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Land At Tumby Lincolnshire Fieldwalking Survey

NGR TF 5236 3602 (centre)
Site Code: TMB 98
LCNCC Accession No. 26.98

Report for

Woodhall Spa Sand and Gravel Co. Ltd

LAS Report No. 353

April 1999

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The Figures

Fig. 1 Site location also showing excavation sites at Kirkby on Bain and Tattershall Thorpe. (Reproduced from the OS 1:25,000 map with the permission of the Controller of HMSO © Crown copyright .LAS licence AL50424A.

Fig. 2 Finds distribution from fieldwalking (MSE plan no. WS/MSE/1053-6b, November 2nd 1998) .

Land at Tumby, Lincolnshire
Fieldwalking Survey
NGR TF 5236 3602 (centre)
Site Code: TMB 98
LCNCC Accession No. 26.98

Summary

An archaeological fieldwalking survey was conducted on the site of a proposed quarry extension at Tumby, Lincolnshire. It is located in a small meandering river valley, the lower parts of which have been covered by alluvium. There were three concentrations of worked flint of Neolithic and Bronze Age date, which were confined to islands of sand that protruded from the alluvium. The areas of highest potential for well-preserved Neolithic/Bronze Age occupation are estimated to be in a zone next to the sandy outcrops, where occupation has been identified from the flint scatters, but beneath the peat deposits (where flintwork on the plough surface is absent).

Introduction

Woodhall Spa Sand and Gravel Company Ltd commissioned Lindsey Archaeological Services (LAS), to undertake a fieldwalking survey at the above site. The scope of the work complies with the guidance from *Archaeology and Planning* (PPG 16), Department of the Environment (1990); *Management of Archaeological Projects*, English Heritage (1991); *Standard and Guidance for Archaeological Desk-Based Studies*, *Standard and Guidance for Archaeological Field Evaluations*, Institute for Field Archaeologists (1993, revised 1994).

The purpose of the non-intrusive phase of evaluation was to:

- establish the presence or absence of archaeological remains and their location within the proposed development site.
- estimate the continuity (or otherwise) of ancient landscape remains within the proposed development.

Planning Background

The archaeological work has been carried out prior to a formal planning application.

Archaeological Background

Chance finds made in the lower Bain Valley, many from gravel workings, have demonstrated the variety and richness of the archaeological remains in the area.

The area has been the subject of selected survey and excavation, which has helped to place the finds in a better context. Quite apart from Pleistocene deposits beneath the gravel deposits, which are of particular note, discoveries from the modern land surface have ranged from the Neolithic through to the post medieval period, with only the Anglo-Saxon period being poorly represented.

A survey of mineral extraction and its impact upon archaeological sites in North Lincolnshire in 1976 (Field 1977) identified the area as one of considerable archaeological potential and led to excavations at West Ashby in 1977 (Field 1985). Further archaeological investigations were carried out at Tattershall Thorpe, Iron Age enclosure in 1980 (Chowne et al. 1986) and 1986 (Chowne 1986); Tattershall Thorpe, Neolithic settlement in 1981 (Chowne et al. 1992) and West Ashby in 1984.

More recently excavations at Kirkby on Bain quarry have revealed extensive evidence for Neolithic occupation (Field 1995 and Taylor 1996).

Other archaeological remains in the area include a concentration of Bronze age metalwork from Tattershall Thorpe village, although too far away from the present site to have a direct impact, does indicate that the area continued to be settled in this period. Iron Age enclosures near Tattershall Airfield are some of the most important in Lincolnshire.

Roman occupation is less clear in the area with few dated finds, Roman pottery has been found in the top fills of Iron Age ditches and a coin hoard was found in quarry workings to the east. It is likely that at least some of the undated cropmarks recorded in the area are Roman in date.

Anglo-Saxon remains are among the least represented in the county and this area is no exception. Only two finds of Anglo-Saxon date have been found in the area but one of these is of international importance. A 6th century smith's grave found during excavation of the Neolithic site immediately to the north (Chowne 1986).

