Archaeological Evaluation
at
Langtoft Common, Langtoft, Lincolnshire,
by
Heritage Lincolnshire

on behalf of
A.R.C. (Central),
during December 1991 and January 1992.

Report compiled by Gary Trimble - Site Supervisor

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SUMMARY

Between the 16th December 1991 and 9th January 1992 an archaeological evaluation was carried out by Heritage Lincolnshire on behalf of A.R.C. (Central) at Langtoft Common, Langtoft, Lincolnshire, prior to the lodging of a planning application for the extraction of mineral reserves.

The findings of the evaluation are that archaeological features are present and that these are directly associated with an Iron Age salt making site.

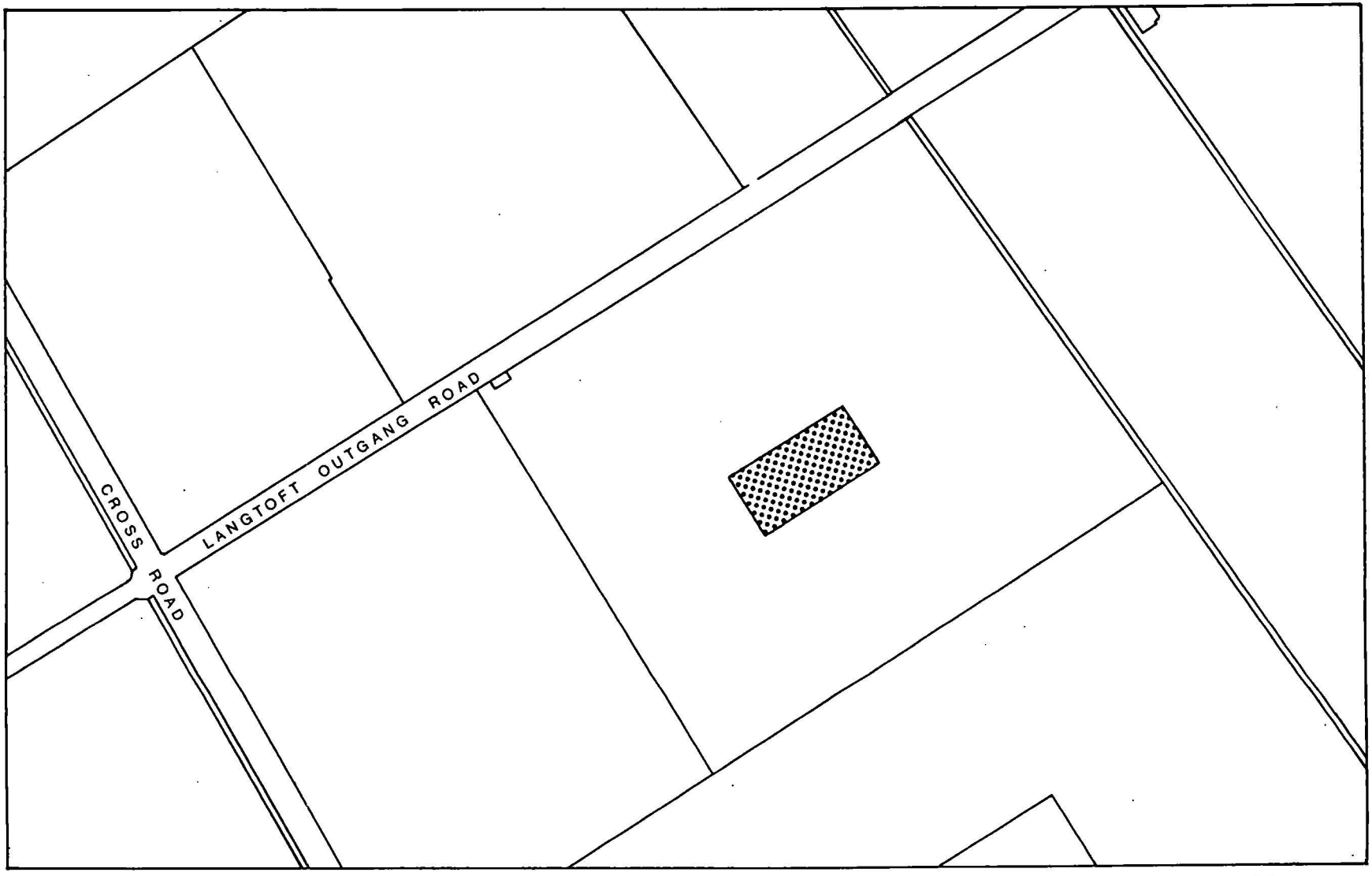
Although the site has suffered a degree of plough damage, archaeological deposits do survive, either partly disturbed or in the form of deep-cut features.

Lower deposits were found to be in a semi-waterlogged state and therefore have good potential for yielding environmental information.

It is therefore recommended that a comprehensive excavation of the saltern site and associated features should take place together with a watching brief over the remainder of the proposed area of gravel extraction.

FIG.1 LOCATION PLAN

TF 1466 1403



L A N G T O F T O U T G A N G R O A D
S A L T E R N

INTRODUCTION

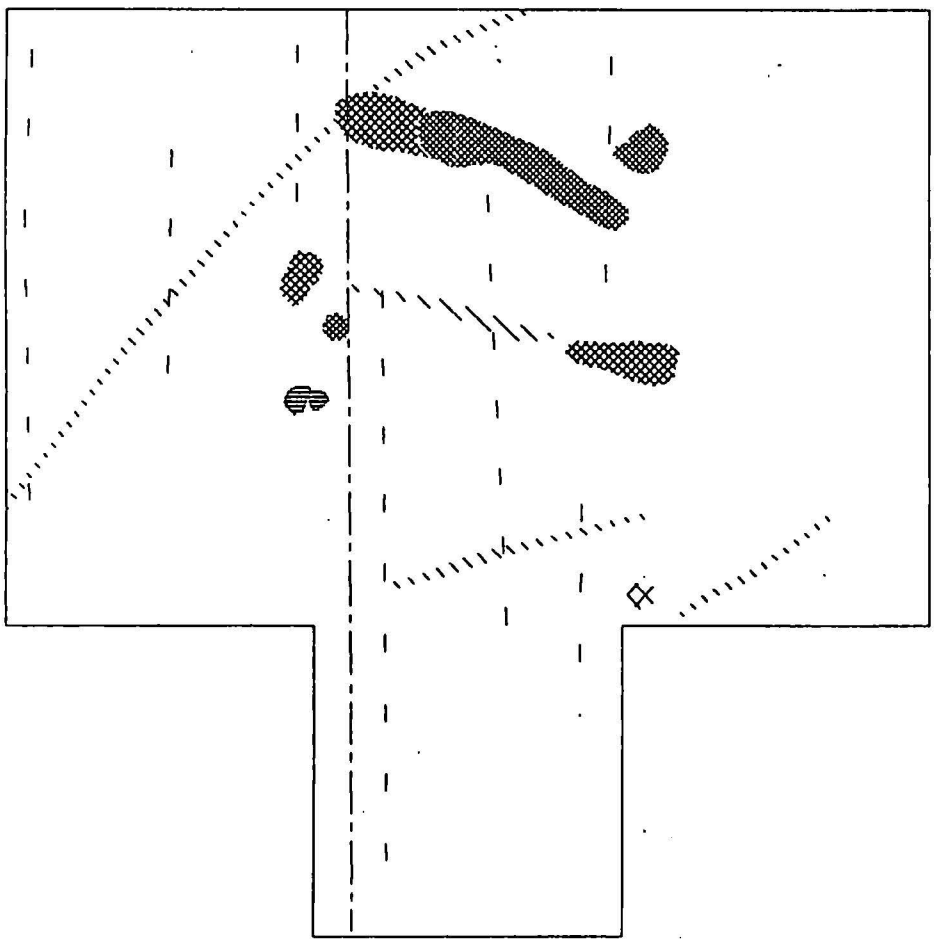
Between the 16th December 1991 and 9th January 1992, an archaeological evaluation was carried out by Heritage Lincolnshire on behalf of A.R.C. (Central), at Langtoft Common, Langtoft, Lincolnshire, N.G.R. TF 14661403 (see fig. 1) prior to the lodging of a planning application for the extraction of mineral reserves.

The aim of the work was to evaluate the extent, date and degree of preservation of any buried archaeological deposits within the area of a postulated saltern located during previous fieldwork in November 1989. The area evaluated is situated on fen and valley gravels and is currently used for arable purposes.

PREVIOUS FIELDWORK

A fieldwalking survey was carried out in November 1989, by the Trust for Lincolnshire Archaeology - now Heritage Lincolnshire. The field was walked on a 'straight through' system at ten metre intervals. Artifacts were collected and bagged separately for every ten metres walked.

A slight rise toward the centre of the field produced many ceramic fragments of a soft reddish brown fabric with calcite grits, together with a number of larger fragments of fired clay and a small number of worked flints. The reddish brown fragments and fired clay fragments were identified as 'briquetage', a material typically found on salterns: sites where salt was extracted from seawater.



Geophysical survey

Interpretation Diagram

Kiln / oven / hearth ?

Archaeological features ?

Ditch ??

Ferrous

Plough furrows

Old boundary ditch ?

0 m 20

FIG. 2

METHODOLOGY

The evaluation was carried out in two stages:

1). Geophysical Survey (fig. 2) [For full report refer to Appendix 1]

Reasons for undertaking the Survey

The fieldwalking survey had located the general area of the possible saltern, indicated by the spread of briquetage. For more detailed evaluation, a magnetometer survey was chosen in order to locate surviving, buried structural remains. The process of salt-making involves the evaporation of brine in large clay vessels heated from beneath and the remains of these hearths and evaporation vessels may show as slight magnetic changes in the soil. Survey with a fluxgate gradiometer is often successful in locating such magnetic anomolies and has the added advantage of detecting associated archaeological features such as pits and ditches.

The survey was conducted over seven 20m x 20m grids located over the area of the briquetage spread.

