M1/021

PRE-CONSTRUCT
ARCHAEOLOGY
LINCOLN

ARCHAEOLOGICAL EVALUATION REPORT: MORLEY FARM, MORLEY LANE, BICKER, LINCOLNSHIRE

Site Code:	MLB01
NGR:	TF 2261 3753
LCCM Acc. No.	2001.18
Planning Ref.	B/00/0393

2001.18

EVENT LI 1576
SOURCES LI 6377 LI6378
PRNS 13570 LI81256 Grey-MED
13571 LI81267 Red
13572 LI81271 Undated

ARCHAEOLOGICAL EVALUATION REPORT:
MORLEY FARM, MORLEY LANE, BICKER,
LINCOLNSHIRE

Site Code:	MLB01
NGR:	TF 2261 3753
LCCM Acc. No.	2001.18
Planning Ref.	B/00/0393

9. FEB 01

Report prepared for Terry Sykes Design & Build (on behalf of Mr M Sharp)
by Mark Allen, BSc, AIFA

Pre-Construct Archaeology (Lincoln)
61 High Street
Newton on Trent
Lincoln
LN1 2JP
Tel. & Fax. 01777 228155

February 2001

Contents

Illustrations

Summary

- *As a condition of planning, an archaeological trial excavation took place on land off Morley Lane, Bicker, Lincolnshire.*
- *Ten evaluation trenches were investigated to assess the archaeological potential of the site and the perceived impact of a low density residential development*
- *The deposits that were exposed and sampled appear to relate to activities dating predominantly between the 12th – 14th centuries, when Bicker was an important port at the edge of The Wash.*
- *Provisional suggestions that the site was utilised in the medieval period for the processing of marine salt have been tempered by a range of post-excavation analyses: while salt processing may have been one activity, there is also evidence of metal working and domestic activity*
- *Overall, it is concluded that the potential of the site for future investigation is high, although the impact of the proposed development will be low, provided that appropriate measures are put in place to ensure minimal disturbance to the archaeological resource*

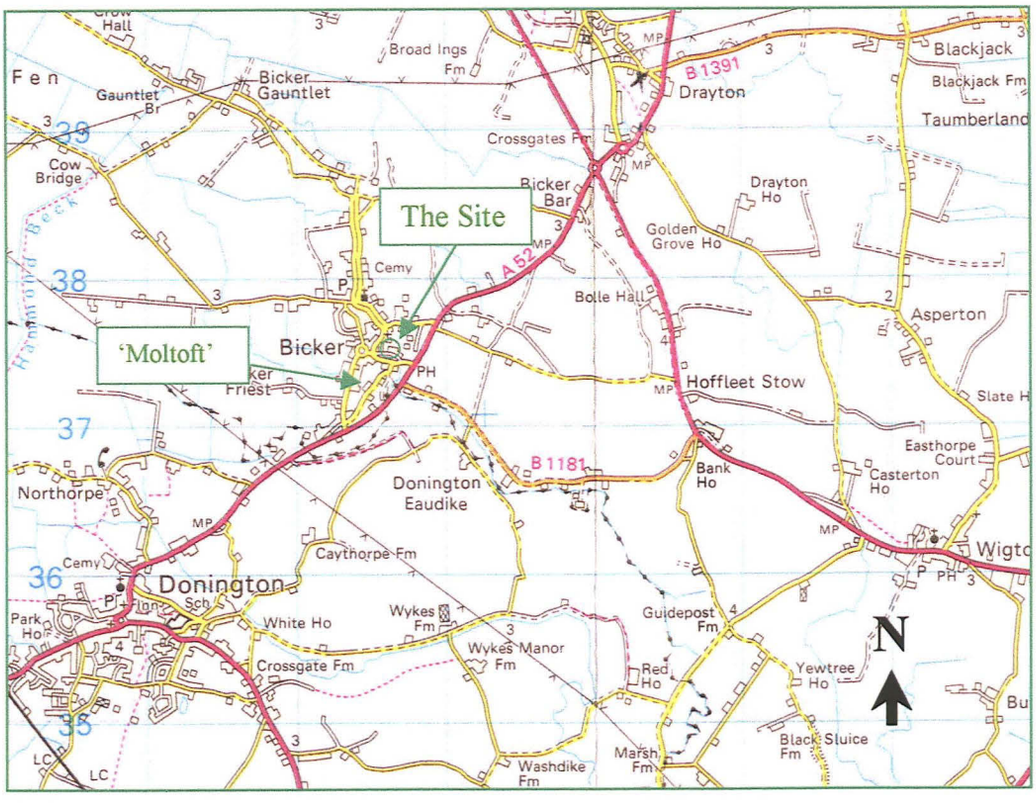


Figure1: site location at scale 1: 25,000

1.0 Introduction

Terry Sykes Design and Build commissioned Pre-Construct Archaeology (Lincoln) to undertake an archaeological field evaluation on approximately 1.1 hectares of land situated to the north of Morley Lane, at the south-eastern corner of Bicker. These works were undertaken to prefigure and support an application for planning permission for a low density residential development.

This text describes the results of an intrusive archaeological evaluation, the design of which was based partly on the findings of a preceding fluxgate gradiometer survey. The report follows current national guidelines (IFA, 1994), the guidelines set out in the Lincolnshire County Council document *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice* (LCC, 1998), and a formal project specification prepared by Pre-Construct Archaeology.

2.0 Location and description

Bicker is approximately 11 kilometres south-west of Boston, c. 18 kilometres from the west coast of The Wash. The site is part of Morley Farm, and it lies towards the south-east of the village. It comprises an irregular unit of approximately 0.8 hectares, which is currently a farmyard, and an adjoining paddock of 0.3 hectares (fig. 2). The development is defined by a pasture field to the east, residential properties to the north and west, and Morley Lane to the south.

The paddock consists of relatively high ground, lying at c. 4m OD, and sloping gradually to c. 3m at the north-east corner.

The farmyard includes a number of sheds and outbuildings, with the ground surface consisting mainly of concrete and rubble surfaces.

Geologically, the area is characterised by Quaternary Terrington Beds, substantial drift deposits (10-20m deep) comprising younger marine deposits (Romano-British to present-day), saltmarsh, tidal creek and river deposits (sandy silt, sand and clay). These deposits mantle Upper Jurassic deposits of the Ancholme Clay Group. (B.G.S. 1995).

The Central National Grid Reference is TF 2261 3753.

3.0 Planning background

Planning permission is sought for a change of use, the demolition of existing agricultural sheds, and the construction of a very low density residential development. This will comprise six dwellings that will be evenly distributed across the site.

The archaeological works described in this document (and a preceding fluxgate gradiometer survey report), were requested by Boston Borough Council as a basis for evaluating the archaeological potential of the site. The primary purpose of these investigations is to gather and collate information for planning purposes: to assess the

archaeological potential of the site and provide a basis for mitigating against the effects of development, where appropriate. The approach is consistent with the guidelines set out in *Archaeology and Planning: Planning Policy Guidance Note 16* (1990).

4.0 Archaeological and historical background

Archaeological data for the parish is relatively abundant, and the general area appears to have been of some significance since the Romano-British period onwards.

The area has been subject to sustained periods of water inundation throughout prehistory, linked to changes in sea level. This would suggest that prehistoric deposits, if they survive, will lie beneath substantial deposits of marine alluvium (ie the Terrington Beds).

Bicker is listed in the *Domesday Survey* of 1086 as *Bichere*, probably from Old Scandinavian *bỳ* + *kjarr*, meaning 'village marsh'. An alternate interpretation is '(place) by the marsh', with Old English *bī* as the first element (Mills 1996).

During the Saxon and medieval periods the settlement flourished as a moderately important port at the edge of The Wash, forming an outfall for a southern arm of the River Witham (Healey 1999).

A sea bank, believed to be of Saxon/early medieval date, lies to the east of the site, approximately respecting the route of the A52 (Donington-Boston Road). To the south-east of the road is an extensive north-south orientated band of made ground that is believed to be the product of medieval salt-making.

The Domesday Survey records that there were 23 salt-houses in the parish, with 20 owned by Count Alan, along with a church and a priest. The location of this early church is unclear, although St. Swithin in Bicker (early 12th century in origin) contains a 10th century stone interlace carving in the east wall (BRN No. 04/030), probably from a Saxon precursor.

To the north of the village (approximately 600m north of the site) late Saxon pottery and fragments of lava quern found close to the cemetery may be indicative of early settlement (BRN No. 04/013). Less than 50m to the to the south-west of the site, an area of early settlement is suggested by place-name evidence: the area of land between Lowgate Road, Drury Lane and Red Lion Street, was formerly known as '*Moltoft*', with *toft* meaning housestead (Old Scandinavian) and *mol* perhaps a personal name or pre-English hill-name (BRN 04/014).

Salt-making was of major economic importance to Bicker in the late Saxon and medieval periods. Although salterns of Saxon date have not been detected by previous archaeological investigations (there is in fact a national dearth of recognisable Saxon salterns), pottery of this date has been recovered from contexts that are potentially associated with the salt industry. An archaeological evaluation on land to the south of Red Lion Street (less than 50m from the current site) exposed rubbish pits and ditches

that incorporated building debris and slag; believed to have been associated with salt production (Haynes 1994).

Morley Cottages, adjacent to the development area, are of 16th century construction. These brick dwellings appear to be the much altered remains of an open plan hall house, originally constructed of mud and stud, with a timber frame on a limestone plinth (Pevsner and Harris 1990).

By 1600, Bicker was enclosed. The added drainage that resulted from this phase of land reorganisation perhaps accelerated the process of marine regression in the Haven, causing Bicker to become landlocked; thereby depriving the town of marine salt deposits. At the expense of Bicker, the loss of the port and salt industry proved an advantage for nearby Donington, with its better roads.

A fluxgate gradiometer survey of the paddock area was undertaken by Pre-Construct Geophysics in December 2000 (Rylatt and Bunn 2000). This identified significant levels of magnetic variability over the 0.3 hectare unit, much of which was believed to relate to modern activities due to strong spatial correlations with existing structures and boundaries. A small number of anomalies were believed to be of potential archaeological significance.

The purpose of the current project was to investigate anomalies detected by geophysics, and to randomly sample areas deemed unsuitable for non-intrusive survey.

5.0 Methodology

Initially, nine trenches were investigated, with a further trench being added to examine an irregularity that was visible on the surface. Eight of the trenches were 10m in length, one was 15m, and Trench 10 was 7.5m. Some were positioned within the paddock to investigate magnetic anomalies, with Trench 2 being positioned along the road frontage, immediately outside of the gradiometer survey area. The five remaining trenches were randomly placed within the farmyard (see fig. 2).

For each area, a JCB fitted with a 1.6m wide toothless ditching blade was used to remove all topsoil, subsoil and non-archaeological horizons in spits no greater than 0.2m in depth. This was monitored constantly to ensure that archaeological features were not needlessly damaged. All further excavation was by hand. A breaker was used to remove a concrete yard surface in the area of Trench 7.

Where exposed, archaeological features and deposits were sample excavated to assess their nature, dimensions, and date. The investigations resulted in the production of written descriptions and complementary scale drawings, in both plan and section formats. A photographic record was maintained, and selective prints are reproduced at the end of this report, with the remainder forming part of the project archive.

An experienced archaeological team of seven carried out the excavations over a period of five days – between the 15th to 19th January, 2001.

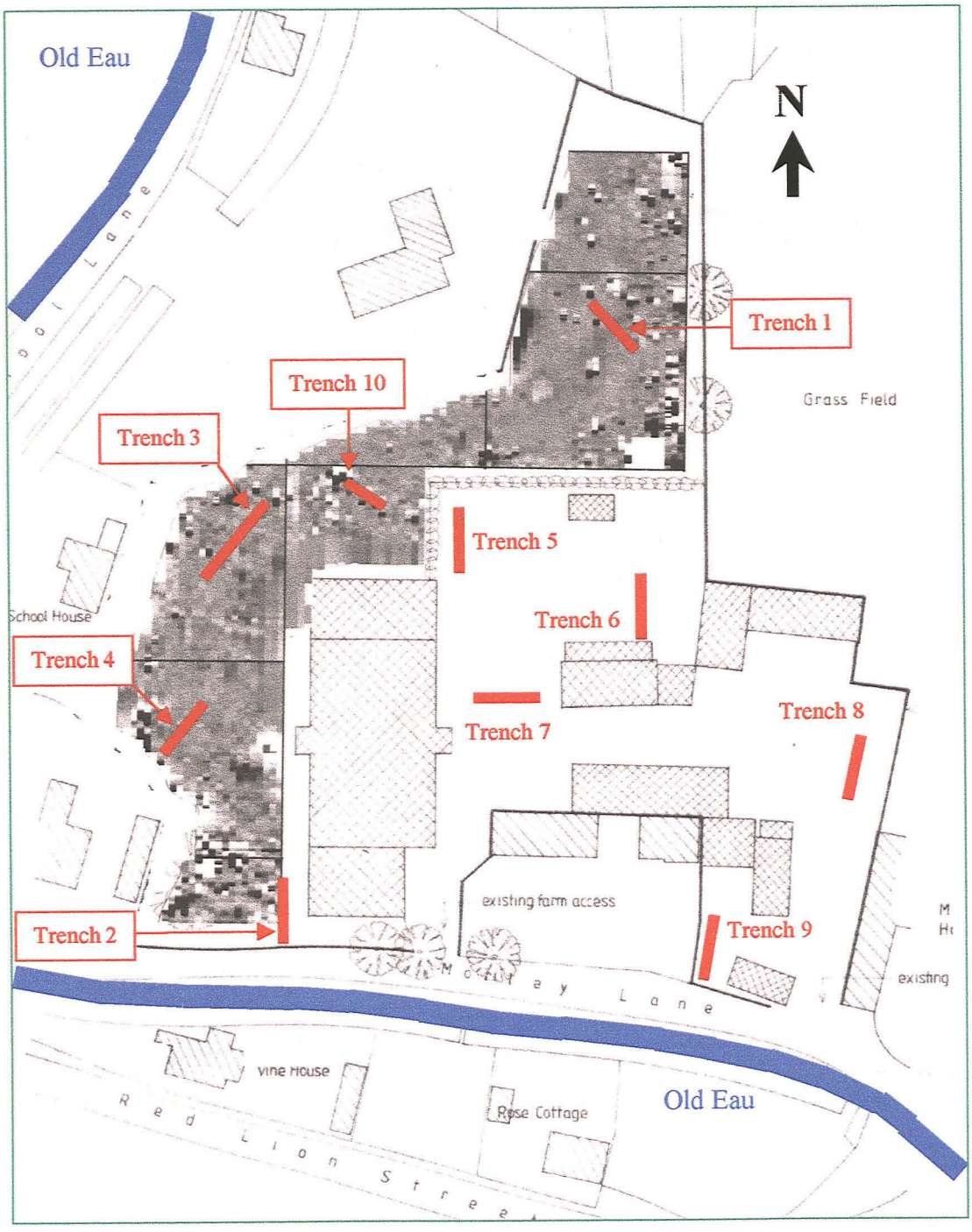


Figure 2: Trench location plan at a scale of 1:1000

6.0 Results

6.1 Trench 1 (See fig. 3)

This was positioned towards the northern site boundary to traverse an anomaly identified by gradiometry (anomaly 18); a linear, following a general north-east to south-west trend.

The trench was machine excavated to a depth of 1.2m, as no archaeological features were identified above this. In addition, a deep slot was excavated at the south-east end of the trench.

