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FORDINGTON TO SKENDLEBY PIPELINE

ARCHAEOLOGICAL WATCHING BRIEF REPORT

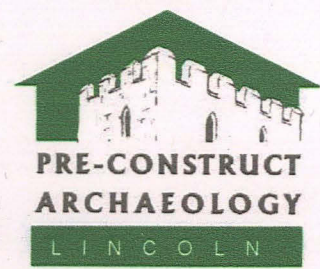
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Report prepared for Anglian Water Services

by

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July 2007



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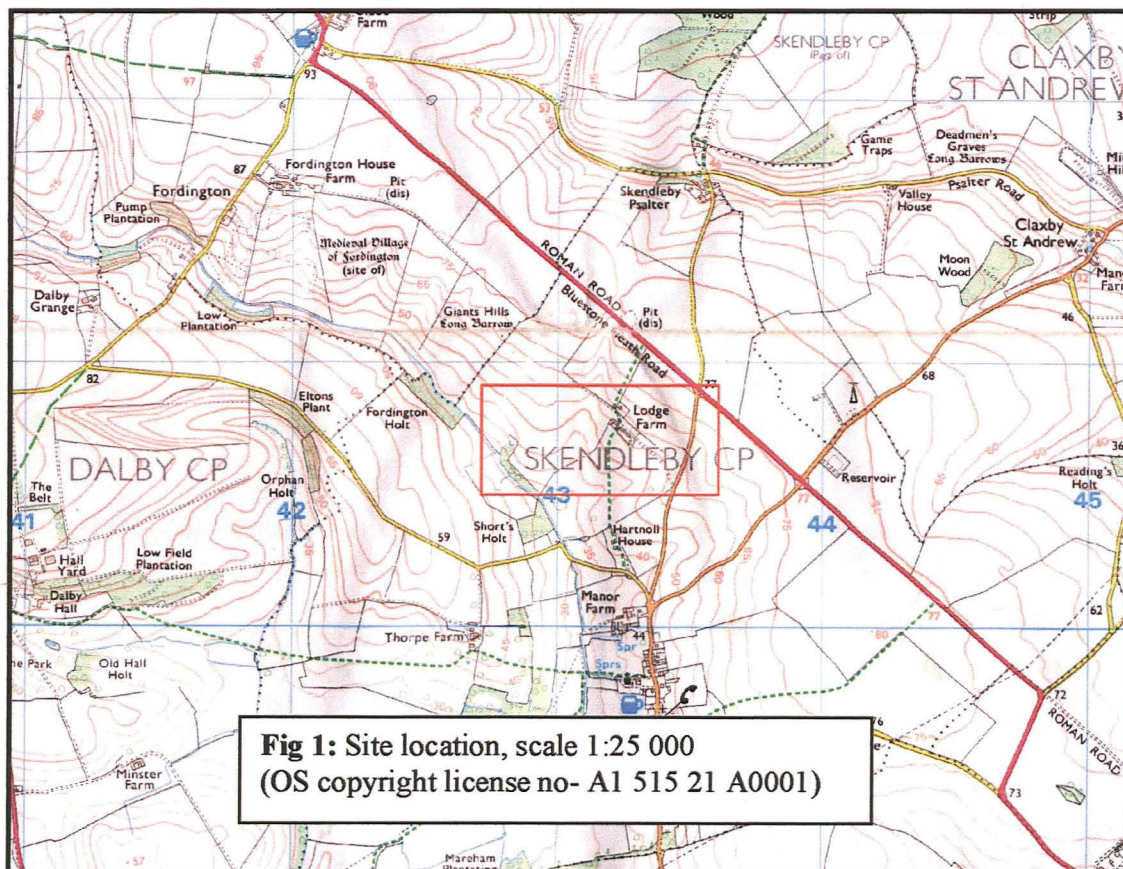
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RF 29/7/09

Summary

- An archaeological watching brief was carried out to monitor the groundworks for a section of high pressure water main between the villages of Fordington and Skendleby in Lincolnshire.
- This work encountered localized archaeological features, comprising two shallow pits; one possibly truncating a short gully
- Both pits contained quantities of finds; principally mixed animal bone from domestic species and Early Saxon pottery sherds. Curiously, the larger pit contained an assemblage of Late Bronze Age, Romano-British and early Anglo-Saxon pottery and other finds. It is concluded that the larger pit was probably an early Saxon sunken feature building (grubenhous), although the occurrence within its fill of Late Bronze Age pottery is more difficult to explain.
- For Lincolnshire, this is a rare and significant find: Early Saxon settlement remains are not common. To document one such site at Skendleby (in this instance in association with a novel ceramic assemblage) has provided a tantalizing insight into early post-Roman colonization.



1.0 Introduction

Pre-Construct Archaeology (Lincoln) was commissioned by Anglian Water Services Ltd to carry out an archaeological watching brief during the groundworks for a mains water pipeline between the villages of Fordingham and Skendleby in Lincolnshire. The scheme of monitoring was centered upon a section extending south-west from Lodge Farm Skendleby (NGR TF3261 8705). This area was considered to be of greatest archaeological potential.

The programme of works employed during this scheme was consistent with the *Environment Act 1995*, *Water Industry Act 1991*, *Code of Practice on Conservation, Access and Recreation: Guidance for the Environment Agency and Water and Sewerage Undertakers*.

The fieldwork and reporting methodologies employed in this report adhere to current best practice including, *Standards and guidance for archaeological watching briefs* (IFA, 1999), and the Lincolnshire County Council document *Lincolnshire Archaeological Handbook: a manual of archaeological practice* (LCC, 1998).

Copies of this report have been deposited with the commissioning body and the Historic Environment Record for Lincolnshire (HER). Reports will also be deposited at The Collection, Lincoln, along with an ordered project archive for long-term storage and curation.

2.0 Site location and description

The area of interest is situated approximately 0.5 km north of the village of Skendleby at the southern end of the Lincolnshire Wolds, approximately 45km east of Lincoln.

The section of pipeline monitored during the watching brief was within open arable farmland, its course extending from Lodge farm in the north, south-westwards to a small stream that runs into woodland at Bath Holt. This alignment followed the downhill gradient from 55m OD over a typically undulating Wolds landscape to 0.30m OD upon reaching the stream.

Archaeological features recorded during this work were situated upon a raised plateau overlooking the stream adjacent to Bath Holt at 44m OD.

The local geology consists exclusively of Ferriby Chalk, with hill wash deposits of chalk-rich clays partially infilling glacial channels through the chalk uplands, (British Geological Survey, 1996).

3.0 Archaeological and historical background

The route of the pipeline traverses an area well known for its rich archaeological landscape. Prehistoric occupation of the area is well attested from the Neolithic period, where there are a number of earthen long barrows that form two distinct clusters in the central and southern parts of the Wolds. Two of these monuments, the Giants Hills long barrows, are located 0.5km north-west of the pipeline. One was excavated extensively between 1933-4 (Giants Hills I), exposing an outer ditch that provided the mound material. This sealed eight burials, and produced dating evidence suggesting a period of use between 3500 – 2700 BC (May, 1976).

Discreet areas of human activity from this period are evidenced by the recovery of a single Neolithic leaf-shaped arrowhead to the south-west of the site (SMR ref. 42052), and a number of Neolithic and Bronze Age flint objects found at unidentified locations throughout the parish (SMR ref. 42056).

A possible Iron Age enclosure has been identified by aerial photography to the south west of the site (SMR ref. 42059), with further evidence of Iron Age settlement identified during excavations in advance of the Partney bypass, approximately 3km to the south-west (Atkins 2005).

The Bluestone Heath Road represents a prehistoric routeway along a ridge of the Wolds, passing within c.200m of Giant's Hill, and within 0.5km of the site (*ibid.*). In the Romano-British period, part of the Bluestone Heath Road was incorporated into a Roman road connecting Lincoln with the coast in the area of Burgh-le-Marsh or Skegness. Roman evidence from the region is sparse, although recent excavations on the line of the Partney bypass exposed extensive evidence of a Romano-British agricultural landscape with associated farmsteads (Atkins 2005).

The post-Roman period saw a rapid influx of Saxon immigrants into the region, many taking advantage of the Humber estuary to move inland. By the 6th century, place name and burial evidence suggests that large parts of Lincolnshire were settled by these people. However, there is no evidence to suggest that the area around the site was extensively settled in this early period of migration. The evidence from place names does however suggest that there was Scandinavian settlement in the 8th and 9th centuries. Skendleby itself contains the Old Danish suffix *-by*, meaning farmstead, with the first element of the name being obscure (Cameron, 1998).

The 8th century historian, Bede, mentions five monasteries in Lincolnshire, one of which was located at Partney. Another was an un-named nunnery, recorded as being 'near Partney' (Sawyer 1998), which may have been located in Skendleby, although supporting evidence is limited. The monastery at Partney is believed to have been abandoned after the Viking incursions in the later 9th century, and the postulated Skendleby monastery may also have suffered the same fate (G. Coppack, in Atkins 2005).

In the Domesday Book, Skendleby is recorded as sokeland belonging to an estate at Bardney, given to the abbey by Gilbert of Ghent. The estate included a church and two mills (Morgan & Thorne 1986). In 1115/6 his son William later increased the grant to Bardney with the addition of a chapel dedicated to St. Mary Magdalene at Partney and the chapel of St. James in Skendleby. It has been suggested that these chapels were established as memorials to the former Saxon monasteries in the area (G. Coppack, in Atkins 2005).

The earthwork remains of a shrunken medieval village are visible in the fields to the south of the current parish church within Skendleby village. These comprise a hollow way, with numerous house platforms and property boundaries (SMR ref. 42058). Further medieval earthworks and artefact scatters are located to the west of this site (SMR ref. 42055), and ridge and furrow earthworks to the north and north-west of the village attest medieval farming (SMR refs. 43201, 45293, 45294).

4.0 Methodology

A 9m wide easement along the course of the pipeline was stripped of topsoil by mechanical excavator fitted with a 2m wide smooth bucket. The pipe trench was cut within this easement with a 1m wide toothed bucket to a depth approximately 1.5m below existing ground level.

These works were monitored by the author with a view to identifying any archaeological features. Where present, features were excavated to establish their depths and profiles and where possible, to determine their function and recover artefactual remains. Bulk environmental samples were also retained for specialist analysis.

