware, Roman.
13. Pot, medieval.
14. Pot, Midlands Purple, Modern.
15. Pot, medieval.
16. Pot, Bourne D ware, Post-med.
17. Pot, modern.
18. Tile/brick.
19. Pot, Bourne D ware, Post-med.
20. Pot, Bourne B ware, medieval.
21. Pot, Midlands Purple, modern.
22. Pot, Bourne B ware, medieval.
23. Flint.
24. Pot, Glazed red earthenware, Post-med.
25. Pot, Bourne B ware, medieval.
26. Pot, Bourne D ware, Post-med.
27. Pot, Shell-gritted, Roman.
28. Pot, Shell-gritted, Roman.
29. Pot, White ware, Roman.
30. Pot, Bourne D ware, Post-med.
31. Pot, medieval.
32. Discarded
33. Pot, Bourne D ware, Post-med.
34. Pot, Bourne D ware, Post-med.
35. Pot, Bourne D ware, Post-med.
36. Pot, Bourne D ware, Post-med.
37. Pot, Bourne D ware, Post-med.
38. Pot, Bourne D ware, Post-med.
39. Pot, Bourne D ware, Post-med.
40. Pot, Midlands Purple, modern.
41. Pot, Bourne D ware, Post-med.
42. Pot, Bourne D ware, Post-med.
43. Pot, Bourne D ware, Post-med.
44. Discarded.
45. Pot, Midlands Purple, modern.
46. Pot, modern.
47. Pot, Bourne D ware, Post-med.
48. Pot, Midlands Purple, modern.
49. Tile/brick.
50. Pot, Shell-gritted, Roman.
51. Pot, Grey ware, Roman.
52. Pot, Bourne D ware, Post-med.
53. Pot, Bourne D ware, Post-med.
54. Pot, Bourne D ware, Post-med.
55. Pot, Bourne B ware, medieval.
56. Pot, Grey ware?, Roman.
57. Pot, Grey ware?, Roman.
58. Pot, Grey ware, Roman.
59. Tile/brick.
60. Pot, Glazed red earthenware, Post-med.
61. Pot, Grey ware, Roman.
62. Pot, Grey ware?, Roman.
63. Pot, Midlands Purple, modern.
64. Pot, modern.
65. Pot, Nottingham type, medieval.
66. Pot, Grey ware, Roman.
67. Pot, Bourne D ware, Post-med.
68. Pot, Shell-gritted, Roman.
69. Pot, Grey ware, Roman.
70. Pot, Midlands Purple, modern.
71. Pot, Bourne B ware, medieval.
72. Pot, Bourne D ware, Post-med.
73. Pot, Bourne B ware, medieval.
74. Tile/brick.
75. Pot, Bourne D ware, Post-med.
76. Flint.
77. Tile/brick.
78. Pot, Bourne D ware, Post-med.
79. Discarded.
80. Pot, Bourne D ware, Post-med.
81. Pot, Glazed red earthenware, Post-med.
82. Pot, Black ware, Roman.
83. Pot, Bourne B ware, medieval.
84. Pot, Bourne D ware, Post-med.
85. Pot, Bourne D ware, Post-med.
86. Pot, Midlands Purple, modern.
87. Pot, Midlands Purple, modern.
88. Flint.
89. Pot, Midlands Purple, modern.
90. Pot, Glazed red earthenware, Post-med.
91. Pot, Bourne B ware, medieval.
92. Pot, Bourne D ware, Post-med.
93. Pot, Midlands Purple, modern.
94. Pot, Bourne D ware, Post-med.

95. Pot, Glazed red earthenware, Post-med.
96. Clay pipe.
97. Pot, Glazed red earthenware, Post-med.
98. Pot, Glazed red earthenware, Post-med.
99. Pot, Bartman ware, Post-med.
100. Pot, Bourne D ware, Post-med.
101. Pot, Midlands Purple, modern.
102. Pot, Midlands Purple, modern.
103. Pot, Midlands Purple, modern.
104. Pot, Post-med.
105. Glass bead, undated.
106. Pot, Glazed red earthenware, Post-med.
107. Pot, Shell-gritted, Roman.
108. Pot, Glazed red earthenware, Post-med.
109. Pot, Bourne D ware, Post-med.
110. Pot, Bourne D ware, Post-med.
111. Pot, Bourne B ware, Post-med.
112. Pot, Glazed red earthenware, Post-med.
113. Pot, Midlands Purple, modern.
114. Tile, Roman.
115. Pot, Glazed red earthenware, Post-med.
116. Pot, Grey ware, Roman.
117. Flint.
118. Pot, Bourne D ware, Post-med.
119. Pot, Glazed red earthenware, Post-med.
120. Pot, Bourne B ware, medieval.
121. Pot, Bourne D ware, Post-med.
122. Discarded.
123. Pot, Bourne D ware, Post-med.
124. Pot, medieval.
125. Pot, Bourne D ware, Post-med.
126. Tile, medieval.
127. Pot, Bourne D ware, Post-med.
128. Pot, Midlands Purple, modern.
129. Pot, Glazed red earthenware.
130. Flint.
131. Pot, Roman.
132. Pot, Bourne B ware, medieval.
133. Pot, Glazed red earthenware, Post-med.
134. Glass, modern.
135. Pot, Bourne B ware, medieval.
136. Pot, Shell-gritted, Roman.
137. Pot, Northants type, medieval.
138. Pot, medieval.
139. Pot, Shell-gritted, Roman.
140. Pot, Glazed red earthenware, Post-med.
141. Pot, Shell-gritted, Roman.
142. Pot, Glazed red earthenware, Post-med.
143. Pot, Midlands Purple, modern.
144. Pot, Midlands Purple, modern.
145. Pot, Bourne D ware, Post-med.
146. Pot, stamford ware, Late Saxon.
147. Tile/brick.
148. Discarded.
149. Tile/brick.
150. Pot, Bourne D ware, Post-med.
151. Pot, Midlands Purple, modern.
152. Clay pipe.
153. Pot, Grey ware?, Roman.
154. Pot, Midlands Purple, modern.
155. Pot, Bourne D ware, Post-med.
156. Pot, modern.
157. Pot, Midlands Purple, modern.
158. Tile/brick.
159. Pot, Shell-gritted, Roman.
160. Discarded.
161. Pot, Midlands Purple, modern.
162. Tile/brick.
163. Discarded.
164. Pot, Staffs, modern.
165. Pot, Bourne B ware, medieval.
166. Pot, Shell-gritted, Roman.
167. Clinker.
168. Discarded.
169. Pot, Glazed red earthenware, Post-med.
170. Pot, Roman.
171. Pot, Bourne D ware, Post-med.
172. Discarded.
173. Pot, Bourne D ware, Post-med.
174. Pot, Midlands Purple, modern.
175. Pot, modern.
176. Pot, Bourne D ware, Post-med.
177. Pot, Bourne B ware, medieval.
178. Discarded.
179. Slag.
180. Pot, Glazed red earthenware, Post-med.
181. Pot, Bourne D ware, Post-med.
182. Pot, Bourne D ware, Post-med.
183. Glass, modern.
184. Pot, Midlands Purple, modern.
185. Discarded.
186. Pot, Midlands Purple, modern.
187. Pot, Grey ware, Roman.
188. Pot, Samian ware, Roman.
189. Pot, medieval.
190. Pot, Scored shelly ware, Roman.
191. Pot, Bourne B ware, medieval.
192. Pot, Bourne D ware, Post-med.
193. Pot, Glazed red earthenware, Post-med.
194. Pot, Bourne D ware, Post-med.
195. Bone.
196. Pot, Grey ware, Roman.
197. Pot, Bourne D ware, Post-med.
198. Pot, modern.
199. Pot, Bourne D ware, Post-med.
200. Pot, Glazed red earthenware, Post-med.

