

Northern Archaeological Associates

**RED BARN QUARRY EXTENSION, CASTLE BYTHAM,
LINCOLNSHIRE**

FIELDWALKING SURVEY REPORT

**prepared for
HEATON PLANNING
on behalf of
BULLIMORES LTD**

NAA 05/29

March 2005

RED BARN QUARRY EXTENSION, CASTLE BYTHAM, LINCOLNSHIRE

FIELDWALKING SURVEY REPORT

Contents

Summary 1

1.0 INTRODUCTION 1

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY 1

3.0 ARCHAEOLOGICAL BACKGROUND 2

4.0 METHODOLOGY 2

5.0 RESULTS 3

6.0 ASSESSMENT 3

7.0 RECOMMENDATIONS 5

8.0 CONCLUSIONS 5

REFERENCES 7

Appendix A THE FLINT 8

Appendix B THE POTTERY 12

Appendix C THE SLAG 15

Conservation
Services

11 MAR 2005

Highways & Planning
Directorate

RED BARN QUARRY EXTENSION, CASTLE BYTHAM, LINCOLNSHIRE

FIELDWALKING SURVEY REPORT

Summary

An archaeological fieldwalking survey was undertaken of the proposed quarry extension area centred at (SK 98301960) Castle Bytham parish, Lincolnshire, at the beginning of December 2004. This was carried out in order to establish the number and extent of slag concentrations and the presence or absence of any other finds concentrations.

A total of 82 flints and 30 sherds of pottery were recovered and two bulk samples of slag were taken. No discernible pattern could be distinguished within the distributions of flint and pottery, but the slag indicated that bloom smelting had been carried out in the immediate vicinity, possibly related to the fabri ferrari of Castle Bytham recorded in the Domesday Book.

On the basis of the fieldwalking, it can be concluded that the potential of the proposed development area to contain remains associated with medieval or earlier ironworking is high and that there is some more limited potential for further remains dating to the prehistoric period to be present. On this basis, a further phase of evaluation work comprising limited geophysical survey and trial trenching is recommended.

1.0 INTRODUCTION

1.1 This document presents a fieldwalking survey report for a proposed extension to the Red Barn Quarry, Castle Bytham, Lincolnshire (SK 98301960). It has been prepared for Heaton Planning on behalf of Bullimores Ltd as the first stage of a targeted archaeological evaluation to determine the potential impact of the development and so enable an appropriate mitigation strategy to be developed.

1.2 A desk-based assessment identified a total of 29 archaeological and historic sites within the study area surrounding the proposed development areas (NAA 2004) and, of these, five sites may be directly affected by the proposed development. These comprise a possible section of the former Bytham River gravels, an area of possible prehistoric activity (represented by worked flint), possible evidence of iron working which may date to any time between the later prehistoric and the early post-medieval periods, and the ploughed down remains of ridge and furrow earthworks. None of these sites are Scheduled Monuments.

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY

2.1 The extension to Red Barn Quarry measures approximately 18ha and lies within a single field to the east of the existing quarry, some 1.25km north-west of Castle

Bytham (Figure 1). The proposed extension area occupies a spur of land with a maximum elevation of 80m AOD in the south-west corner descending to 55m AOD in the north-east corner. The field also slopes steeply down from south to north towards the Glen Brook, which lies within a shallow valley. The area under investigation had recently been sown with a cereal crop.

3.0 ARCHAEOLOGICAL BACKGROUND

3.1 The quarry extension lies within Castle Bytham parish, which is within South Kesteven District.

3.2 The site lies within an important archaeological landscape which has yielded artefactual evidence for activity in the Neolithic and Bronze-Ages and some settlement evidence from the Iron-Age. The remains of an iron-working site of Iron-Age date were recovered from Creton Quarry at Couthorpe nearby in 1984. Castle Bytham lies approximately 5km to the east of Ermine Street and a number of Roman finds and traces of a probable villa building have been made in and around the village. The Domesday Survey records the presence of several iron-works at Castle Bytham and a number of sites containing deposits of iron-slag have been identified around the village as a result of field-walking (J.Cowgill *pers com*).

4.0 METHODOLOGY

4.1 Prior to the fieldwalking, the site had undergone a rapid walkover, whereby a series of random transects were walked across the proposed extension area. This identified two discrete concentrations of iron slag towards the eastern side of the field (Figure 2). One of these lay close to the brook and consisted of fragments of possible tap slag of varying sizes adjacent to a stone spread. The second concentration lay at the base of the slope and appeared to consist of similar material to the first concentration. Two further distinct limestone spreads were noted within the field, one of which may be the ploughed remnants of a former trackway, whilst the other lay close to the crest of the ridge and reflects the stony limestone facies of the local till. The latter produced a retouched flint flake. No ceramic material was found in association with either the iron slag concentrations or the stone spreads and very little material was noted generally within the field. Occasional sherds of medieval and later pottery were noted together with some post-medieval brick. No prehistoric or Roman pottery was identified.

4.2 Due to the advanced state of the crop, the need to undertake fieldwalking was agreed verbally by telephone with Jim Bonnor of Lincolnshire County Council. Rapid-fieldwalking was then undertaken in north to south transects. The transects were spaced 5m apart in the extreme eastern area of the field to map the larger iron slag concentration identified during the walkover and 10m apart over the rest of the field.

4.3 Two areas, comprising one of the concentrations of iron slag and a section of the crest of the ridge (areas 1 and 2) were then subjected to a programme of intensive fieldwalking, undertaken in 10m squares, measuring 50m by 100m, which included

the accurate recording and total collection of any artefactual material encountered. All squares were designated with a letter code on a grid (Figure 3).

5.0 RESULTS

5.1 A total of 82 flints and 30 sherds of pottery were recovered. Of these, 6 flints and 1 sherd came from area 1, and 3 flints and 9 sherds came from area 2. Overall, the distribution of flint and pottery across the site was uneven, but the quantity of material recovered was low and there were no obvious concentrations (Figure 3). The fieldwalking has confirmed that there are only two concentrations of slag within the field and the extent of these is indicated on Figure 2. A sample of slag was taken from each of the two concentrations identified.

5.2 The locations of the slag and limestone spreads do not seem to be related, the limestone fragments were mainly along the scarp slope and just below it, in a position where ploughing may have disturbed the bedrock and so introduced the stone into the ploughsoil.

6.0 ASSESSMENT

Flint (Peter Makey)

Archaeological Potential

6.1 Despite the comparatively small size of the assemblage, based on the area walked and its multi-period nature, the assemblage is nevertheless of a moderately high potential. The typological mix of material is unusual for an unstratified assemblage. Spurs, notches, spokeshaves and edge-retouched implements are over represented. Such pieces would normally be associated with a settlement site.