The ploughsoil sealed an extensive light brown silty sand, (101), and this sealed a horizon of light orange/brown silty sand (102). Both layers were deposited by water. A layer of light blue/grey clay (103) was exposed within the deep slot at the south-east end of the trench. This deposit was also picked up by augering at the north-west end of the trench. The auger showed (102) to be 0.6m thick, sealing 0.25m of clay. Beneath the clay was 0.55m of orange silt (possible tidal horizon), sealing blue-grey clay, 0.3m thick. The clay sealed a peat deposit at approximately 1.28m OD, indicating a freshwater marsh phase (J. Rackham, Appendix 12.3). Beneath the peat was a freshwater or saltmarsh deposit of slightly organic silt that extended below 1.0m OD.

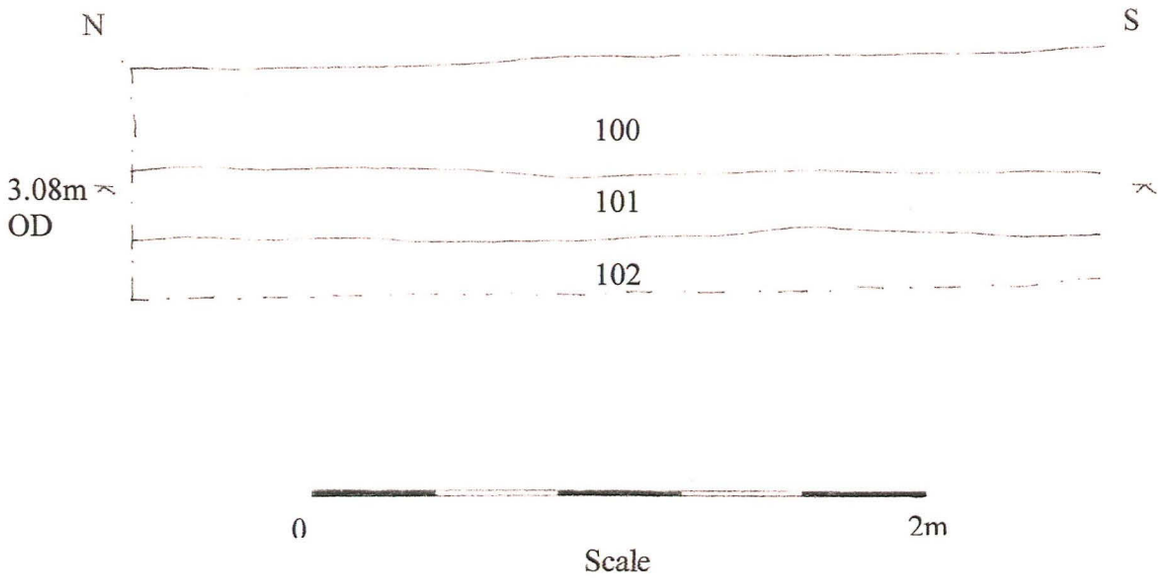


Figure 3: Trench 1 west-facing section

6.2 **Trench 2** (See fig. 4)

Trench 2 was positioned at the south-east corner of the paddock to examine archaeological remains adjacent to the Morley Lane frontage.

Removal of the topsoil and subsoil exposed a complex of deposits and features, including animal burrows.

The edge of an east-west shallow ditch [217] (parallel with Morley Lane) was exposed at the south end of the trench. Its fill comprised light yellow/brown silty sand (244), and this contained 13th – 15th century pottery. The ditch was partially truncated by a large rectangular pit, [204].

Pit [204] was 4m long and over 1m wide with a vertical, undercutting, south edge and a stepped north edge. It contained a series of deposits that incorporated 15th – 16th century pottery.

A complex group of pits, gullies and ditches was investigated approximately 3m to the north of [204]. Ditch [205] was orientated ESE – WNW. It was filled with a series of brown sandy silt-based deposits that incorporated mid 17th – 18th century pottery and fragments of clay pipe, and it had cut through several medieval features to the north. The ditch has been interpreted as a boundary associated with Morley Cottages (of 16th century construction) to the east.

The north edge of [204] cut through a shallow feature with a steep southern edge, [210]. Its fill comprised fine silty sands of varying hues, that were devoid of finds. It was not possible to determine the full extent of the feature due to later disturbance, although it is possible that it related to [216] to the north. If [210] and [216] represent the same feature, then one is looking at a wide (approximately 4m) shallow, flat-bottomed feature with steep sides. It is difficult to interpret such a feature, although a rectangular hollow of similar shape found at Bicker Haven (albeit smaller than our example) was interpreted as a dwelling associated with the salt industry (Healey 1999). Pottery from [216] was of late 12th – 13th century manufacture.

Immediately north of [216] (and appearing to respect it) was gully [215]. This was orientated WSW – ENE, curving to the north slightly where it butt-ended at the ENE end. The gully had vertical sides and a flat base. It was filled by a series of silt deposits of varying hues, incorporating pottery of 12th – 16th century date. The gully could be interpreted as the foundation trench for a beam slot associated with [216] to the south.

[215] cut the south side of a posthole/gully butt-end ([211]). The feature had steep sides and a pointed base and was possibly a posthole associated with a structure comprising features [210]/[216] and [215]. The pottery from [216] provides a 12th – 13th century date range.

Pit [212], which cut through [215], was sub-rectangular in plan, with a shallow gully offshoot extending to the south. The pit had almost vertical sides, with a flat, stepped base, sloping upwards to the south. Its fill comprised a narrow band of mixed brown

and grey silts sealed by clayey fine silt, incorporating 13th – 16th century pottery. The pit appears to have been a replacement for an earlier pit, [214], that was of similar form. It is possible that both pits were timber-lined, as such steep profiles would not have sustained the effects of weathering and erosion for very long, unless supported in some way. Pottery from [214] suggests that the feature was backfilled at some time between the 13th – 14th century.

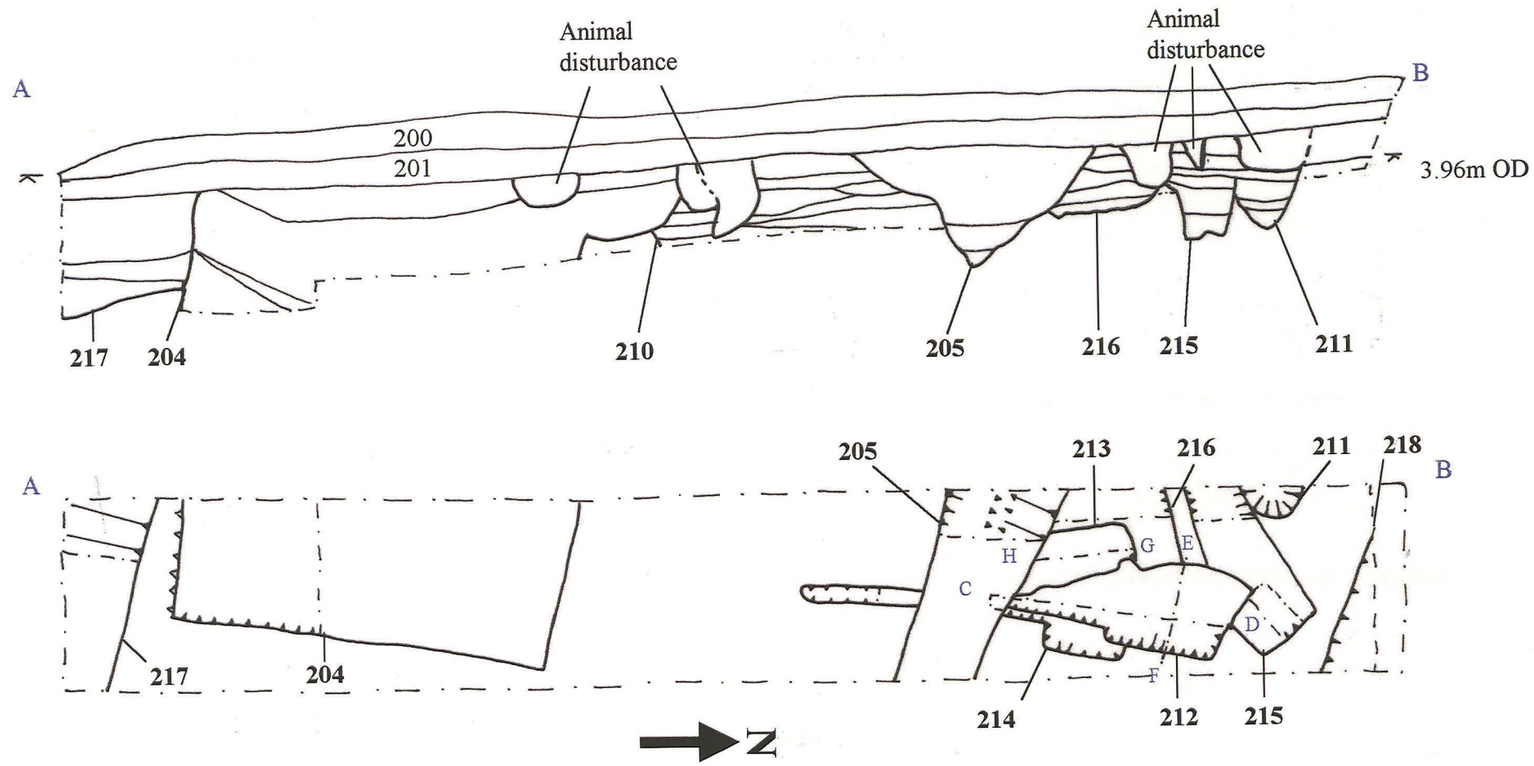
Pit [213] was cut by [212] (although its relationship with [214] was unclear). It appeared to be rectangular in plan, although later disturbance made it impossible to fully determine its form. Its fill comprised a series of ash-based deposits overlying light grey, finely laminated, silt bands, and these deposits incorporated pottery of 14th – 15th century date.

A layer of burning, (227), was apparent above features [216], [215] and [211]. This mix of fired clay and charcoal appeared to represent either the remains of a hearth, or a dump of fired clay associated with such a structure.

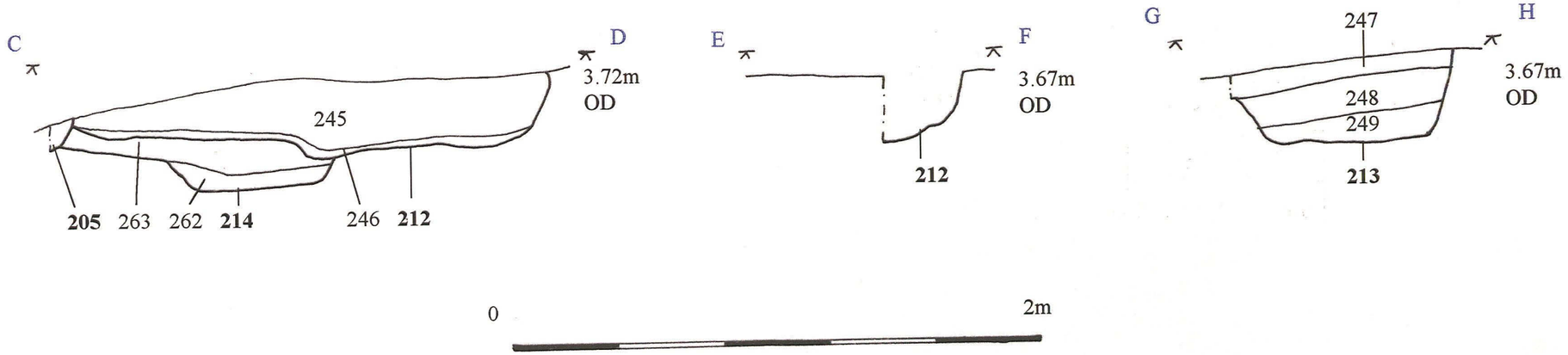
A shallow linear ([218]), running WNW – ESE, was exposed at the extreme north end of the trench. The gully was only 0.08m deep, and it was not possible to determine either its function or date.

To summarise, this trench contained evidence of a possible rectangular structure of late 12th – 13th century date that was much disturbed by later activities. These activities included regular pits that resemble filtration units for salt-production, although this was not clarified. The sequence of pits date somewhere between the 13th and the 15th centuries. At some point within this timescale, ditch [217] was excavated. There appears to have been a hiatus in activity until the late 17th – 18th century, when ditch [205] was functional and may have been associated with the occupation of Morley Cottages.

A series of bulk samples from this trench were submitted for environmental assessment (contexts (245), (246), (247), (248), and (249) – see Appendix 12.3). A striking feature of each of these samples is the occurrence of hammerscale from iron smithing, and the inclusion of smithing slag and fuel ash slag (see Appendix 12.4). Whilst it can be suggested that some of the features in this trench are morphologically characteristic of salt making remains, there can be little doubt that iron smithing activities were taking place in the vicinity of Trench 2.



Plan and main section scale



Scale

Figure 4: Trench 2 plan, sections and profile

6.3 **Trench 3** (See fig. 5)

The trench was located close to the north-west boundary of the gradiometer survey to investigate anomalies 7 and 8: both of these were linears that were orientated approximately north-west to south-east.

Removal of the topsoil and subsoil exposed a north-south orientated linear feature, [308], towards the south-west end of the trench. This was 0.9m wide and 0.42m deep, with steep sides and a slightly rounded base. Its fill comprised mid brown/grey slightly clayey silt. The ditch was cut through the subsoil (301), and it was only observed in section. Medieval pottery of 13th – 14th century date was recovered, as was a single medieval roof tile, a few domestic animal bones and a single large chunk of burnt limestone.

The ditch cut through a spread of burning, measuring over 2.5m wide, at the south-west end of the trench (302)/(303). This burning comprised a dump of ash, charcoal, fired clay and silt, and possibly, burnt peat, incorporating 11th century pottery. A slot through this deposit established that the layer sealed a series of redeposited fine sands ((304), (309), (305) and (310)). These sand layers contained varying amounts of fired clay and charcoal. Early medieval pottery of mid 11th – 12th century date was obtained from (304).

An auger sample at the south-west end of the trench determined that unconsolidated sands continued down to approximately 2.52m OD.

One soil sample was submitted for environmental assessment, from the burnt spread (302) – see Appendix 12.3. Analysis of this material has confirmed its industrial origins, and its contents included quantities of metalworking hammerscale and fuel ash slag.

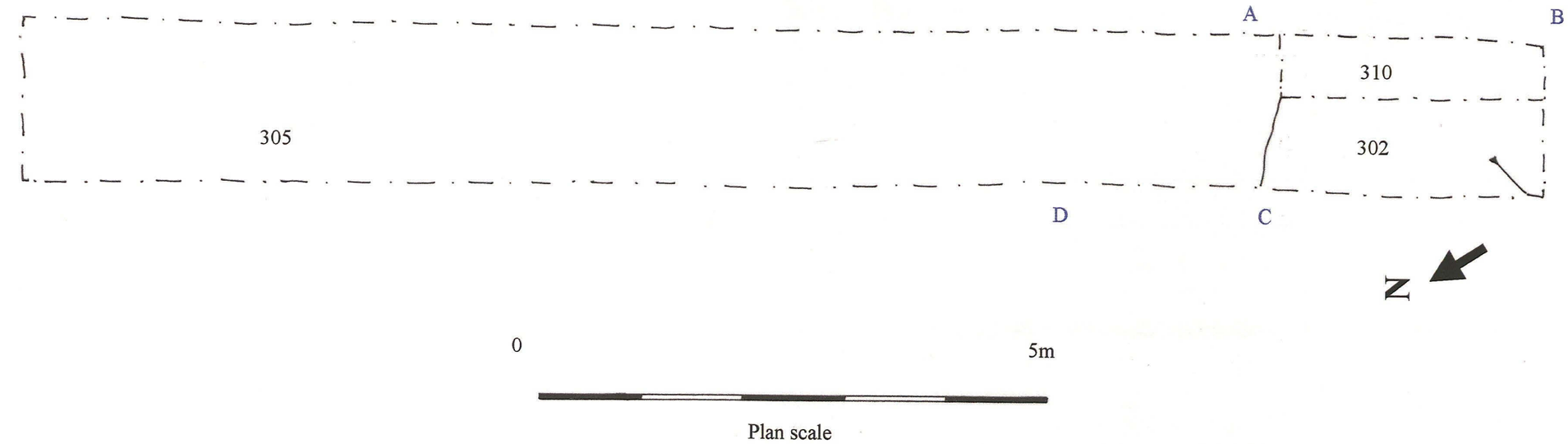


Figure 5: Trench 3 Plan and sections

6.4 **Trench 4** (See fig. 6)

This was positioned close to the south-west corner of the gradiometer survey to investigate a linear anomaly (anomaly 10) that was orientated north-west – south-east.