Features were recorded in plan and section at appropriate scales (1:50 and 1:20) and associated context information was recorded on pro-forma sheets. A photographic record was maintained throughout the project and selected prints have been reproduced in this report.

5.0 Constraints

It was not possible to clean the section faces of the pipe trench due to the risk of serious injury from collapse.

6.0 Results

The basal geology extending throughout the site consisted of chalk brash (111) overlain by hill wash deposits of red-brown clay, heavily interspersed with angular chalk fragments (110) and a laminated colluvium of similar red-brown clay with small chalk fragments (112).

Cutting these deposits were two pits, and one post hole-type feature. The location of these features is indicated on Fig 2.

Stratigraphically, the earliest feature appeared to be a short section of linear gully [108] that was 0.4m wide 0.30m deep and extended north-east to south-west for approximately 3.6m. This was filled with dark grey silty clay (109) interspersed with frequent charcoal fragments and small angular stones. Animal bone recovered from the fill included horse, cattle, goat/sheep and pig, representing a mixed assemblage that is commonly associated with domestic occupation and waste disposal (Richardson J Appendix: 3). Two sherds of Early Saxon pottery were recovered from this context.

Apparently truncating feature [108] was a large shallow oval pit [104] measuring 3.6 x 2.4m. This was filled with grey-brown silty clay (106) that incorporated a relatively large domestic animal bone assemblage. Also recovered were sherds of pottery and other finds dating from three cultural periods: Late Bronze Age, Romano-British and Early Saxon (see Allen Appendix: 5, Vince Appendix: 6 Paterson Appendix:7, Young Appendix:8), the fragmentary remains of a stone spindle whorl and a small colored glass bead (Vince Appendix: 4).

This assemblage is of some interest in that it encompasses finds from three distinct periods. To summarise:

- Thirteen residual/redeposited sherds of Post-Deverel Rimbury plainware (c. 1000 – 800BC), all seemingly from a single vessel
- One sherd of Roman grog tempered pottery; possibly re-trimmed and therefore reused
- Twent five sherds of early Anglo-Saxon pottery (5th – 7th century); all apparently locally produced
- One glass bead, a stone spindle whorl and three fragments of fired clay; of Anglo-Saxon or earlier date

The implications of this assemblage are considered in the discussion.

A short distance to the south-west of [104] was a second shallow pit [105]. This was filled with grey-brown silty clay (107) that also contained a mixed animal bone assemblage, and one abraded sherd of Early Saxon pottery.

Approximately 50m north east of the above group of features was an isolated small pit-like feature [103]. In form, this resembled a post hole, although its fill was atypical: highly carbonized silty clay soil. As this feature could not be dated, there is no means of placing it within a meaningful archaeological context.

Immediately to the north east of [103] was a glacial channel filled by laminated layers of reddish-brown silty clays interspersed with variable amounts of chalk brash (contexts (110), (111), and (112), fig: 3).

All natural and archaeological deposits were sealed by a layer of reddish-brown silty clay subsoil (101) beneath a modern plough soil horizon (100).

7.0 Discussion

What is immediately apparent when looking at Fig 2 is the general paucity of archaeological remains within the stripped easement: just two pit-like features (with a possibly integral gully within the larger example) to the west of Lodge Farm and one indeterminate feature to the north east of these. These features were all situated upon a plateau of higher ground adjacent to a small stream, and this this location would have provided a free-draining site on the lea side of a shallow valley, ideally suited to rural settlement.

It is probable that the two pits were directly associated with localized settlement in the Early Saxon period; in which case pit [104] was almost certainly a sunken feature building or *grubenhause*, and a very early example at that. In Lincolnshire, two similarly isolated *grubenhause* were excavated at St Nicholas Scool in Boston (Palmer-Brown 1996), although these were of later (8th century) date. Earlier examples can be cited at Nettleton Top, one of the highest points in the Lincolnshire Wolds (Field and Leahy 1993). At Nettleton, a large stripped area exposed three *grubenhause*, and various other discrete features dating between the 6th and 7th centuries AD: it could not be established whether the settlement comprised little more than a series of dispersed buildings, or whether these related to a more formal arrangement of land management boundaries. In contrast, at Cherry Willingham in the Witham valley to the east of Lincoln, a sunken feature building was found in association with possible livestock enclosures (Field 1981).

A peculiar feature of pit [104] was that it contained thirteen sherds of Late Bronze Age pottery; all seemingly from one vessel. A possible explanation for the inclusion of this pottery is that it was a structured deposit; carefully placed within the (abandoned) building and not the result of casual discard or residuality. It is usually argued that, on abandonment, *grubenhause* became repositories for domestic 'rubbish' (rubbish pits were not common at this time, and domestic refuse tended either to be spread or left to accumulate as middens: at Flaxengate, Lincoln, pit digging for rubbish disposal was not common prior to the 9th/10th centuries (J Young *pers. com.*)). One can only speculate that, following the end of the useful life of feature [104] as a sunken building, Bronze Age pottery was purposefully incorporated within an assemblage of 'rubbish' that was in some way special.

Bulk environmental samples recovered during the excavation were unproductive, but assessment of the animal bone assemblage from the two 'pits' has provided an insight at least into a regime of local animal husbandry of the Early Saxon period. The assemblage contained only domestic species: cattle, horse, sheep, and pig that included neo-natal bones indicative of meat consumption. Only two examples of joint damage to two cattle phalanges can be tentatively interpreted as evidence for aged animals or as a result of secondary use for traction (Richardson J Appendix: 3).

The putative *grubenhause* contained an assemblage comprising 20 different pottery vessels, reflecting settlement at some time between the 5th-7th centuries AD.

An analysis of the Anglo-Saxon pottery fabrics has determined a localised source of manufacture, either produced within the domestic environment or as part of exchange networks with production centres located no more than a few miles away. This evidence contrasts with assemblages recovered from sites in the Trent Valley where domestic pottery was sourced from a number of production centres, and may reflect an introverted exchange economy.

A fragment of chalk spindle whorl recovered from pit [104] attests to not only the rearing of sheep for fleeces and meat, but indicates that fabrics may have been woven within the settlement area or *grubenhause*. A small opaque red glass bead recovered from fill (106) demonstrates an example of contemporary dress, presumably deposited as a casual loss. Similar beads are commonly encountered within Anglo-Saxon cemeteries across Lincolnshire eg Sheffields Hill (Leahy 2005), (Cleatham Leahy 2007).

A single sherd of Roman coarse ware pottery and some fragments of fired clay, one with thumb impressions similar to that found on briquetage used in salt making, may attest to a period of Roman activity. The Roman base sherd appears to have been re-worked by trimming underneath and above, possibly for use as lid for a pot or jar in the Early Saxon period. The re-cycling of pottery adrift from its primary function has often been encountered on Anglo-Saxon sites, most typically evidenced by greyware pottery spindle whorls.

It is also not impossible for clay items associated with salt production to be recovered from inland sites (see Vince A Appendix: 4), although these examples could equally derive from the daub coated walling of a domestic dwelling, possibly the *grubenhause* itself.

8.0 Effectiveness of methodology

The methodology employed to monitor these works allowed a rapid, but thorough, assessment and recording of archaeological deposits, without incurring unnecessary delays to the progression of groundworks.

9.0 Acknowledgements

Pre-Construct Archaeology (Lincoln) would like to thank Anglian Water Services Ltd for commissioning this work.