The Site

The proposed application site lies to the west of Tumby village 10km SW of Horncastle, at a height of around 10m O.D. It is bounded to the west by the course of the Old River Bain, and to the east by the former Horncastle canal. An earlier course of the River Bain flowed through the site, its route partly followed by the parish boundary between Tumby and Tattershall Thorpe (Fig. 1).

The river Bain cuts through a series of glacially deposited gravels, which overlie Kimmeridge clay at the valley bottom. The base of the valley has since been by covered by deposits of peat. On the surface this is seen as low lying flat areas of peaty soil with slightly raised outcrops of much sandier soil.

The land is currently under cultivation and had recently been ploughed prior to the fieldwalking survey.

Fieldwalking Survey

Fieldwalking is normally carried out on land, which has been recently ploughed or sown, to retrieve artefacts such as pottery or worked flint whose spatial distribution can indicate zones of occupation or activity beneath the ground surface.

The survey area was walked in transects 20m apart (giving a 5% coverage of the land) and finds individually recorded using a geodimeter 640 total station 1' machine and geodimeter super prisms, providing a three-dimensional co-ordinate for each find.

Contact between the fieldwalkers and the surveyors was maintained using two-way radios. Each fieldwalker carried their own prism and directly reported to the surveyor when recording of a find was required. Pre-numbered bags were used to ensure there was no duplication in the field.

Post-medieval pottery was not picked up. In addition animal bones were not retrieved because it is impossible to assign bone found in the ploughsoil to a specific archaeological period.

The fieldwork was carried out in two phases part of the area had not been ploughed. Phase 1 comprising the north and south fields, was undertaken on 4th and 5th March 1998, the middle sand island on the 4th June 1998. The lithics report is presented in two parts reflecting the two stages of fieldwork.

Results

All finds were individually plotted and their distribution is shown on Fig. 2 (MSE plan no. WS/MSE/1053-6b, November 2nd 1998). The main category of finds retrieved from the site was worked flint. 716 pieces were found, including two post-medieval gun flints. Also found were 85 fragments of post-medieval tile and 7 sherds of pottery, 2 of which were Roman, both from the eastern side of the site. These are not considered archaeologically significant.

The flint distribution was confined to the sandy outcrops in the north-east, centre and south-east parts of the site, around which the former course of the River Bain meandered. The only flints recovered from the peat soils were found adjacent to the sand islands, probably due to soil movement, either the result of ploughing or gravity.

The sand island at the north-east end of the site contained the greatest concentration of worked flint. The majority of finds were at its southern limits, reducing in concentration uphill to the north. This is the zone that would have undergone most erosion and it is possible that the flint moved downhill, biasing the distribution. The concentration also reduced towards the north-eastern boundary but this is probably the result of masking by upcast from construction of the Horncastle canal which runs along the eastern boundary of the site. It was noted that the condition of the flints was typical of plough damaged assemblages, which are probably derived from underlying archaeological features.

The central area showed a significantly smaller concentration of flint but was evenly distributed. It is possible that this area was less densely utilised in the past or that it has had a different ploughing regime in more modern times. In contrast with the material from the north and south fields few 'fresh' flakes

were recovered, suggesting that sub-surface features had been less heavily disturbed by modern ploughing in this area.

The small sand island at the south end of the site, separated from the main body of the site by a small stream, again supports a relatively dense concentration of flints (24) which although less than the northern island shows the same overall pattern. The masking effect of the upcast from the Horncastle canal was more marked in this small area.

With the material from the northern and southern fields, which were walked first, the Neolithic assemblage was sub-divided into earlier and later periods, based on tool typology. Blades detached using a highly controlled technique, were represented by 189 pieces of flint and were Early Neolithic in character. The remaining 323 pieces were less clearly diagnostic could only be assigned to the Neolithic. However, examination of their distribution patterns in the field strongly suggests that these two groups form two halves of the same assemblage and that their typology is not necessarily a chronological indicator (Appendix 1).

There were fewer diagnostic pieces from the central field and no attempt was made to separate an early and later Neolithic component. Bronze Age flints were represented by a much smaller group of around 82 pieces, although the difficulty in characterising the smaller fragments means that some may have been incorporated into the Neolithic assemblage. A slightly higher proportion of Bronze Age flints was found in the middle field, than in the north and south (Appendix 2).