Removal of the topsoil and subsoil exposed an extensive layer of light brown redeposited fine sand (403), incorporating clay lumps, fired clay, burnt silt, charcoal, marine shells, and possibly burnt peat. Pottery, animal bone, and a fragment of burnt flint was recovered from this layer, which has been interpreted as a dump of waste silt, possibly associated with a saltern.

Layer (405) sealed a large pit, [404], of which only the south edge was visible. A slot through the pit showed it to be over 0.4m deep and over 4m wide, with a near vertical edge. Its fill comprised mid-brown silty fine sand with occasional flecks of charcoal, medieval pottery and animal bone. A quantity of iron smithing slag and charcoal was also recovered from the fill. This again indicates that iron smithing was taking place during the medieval period in this area of the site.

The pit cut a grey silty sand lens, (407), along its southern edge. This incorporated ash, clay, fired clay and charcoal, suggesting it was associated with hearth rake-out.

Directly above (407) was (406), a layer of light brown silty sand. This also was interpreted as a dumped deposit; possibly associated with salt-making.

The ash dump (407) lay directly above laminated orange and yellow fine sands (408). An auger sample showed these layers continued to a depth of at least 0.4m (to approximately 2.58m OD). On site assessment suggested that they were laminated tidal marine sediments, deposited during the Saxon and early medieval periods (J. Rackham *pers com*).

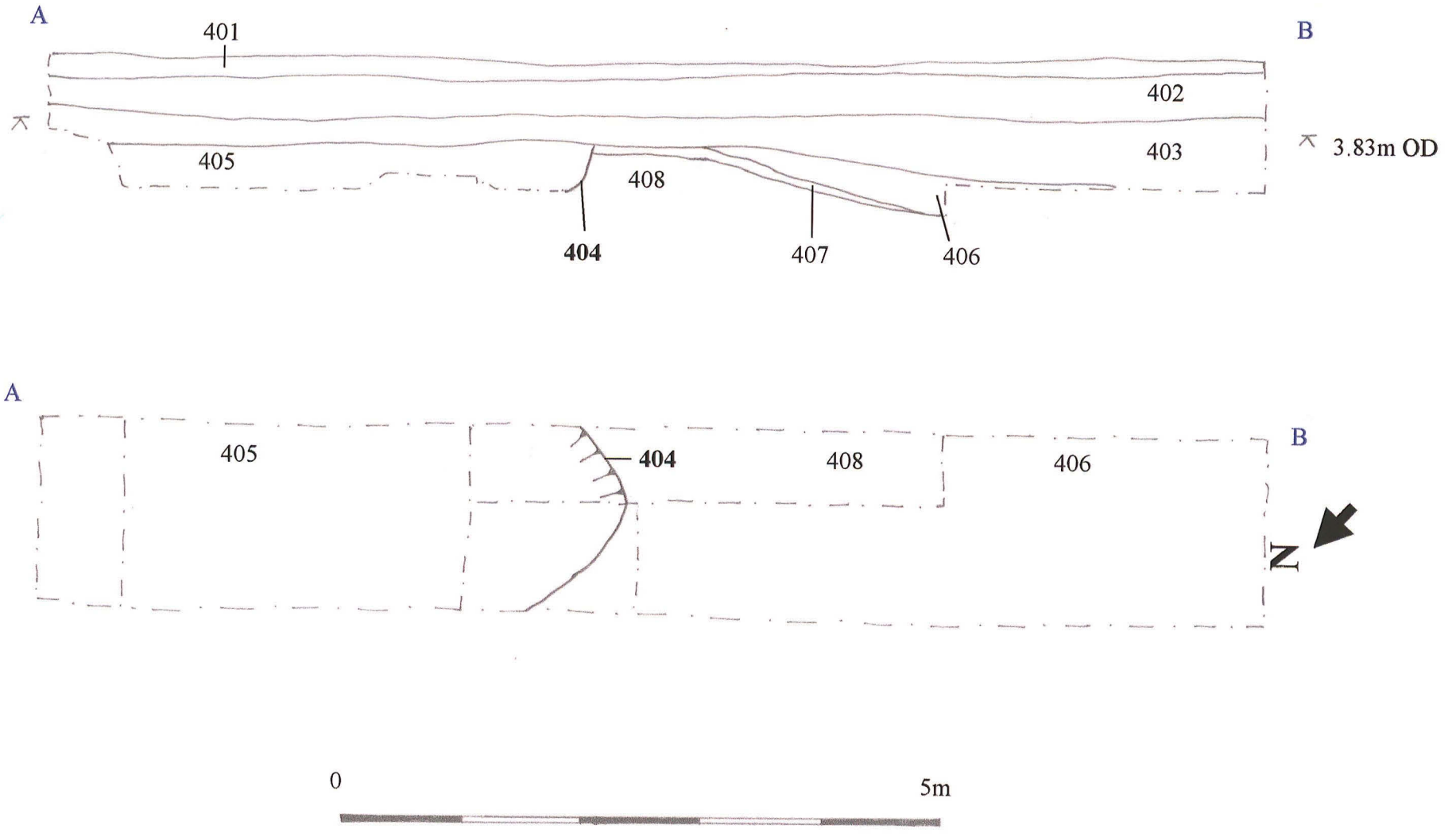


Figure 6: Trench 4 plan and section

6.5 **Trench 5** (See fig. 7)

The trench was positioned at the north-west corner of the farmyard. It was excavated to a depth of 1m, revealing several layers beneath the subsoil and topsoil.

Layer (502), below subsoil (501), comprised mid grey clayey fine silt. The fine silt was deposited in a very low-energy environment. This sealed mid brown fine silt (505).

No archaeological cut features were exposed in this area.

6.6 **Trench 6** (See fig. 7)

This was located towards the north-east corner of the farmyard, perpendicular to a small outbuilding.

The ground surface comprised thin grass sealing a modern brick surface, (600), associated with the farm outbuilding to the south. The brick surface sealed a levelling layer (601), consisting of dark grey/black mixed clay-silt.

The farmyard deposits sealed a layer of mid-grey fine silt, (604), over light grey/brown fine silt (605). No dating evidence was recovered from these deposits.

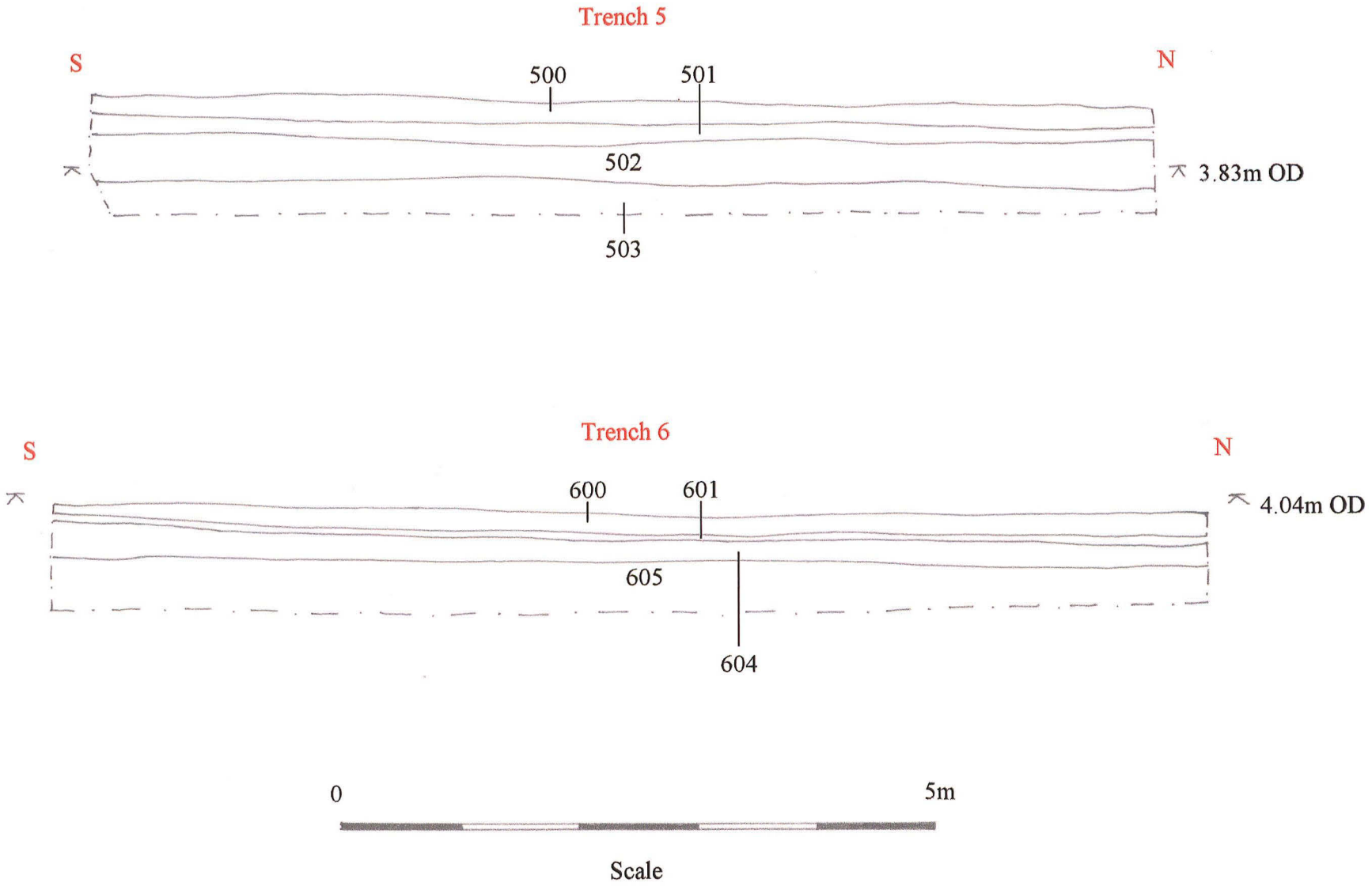


Figure 7: Trenches 5 and 6 sections

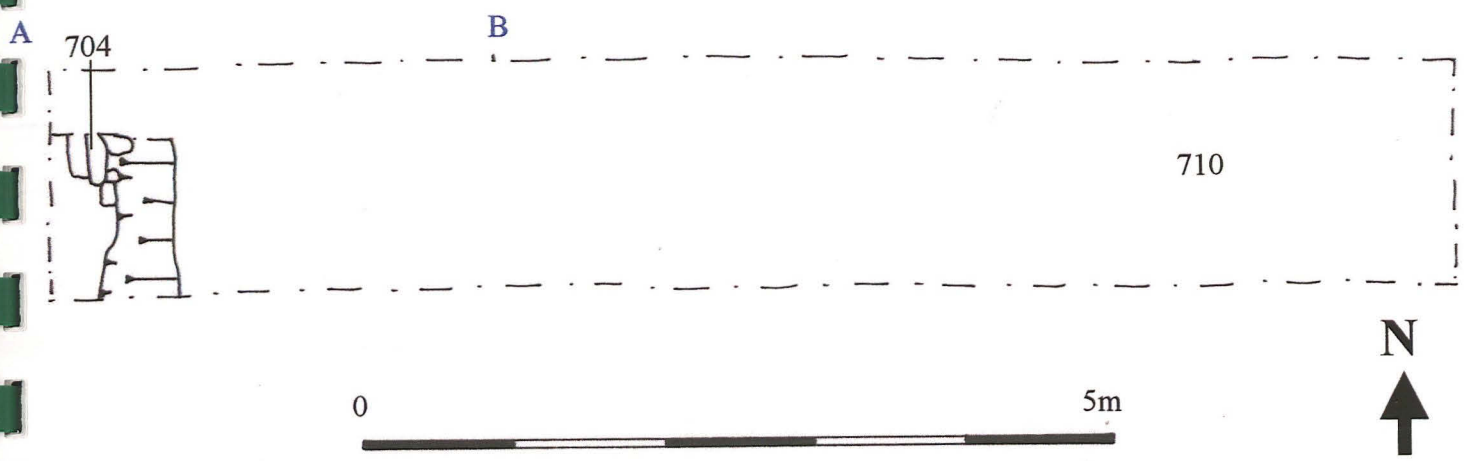
Trench 7 (See fig. 8)

The trench was positioned within the farmyard area, between a large shed and an outbuilding, and a mechanical breaker was used to remove a concrete surface prior to excavation. The area was then machine excavated to a depth of 1.1m through a levelling deposit, (712), exposing a possible kiln or hearth at the west end of the trench.

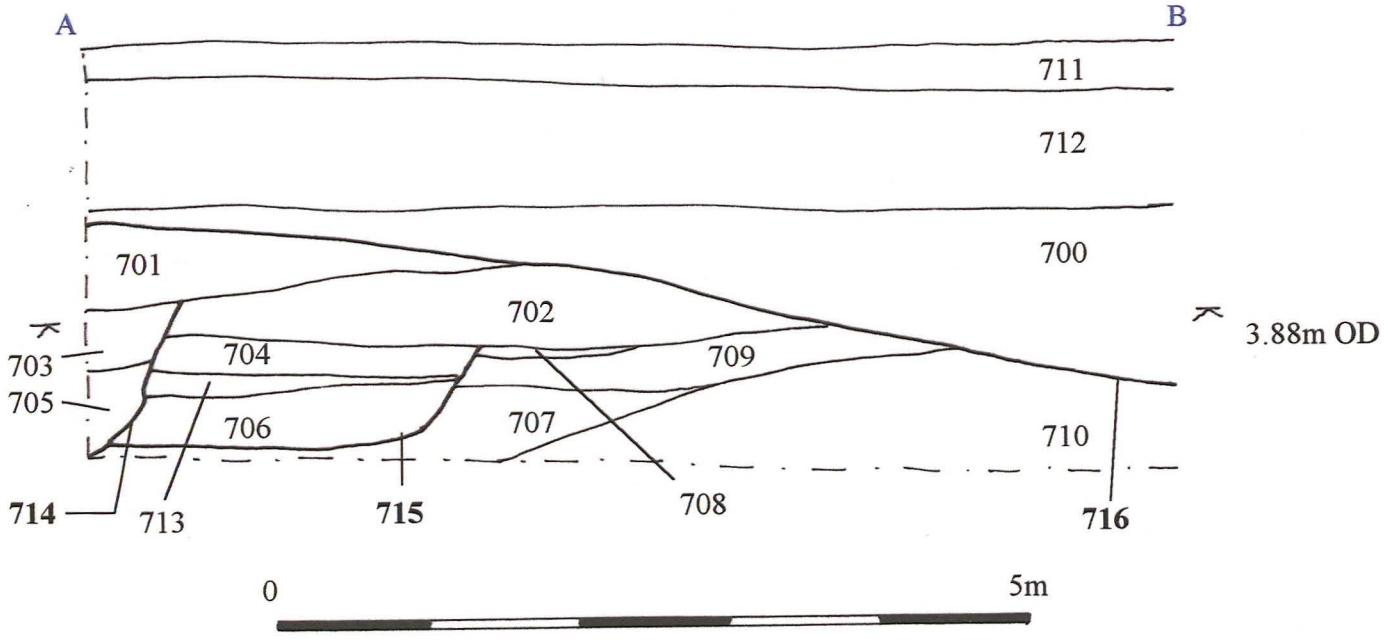
The kiln/hearth [715] was truncated by an undated pit [714]. [715] itself consisted of a moderately steep sided and flat-bottomed cut that was partially filled with light brown/yellow sand (706). Immediately above this was a layer of slag and fired clay, (713), that lay beneath a layer of fired clay (704). The latter contained pottery of 12th – 14th century date.