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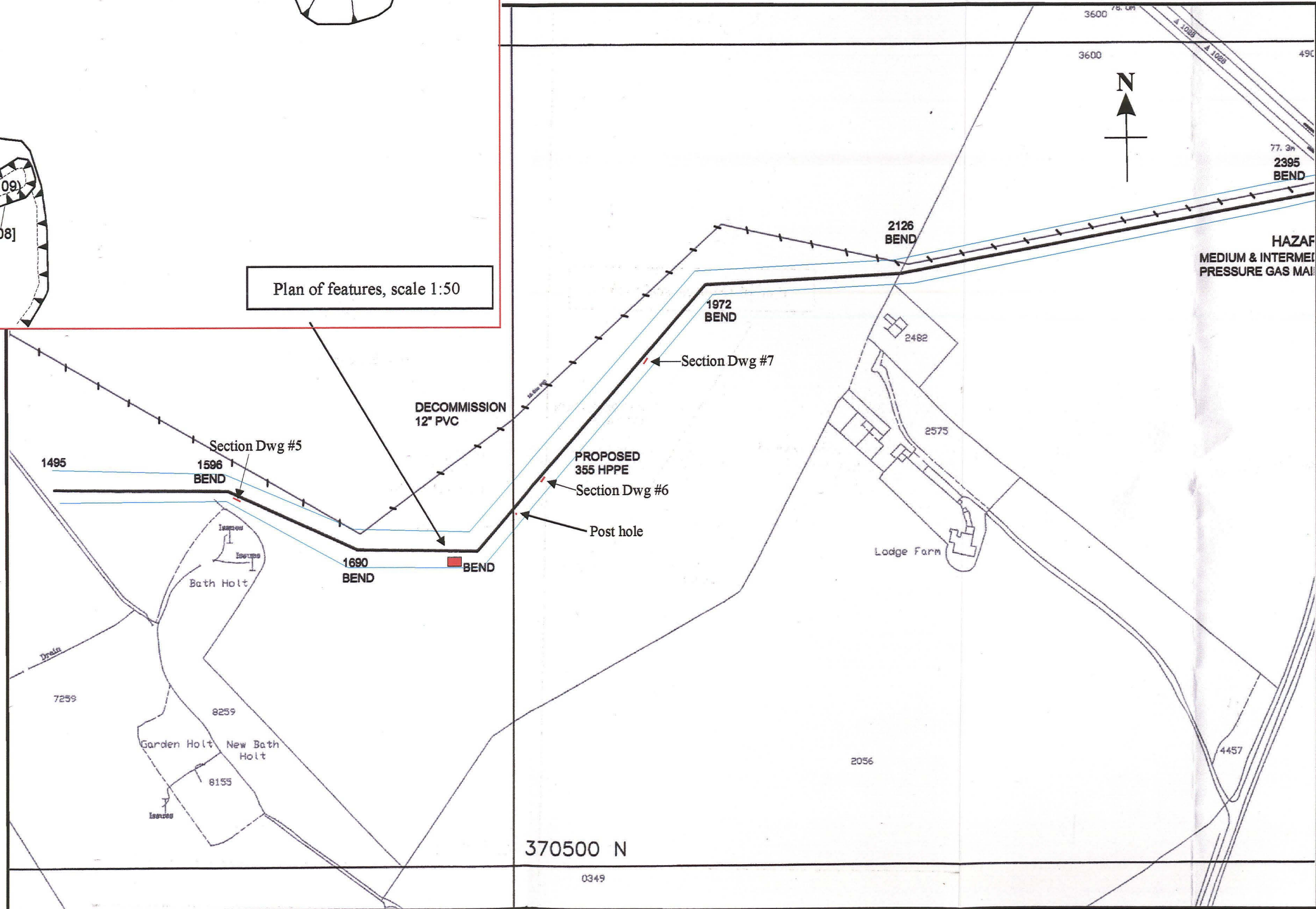
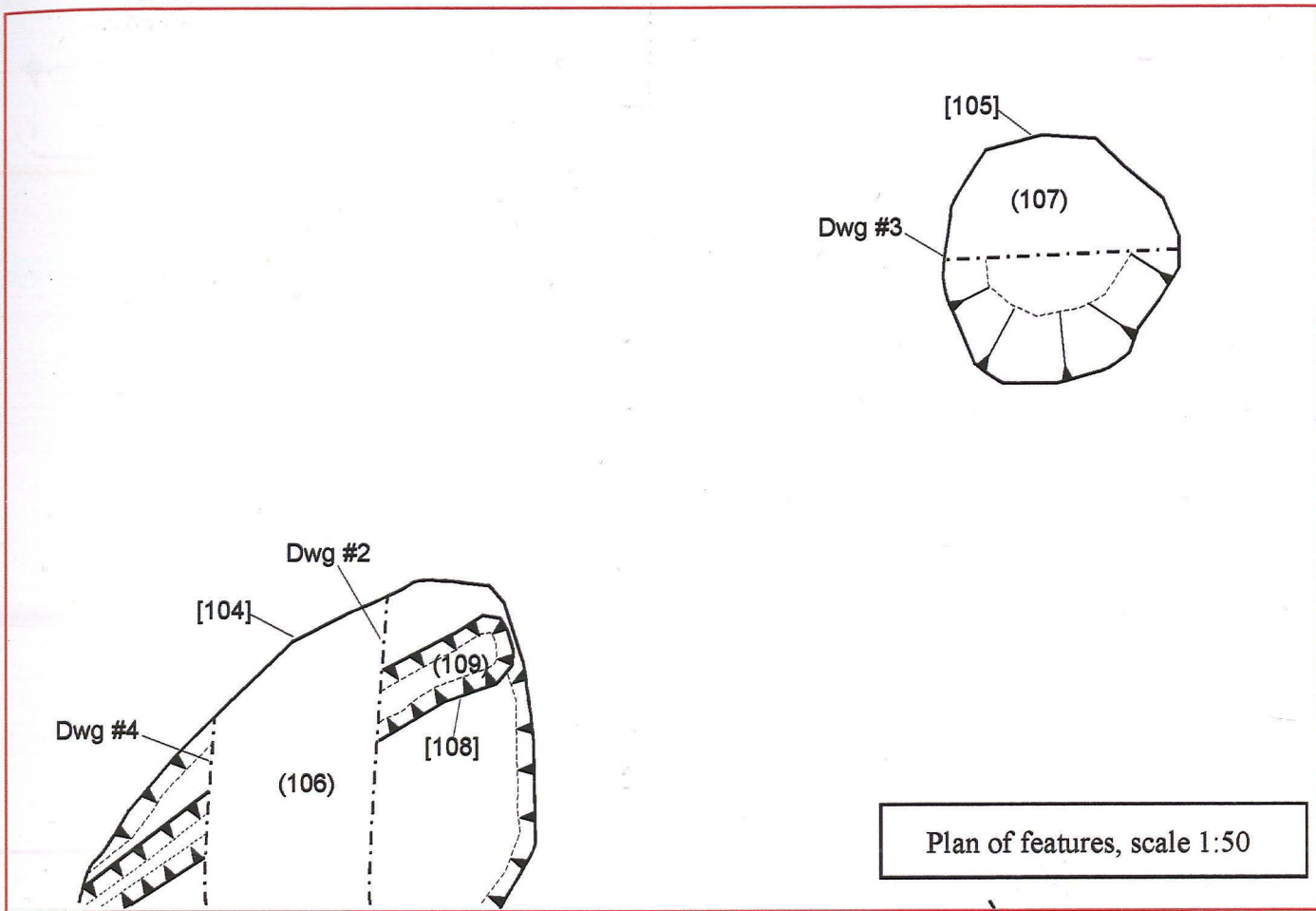
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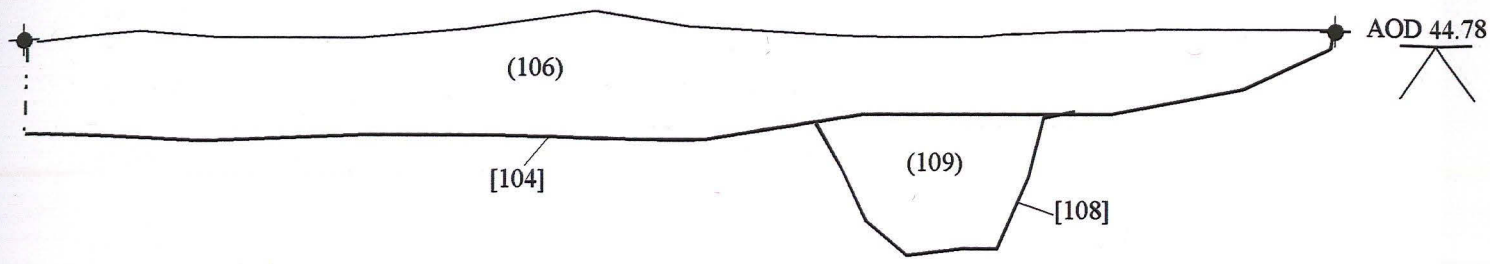
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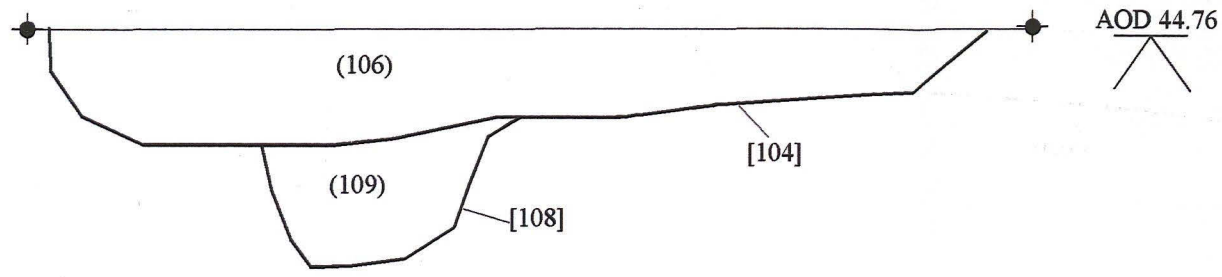
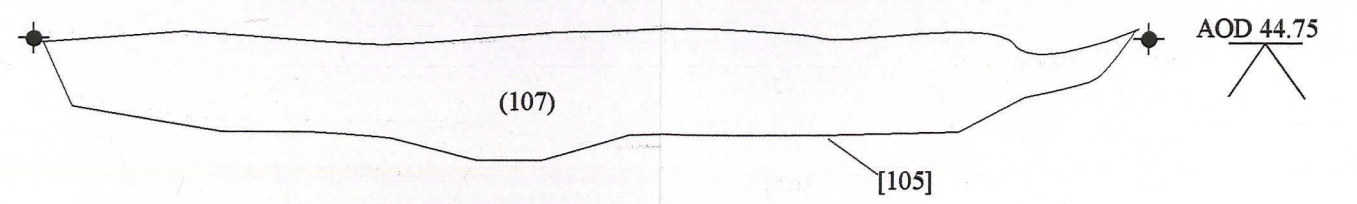
Fig: 2 Detailed site location map, scale 1:2500 with inset 1:50 scale plan of features and section locations.