201. Pot, Glazed red earthenware, Post-med.
202. Pot, Bourne D ware, Post-med.
203. Pot, Bourne D ware, Post-med.
204. Pot, modern.
205. Flint.
206. Pot, Staffs, modern.
207. Pot, Glazed red earthenware, Post-med.
208. Pot, modern.
209. Pot, Bourne D ware, Post-med.
210. Pot, mortaria, Roman.
211. Pot, Bourne D ware, Post-med.
212. Clay pipe.
213. Tile/brick.
214. Discarded.
215. Clay pipe.
216. Pot, Bourne D ware, Post-med.
217. Discarded.
218. Pot, Bourne D ware, Post-med.
219. Tile/brick.
220. Pot, Bourne D ware, Post-med.
221. Pot, Midlands Purple, modern.
222. Pot, Bourne B ware, medieval.
223. Pot, Bourne D ware, Post-med.
224. Pot, Glazed red earthenware, Post-med.
225. Pot, Glazed red earthenware, Post-med.
226. Tile/brick.
227. Pot, Glazed red earthenware, Post-med.
228. Pot, Midlands Purple, modern.
229. Pot, Midlands Purple, modern.
230. Pot, Grey ware?, Roman.
231. Pot, Midlands Purple, modern.
232. Pot, Bourne B ware, medieval.
233. Pot, Glazed red earthenware, Post-med.
234. Tile/brick.
235. Pot, Bourne B ware, medieval.
236. Pot, Bourne D ware, Post-med.
237. Tile/brick.
238. Tile/brick.
239. Pot, Midlands Purple, modern.
240. Pot, Bourne B ware, medieval.
241. Pot, Midlands Purple, modern.
242. Pot, Glazed red earthenware, Post-med.
243. Pot, Grey ware, Roman.
244. Flint.
245. Pot, Grey ware, Roman.
246. Pot, Grey ware, Roman.
247. Pot, Midlands Purple, modern.
248. Glass, modern.
249. Glass, modern.
250. Tile, Roman.
251. Pot, Bourne D ware, Post-med.
252. Pot, Shell-gritted, Roman.
253. Pot, Raeren, Post-med.
254. Tile/brick.
255. Pot, Grey ware, Roman.
256. Glass, modern.
257. Pot, Glazed red earthenware, Post-med.
258. Pot, medieval.
259. Pot, Bourne B ware, medieval.
260. Pot, Midlands Purple, modern.
261. Pot, Midlands Purple, modern.
262. Tile/brick.
263. Pot, Glazed red earthenware, Post-med.
264. Pot, Bourne D ware, Post-med.
265. Pot, Bourne B ware, medieval.
266. Pot, Glazed red earthenware, Post-med.
267. Pot, Glazed red earthenware, Post-med.
268. Tile/brick.
269. Pot, Midlands Purple, modern.
270. Pot, Colour coated, Roman.
271. Pot, Glazed red earthenware, Post-med.
272. Pot, Midlands Purple, modern.
273. Pot, Glazed red earthenware, Post-med.
274. Pot, Glazed red earthenware, Post-med.
275. Tile/brick.
276. Pot, Midlands Purple, modern.
277. Pot, Midlands Purple, modern.
278. Pot, Bourne B ware, medieval.
279. Bone.
280. Bone.
281. Discarded.
282. Tile/brick.
283. Pot, medieval.
284. Pot, modern.
285. Pot, Bourne D ware, Post-med.
286. Tile/brick.
287. Pot, Glazed red earthenware, Post-med.
288. Pot, Glazed red earthenware, Post-med.
289. Pot, Midlands Purple, modern.
290. Pot, Bourne D ware, Post-med.
291. Pot, Bourne D ware, Post-med.
292. Pot, Glazed red earthenware, Post-med.
293. Pot, Grey ware, Roman.
294. Tile/brick.
295. Pot, Midlands Purple, modern.
296. Tile/brick.
297. Pot, Glazed red earthenware, Post-med.
298. Pot, Bourne D ware, Post-med.
299. Clay pipe.
300. Pot, Glazed red earthenware, Post-med.
301. Pot, Grey ware, Roman.
302. Pot, Shell-gritted, Roman.
303. Pot, Grey ware, Roman.
304. Pot, Bourne D ware, Post-med.
305. Pot, Glazed red earthenware, Post-

- med.
306. Pot, Grey ware, Roman.
307. Pot, Bourne D ware, Post-med.
308. Tile/brick.
309. Pot, Bourne D ware, Post-med.
310. Pot, Bourne D ware, Post-med.
311. Pot, Bourne D ware, Post-med.
312. Pot, Glazed red earthenware, Post-med.
313. Pot, Glazed red earthenware, Post-med.
314. Tile/brick.
315. Pot, Bourne D ware, Post-med.
316. Discarded.
317. Flint.
318. Glass, modern.
319. Pot, Glazed red earthenware, Post-med.
320. Pot, Bourne D ware, Post-med.
321. Pot, Bourne D ware, Post-med.
322. Pot, Bourne D ware, Post-med.
323. Pot, Midlands Purple, modern.
324. Clay pipe.
325. Discarded.
326. Tile/brick.
327. Pot, Midlands Purple, modern.
328. Cu alloy object.
329. Bone.
330. Pot, Bourne D ware, Post-med.
331. Pot, Glazed red earthenware, Post-med.
332. Pot, Bourne B ware, medieval.
333. Clay pipe.
334. Bone.
335. Pot, Midlands Purple, modern.
336. Pot, Glazed red earthenware, Post-med.
337. Pot, Bourne D ware, Post-med.
338. Discarded.
339. Discarded.
340. Pot, Midlands Purple, modern.
341. Pot, Roman.
342. Pot, Midlands Purple, modern.
343. Clay pipe.
344. Pot, Bourne D ware, Post-med.
345. Pot, Bourne D ware, Post-med.
346. Tile/brick.
347. Pot, Colour coated, Roman.
348. Pot, Grey ware, Roman.
349. Pot, Midlands Purple, modern.
350. Pot, Glazed red earthenware, Post-med.
351. Pot, Midlands Purple, modern.
352. Pot, Bourne D ware, Post-med.
353. Pot, Bourne D ware, Post-med.
354. Pot, Bourne D ware, Post-med.
355. Pot, Bourne D ware, Post-med.
356. Pot, Bourne D ware, Post-med.
357. Pot, Glazed red earthenware, Post-med.
358. Discarded.
359. Pot, Midlands Purple, modern.
360. Pot, Glazed red earthenware, Post-med.
361. Pot, Midlands Purple, modern.
362. Pot, Midlands Purple, modern.
363. Pot, modern.
364. Pot, Staffs, modern.
365. Clay pipe.
366. Pot, Midlands Purple, modern.
367. Pot, Midlands Purple, modern.
368. Tile/brick.
369. Pot, Bourne D ware, Post-med.
370. Pot, Bourne D ware, Post-med.
371. Pot, Bourne D ware, Post-med.
372. Pot, Midlands Purple, modern.
373. Pot, Stamford ware, Late Saxon.
374. Pot, Midlands Purple, modern.
375. Pot, Midlands Purple, modern.
376. Discarded.
377. Pot, Midlands Purple, modern.
378. Pot, Glazed red earthenware, Post-med.
379. Flint.
380. Pot, Bourne D ware, Post-med.
381. Pot, medieval.
382. Pot, Midlands Purple, modern.
383. Pot, Bourne B ware, medieval.
384. Pot, Bourne D ware, Post-med.
385. Pot, Bourne B ware, medieval.
386. Pot, Midlands Purple, modern.
387. Pot, Bourne D ware, Post-med.
388. Pot, Bourne D ware, Post-med.
389. Pot, Bourne D ware, Post-med.
390. Pot, Midlands Purple, modern.
391. Pot, Grey ware, Roman.
392. Pot, Cistercian ware, Post-med.
393. Pot, Grey ware, Roman.
394. Pot, Bourne B ware, medieval.
395. Pot, Midlands Purple, modern.
396. Pot, modern.
397. Pot, Bourne D ware, Post-med.
398. Pot, Grey ware, Roman.
399. Pot, Bourne B ware, medieval.
400. Pot, Midlands Purple, modern.
401. Pot, Midlands Purple, modern.
402. Pot, Bourne D ware, Post-med.
403. Pot, Midlands Purple, modern.
404. Tile/brick.
405. Pot, Bourne D ware, Post-med.
406. Pot, Midlands Purple, modern.
407. Pot, modern.
408. Pot, Midlands Purple, modern.
409. Pot, Bourne D ware, Post-med.
410. Pot, Midlands Purple, modern.
411. Tile/brick.
412. Pot, Midlands Purple, modern.

413. Pot, Midlands Purple, modern.
414. Tile/brick.
415. Pot, Bartman ware, Post-med.
416. Pot, Bourne D ware, Post-med.
417. Pot, Bourne D ware, Post-med.
418. Tile/brick.
419. Slag.
420. Pot, Bourne D ware, Post-med.
421. Clay pipe.
422. Pot, Midlands Purple, modern.
423. Pot, Bourne D ware, Post-med.
424. Tile/brick.
425. Pot, Bourne D ware, Post-med.
426. Pot, Glazed red earthenware, Post-med.
427. Pot, Bourne B ware, medieval.
428. Bone.
429. Pot, Bourne D ware, Post-med.
430. Pot, Bourne D ware, Post-med.
431. Pot, Midlands Purple, modern.
432. Pot, Midlands Purple, modern.