The slag from (713) comprises a wide variety of hearth bottom forms (see Appendix 12.4), suggesting the possibility that the assemblage may be associated with more than one craftsman. The iron slags from this context have been described as 'unusual'.

The kiln/hearth was cut through a series of earlier deposits, predominantly redeposited silt layers of medieval date (pottery from (707), which pre-dates the hearth/oven, incorporated forms dating between the 12th and 13th centuries.



Plan scale



Section scale

Figure 8: Trench 7 plan and section

6.8 **Trench 8** (See fig. 9)

The trench was positioned towards the east edge of the farmyard, and was orientated north-south.

Removal of a modern brick surface (800), and levelling and build-up layers ((801), (802) and (803)), exposed a number of irregular pits and earlier layers.

Pit [805] was not fully excavated due to the wet conditions, although enough was exposed to show it had near vertical sides. Its fill comprised mid grey/brown silty clay that was devoid of finds.

Pit [808/806] was immediately south of [805]. It had slightly undercutting edges and a flat base Its fill comprised dark grey/brown silty clay (819) over mid grey/brown silty clay (820). This lower fill contained pottery sherds of 13th – 15th century date.

The pit cut through a number of layers ((811), (812) and (813)) to the south, all clayey silts of varying hues. They sealed dark grey/brown fine silt (814). None of these layers contained finds.

The edge of a possible pit, [807] was exposed at the south end of the trench. It comprised dark grey/brown silty clay, devoid of finds.

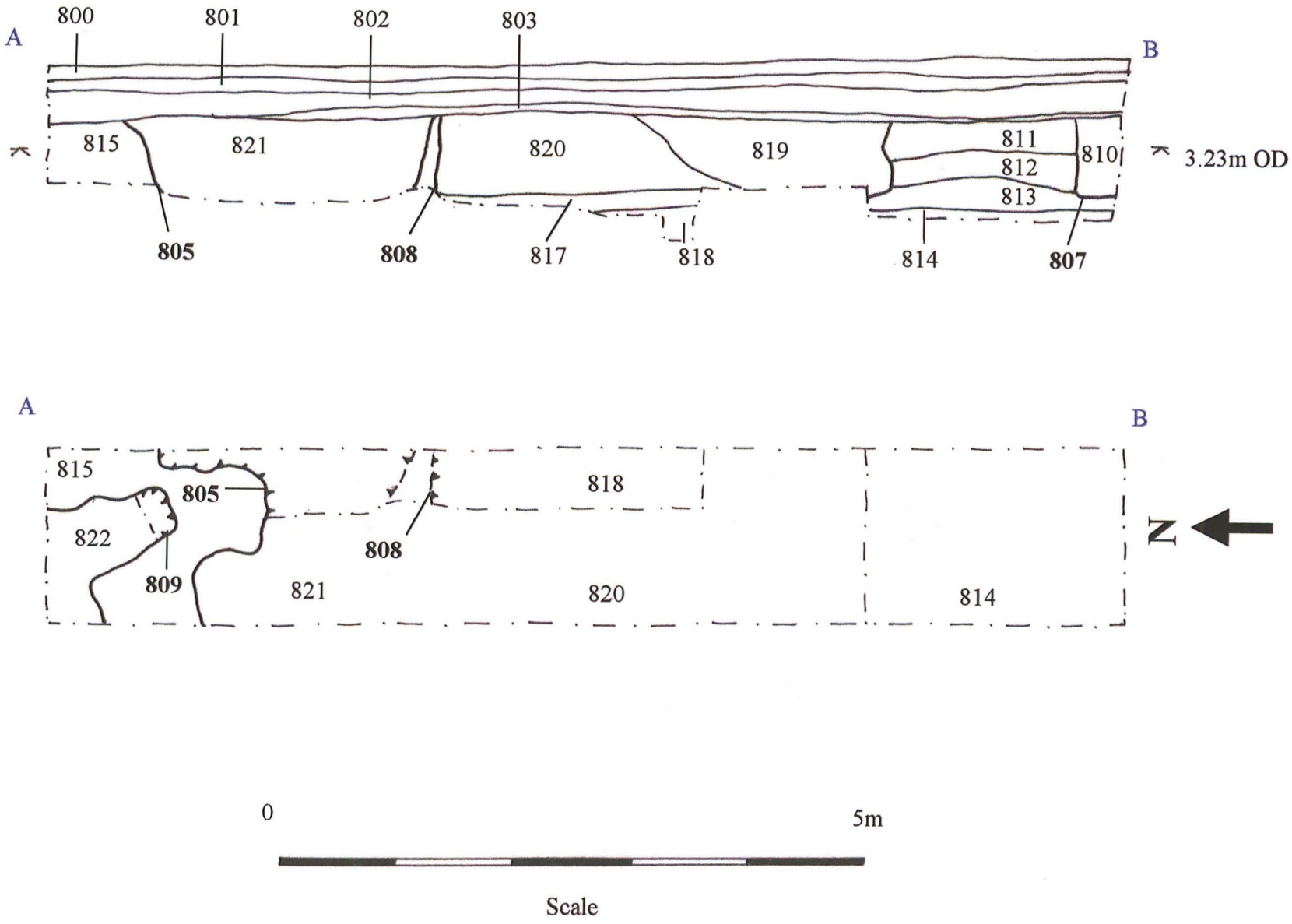


Figure 9: Trench 8 plan and section

6.9 **Trench 9** (See fig. 10)

Trench 9 was positioned towards the south-east corner of the farmyard, perpendicular to Morley Lane.

The trench was machine excavated to approximately 1.0m through a series of modern levelling layers that sealed a group of silt deposits that sloped downwards from north – south. These layers, ((917), (918), (916), (915), (913), (908), (911), (909), (912) and (910)), all sloped towards the river to the south, and are all likely to reflect previous tidal flooding of the Old Eau.

A number of (probably modern) features had cut through the tidal deposits. Pit [919] was sealed beneath layer (907). Its fill comprised dark grey sandy silt with occasional charcoal flecks. Pit [921] was 0.85m wide and 0.2m deep, with vertical sides and a flat base. Its fill comprised very dark grey silty clay with occasional small brick fragments.

At the north end of the trench was pit [922]. This was filled with red/grey silty clay.

No dating evidence was recovered from any of the contexts in Trench 9.

6.10 **Trench 10** (See fig. 10)

This trench was added to investigate a surface irregularity in the northern half of the paddock. It was excavated to a depth of 1.25m, exposing light brown/grey fine silt, (1004) at the base of the excavation. The subsoil sealed mid-brown clayey silt (1002), overlying 0.3m of light brown/grey fine clayey silt (1003). Contexts (1000), (1001) and (1002) contained post-medieval pottery (16^{th} – 17^{th} century date, animal bones. A single large piece of building stone (limestone) was recovered from (1004).

A north – south linear feature, [1005], was exposed towards the east edge of the trench, cutting through (1004). The gully was 0.25m wide and 0.1m deep, with vertical sides and a flat base. Its fill comprised black clay-based silt, incorporating fired clay fragments and charcoal, with lumps of compacted (possibly baked) silty clay along the base. The gully was not dated.

A spread of charcoal (and possibly burnt peat) and fired clay (1007), appeared to respect gully [1005] to the west. The burning was over (1004) and was probably contemporary with the gully, which may have been a structural feature.

Augering at the eastern end of the trench demonstrated that (1004) continued downwards for a further 0.5m, to approximately 2.9m OD. Beneath this, was undifferentiated sand for a further 0.2m, sealing laminar sand down to c. 2.4m OD. The auger was terminated at 2.0m OD, after moving through 0.4m of sand showing no obvious lamination. The auger profile did not appear to include the laminated tidal marine sediments that were found elsewhere on the site.

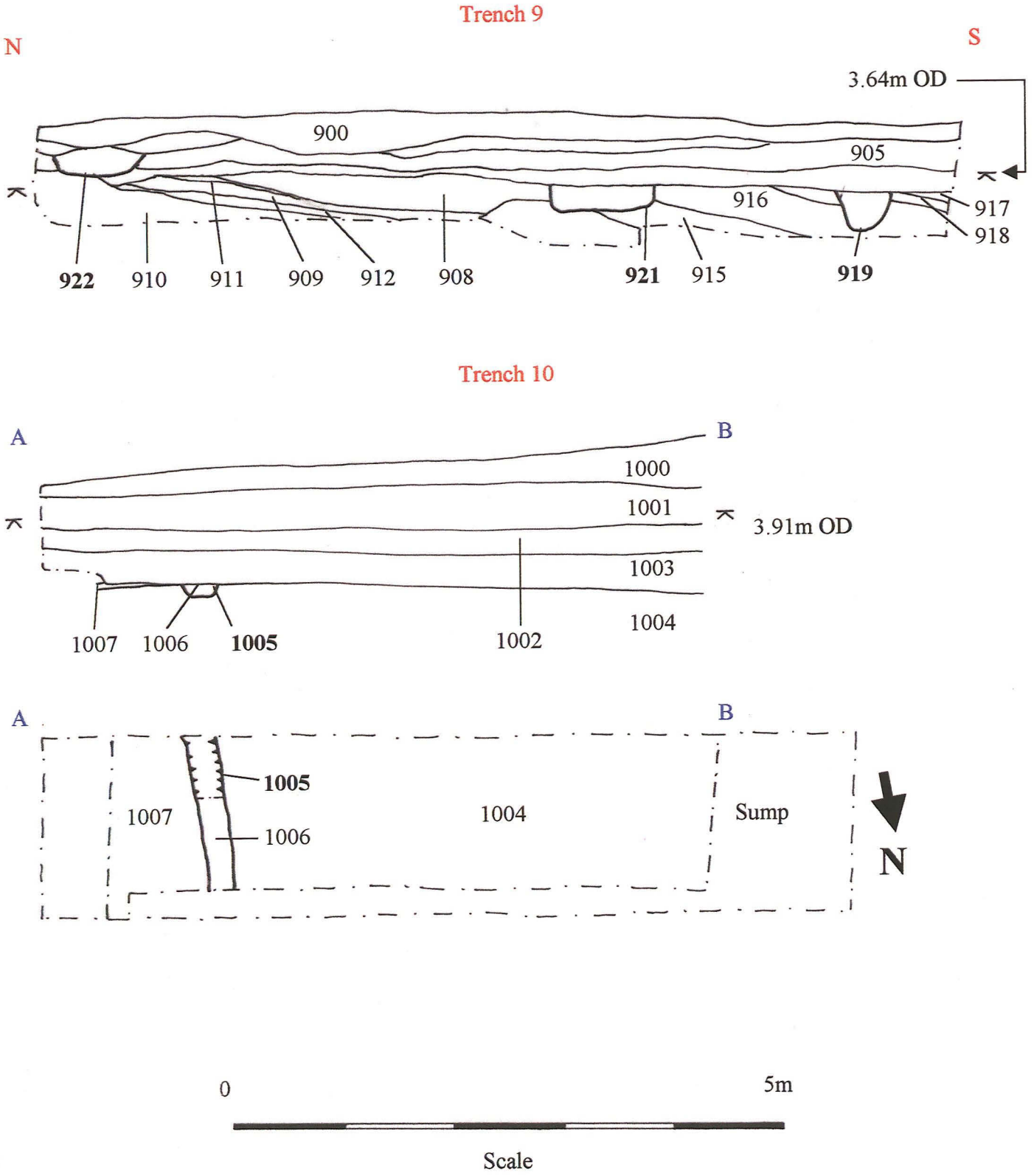


Figure 10: Trenches 9 and 10 plan and sections

7.0 Interpretation, discussion and conclusions

The evaluation has determined that the proposed development site is located within an area of archaeological interest. The majority of deposits appear to date to within the high medieval period (12^{th} – 14^{th} century).

The site is situated on the inside of a meander of the Old Eau, a channel that existed as an outlet for the River Witham into the North Sea via The Wash during the late Saxon and medieval periods. At this time, salt-making was a major industry for Bicker, with numerous salterns lying mainly to the south-east of the village.

The paddock to the west of the farm appears to incorporate substantial quantities of redeposited silt and associated debris. There are peripheral reasons for believing that the silt was deposited as a result of salt processing, although environmental and other evidence cannot confirm that salt making was the principal medieval activity at the site (see Appendices 12.3 and 12.4). Indeed, the evidence points towards a range of industrial and non-industrial uses.

Trenches 1, 5, 6, 7, 8, and 10 exposed fine silt layers that were deposited in a low-energy environment. It was originally speculated that these deposits were associated with a marine environment, although sample processing and assessment has failed to substantiate this: freshwater species appear to predominate (see report by Rackham, Appendix 12.3). This scenario is consistent with the known location of the Saxon/medieval sea defences which lie to the east of Bicker.

Whilst salt processing could account for the significant amount of redeposited silt that is present, particularly towards the west side of the site, the site appears to have been associated with a range of activities, both domestic and industrial.

Pottery of predominantly medieval date was recovered in significant quantities and included some larger than usual vessel fragments. Many of these were recovered from layers of redeposited silt, as were domestic animal bones and other remains. The possibility that (?accumulating) silt mounds were used as a general midden should not be discounted, as it is rare to find such large quantities of debris on purely salt processing sites. At Wainfleet St Mary, for example, large scale excavations produced very little dating or other finds evidence (Albone 1999).

The diversity of material deriving from the current site would suggest that widespread dumping was taking place, although there is good evidence also that in situ industrial activity was taking place in the immediate site vicinity, particularly in the area of Trenches 2, 4 and 7. The occurrence of in situ and redeposited hearth/kiln debris can only reaffirm this situation.

Unfortunately, the evaluation has raised many more problems than it has solved, although, for planning purposes, the information contained in this report should be sufficient to inform any planning decision.

There is no firm evidence that salt processing was taking place at the site in the medieval period, although it is difficult to account for the apparently large quantities

of redeposited sandy silt that is present in many areas, or the features in Trench 2 that resemble features that have been exposed at known salterns.

If the area was utilised as some form of rubbish repository, then one is faced with the task of separating the 'rubbish' from *in situ* activities. Large quantities of domestic waste (in the form of broken pottery, animal bone etc.) were recovered from several contexts, yet there is very little evidence to suggest that domestic occupation was taking place on the site prior to the 16th century. It is suggested therefore that almost all of the domestic comnponent relates to use of areas of the site for the disposal of domestic waste, and this situation is supported by environmental evidence (Appendix 12.3).