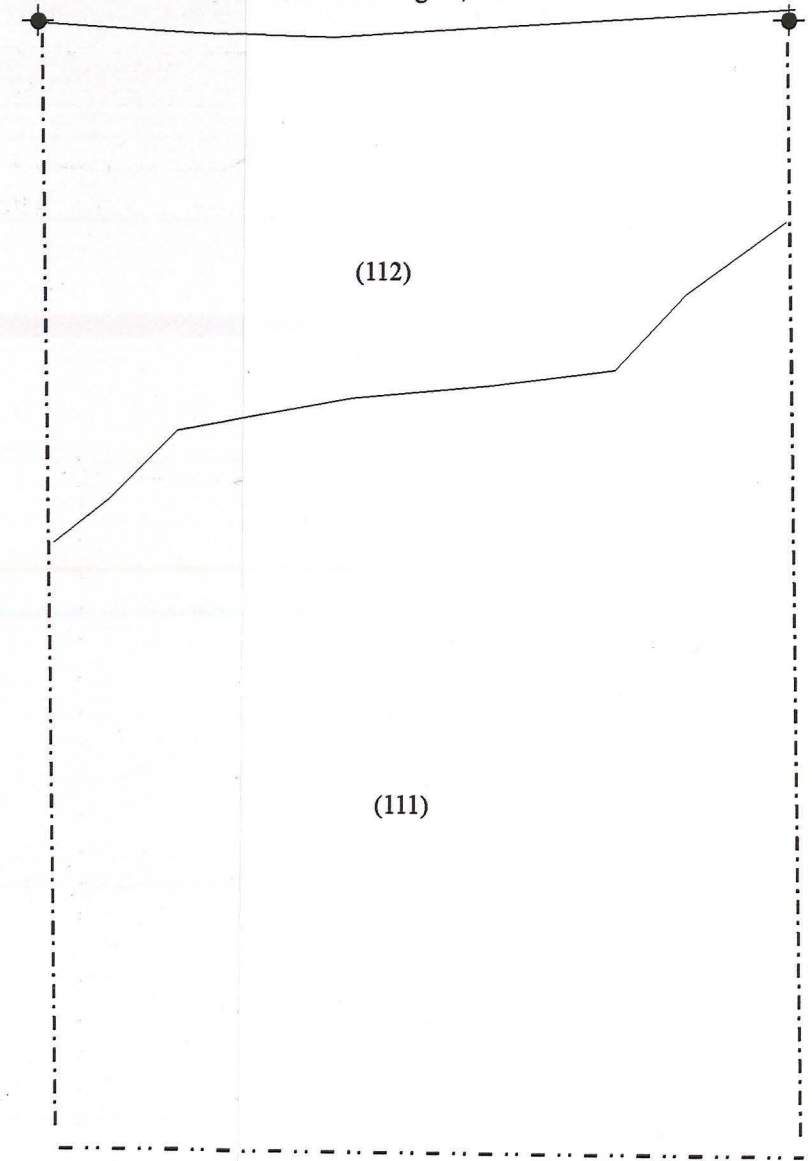
North section Dwg #2 scale 1:10



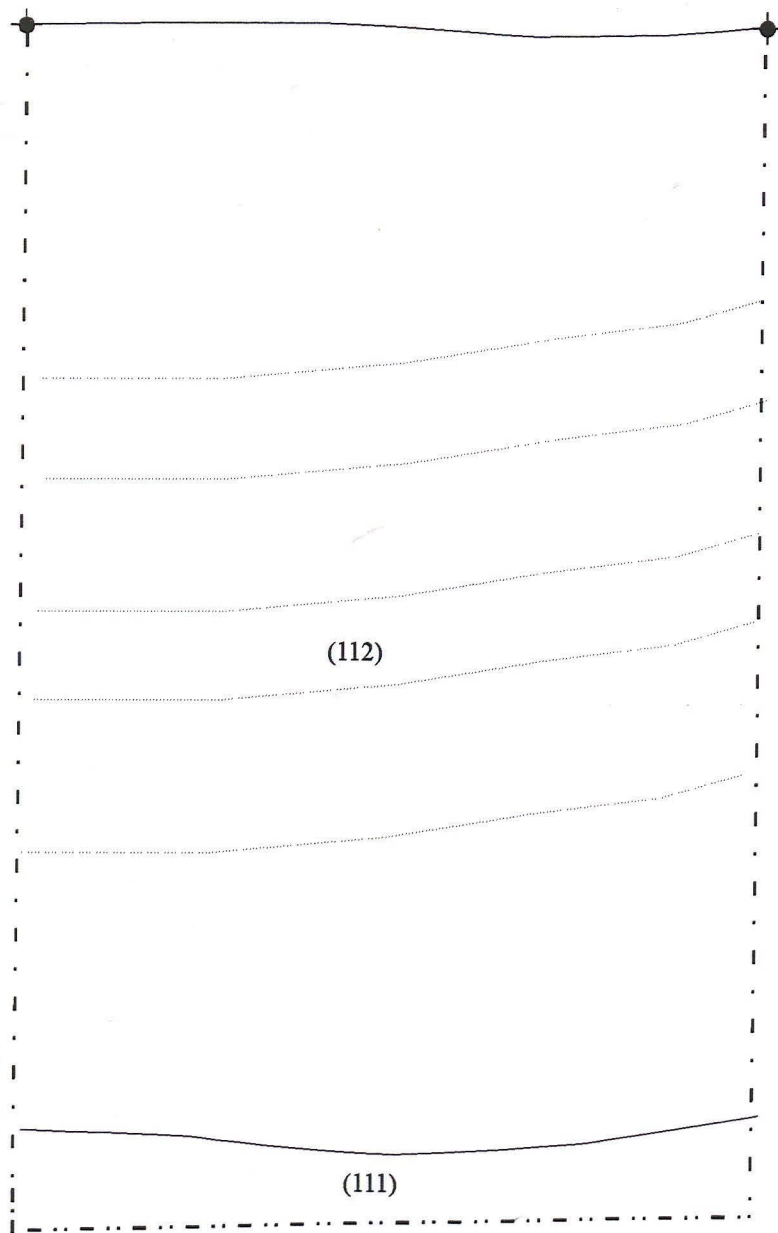
East section Dwg #3, scale 1:10



South section Dwg #6, scale 1:10



South section Dwg #7, scale 1:10



West section Dwg #5, scale 1:10

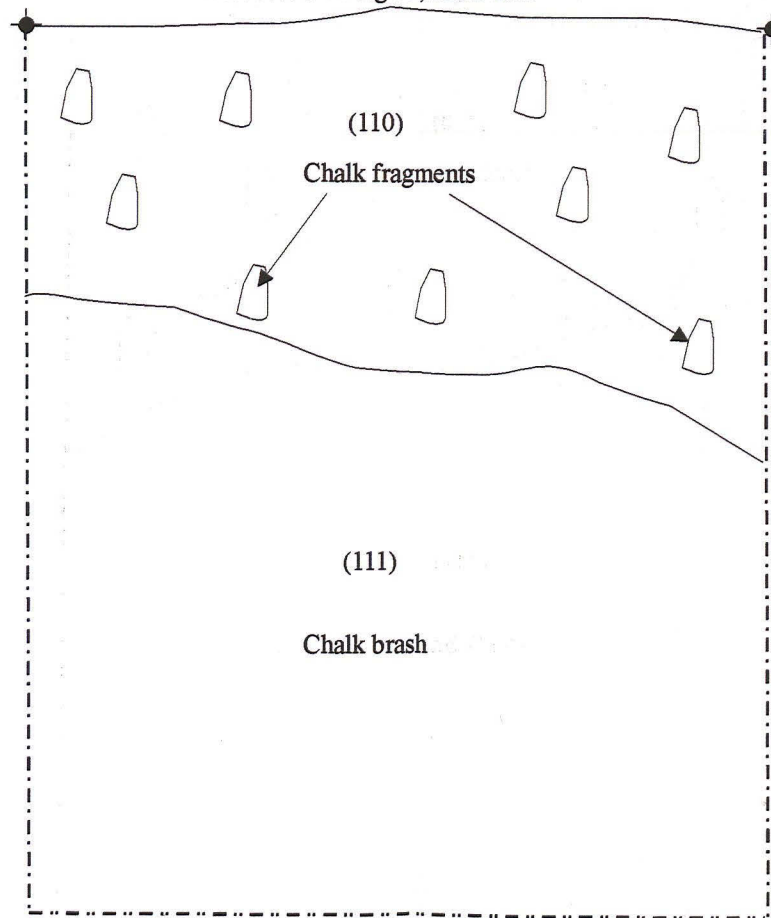


Fig 3: Section drawings 1 - 7, scale 1:10

Appendix: 1 Plates



Plate 1: General view of pipeline Corridor from Lodge Farm.

Plate 2: Investigation following corridor topsoil strip.



Plate 3: Secondary cut for water pipe, illustrating the depth of colluvium, infilling natural undulations in the chalk geology.



Plate 4: Post hole [103]

Plate 5: Shallow pit [105]



Plate 6: West section of pit [104] over gully [108].



Plate 7: East view of pit [104] over gulley [108].

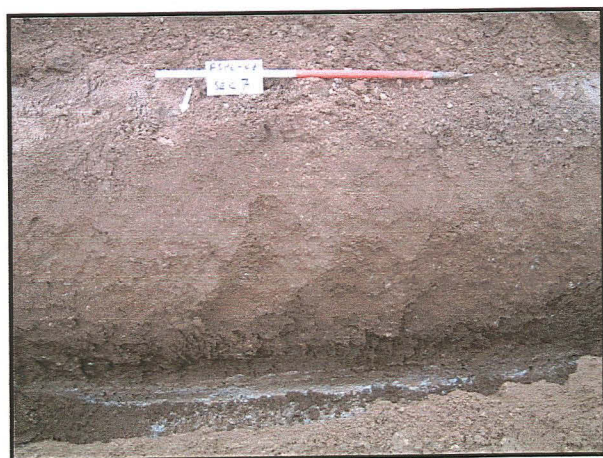


Plate 7: north section Dwg #7 showing depth of laminated colluvium (112).

Appendix: 2

332/FSPL-07 Context list		
Context	Type	Description
100	layer	Ploughsoil
101	layer	subsoil
102	fill	Carbonised fill of post hole [103]
103	cut	Small post hole
104	cut	Large shallow pit
105	cut	Shallow pit
106	fill	Grey brown silty clay occupation debris backfill of pit [104]
107	fill	Grey brown silty clay occupation debris backfill of pit [105]
108	cut	Steep sided gulley
109	fill	Brown grey silty clay occupation debris backfill of gulley [108]
110	deposit	Red brown chalky clay colluvium deposit
111	layer	Chalk brash geological layer
112	layer	Laminated chalky clay deposit of colluvium

Lodge Farm

Skendleby

Lincolnshire

Animal Bone Report

Contents

1. Introduction
2. Method
3. Results
4. Conclusions

Acknowledgements

Summary

A small animal bone assemblage, exclusively from domestic livestock (cattle, sheep, pigs and horses), was recovered during archaeological investigations close to Lodge Farm, Skendleby. The presence of neonatal bones is indicative of livestock rearing in the vicinity.

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1. Introduction

- 1.1 Archaeological Services WYAS was commissioned by Pre-Construct Archaeology (Lincoln) to undertake the analysis and reporting of the animal bone assemblage recovered during a watching brief on land adjacent to Lodge Farm, Skendleby (TF 428 426). It is assumed, rather than demonstrated, that the animal bones from the fills of two pits and one gully represent a single phase of activity.

2. Method

- 2.1 All bones were identified to species wherever possible, although lower-order categories were also used (e.g. sheep/goat, large mammal). The separation of sheep from goat bones was routinely attempted, but as no goat bones were identified, the sheep/goat bones are assumed to be of sheep.
- 2.2 All fragments were recorded, although fragments that clearly joined were only counted once. Recording also included the identification of diagnostic element zones, which by definition are easily identifiable and non-reproducible. This eliminates the possibility of recording an anatomical zone more than once.
- 2.3 For age-at-death data, epiphyseal fusion and the eruption and wear of deciduous and permanent cheek teeth were considered.
- 2.4 Bone condition, erosion and fragment size were recorded in order to assess bone preservation, while gnawing, burning and butchery marks were noted to determine bone treatment.
- 2.5 Pathological bones were noted, but the assemblage was too small and fragmented to warrant the collection of biometrical data.