6.2 Certain common elements of debitage are missing from the assemblage and this may indicate:

- That lithic material has been removed (in the prehistoric period) for use further away.
- Further sealed lithic deposits may be present in the immediate vicinity.
- It is probable that a palimpsest of lithic scatters exist in the vicinity, some of which may be in sealed archaeological contexts.
- It is probable that a slightly later prehistoric site (i.e. later Neolithic or Beaker) has been dispersed, but earlier material may still be intact.
- There is a possibility that arrows were being manufactured nearby. The wear on the spur, spokeshave, and notches might be consistent with the manufacture of arrow shafts (this would need further study). The leaf shaped arrowhead (record 6, row I, 23N) is a rather dubious worn flake, but it does resemble a piece that

has failed during manufacture. Other arrowhead production debitage is missing but the cores show traces of suitable removals that are not extant.

Recommendations

- 6.3 Further intensive fieldwalking could be undertaken in the north-west corner of the field (to equate with area 0-50 South between rows AJ-YY). A trial trench in this area might be of use, possibly centred on AG-AH, 40N to 40S (see Figure 4).

Pottery (Jane Young)

Assessment

- 6.4 A small group of mainly post-medieval to early modern pottery was recovered from the site. The material is in a poor condition, presumably as a result of plough action. The source and precise date of most of the small number of medieval sherds cannot be identified, however a single Light Firing Nottingham Glazed ware jug sherd suggests activity in the area in the 13th century. The assemblage suggests that pottery arrived on the site during field manuring in the medieval to early modern periods.

Recommendations

- 6.5 The material is only worth an archive list (identification and dating). No further work is required.

Slag (Jane Cowgill)

Assessment

- 6.6 There are at least seven confirmed smelting sites around Castle Bytham, Areas 1 and 2 adding potentially two more. The size of these two scatters, their proximity to the settlement of Castle Bytham and the fact that they are low lying and next to the Brook all hint to a medieval date, but without further exploration this cannot in any way be substantiated. Castle Bytham is one of a very few instances where *fabrica ferri* are mentioned in the Domesday Book in Lincolnshire (they are uncommon nationally).

Recommendations

- 6.7 Clearly this site has a great deal of potential. It is therefore recommended that initially a geophysical survey is undertaken for both the Area 1 and Area 2 slag scatters to test whether they are both smelting sites and to quantify and give greater clarity to the archaeology that has survived. There is a good chance that the archaeology is intact, despite years of ploughing, because it may well have been protected by colluvium. This survey will also enable the character of the sites to be better understood and will determine the schedule of work. It is recommended that Dr Vernon (University of Bradford) undertakes this work because he specializes in

geophysical work on iron-production sites. Once this work has been completed and interpreted the results should be reviewed and a strategy for further mitigation work developed.

7.0 RECOMMENDATIONS

7.1 Two stages of further work are suggested in the light of the results of the fieldwalking. First, a geophysical survey, then evaluatory trial trenching, in order to allow the gathering of more detailed data to inform the mitigation strategy for the proposed development.

7.2 A programme of detailed geophysical survey should be undertaken of the two areas producing slag (the two proposed survey areas have a combined area of 1ha: see Figure 4). The soils within the development area are believed to be good for magnetic survey and it is likely that the core areas would be detected as significantly enhanced anomalies against a low background level of magnetic response. Geophysics may be able to provide a more detailed picture of the distribution of slag and areas of activity and mineral processing by relating it to any detectable traces of settlement.

7.3 The information derived from the geophysical survey will then be assimilated in order to identify areas within the development area where further evaluation in the form of trial trenching might usefully be undertaken. These areas will be selected in direct consultation between the archaeological representatives of Lincolnshire County Council and Heaton Planning/Bullimores Ltd, but it is suggested on the basis of the fieldwalking that at least two of these should be in the east of the field, to investigate the flint scatter detected during fieldwalking. Colluvium may conceal low-lying portions of the site, whilst ploughing may have removed significant portions of material higher up. Trial trenches should seek to establish this and detect any movement of soil downslope.

8.0 CONCLUSIONS

8.1 On the basis of the fieldwalking, it can be concluded that the potential of the proposed development area to contain remains associated with medieval or earlier ironworking is high and that there is some more limited potential for further remains dating to the prehistoric period to be present. On this basis, a further phase of evaluation work comprising limited geophysical survey and trial trenching is recommended.

8.2 There is the potential that there may be differential preservation across the development area. The presence of limestone at the top of the ridge suggests that there may be heavy plough truncation of any feature on top of the slope. Conversely, areas of activity at the base of the slope near the river may be sealed by colluvium and erosion of the soil downslope, given the steep-sided nature of the that portion of the site. This may in turn mean that the apparent fieldwalking results are effectively masking the true nature of occupation on the site. Such areas within the valley may

have been more attractive for settlement, but not readily apparent from the results of the fieldwalking.

Northern Archaeological Associates (NAA) Red Barn Quarry Extension, Castle Bytham, Lincolnshire: Archaeological Desk-Based Assessment, Unpublished Report 04/77

Northern Archaeological Associates

Report No: NAA 05/29

Project No: 632

Date: March 2005

Text: Roger Simpson and Mike Bishop

Illustrations: Damien Ronan

Edited by: Richard Fraser

REFERENCES

Northern Archaeological Associates (2004) *Red Barn Quarry Extension, Castle Bytham, Lincolnshire: Archaeological Desk-Based Assessment*. Unpublished Report 04/77

INTRODUCTION

The composition of the soil profile is given in table A1.

The subsoil results have been split into two groups, A-Y-Z and H-I-TV-ZZ-AJ and AJ-KY.

These groupings represent the different types of the intensive arable and their adjacent walked areas.

The two areas of intensive fieldwalking produced inconclusive results.

The fieldwalking produced a total of 25 direct radiocarbon dates (17 being a piece of uncharred material and a further two radiocarbon dates for the two elements not in situ). The dates for the two material, two dates for the two elements not in situ. The assemblage is smaller than might be expected, but is deep and rich in the nature of the radiocarbon dated material. The assemblage is clearly an assemblage from a field, but it is not clear what type of field, however there are indications that there are clear differences in the nature of the different areas, especially in the case of the two all the radiocarbon dates.

STATUS

Only 12 pieces of radiocarbon dated material. The degree to which is variable, although half of the radiocarbon dated material is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ.

EXAMINING A FURTHER AREA

The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ.

The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ. The radiocarbon dated material from the two elements not in situ is from the two elements not in situ.

Appendix A

THE FLINT

P. Makey

INTRODUCTION

The composition of the assemblage is given in table A1.

The tabulated results have been split into five groups, A-Y, Z-HH, II-YY, ZZ-AI and AJ-AT.

These groupings represent full transects over each of the intensive areas and their adjacent walked areas.

The two areas of intensive fieldwalking produced inconclusive results.

The fieldwalking produced a total of 85 struck prehistoric flints (1,718.2g), 1 piece of unmodified natural and a dubious post medieval gun flint (the resemblance may be coincidental, due to the nature of the raw material, and variety of knapping techniques). The assemblage is smaller than might be expected but it does not reflect the usual nature of the regions fieldwalked material. The assemblage is clearly an admixture from more than three archaeological periods, however there are indications that there are clear differences in the nature of the different period assemblages although it can be said that all the material is of a domestic nature.