2). Excavation (see fig. 3)

Six trenches were strategically positioned using evidence gained from the geophysical survey. The trenches measured on average 6m x 1m. After the removal of the ploughsoil, each trench was hand dug using a systematic recording system wherein each 'context' was described and allocated a unique reference number.

Plans and sections were drawn at 1:20 and 1:10 scales respectively and, where appropriate, a photographic record was compiled.

RESULTS

Geophysical

The survey revealed a number of magnetic anomalies (see fig. 2). Several of these features can be interpreted as pits and/or hearths. The survey also defined the main area of archaeological activity which is centred on the grids shown in fig. 2.

Excavation

TRENCH A (see fig. 4)

At the north of the trench was a broad shallow depression cut [001] (2.30m N-S x 0.30m deep), cut into the natural silt [002], which continued beyond the limits of the trench. Numerous deposits of sand/silt filled this depression. Cutting through these fills and truncating [001] was a 'gully' [003] (0.50m in width to the east narrowing to 0.30m in the west x 0.20m deep). This gully was aligned east-west and lay in the extreme north of the trench. Associated with [003] was a narrower gully [004], (0.30m wide x 0.10m deep) running north. Cut or driven into the lower fill of [003] was a row of four stake-holes, measuring on average 50mm in diameter, placed roughly 0.20m apart and orientated east-west along the centre of the gully. A further fifteen stake-holes were recorded placed randomly in an area measuring 1.00m x 1.40m extending south from the edge of cut [003].

FIG.3
TRENCH LOCATION

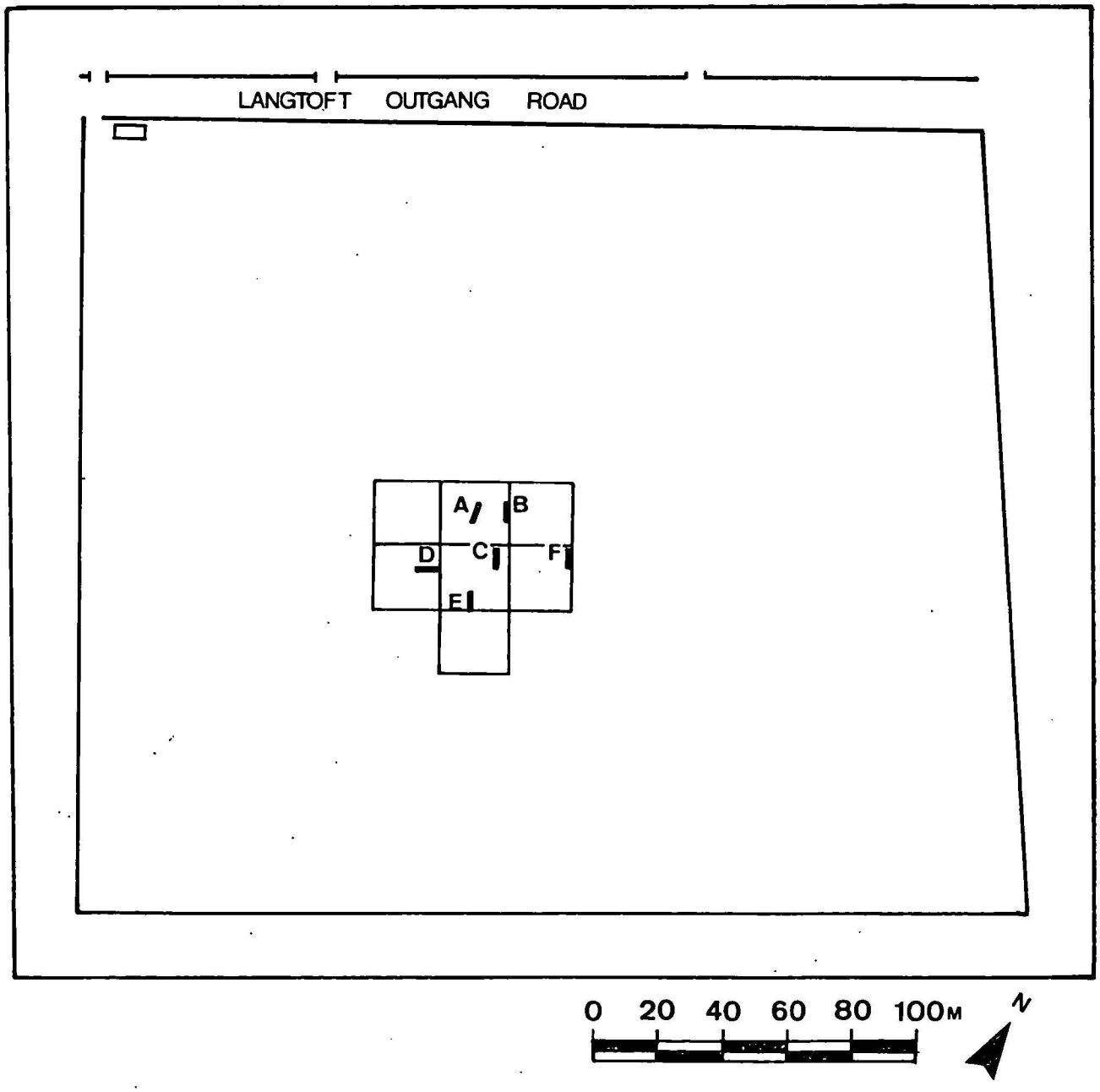
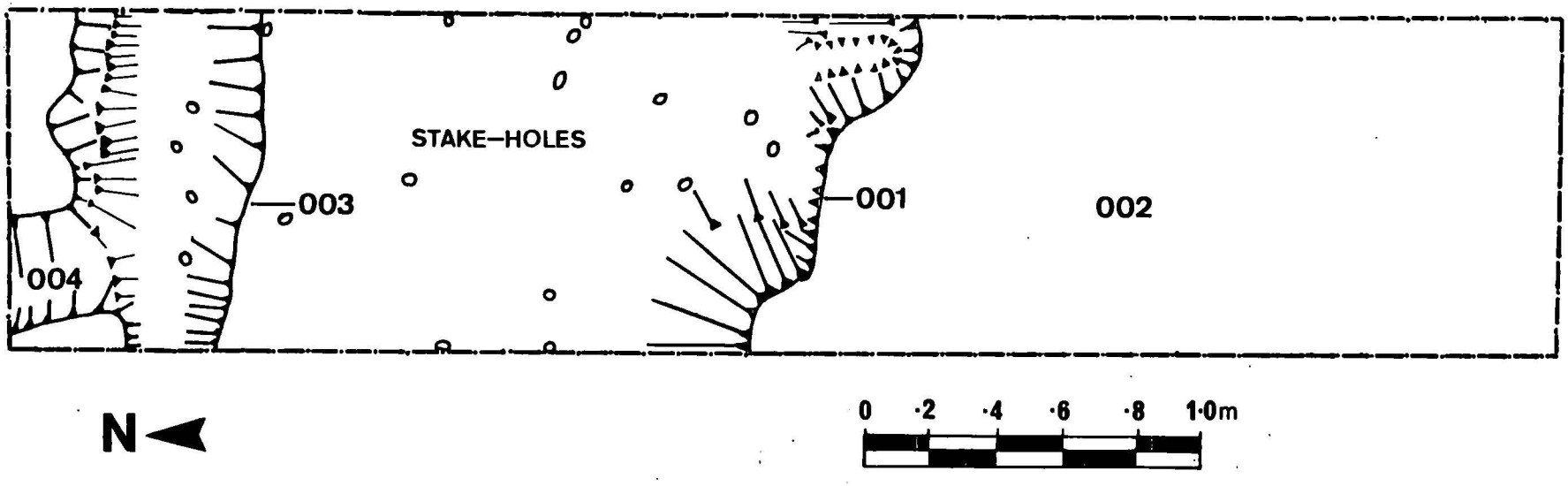


FIG.4
TRENCH A



TRENCH B (see fig. 5)

The only feature recorded in trench B was a pit [005] (2.50m NW-SE x 1.20m deep). The full extent of this pit is unknown as it extended beyond the limits of the trench. The earliest deposits in the pit: [006]; [007] and [008], consisted of light grey clay/silts which were partially waterlogged. Samples of these deposits were taken for environmental analysis. The total depth of these deposits was 0.50m. The lower deposits and the cut of the pit were sealed by [009], a light reddish grey silt which averaged 0.35m in thickness and extended across the entire trench. The hollow above [009], created by subsidence in the pit, was filled with a dark grey peat [010] (2.10m NE-SW, 0.30m deep).

TRENCH C (see fig. 6)

Trench C contained a deposit of red/grey sand/silt [011], (0.60m NW-SE, 0.12m max. depth). Approximately 40% of this deposit consisted of small fragments of briquetage. This linear deposit was orientated NE-SW across the trench. Sealing [011] were layers [012] to the north and [013] to the south, both of which were rich in briquetage. These silt layers extended across the whole trench and were between 0.05m and 0.10m thick.

TRENCH D (see fig. 7)

At the eastern end of trench D was a shallow gully [014] (0.45m wide x 0.15m deep) orientated N-S, and cut into natural deposits.

TRENCH E

Trench E was devoid of archaeological features.