3. Results

- 3.1 In total, 199 bone fragments were retrieved, but only 24% of the bone fragments were identified as diagnostic, non-reproducible zones (cf. Tables 1 and 2). Such a low proportion limits the usefulness of the assemblage for assessing husbandry practices and dietary status. The dearth of zones may be a reflection of the fragmented nature of many of the bones, and the high frequency of eroded bone surfaces. Erosion was so common, that gnawing and butchery marks were rarely seen (only single examples of each were observed). Burnt bones were more commonly observed: nine fragments or 5% of the assemblage.
- 3.2 Only domestic livestock are represented, with cattle, sheep and pig bones probably reflecting animal husbandry practices and ultimately meat consumption. Depending on the period of occupation, horses may also have been consumed (consumption of horseflesh in the Roman and medieval periods is unlikely but not impossible). Unfortunately age data was scarce and the utilisation of secondary products such as milk, traction and fleeces could not be confirmed. Nevertheless, the presence of juvenile cattle bones and neonatal sheep and pig bones do suggest that animals were being reared in the

vicinity and joint damage to two cattle phalanges provides tentative evidence for aged and/or traction animals.

Table 1. A summary of the animal bone fragments by feature

Feature	Pit 104	Pit 105	Gully 108
Fill	106	107	109
Cattle	28	13	2
Horse	1		21
Sheep	2		
Sheep/goat	14	4	5
Pig	4	6	3
Large mammal (cf. cattle)	77	11	3
Small mammal (cf. sheep)	5		
Total	131	34	34

Table 2. A summary of the animal bone zones by feature

	Pit 104	Pit 105	Gully 108
Fill	106	107	109
Cattle	17	5	2
Horse	1		2
Sheep	1		
Sheep/goat	5	2	
Pig	4	3	3
Large mammal (cf. cattle)	1		1
Total	29	10	8

- 3.3 An absence of any wild mammals or birds was noted (Table 1). This may reflect the small sample size, although poor bone preservation will also have affected the recovery of smaller and more fragile bones, such as those of birds and the smaller mammals (e.g. hares).

4. Conclusions

- 4.1 Given the small sample size, the statistical viability of the assemblage must be questioned. It is only possible to propose the presence of waste from domestic livestock husbandry, including the disposal of neonatal animals that were probably bred locally.

Acknowledgements

Client

Pre-Construct Archaeology (Lincoln)

Project management

Jane Richardson PhD

Analysis and report

Jane Richardson

Appendix: 4

Assessment of Fired Clay, Glass and Stone Artefacts from the Fordington to Skendleby Pipeline, Lincolnshire (FSPL-07)

Alan Vince

A glass bead, a stone spindle whorl and fragments of fired clay from an archaeological investigation at Lodge Farm, Skendleby, on the line of the Fordington to Skendleby Pipeline, were submitted to the author for identification and assessment.

Description

Fired Clay

Three fragments of fired clay were recovered from context 106. All were examined at x20 magnification and have slightly differing fabrics. However, they all contain rounded, polished quartz grains, rounded red iron ore pellets, and have a micaceous silty groundmass. In addition, two of the fragments contain burnt-out organic matter, including in one case wood chips up to 20mm long and 10mm wide.

Apart from the organic material, the characteristics of these clay fragments are typical of lower Cretaceous clays in the southwestern part of the Lincolnshire Wolds and the clay could have been obtained either from a Lower Cretaceous deposit such as those which outcrop on the fringes of the chalk upland or from a boulder clay, which outcrops extensively in the lower ground to the south and west of Skendleby.

One of the fragments appears to be a squeezed lump of clay with a finger/thumb impression and convex surface. Such material is commonly found on salt-extraction sites on the Lincolnshire siltland and Lindsey marshes where it appears to be part of the extraction process which used ceramic containers to hold the concentrated brine. The use of such containers seem to have ceased in the later Roman period.

Glass

A small glass bead was recovered from context 106. The bead is made from an opaque, vesicular dark red glass. The bead is 11mm in diameter and 5mm thick. The central hole at x20 magnification is seen to have a dark matt metallic coating perhaps evidence for the use of a metallic tool to produce the hole.

Stone

A chalk spindle whorl, 45mm diameter and 20 mm tall, was recovered in two pieces from context 106. The identity of the rock as chalk was confirmed at x20 magnification where numerous microfossils were visible. The whorl appears to have been made on a lathe and

The Alan Vince Archaeology Consultancy, 25 West Parade, Lincoln, LN1 1NW

<http://www.postex.demon.co.uk/index.html>

A copy of this report is archived online at
<http://www.avac.uklinux.net/potcat/pdfs/avac2007021.pdf>

has four lathe-cut grooves, two on either side of the girth. It has a symmetrical profile (unlike those of Anglo-Scandinavian date, which are often different in profile on either side of the girth).

Two fragments of rock from the same deposit are basic igneous erratics. Both have hackly faces suggesting that they were shattered from larger pebbles and one has part of the original weathered cortex. Neither appears to have been used and similar rocks are present in boulder clay over much of the Wolds.

Assessment

Context 106 produced finds of various dates, the latest of which are early Anglo-Saxon potsherds. It is therefore likely that these objects are of early Anglo-Saxon date or earlier. The similarity of one of the fired clay pieces to salt-extraction fragments may be illusory but if it were to be associated with salt extraction then presumably it would have arrived on the site along with salt and/or other commodities from the coast and would be of early Roman date. Fragments of briquetage have been found on Iron Age and early Roman sites in southern England well inland (e.g. Danebury camp, 30 miles north of Southampton, Morris 1994) and therefore its discovery on inland sites in Lincolnshire should not be a surprise. Nevertheless, larger samples of fired clay, and the chemical analysis of such clay to look for elevated sodium levels, would be required to settle the matter.

Further Work

The association of the bead and spindle whorl with an early Anglo-Saxon context is of interest and both should be drawn for future record.

Retention

All the finds come from a stratified archaeological context and should therefore be retained for possible future re-examination or further study.

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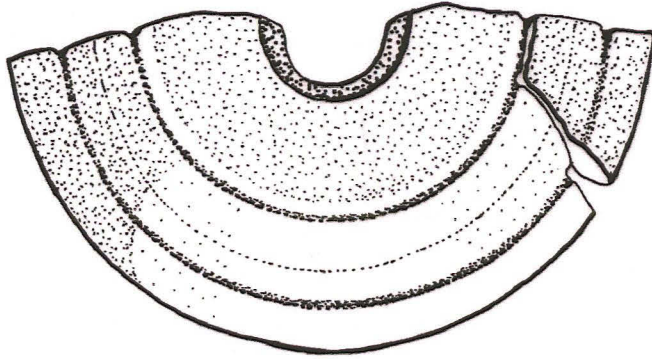
Appendix 1

Context	class	cname	subfabric	Object	Nosh	NoV	Weight	Part	Action	Description	diameter	TH
106	GLAS	GLAS	OPAQUE RED VESICULAR	BEAD	2	1	0.5	BS	DR		11	5
106	STONE	STONE	BASIC IGNEOUS	GEO	2	2	100	BS		TWO CRACKED PEBBLE FRAGMENTS, ONE WITH TRACES OF ORIGINAL CORTEX	0	
106	STONE	STONE	CHALK	SPWH	2	1	23	BS	DR	LATHE TURNED WITH FOUR GROOVES;SYMETRICAL PROFILE AROUND GIRTH	45	20
106	FCLAY	FCLAY	SILTY MICACEOUS;S GSQ; S RED FE;M ORGANICS, INC CHARCOAL <10MM;OXID	-	3	3	17	BS				

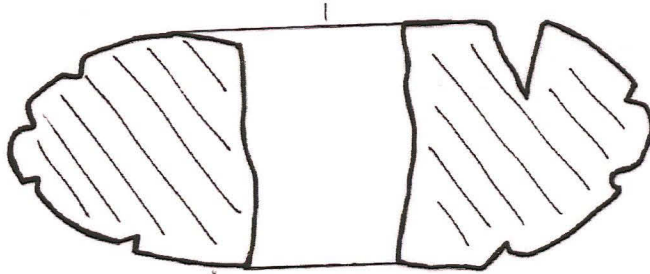
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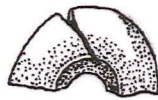
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0 25mm
Scale 2:1



Context (106) chalk spindle whorl with
lathe turned rotational grooving



0 50mm
Scale 2:1

Context (106) opaque vesicular dark red glass bead

Pottery Archive Lodge Farm, Skendleby, Lincolnshire (FSPL07)