STATE

Only 12 pieces (14%) exhibit traces of breakage. The degree of which is variable, although half of the breakages are on pieces represented by extant proximal / medial fragments. The associated distal / medial fragments are missing. In the case of a flake (record 11) from row M, 95N the piece appears to have broken during manufacture. At least 13 pieces (15%) exhibit traces of agricultural damage. Traces of burning are present on 4 of the pieces but there does not appear to be any significance to the distribution.

KNAPPING & RAW MATERIAL

Nearly all the material is of till origin although at least 1 flake (record 70, Row AG, 70N) appears to have come from a chalk source. The quality of the raw material is predominately very high. Most of the raw material is fine-grained vitreous, olive grey coloured flint possessing a smooth buff coloured sandy cortex. Many of the pieces have been struck from small fist sized cortical pebbles, or nodular lumps. The degree to which nodular remnant cortex is present is unusually high for a field walked assemblage from the region.

The knapping quality of the material varies from high quality to poor with a variety of techniques being employed in different periods. Hard hammer technique was most prevalent and some material may even have been struck on a flint anvil. The majority of the assemblage (59 pieces, 69%) comes from secondary stages of core reduction (i.e. they retain remnant cortex). Primary lithic reduction accounts for 8 pieces (9%) and tertiary (final stages of knapping) reduction accounts for 14 pieces (16%). The remainder, are broken pieces from secondary or tertiary stages of core reduction. These percentages are roughly consistent with the general run of field walked lithic material however there

is a slightly higher percentage of tertiary material than might normally be expected. There is a minor (almost insignificant) clustering of 5 tertiary pieces in the area of rows K-EE.

Cores and core rejuvenation flakes constitute 25% of the assemblage at a ratio of almost 1:2.5. All the cores appear to be geared to the production of flakes. The core and core rejuvenation flake / debitage ratio is consistent with an area of knapping but has been complicated by the fact that many of the cores have clearly been re-used at different periods. It is probable that early Neolithic cores have been re-flaked in the later Neolithic and / or early Bronze Age. Differential patination is clear on many of the, cores flake beds this often involves the re-flaking of a patinated bed. The cores have all been worked to exhaustion and indicate the presence of larger quantities of debitage than have so far been recovered, furthermore it is of note that the extant debitage is slightly more blade like than the cores indicate.

TRAITS

Patination

Over half the core material is patinated, the trait does not however appear to be spatially or age related. The Mesolithic microlith (record 25) from row U, 56N is un-patinated, whereas the possible leaf arrowhead (record 6) from row I, 23N, is totally patinated. It is likely that the degree of patination is directly related to factors appertaining to pieces individual use and discard.

Use Wear

One of the most significant aspects of the assemblage is the macroscopic presence of use wear. Many of the pieces appear to have been used on woody substances, hence the tentative classification of a spokeshave (record 79, row AH, 149N). The proportion of pieces exhibiting the trait and the degree of wear is far greater than might normally be expected. The edge retouched blade (record 85) from row AK, 62N has slight ventral working that might be consistent with the piece having been hafted.

Date

The assemblage cannot be firmly dated because it is an admixture. The scrapers are unfortunately of forms common in a variety of periods although their relatively small size (<26mm in length) is most indicative of Beaker material. However the lithic assemblage as a whole exhibits typological traits that are from definably different periods of flint working. These periods are, tentatively:

- Later Mesolithic (firmly attested) = 100%
- Early / Middle Neolithic (reasonably firm) = 85%
- Later Neolithic / Early Bronze Age (reasonably firm) = 85%
- Beaker = 70%
- 18th / 19th Gun flint (Dubious).

The following date scenario can be postulated but it can only be treated as a probability.

A minor degree of later Mesolithic activity occurs in the locality. In the early to middle Neolithic some settlement evidence is attested. Hunting was probably being carried out and arrows were

probably being manufactured. Wood and hides were being worked. Knapping was being conducted on un-prepared cores. In the later Neolithic and Beaker period knapping evidence is attested in the same area, but raw material was probably in short supply and many discarded cores were re-used. The majority of the scrapers probably belong to this period. These are again consistent with the processing of hides. The later Neolithic material is most consistent with assemblages typically associated with Durrington Walls style grooved ware.

ARCHAEOLOGICAL POTENTIAL

Despite the comparatively small size of the assemblage, based on the area walked and its multi-period nature, the assemblage is nevertheless of a moderately high potential. The typological mix of material is unusual for an unstratified assemblage. Spurs, notches, spokeshaves and edge-retouched implements are over represented. Such pieces would normally be associated with a settlement site.

Certain common elements of debitage are missing from the assemblage and this may indicate:

- That lithic material has been removed (in the prehistoric period) for use further away.
- Further sealed lithic deposits may be present in the immediate vicinity.
- It is probable that a palimpsest of lithic scatters exist in the vicinity, some of which may be in sealed archaeological contexts.
- It is probable that a slightly later prehistoric site (i.e. later Neolithic or Beaker) has been dispersed, but earlier material may still be intact.
- There is a possibility that arrows were being manufactured nearby. The wear on the spur, spokeshave, and notches might be consistent with the manufacture of arrow shafts (this would need further study). The leaf shaped arrowhead (record 6, row I, 23N) is a rather dubious worn flake, but it does resemble a piece that has failed during manufacture. Other arrowhead production debitage is missing but the cores show traces of suitable removals that are not extant.

RECOMMENDATIONS

Further intensive fieldwalking could be undertaken in the north-west corner of the field to equate with area 0-50 South between rows AJ-YY.

A trial trench in this area might be of use, possibly centred on AG-AH, 40N to 40S.

ILLUSTRATION REQUIREMENTS

There are roughly 8 possible candidates for illustration.

TABLE A.1: Composition of the Flint Assemblage.