Field 6

1. Pot, Bourne B ware, medieval.
2. Pot, Staffs, modern.
3. Pot, Staffs, modern.
4. Tile/brick.
5. Pot, Bourne D ware, Post-med.
6. Pot, Midlands Purple, modern.
7. Pot, Midlands Purple, modern.
8. Mica Schist Hone.
9. Pot, Shell-gritted, Roman.
10. Pot, Glazed red earthenware, Post-med.
11. Pot, Bourne D ware, Post-med.
12. Pot, Midlands Purple, modern.
13. Pot, Stamford ware, Late Saxon.
14. Flint.

15. Pot, Midlands Purple, modern.
16. Flint.
17. Pot, Bourne D ware, Post-med.
18. Pot, Bourne D ware, Post-med.
19. Pot, Midlands Purple, modern.
20. Pot, Bourne D ware, Post-med.
21. Pot, Bourne D ware, Post-med.
22. Tile/brick.
23. Pot, Glazed red earthenware, Post-med.
24. Glass.
25. Glass.
26. Pot, Midlands Purple, modern.
27. Pot, Bourne D ware, Post-med.
28. Pot, Glazed red earthenware, Post-med.
29. Pot, Bourne D ware, Post-med.
30. Pot, modern.
31. Pot, medieval.
32. Pot, Glazed red earthenware, Post-med.
33. Pot, Bourne D ware, Post-med.
34. Pot, modern.
35. Flint.
36. Pot, medieval.
37. Flint.
38. Pot, Grey ware, Roman.
39. Flint.
40. Pot, Bourne D ware, Post-med.
41. Pot, Bourne B ware, medieval.
42. Pot, Bourne D ware, Post-med.
43. Pot, Bourne D ware, Post-med.
44. Pot, Bourne B ware, medieval.
45. Pot, Glazed red earthenware, Post-med.
46. Pot, Midlands Purple, modern.
47. Flint.
48. Pot, Bourne D ware, Post-med.
49. Pot, modern.

50. Pot, Midlands Purple, modern.
51. Flint.
52. Pot, Bourne D ware, Post-med.
53. Pot, Bourne B ware, medieval.
54. Pot, Grey ware, Roman.
55. Pot, modern.
56. Pot, Bourne D ware, Post-med.
57. Pot, Bourne D ware, Post-med.
58. Pot, Midlands Purple, modern.
59. Glass.
60. Pot, Glazed red earthenware, Post-med.
61. Pot, Midlands Purple, modern.
62. Pot, modern.
63. Pot, Midlands Purple, modern.
64. Pot, Shelly type, medieval.
65. Flint.
66. Pot, Bourne D ware, Post-med.
67. Pot, medieval.
68. Pot, medieval.
69. Pot, Bourne D ware, Post-med.
70. Pot, Stamford ware, Late Saxon.
71. Pot, Bourne D ware, Post-med.
72. Pot, Bourne D ware, Post-med.
73. Pot, Bourne D ware, Post-med.
74. Pot, Bourne D ware, Post-med.
75. Pot, Midlands Purple, modern.
76. Pot, Bourne D ware, Post-med.
77. Discarded.
78. Pot, Bourne D ware, Post-med.
79. Pot, Midlands Purple, modern.
80. Pot, Grey ware, Roman.
81. Pot, Glazed red earthenware, Post-med.
82. Pot, Midlands Purple, modern.
83. Pot, Midlands Purple, modern.
84. Discarded.

85. Discarded.
86. Pot, Stamford ware, Late Saxon.
87. Pot, Bourne B ware, medieval.
88. Pot, Midlands Purple, modern.
89. Pot, Midlands Purple, modern.
90. Pot, Midlands Purple, modern.
91. Pot, Bourne D ware, Post-med.
92. Pot, Bourne D ware, Post-med.
93. Pot, Notts stoneware, modern.
94. Pot, Midlands Purple, modern.
95. Pot, Bourne B ware, medieval.
96. Flint.
97. Pot, Midlands Purple, modern.
98. Pot, Glazed red earthenware, Post-med.
99. Pot, Bourne D ware, Post-med.
100. Pot, Midlands Purple, modern.
101. Pot, Midlands Purple, modern.
102. Pot, Glazed red earthenware.
103. Pot, Midlands Purple, modern.
104. Pot, Midlands Purple, modern.
105. Pot, Midlands Purple, modern.
106. Pot, Bourne D ware, Post-med.
107. Pot, modern.
108. Pot, Cistercian ware, Post-med.
109. Pot, Midlands Purple, modern.
110. Discarded.
111. Pot, Midlands Purple, modern.
112. Pot, Bourne D ware, Post-med.
113. Pot, Bourne D ware, Post-med.
114. Pot, modern.
115. Pot, Bourne D ware, Post-med.
116. Flint.
117. Pot, Glazed red earthenware, Post-med.
118. Pot, Bourne D ware, Post-med.
119. Pot, Grey ware, Roman.
120. Pot, Bourne D ware, Post-med.
121. Pot, Grey ware?, Roman.
122. Pot, Staffs, modern.
123. Pot, Colour coated, Roman.
124. Pot, Midlands Purple, modern.
125. Pot, Midlands Purple, modern.
126. Pot, Bourne D ware, Post-med.
127. Pot, Colour coated, Roman.
128. Pot, Midlands Purple, modern.
129. Flint.
130. Button, modern.
131. Pot, modern.
132. Pot, Midlands Purple, modern.
133. Pot, modern.
134. Pot, modern.
135. Pot, Stamford ware, Late Saxon.
136. Pot, Bourne D ware, Post-med.
137. Pot, Midlands Purple, modern.
138. Pot, Colour coated, Roman.
139. Pot, Stamford ware, Late Saxon.
140. Pot, Grey ware, Roman.
141. Pot, Midlands Purple, modern.
142. Pot, Midlands Purple, modern.
143. Pot, Glazed red earthenware, Post-med.
144. Pot, Bourne B ware, medieval.
145. Flint.
146. Pot, Bourne D ware, Post-med.
147. Pot, Glazed red earthenware, Post-med.
148. Pot, modern.
149. Flint.
150. Discarded.
151. Pot, Bourne B ware, medieval.
152. Pot, Midlands Purple, modern.
153. Pot, Midlands Purple, modern.
154. Pot, Bourne D ware, Post-med.
155. Flint.
156. Pot, Glazed red earthenware, Post-med.
157. Pot, Roman.
158. Pot, Bourne D ware, Post-med.
159. Pot, Bourne D ware, Post-med.
160. Pot, Glazed red earthenware, Post-med.
161. Pot, Midlands Purple, modern.
162. Flint.
163. Pot, Midlands Purple, modern.
164. Pot, modern.
165. Pot, Cistercian ware, Post-med.
166. Pot, Cistercian ware, Post-med.
167. Pot, Bourne D ware, Post-med.
168. Pot, Midlands Purple, modern.
169. Pot, Glazed red earthenware, Post-med.
170. Pot, Bourne B ware, medieval.
171. Pot, Bourne B ware, medieval.
172. Pot, Midlands Purple, modern.
173. Pot, Colour coated, Roman.
174. Pot, Bourne D ware, Post-med.
175. Pot, modern.
176. Pot, Bourne D ware, Post-med.
177. Pot, Midlands Purple, modern.
178. Pot, modern.
179. Pot, Bourne D ware, Post-med.
180. Pot, Bourne B ware, medieval.
181. Pot, Bourne D ware, Post-med.
182. Pot, Glazed red earthenware, Post-med.
183. Pot, Midlands Purple, modern.
184. Pot, Glazed red earthenware, Post-med.
185. Pot, Glazed red earthenware, Post-med.
186. Pot, Midlands Purple, modern.
187. Pot, Grey ware, Roman.
188. Pot, Bourne D ware, Post-med.
189. Pot, Midlands Purple, modern.