Material representing all phases of the production process was present in the assemblage indicating that artefact manufacture was being carried out at Tumby. It is suggested that the presence of serrated edge tools on this site is related to cereal production and the absence of heavier tools perhaps indicates a low incidence of tasks like hide and/or meat production. However, it should be emphasised that a surface collection of flint may not necessarily be representative of the full assemblage below ground.

Discussion

The fieldwalking collection at Tumby reinforces the evidence from the excavations at Tattershall Thorpe and Grange Farm, Kirkby on Bain that this part of the Bain valley was intensively populated throughout the Neolithic period and into the Bronze Age. At Grange Farm and, to a lesser extent, at Tattershall Thorpe excavations have revealed remains of boundary ditches, pits and post-hole structures. Such features rarely survive on arable land because of destruction by modern ploughing.

The high concentrations of flint on the surface of the sand islands at Tumby indicate that the underlying features are undergoing erosion by ploughing, but the lack of freshly broken flint suggests that this has been a long-term process. It is impossible to assess how much of the underlying archaeology has been already been destroyed from the present information. There

appears to have been less erosion in the middle field, possibly reflecting a different ploughing regime for this area of the site.

The flint assemblage reveals activity beginning in the early Neolithic and continuing into the Bronze Age. There is no pre-Neolithic (i.e. Mesolithic) component in the assemblage. The flint distribution suggests that flint working was taking place on both sides of a small meandering river valley. It is impossible to determine the nature of the occupation although the recovery of large quantities of flint from Kirkby-on-Bain and Tattershall Thorpe indicates the possibility of more extensive archaeological remains preserved below the alluvial deposits in the lower reaches of the valley.

The route of the Old River Bain along the western limit of the proposal site is clearly a straightening of a more meandering former course of the river whose route is well-defined by the interlocking sand islands (Fig. 1). This shows that much of the area has been susceptible to wet ground conditions and seasonal flooding.

The absence of archaeological finds on the low-lying peat areas suggests that the peat is covering and preserving potential archaeological remains. How far any archaeological remains at Tumby may extend below the peat is impossible to determine on available evidence, because there may be a sequence of alluvial and peaty deposits, of differing ages and widths flanking the former river course. Borehole transects across the site (undertaken by T. Langdale Smith and the subject of a separate report) indicate peaty/alluvial deposits of more than 2.5m in depth along the meander east of the central sand island. These deeper peat deposits probably mean that wet ground conditions immediately adjacent to the river would have precluded settlement. Peaty deposits are nearly as deep in the north-west corner of the site.

The areas of highest potential for well preserved Neolithic/Bronze Age occupation are probably in a zone next to the sandy outcrops, where occupation has been identified from the flint scatters, but beneath the peat deposits (where flintwork on the plough surface is absent).

The very low density of medieval and post-medieval pottery and tile suggests that this land has not been the subject of a sustained manuring regime, which is consistent with the view that the area was probably only taken into arable cultivation relatively recently, perhaps because of wet ground conditions.

Conclusion

Whilst it is difficult to determine the level of sub-surface preservation from field walking data alone, the high concentration of Neolithic material on the sand outcrops suggests that significant archaeological features are present, but in an unknown state of preservation. Those areas sealed by later peat deposits have the highest potential for remains undisturbed by modern ploughing. Waterlogged conditions provide an ideal environment for the possible presence of associated organic deposits.

Mark Williams and Naomi Field

Acknowledgements

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Lithics Assessment of the North and South Fields by Robert Middleton

536 flints were collected from the surface of sand 'islands' projecting through river alluvium. Most were from north of a band of peat and alluvium. A smaller group (nos 650 - 700) (24 worked pieces) derived from south of the alluvium.

The overall condition of the assemblage was variable: a few pieces had abraded edges and extensive plough damage. Most pieces, however, had a small amount of edge damage consistent with a ploughsoil assemblage. A few pieces retained very fresh, fragile edges and had clearly not been in the ploughsoil long. This may suggest that ploughing is still actively removing artefacts from sub-surface features and surfaces.