The situation is also unclear with reference to industrial activity. The iron slag from context (713) is a very heterogeneous assemblage and may have resulted from the work of more than one craftsman (Appendix 12.4). Conversely, a hearth-like feature was exposed in Trench 7, and burnt spreads were exposed in other areas (eg Trench 10). This would suggest that iron working was taking place on the site itself; a situation possibly reaffirmed by the quantities of hammerscale that were recovered from all soil samples (retrospectively, it is unfortunate that sampling was focused on Trenches 2 and 3, as a fuller range across the site may have proved useful).

The general conclusion must be that further excavation at the site would provide valuable new information relating to a range of medieval industrial activities. However, it is suggested that it would be difficult to justify widespread area excavation, for example, given the limited scale of the proposed residential development. Instead, it is proposed that any mitigation strategy should seek to preserve as much of this resource *in situ*: this is the favoured approach, as set out in the document *Archaeology & Planning: Planning Policy Guidance Note 16* (1990).

The following points should be noted, as they provide valuable information relating to the impact of the proposed development:-

1. The development will involve the construction of only six dwelling and related infrastructure. This will involve minimal excavations for dwelling footprints (ie in terms of the total site area).

2. The plots situated towards the rear of the site are to be served by a communal private drive, and not a deeply excavated public highway.

3. It is envisaged that the dwellings will be constructed over concrete strip foundations that will not exceed 700mm depth (excluding archaeological evaluation trenches, where backfill may require removal).

4. In areas of particular archaeological interest, the client has indicated a willingness to consider the use of reinforced concrete rafts to preserve archaeological remains *in situ*.

8.0 Effectiveness of methodology

The evaluation has served its primary purpose by determining the archaeological potential of the site, and providing some spatial indications of where the densest concentrations of remains may be sought. Unfortunately, supportive information from secondary evaluation sources is not available, due to the limitations of the associated techniques: fieldwalking was not an option, and gradiometry was restricted to the western part of the proposed development area. Where this technique was used, its effectiveness was limited by the masking effects of overburden: we now believe that this overburden could be residue from medieval salt processing.

9.0 Acknowledgements

Pre-Construct Archaeology (Lincoln) would like to thank Terry Sykes Design and Build for this commission. Particular thanks are extended to the site owner, Mr M Sharp for his hospitality and assistance during the course of the investigation. Thanks are expressed to the Boston Community Archaeologist and to Hilary Healy, who very kindly gave some of her time to inspect the site and offer some very useful comments. The excavation was carried out under the direction of the writer, assisted by six experienced archaeologists, Pete Barnes, Wendy Booth, Dave Bower, Tom McCarthy, Adam Daubney and Wayne Livesey.

10.0 References

Albone, J 1999 *Archaeological Excavation Report: A Late Medieval / Early Post-Medieval Saltern at St Michael's Lane, Wainfleet St Mary* (unpublished PCA report)

B.G.S 1995 *Boston, England and Wales Sheet 128*. Solid and drift Geology. 1:50,000 Series. Keyworth, British Geological Survey.

IFA, 1994 *Standard Guidance for Archaeological Field Evaluations.*

Haynes, S. 1994 *Archaeological Watching Brief of development on land at Red Lion Street, Bicker, Lincolnshire*. APS Report No. 36/97.

Healey, H. 1999 *A Medieval Salt-making Site in Bicker Haven, Lincolnshire*, in Lane, T. (ed.) 1999 Lincolnshire Salterns: Excavations at Helpringham, Holbeach St. Johns and Bicker Haven. Heritage Trust of Lincolnshire. East Anglian Archaeology Report No. 89.

LCC, 1998 *Lincolnshire Archaeological Handbook: A Manual of Archaeological Practice*. Built Environment Team, Lincolnshire County Council.

Pevsner, N. and Harris, J. 1990 *The Buildings of England: Lincolnshire*. Penguin Books.

Rylatt, J. and Bunn, D. 2000 *Fluxgate gradiometer survey: Land off Morley Lane, Bicker, Lincolnshire*. Unpublished.

11.0 Site archive

The site archive (documentary and physical) for this project is in preparation and will be deposited at Lincoln City & County Museum within six months. Access to the archive may be granted by quoting the global accession number 2001.18.

Appendix 12.1: Colour Photographs

P1. Trench 1, west facing section, looking east.

P2. Trench 2, after excavation, looking south.

P3. Trench 2, east facing section through ?structure [216], beam slot [215] and posthole [211], looking west.

P4. Trench 2, east facing section through filtration pit [213], looking west.

P5. Trench 3, north-west facing section through rake-out deposits, looking north-east.

P6. Trench 4, after cleaning, looking south-west. Note the large piece of pottery in the foreground.

P7. Trench 7, south-facing slot through ?kiln [715], looking north. Note surface of kiln floor to the right of the board.

P8. Trench 8, west-facing section, looking north-east.

P9. Trench 9, after cleaning, looking south.

P10. Trench 10, after cleaning, looking north-west.
Note beam slot [1005] beyond the 1m scale.

Appendix 12.2

Archive Report on the Pottery from an Evaluation at Morley Lane, Bicker (MLB01)

Jane Young
Lindsey Archaeological Services

1. Introduction

A total of 262 sherds of pottery representing about 181 vessels were recovered from the site. The material ranges in date from the Saxo-Norman to the early modern period. The pottery was examined both visually and using a x20 magnification, then recorded on an Access database using locally and nationally agreed codenames.

2. Condition

The pottery recovered was in variable condition with most sherds showing some degree of abrasion. A number of sherds show evidence of post-firing exposure to extreme heat.

3. Overall Chronology and Source

A range of 28 different, identifiable pottery types were found on the site, the type and general date range for these fabrics together with those for the ceramic building materials are shown in Table 1. A limited range of vessel types was recovered including examples of bowls, jugs, jars, pitchers and bunghole jugs.

Table 1: Pottery codenames and date range with total quantities by sherd and vessel count

codename	full name	earliest date	latest date	sherds	vessels
BL	Black-glazed wares	1550	1750	7	7
BOSTLT	Boston Glazed ware - Lincoln type	1230	1330	7	1
BOU	Bourne D ware	1450	1650	5	5
BOUA	Bourne-type Fabrics A, B and C	1150	1350	71	40
CRMWARE	Creamware	1770	1850	1	1
EMHM	Early Medieval Handmade ware	1100	1250	17	15
EMLOC	Local Early Medieval fabrics	1150	1230	3	3
EMX	Non-local Early Medieval fabrics	1150	1230	9	6
LHUM	Late Humber-type ware	1550	1750	1	1
LMLOC	Late Medieval local fabrics	1350	1550	5	5
LSW2	13th to 14th century Lincoln Glazed Ware	1200	1320	19	3
LSW2/3	13th to 15th century Lincoln Glazed Ware	1200	1450	1	1
MEDLOC	Medieval local fabrics	1150	1450	13	13
MEDX	Non Local Medieval Fabrics	1150	1450	12	11
MY	Midlands Yellow ware	1550	1650	1	1
NSP	Nottingham Splashed ware	1100	1250	4	4
PING	Pingsdorf-type Ware	1000	1200	1	1
PMLOC	Post-medieval Local fabrics	1450	1700	1	1

POTT	Potterhanworth-type Ware	1250	1500	1	1
RGRE	Reduced glazed red earthenware	1600	1850	3	3
SLOOL	South Lincs Saxo-Norman Oolitic	1050	1200	3	3
SLSQ	South Lincs Shell and Quartz (generic)	1100	1350	1	1
SLSQF	South Lincs Shell Quartz and Iron (generic)	1100	1350	1	1
SLST	South Lincolnshire Shell Tempered ware	1150	1250	25	4
SLSTCW	South Lincolnshire Sand-tempered Coarseware	1000	1150	1	1
ST	Stamford Ware	970	1200	22	21
TB	Toynton/Bolingbroke wares	1450	1750	12	11
TOY	Toynton Medieval Ware	1250	1450	15	14

Most of the material dates to between the 12th and 14 centuries (see Table 2) and although sherds of both later and earlier date are present they only form a small part of the assemblage.

Table 2: Vessel count by chronological period

period	trench 2	trench 3	trench 4	trench 5	trench 7	trench 8	trench10	total vessels
Saxo-Norman		2	20			1	1	24
Early medieval	4		17		8		1	30
Medieval	32	37	11	3	5	1	3	92
Late medieval	4						1	5
Late medieval to post-medieval	8	1					2	11
Post-medieval	10						8	18
Early modern	1							1
total vessels	59	40	48	3	13	2	16	181

Most of the pottery was recovered from trenches 2, 3 and 4 with small numbers of sherds being recovered from other trenches. A suggested date for the deposition of each context is shown in Table 3.

Table 3: Suggested deposition date of pottery groups from stratified contexts

trench	context	date	sherds	vessels
2	200	mid 17th to 18th	3	3
2	203	15th to 16th	1	1
2	220	mid 17th to 18th	16	15
2	229	15th to 17th	11	4
2	231	12th to 16th	1	1
2	234	late 12th to 13th	4	3
2	236	13th to 15th	1	1
2	244	13th to 15th	4	4
2	245	pot 13-15th brick 15-18th	4	4
2	246	15th to 16th	1	1
2	247	13th to 15th	1	1
2	248	14th to 15th	2	2

2	254	18th to 19th	4	4
2	256	mid 17th to 18th	1	1
2	257	13th to 14th	6	5
2	262	13th to 14th	35	6
3	300	late 13th to 14th	4	4
3	303	11th	1	1
3	304	mid 11th to 12th	1	1
3	306	? 14th with 15/16th intrusive	43	27
3	307	13th to 14th	7	7
4	401	13th to 15th	10	10
4	402	11th to 12th	2	2
4	403	late 13th to 14th with high 12th residual	33	11
4	404	early/mid to mid 13th	15	13
4	405	mid/late 12th to early/mid 13th high resid 12th	14	12
5	502	13th to 14th	3	3
7	702	late 12th to 13th	5	5
7	703	13th to 14th	1	1
7	704	12th to 14th	2	2
7	707	12th to 13th	5	5
8	819	11th	1	1
8	820	13th to 15th	1	1
10	1000	17th	8	8
10	1001	mid to late 17th	6	6
10	1002	16th to 17th	2	2

Saxo-Norman to early medieval

More than 25% of the pottery recovered from the site belongs to the period between the mid 11th and early/mid 13th century. At least ten of the Stamford ware vessels present are of 11th century date; with the exception of a single glazed vessel all are unglazed jars. The only imported vessel from the site; a Pingsdorf jar or pitcher is in a white fabric and is also likely to be of 11th century date. The 12th to early/mid 13th century pottery is more varied in character and includes utilitarian vessels (mainly jars) in a range of local fabrics, together with regionally imported glazed jugs. Only two sources - Stamford and Nottingham, can be identified for these jugs. The remaining vessels are from unknown production centres outside of the East Midlands area and include a handmade jug with a granitic temper and a whiteware jug possibly from the North East coastal edge.

Medieval

Overall, 50% of the pottery vessels recovered from the site date to the medieval period, mainly the 13th and 14th centuries. The assemblage from saltern deposit 306 includes vessels from Lincoln, Bourne and Toynton all dating to between the early and mid/late 14th century. The regionally imported vessels all appear to date to the 13th century and suggest that by the 14th century there is more limited access to regional imports.

Late Medieval to Post-medieval

A limited range of mid 15th to 18th century pottery was recovered from trenches 2, 3 and 10. All the ware types present have a long life span and few diagnostic features were present. Most assemblages of this period can only be dated generally to either the mid 15th to 16th centuries or 17th to 18th centuries. There is insufficient material to determine if there was continuation of occupation in the area between the 15th and 18th centuries.

4. Summary and Recommendations

The majority of the pottery belongs to the period between the early 12th century and the 14th century, although some sherds belong to the 11th century and later pottery is present. The presence of a number of recognisable and unidentifiable regional imports reflects the position of Bicker as a haven during the medieval period.

The assemblage should be kept for future study, especially as part of any characterisation of the fabrics for a type series. Three vessels should be drawn; these vessels are the burnt Bourne-type bowl and Bourne-type jar in context 262 and the shell-tempered jar in context 403.

Tile Archive MLB01

trench	context	cname	frags	weight	description	date
10	1000	BRK	2	84	handmade	15th to 18th
2	200	BRK	1	26	handmade	15th to 18th
2	220	BRK	1	3	handmade	15th to 18th
2	220	FIRED CLAY	1	2		
2	245	BRK	1	5	handmade	15th to 18th
2	254	BRK	5	566	soft handmade	15th to 18th
2	256	BRK	2	178	handmade;bright red fabric white surfacing	15th to 18th
2	262	FIRED CLAY	1	7		
3	303	FIRED CLAY	21	314	very soft;fired silt?	
3	306	FIRED CLAY	1	2		
3	307	PNR	1	79	flat roofer	medieval
3	313	FIRED CLAY	21	494	very soft;fired silt?	
4	401	FIRED CLAY	1	1		
4	402	FIRED CLAY	2	4		
4	403	FIRED CLAY	1	1		
4	404	FIRED CLAY	14	88		
4	404	FIRED CLAY	1	3		

Pottery Archive MLB01

Jane Young *Lindsey Archaeological Services*

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
10	1000	BOU		jar	1	1		rim			
10	1000	BOU		?	1	1		BS		? ID	
10	1000	BOUA		jar?	1	1		base			
10	1000	BOUA		jar	1	1	ridged shoulder	neck			
10	1000	EMHM		?	1	1		BS		? ID	
10	1000	LHUM		bowl	1	1		rim			
10	1000	LMLOC	reduced;fine-med quartz	jug?	1	1		BS		olive green glaze	
10	1000	ST	B	jar/pitcher	1	1		BS		glaze	12th
10	1001	BL		jar?	1	1		BS		vitr	mid 17th to 18th
10	1001	BOU		bowl	1	1		rim			
10	1001	POTT		?	1	1		BS			
10	1001	RGRE		bowl	1	1		BS		same vessel 1002	
10	1001	TB		jug?	1	1		BS		abraded	14th to 16th
10	1001	TB		large jug/cistern	1	1		base			
10	1002	RGRE		jar	1	1		rim		prob TB	
10	1002	RGRE		bowl	1	1		BS		same vessel 1001	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
2	200	BL		?	1	1		base			mid 17th to 18th
2	200	TB		?	1	1		BS			14th to 16th
2	200	TB		jug?	1	1		base		frilled base	14th to 15th
2	203	TB		jug	1	1	thumbed strip around neck	handle		oval handle	15th to 16th
2	220	BL		drinking vess	1	1		BS		GRE type	17th
2	220	BL		bowl	1	1		BS			17th to 18th
2	220	BL		?	1	1		BS			17th to 18th
2	220	BL		jar	1	1		rim			17th to 18th
2	220	BOU		jug/jar	1	1		BS			
2	220	BOUA		jar	1	1		BS		soot;? Id	
2	220	BOUA		jar	2	1		BS		soot;int glaze	
2	220	LMLOC	bright oxid;med coarse quartz;hard	jug	1	1		neck		light brown glaze	
2	220	LMLOC	bright oxid;med coarse quartz;hard	drinking jug	1	1		handle		soot;abraded	
2	220	LMLOC	bright oxid;med coarse quartz;hard	?	1	1		BS		light brown int & ext glaze	
2	220	LMLOC	bright oxid;med coarse quartz;hard	jug	1	1		BS		olive green glaze	
2	220	MEDLOC		?	1	1		BS		tiny frag;? Boston	
2	220	MY		?	1	1		BS			