190. Pot, Bourne D ware, Post-med.
191. Pot, Bourne B ware, medieval.
192. Pot, Bourne D ware, Post-med.
193. Pot, Bourne D ware, Post-med.
194. Pot, Midlands Purple, modern.
195. Pot, Bourne D ware, Post-med.
196. Pot, Glazed red earthenware, Post-med.
197. Pot, Midlands Purple, modern.
198. Pot, Midlands Purple, modern.
199. Pot, Midlands Purple, modern.
200. Flint.
201. Pot, Midlands Purple, modern.
202. Pot, Midlands Purple, modern.
203. Pot, Glazed red earthenware, Post-med.
204. Pot, Sandy ware, medieval.
205. Pot, Bourne D ware, Post-med.
206. Pot, Midlands Purple, modern.
207. Pot, Sandy ware, medieval.
208. Pot, Midlands Purple, modern.
209. Pot, Midlands Purple, modern.
210. Pot, Bourne D ware, Post-med.
211. Tile/brick.
212. Pot, Midlands Purple, modern.
213. Pot, modern.
214. Pot, Midlands Purple, modern.
215. Pot, Midlands Purple, modern.
216. Pot, Bourne B ware, medieval.
217. Pot, Midlands Purple, modern.
218. Pot, Bourne D ware, Post-med.
219. Flint.
220. Pot, Bourne D ware, Post-med.
221. Pot, Shell-gritted, Roman.
222. Pot, Glazed red earthenware, Post-medieval.
223. Pot, Midlands Purple, modern.
224. Pot, Midlands Purple, modern.
225. Pot, Glazed red earthenware, Post-med.
226. Discarded.
227. Pot, Midlands Purple, modern.
228. Pot, Bourne D ware, Post-med.
229. Pot, Midlands Purple, modern.
230. Pot, Bourne B ware, medieval.
231. Pot, Bourne B ware, medieval.
232. Pot, Midlands Purple, modern.
233. Pot, Midlands Purple, modern.
234. Pot, Bourne D ware, Post-med.
235. Slate pencil.
236. Pot, Sandy ware, medieval.
237. Pot, Stamford ware, Late Saxon.
238. Pot, Midlands Purple, modern.
239. Pot, Bourne B ware, medieval.
240. Pot, Glazed red earthenware, Post-med.
241. Pot, Bourne B ware, medieval.
242. Pot, Glazed red earthenware, Post-med.
243. Pot, Midlands Purple, modern.
244. Pot, Glazed red earthenware, Post-med.
245. Discarded.
246. Pot, Glazed red earthenware, Post-med.
247. Pot, Bourne D ware, Post-med.
248. Pot, Bourne B ware, medieval.
249. Flint.
250. Tile/brick.
251. Pot, Midlands Purple, modern.
252. Pot, Bourne B ware, medieval.
253. Pot, Midlands Purple, modern.
254. Pot, Bourne D ware, Post-med.
255. Pot, Midlands Purple, modern.
256. Pot, Midlands Purple, modern.
257. Pot, Midlands Purple, modern.
258. Pot, White type, Roman.
259. Pot, medieval.
260. Discarded.
261. Pot, Bourne B ware, medieval.
262. Flint.
263. Pot, Glazed red earthenware, Post-medieval.
264. Pot, Shelly type, medieval.
265. Tile/brick.
266. Pot, modern.
267. Pot, Glazed red earthenware, Post-med.
268. Pot, Midlands Purple, modern.
269. Pot, modern.
270. Flint.
271. Pot, Glazed red earthenware, Post-med.
272. Pot, Midlands Purple, modern.
273. Pot, Bourne D ware, Post-med.
274. Pot, Glazed red earthenware, Post-med.
275. Pot, medieval.
276. Pot, Midlands Purple, modern.
277. Flint.
278. Pot, Bourne D ware, Post-med.
279. Pot, Glazed red earthenware, Post-med.
280. Pot, Bourne D ware, Post-med.
281. Pot, Midlands Purple, modern.
282. Pot, Glazed red earthenware, Post-med.
283. Flint.
284. Pot, Midlands Purple, modern.
285. Pot, Midlands Purple, modern.
286. Pot, Stamford ware, Late Saxon.
287. Pot, Midlands Purple, modern.
288. Pot, Midlands Purple, modern.
289. Pot, Glazed red earthenware, Post-med.
290. Pot, Midlands Purple, modern.
291. Pot, Glazed red earthenware, Post-med.
292. Pot, modern.
293. Pot, Glazed red earthenware, Post-med.
294. Pot, Midlands Purple, modern.

295. Pot, Glazed red earthenware, Post-med.
296. Pot, modern.
297. Pot, Midlands Purple, modern.
298. Pot, Midlands Purple, modern.
299. Pot, Bourne B ware, medieval.
300. Pot, Bourne D ware, Post-med.
301. Pot, modern.
302. Pot, Grey ware, Roman.
303. Pot, Midlands Purple, modern.
304. Pot, White type, Roman.
305. Pot, Bourne D ware, Post-med.
306. Pot, Bourne D ware, Post-med.
307. Pot, Bourne D ware, Post-med.
308. Pot, Bourne D ware, Post-med.
309. Pot, Bourne D ware, Post-med.
310. Pot, Midlands Purple, modern.
311. Pot, Early Saxon.
312. Pot, Midlands Purple, modern.
313. Pot, Midlands Purple, modern.
314. Pot, Midlands Purple, modern.
315. Pot, Midlands Purple, modern.
316. Pot, modern.
317. Pot, Grey ware, Roman.
318. Pot, Midlands Purple, modern.
319. Pot, modern.
320. Pot, Bourne D ware, Post-med.
321. Pot, Midlands Purple, modern.
322. Pot, Glazed red earthenware, Post-med.
323. Pot, Midlands Purple, modern.
324. Pot, Glazed red earthenware, Post-med.
325. Pot, modern.
326. Tile/brick.
327. Pot, Midlands Purple, modern.
328. Pot, modern.
329. Pot, medieval.
330. Tile/brick.
331. Pot, Midlands Purple, modern.
332. Discarded.
333. Pot, Grey ware?, Roman.
334. Pot, Midlands Purple, modern.
335. Pot, Bourne D ware, Post-med.
336. Pot, Glazed red earthenware, Post-med.
337. Pot, Midlands Purple, modern.
338. Glass, modern.
339. Discarded.
340. Pot, Glazed red earthenware, Post-med.
341. Button.
342. Pot, Glazed red earthenware, Post-med.
343. Pot, Bourne D ware, Post-med.
344. Pot, Bourne B ware, medieval.
345. Flint.
346. Pot, Midlands Purple, modern.
347. Pot, Midlands Purple, modern.
348. Pot, Staffs, modern.
349. Pot, Bourne D ware, Post-med.
350. Pot, Bourne D ware, Post-med.
351. Pot, Bourne D ware, Post-med.
352. Tile/brick.
353. Pot, Bourne D ware, Post-med.
354. Pot, Bourne D ware, Post-med.
355. Pot, Midlands Purple, modern.
356. Pot, modern.
357. Discarded.
358. Pot, modern.
359. Pot, Grey ware, Roman.
360. Pot, Bourne B ware, medieval.
361. Pot, Bourne D ware, Post-med.
362. Pot, modern.
363. Pot, Bourne D ware, Post-med.
364. Discarded.
365. Pot, Midlands Purple, modern.
366. Pot, Bourne D ware, Post-med.
367. Pot, Midlands Purple, modern.
368. Pot, Midlands Purple, modern.
369. Pot, Midlands Purple, modern.
370. Pot, Bourne B ware, medieval.
371. Pot, Glazed red earthenware, Post-med.
372. Discarded.
373. Pot, Bourne D ware, Post-med.
374. Pot, Bourne D ware, Post-med.
375. Pot, Glazed red earthenware, Post-med.
376. Pot, Glazed red earthenware, Post-med.
377. Discarded.
378. Pot, modern.
379. Pot, Bourne B ware, medieval.
380. Pot, Bourne D ware, Post-med.
381. Pot, modern.
382. Pot, Bourne D ware, Post-med.
383. Pot, Midlands Purple, modern.
384. Pot, Bourne B ware, medieval.
385. Pot, Glazed red earthenware, Post-med.
386. Pot, Bourne D ware, Post-med.
387. Pot, Glazed red earthenware, Post-med.
388. Pot, Midlands Purple, modern.
389. Pot, modern.
390. Pot, Midlands Purple, modern.
391. Pot, Stamford ware, Late Saxon.
392. Pot, Shell-gritted, Roman.
393. Pot, Midlands Purple, modern.
394. Pot, Midlands Purple, modern.
395. Pot, Midlands Purple, modern.
396. Flint.
397. Pot, modern.
398. Pot, Bourne B ware, medieval.
399. Pot, Bourne D ware, Post-med.