| Artefact | Number | Percentage (%) Total Rounded) | Breakage | Use - Wear | Fieldwalking Row | | | | |
|--------------------------------|--------|-------------------------------------|----------|---------------|------------------|------|-------|-------|-------|
| | | | | | A-Y | Z-HH | II-YY | ZZ-AI | AJ-AT |
| <i>Debitage</i> | | | | | | | | | |
| Nodules | 1 | 1 | NA | NA | | | 1 | | |
| Cores | 20 | 23 | 1 | 8 | 7 | 4 | 1 | 6 | 2 |
| Core Rejuvenation Flakes | 2 | 2 | NA | 1 | 1 | | | 1 | |
| Flakes | 25 | 29 | 3 | 7 | 11 | 1 | 2 | 10 | 1 |
| Blades & Bladelets | 2 | 2 | 1 | 2 | | | | 2 | |
| <i>Utilised</i> | | | | | | | | | |
| Edge Utilised Flakes | 3 | 3.5 | 1 | 3 | | | 2 | 1 | |
| Edge Utilised Blades | 1 | 1 | 1 | 1 | 1 | | | | |
| Utilised Rejuvenation Fl | 1 | 1 | NA | 1 | | | | 1 | |
| <i>Retouched</i> | | | | | | | | | |
| Miscellaneous Ret Flakes | 6 | 7 | 1 | 3 | 4 | 1 | 1 | | |
| Miscellaneous Ret Cores | 1 | 1 | NA | NA | 1 | | | | |
| Edge Retouched Flakes | 5* | 6 | 1 | 5 | 1 | 1 | | 2 | |
| Edge Retouched Blades | 2 | 2 | 1 | 1 | 1 | | | | 1 |
| Notches | 2 | 2 | NA | 1 | | | | 2 | |
| Piercers | 1 | 1 | 1 | 1 | 1 | | | | |
| Spurs | 1 | 1 | NA | 1 | | | | 1 | |
| Spokeshaves | 1 | 1 | NA | 1 | | | | 1 | |
| Scrapers:- Flake | 2 | 2 | NA | 2 | 1 | 1 | | | |
| End | 1 | 1 | NA | 1 | | | | 1 | |
| Double End & Side | 1 | 1 | NA | 1 | | | 1 | | |
| Double Side & End | 1 | 1 | NA | 1 | | | 1 | | |
| Core Scrapers | 4 | 4.5 | NA | 3 | 1 | 1 | 1 | 1 | |
| Arrowheads:- Leaf | 1 | 1 | NA | NA | 1 | | | | |
| Microliths | 1 | 1 | 1 | NA | 1 | | | | |
| Gun Flints? | 1 | 1 | NA | NA | | | 1 | | |
| TOTALS | 86 | | 12 (14%) | 44 | 32 | 9 | 11 | 29 | 4 |

* = Plus 1 Un-stratified Edge Retouched Flake.

Appendix B
THE POTTERY

Jane Young

ASSESSMENT

A small group of mainly post-medieval to early modern pottery was recovered from the site (Table B1). The material is in a poor condition, presumably as a result of plough action. The source and precise date of most of the small number of medieval sherds cannot be identified, however a single Light Firing Nottingham Glazed ware jug sherd suggests activity in the area in the 13th century. The assemblage suggests that pottery arrived on the site during field manuring in the medieval to early modern periods.

RECOMMENDATIONS

The material is only worth an archive list (identification and dating). No further work is required.

Table B1. Catalogue

| area | trench | context | cname | sub fabric | form type | sherds | weight | decoration | part | description | date | condition |
|------|--------|---------|--------|----------------------------------|---------------------|--------|--------|---------------|------|---|-------------------|------------------|
| | misc | | BOU | | jug/jar | 1 | 6 | | BS | | mid 15th to 16th | abraded |
| AA | 120 | N | BL | | ? | 1 | 12 | ridged | BS | | 18th to 19th | abraded |
| AB | 050 | S | MEDLOC | OX/R/OX; fine sandy; hard | jar ? | 1 | 4 | | BS | thin walled; abundant fine subround to round quartz occ larger mod fe occ ca | 12th to 15th | very abraded |
| AG | 070 | N | BL | | ? | 1 | 8 | | rim | | 18th to 19th | abraded |
| AI | 040 | S | LERTH | | small hollow vessel | 1 | 2 | | BS | | 17th to 20th | slightly abraded |
| AI | 050 | S | BL | | ? | 1 | 3 | | BS | | 18th to 19th | slightly abraded |
| AL | 040 | N | MEDLOC | oxidised; med-coarse sandy; hard | jar ? | 1 | 3 | | BS | common med-coarse subround quartz moderate fe occ ca | 12th to 15th | very abraded |
| AP | 155 | N | BL | | bowl | 1 | 34 | | rim | | 18th to 19th | abraded |
| BB | 053 | N | BL | | bowl | 1 | 4 | | BS | | 18th to 19th | abraded |
| BB | 097 | N | MISC | | drainpipe | 1 | 6 | | BS | | 19th to 20th | |
| CC | 100 | N | BL | | ? | 1 | 1 | | BS | | 18th to 19th | abraded |
| CC | 100 | N | MEDLOC | OX/R/OX; fine sandy; hard | jug/jar | 1 | 6 | | BS | abundant fine subround quartz mod fe | 13th to 15th | abraded |
| DD | 110 | N | DERBS | | closed | 1 | 4 | | BS | ? ID or NOTS | 18th to 20th | slightly abraded |
| DD | 132 | N | BL | | large bowl | 1 | 11 | | BS | | 18th to 19th | slightly abraded |
| EE | 085 | N | NOTGL | | jug | 1 | 11 | | rim | triangular rim | 13th | very abraded |
| EE | 186 | N | LERTH | | flower pot | 1 | 3 | | BS | | late 18th to 20th | slightly abraded |
| G | 125 | N | MEDLOC | OX/R/OX; med sandy + fe; hard | jug ? | 1 | 8 | applied strip | BS | moderate medium subround quartz comm large fe occ to moderate ca; reduced glaze | 13th to 15th | abraded |
| GG | 110 | N | LERTH | | closed | 1 | 2 | | BS | probably BL | 18th to 20th | abraded |
| GG | 110 | N | LERTH | | closed | 1 | 3 | | BS | probably BL | 18th to 20th | slightly abraded |
| HH | 100 | N | BL | | open | 1 | 5 | | BS | | 18th to 19th | abraded |
| HH | 120 | N | BOU | | jug/jar | 1 | 4 | | rim | | mid 15th to 16th | very abraded |
| HH | 120 | N | LERTH | | ? | 1 | 2 | | BS | probably BL; mixed red & | 18th to 20th | very abraded |

| area | trench | context | ename | sub fabric | form type | sherds | weight | decoration | part | description | date | condition |
|------|--------|---------|--------|--------------------------------------|------------|--------|--------|------------|------|---|-------------------|------------------|
| | | | | | | | | | | white clay | | |
| N | 109 | N | BL | | bowl | 1 | 10 | | BS | | 18th to 19th | abraded |
| OO | 058 | N | BL | | closed | 1 | 8 | | BS | | 18th to 19th | abraded |
| U | 024 | S | BOU | | jug/jar | 1 | 11 | | BS | | mid 15th to 16th | very abraded |
| U | 086 | N | LERTH | | flower pot | 1 | 6 | | BS | | late 18th to 20th | slightly abraded |
| WW | 037 | S | MEDLOC | reduced; med sandy; hard | jar/jug | 1 | 7 | | BS | oxidised ext surface; common mixed subround quartz moderate fe clay/shale pellets | 13th to 15th | very abraded |
| YY | 020 | N | BL | | ? | 1 | 7 | | BS | | 18th to 19th | very abraded |
| Z | 110 | N | MISC | | drain | 1 | 19 | | BS | | 19th to 20th | abraded |
| ZZ | 154 | N | BOU | | jug/jar | 1 | 17 | | base | | mid 15th to 16th | very abraded |
| ZZ | 195 | N | MEDX | dull OX/R/OX; med-coarse sandy; hard | jug/jar | 1 | 5 | | BS | common to abundant subround to round quartz moderate fe occ to moderate rounded ca; nearest match is NLQC | 11th to 14th | very abraded |
| | | | | | Total | 31 | 232 | | | | | |

Appendix C

THE SLAG

Jane Cowgill

INTRODUCTION

The area of the quarry extension was fieldwalked during December 2004 to establish whether there were any finds concentrations, in particular slag, within this approximately 15 ha field to the east of the present quarry. The field occupies a spur of land which falls from the west to east and also quite steeply from south to north, where it descends into the shallow valley of the Glen Brook. Neighbouring fields have also been fieldwalked by the author and the Grantham Archaeological Group during the winter of 1994 (site code CAB 94).