FIG. 5
TRENCH B. SECTION THROUGH 005

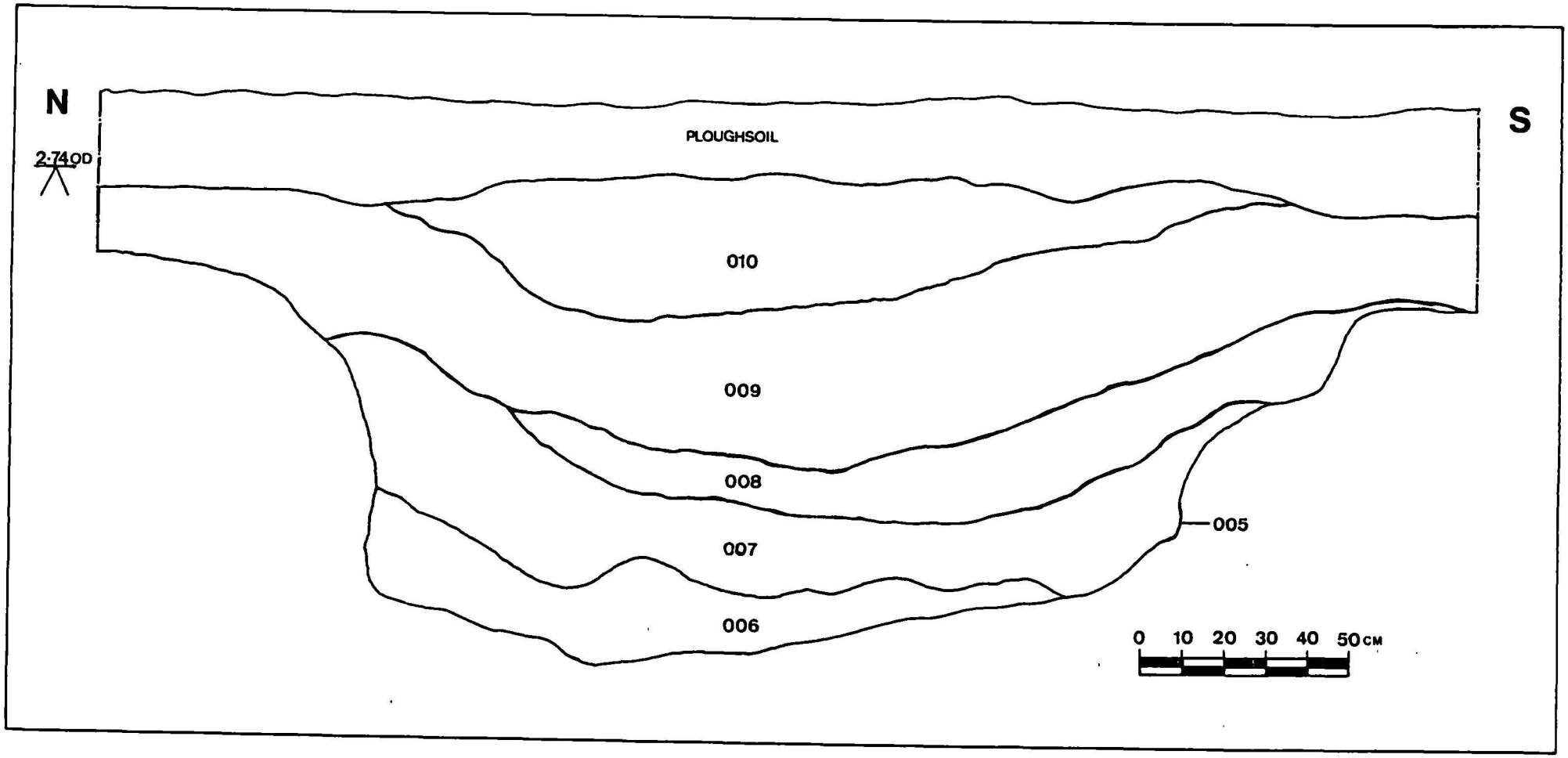


FIG. 6
TRENCH C. SECTION

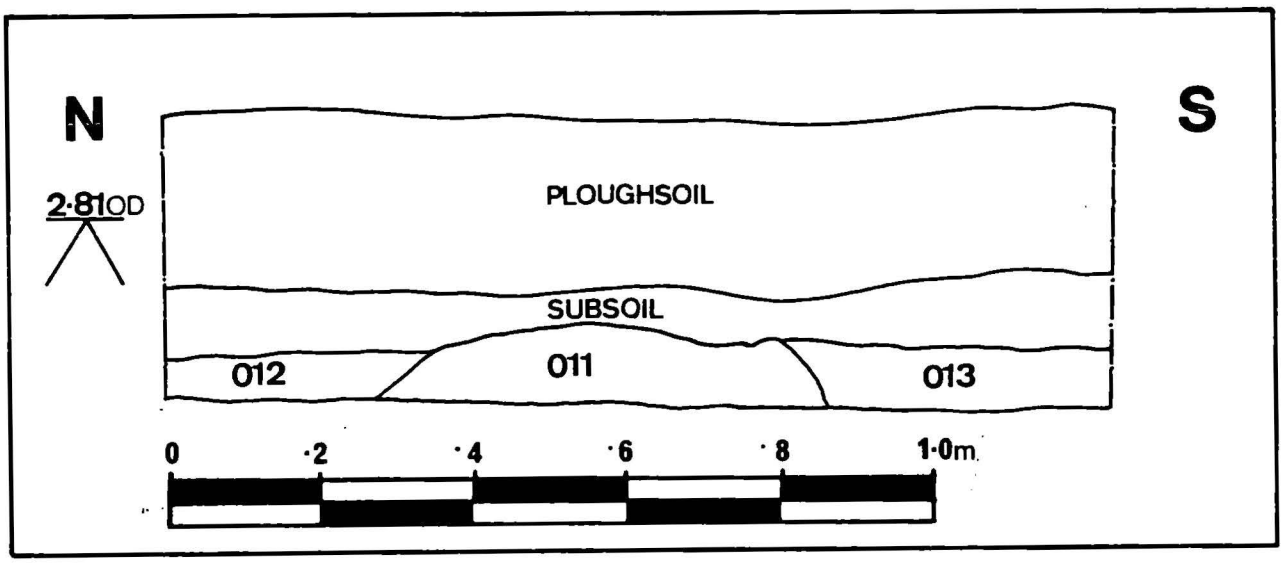
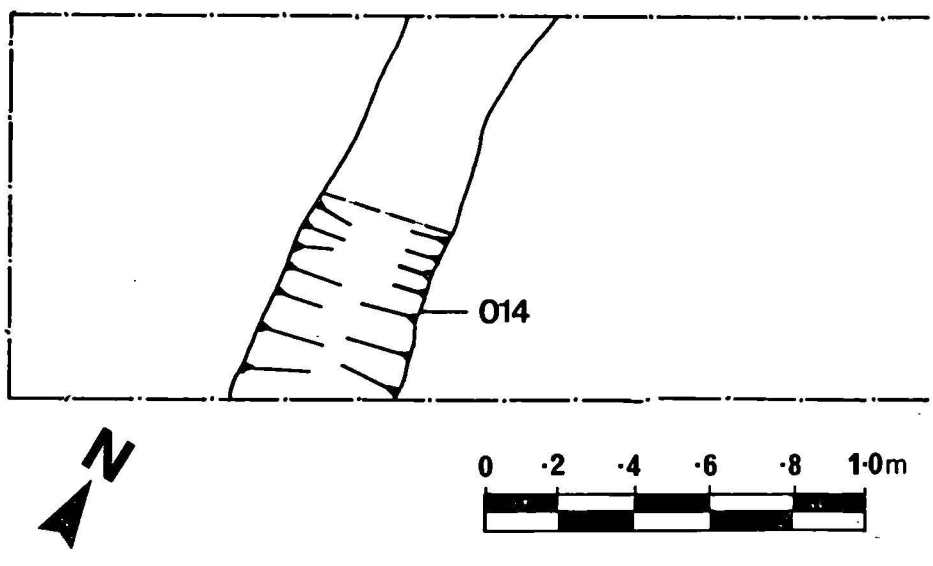


FIG. 7
TRENCH D

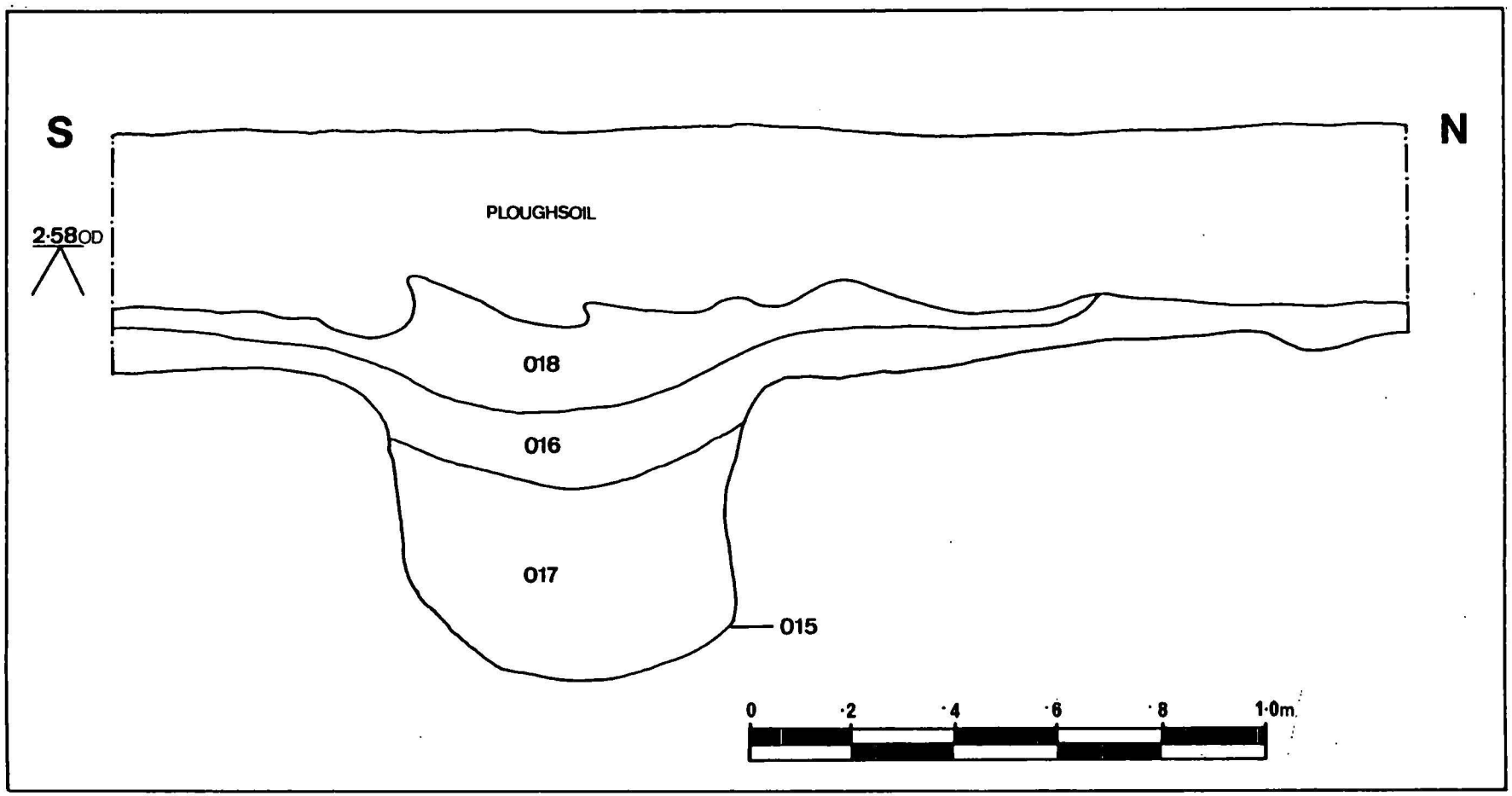


TRENCH F (see fig. 8)