400. Discarded.
401. Pot, Prehistoric.
402. Pot, Bourne D ware, Post-med.
403. Pot, Sandy ware, medieval.
404. Pot, Midlands Purple, modern.
405. Pot, Glazed red earthenware, Post-med.
406. Pot, Bourne D ware, Post-med.
407. Fe object.
408. Pot, Bourne D ware, Post-med.
409. Pot, Bourne D ware, Post-med.
410. Pot, Bourne B ware, medieval.
411. Pot, Northants type, medieval.
412. Discarded.
413. Flint, modern gunflint.
414. Pot, Bourne D ware, Post-med.
415. Discarded.
416. Flint.
417. Pot, Midlands Purple, modern.
418. Pot, Bourne D ware, Post-med.
419. Discarded.
420. Pot, Bourne D ware, Post-med.
421. Pot, Bourne D ware, Post-med.
422. Cu alloy object.
423. Flint.
424. Pot, Midlands Purple, modern.
425. Pot, Midlands Purple, modern.
426. Pot, Staffs, modern.
428. Pot, medieval.
429. Discarded.
430. Pot, Glazed red earthenware, Post-med.
431. Pot, Midlands Purple, modern.
432. Tile/brick.
433. Pot, Bourne D ware, Post-med.
434. Pot, Glazed red earthenware, Post-med.
435. Tile/brick.
436. Pot, Midlands Purple, modern.
437. Pot, Bourne B ware, medieval.
438. Pot, Bourne B ware, medieval.
439. Discarded.
440. Tile/brick.
441. Pot, modern.
442. Discarded.
443. Pot, Midlands Purple, modern.
444. Discarded.
445. Pot, medieval.
446. Pot, Midlands Purple, modern.
447. Pot, Grey ware, Roman.
448. Pot, Midlands Purple, modern.
449. Pot, Bourne B ware, medieval.
450. Discarded.
451. Pot, Midlands Purple, modern.
452. Pot, Midlands Purple, modern.
453. Pot, Glazed red earthenware, Post-med.
454. Discarded.
455. Pot, Bourne D ware, Post-med.
456. Pot, Glazed red earthenware, Post-med.
457. Pot, Bourne B ware, medieval.
458. Tile/brick.
459. Pot, Bourne D ware, Post-med.
460. Pot, Glazed red earthenware, Post-med.
461. Pot, Bourne D ware, Post-med.
462. Glass, modern.
463. Pot, modern.
464. Pot, modern.
465. Discarded.
466. Pot, Bourne D ware, Post-med.
467. Pot, Midlands Purple, modern.
468. Pot, Midlands Purple, modern.
469. Pot, Midlands Purple, modern.
470. Pot, Bourne D ware, Post-med.
471. Pot, Bourne B ware, medieval.
472. Tile/brick.
473. Pot, Midlands Purple, modern.
474. Pot, Bourne B ware, medieval.
475. Pot, Bourne D ware, Post-med.
476. Pot, Glazed red earthenware, Post-med.
477. Pot, Bourne D ware, Post-med.
478. Discarded.
479. Pot, Midlands Purple, modern.
480. Pot, Midlands Purple, modern.
481. Pot, Glazed red earthenware, Post-med.
482. Pot, Bourne D ware, Post-med.
483. Pot, Bourne B ware, medieval.
484. Pot, Midlands Purple, modern.
485. Pot, Shell-gritted, Roman.
486. Pot, Midlands Purple, modern.
487. Pot, Midlands Yellow, Post-med.
488. Pot, Bourne D ware, Post-med.
489. Flint.
490. Pot, Bourne D ware, Post-med.
491. Pot, Midlands Purple, modern.
492. Pot, medieval.
493. Pot, Bourne D ware, Post-med.
494. Pot, Bourne B ware, medieval.
495. Pot, Bourne D ware, Post-med.
496. Pot, Midlands Purple, modern.
497. Pot, Bourne D ware, Post-med.
498. Pot, Midlands Purple, modern.
499. Pot, Midlands Purple, modern.
500. Pot, Bourne D ware, Post-med.
501. Pot, Westerwold, Post-med.
502. Pot, Midlands Purple, modern.
503. Pot, Grey ware, Roman.
504. Tile/brick.
505. Pot, Bourne D ware, Post-med.

506. Pot, Bourne D ware, Post-med.
507. Pot, Bourne D ware, Post-med.
508. Pot, Midlands Purple, modern.
509. Pot, Bourne D ware, Post-med.
510. Fe object.
511. Discarded.
512. Pot, Bourne D ware, Post-med.
513. Pot, Bourne B ware, medieval.
514. Pot, Midlands Purple, modern.
515. Pot, Shell-gritted, Roman.
516. Pot, Bourne D ware, Post-med.
517. Pot, Grey ware, Roman.
518. Pot, Bourne D ware, Post-med.
519. Pot, Bourne D ware, Post-med.
520. Pot, Midlands Purple, modern.
521. Pot, Midlands Purple, modern.
522. Discarded.
523. Pot, Glazed red earthenware, Post-med.
524. Pot, Bourne D ware, Post-med.
525. Tile/brick.
526. Pot, modern.
527. Tile/brick.
528. Tile/brick.
529. Tile/brick.
530. Pot, Glazed red earthenware, Post-med.
531. Pot, Bourne D ware, Post-med.
532. Pot, Midlands Purple, modern.
533. Pot, Bourne D ware, Post-med.
534. Pot, Bourne D ware, Post-med.
535. Glass, modern.
536. Pot, Bourne D ware, Post-med.
537. Pot, Bourne D ware, Post-med.
538. Pot, Bourne D ware, Post-med.
539. Pot, Glazed red earthenware, Post-med.
540. Pot, Glazed red earthenware, Post-med.

541. Pot, Midlands Purple, modern.
542. Pot, medieval.
543. Pot, Bourne D ware, Post-med.
544. Pot, Staffs, modern.
545. Pot, Red ware, Roman.
546. Pot, Bourne D ware, Post-med.
547. Tile/brick.

Field 7

1. Pot, Bourne D ware, Post-med.
2. Pot, Bourne D ware, Post-med.
3. Pot, Midlands Purple, modern.
4. Discarded.
5. Fe object.
6. Discarded.
7. Discarded.
8. Pot, Glazed red earthenware, Post-med.
9. Pot, Willow pattern, modern.
10. Pot, Glazed red earthenware, Post-med.
11. Pot, Bourne D ware, Post-med.
12. Discarded.
13. Pot, modern.
14. Pot, Glazed red earthenware, Post-medieval.
15. Pot, Bourne D ware, Post-med.
16. Pot, Midlands Purple, modern.
17. Pot, Bourne D ware, Post-med.
18. Discarded.
19. Pot, Bourne D ware, Post-med.
20. Pot, Bourne D ware, Post-med.
21. Glass.
22. Pot, Stamford ware, Late Saxon.
23. Pot, Glazed red earthenware, Post-med.
24. Tile/brick.
25. Pot, modern.
26. Pot, modern.

27. Pot, Bourne B ware, medieval.
28. Pot, Glazed red earthenware, Post-med.
29. Discarded.
30. Pot, Bourne D ware, Post-med.
31. Pot, Glazed red earthenware, Post-med.
32. Pot, medieval.
33. Pot, modern.
34. Pot, Midlands Purple, modern.
35. Pot, Bourne B ware, medieval.
36. Pot, Glazed red earthenware, Post-med.
37. Discarded.
38. Pot, Midlands Purple, modern.
39. Pot, Bourne D ware, Post-med.
40. Pot, Bourne D ware, Post-med.
41. Pot, Bourne D ware, Post-med.
42. Pot, Bourne D ware, Post-med.
43. Pot, Midlands Purple, modern.
44. Pot, Glazed red earthenware, Post-med.
45. Pot, Bourne D ware, Post-med.
46. Pot, Midlands Purple, modern.
47. Tile/brick.
48. Pot, Midlands Purple, modern.
49. Pot, modern.
50. Pot, modern.
51. Tile/brick.
52. Pot, Glazed red earthenware, Post-med.
53. Pot, modern.
54. Pot, Bourne B ware, medieval.
55. Pot, Midlands Purple, modern.
56. Tile/brick.
57. Pot, Midlands Purple, modern.
58. Pot, Grey ware?, Roman.
59. Tile/brick.
60. Pot, Shell-gritted, Roman.
61. Pot, Bourne B ware, medieval.