Within the assemblage, three broad groupings could be identified. **Early Neolithic** material was distinguished by the presence of blades detached using a highly controlled technique (189 pieces). Implements were few, although the presence of serrated flakes indicated a relatively tight date range. The absence of material diagnostically Mesolithic, such as microliths or micro-burins, suggests that material of this date was not present. An intermixing of late Mesolithic and early Neolithic waste products would, however, be undetectable.

The bulk of the assemblage was made up of **Neolithic** material (323 pieces). This was defined by the presence of predominantly waste material with evidence for well-controlled flaking. The low incidence of hinge fractures and miss-hits, coupled with the large number of pieces with bending initiation fractures, suggests a date in the Neolithic period. Caution was exercised in assigning a precise date to this material based purely on technological data. However, there is every reason to think that the early Neolithic and Neolithic assemblages are two halves of the same group. They have been treated separately in this study to determine whether there were real differences between them in terms of raw material use, condition, and typology.

The smallest element of the assemblage (26 pieces) had affinities with **Bronze Age** material. It exhibited evidence for crude working methods including miss-hits, hard-hammer working, and hinge fractures. The overall impression is of uncontrolled flint working where the aim was the production of flakes that could be made quickly into expedient tools. Some of these were present, including Bronze Age types, notably denticulates and a barbed - and - tanged arrowhead. The uncertain nature of flint typology means that some smaller elements of the Bronze Age assemblage, such as dressing chips and small flakes, may have been included within the Neolithic assemblage.

In order to identify differing periods of flint-working, a note was made of the patination of the pieces. This varied widely from a complete covering of the surface such that the flint colour was not discernible, to a fine mottling. In a few cases no patination was evident. Unfortunately, the degree of patination

need not be dependent on the age of the artefacts. This is particularly evident in river valley environments where localised water-table fluctuations can lead to a wide variation in surface alteration within a small area. There appeared to be no difference in the level of patination between the two areas of flint collection north and south of the alluvium.

The only group of artefacts which were distinct were those Bronze Age types which were completely free of patination. Whether this reflects the circumstances of their deposition or length of time in the ground, is not clear. They may, for example, have been deposited on the surface above the level of the water-table. The early Neolithic material may, however, have derived from sub-surface features within the water-table range.

In terms of the assemblage typology (Table 1), there are a number of points to note, particularly in relation to the Early Neolithic and Neolithic assemblages. Firstly, they appear to complement each other in terms of the implement typology and the number of blades. There is a clear reason for this: some implement types, notably serrated flakes and the finely-made edge-dressed flakes, are diagnostic of the early Neolithic. As such they have been placed in that assemblage. The blade material is dateable more closely and so has been similarly placed.

Both of the Neolithic assemblages marked a distinctive range of implements. Whilst neither assemblage contained many tools (13.2% and 6.7% for the early Neolithic and Neolithic assemblages respectively), the large majority were simple implements made on blade edges. Lacking was the larger toolkit of scrapers and points which can make up the largest proportion of implements on early Neolithic sites. Also, plough damage will have masked light use-damage on some pieces and so some categories of implements, notable utilised flakes, may be under-represented in the artefact counts presented here.

The emphasis on simple blade tools, most of which were serrated flakes, may hint at a level of site specialisation. Most of the implements appear to have been used, perhaps on-site, and discarded *in situ*. Such tools have been associated with the harvesting of cereals. The absence of a heavier toolkit may provide a hint that some tasks, such as hide and/or meat processing, were not undertaken on site.

The large amount of waste suggests that artefact manufacture was important. All parts of the knapping sequence were present, from initial nodule preparation, through trimming, to discarded cores. A flint hammerstone was also present. It can be assumed that the raw material was available from local river gravels and was collected from the vicinity of the site.

A brief examination was made of the types of flint used in different periods by a quantification of the flint colour (Table 2). Owing to the wide variety of flint colours present within flint, small-scale variations in the relative numbers in the assemblage are not significant. Broadly, the assemblages appear to have used similar flint resources, although two major differences are apparent.