A number of archaeological features were excavated and recorded in this trench. A ditch or pit, [015], (0.70m wide NE-SW x 0.60m deep) continued beyond the limits of the trench, and was filled with firmly compacted light grey sand/silt [017]. Sealing [015], and extending to the north and south of the trench, was a light grey sand/silt [016] varying in thickness from 0.08m to 0.17m. This deposit has been interpreted as a buried soil. Redeposited sand/gravel layers, [018] which had been disturbed by ploughing also sealed feature [015].

FIG. 8

TRENCH F. SECTION THROUGH 015



CONCLUSION

Lincolnshire saltern sites usually involve a salt extraction process whereby seawater from saline creeks was channelled, by way of a network of ditches, into settling pans or pits where the water was left to evaporate leaving a salt/silt solution. From this point the process of salt extraction is not yet fully understood. It is thought that briquetage troughs or vessels were either used in a boiling process to extract the salt or used as moulds to make salt-cakes. In either case heat seems to have been used and there is evidence for hearths on previously excavated salterns. The larger briquetage fragments were used as supports or spacers for the troughs.

At Langtoft Common, the alignment of a now extinct watercourse can still be seen as a low ridge orientated N - S across the field. The area of the saltern lies on a slight slope to the east of this ridge.

The 'gullies' found in trench A [003] and [004] and in trench D [014] probably represent the channels used to divert salt water from the creek into settling pans or pits.

The function of the large pit [005] in trench B is uncertain. A large quantity of artefacts and material typically associated with salt making was recovered from the deposits within the pit and indicates that its function is connected with the process.

The pit contained a number of semi-waterlogged deposits which were assessed for their environmental potential. Waterlogged deposits may preserve pollens, seeds, molluscs, insects and foraminifera. Foraminifera are particularly useful as they occur in brackish or saline water. A report on the state of preservation of the environmental remains in the pit was commissioned and states that deposits [006], [007] and [008] have a good potential for the preservation of pollens, seeds, insects, etc. This also applies to any other deep-cut features on the site, however, the absence of groundwater in pit [005]

would suggest that the area is being de-watered by nearby quarrying operations. As a result of de-watering, the waterlogged deposits may not remain so for much longer (detailed results and recommendations are given in Appendix 2).

Trench C contained layers rich in small fragments of briquetage, notably [011]. These deposits can be interpreted as dumping of waste material from the saltern.

Trench F contained features of archaeological interest, notably the pit [015]. The buried soil [016], which sealed [015], could provide valuable information concerning the ancient environment. An assessment of the degree of survival of environmental archaeological material in this deposit is also included in Appendix 2.

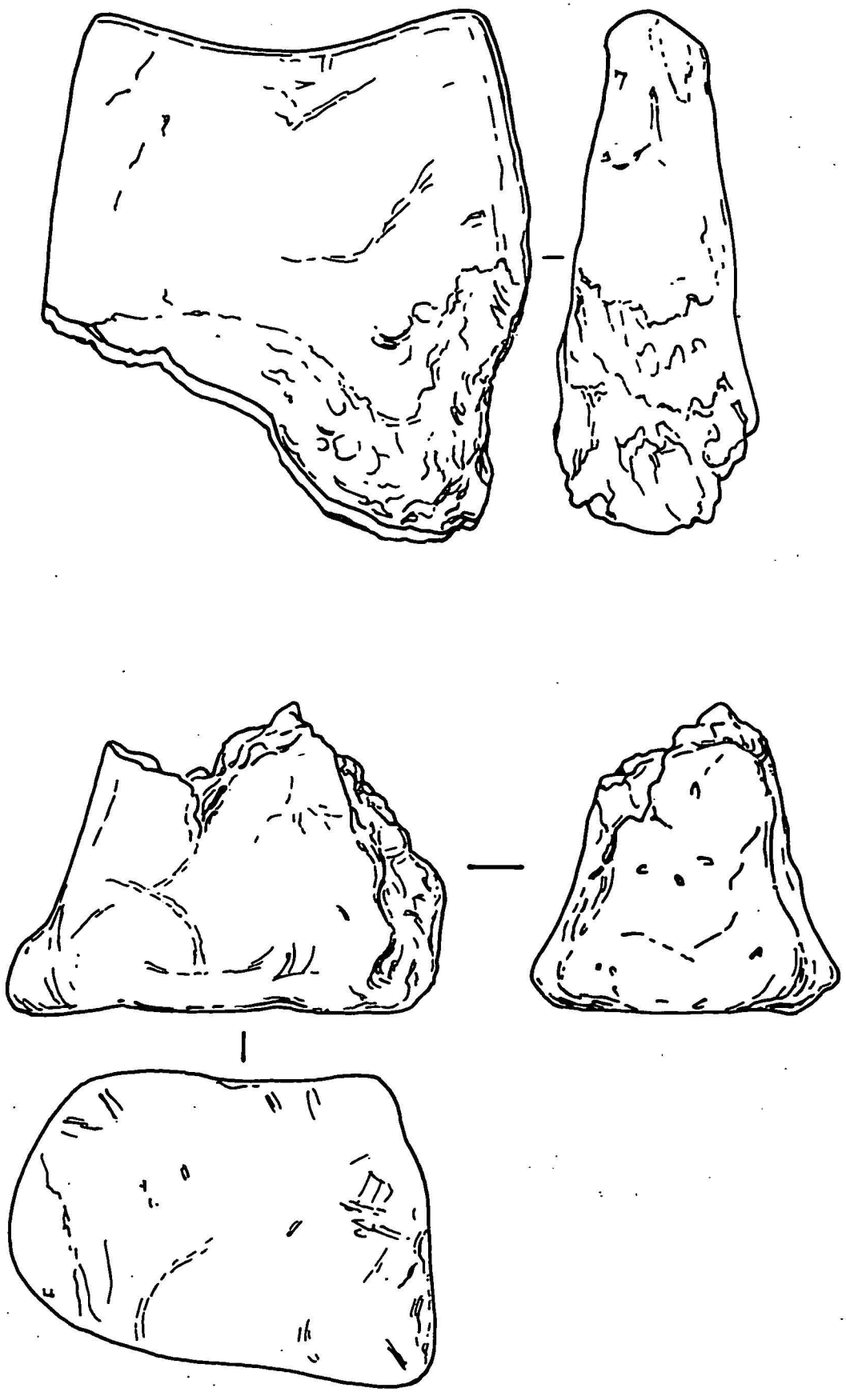
The site has suffered a degree of plough damage but the extent is difficult to quantify. This is demonstrated by the fact that only 100mm of archaeological deposits survive in trench C whilst the gully [003] in trench A survives virtually intact to a depth of 0.40m below the bottom of the ploughsoil. The presence of deep-cut features, such as the pit [005], ensures the survival of valuable archaeological information such as stratified artifacts and possible environmental evidence.

A report on the recovered ceramic material was commissioned by Heritage Lincolnshire (see figs 9 and 10 and Appendix 3). The analysis of the briquetage and domestic pottery from the site has confirmed an Iron Age date (probably middle Iron Age - 400BC - 150BC) for the saltern and not a Bronze Age date as previously thought. The date of the saltern is of particular significance as no other Iron Age saltern is known so far inland in this area. The main centres of Iron Age salt making activity are some eight kilometres to the east between Deeping St. Nicholas and Cowbit.

The discovery of this saltern has, therefore, cast doubt on previous theories concerning the transgression of the sea and the position of the coastline during the Iron Age.

The evaluation has shown that this saltern site has the potential to provide information regarding the surrounding environment in this part of the fens during the Iron Age and adding to the overall picture of settlement and economic exploitation of fenland resources. It could also elucidate the process (as yet little understood) of extracting salt from sea water in the Iron Age.