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
2	220	PING	white	jar/pitcher	1	1		BS		? ID	
2	220	TB		jar/urinal	1	1		rim			14th to 16th
2	229	BOSTLT		small jug	7	1	thumbed basal edge	base		soot;? ID	
2	229	BOUA		?	1	1		BS		tiny frag	
2	229	TB		cistern	2	1		handles		opposing handles;abraded grooved oval	15th to 17th
2	229	TOY		jug	1	1	applied fe strip	BS		? Boston	
2	231	MEDLOC	oxid;med quartz & mod fe	jar/jug	1	1		BS		unglaze	12th to 16th
2	234	EMHM		jar	2	1		BS		? Bourne type	
2	234	EMLOC	ORO;med quartz	jar	1	1		base		soot;? LSW	
2	234	EMLOC	oxid;med quartz	jug	1	1		BS		splashed glaze;? Same vessel 254	
2	236	MEDLOC	bright oxid;med quartz;hard	?	1	1		BS		soot;spots of glaze;? TOY	
2	244	BOUA		jar	1	1		BS			
2	244	LSW2/3		jug?	1	1		base			
2	244	MEDLOC	ORO;med quartz;hard	jug	1	1		BS		cu glaze;?? LSWA	
2	244	MEDX	dark reduced;med quartz;hard		1	1		BS		glaze;tiny scrap	
2	245	EMLOC	oxid;med quartz;hard	jug?	1	1		BS		? Same vessel in 234;splashed glaze	
2	245	MEDLOC	ORO;med quartz;hard	jar?	1	1		BS		soot;spot of glaze	
2	245	MEDLOC	ORO;med quartz;hard	?	1	1		BS		? TOY	
2	245	MEDX	white layered with red slip;	jug	1	1	applied horiz strip/cordon	BS		slip appied whilst clay still wet	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
2	246	TB		cistern	1	1		bung		int soot	15th to 16th
2	247	SLST		?	1	1		BS		flake with leached int	
2	248	TB		jug	1	1		BS			14th to 16th
2	248	TOY		jug	1	1		BS			
2	254	BOUA		jar	1	1		BS		soot;poss not Bourne as shell inclusions	13th to 15th
2	254	CRMWARE		?	1	1		BS			
2	254	MEDLOC	ORO;med-coarse quartz;hard	jug?	1	1		BS		possibly Toynton	13th to 15th
2	254	TB		bowl	1	1		rim			14th to 16th
2	256	BL		?	1	1		base			17th to 18th
2	257	BOUA		?	1	1		BS		very abraded	
2	257	BOUA		small jar?	1	1		base		? ID;no glaze;wire marks & untrimmed basal edge	
2	257	BOUA		?	1	1		base		abraded	
2	257	TOY		jug	1	1		BS		abraded	
2	257	TOY		jug	2	1	applied fe strip	BS		abraded	
2	262	BOUA		bowl	14	1		near complet	draw;restora	heavily burnt interior;thick ext & part int soot	
2	262	BOUA		jar?	1	1		BS		? ID as shell incl	
2	262	BOUA		jar	17	1	ridged shoulder	rim & BS	draw	soot	
2	262	MEDLOC	ORO;fine-med quartz	?	1	1		base		tiny frag	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
2	262	MEDLOC	reduced;med quartz	jug	1	1		BS		glaze; ? Boston	
2	262	MEDLOC	light oxid;med quartz	?	1	1		BS		no glaze	
2	U/S	BOU		jug	1	1		rim		post bbreakage soot	
2	U/S	MEDLOC	OR;fine-med quartz;hard	jug	1	1		BS		? Toyton/Boston	
2	U/S	PMLOC	ORO;fine-med quartz;hard	?	1	1		BS		unglaze	
3	300	BOUA		jar	1	1		BS		soot;? ID	
3	300	BOUA		jar	1	1	ridged shoulder	BS		soot	
3	300	TOY		jug	1	1		rim			
3	300	TOY		small jug	1	1	? Applied fe spots	BS			
3	303	ST	A/G	jar?	1	1		BS		burnt;unglaze;? ID	
3	304	ST	B/G	jar?	1	1		BS		burnt;soot;unglaze	
3	306	BOUA		jar	1	1		base		soot ext & part int	
3	306	BOUA		jug	1	1		rim		triangular rim	
3	306	BOUA		jar	2	1	ridged shoulder	rim		? ID as shell inclusions	
3	306	BOUA		jar	1	1	ridged shoulder	rim		flanged rim	
3	306	BOUA		bowl	1	1		rim		heavily sooted int & part ext	
3	306	BOUA		bowl	1	1		rim		soot	
3	306	BOUA		bowl	1	1		BS		int glaze	
3	306	BOUA		bowl	1	1		base		int glaze	
3	306	BOUA		base	1	1		BS		glaze over break;sanded base;burnt	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
3	306	BOUA		?	1	1		base		soot;? ID	
3	306	BOUA		jug	1	1		BS		very abraded/spalled	
3	306	BOUA		?	1	1		BS		soot; int glaze	
3	306	BOUA		?	1	1		base		int & ext soot	
3	306	LSW2		jug	1	1		handle		rod handle	
3	306	LSW2		jug	16	1		rim & BS		tall necked jug;bright cu glaze;2 upper eyelet joinings;rounded cuff rim MH6-MH8	
3	306	MEDX	whiteware	jug	1	1	ridged shoulder	BS		? Early NOTG or NEWG	
3	306	MEDX	reduced;fine-med quartz;hard	jug	1	1		BS		olive glaze	
3	306	MEDX	reduced;fine-med quartz;hard	jug	1	1		BS		discoloured;? Dark green glaze	
3	306	MEDX	light firing;oolite/limestone	bowl?	1	1		BS		int pale green glaze;? Stanion light firing	
3	306	SLST		?	1	1		base		soot	
3	306	SLST		?	1	1		base		soot	
3	306	TB		bowl	1	1		rim		soot	
3	306	TOY		jug	1	1		handle		LHJ strap	
3	306	TOY		jug	1	1		handle		grooved strap	
3	306	TOY		jug	1	1		base		brown int dep	
3	306	TOY			1	1		base		brown int dep	
3	306	TOY		jug	1	1		BS			
3	307	BOUA		jar	1	1		BS		soot	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
3	307	BOUA		jar?	1	1		base		soot;? ID as shell	
3	307	BOUA		jar	1	1	ridged shoulder	BS		soot;? ID coarser quartz	
3	307	BOUA		jar	1	1	ridged shoulder	BS		soot;? ID as shell	
3	307	BOUA		jar	1	1	ridged shoulder	BS		soot;? ID as shell	
3	307	TOY		small jug	1	1		BS		? ID	
3	307	TOY		?	1	1		BS		? ID	
4	401	EMHM		jar?	1	1		BS		fabric inc shell & flint	
4	401	EMHM		jar?	1	1		BS			
4	401	EMX	granitic	jug	1	1		LHJ		thick int deposit;thin strap handle;same vessel 404	
4	401	MEDLOC	OR;med quartz	?	1	1		BS		small frag	
4	401	MEDX	reduced;med quartz;hard	jug	1	1		BS		int deposit;olive green glaze	
4	401	MEDX	light firing;med-coarse quartz	jug	1	1		BS		dull thick apple green glaze;? NEWG or NOTG	
4	401	NSP	sandy	jug	1	1	thumbed edges	handle			
4	401	ST	A/G	jar/pitcher	1	1		BS		glaze	
4	401	ST	B	collared jar/pitcher	1	1		rim		unglaze;soot	
4	401	ST	A/G	jar?	1	1		BS		unglaze;soot	
4	402	SLOOL		jar	1	1		BS		soot	
4	402	ST	A/G	jar	1	1		neck		unglaze	
4	403	EMX	comm fe comm quartz occ-mod limestone	jug	1	1	sharp shoulder cordon	BS		splashed glaze;? Same vessel in 405	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
4	403	MEDX	dark reduced;mixed abundant subround to subangular quartz	jug	2	1		base		rim scar on base	
4	403	MEDX	ORO;mixed quartz;hard	jug/jar	1	1		BS		no glaze	
4	403	SLOOL		jar?	1	1		BS		soot;int dep	
4	403	SLOOL		jar?	1	1		base		soot ext above base soot int on base	
4	403	SLST		squat jar	22	1		profile	draw	thick int deposit;soot;sharp everted rim	
4	403	ST	B/G	jar/pitcher	1	1		BS		glaze	
4	403	ST	A/G	jar?	1	1		BS		soot int & ext?	
4	403	ST	B	collared jar/pitcher	1	1		rim		int & ext glaze	
4	403	ST	A/G	jar?	1	1		BS		soot int & ext?	
4	403	TOY		small jug/drinking jug	1	1		base		? ID	
4	404	EMX	white coarse	jug	1	1		BS		very abraded, same vessel 405	
4	404	EMX	reduced;abun fine subround quartz & mod limestone	jar	1	1		rim		unglaze	
4	404	EMX	granitic	jug	2	1		base & BS		soot on lower base (charcoal);thick int dep;same vessel 401;handmade;coarse granitic with biotite	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
4	404	EMX	ORO;fine-med subround quartz occ larger mod rounded limestone occ ca aggregated very fine SST	jug	1	1		BS		? Grimston;splashed glaze	
4	404	LSW2		jug	2	1	applied fe dec	BS		? ID Lincoln or Boston	
4	404	NSP	sandy	jug	1	1		BS		splashed glaze	
4	404	NSP	sandy	jug	1	1		BS		splashed glaze	
4	404	SLSQ		jar?	1	1		base		int dep	
4	404	SLSQF		?	1	1		base		soot	
4	404	ST	A/G	jar?	1	1		BS		burnt;unglaze	
4	404	ST	A/G	jar?	1	1		BS		unglaze	
4	404	ST	G/B	jar	1	1		BS		soot	
4	404	ST	A/G	jar?	1	1		BS		unglaze;post breakage soot	
4	405	EMHM		jar?	1	1		BS		soot;int dep	
4	405	EMHM		jar?	1	1		BS		int soot	
4	405	EMHM		jar?	2	1		BS		soot	
4	405	EMX	white coarse	jug	1	1		BS		very abraded;same vessel 404;coarse sandstone; Alan- North Coastal?	
4	405	EMX		jug	1	1		BS		? Same vessel 403;fabric inc clay pellets with v fine quartz occ limestone mod fe & med-coarse quartz	
4	405	NSP	sandy	jug	1	1		BS			

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
4	405	SLSTCW		jar?	1	1		base		abraded int; fine-med shell	
4	405	ST	B/G	jar/pit	1	1		BS		glaze	
4	405	ST	B/G	jar?	1	1		BS		soot	
4	405	ST	B/G	jar/pitcher	1	1		rim		no glaze	
4	405	ST	B/G	pitcher	1	1		handle		glaze	
4	405	ST	B/G	pitcher	2	1		rim		glaze;? Same vessel	
5	502	BOUA		jar	1	1		rim		? ID folded rim	
5	502	BOUA		jar?	1	1		BS		glaze	
5	502	BOUA		jug	1	1		handle		? ID;as shell incl UHJ strap handle	
7	702	BOUA		jar	1	1		rim		reeded;? ID;? Stabbed dec below rim	
7	702	EMHM		jar?	1	1		BS			
7	702	EMHM		jar?	1	1		BS		soot	
7	702	EMHM			1	1		base		soot	
7	702	EMHM		jar?	1	1		BS		soot	
7	703	BOUA		jar?	1	1		BS			
7	704	EMHM		jar	1	1		BS		soot;Bourne?	
7	704	MEDX	dull oxid;fine-med quartz	?	1	1		BS		soot post breakage;fabric inc grog & limestone;unglaze	
7	707	BOUA		jar?	1	1		BS		soot;small frag	
7	707	BOUA		jar	1	1		BS		soot:? ID;? Handmade	
7	707	EMHM		jar?	1	1		BS		? ID;? Bourne	

trench	context	cname	sub fabric	form type	sherds	vessels	decoration	part	action	description	date
7	707	EMHM		jar	1	1		rim		? ID;? Bourne;soot	
7	707	EMHM		jar	1	1		rim		? ID;? Bourne;soot	
8	819	ST	A/G	jar	1	1		BS		unglaze;soot	
8	820	MEDLOC	OR med quartz;hard	jug	1	1	? Incised wavy dec	BS		olive green glaze;int dep	

Morley Lane, Bicker – MLB01

Environmental Archaeology Assessment

Introduction

Evaluation excavations conducted by Pre-Construct Archaeology at Morley Lane, Bicker in advance of proposals for housing develpment uncovered a number of medieval and post-medieval features. During the course of the evaluation a small collection of animal bone was recovered by hand and a series of soil samples were taken of which six were submitted for assessment (Table 1) and a seventh for comment (sample 4).

Table 1: Samples submitted for environmental assessment

site	sample	context	volume in l.	description	date
MLB01	3	302	27	Layer	Med.
MLB01	5	247	6	?	Med.
MLB01	4			Trench 1 peat layer at 1.6-1.7m depth	?
MLB01	6	248	7	?	Med.
MLB01	7	249	6	?	Med.
MLB01		245	12	?	Med.
MLB01		246	5	?	?

Methods

The soil samples were processed in the following manner. Sample volume and weight was measured prior to processing. The samples were washed in a 'Siraf' tank (Williams 1973) using a flotation sieve with a 0.5mm mesh and an internal wet-sieve of 1mm mesh for the residue. Both residue and float were dried and the residues subsequently re-floated to ensure the efficient recovery of charred material and mollusc shells. The dry volume of the flots was measured, and the volume and weight of the residue recorded.

The residue was sorted by eye, and environmental and archaeological finds picked out, noted on the assessment sheet and bagged independently. A magnet was run through each residue in order to recover magnetised material such as hammerscale and prill. The residue was then discarded. The float of each sample was studied under a low power binocular microscope. The presence of environmental finds (ie snails, charcoal, carbonised seeds, bones etc) was noted and their abundance and species diversity recorded on the assessment sheet. The float was then bagged. The float and finds from the sorted residue constitute the material archive of the samples.

The individual components of the samples were then preliminarily identified and the results are summarised below in Tables 2-4.

Results

A few uncharred seeds were present in the samples. These included elder, *Sambucus* sp., and goosefoot/orache (*Chenopodium* sp.) and a few other seeds. All samples had considerable numbers of modern rootlets within them.

Trench 1

A single sample was taken from a boring in Trench 1. A small sample of peat was collected from a deposit between two clay layers 1.6-1.7m beneath the floor of the trench. The OD height of this deposit is not known, but it clearly reflects a freshwater marsh episode in the natural sequence on the site. The fine grained sediments above and below may be either freshwater or upper saltmarsh clays, and this peat horizon implies a relative change in sea level at some time in the past. It would be useful to ascertain the OD height of the peat and have it analysed for pollen and radiocarbon dated to shed further light on the sea level changes and their timing in the Lincolnshire fens.

Trench 2

Five of the submitted samples were taken from Trench 2, the trench adjacent to Morley Lane and the modern stream/dyke channel. All except 246 have been preliminarily dated to the medieval period. Archaeological finds from the samples (Table 2) include pottery, iron objects, a little fired earth and fuel ash slag, a sliver of glass, a few grammes of bone and varying quantities of edible marine shell. Of particular note are the high quantities of hammerscale and the presence of slag. Some of these small samples have produced over 100 fragments of magnetised flake and spheroidal hammerscale and clearly indicate that iron smithing was taking place somewhere in the near vicinity of this trench (see Cowgill). The few small fragments of coal may be intrusive in the deposits, having travelled down through soil processes, but a fairly frequent occurrence in context 246 may indicate contemporary use. Cowgill has certainly recorded coal being used as a fuel by the smiths since it occurs within the slags.