Firstly, light grey flint is not present in the Bronze Age assemblage. Secondly, dark grey flint is more common on the Neolithic material than in the other two groups. This may, partially, be a function of patination which is masking the true flint colour and lightening, for example, black to dark grey. However, this cannot be the sole reason, and real differences may be present which would reward further study.

It should be stressed that this is a surface assemblage and so inferences can only be tentative in the absence of other data sources.

Summary and assessment

- The assemblage appears to be chiefly early Neolithic in date with a small Bronze Age component. Other elements may be present as waste pieces which are undatable at this level of analysis.
- The assemblages could not clearly be separated on the basis of patination. There was a hint, however, that some of the Bronze Age material was less patinated, perhaps caused by deposition in differing circumstances to the earlier material.
- The raw material is local flint pebbles, presumably from river gravels adjacent to the site. The range of colours present suggests similar sources were exploited in both periods.
- The condition of the material is consistent with a ploughsoil assemblage. The presence of some very fresh pieces, however, may indicate that sub-surface features and surfaces are actively being eroded by the plough. It can be assumed that these will be well preserved under the surrounding alluvium.
- The typology of the Neolithic assemblage suggests that small blade tools were the most common with small numbers of scrapers and points. This may suggest some specialisation, perhaps related particularly to the use of serrated flakes.

Lithics Assessment of Central Field by Robert Middleton

This report concerns a brief assessment of 169 flints recovered during the second phase of fieldwalking. It augments the first report which discussed finds from Phase 1 of the fieldwork (find nos 1-700). The format of the earlier report has been maintained to permit comparisons between the assemblages. For the same reasons, the division of the assemblage into groups by period has been maintained. The same criteria were used for dividing the assemblage in the two reports.

Within the assemblage, two broad groupings could be identified. Neolithic material was distinguished by the predominance of waste material with evidence for well-controlled flaking. The low incidence of hinge fractures and miss-hits, coupled with the large number of pieces with bending initiation fractures suggest a date in the Neolithic. The production of blades was clearly evident both from the waste pieces (41 blades and blade fragments present), and on the cores, several of which had blade scars. Two of the blades (nos 843, 865) were particularly well-made, indicating skilled flaking.

In addition to this group was a slightly heavier component (56 pieces) (termed Neolithic/Bronze Age in the archive) where the flaking was less controlled, and the use of hard, rather than soft, hammers was more widespread. The typology of this element, which included 8 preparation flakes and 3 irregular waste, complemented the blade element of the Neolithic assemblage. It also incorporated some of the cruder flakes and a small number of implements. All the Neolithic and Neolithic/Bronze Age material has been incorporated together in this discussion and in the tables.

A wide range of debitage was present from all stages of the production cycle - from initial nodule preparation flakes, through trimming flakes to unretouched flakes and cores. The small number of dressing chips reflects that fact that such small pieces are difficult to identify by surface survey. This wide range of debitage suggests that it represents *in situ* flaking, although the time span over which the assemblage accumulated is likely to be very broad. The presence, however, of a significant number of blades associated with earlier Neolithic artefacts, such as a serrated flakes and small points, may suggest that most of it derived from a relatively tight date range. The occurrence, however, of a transverse arrowhead, along with a slightly more crude element within the assemblage may indicate the use of the site in the late Neolithic.

A significant element of the assemblage (40 pieces) had affinities with Bronze Age material. It exhibited evidence for crude working methods including miss-hits, hard-hammer working, and hinge fractures. The overall impression is of uncontrolled flint working where the aim was the production of flakes that could be made quickly into expedient tools. Some of these were present, including Bronze Age types, notably denticulates and crudely-made flake tools, such as points, scraper, and retouched flakes. The uncertain nature of

flint typology means that some smaller elements of the Bronze Age assemblage, such as dressing chips and small flakes, may have been included within the Neolithic assemblage.

Across the whole assemblage, there was little difference in the condition of the pieces to suggest their age. Most of the artefacts had a small amount of edge damage consistent with a ploughsoil assemblage. There were no pieces with fresh edges consistent with having been removed recently from intact stratigraphy. This would suggest that there is little active erosion by ploughing in this part of the site.