FIG.9
Fragments of briquetage supports from Langtoft



ACTUAL SIZE

Fig. 10

Fragments of briquetage troughs

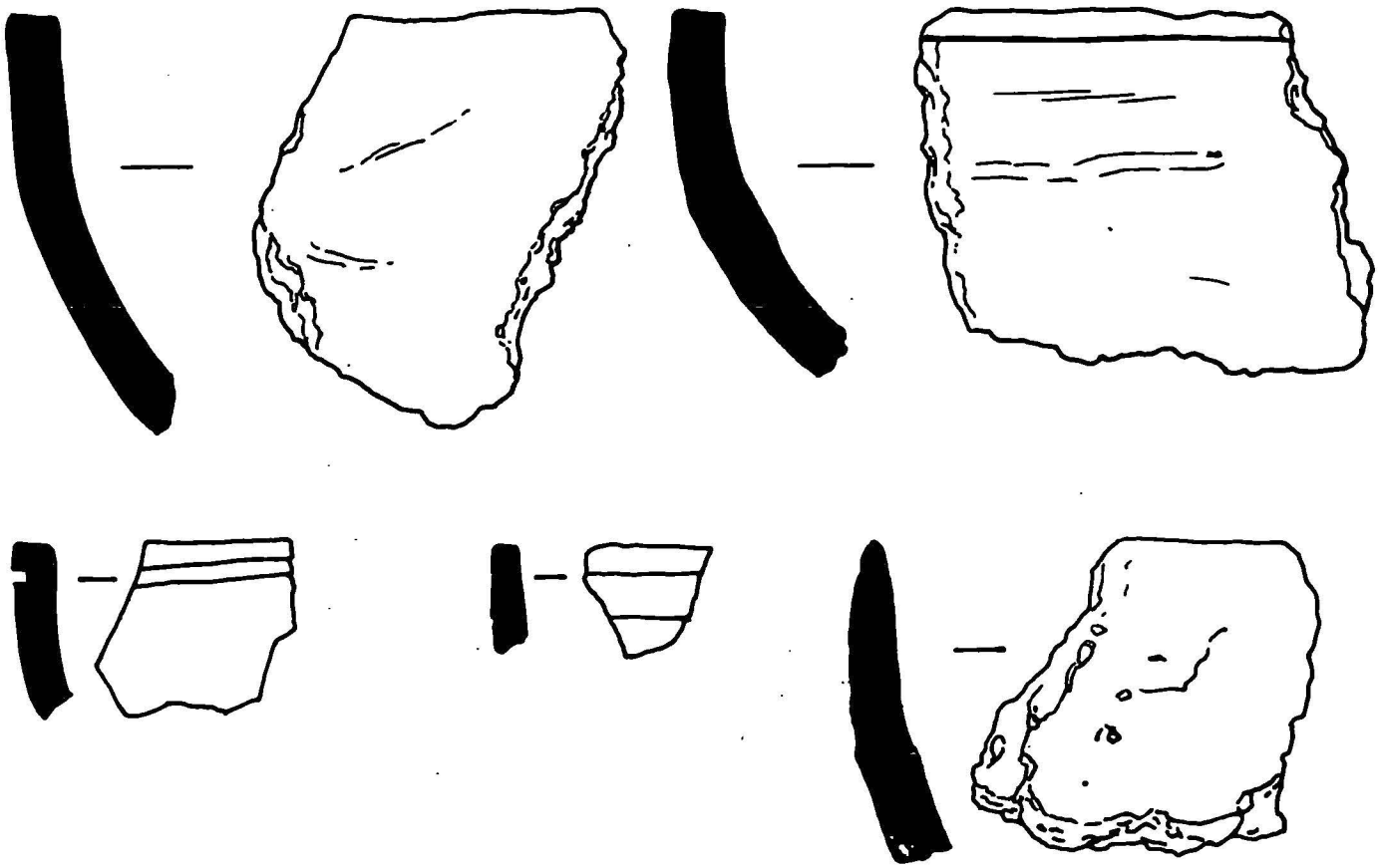
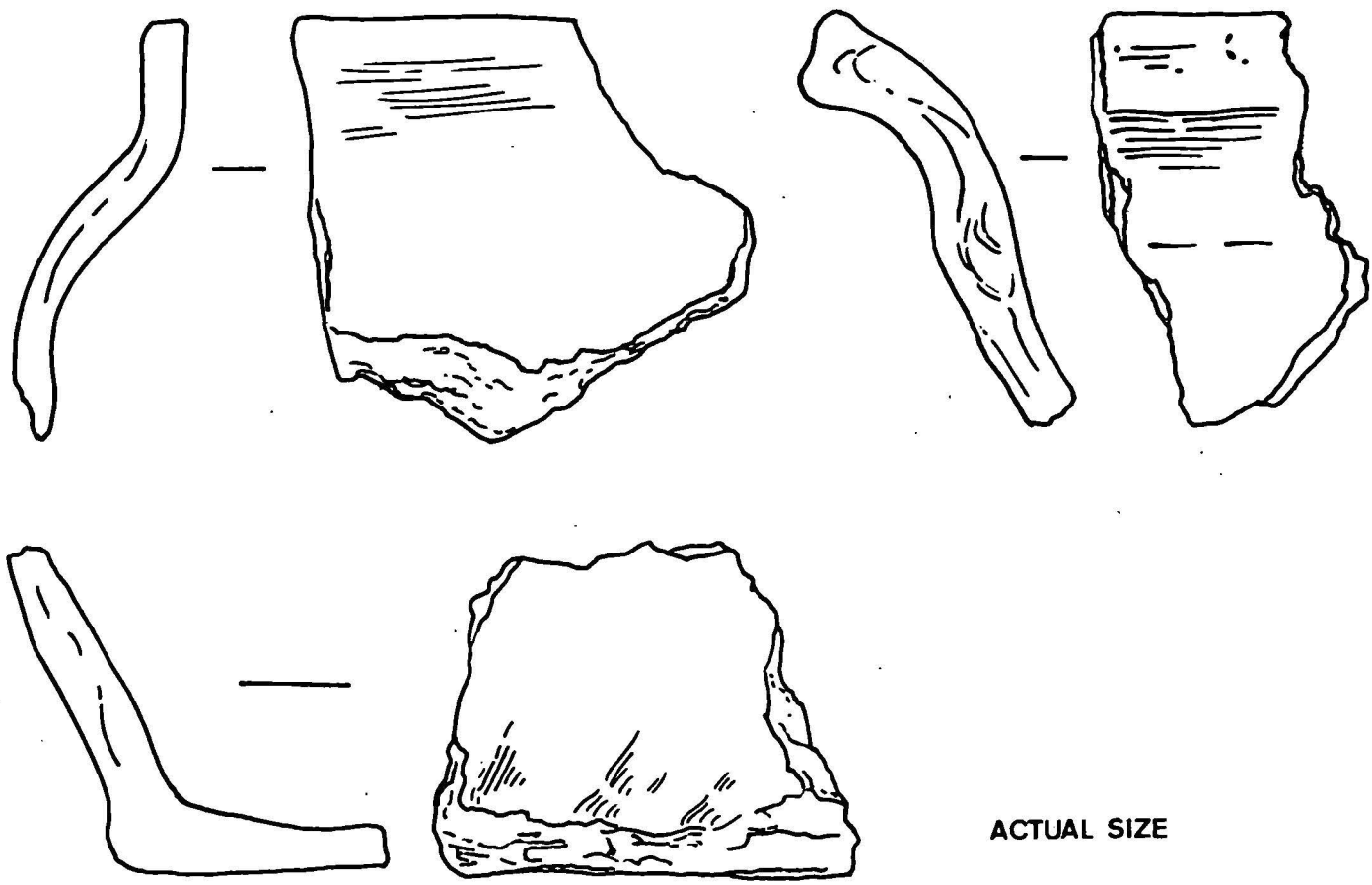


Fig . 11

Fragments of domestic pottery



ACKNOWLEDGEMENTS

Heritage Lincolnshire thanks A.R.C. (Central) for the funding of the evaluation and analysis work and the archaeological site team who undertook the work.

Thanks for specialist reports are due to Dr. Charles French for the environmental assessment, John Gater and Claire Stephens of Bradford Geophysical surveys and Hilary Healey for the ceramic report and illustrations.

APPENDIX.1

SITE SUMMARY SHEET

91 / 102 Langtoft Common, Lincolnshire

Location and topography

The site under investigation lies east of the A15 road and the village of Langtoft, approximately 1 kilometre north of Market Deeping. The field is very flat and a sugar beet crop had recently been harvested. The geology consists of sands and gravels.

Archaeology

An archaeological assessment of the area, carried out by The Trust for Lincolnshire Archaeology (now under the aegis of Heritage Lincolnshire) in 1989, identified several features of interest. In particular, the discovery of briquetage of possible Bronze Age date, makes further investigation of the area imperative, prior to its destruction by proposed sand and gravel extraction.

Aim of Survey

To try to pinpoint features of archaeological interest associated with the postulated salt working site.

Summary of Results *

In general, the background level of magnetic noise is quite low. As a result, it has been relatively easy to pinpoint anomalies of probable archaeological interest. Several of these have characteristics which are suggestive of small-scale 'industrial-type' activity, as might be expected on a saltern site.

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

Reference

Trust for Lincolnshire Archaeology, 1989 - **Baston II : Langtoft (Areas F, XVI, IX)**, Archaeological Assessment for ARC Eastern.

SURVEY RESULTS

91/102 Langtoft Common, Lincolnshire

1. Survey Area (Figure 1)

1.1 Seven 20 metre grid squares were selected for detailed survey (see 4.1).

1.2 The survey grids were set out by Geophysical Surveys of Bradford (GSB), and detailed tie-ins were taken by Heritage Lincolnshire (HL) personnel. The tie-in information is held by HL.

2. Display (Figures 2 to 4)

2.1 The results are displayed in three formats:- dot density plot, X-Y trace and grey-scale image. These display formats are discussed in the *Technical Information* section, at the end of the report.

2.2 All of the data plots are produced at 1:500. Larger scale copies have been supplied to HL for ease of locating the anomalies in the field.

2.3 A simplified interpretation diagram, also at 1:500, is included (Figure 6).

3. General Considerations - Complicating factors

3.1 In general, ground conditions were ideal for survey work, but slight plough furrows in the field have resulted in a 'stippled' background noise effect.

3.2 A few instrument problems were encountered because of the sub-zero air temperatures when the work was carried out. As a consequence, minor corrections have been made to the data, but these do not alter the results in any way.

4. Results

4.1 Artefact recovery during fieldwalking had identified one area where briquetage was concentrated. Scanning with the magnetometer in this general area confirmed the presence of anomalies of likely archaeological interest. Detailed grids were set out, therefore, over one particularly clear anomaly. Further grids were then located following an analysis of data plots generated in the field.

4.2 The general level of background magnetic noise was low, as is often the case on sands and gravels. Sometimes the low magnetic susceptibility of the soils means that some features may have been 'missed' by the magnetometer because of a lack of magnetic enhancement. This fact should be borne in mind when considering the interpretation. Post-holes, slots and small ditches will not have been mapped. By contrast, 'fired' remains, or other strongly enhanced deposits, become particularly easy to define.

4.3 The X-Y traces serve to demonstrate the varying strengths of the anomalies, while the other plots provide a good plan of the associated features.