Table 2: Finds from the samples

sample	cont.	vol	residue vol in ml.	pot *	metal	fired earth wt g #	fuel ash slag $	ham'r scale $	slag wt g.	glass	bone wt g.	comment
3	302	27	700		Pb?	154	++++	++		1	1	little coal, much fired sediment in <7mm residues
5	247	6	1200	2/7	Fex2		+	+++	1	1	9	little coal
6	248	7	550	1/<1				+++			6	
7	249	6	650				+	+	<1		1	
	245	12	175	2/3	Fe	+	+	+++	8		5	little coal in flot
	246	5	275	1/1		<1	+	+++	13		2	coal in flot

(* sherd count/weight; # sorted from >7mm only;
$ frequency +=1-10 or present; ++=11-50; +++=51-150; ++++= >150 items)

The environmental finds from these samples (Table 3) indicate a range of domestic rubbish, with charred cereal grains, occasional pea and bean, mussel, cockle, winkle and oyster shells, a few eel and herring bones, bird eggshell and fragments of larger (presumably domestic) mammal bone. One sample clearly included cess and the presence of mineralised wood fragments and occasional seeds suggests that two or three of the other samples also included some cess (Table 3). The failure to observe any charred chaff fragments in any of the samples argues against the cereals deriving from crop processing, although a high component of charred seeds, particularly in some samples, may contradict this. Without specific identification of the charred seeds it is not possible to establish whether or not they are arable weed taxa and

therefore possibly associated with the cereals. A number of the grains in context 249 had germinated. This may possible have been a reason for discard although grain is encouraged to germinate if the grain is used for malting. The charcoal component of the samples is composed of small quantities of wood charcoal, possible straw, plant stems, possible leaves and tuberous material. Only in context 245 was the charcoal element largely derived from wood.

Apart from the sea shells there is little evidence for the exploitation of marine resources. A few of the small fish vertebrae and herring indicate some marine catches and one unidentified bone from a larger fish, is probably marine, but fishes are relatively under-represented for a site so close to the sea and with a haven for boats.

The non-marine molluscan fauna in the samples (Table 4) are suggestive of an open grassland terrestrial environment but the most abundant taxa are all freshwater species. The presence of ostracods and sticklebacks in most of the Trench 2 samples is a further indication of this aquatic component. These assemblages have two implications. Firstly there is very little evidence for any estuarine component in these fauna. The only indication of marine influence are the two shells of *Hydrobia ventrosa* and *H. ulvae?* that were present in context 245, and these could have derived from the silty sands upon which the site is built. The sampled deposits almost certainly built up during a period that post-dates any tidal influence in the adjacent stream channel, since both these taxa are typically washed up in their thousands on the strand line of tidal areas in the Wash. Secondly the consistent occurrence of freshwater taxa in the archaeological features indicates either that the area was subject to freshwater floods or that the features were water filled during the formation of the deposits, or vegetation collected from the river margins and fens is being disposed of in the features. The presence of one or two burnt shells suggests that the latter was one of the processes involved.

Table 3: Environmental finds from the samples

ample	cont	vol	flot vol in ml.	char coal *	charr'd grain *	charr'd seed *	egg-shell *	fish *	marine shell wt g.	snail */#	
3	302	27	55	3	3	4	1	1	1	2/2	wheat, barley, oat, mussel, barnacle, rodent, frog/toad, eel
5	247	6	20	3	3	3	2	3	371	2/2	wheat, barley, oat, pea?, bean?, mussel+, cockle, periwinkle, frog/ toad, bird, eel, stickleback, cess
6	248	7	55	3	4-5	2	1	1	148	2/2	wheat, barley, oat, pea/pulse, mussel, cockle+, oyster, bird, eel, stickleback, ostracod, cess?
7	249	6	55	3	4	3	1	1	91	2/2	wheat, barley, oat, pea, mussel, cockle, oyster, herring, ostracod, cess?
	245	12	20	3	3	2	1	2	20	2/2	wheat, barley, oat, mussel, cockle, periwinkle, oyster, bird, eel, stickleback, ostracod, cess?
	246	5	15	2	2	2	1	1	5	2/2	wheat, barley, oat, pea/bean, mussel, cockle, periwinkle, water vole, bird, ostracod

* frequency 1=1-10; 2=11-50; 3=51-150; 4=151-250; 5=>250 items
# diversity 1=1-3; 2=4-10; 3=11-25 taxa
+ particularly abundant taxa relative to other shells.

Trench 3

One sample was collected from a burnt spread beneath silty sands in Trench 3. This produced a relatively high concentration of fired sediment, a small piece of lead, a fragment of glass, a little bone and a few small fragments of coal. In addition the residue produced several pieces of hammerscale and the flot (55 ml) was largely composed of fuel ash slag. The latter indicates that the silica in the natural sands of the site has been heated to fusion temperature.

Despite a possible industrial association for this deposit the environmental finds indicate a very similar 'domestic rubbish' assemblage to those recovered from Trench 2. Charred cereals are common, eel, bird eggshell and a few fragments of mussel are also present. While their concentrations are significantly lower than the samples in Trench 2 there is clearly a domestic component in this deposit. Much of the charcoal in this sample is composed of straw?, stem, leaf? and tuberous material as well as wood. While this could be fen turf being used as a fuel it is unlikely that it derives from buried peats since the structure of the charred remains suggests charring of robust plant material. Organic debris in peats are generally collapsed due to decomposition of the cell wall structures and would not survive intact.

The few snails in this sample are similar to those elsewhere on the site although a few fragments of barnacle and a tiny shell of the rough winkle may reflect some marine input.

Table 4: Non-edible mollusca and ostracods recorded from the samples

Sample	3	5	6	7		
Context	302	247	248	249	245	246
Date	Med	Med	Med	Med	Med	
Open country						
Cecilioides acicula	+	+	+	+	+	+
Vertigo sp.	+ b	+				+
Pupilla muscorum		+			+	
Vallonia excentrica				+		
Vallonia pulchella					?	
Vallonia sp.					+	
Shade loving						
Oxychilus sp.						+
Acanthinula aculeata		+				
Aquatic						
Lymnaea cf *pereger*		?			+	+ b
Planorbis leucostoma		+	+		+	+
Planorbis planorbis		+	+	+		
Planorbis laevis				+	+	+
Planorbis sp.						
Bithynia tentaculata	+		+	?		?
Valvata macrostoma	?		+		+	
Valvata piscinalis		+		+		
Valvata cristata				+		+
Estuarine						
Hydrobia ventrosa					+	
Hydrobia ulvae					?	
Ostracods			+	+	+	+

habitat groupings broadly taken from Evans, 1972; Macan 1977; Ellis 1969; Cameron and Redfern 1976; b – shells burnt

Animal Bone

A small collection of animal bones, 58 fragments, was recovered during the evaluation. These bones have been identified and recorded following the procedures of the Environmental Archaeology Consultancy (see attached Key) and the catalogue is attached to this report.

The bone was recovered from ten of the evaluation trenches and cattle, sheep (or goat) and pig were the only species identified. The bone is in good condition although a number of the bones have been gnawed by dogs, and a few burnt and butchered. The assemblage has a fragmentation index (total no. of zones/total no. fragments) of 0.59. All the material appears to be characteristic bone debris from occupation.

Cattle and cattle size bones are the most frequent (19 &13 fragments), then sheep/goat and sheep size (10 &10) and four pig bones. The cattle bones include immature and adult animals, while only adult sheep are represented.

Discussion

The only clear industrial activity on the site that is indicated by the results from the soil samples is iron smithing. This activity was probably taking place nearby Trench 2. There is little indication of marine influence and none of the samples lend any support to an interpretation that the sampled trenches included saltern activity. Concentrations of the estuarine shell *Hydrobia ulvae* were marked in the samples from the medieval saltern at Wainfleet (Rackham *et al* 1999) and their absence here and the dominance of freshwater taxa perhaps argues against the deposits deriving from saltern activity. However, except for context 302, those deposits that may have directly derived from such activities were not sampled.

In contrast all the samples indicate a relatively high level of input of what is probably domestic rubbish. Charred grains of wheat, barley and oats, seeds of pea and bean, shells of mussel, cockle, periwinkle and oyster, bird eggshell, eel and herring bones, and the bones of sheep, pig and cattle collected by hand all serve to confirm this rubbish component. The relatively high concentrations of charred cereals in most of the samples and specific concentrations of mussel shell in 247 and cockle in 248 implies primary rubbish disposal, and the absence of chaff suggests a domestic rather than agricultural context, although this requires testing through specific archaeobotanic identification of the remains. The fuel used on the site includes charcoal and coal, but also probably other material from which the straw?, plant stems, possible leaves and tuberous material may have derived, such as turves. Specific identification of this component would be required to establish whether such material was being burnt.

Recommendations

The environmental samples have indicated that both industrial and domestic activities were undertaken at the site. The deposits assessed have proved to be rich in remains and have considerable potential for informing on the diet of the occupants of the site, the activities taking place, the potential function of a number of the features and information on the fuel being utilised.

Any future programme of work should ensure that bulk samples (generally 20-30 litres in size in lidded 10 litre plastic tubs) are collected from a series of dateable deposits and that all the animal bones are recovered during excavation. Sampling should target any possible industrial features such as hearths, a range of other features, but should also include large build-ups of

silty sand that might derive from saltern activities. Samples should be processed specifically with the recovery of evidence for industrial activities as well as environmental remains in mind. In the context of research on sea level and environmental changes in the fens it would be a good opportunity to auger the site during any subsequent field work and sample and date the deposits that underly it. The information forthcoming from such study has considerable importance for the understanding of coastlines, potential coastal occupation and its dating.

If mitigation establishes that no further field work is required then any unassessed samples from the evaluation site should be processed. These should be assessed and the fish and archaeobotanical material from all the evaluation samples should be submitted for specific identification and reporting and the assessment report revised, extended and re-interpreted in the light of these results.

Acknowledgments
I should like to thank Alison Foster for the sample processing.

Bibliography

Cameron, R.A.D. and Redfern, M. 1976 *British Land Snails*. Linnean Soc. Synopses of the British Fauna No. 6

Ellis, A.E. 1969 *British Snails*. Oxford Clarendon

Evans, J.G. 1972 *Land Snails in Archaeology*. Seminar Press, London.

Kerney, M.P. and Cameron, R.A.D. 1979 *A field guide to the Snails of Britain and North-west Europe*, Collins

Macan, T.T. 1977 *A Key to the British Fresh- and Brackish-water Gastropods*. FBA Scientific Publication No. 13

Rackham, J., Godwin, M., Giorgi, J. and Locker, A. 1999 Palaeoenvironmental and palaeoeconomic analysis of the late Medieval saltern at St Michaels Lane, Wainfleet St Mary (MLW98), Lincolnshire. June 1999 unpublished report for PCA.

Williams, D.1973 Flotation at Siraf, *Antiquity*, 47, 198-202

Archive Catalogue of Animal Bone from Morley Lane, Bicker – MLB01

site	context	species	bone	no	side	fusion	zone	butchery	gnawing	toothwear	measurement	path	comment	preservation
MLB01	1003	BOS	MAX	1	L					H12I15			4 PIECES-FRAGMENT WITH PALATAL AND PREMAXILLA	4
MLB01	1003	CSZ	LMV	1	R								TRANSVERSE PROCESS AND ANT ZYGAPOPHYSIS	4
MLB01	1003	OVCA	MAN	1	R		245678			GH12I-J12K12			SYMPHYSIS LOST-PM2 CONGENITALLY ABSENT	4
MLB01	203	BOS	MAN	1	F								VENTRAL FRAG HORI RAMUS-SL POROUS	4
MLB01	220	BOS	FEM	1	F	PF	1		DG				FEMUR HEAD-CHEWED	4
MLB01	220	BOS	INN	1	L	EF			DG				ISCHIAL FRAG ACETABULUM-CHEWED	4
MLB01	220	BOS	MTC	1	F								SPLIT PROX END	4
MLB01	220	BOS	SKL	1	F								SUPRAORBITAL FRAGMENT	4
MLB01	220	CSZ	UNI	1	F								INDET	4
MLB01	220	OS	SCP	1	R								FRAGMENT OF NECK	4
MLB01	220	OVCA	FEM	1	F		3					P	PROX SHAFT FRAG-PATHOLOGICAL FEATURE ON 3RD TROCH	4
MLB01	220	OVCA	TIB	1	R	DF	567		DG		Bd-26.4 Dd-19		DISTAL END-CHEWED	4
MLB01	220	SSZ	RIB	1	L								PROX HALF SHAFT	4
MLB01	229	OVCA	MAN	1	L		1237			H12I12J12K12			HORI RAMUS AND SYMPHYSIS	4
MLB01	229	OVCA	SKL	1	R								ZYGOMATIC ARCH	4
MLB01	245	SSZ	LBF	1	F			C					CALCINED SHAFT FRAGMENT	4
MLB01	246	BOS	FEM	1	L		4		DG				FRAGMENT WITH FOSSA	4
MLB01	256	SUS	ULN	1	F								MIDSHAFT	4
MLB01	257	BOS	RIB	1	R	PC	1						PROXIMAL END	4
MLB01	257	CSZ	RIB	1	F								SHAFT FRAGMENT	4
MLB01	262	BOS	FEM	1	F								DISTAL SHAFT FRAGMENT	4
MLB01	262	CSZ	LBF	1	F								SHAFT FRAGMENT	4
MLB01	262	OVCA	LI	1	W								HEAVILY WORN	4
MLB01	306	BOS	INN	1	L				DG				POST HALF ILIAL SHAFT-CHEWED	4
MLB01	306	BOS	MAN	1	L			CH		G3H2I12			ANT PART TOOTH ROW AND RAMUS-CHOPPED INFRONT OF P2 AND BEHIND M1	4
MLB01	306	BOS	RAD	1	R				DG				DISTAL HALF SHAFT-DISTAL END CHEWED	4
MLB01	306	CSZ	CEV	1	F			C					ANT AND POST ZYGAPOPHYSES CHOPPED FROM ARCH	4
MLB01	306	CSZ	UNI	3	F								INDET	4
MLB01	306	OVCA	CEV	1	L	CFAF	2345	CH					CENTRUM AND ARCH-CHOPPED DOWN RIGHT SIDE	4
MLB01	306	OVCA	SCP	1	L		235						GLENOID-NECK AND PART DISTAL BLADE	4
MLB01	306	SUS	MAN	1	L		2			EFG			ANT HORI RAMUS- 2 PIECES-MALE	4
MLB01	306	SUS	TIB	1	L	DN	56						DISTAL EPI	4
MLB01	307	BOS	HUM	1	R								ANT DISTAL SHAFT FRAGMENT	4
MLB01	307	SSZ	FEM	1	F								SHAFT FRAG	4
MLB01	401	CSZ	LBF	1	F								SHAFT FRAGMENT	4
MLB01	401	OVCA	MTC	1	F				DG				SPLIT DISTAL SHAFT FRAGMENT-CHEWED	4

site	context	species	bone	no	side	fusion	zone	butchery	gnawing	toothwear	measurement	path	comment	preservation
MLB01	401	OVCA	UM2	1	R					J11				4
MLB01	401	SSZ	LBF	1	F			C					CALCINED FRAGMENT	4
MLB01	401	SSZ	LMV	1	F	CNAN	4	C					CALCINED CENTRUM	4
MLB01	403	CSZ	RIB	1	F								PROX SHAFT FRAGMENT	3
MLB01	403	CSZ	RIB	1	F								SHAFT FRAGMENT	4
MLB01	403	SSZ	RIB	1	L			CH					PROX SHAFT-HEAD CHOPPED OFF	4
MLB01	403	SUS	ULN	1	L		3		DG				MIDSHAFT-CANINE PUNCTURES	4
MLB01	403	UNI	UNI	1	F								INDET	4
MLB01	405	BOS	TIB	1	R		4						POST PROX SHAFT FRAGMENT	4
MLB01	405	CSZ	RIB	1	F			CH					SHAFT FRAGMENT-ONE END CHOPPED	4
MLB01	405	SSZ	LBF	1	F			CH					SHAFT FRAGMENT-CHOPPED	4
MLB01	405	SSZ	RIB	1	F								SHAFT FRAGMENT	4
MLB01	405	SSZ	RIB	1	R								PROX SHAFT FRAG	4
MLB01	405	UNI	UNI	1	F								INDET	4
MLB01	819	BOS	MAN	1	R		23	C		G3h17I12			ANT RAMUS-CHARRED- 6 PIECES	4
MLB01	819	BOS	RAD	1	R	PF	12						PROXIMAL END	4
MLB01	819	BOS	UM3	1	L					K12			COMPLETE	4
MLB01	819	BOS	UM3	1	R					K4				4
MLB01	820	CSZ	LBF	1	F								SHAFT FRAGMENT	4
MLB01	911	SSZ	RIB	1	L								PROX SHAFT FRAGMENT	4

Appendix 12.4

Assessment report on the metal-working debris from Morley Lane, Bicker (MLB 01).