62. Pot, Midlands Purple, modern.
63. Pot, Bourne B ware, medieval.
64. Pot, Early Saxon.
65. Pot, medieval.
66. Pot, modern.
67. Pot, Bourne B ware, medieval.
68. Pot, modern.
69. Pot, Bourne D ware, Post-med.
70. Pot, Midlands Purple, modern.
71. Pot, Bourne B ware, medieval.
72. Pot, Red ware, Roman.
73. Pot, Redware, medieval.
74. Pot, Bourne D ware, Post-med.
75. Pot, Midlands Purple, modern.
76. Pot, Glazed red earthenware, Post-med.
77. Pot, Bourne B ware, medieval.
78. Pot, Redware, Post-med.
79. Pot, Bourne D ware, Post-med.
80. Pot, Midlands Purple, modern.
81. Pot, Bourne D ware, Post-med.
82. Pot, Northants type, medieval.
83. Pot, Midlands Purple, modern.
84. Pot, Bourne D ware, Post-med.
85. Discarded.
86. Flint.
87. Pot, modern.
88. Pot, Midlands Purple, modern.
89. Pot, Glazed red earthenware, Post-med.
90. Discarded.
91. Pot, Glazed red earthenware, Post-med.
92. Pot, Bourne D ware, Post-med.
93. Pot, Bourne D ware, Post-med.
94. Pot, Bourne D ware, Post-med.
95. Pot, Midlands Purple, modern.
96. Pot, Bourne D ware, Post-med.
97. Pot, Glazed red earthenware, Post-med.
98. Pot, Midlands Purple, modern.
99. Pot, Staffs, modern.
100. Flint.
101. Pot, Glazed red earthenware, Post-med.
102. Pot, Glazed red earthenware, Post-med.
103. Pot, Midlands Purple, modern.
104. Pot, Glazed red earthenware, Post-med.
105. Pot, modern.
106. Pot, Midlands Purple, modern.
107. Pot, Glazed red earthenware, Post-med.
108. Pot, medieval.
109. Pot, Glazed red earthenware, Post-med.
110. Pot, Midlands Purple, modern.
111. Pot, Shell-gritted, Roman.
112. Pot, Midlands Purple, modern.
113. Pot, Bourne D ware, Post-med.
114. Pot, Glazed red earthenware, Post-med.
115. Pot, Midlands Purple, modern.
116. Pot, Midlands Purple, modern.
117. Pot, Midlands Purple, modern.
118. Pot, Midlands Purple, modern.
119. Pot, Bourne D ware, Post-med.
120. Pot, Midlands Purple, modern.
121. Pot, Midlands Purple, modern.
122. Pot, Midlands Purple, modern.
123. Pot, Midlands Purple.
124. Flint.
125. Pot, Midlands Purple, modern.
126. Pot, Bourne D ware, Post-med.
127. Pot, Glazed red earthenware, Post-med.
128. Pot, Midlands Purple, modern.
129. Pot, Midlands Purple, modern.
130. Flint.
131. Pot, modern.
132. Pot, Shell-gritted, Roman.
133. Pot, Glazed red earthenware, Post-med.
134. Pot, Midlands Purple, modern.
135. Pot, Bourne B ware, medieval.
136. Pot, Glazed red earthenware, Post-med.
137. Pot, Glazed red earthenware, Post-med.
138. Pot, Shell-gritted, Roman.
139. Pot, Shell-gritted, Roman.
140. Pot, Midlands Purple, modern.
141. Pot, Bourne B ware, medieval.
142. Pot, Stamford ware, Late Saxon.
143. Pot, Midlands Purple, modern.
144. Pot, medieval.
145. Pot, Bourne D ware, Post-med.
146. Pot, Glazed red earthenware, Post-med.
147. Pot, Bourne D ware, Post-med.
148. Flint.
149. Pot, Glazed red earthenware, Post-med.
150. Pot, Bourne B ware, medieval.
151. Pot, medieval.
152. Pot, Glazed red earthenware, Post-med.
153. Flint.
154. Pot, Bourne D ware, Post-med.
155. Pot, medieval.
156. Pot, Grey ware, Roman.
157. Pot, Grey ware, Roman.
158. Pot, Midland Purple, modern.
159. Pot, Glazed red earthenware, Post-med.
160. Pot, Bourne D ware, Post-med.
161. Pot, Glazed red earthenware, Post-med.
162. Pot, Midlands Purple, modern.
163. Pot, medieval.
164. Pot, modern.
165. Flint.
166. Pot, Glazed red earthenware, Post-med.

167. Pot, Glazed red earthenware, Post-med.
168. Pot, Bourne D ware, Post-med.
169. Pot, Grey ware, Roman.
170. Pot, Glazed red earthenware, Post-med.
171. Pot, Bourne D ware, Post-med.
172. Pot, Midlands Purple, modern.
173. Pot, Bourne D ware, Post-med.
174. Pot, Midlands Purple, modern.
175. Pot, Glazed red earthenware, Post-med.
176. Pot, medieval.
177. Pot, Bourne D ware, Post-med.
178. Pot, Bourne D ware, Post-med.
179. Pot, Midlands Purple, modern.
180. Pot, Bourne D ware, Post-med.
181. Pot, Sandy ware, medieval.
182. Glass, Post-med.
183. Pot, Grey ware, Roman.
184. Pot, Shell-gritted, Roman.
185. Pot, Glazed red earthenware, Post-med.
186. Pot, Glazed red earthenware, Post-med.
187. Tile/brick.
188. Pot, Willow pattern, modern.
189. Pot, Bourne D ware, Post-med.
190. Pot, Bourne D ware, Post-med.
191. Pot, Glazed red earthenware, Post-med.

APPENDIX 8

**REPORT ON THE RADIOCARBON DATES
OBTAINED FROM A DEPOSIT EXCAVATED DURING THE
ARCHAEOLOGICAL
EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**



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REPORT OF RADIOCARBON DATING ANALYSES

FOR: Mr. Paul Cope-Faulkner
Archaeological Project Services

DATE RECEIVED: June 17, 1996
DATE REPORTED: July 9, 1996

Sample Data	Measured C14 Age	C13/C12 Ratio	Conventional C14 Age (*)
Beta-94389	3780 +/- 70 BP	-25.0* o/oo	3780 +/- 70* BP

SAMPLE #: MDBP 96 4 189
ANALYSIS: radiometric-standard
MATERIAL/PRETREATMENT:(charred material): acid/alkali/acid

NOTE: It is important to read the calendar calibration information and to use the calendar calibrated results (reported separately) when interpreting these results in AD/BC terms.

Dates are reported as RCYBP (radiocarbon years before present, present = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation (68% probability) & are based on combined measurements of sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: est. C13/C12=-25.0:lab. mult=1)

Laboratory Number: Beta-94389

Conventional radiocarbon age*: 3780 +/- 70 BP

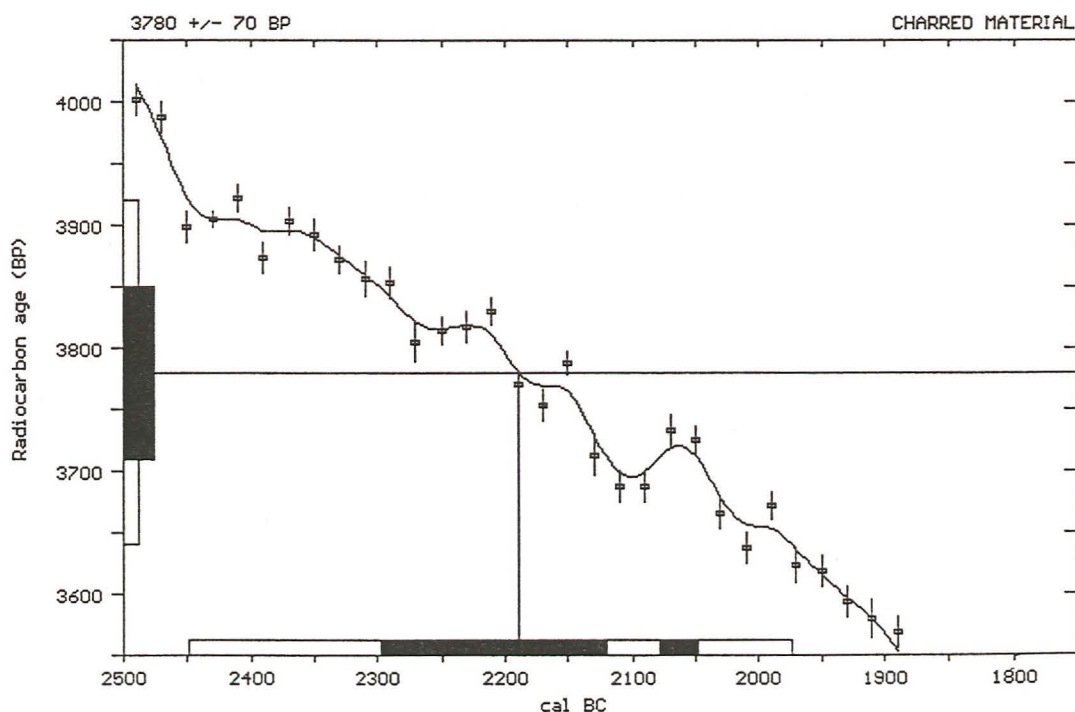
Calibrated results: cal BC 2450 to 1975
(2 sigma, 95% probability)