4.4 There are four areas of strong anomalies which, given the artefactual evidence, are likely to be associated with briquetage and / or other burnt / fired deposits. One 'double-peak' anomaly, marked on the interpretation, may be associated with an *in situ* small kiln or oven.

4.5There is a clear linear anomaly aligned parallel to the survey grid axis. This would appear to be associated with an old field boundary of unknown date.

4.6 Also parallel to the grid are linear trends in the data which co-incide with the existing plough furrows. These anomalies merely reflect background soil noise.

4.7 There are hints of other anomalies in the data, but due to the low magnetic susceptibility (Paragraph 4.2, above), it is very difficult to interpret any as being archaeologically significant.

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5. Conclusions

5.1 The survey has succeeded in pinpointing several anomalies of archaeological interest that are likely to be associated with the postulated saltern site.

5.2 The features have been accurately plotted and this will greatly assist with the planning of excavation trenches.

5.3 It was not within the scope of the present survey brief to define any limits to the deposits.

Project Co-ordinator: J Gater
Project Assistants: Y Minvielle-Debat and C Stephens

12th December 1991
Geophysical Surveys of Bradford

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 one metre intervals giving 400 readings per 20m x 20m grid. The data are then transferred to a Compaq SLT/286 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 a Mission or Dell 386 computer linked to appropriate printers and plotters.

Instrumentation

(a) Fluxgate Gradiometer - Geoscan FM36

This instrument comprises 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 similar volume of earth may be acquired. In such a case the amount measured may be used to calculate the earth resistivity. Using a 'Twin Probe' arrangement the terms 'resistance' and 'resistivity' may be interchanged. This arrangement involves the pairing of electrodes (one current and one potential), with one pair remaining in a fixed position whilst the other measures the resistivity variations across a fixed grid. Resistance in measured in ohms, while resistivity is measured in ohm-metres. The resistance method has a depth resolution of approximately 0.75m, although the nature of the overburden and underlying geology will cause variations in this generality.

(c) Magnetic Susceptibility

Variations in the magnetic susceptibility of subsoils and topsoils can provide valuable information about the 'level of archaeological activity' associated with a site. This phenomenon 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 culturally enhanced phenomenon is a laboratory based susceptibility bridge. Standard 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) 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 normally produced on a flatbed plotter.

(b) 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.). When the contrast is equal to 1, then the scale between the two cut-off levels is linear. A C.F.>1 helps to enhance the higher readings, although a C.F. greater than 2 is rarely required. To assess lower than normal readings involves the use of an inverse plot. This plot simply reverses the minimum and maximum values, resulting in the lower values being represented by more dots. In either representation, each reading is allocated a unique area dependant 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.

(c) Contour

This display joins data points of an equal value by a contour line. Displays are generated on the computer screen or plotted directly on a flat bed plotter / inkjet printer. The former will generate either colour or black and white copies depending on the printer used.

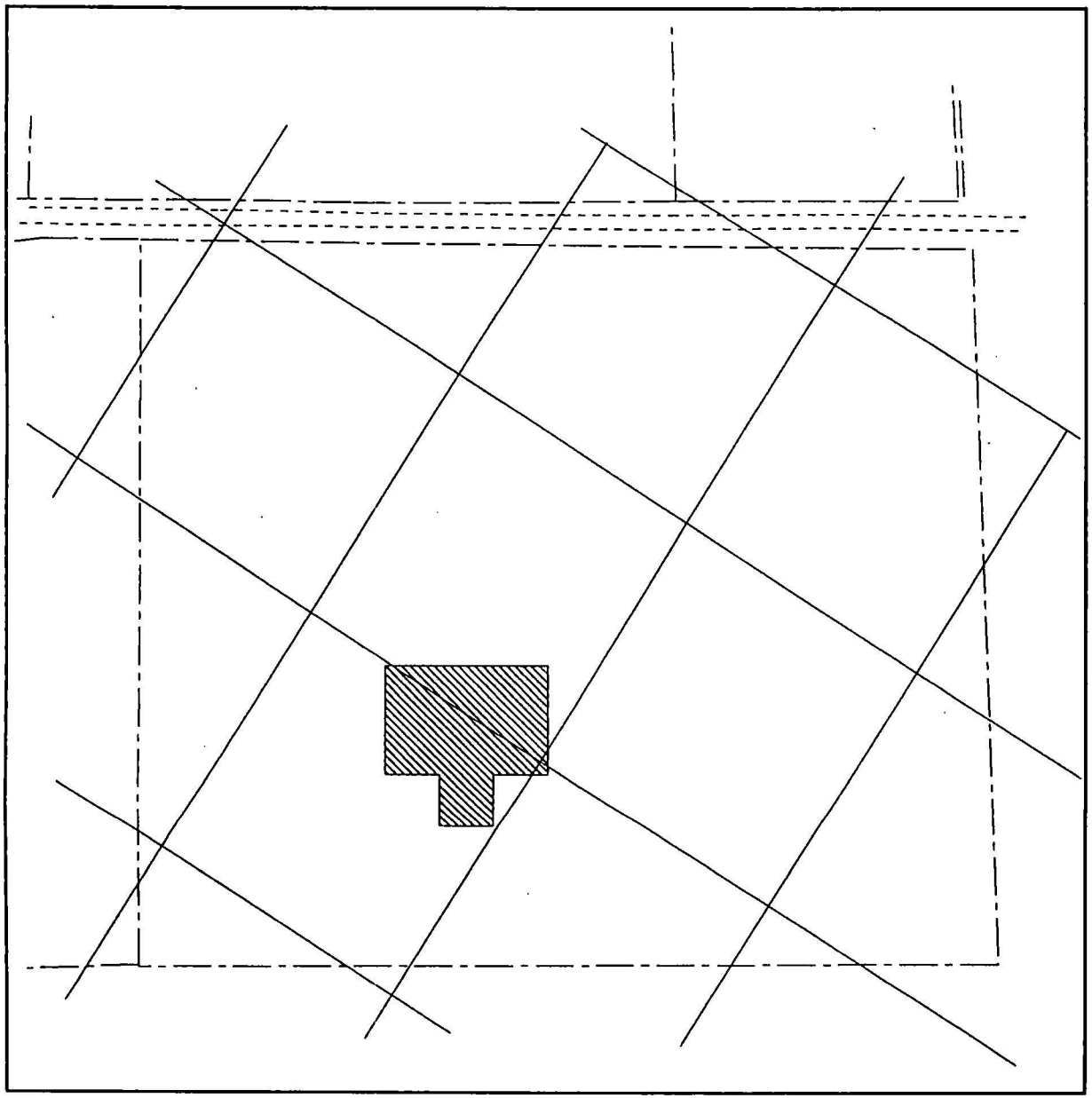
(d) 3-D Mesh

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. Again, the output may be either colour or black and white. A hidden line option is occasionally used (see (a) above).

(e) Grey-Scale

This format divides a given range of readings into a set number of classes. These classes have a predefined arrangement of dots, 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.



LANGTOFT COMMON

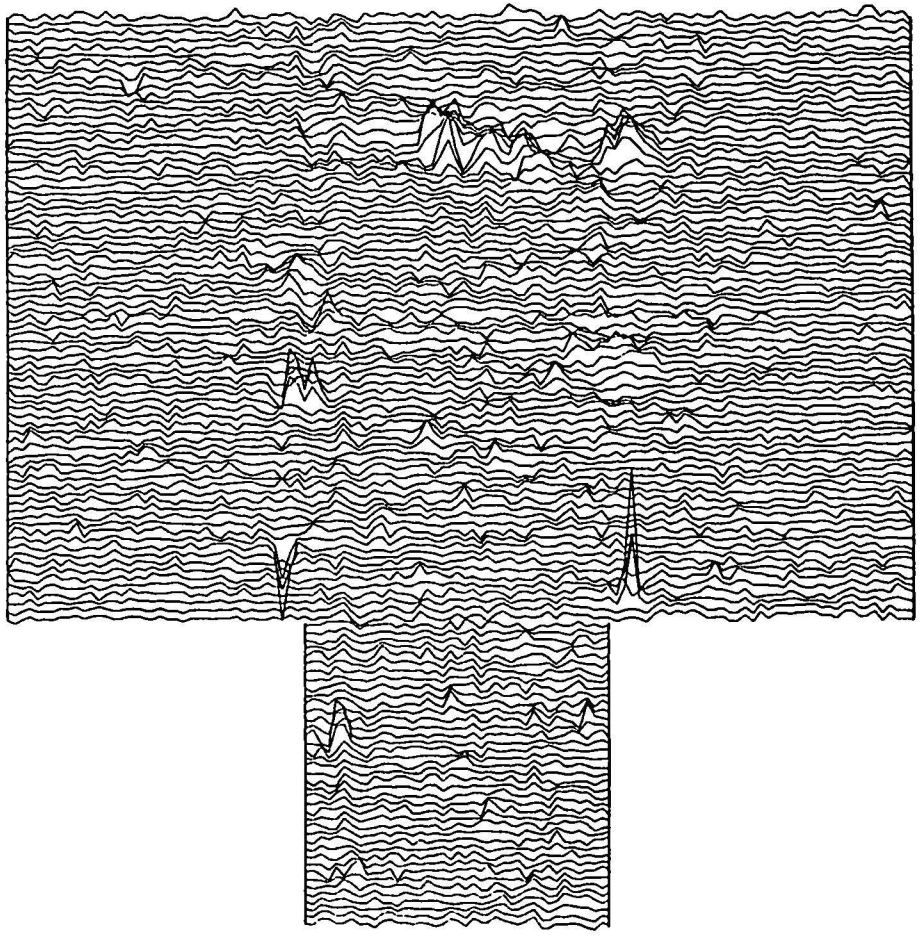
Sketch Location Plan

(Not accurately plotted)