A sample of slag was taken from each of the two main concentrations identified.

Table C1. Summary Catalogue

| | Context | Sample | Type | Count | Weight | Comments |
|--------|---------|--------|------------|-------|--------|---|
| ROW BB | 105 N | | ORE | 1 | 17g | |
| ROW G | 75 N | | TAP | 1 | 78g | |
| AREA 1 | 01 | <AA> | SAMPLE | | 13g | Tap slag fragments; infrequent roasted ore. |
| AREA B | 01 | <AB> | SAMPLE | | 4g | No slag or roasted ore. |
| AREA 2 | 01 | <AB> | TAP | 25 | 1457g | |
| AREA 2 | 01 | <AB> | SLAG | 7 | 233g | Iron smelting /iron smithing? |
| AREA 2 | 01 | <AB> | BRICK/TILE | 3 | 112g | Vitrified and/or slagged. |
| AREA 2 | 01 | <AB> | IRONSTONE | 1 | 78g | |
| AREA 2 | 01 | <AB> | SLAG | 1 | 82g | Very glassy; mass quartz and sand. |
| AREA 2 | 01 | <AB> | CLINKER | 20 | 148g | |
| AREA 1 | 01 | <AA> | MAG MAT* | | 2g | Some roasted ore. |
| AREA 1 | 01 | <AA> | TAP | 24 | 10142g | Large dense flows; few bubbly pieces. |

* Magnetic matter (material extracted by a magnet from the soil remaining after the slag was washed).

DISCUSSION

Evidence for iron smelting was recovered from two areas on the site. This clearly indicates that iron was produced in this field, by the bloomery process at some date in the past. This method of iron production was used in the later Iron Age, throughout the Roman period and up until the mid-later medieval period when high bloomeries and possibly early blast furnaces were introduced. The date of this activity is therefore uncertain and although a few sherds of pottery were found nearby, these will be insufficient to date the production phase. These sites are often difficult to date because they were places of work, perhaps seasonally, rather than actual places of residence.

The size and density of the two scatters is very different (Figure 3, pers. comm. Roger Simpson). Area 1 lies to the east, at the foot of the hill alongside the Glen Brook and is a very extensive spread being nearly 125m north to south and a maximum of 30m east west. It is a dense concentration with two particularly slag-rich areas within it being noted. A number of different working zones may be found on a smelting site, including ore roasting and crushing, charcoal storage and preparation, the furnaces and probably a bloom smithing area, and the compactness of the slag on the field surface may reflect the presence of these below. The slag sample is composed of thick dense slag flows on which there are few bubbly areas, the latter if common, can suggest that high bloomery furnaces were being used.

Area 2 is represented by a much thinner spread of slag in the north-western part of the site, again at the base of the hill. The area covered is about 25 by 20m and this sits within the intensively walked Area 2. The finds from this area are more varied than Area 1 and include possible smithing slags, clinker and three fragments of probable Post-Medieval floor tile (although they may be wasters because they are vitrified).

During the 1994 fieldwalking the field directly to the west (Field 5) was walked and produced very little smelting slag the majority of which was concentrated on the western side. The field to the south (Field 2) was briefly scanned upon the advice of the landowner, but the rape crop was too high for good visibility. A very large ploughed out slag heap was identified in the south-east corner, most of which probably underlies the paddock that extends into this field. The slag scatter was probably about '100 yards across' according to the farmer. The soil in this area was black from the quantity of slag incorporated into it and quite bubbly compared to the slag from Area 1 and some other sites in Castle Bytham. This has led to the hypothesis that this maybe a medieval smelting site, possibly even a high bloomery, but the only supporting evidence is a limited number of medieval pottery sherds.

There are at least seven confirmed smelting sites with Areas 1 and 2 adding potentially two more, but only the one at Creton Quarry has been excavated and dated (Late Iron Age to mid 2nd Century AD; 40m in diameter; Cowgill in prep.). Most slag scatters in this part of south Lincolnshire are c. 30m in diameter or even smaller, therefore the size of two of these, in two adjacent fields, are surprising and of particular interest. Both scatters are alongside the Glen Brook which may be of significance as it is known that at some date in the medieval period water power was harnessed to drive the hammer for bloom smithing and probably also in some instances to drive the bellows. The majority of the smaller scatters are located high up on the hillsides, on clay soils where in the past woodland probably survived. Dated medieval slag heaps are often larger than dated Roman examples in East Anglia and in many instances they are closer to settlements rather than in isolated woodland locations. The impression given is that this huge wealth generating industry in the medieval period is being controlled by the Church or State. Certainly in Norwich, Stamford and perhaps Thetford the iron-production industry was located within, or literally just outside, the town walls requiring the importation of most of the raw materials, including fuel in vast quantities. The size of these two scatters, their proximity to the settlement of Castle Bytham and the fact that they are low lying and next to the Brook all hint to a medieval date, but without further exploration this cannot in any way be substantiated. Castle Bytham is one of a very few instances where *fabrica ferri* are mentioned in the Domesday Book in Lincolnshire (they are uncommon nationally). Foster and Longley translate the entry as 'three iron-workers shops' and although the correct translation of this phrase is not known, because it occurs so infrequently many authors suspect that it refers to iron smelting rather than smithing.

The smaller site, represented by scatter Area 2, may be different in date to Area 1 because it is so much smaller and very different in character. The fact that it appeared to contain less slag may be date related or again due to the fact that much of it has become buried by colluvium.