Jane Young

context	cname	full name	sub fabric	form type	sherds	vessels	weight	decoration	part	ref no	description	date
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse	jar ?	1	1	10		BS			5th to 7th
106	R	Roman pottery	grog tempered	jar ?;reused as a lid ?	1	1	46		base		possibly trimmed for reuse as a lid; underneath & over ?trimmed edge sooted; untrimmed basal angle	Roman
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse	cup ?	2	1	40		base	DR 1	removed for Fabric Type Series;analyse;fairly fresh;black shiney carbonised ? Deposit internally	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse + comm fe comm greensand mod shell	large jar/urn	2	1	96	3+ incised neck/shoulder lines;3 line chevron with single line interlocking	BS	DR 2; v4261	removed for Fabric Type Series;analyse;fairly fresh	5th to 6th
106	SSTCL	Central Lincolnshire Early to mid Saxon sandstone-tempered	fine	small jar/urn	1	1	3	horizontal incised lines;vertical solid boss/lug	BS			5th to 6th

context	cname	full name	sub fabric	form type	sherds	vessels	weight	decoration	part	ref no	description	date
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	+ common shell	large jar	2	1	25		rim	DR 3; v4263	Taken for Fabric Type Series;rounded rim	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse + abundant fe	small jar	1	1	11	?? Incised dec	BS	v4259	Fabric Type Series;abraded	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		jar	1	1	3		BS		spalled internal surface;possibly same vessel as rim	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	+ shell	jar	1	1	7		BS		spalled internal surface;possibly same vessel as rim	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		jar	1	1	7		rim		rounded rim	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse	small jar	1	1	19	3 line chevron demarcated above & below by 3 horizontal lines	BS	DR 4; v4262	misfired ?;faint decoration	5th to 6th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		?	1	1	10		base			5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		small bowl/cup	1	1	7		rim		very abraded;possibly same vessel as base	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse + biotite & feldspar	jar	1	1	21		BS	v4260	Fabric Type Series	5th to 7th

context	cname	full name	sub fabric	form type	sherds	vessels	weight	decoration	part	ref no	description	date
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		large jar	3	1	47		BS	v4258	1 sherd taken for Fabric Type Series; carbonised deposit internally	5th to 7th
106	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered	coarse + shell	jar	1	1	3		neck			5th to 7th
107	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		small bowl	1	1	7		rim		very abraded	5th to 7th
109	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		small jar/bowl	1	1	3		BS		very abraded	5th to 7th
109	ELFEOL	East Lincolnshire Anglo-Saxon oolitic ironstone tempered		small jar/bowl	1	1	4		BS		abraded	5th to 7th
u/s	GRE	Glazed Red Earthenware		jug/mug	1	1	3		BS			mid/late 16th to 17th
u/s	GRE	Glazed Red Earthenware		side handled jar	1	1	30		HJ			mid/late 16th to 17th

FORDINGTON TO SKENDLEBY PIPELINE, LINCS
332 FSPL-07, NGR TF 4335 7040
REPORT ON LATE BRONZE AGE POTTERY

1 Quantification

During a watching brief on this pipeline adjacent to Lodge Farm, Skendleby, a shallow pit was uncovered. This contained 13 sherds of pottery weighing 171g. All the material appears to come from one vessel of late Bronze Age type and is detailed on Table 1 below.

Table 1: Late Bronze Age pottery

Context	Sherds No	Weight g	Wall thickness	Abrasion Level
(106) fill of shallow pit	13 (7 base & 6 body)	171	11mm	Slightly abraded, about 5% of the original surface lost

2 Methodology

2.1 The pottery has been recorded and described according to the guidelines of the PCRG (1997), and this report conforms to the standards and guidance of the IFA (2001). The sherds were counted, weighed and recorded. The sherds were examined by use of a x2 binocular microscope in order to allow the fabric type to be summarised.

3 Fabric type

All the sherds were made from similar fabric and contained shelly material for tempering; the fabric is coded SHCV. The sherds contained a common amount (C = about 20%) of shelly material (SH) which was moderately sorted, angular and of low sphericity, and of very coarse size (V = over 3mm in length). Many of the shelly pieces are 5mm long and some are up to 8mm. The shell shows clearly on the surface giving a coarse orange and white appearance to the pottery. The exterior of the body sherds is orange, the interior is brown and the core black. The base sherds are black throughout.

The site lies on the chalk which has frequent outcrops and could provide the local source for the tempering materials (Swinnerton and Kent 1976, 68).

4 Pottery type and date

The material is fragmentary and there is no decoration or form apparent. However, the fabric type, colour, wall thickness and the coarse handmade appearance strongly suggests that these sherds are part of a late Bronze Age vessel. Pottery of this type, usually called Post-Deverel Rimbury plainwares (Knight 2002), is well known in this area from settlement sites such as Washingborough (Allen 2006), West Deeping (Allen 2005) and Hibaldstow (Allen and Knight 2001) all in Lincs. Tempering of

pottery has been shown to vary through time at sites (Allen and Hopkins 2000, fig. 8), and at all these sites, as at Skendleby, shell tempering was seen in the late Bronze Age vessels showing this is a tradition of this period in Lincolnshire. Dates for pottery of this type in this region lie between 1000 and 800 BC (Allen 2006).

5 Context

The sherds of this vessel were found in a shallow pit which also contained fired clay, bone, a bead and a carved stone spindle whorl. Fired clay is often seen as an indicator of domestic settlement and may be from ovens or similar structures. These finds strongly suggest the presence of a domestic settlement of this period in the vicinity.

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Appendix: 6

Characterisation Studies of Early Anglo-Saxon Pottery from Lodge Farm, Skendleby (FSPL-07)

Alan Vince

Archaeological investigations on the line of the Fordington to Skendleby pipeline, Lincolnshire, undertaken by Pre-Construction Archaeology (Lincoln) Ltd revealed early Anglo-Saxon settlement at Lodge Farm, Skendleby. Examination of the pottery from this settlement at x20 magnification indicated that the pottery contained abundant oolitic iron-rich grains which suggested a local source, despite the presence of rock and mineral fragments which are clearly not of local origin. Since the status of early Anglo-Saxon pottery production is still unclear and this site appeared to provide evidence for a local origin it was recommended that samples were chosen for analysis using thin sections and Inductively-Coupled Plasma Spectroscopy.

Six samples were chosen and the results indicate that despite variations between the samples all contain abundant well-rounded opaque grains. Two ferruginous oolitic clays are recorded in the neighbourhood of Skendleby, the Roach Formation and the Claxby Ironstone formation (BGS 1:50000 map, Sheet 116) and these are probably the source of the opaque grains.

At x20 magnification a variety of inclusion types are present. These include:

- **Quartz. Rounded grains with a polished surface, but without any evidence for iron-rich, calcareous or silica cement.**
- **Igneous rock. Subangular fragments of dark (grey/black) crystalline rocks, probably basaltic and light (white/pink) crystalline rocks, sometimes with biotite.**

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<http://www.avac.uklinux.net/potcat/pdfs/avac2007000.pdf>

- **Bivalve shell.** Including almost flat fragments with a prismatic structure. These are inoceramids.
- **Clay/iron.** Well-rounded, usually ovoid shaped grains c.0.2mm across with a shiny red-brown surface and dull red-brown interior.

Thin-Section Analysis

Thin sections were produced of each sample by Steve Caldwell, University of Manchester. They were stained using Dickson's method, to distinguish between ferroan and non-ferroan calcite and dolomite (Dickson 1965). Each section was then examined and a list of inclusion types present was made, together with details of frequency, size, roundness and other characteristics. On this basis of this analysis two subfabrics were identified, based on the presence/absence of calcareous sandstone. With this exception, the same characteristics were noted in each sample.

The following inclusion types were noted in thin section:

- **Subangular quartz.** Moderate to abundant fragments up to 1.5mm across. Several have kaolinite adhering to them and are clearly derived from a coarse-grained sandstone. Some of the grains have one or more noticeably straight edges, indicating quartz overgrowth. No sign of the original grain boundary is visible.
- **Opagues.** Abundant well-rounded grains up to 0.5mm across. Most have a high sphericity, rarely with evidence of splitting and subsequent rounding but a small proportion are ovoid. Grains with a "squashed pea" profile are present but rare.
- **Calcareous sandstone.** Sparse fragments up to 1.0mm across containing mostly illsorted subangular quartz grains up to 0.5mm across in a ferroan calcite groundmass. These are rare or absent in most samples but common in one.

- **Igneous rock. Sparse fragments up to 1.0mm across. These include a volcanic glass with phenocrysts of plagioclase feldspar and an acidic rock containing orthoclase feldspar and quartz.**
- **Coarse sandstone. Sparse fragments up to 1.5mm across containing two or more subangular grains cemented with kaolinite.**
- **Microcline feldspar. Sparse subangular grains up to 1.0mm across**
- **Orthoclase feldspar. Sparse subangular grains up to 1.0mm across**

The groundmass consists of dark brown optically anisotropic baked clay minerals together with moderate angular quartz grains up to 0.1mm across.

Chemical Analysis

Samples of each sherd were prepared for chemical analysis by mechanical removal of all surfaces and broken edges, to a depth of at least 1.0mm and then crushing the resulting block to a fine powder. This powder was analysed at Royal Holloway College, London, using Inductively Coupled Plasma Spectroscopy (ICP-AES) under the supervision of Dr J N Walsh. The frequency of a series of major elements was measured and expressed as percent oxides (App 1) and the frequency of a series of minor and trace elements was measured and expressed in parts per million (App 2).

This data was examined using the multivariate statistics package, Winstat for Excel (). A test was carried out for each element which determined that no values lay more than 2 SD away from the element mean, indicating that the samples form a homogenous group. Means and standard deviations for each element are given in the appendices.

Silica content was estimated by subtraction of the total measured oxides from 100% and the data were then normalised to aluminium, to take account of the diluting effect of variations in silica content.

Factor analysis was then undertaken to indicate the structure of the data. Four factors were found. High Factor 1 scores are due to rare earth elements (Nd, La, Ce, Dy, Eu, Sm, Yb), manganese, calcium, strontium, vanadium, cobalt, scandium, iron and nickel. High silica values produce strong negative F1 scores. High F2 scores are due to strong Ytterbium values and strong negative F2 scores are due to zinc, lithium, lead, and chromium. A plot of F1 against F2 scores indicates that one sample, V4260, is characterised by negative F1 and F2 scores. In thin section this sample contains the lowest frequency of opaque grains and no calcareous sandstone fragments. Two samples, V4259 and V4262, have high F2 scores and negative F1 scores. In thin section these have high frequencies of opaque grains and sparse calcareous sandstone fragments. The three remaining samples, V4261, V4258 and V4263 have low F2 scores and high F1 scores. All containing high quantities of opaque grains and one, V4261, has moderate calcareous sandstone inclusions, which are sparse in the other two samples. There is, therefore, little obvious correlation between the chemical composition and petrology apart from the fact that low F1 and F2 scores correlate with the lowest frequency of opaque inclusions.