Survey Area

1:2500

Figure 1



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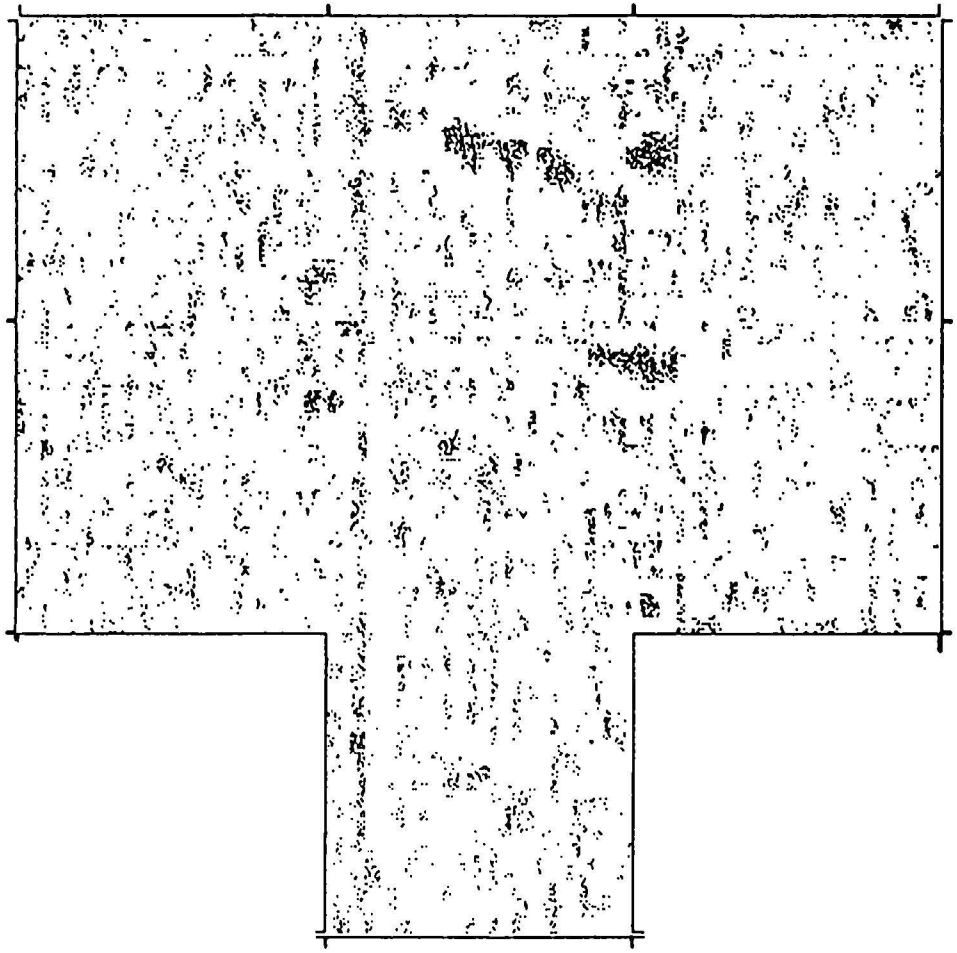
Magnetic Data

10 nT

0 m 20

Figure 2



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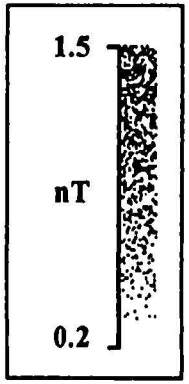
Magnetic Data



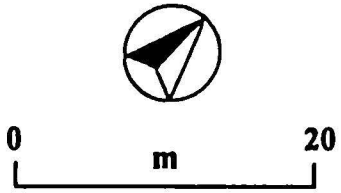
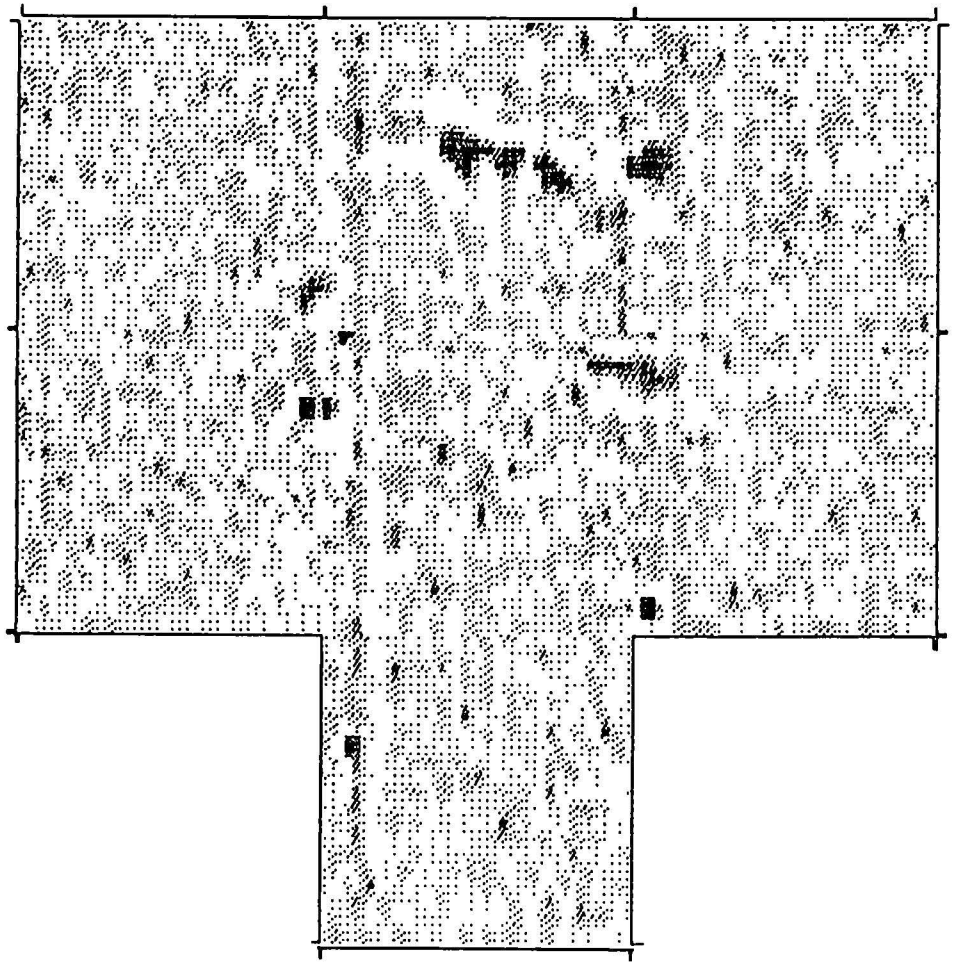


Figure 3



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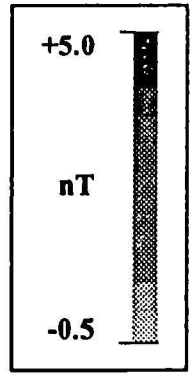
Magnetic Data



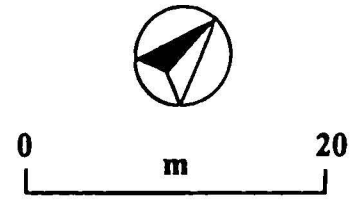
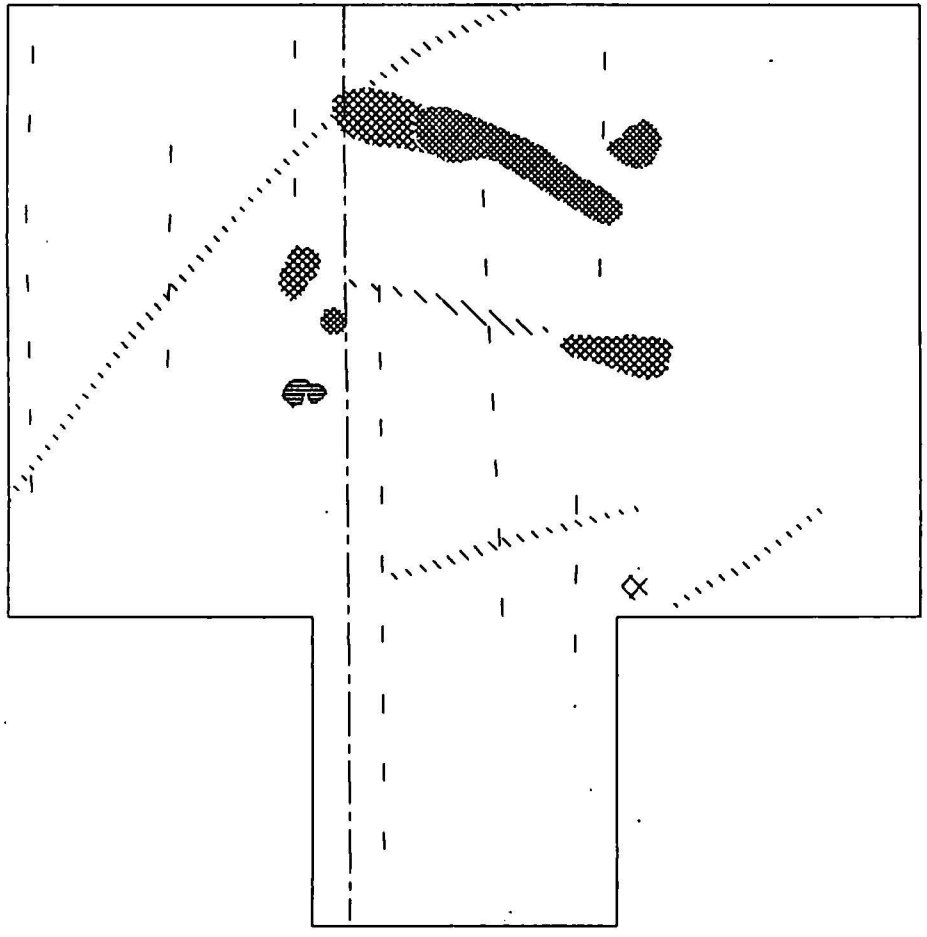


Figure 4

LANGTOFT COMMON

Interpretation Diagram



Kiln / oven / hearth ?

Archaeological features ?

Ditch ??

Ferrous

Plough furrows

Old boundary ditch ?