RECOMMENDATIONS

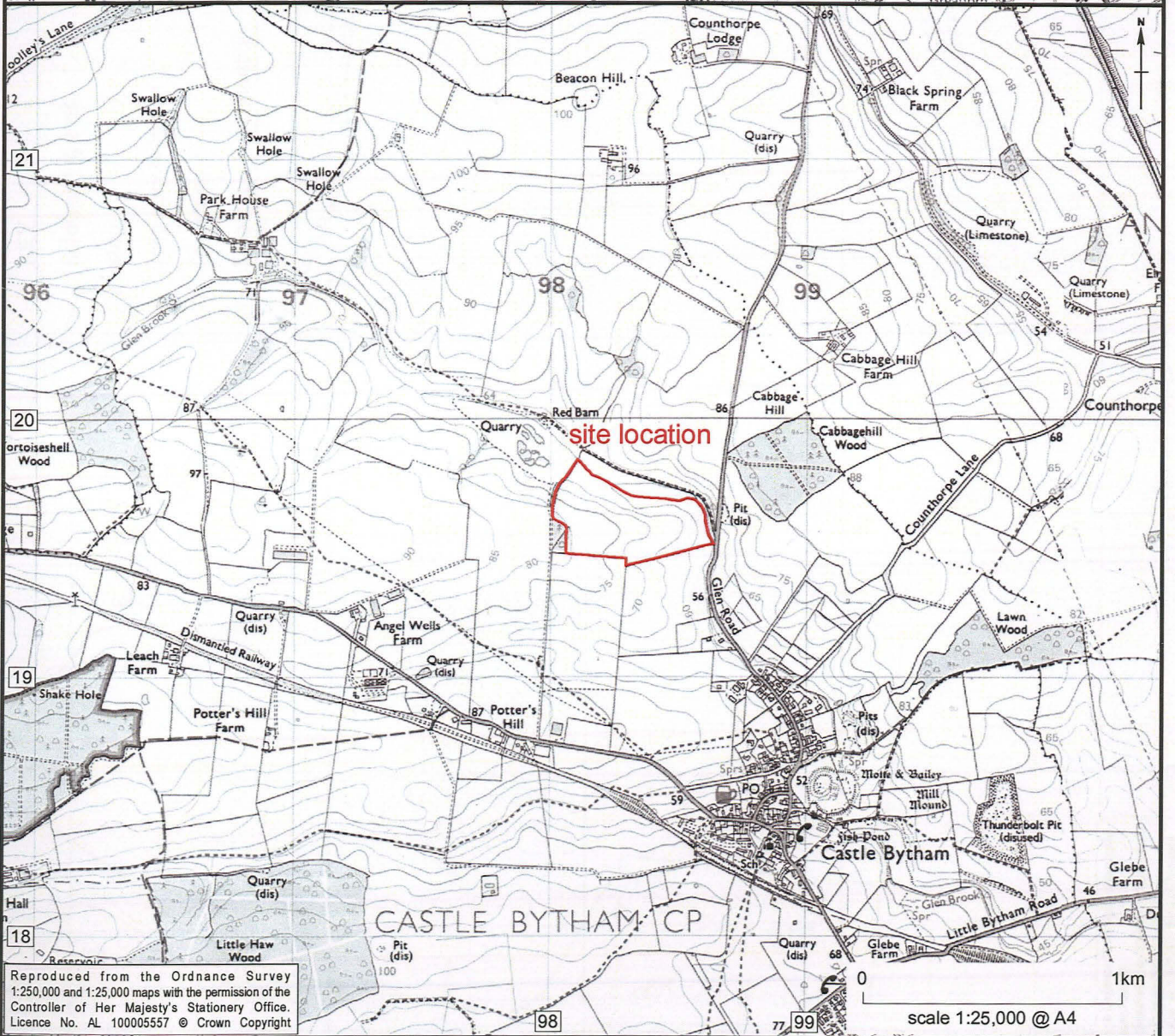
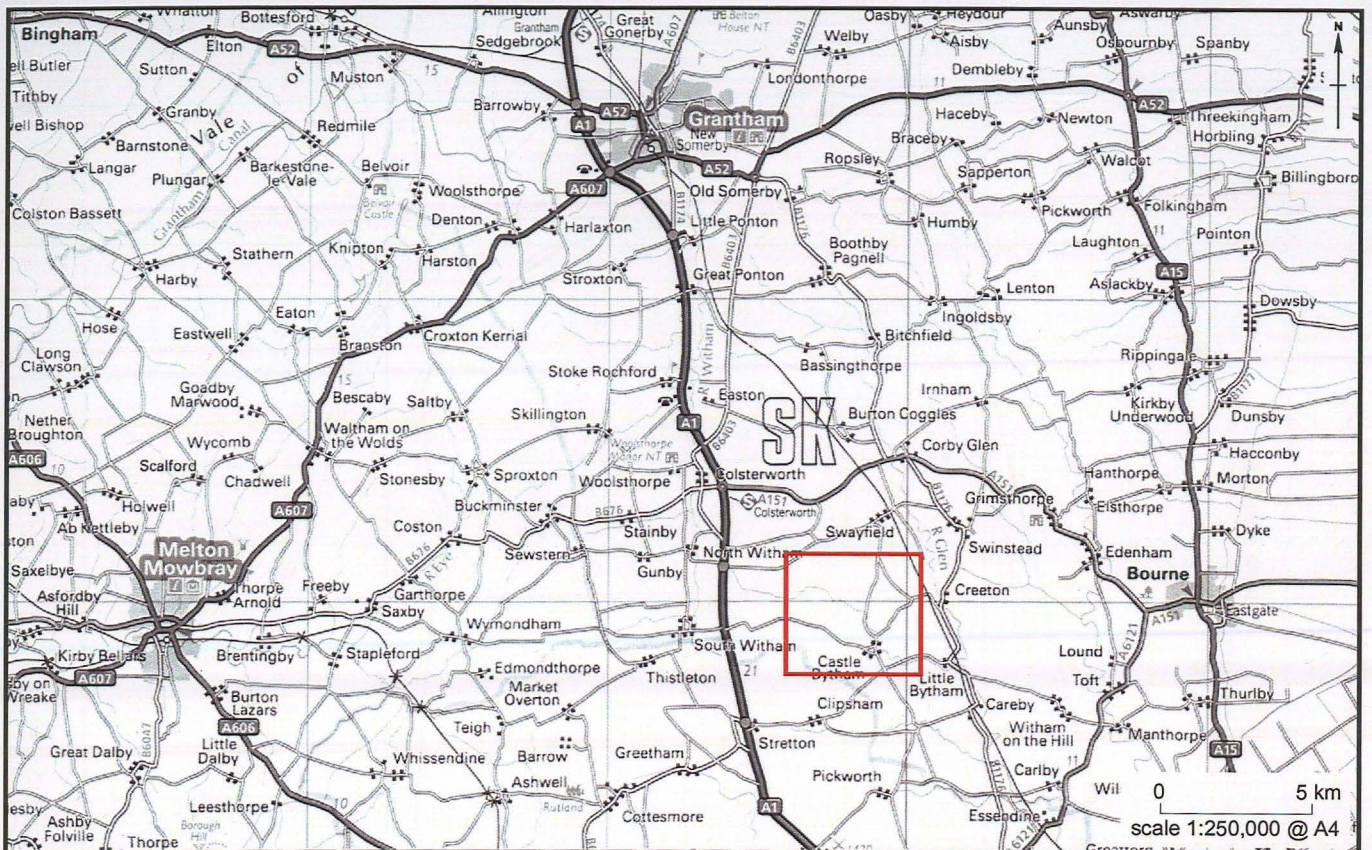
Clearly this site has a great deal of potential. It is therefore recommended that initially a geophysical survey is undertaken for both the Area 1 and Area 2 slag scatters to test whether they are both smelting sites and to quantify and give greater clarity to the archaeology that has survived. There is a good chance that the archaeology is intact, despite years of ploughing, because it may well have been protected by colluvium. This survey will also enable the character of the sites to be better understood and will determine the schedule of work. It is recommended that Dr Vernon (University of Bradford) undertakes this work because he specializes in geophysical work on iron-production sites. Once this work has been completed and interpreted the results should be reviewed and a strategy for further mitigation work developed.