In order to identify differing periods of flint working, a note was made of the patination of the pieces. This varied widely from a complete covering of the surface such that the flint colour was not discernible, to a fine mottling. The degree of patination is seldom dependent on the age of the artefacts (both Neolithic and post-medieval flints were patinated), particularly in river valley environments where localised water-table fluctuations can lead to a wide variation in surface alteration within a small area.

The Bronze Age material appeared to be largely free from patination, a feature noted in the earlier report. Whether the absence of surface alteration was due to the artefacts being deposited above the water table is unknown.

A brief examination was made of the types of flint used in different periods by a quantification of the flint colour (Table 2). Owing to the wide variety of flint colours present within flint, small-scale variations in the relative numbers in the assemblage are not significant. Broadly, the assemblages appear to have used similar flint resources, although light grey flint is not present in the Bronze Age assemblage. This follows the same pattern noted in the earlier report, although the variability in the use of dark grey flint noted in that report have not been mirrored here.

The one exception to this pattern was the occurrence of a single flake of light grey/brown flint in the Neolithic assemblage. It is significant since this flake derived from a polished flint axe. That only a single flake of this material was present may suggest that this flint was not available in the immediate vicinity of the site.

Summary and assessment

- The assemblage appears to be chiefly early Neolithic in date with a small Bronze Age component. Other elements may be present as waste pieces which are undatable at this level of analysis.
- The assemblages could not clearly be separated on the basis of patination. There was a hint, however, that some of the Bronze Age material was less patinated, perhaps caused by deposition in differing circumstances to the earlier material.

- The raw material was local flint pebbles, presumably from river gravels adjacent to the site. The range of colours present suggests similar sources were exploited in both periods. A single flake hinted at the use of raw materials from elsewhere for polished flint axe production.
- The condition of the material was consistent with a ploughsoil assemblage.
- The assemblage was very similar typologically to the other material reported earlier. Notable points of contact include the typology and periods of site use, raw material use, and condition. On the last point, the absence of very fresh material is notable in this assemblage.
- It is likely that this, and the material examined in the first report, represent parts of the same assemblage.

Tumby Estate – Lithic material assessment

Table 1: Tumby Estate lithic assemblage (finds nos 800-1052) - overall typology

	Type	No	Burnt	Blades	Patinated
Neolithic	Unretouched flake	81			
	Preparation flake	10			
	Trimming flake	8			
	Core	8			
	Dressing chip	2			
	Irregular waste	3			
	Utilised flake	1			
	Serrated flake	1			
	Edge-dressed flake	1			
	Flake knife	1			
	Point	2			
	Transverse arrowhead	1			
	Total	119	2	41	36
Bronze Age	Unretouched flake	18			
	Dressing chip	1			
	Irregular waste	5			
	Utilised flake	1			
	Scraper	3			
	Point	3			
	Retouched flake	2			
	Denticulate	7			
	Total	40	1	0	3
Post-medieval	Gunflint	1			
	Total	1	0	0	1
	Total worked pieces	160			
	Natural	7			
	Burnt Natural	2			
	Assemblage total	169	3	41	40

Table 2: Flint Colour

Flint colour	Neolithic	Bronze Age	Totals
Black	26	26	52
Dark brown	8	4	12
Dark grey/brown	2	2	4
Dark grey	8	6	14
Light grey	12	0	12
Light brown	1	0	1
Light grey/brown	1	0	1
Total			96