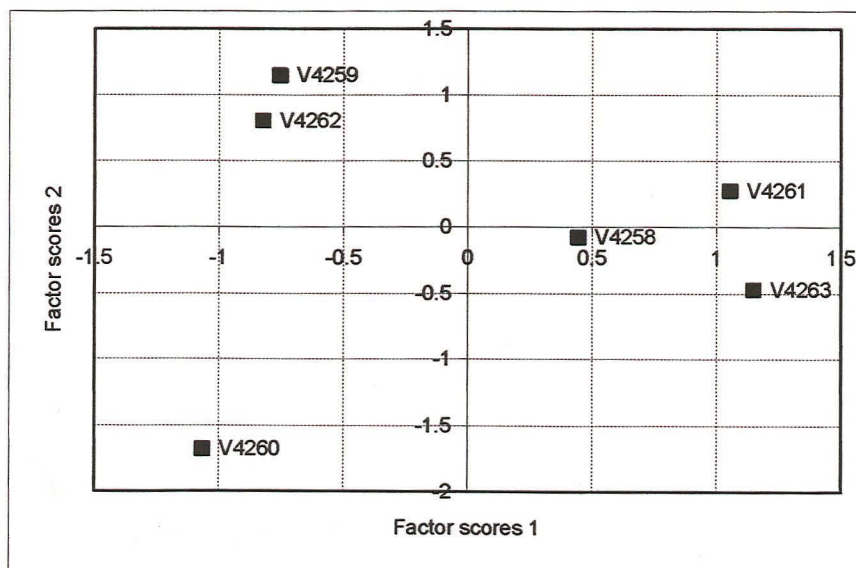


Figure 1

The Skendleby ICPS data were then compared with two other sets of Early Anglo-Saxon pottery analyses, from Dunholme and Barnetby-le-Wold. The first of these produced several fabrics, of which two are relevant, one was characterised by a coarse quartzose sand, similar to that in the Skendleby fabric, but without the opaque inclusions or calcareous sandstone whilst the second contained a mixed quartzose sand including polished quartz grains, which originate in a Lower Cretaceous deposit. The two local sources would be (a) the Lincolnshire Wolds or (b) local glacial deposits, brought south from the Yorkshire Wolds by ice and glacial outwash. The Barnetby-le-Wold pottery contains a similar range of inclusions to the Skendleby fabric: polished quartz grains; coarse-grained sandstone; basic and igneous rock fragments and calcareous sandstone. The main difference is the relative frequency of the polished quartz and coarse-grained sandstones and the lack of rounded opaque grains in the Barnetby fabric.

Comparison of the chemical composition data, normalised to aluminium to take account of variations in quartz content, indicates differences between the various groups in several elements (Table 1).

Table 1

WARE	CU	CO	YB	V	SC	CR	TIO2	NA2O	FE2O3
			HIGHER MEAN			HIGHER MEAN			HIGH MEAN
ELFEOL	LOW	HIGH		HIGH	HIGH		LOW	LOW	
ESGS	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	LOW	LOW
ESGS BLW	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW
SST	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGHER MEAN	LOW

These differences allow the Skendleby fabric to be identified through its copper, vanadium and scandium values. The Barnetby-le-Wold sample is mostly similar to the Dunholme samples rather than the Skendleby group but has high cobalt and low titanium, both Skendleby characteristics not present at Dunholme. The two sandy groups from Dunholme are mostly indistinguishable, with the exception of the

sodium values, which are higher for several of the coarse sandstone-tempered group (SST).

Discussion

The thin sections indicate that the Skendleby samples were all made from similar raw materials, a boulder clay containing a mixture of northern erratics (igneous rock and coarse-grained sandstone) and a calcareous sandstone and ferruginous oolites. The most likely source of the calcareous sandstones is the Spilsby Sandstone although calcareous sandstones outcrop in the Jurassic of northern Lincolnshire and East Yorkshire and from the small fragments present in thin section it is not possible to discount a Jurassic origin. It is therefore possible that some may be erratics although Spilsby Sandstone remains the most likely identification. Similarly, there are oolitic iron ore deposits in the Lower Jurassic of northwest Lincolnshire and East Yorkshire but the absence of these inclusions in the Barnetby-le-Wold and Dunholme samples makes a local source more likely. Two ferruginous oolitic clays outcrop locally: the Roach Formation and the Claxby Ironstone. Both outcrop as thin bands along the western scarp of the Wolds from Stenigot southwards and become more extensive as one travels south. The Roach formation in fact outcrops in the dry valley immediately southwest of Lodge Farm, although it is masked by boulder clay. Therefore, it is very likely that boulder clay in that valley will be partly composed of redeposited Roach Formation clay.

The Skendleby pottery, therefore, could well have been made very close to the site and was almost certainly produced at within a few miles of the site. This is probably also true at Barnetby-le-Wold and Dunholme, although the geological hinterland of those two sites does not allow us to pinpoint the source so closely.

These results contrast somewhat with the findings from sites in the Trent valley and around Lincoln where pottery was probably being obtained from several sources, some of which were probably not local (Young and Vince 2006). It is worth speculating whether this apparent

difference is due to a fundamental difference in the economy of these central and eastern Lindsey sites when compared with those further south-west. If so, then perhaps it is also reflected in the faunal remains and archaeobotany.

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Appendix 1

TSNO	Al ₂ O ₃	Fe ₂ O ₃	Mg O	Ca O	Na ₂ O	K ₂ O	TiO 2	P ₂ O 5	MnO
V425 8	10.51	15.5	0.97	1.67	0.19	1.92	0.35	0.44	0.03 5
V425 9	11.43	14.94	0.98	1.69	0.15	1.72	0.42	0.89	0.02 6
V426 0	13.12	7.62	0.93	1.48	0.16	1.9	0.48	0.41	0.03 7
V426 1	10.96	17.98	1.09	2.94	0.14	1.66	0.37	0.74	0.04 5
V426 2	10.76	13.73	0.92	1.64	0.16	1.69	0.38	0.62	0.02 6
V426 3	11.14	16.55	0.89	2.7	0.18	1.69	0.41	1.16	0.04
Mean	11.32	14.39	0.96	2.02	0.16	1.76	0.40	0.71	0.03
SD	0.94	3.62	0.07	0.63	0.02	0.12	0.05	0.29	0.01

Appendix 2

TSNO	Ba	Cr	Cu	Li	Ni	Sc	Sr	V	Y	Zr*	La	Ce	Nd	Sm	Eu	Dy	Yb	Pb	Zn	Co
V4258	516	173	15	41	53	14	101	548	19	79	57	130	58	13	3	5	4	33	95	21
V4259	543	166	21	47	47	14	100	476	20	79	48	107	48	10	2	3	4	45	129	17
V4260	570	91	19	42	44	13	95	205	41	83	45	130	46	9	2	4	3	21	110	20
V4261	412	162	16	37	56	16	108	672	23	88	63	138	64	13	3	5	5	37	110	22
V4262	485	160	15	41	42	13	89	438	17	77	46	102	46	9	2	3	3	64	106	16
V4263	523	176	19	39	46	14	152	549	21	75	66	142	67	14	3	5	4	35	106	19
Mean	508	155	18	41	48	14	108	481	24	80	54	125	55	11	2	4	4	39	109	19
SD	55	32	3	3	5	1	23	157	9	5	9	16	9	2	0	1	1	14	11	2

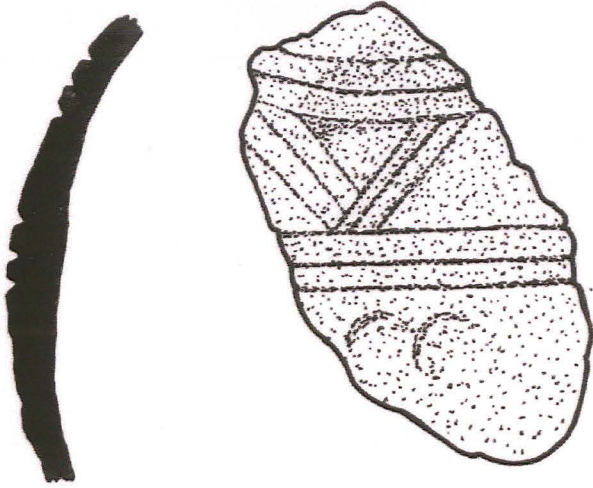
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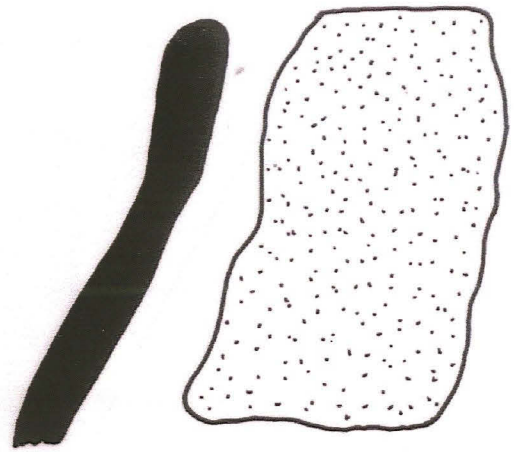
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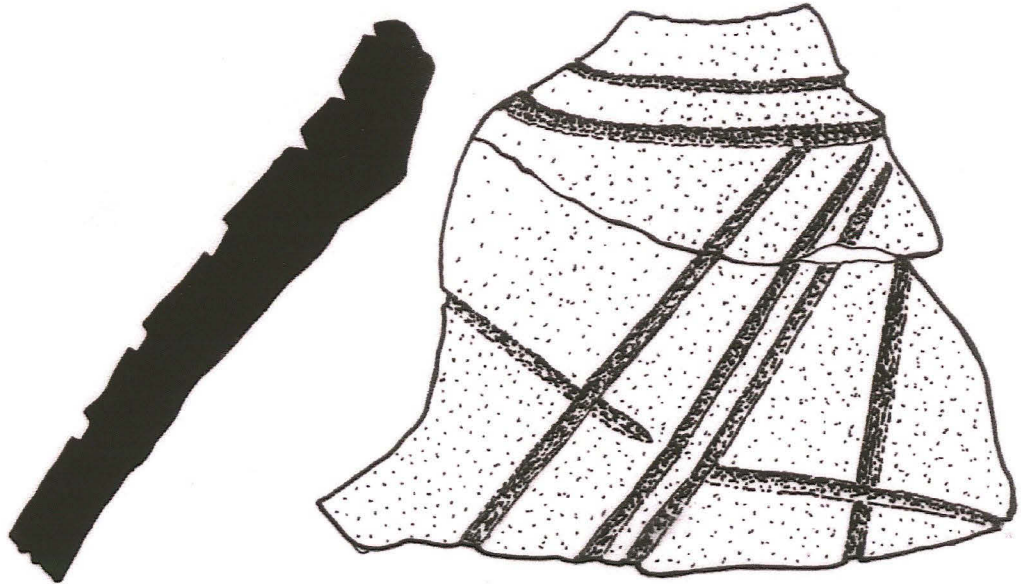
Appendix:7 Anglo-Saxon Pot Illustrations
by R Paterson



(106) body sherd of a small round vessel
orange colouration, chevron design with
finger impressions 5-7th Century AD.