Due to the density of iron-smelting sites in this part of the County, it should not be assumed that any two are of similar date (particularly Areas 1 and 2 because their character is so different). Therefore any smelting site that is due to be destroyed should at least be dated, if we hope in future to understand with any clarity the scale and scope of iron production in this area.

BIBLIOGRAPHY

Cowgill, Jane, in prep. An Iron Age and Romano-British iron-smelting site at Creeton Quarry, Lincolnshire, and a survey of local iron-smelting sites.

Foster C. W. and Longley T. (eds) (date?) *The Lincolnshire Domesday and the Lindsey Survey*, The Lincoln Record Society, 19



Reproduced from the Ordnance Survey 1:250,000 and 1:25,000 maps with the permission of the Controller of Her Majesty's Stationery Office. Licence No. AL 100005557 © Crown Copyright

Figure 1 Red Barn Quarry, Castle Bytham, Lincolnshire: site location

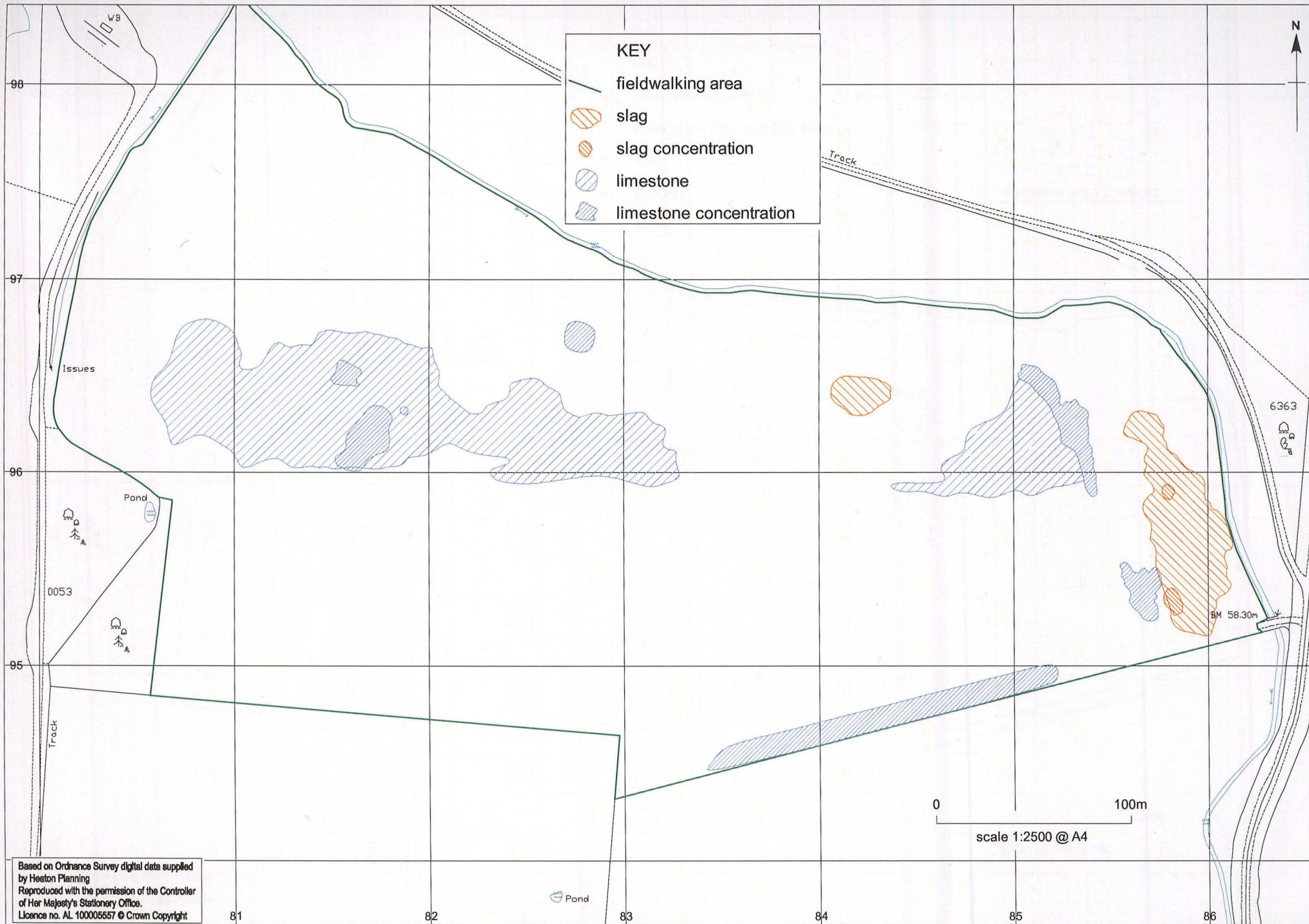
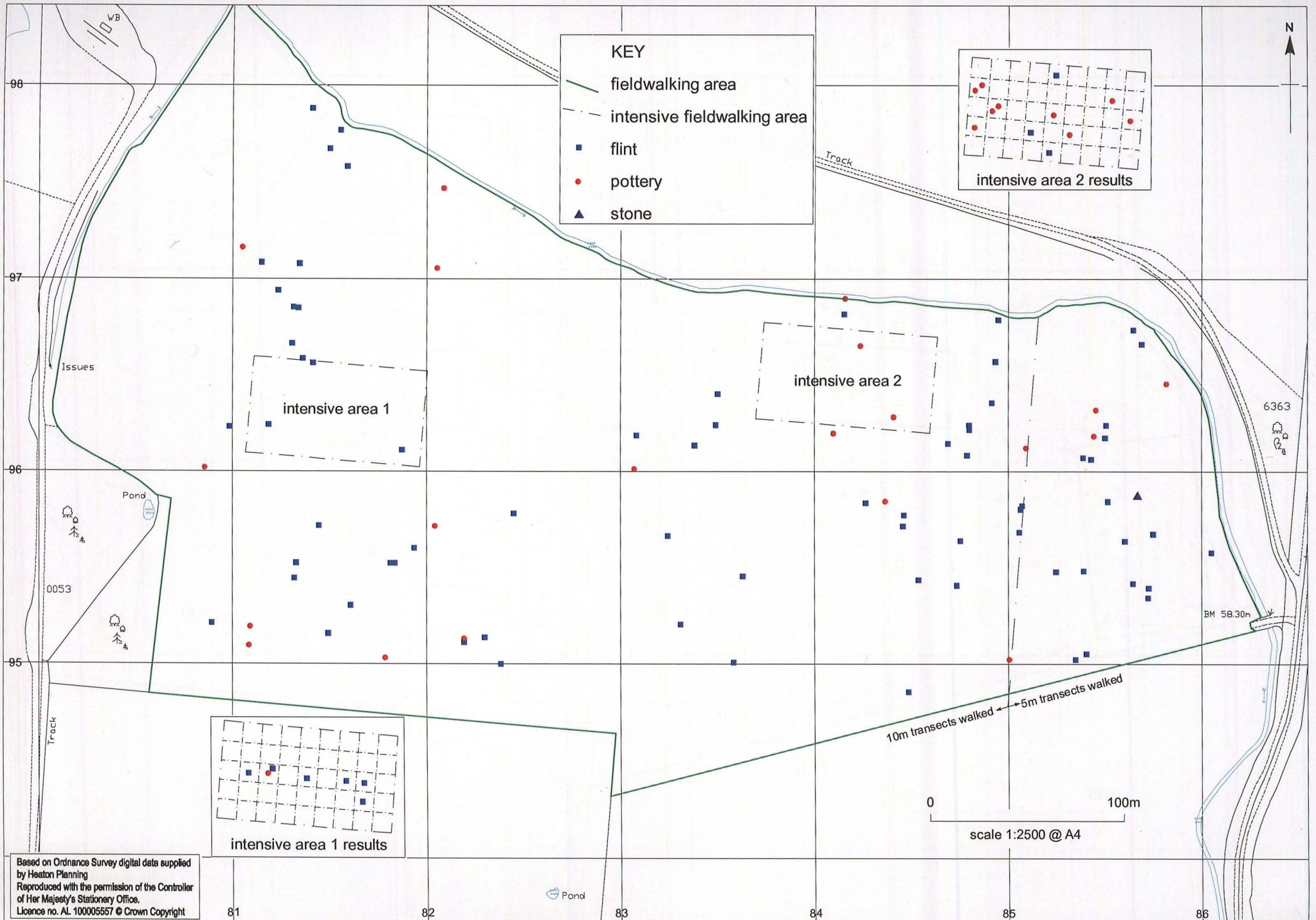
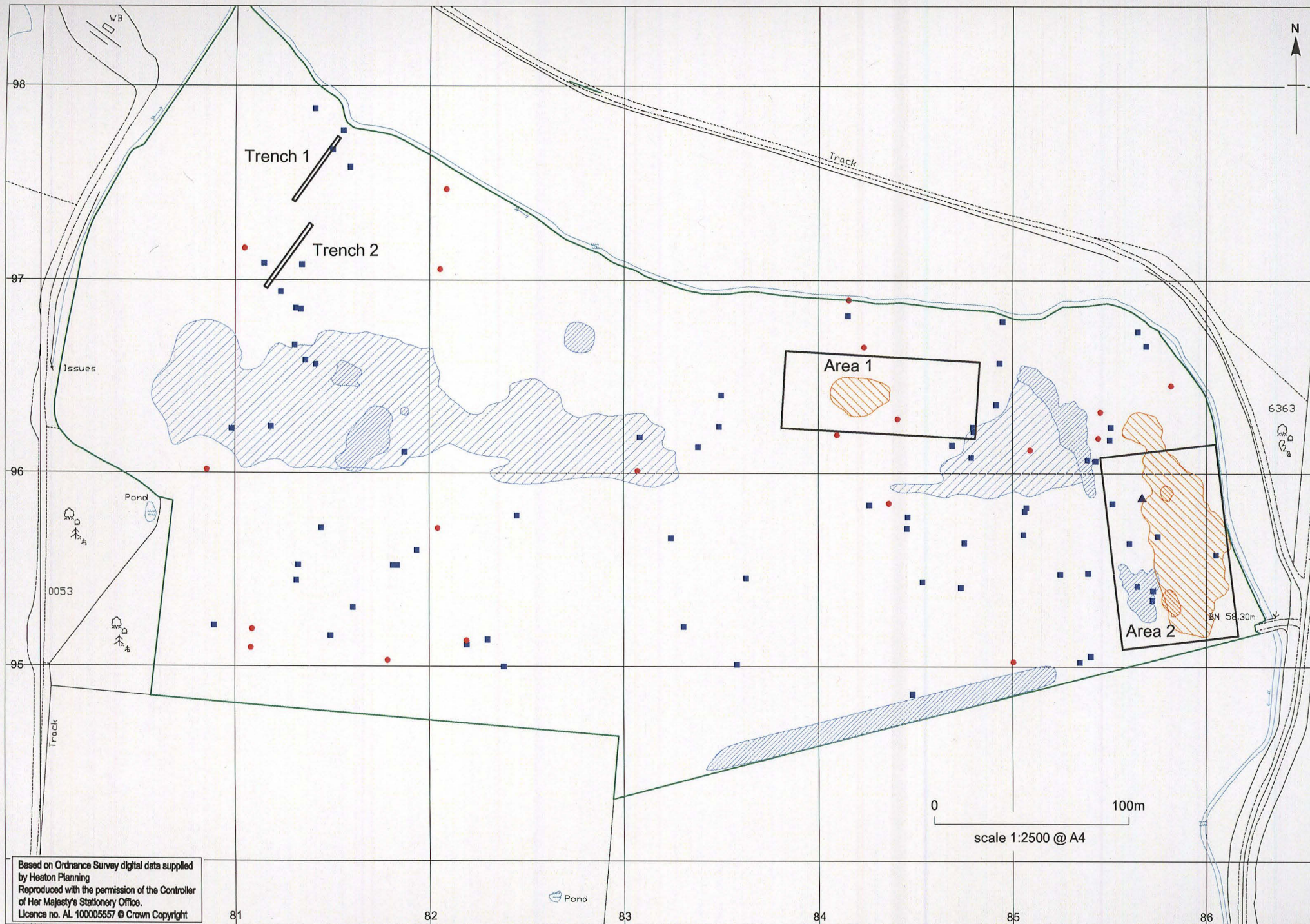


Figure 2 Red Barn Quarry: location of slag and limestone spreads



Based on Ordnance Survey digital data supplied by Heaton Planning
 Reproduced with the permission of the Controller of Her Majesty's Stationary Office.
 Licence no. AL 100005557 © Crown Copyright

Figure 3 Red Barn Quarry: fieldwalking results



Based on Ordnance Survey digital data supplied by Heaton Planning
 Reproduced with the permission of the Controller of Her Majesty's Stationery Office.
 Licence no. AL 100005557 © Crown Copyright

Figure 4 Red Barn Quarry: proposed location of trial trenches and geophysical survey areas