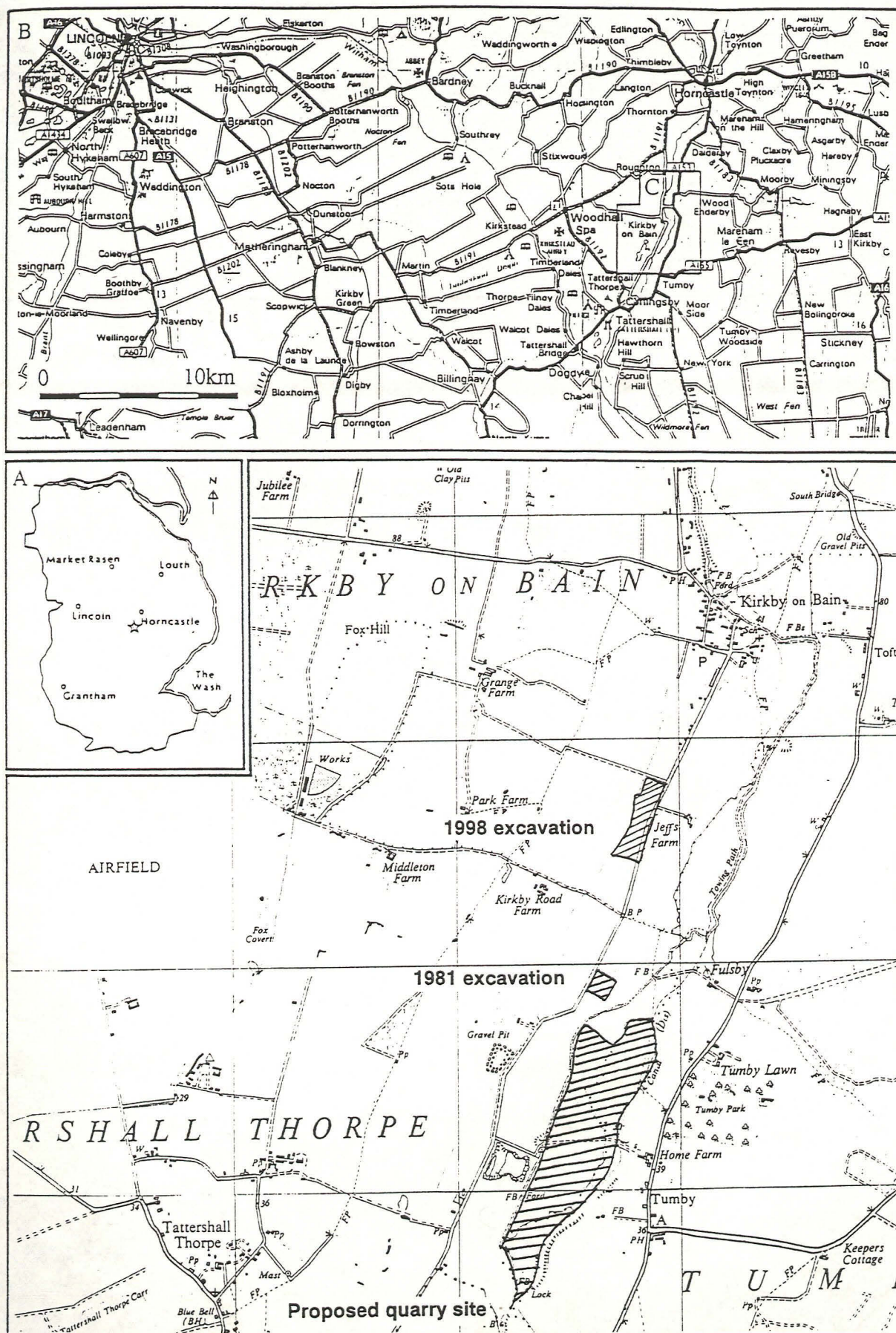


Fig. 1 Site location also showing excavation sites at Kirkby on Bain and Tattershall Thorpe. (Reproduced from the OS 1:25,000 map with the permission of the Controller of HMSO © Crown copyright .LAS licence AL50424A.



Key to Archaeology

— Neolithic Flake	● Bronze Age Flake
● Neolithic Core	● Bronze Age Core
▲ Neolithic Scraper	● Bronze Age Scraper
◆ Neolithic Tool	◆ Bronze Age Tool
▲ Neolithic Waste	▲ Bronze Age Waste
▲ Neolithic Arrowhead	▲ Early Bronze Age Arrowhead
	■ Bronze Age

Scale: 1/2000 Date: 02/11/98

Plan Ref. No. WS/MSE/1053-6b

Areas of disturbed sand
Area of survey
Existing ground contours
All levels and grid are in metres to O.S. datum.

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**Tumby Estate
Kirkby-on-Bain**

Proposed Quarry

**Distribution of Finds
From Field Walking**