0 m 20

Figure 5

APPENDIX.2

LANGTOFT, OUTGANG ROAD SALTERN (1991) : ENVIRONMENTAL ASSESSMENT

C.A.I.French MIFA

(January 12, 1992)

1.Introduction

On-site inspection of the assessment phase trial trenches of an Iron Age saltern site situated about 1 km to the east of Langtoft village was undertaken on January 9, 1992.

The site is located on Welland Terrace gravels where they coalesce with fen gravels on the south Lincolnshire fen edge. Approximately 30 cm of ploughsoil overlies the subsoil surface. This ploughsoil contains minor amounts of river-borne silty clay or alluvium. In places, a thin (<10 cm thick) buried soil is preserved beneath the ploughsoil.

2.Environmental Potential

Field-walking and magnetometer survey of the area has suggested the presence of an Iron Age saltern adjacent to a relic stream channel. Trial trenching and the features sample excavated revealed deep features cut into the subsoil which contained abundant briquetage debris.

In particular, Trench B cut across a large pit, some 2.5 m in width and 1.4 m deep. The lower half of the profile contained three waterlogged layers of fill : the primary fill (017) was a reduced gravelly silt loam; and the lower secondary fill was comprised of a reduced silt loam (013) and a reduced silty clay

loam (Ø16). The upper half of the profile is composed of an upper secondary fill of oxidised sandy loam (Ø12) and a tertiary fill of brown silty clay (Ø11).

The absence of groundwater within the excavated pit suggests that the pumping associated with the adjacent quarrying operations is significantly lowering the local groundwater table. Consequently, these waterlogged deposits may not remain so for very much longer. Detrimental effects on the preservation of the organic evidence may therefore already be occurring.

Accordingly, this section deserves environmental sampling for foraminifera, molluscs and plant macro-fossils. Foraminifera, if present, can give specific information about the nature of the former brackish water conditions on site and can suggest the approximate height of the deposits above the mean sea level of the day. This information is extremely useful, both in terms of the functioning of the saltern site and the wider general environmental conditions. Also, the data provided is so specific that the molluscan and botanical analyses may prove to be unnecessary. Therefore, this analysis must be completed first, prior to the other techniques being employed. As a result, it was decided on site to sample the pit in Trench B at the assessment phase, with continuous samples being taken through the waterlogged layers (Ø17, Ø13 and Ø16) at c. 5 cm intervals, and spot samples taken from the oxidised upper layers (Ø12 and Ø11).

Molluscs, both brackish and fresh-water, are present throughout the profile. Although the foraminifera analysis may prove to be sufficient, the profile was also sampled for

molluscs. One spot sample per layer was taken.

A similar series of bulk spot samples was also taken for macro-botanical analysis. Examination of the waterlogged layers 017, 013 and 016 may provide site specific botanical evidence to augment the results of the foraminifera analysis.

In addition, the waterlogged primary and lower secondary fills of the pit in Trench B indicate that there is good potential for the preservation of wood, pollen and insect remains from other deep-cut features on the site should full excavation proceed in the future. Nonetheless, it was advised not to sample for these types of evidence at this assessment stage of investigation, but rather wait until the excavation phase. These are expensive analyses to perform, and sampling 'blind' may produce biased or irrelevant results. Indeed, this particular pit feature may not be representative of the site's environmental development.

Trench F revealed the presence of a thin (<10 cm thick) buried soil beneath the ploughsoil. It is a light greyish brown sandy/silt loam, which has been severely truncated and disturbed by modern ploughing. Again, it was decided not to sample for soil micromorphological analysis as it is possible that better preserved and more representative exposures of the pre-alluvial soil may be found during open area excavation in the future.

3.Recommended Further Work

The 8 foraminifera samples should receive preliminary analysis as a first and necessary step, as the necessity of all the other

environmental work will hinge on the nature of these results. Mr.M.Godwin of the School of Environmental Sciences, University of East Anglia, Norwich, is able to undertake this work for about £150-225 (or 2-3 days at the HBMC specialist rate of £9.19 per hour).

The molluscs could receive preliminary assessment for a similar sum if there was poor foraminifera preservation. The writer could perform this work.

Macro-botanical assessment would require more work and time, possibly one week's time for a specialist to do the sieving and preliminary evaluation of the potential (eg. Val Fryer, University of East Anglia).

4.Conclusions

1) The waterlogged primary and lower secondary fills in the deep pit in Trench B suggest that there is good environmental potential at this Iron Age saltern site.

2) Nevertheless, the low groundwater table suggests that the whole area is currently being de-watered by adjacent quarrying operations.

3) Foraminifera analysis of the pit in Trench B should provide the quickest and most informative environmental information regarding salinity levels, the relationship of the site to mean sea level, the possible functioning of the saltern and the surrounding vegetation. This analysis will also give useful comparative evidence for the Iron Age saltern site currently being excavated near Market Deeping (MAD 2).

4) Spot bulk samples were taken from the same feature profile for molluscan and macro-fossil analyses in order to back-up and augment the foraminifera analysis.

5) There is also good potential for the preservation of pollen, insect remains and wood in the deeper features at this site. A truncated buried soil also survives in places. It is recommended that further decisions regarding their sampling should be deferred until the main excavation in the interests of procurring representative profiles and information as well as cost considerations.

APPENDIX. 3

LANGTOFT OUTGANG ROAD - SALTERN

Notes on ceramic material

Material seen was divided into pottery and fired clay (briquetage), and the latter then sorted into groups according to visual (macroscopic) appearance only. The classification was based on that used by Lane in the Fenland Survey Project (Hayes and Lane, forthcoming). Selected examples of each recognisable form were drawn at a scale of 1:1. relevant spotdating forms were filled in and a short note prepared. Articles of particular relevance in De Brisay etc. are those by de Brisay relating to Essex and by Farrar describing Dorset discoveries. In both these last accounts there is not always a clear distinction between Iron age and Roman salt-making sites and the material found on them, but at Langtoft there is no evidence of Romano-British activity.

Forms and dating

Pottery

Of the 49 sherds of domestic pottery recorded all are in a shell tempered fabric fired to a generally black surface and core, but with variable surfaces tending to buff or red. several rim and base sherds are present, with one base sherd in context 024 (too small for illustration) showing the lower ends of score marks). The two forms of jars suggested by the rims and bases and the indication of scored decoration indicate that this material is characteristic of scored ware dating to the Middle Iron Age, approximately the third and second centuries BC.

Briquetage

The 1323 briquetage fragments consist largely of fabrics that fall into two of Lane's categories, Type 1 and Type 7, although there are small fragments of a fabric containing a larger proportion of vegetative material than either of these. Without microscopic examination it is not possible to subdivide the types to any further degree. Type 1 sherds are principally 0.5cm or less in thickness, and include flat rims, some with a scored knife-cut line o.5cm below the rim, and a very few examples of a tapered rim. Pieces of angles from the base of vessels or the corner of troughs are also present. Type 7 comprises larger fragments from different supports, rather than vessels, although there are no complete forms. Parallels suggest that these include bars, pedestals and truncated pyramidal shapes. Lane's fabric T1 was noted to have occurred on sites of which 35% produced Iron Age pottery and none produced Roman pottery, and fabric T7 on a site where there was only Iron Age material.

Illustrations

A selection of characteristic forms in both pottery and briquetage is illustrated.

References

De Brisay, K. and Evans, K. 1975 — Salt: the Study of An Ancient Industry

Elsdon, S. — Note on the Pottery in R.H.Healey (ed.) An Iron Age Salt-making Site at Helpringham Lincolnshire (East Anglian Archaeology Series, Volume on saltmaking sites, forthcoming).

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TYPE	INCLUSIONS	RESILIENCE	VESSELS THICKNESS CM	VESSELS RIMS	COMMENTS
T1	Shell sparse small flints and vegetation	Medium/soft	c0.5	Plain, flat many cut	Shell commonest in vessel frags Type Site: MOR 13
T2	Sparse small stones or grog.Chopped vegetation	Hard	c0.8-10	Sparse, plain	Characteristically harder & larger Type Site: MOR 9
T2A	Some chopped vegetation	Mainly soft some hard	0.5-1.0	Sparse, plain	Some elements of T2 but with a few T3 type.yellow coated pieces Type Site: MOR 22
T2B	Silt and sparse chopped vegetation	Medium soft	0.5-1.3		Similar to T2A but with additional silt. Type Site: COW 14
T3	Abndt chopped vegetation. V sparse stones	Soft	0.8-1.0	Plain	Commonest type. Many pieces have distinctive soft dull yellow or whitish coating. Some fabrics yellow throughout. Type Site: MOR 1
T3A	Abndt chopped Vegetation. Sand/silt	Soft	0.8-1.4	Sparse plain	Similar to T3 but with additional sand & silt. Type Site: CRO 19
T4					Fired clay not now considered briquetage

T5	Chopped vegetation. Stones & flint up to 10mm	Hard Some soft yellowish pieces	0.7-1.3		Only found on Type site. Large pieces many with yellow/ whitish coat. Type site BIL 21
T6	Abndant shell Sparse chopped vegetation, stones flints	Mostly Hard A few yellowish pieces	c1.0-1.4	Plain, Flattened	Distinctive red/ brown colour. Some flat clay slabs c.1.0-1.4cm in section. Type Site: POI 26
T7	Sparse vegetation, stones and shell	Medium	0.5	Sparse, & flattened	Brown/red fabric similar to T1 but v few shells. All small sherds Type Site: MOR 31
T8	Sparse vegetation, sand and silt	Medium	0.5-0.8	Sparse, plain	Brown/red fabric with frequent purple tinge. Resembles T1 & T7 but much sandier/ siltier. Mostly small sherds. Type Site: COW 24
T9	V. sparse vegetation, sand & silt	Hard	0.5-0.8		Brown fabric, mostly small sherds. Vessels predominate though no rims present. Type Site: DEN 16

Table 13 Briquetage: Definition of Types

Hayes, P.P., and Lane, T.W. Archaeological Landscapes in the South Lincolnshire Fens. Part Two, Morton to Crowland. (East Anglian Archaeology Series, forthcoming).