* C13/C12 ratio estimated

Intercept data:

Intercept of radiocarbon age
with calibration curve: cal BC 2190

1 sigma calibrated results: cal BC 2300 to 2120 and
cal BC 2080 to 2050 (68% probability)



References:

Pretoria Calibration Curve for Short Lived Samples

Vogel, J. C., Fuls, A., Visser, E. and Becker, B., 1993, *Radiocarbon* 35(1), p73-86

A Simplified Approach to Calibrating C14 Dates

Talma, A. S. and Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

Calibration - 1993

Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, *Radiocarbon* 35(1)

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APPENDIX 9

**ASSESSMENT OF THE CHARCOAL RECOVERED
FROM THE ARCHAEOLOGICAL EVALUATION OF THE
LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

by Rowena Gale

CHARCOAL ASSESSMENT
Rowena Gale

1. INTRODUCTION.

The excavation of two pits and a posthole produced evidence of industrial activity of unknown date but possibly dating to the Iron Age/Roman periods. Trench 23 included abundant burnt clay and fuel residues (charcoal). Bulk soil samples were collected and bagged. Five were processed and assessed for their potential to provide information on fuel resources, environmental data and suitable material for radiocarbon (C14) dating.

2. BULK SAMPLES.

The soil samples were processed by water flotation and sieving. Sieve mesh sizes included 0.5mm, 2mm and 5mm. The samples included charcoal, seeds, intrusive roots and straw (modern and noted as windblown on sample sheets). The charcoal was well preserved and fairly abundant in most samples with a useful proportion measuring >2mm in radial cross section (i.e. suitable for identification). Charcoal fragments measuring >2mm were extracted for examination. To assess the likely range of species present, fragments were selected randomly from those which, at macroscopic level, appeared to differ. These were fractured to expose transverse, tangential and radial surfaces and examined at magnifications of up to X400. The anatomical features were matched to reference material. Details are given in Table 1 of bulk sample weight, abundance of fragments, species diversity and C14 potential.

3. RESULTS.

Random sampling indicated that Samples 1 and 4 included alder, oak, ash and hazel whereas Samples 2, 3 and 5 identified hazel and/or alder. The pieces of charcoal were too fragmented to indicate whether they arose from narrow stems or wider roundwood.

4. DISCUSSION.

The abundance of burnt clay associated with the charcoal deposits strongly supports the suggestion that the charcoal represents fuel residues from industrial activity. The fuel appears to have consisted mainly of wood; there was no evidence of the use of cereal processing waste or other materials. Fuel residues from other fenland industrial sites of comparable date (eg. the salterns at Cowbit, Middleton and Morton Fen: Lane, forthcoming) indicate that various types were used including wood, cereal waste, reeds and possibly peat. However, it should be noted that there is no evidence to suggest that the industrial processes undertaken at the site represent salt making. The differences in usage probably reflected the availability of fuel and hence the resources in the local environments.

The abundance of charcoal in the fuel deposits indicates that wood was readily available in the environment and was gathered from wetland species (alder) and woodlands characteristic of drier land which supported oak, ash and hazel. The species list may be enlarged by more detailed examination of the samples.

All the samples included material suitable for radiocarbon dating.

5. RECOMMENDATIONS FOR FURTHER WORK.

Although only five samples of charcoal are available these consist of relatively large, well preserved fragments,

present in sufficient quantity to produce significant results from further analysis. Their identification will contribute to the collective data on the environment local to the site. It will also complement environmental data from pollen analysis from the current excavation and existing records from work recently completed at Market Deeping for the Fenland Management Project.

It is therefore recommended that samples 1, 2, 3, 4 and 5 should be examined in detail and suitable fragments of material selected for C14 dating.

6. REFERENCES.

Lane, T.W., (Ed), forthcoming, *A millennium of Saltmaking: Prehistoric and Roman Salt Production in the Fenland*, Lincolnshire Archaeology and Heritage Report Series.

Table 1. Market Deeping Bypass: charcoal from Trench 23.

Taxa identified: *Alnus* (alder), *Corylus* (hazel), *Fraxinus* (ash) and *Quercus* (oak).

Sample	Context	BS weight in litres	Fragments	Species diversity	C14
1	174	20	> 100	<i>Quercus, Fraxinus, Corylus</i>	+
2	188	20	< 10	Mainly short lived eg. <i>Corylus/Alnus</i>	+
3	172	20	> 100	Mainly short lived eg. <i>Corylus</i>	+
4	189	20	> 100	<i>Quercus, Alnus, Corylus</i>	+
5	178	10	10-20	<i>Corylus</i>	+

APPENDIX 10

**THE SECRETARY OF STATE'S CRITERIAL
FOR SCHEDULING ANCIENT MONUMENTS**

SECRETARY OF STATE'S CRITERIA FOR SCHEDULING ANCIENT MONUMENTS
Extract from *Archaeology and Planning* DoE Planning Policy Guidance note 16, November
1990

The following criteria (which are not in any order of ranking), are used for assessing the national importance of an ancient monument and considering whether scheduling is appropriate. The criteria should not however be regarded as definitive; rather they are indicators which contribute to a wider judgement based on the individual circumstances of a case.

i *Period*: all types of monuments that characterise a category or period should be considered for preservation.

ii *Rarity*: there are some monument categories which in certain periods are so scarce that all surviving examples which retain some archaeological potential should be preserved. In general, however, a selection must be made which portrays the typical and commonplace as well as the rare. This process should take account of all aspects of the distribution of a particular class of monument, both in a national and regional context.

iii *Documentation*: the significance of a monument may be enhanced by the existence of records of previous investigation or, in the case of more recent monuments, by the supporting evidence of contemporary written records.

iv *Group value*: the value of a single monument (such as a field system) may be greatly enhanced by its association with related contemporary monuments (such as a settlement or cemetery) or with monuments of different periods. In some cases, it is preferable to protect the complete group of monuments, including associated and adjacent land, rather than to protect isolated monuments within the group.

v *Survival/Condition*: the survival of a monument's archaeological potential both above and below ground is a particularly important consideration and should be assessed in relation to its present condition and surviving features.

vi *Fragility/Vulnerability*: highly important archaeological evidence from some field monuments can be destroyed by a single ploughing or unsympathetic treatment; vulnerable monuments of this nature would particularly benefit from the statutory protection that scheduling confers. There are also existing standing structures of particular form or complexity whose value can again be severely reduced by neglect or careless treatment and which are similarly well suited by scheduled monument protection, even if these structures are already listed buildings.

vii *Diversity*: some monuments may be selected for scheduling because they possess a combination of high quality features, others because of a single important attribute.

viii *Potential*: on occasion, the nature of the evidence cannot be specified precisely but it may still be possible to document reasons anticipating its existence and importance and so to demonstrate the justification for scheduling. This is usually confined to sites rather than upstanding monuments.

APPENDIX 11

**ASSESSMENT OF THE ANIMAL BONE RECOVERED
DURING THE EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

by Paul Cope-Faulkner

BONE ASSESSMENT, MARKET DEEPING BYPASS
Paul Cope-Faulkner

A total of 78 bones were retrieved from the evaluation along the route of the proposed Market Deeping Bypass. The bones were in generally good condition, though most were fragmentary. Of the 259 contexts assigned only 7 produced skeletal material.

Post-medieval contexts 014 and 015, both fills of a former boundary ditch, produced a very small number of sheep bones. No butchery marks were apparent though gnawing had taken place.

In contrast the skeletal remains from a fill of the Romano-British enclosure ditch (186) produced only cattle sized material. Though very fragmentary, fine butchers marks were apparent and one bone had been posthumously gnawed.

Two ditch fills of probable Bronze Age date (contexts 059 and 121) contained both sheep and cattle fragments. The quantity of sheep bones was small in comparison to cattle remains.