Introduction.
Trenches were excavated to evaluate a site that was suspected to be a medieval saltern. The majority of the evidence recovered consisted of deposits of ash and sands. A few hearth type structures and some more ambiguous burnt surfaces were recorded, including one in Trench 7 that was associated with the slag from 713 (context date 13th – 14th century).

Recording Methodology
A total of 4026g (43 pieces) of slag and other materials were submitted for recording. The slag was identified solely on morphological grounds by visual examination, sometimes with the aid of a x10 binocular microscope. They were recorded on *pro forma* recording sheets and the information entered into a Microsoft Access database using the following encoded fields: Site; Context; Type; Count; Weight; Craft; Fuel; Condition; Comments. A note of probable fuel type has been recorded when fragments or imprints were incorporated within the slag. The soil in the bags containing the slag was checked with a magnet for hammerscale, but only fairly small quantities were found in contexts 256 and 713.

Discussion.
This is a very heterogeneous assemblage of slags, with no consistent characteristics between the pieces, even those from the same contexts. The majority, if not all, were generated by iron smithing, the manufacture, repair or recycling of iron objects. There are some problematic pieces from contexts 262 and 403 that may be the result of some other high temperature process. They are characterised by their glassy, cindery and colourful appearance and lightness of weight. Their form is similar in shape to a hearth bottom (a common type of smithing slag), and the fact that there are also smithing slags from the same contexts, perhaps suggests that they may just be unusual smithing waste products. The vitrified hearth lining, also from context 403, has tentatively been identified as the remains of a tuyere. The piece is certainly the right shape and size but the clays around the postulated air hole are not oxidised as they should be. This piece may therefore have become vitrified by some other process, albeit high temperature (*i.e.* not salt production).

Table 1. The quantity of material from each context and the craft that generated it when identifiable.

Context	Craft	Count	Weight (g)
229	(coal)	2	36g
229	FESMITH	1	30g
245	(iron object)	2	25g
256	FESMITH	2	541g
262	(metal working?)	1	70g
262	FESMITH	1	9g
306	FESMITH	2	33g
307	FESMITH	1	16g
403	(metal working?)	1	181g
403	FESMITH	2	286g
405	FESMITH	1	28g
713	(coal?)	1	21g
713	FESMITH	19	1918g
713	FEWKING	7	832g

The large assemblage from 713 (in terms of an evaluation trench) consist of a wide range of hearth bottom forms, from flat plates to rounded and 'dumpy', with no true plano-convex examples. The output of a single smithy is usually very consistent and this would suggest that these are the products of a number of different craftsmen. There is, however, also an extremely peculiar group

(catalogued as DAMs) that are dense, have flat tops and all three have sides with an identical 'moulded' curvature. The way they have broken would suggest fracturing during the cooling process. This is a very rare type of iron slag whose method of formation is not understood and it is unlikely to be generated in an 'ordinary' smithy. A number of pieces of slag from this context have a yellow powdery substance on their surfaces. It is not sulphur and probably is not associated with the slags, its source is unclear.

Coal was the main fuel used for the smithing at the site although occasionally the inclusions in the slags suggest that it was mixed with charcoal. Charcoal was recorded as the sole fuel only in two instances and those were from contexts 405 and 713.

Iron smithing was evidently one of the activities occurring on the site, and the presence of hammerscale in contexts 256 and 713 as well as some of the samples (pers. comm. A Foster) confirms this. The iron-working debris does not suggest an established smithy, certainly not close to any of the trenches and therefore the importance of this assemblage, as far as this site, is concerned, may be limited. The presence of the 'dense and moulded' slags in Trench 7 are, however, of some importance. Therefore if further excavation is under taken at the site this area should be one of those targeted with the aim of recovering any additional evidence that may indicate how and where they were formed.

Jane Cowgill©
February 2001

APPENDIX 1
CATALOGUE OF THE METAL-WORKING DEBRIS FROM MORLEY LANE, BICKER

Context	Type	No	Weight	Craft	Fuel	Condition	Comments
229	COAL	2	36				
229	SLAG	1	30	FESMITH		ENCRUST	PROTOHB?
245	IRON	1	22				OBJECT
245	SLAG	1	3				SLAGGED COAL? CINDER?
256	HAMMS	0	0	FESMITH			FEW
256	HB	1	191	FESMITH	COAL		RECENT FRESH BREAKS; DENSE
256	HB	1	350	FESMITH	COAL		75 X 85 X 40MM; CRACKING; MORTAR ON SOME SURFACES
262	SLAG	1	9	FESMITH		ENCRUST	
262	SLAG	1	70				NOT FESMITH? COLOURFUL/GLASSY; FLOWED TOP
306	SLAG	1	6	FESMITH			DENSE FRAGMENT
306	SSL	1	27	FESMITH	COAL		METALLIC GLASSY SURFACE
307	SSL	1	16	FESMITH	COAL	ABRAD?	
403	HB	1	135	FESMITH			ALL SURFACES MOLTEN/ FLOWED; ODD SHAPE; SQUAREISH
403	HB	1	151	FESMITH			65 X 90 X 40MM; COLOURFUL/GLASSY/CINDERY; LOTS HL INCLUSIONS; FESMITH BUT GLASSY?
403	VHL	1	181				TUYERE? BUT NOT OXIDISED ON BACK; PLATE DIAMETER 75MM;. GLASSY/COLOURFUL
405	SLAG	1	28	FESMITH	CHARC		HB FRAGMENT BUT LIGHT + VOIDS?
713	CIND	1	21				SLAGGED COAL?
713	DAM	3	279	FEWKING			PROBABLE FRAGMENTS OF OTHER DAMS FROM SAME CONTEXT
713	DAM	3	502	FEWKING			VERY DENSE; FLAT TOP; REGULAR STANDARD CURVED SIDES; ONCE ROUND? FRACTURED?
713	HAMMS	0	0	FESMITH			FEW
713	HB	1	67	FESMITH	COAL		FLAT FLOWED PLATE FRAGMENT
713	HB	1	97	FESMITH	CHARC	ENCRUST	55 X 80 X 10MM; FLAT PLATE
713	HB	1	120	FESMITH	COAL + CHARC		50 X 60 X 35MM; DUMPY
713	HB	1	127	FESMITH	COAL + CHARC		60 X 75 X 25MM; FLAT TOP
713	HB	1	131	FESMITH	COAL		45 X 75 X 40MM; YELLOW POWDER ON SURFACE
713	HB	1	228	FESMITH	COAL + CHARC		80 X 95 X 25; FLAT PLATE + FLOW ON TOP; HAMMS
713	HB	2	199	FESMITH	COAL + CHARC		
713	HB	8	855	FESMITH		ENCRUST	SOME HAVE YELLOW POWDER ON SURFACES + RED BURNT SILTS; MOST ODD
713	PROTOHB	2	66	FESMITH	COAL		
713	SLAG	1	28	FESMITH	CHARC		PROTOHB? FAIRLY STANDARD SHAPE
713	SLAG	1	51	FEWKING			VERY DENSE 'FINGER' WITH RECTANGULAR/EGG SHAPED SECTION

CODES USED IN THE ABOVE CATALOGUE

ABRAD	Abraded
CHARC	Charcoal
CIND	Cinder (a light iron smithing slag)
DAM	Dense and Moulded iron slag
ENCRUST	Encrusted
FESMITH	Iron smithing
FEWKING	Iron working (non specific).
HAMMS	Hammerscale
HB	Plano-convex slag accumulation (hearth bottom)
HL	Hearth lining
PROTOHB	Proto-hearth bottom
SSL	Smithing slag lump
TUY	Tuyere
VHL	Vitrified hearth lining

Appendix 12.5: List of Archaeological Contexts

Trench 1

Context No.	*Category*	*Description*
100	layer	topsoil
101	layer	subsoil
102	layer	silts
103	layer	grey/blue clay

Trench 2

Context No.	*Category*	*Description*
200	layer	topsoil
201	layer	topsoil
202	layer	subsoil
203	layer	?subsoil
204	cut	post-med rectangular pit
205	cut	post-med ditch
206	cut	animal disturbance
207	?cut	animal disturbance
208	?cut	animal disturbance
209	?cut	animal disturbance
210	cut	?structure
211	cut	gully butt-end/posthole
212	cut	filtration pit
213	cut	filtration pit
214	cut	filtration pit
215	cut	filtration pit
216	cut	same as [210]
217	?cut	?ditch
218	cut	ditch
219	fill	fill of [205]
220	fill	fill of [205]
221	fill	fill of [205]
222	layer	below 227
223	fill	fill of [211]
224	fill	fill of [211]
225	fill	fill of [211]
226	layer	above 227
227	layer/feature	fired clay dump/hearth
228	fill	fill of [216]
229	layer	above 251
230	fill	fill of [215]
231	fill	fill of [215]
232	fill	fill of [215]
233	fill	fill of [216]
234	fill	fill of [216]
235	layer	below 201

236	layer	below 235
237	layer	below 236
238	layer	below 237
239	layer	below 238
240	layer	below 239
241	layer	below 240
242	layer	above 251
243	layer	below 202
244	fill	fill of [217]
245	fill	fill of [212]
246	fill	fill of [212]
247	fill	fill of [213]
248	fill	fill of [213]
249	fill	fill of [213]
250	layer	below 240, 251
251	layer	below 241, 229
252	layer	same as 250
253	fill	fill of [206]
254	fill	fill of [204]
255	fill	fill of [254]
256	fill	fill of [204]
257	layer	above 250
258	fill	fill of [206]
259	fill	fill of [209]
260	fill	fill of [207]
261	fill	fill of [208]
262	fill	fill of [214]
263	fill	fill of [214]

Trench 3

Context No.	*Category*	*Description*
300	layer	topsoil
301	layer	subsoil
302	layer	hearth rake-out
303	layer	hearth rake-out
304	lens	sandy silt
305	layer	saltern deposit
306	layer	saltern deposit
307	fill	silting of [308]
308	cut	?p-med ditch
309	layer	saltern deposit
310	layer	saltern deposit
311	layer	topsoil
312	layer	topsoil

Trench 4

Context No.	*Category*	*Description*
400	void	-
401	layer	topsoil
402	layer	subsoil
403	layer	saltern deposit
404	cut	medieval pit
405	fill	backfill of [404]
406	layer	saltern deposit
407	layer	hearth rake-out
408	layer	saltern deposit

Trench 5

Context No.	*Category*	*Description*
500	layer	farmyard surface
501	layer	levelling deposit
502	layer	?lagoonal deposit
503	fill	fill of [504]

Trench 6

Context No.	*Category*	*Description*
600	layer	modern brick surface
601	layer	levelling layer
602	void	-
603	void	-
604	layer	?lagoonal deposit
605	layer	?lagoonal deposit

Trench 7

Context No.	*Category*	*Description*
700	layer	p-med/modern build-up
701	layer	build-up layer
702	layer	build-up layer
703	fill	upper fill of [714]
704	surface	?kiln surface in [715]
705	fill	lower fill of [714]
706	fill	levelling deposit in [715]
707	layer	?medieval build-up
708	lens	silt band
709	layer	?medieval build-up
710	layer	?lagoonal deposit
711	layer	concrete surface (farmyard)
712	layer	levelling layer

713	lens	slag within [715]
714	cut	?pit/posthole
715	cut	?medieval kiln/hearth structure
716	cut	modern disturbance

Trench 8

Context No.	*Category*	*Description*
800	layer	farmyard surface
801	layer	levelling layer
802	layer	levelling layer
803	layer	levelling layer
804	layer	build-up deposit
805	cut	pit
806	cut	pit (same as [808])
807	cut	?pit
808	cut	pit (same as [806])
809	cut	?ditch butt-end
810	fill	fill of [807]
811	layer	silting layer
812	layer	silting layer
813	layer	silting layer
814	layer	silting layer
815	layer	silting layer
816	layer	silting layer
817	layer	silting layer
818	layer	silting layer
819	fill	fill of [806]
820	fill	fill of [808]
821	fill	fill of [805]
822	fill	fill of [809]
823	layer	?lagoonal deposit

Trench 9

Context No.	*Category*	*Description*
900	layer	topsoil
901	layer	levelling layer
902	layer	p-med/modern build up
903	fill	fill of [922]
904	layer	modern/p-med build up
905	layer	?flood horizon
906	layer	?saltern deposit
907	layer	?modern build up
908	layer	?saltern deposit
909	layer	?saltern deposit
910	layer	? saltern deposit
911	layer	?saltern deposit

912	layer	?saltern deposit
913	layer	?saltern deposit
914	fill	fill of [921]
915	layer	?saltern deposit
916	layer	?saltern deposit
917	layer	?saltern deposit
918	layer	?saltern deposit
919	cut	?modern pit
920	fill	fill of [919]
921	cut	?modern pit
922	cut	?modern pit

Trench 10

Context No.	*Category*	*Description*
1000	layer	topsoil
1001	layer	subsoil
1002	layer	medieval pond
1003	layer	medieval pond
1004	layer	medieval pond
1005	cut	medieval beam slot
1006	fill	fill of [1005]
1007	deposit	?hearth rake-out/burning

Addendum

In response to comments made by the Boston Community Archaeologist, and to avoid any possible further confusion, Pre-Construct Archaeology (Lincoln) would like readers to note the following:-

1. Trench 10

Context 1005 is referenced in the text as both a beam slot, and as a gully. The fact is that context 1005 could well be a beam slot and/or a gully. On page 13, the feature is referred to as a gully of possible structural function: by default, this gully of possible structural function could then be a beam slot (as described on the caption to Plate 10). Ambiguity in terminology is a hazard that is associated with excavating narrow trenches, and absolute interpretation will often depend upon examining archaeological remains over a greater area. To clarify, context 1005 is a gully/beam slot.

An absolute date for this feature was not determined (ie its fill contained no diagnostic artefactual remains such as domestic pottery). Strictly speaking, therefore, the feature is undated. However, it was sealed beneath a series of post-medieval deposits that were of a clearly different archaeological phase. The feature itself was cut through a deposit of clean silt. By inference/comparison with the stratigraphy in other trenches, it is suggested that the gully/beam slot, more likely than not, is of medieval date. However, given that this cannot be proved, the context description within Appendix 12.5 should read 'gully/beam slot of probable medieval date', rather than 'medieval beam slot'

5th March, 2001