(106) Rim sherd of large jar
light orange/cream fabric.



(106) body sherd of a large pot/jar scored
chevron design, dark grey fabric

(106) accessory vessel,
black gritty fabric
finger impressions on
outer base.

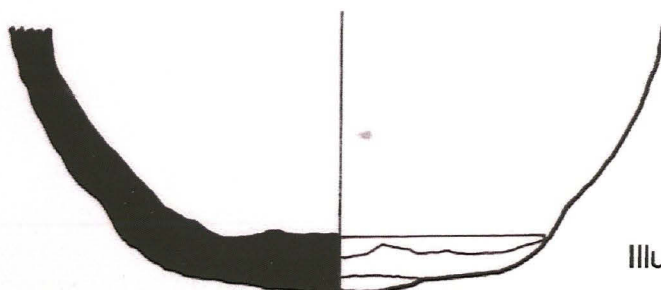


Illustration scale 1:1

Pottery Archive FSPL07

Jane Young

context	cname	sub fabric	form type	sherds	vessels	weight	decoration	part	ref no	description	date
106	ELFEOL		jar	1	1	7		rim		rounded rim	5th to 7th
106	ELFEOL	coarse	cup ?	2	1	40		base	DR 1	removed for Fabric Type Series;analyse;fairly fresh;black shiney carbonised ? Deposit	5th to 7th
106	ELFEOL	coarse + comm fe comm greensand mod shell	large jar/urn	2	1	96	3+ incised neck/shoulder lines;3 line chevron with single line	BS	DR 2	removed for Fabric Type Series;analyse;fairly fresh	5th to 6th
106	ELFEOL	+ common shell	large jar	2	1	25		rim	DR 3	Taken for Fabric Type Series;rounded rim	5th to 7th
106	ELFEOL	coarse + abundant fe	small jar	1	1	11	?? Incised dec	BS		Fabric Type Series;abraded	5th to 7th
106	ELFEOL		jar	1	1	3		BS		spalled internal surface;possibly same vessel as rim	5th to 7th
106	ELFEOL	+ shell	jar	1	1	7		BS		spalled internal surface;possibly same vessel as rim	5th to 7th
106	ELFEOL	coarse + shell	jar	1	1	3		neck			5th to 7th
106	ELFEOL	coarse	small jar	1	1	19	3 line chevron demarcated above & below by 3 horizontal lines	BS	DR 4	misfired ?;faint decoration	5th to 6th
106	ELFEOL	coarse	jar ?	1	1	10		BS			5th to 7th

context	cname	sub fabric	form type	sherds	vessels	weight	decoration	part	ref no	description	date
106	ELFEOL		?	1	1	10		base			5th to 7th
106	ELFEOL		small bowl/cup	1	1	7		rim		very abraded;possibly same vessel as base	5th to 7th
106	ELFEOL	coarse + biotite & feldspar	jar	1	1	21		BS		Fabric Type Series	5th to 7th
106	ELFEOL		large jar	3	1	47		BS		1 sherd taken for Fabric Type Series;carbonised deposit internally	5th to 7th
106	R	grog tempered	jar ?;reused as a lid ?	1	1	46		base		possibly trimmed for reuse as a lid;underneath & over ?trimmed edge sooted;untrimmed basal	Roman
106	SSTCL	fine	small jar/urn	1	1	3	horizontal incised lines;vertical solid boss/lug	BS			5th to 6th
107	ELFEOL		small bowl	1	1	7		rim		very abraded	5th to 7th
109	ELFEOL		small jar/bowl	1	1	3		BS		very abraded	5th to 7th
109	ELFEOL		small jar/bowl	1	1	4		BS		abraded	5th to 7th
u/s	GRE		side handled jar	1	1	30		HJ			mid/late 16th to 17th
u/s	GRE		jug/mug	1	1	3		BS			mid/late 16th to 17th

Palaeoecology Research Services PRS

2007/28

**Evaluation of biological remains from excavations associated with
the Fordington to Skendleby pipeline, Lincolnshire
(Job no. 332; site code: FSPL07)**

by

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Summary

Two bulk sediment samples, recovered from deposits revealed during archaeological works associated with the Fordington to Skendleby pipeline, Lincolnshire, were submitted for an evaluation of their bioarchaeological potential. The route of the pipeline ran between the locations of two known Neolithic long barrows. Evidence of land use and settlement dating from the Bronze Age through to the Romano-British period has also been recorded in close proximity to Skendleby. The submitted samples were from fills of two pits, one of which was undated and the other of probable Anglo-Saxon date.

Ancient biological remains recovered from the samples were restricted to very small assemblages of snails, traces of fine unidentified charcoal and a little bone, of no real interpretative value.

No further study of the biological remains recovered from these deposits is warranted and, on the current evidence, further excavations in this area are unlikely to encounter deposits with interpretatively valuable concentrations of biological remains.

KEYWORDS: FORDINGTON TO SKENDELBY PIPELINE; LINCOLNSHIRE; EVALUATION; ?BRONZE AGE; ROMANO-BRITISH; ANGLO-SAXON; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; LAND SNAILS; VERTEBRATE REMAINS

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Evaluation of biological remains from excavations associated with the Fordington to Skendleby pipeline, Lincolnshire (Job no. 332; site code: FSPL07)

Introduction

An archaeological evaluation associated with the Fordington to Skendleby pipeline was undertaken by Pre-Construct Archaeology (Lincoln) between the 10th and the 14th of February 2007.

The route of the pipeline ran between the locations of two known Neolithic long barrows. Evidence of land use and settlement dating from the Bronze Age through to the Romano-British period has also been recorded in close proximity to Skendleby.

Two bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an evaluation of their bioarchaeological potential.

Methods

Sediment samples

The sediment samples were inspected in the laboratory and their lithologies were recorded using a standard *pro forma*. Subsamples were taken and processed, broadly following the techniques of Kenward *et al.* (1980), for the recovery of plant and invertebrate macrofossils. Prior to processing the subsamples were disaggregated in water and their volumes recorded in a waterlogged state.

Ancient biological remains in the washovers were all preserved by charring and, after the initial inspection, they were dried for closer examination. The residues were mostly mineral in nature and were dried and weighed before being recorded.

Plant and invertebrate remains were recorded briefly by 'scanning' using a low-power microscope, identifiable taxa and other biological and artefactual components being listed on paper.

Nomenclature for plant taxa follows Stace (1997) and snails follow Kerney (1999).

Results

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample numbers.

Context 106 [fill of Pit 104 containing Anglo-Saxon pottery and possible Romano-British briquetage; also one sherd of Bronze Age pot but this was thought to be re-deposited from an earlier feature cut by this pit]

Sample 2/T (3 kg/2.5 litres sieved to 300 microns with washover; approximately 13 litres of unprocessed sediment remain)

More or less dry, mid orange to mid brown, plastic to crumbly, slightly stony (stones of 2 to 20 mm were common), slightly silty sandy clay, with some charcoal flecks present.

The medium-sized washover (~ 125 ml) was inspected briefly and then dried for closer examination. It was mostly composed of sand and stones, with a few unidentifiable fragments of charcoal (to 10 mm) and a very small assemblage of snails. The last consisted exclusively of *Cecilioides acicula* (Müller), a burrowing species and almost certainly intrusive to the deposit. Identifiable botanical remains were restricted to a single waterlogged seed of orache/goosefoot (*Atriplex/Chenopodium*); also probably a modern contaminant.

There was a small residue (0.21 kg) of stones (to 28 mm) and sand, with a little pottery (3 or 4 sherds to 19 mm; 9 g), bone (approximately 20 unidentified fragments to 29 mm; 3 g) and some lumps of undisaggregated sediment.

Context 107 [fill of Pit 105; no dating evidence available]

Sample 1/T (3 kg/2.5 litres sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

More or less dry, dark orange to mid brown, plastic to crumbly, slightly stony (stones of 2 to 20 mm were common), slightly silty sandy clay, with some charcoal flecks present.

The dry washover (~125 ml) was mostly of undisaggregated sediment lumps and modern rootlets, with a few fine fragments of charcoal (to 5 mm) and waterlogged seeds of orache/goosefoot – the last probably modern. In addition, there was a small assemblage of land snails, including remains representing a large number of *Cecilioides acicula*, four *Vallonia excentrica* Sterki, one *Cochlicopa lubrica* (Müller), one apex fragment of *Oxychilus cellarius* (Müller) and three *Pupilla muscorum* (L.) (two of these last were juveniles). There were also many unidentified shell fragments.

There was a tiny residue (0.17 kg) of sand and stones (to 23 mm), with some undisaggregated sediment lumps, bone (ten unidentified fragments to 15 mm; 2 g) and pottery (one sherd to 14 mm; ~1 g).

Discussion and statement of potential

Ancient biological remains recovered from the subsamples were restricted to very small assemblages of snails, traces of fine unidentified charcoal and a little unidentified bone. Each of the contexts also yielded a few waterlogged seeds of orache/goosefoot but these were almost certainly modern contaminants. The remains of the burrowing land snail *C. acicula* were also probably modern intrusions, but the small number of other snails present in Context 107 were more likely contemporaneous with the formation of the deposit. They were too few for detailed interpretation but hinted that the surrounding landscape was only lightly vegetated (*Vallonia* species favour such habitats), perhaps with some areas of exposed rock (*Pupilla muscorum*).

Small quantities of charcoal were present in each sample, sufficient for radiocarbon dating (via accelerator mass spectrometry), but not suitable for this purpose as the species and age of the wood prior to charring were indeterminate and hence would return a date with a potentially large, and more importantly unknown, error.

On the evidence of the current samples, further excavations in this area are unlikely to encounter deposits with interpretatively valuable concentrations of biological remains.

Recommendations

No further study of the biological remains recovered from these deposits is warranted.

Retention and disposal

Unless required for purposes other than further study of the biological remains, all of the material may be discarded.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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