A pit fill from trench 23 produced mainly sheep sized remains. This context (172) is thought to be prehistoric
RADIOCARBON DATES?

An undated ditch fill (142) produced 11 fragments of cattle remains.

Though the species represented reflect the nature of the economy of the site, the size of the assemblage is considered to be too small for detailed analysis.

Reference

Cornwall, I.W., 1974, *Bones for the Archaeologist* (2nd edition)

APPENDIX 12

**REPORT ON THE FLINT FROM THE ARCHAEOLOGICAL
EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

by Paul Cope Faulkner

THE WORKED FLINT
Paul Cope-Faulkner

A total of 32 flints were retrieved during the fieldwalking and excavation phases of investigations along the route of the Market Deeping bypass. Most of the flint is a dark brown to black colour although lighter honey-coloured examples also occur. Patination, where present, is white in colour. The cortex is visible on a few implements and suggest that much of the material is derived from gravel flint pebbles or small nodules. No core tools were noticed with the possible exception of an example from the fieldwalking in field 6. No concentrations of flint were observed in any of the areas surveyed. None of the excavated material came from primary contexts.

The flint record is summarised in Table 1 for fieldwalking finds and Table 2 for excavated examples.

Table 1: Fieldwalking finds

Field	Number	Description
2	117	Broken blade, retouching apparent along one edge
2	205	Broken scraper
2	244	Blade, retouched on both edges
2	317	Side scraper, Neolithic?
2	379	Natural flake
6	16	Side/end scraper
6	37	Natural flake
6	39	Waste flake
6	47	Blade, some retouching
6	65	Waste flake
6	116	Scraper
6	129	Fractured waste flake
6	145	Scraper, disc shaped
6	149	Waste flake
6	249	Flake, with retouching
6	262	Core?
6	270	Waste flake
6	277	Gunflint, Post-medieval
6	345	Scraper, disc shaped
6	396	Waste flake
6	413	Gunflint, Post-medieval
6	416	Flake, with retouching

6	423	Waste flake
6	489	Flake, possible retouching
7	86	Waste flake
7	130	Natural flake
7	148	Natural flake
7	153	Side scraper
7	165	Natural flake

Table 2: Excavated finds

Field	Trench	Context	Description
7	9	121	Narrow flake
21	23	172	Large flake, some retouching apparent
30	29	+	Microlith, Mesolithic

References.

Healey, E., 1981, The Lithic Artefacts, in Clay, P. (ed), *Two Multi-Phase Barrow Sites at Sproxton and Eaton, Leicestershire*. Leicestershire Museums, Art Galleries and Record Services: Archaeological Report 2

Richards, J., 1994, The Worked Flint, in French C.A.I., *Excavation of the Deeping St Nicholas Barrow Complex, South Lincolnshire*. Lincolnshire Archaeology and Heritage Reports Series 1

Watson, W., 1975, *Flint Implements* (3rd edition, revised G. Sieveking)

APPENDIX 13

**REPORT ON THE FIRED CLAY RECOVERED DURING THE
ARCHAEOLOGICAL EVALUATION OF THE LINCOLNSHIRE
SECTION OF THE MARKET DEEPING BYPASS**

by Tom Lane

THE FIRED CLAY

Tom Lane

Fired clay was recovered from a series of pits revealed in Trench 23 at Grid Ref. TF 159123.

The material was generally hard fired, typically with inclusions of coarse sand and chert/flint fragments up to c. 13 x 10mm. No organic temper was noted and likewise, the use of shells or fossiliferous shelly limestone was not apparent.

No obvious forms were visible, the majority of the material being of amorphous shape. However, certain fragmentary examples had some suggestion of a rounded form.

One piece, from 172, appeared to have had a structural purpose. Two impressions of ?wattle, c. 10mm diameter, were visible on the external surface adjacent to two linear incisions of unknown function. The piece may have been part of an oven or kiln-like structure.

The material varies in colour but is most commonly red/brown through to grey. Many of the pieces exhibit the so-called 'salt colours', pinks, white and lavender. These are characteristic indicators of the presence of salt (Matson 1971; Rye 1981, 36). Briquetage, the ceramic debris associated with the manufacture of salt from sea water, is usually the same colour as the fired clay from Trench 23, however, the latter material contains no typical briquetage-type forms such as supports and trough-like containers. These forms are relatively common on late Prehistoric saltern sites such as those nearby at Langtoft (Middle Iron Age), 1.7km to the northwest, or Market Deeping (Later Iron Age), 1km to the southwest.

The presence of the salt colours does, however, signify some contact with either brine, perhaps from a nearby tidal channel, or, possibly that 'marine' clay may have been used. The site lies on the immediate fen edge, close to the junction of the westernmost extent of the marine environments of the second millennium BC. However, as stated, the material is not briquetage as found on nearby sites dating to the first millennium BC and appears not to be represent salt making and an alternative function must be sought for the material.

References

Matson, F.R., 1971, 'A study of temperatures used in firing ancient Mesopotamian pottery', in Brill, R. (ed) *Science and Archaeology*, 65-71 (Cambridge, Mass.)

Rye, O., 1981, *Pottery Technology: Principles and Reconstruction*. Manuals in Archaeology 4

APPENDIX 14

**REPORT ON THE SAXON AND MEDIEVAL POTTERY
RECOVERED DURING THE
ARCHAEOLOGICAL EVALUATION OF THE
MEARKET DEEPING BYPASS**

by Hilary Healey

POTTERY SUMMARY
Hilary Healey

Trench	Context	Description	Date
2	15	Staffordshire potteries	18 th -19 th century
3	+	Middle Saxon Poss Romano-British	A.D. 650-850 2 nd -3 rd century?
3	156	Mid to Late Saxon type	A.D. 650-1066
3	186	Grey ware	2 nd -3 rd century?
4	86	Glazed red earthenware	17 th century
5	20	Bourne D ware	16 th -17 th century
14	+	Bourne A/B ware	13 th -14 th century

APPENDIX 15

**REPORT ON THE PREHISTORIC POTTERY
EXCAVATED DURING THE EVALUATION OF THE
LINCOLNSHIRE SECTION OF THE
MARKET DEEPING BYPASS**

by Tom Lane

THE PREHISTORIC POTTERY

by Tom Lane

Context 121

Pottery from this context consists of eight sherds, all undecorated body sherds, almost certainly from a single hand crafted vessel.

As a group the sherds weigh 40gms, with individual weights varying between 15gm and 5gm. Sherd size varies between 30 x 33mm down to 20 x 8mm with a mean thickness of 9-10mm.

All sherds exhibit a red/brown exterior and black interior and are manufactured using a coarse sand and grog tempered clay. Sherds are largely unabraded suggesting deposition followed closely the breaking of the vessel.

The fabrics and general style of the sherds suggests strongly a date in the Early-Middle second millennium BC. This fabric-type was in common use on the western fen edge during this period and has been recorded both in funerary and domestic contexts (e.g. at the Deeping St Nicholas funerary complex, 4.5km to the east [French, 1994] and at Deeping St James, 4km to the southeast [Lane 1993])

Context 059

In total, 15 sherds were retrieved comprising 13 undecorated body sherds and two sherds either from the junction of the main body of the vessel and a sagging base or from a sharp carination. All the sherds are devoid of decoration and appear to represent parts of a single vessel.

Individual sherds vary in size from 61 x 52mm down to 16 x 14mm. Average thickness is 7mm but increasing to 13mm on the base/lower carination. Total weight is 210g giving a mean of 14g per sherd.

Sherds are generally light brown in colour externally and sometimes internally, typically with a black core/interior. Oxidation has occurred over some of the breaks suggesting that the pieces may have been subjected to a fire subsequent to breakage or that they may be fragments from a 'waster'. The sherds are moderately abraded with some fresh (probably modern) breaks.

The vessel fabric is distinctive, being tempered densely with crushed limestone and fossil shell, a material available locally (e.g. within 5km). Interiors are generally roughened. No surface decoration is apparent although the vessel(s) appears to have been smoothed/smeared before firing.

No indicators are present to determine function and even the dating is problematical. Although the sherds have a general 'prehistoric' appearance there are no recognisable chronological indicators.

References

French, C.A.I., 1994, *Excavation of the Deeping St. Nicholas Barrow Complex, South Lincolnshire*. Lincolnshire Archaeology and Heritage Reports Series 1

Lane, T., 1993, 'Excavation of three Neolithic/Bronze Age sites in the Lincolnshire Fenland and a note on methodologies'. *Fenland Research* 8, 31-5