ARCHAEOLOGICAL EVALUATION REPORT:

TRIAL TRENCHING ON LAND OFF GAINSBOROUGH ROAD, LEA, LINCOLNSHIRE

Planning Reference: 133236
NGR: SK 8330 8619
AAL Site Code: LEGR 15
Museum Accession Number: LCNCC: 2015.115
OASIS Reference Number: allenarc1- 251613

Report prepared for Grace Machin Planning and Property

By
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Element:	**Name:**	**Date:**
Report prepared by:	Maria Piirainen	26/01/2016
Illustrations prepared by:	Aaron Chapman & Maria Piirainen	25/01/2016
Report edited by:	Chris Clay BA MA (Hons)	26/01/2016
Report reviewed by:	Chris Clay BA MA (Hons)	26/01/2016
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Cover image: General view of site, looking south

Executive Summary

- Allen Archaeology Ltd was commissioned by Grace Machin Planning and Property to undertake an archaeological evaluation by trial trenching on land off Gainsborough Road, Lea, Lincolnshire in support of a planning application for a proposed residential development.

- The site lies in an area of archaeological interest, with evidence for prehistoric and Roman activity in the vicinity. Geophysical survey of the site identified a number of possible linear features and enclosures, as well as evidence for modern ploughing, and a fieldwalking and metal detecting survey recorded a low density of material typical of post-medieval and later manuring.

- Twelve trenches measuring 50m long were excavated on the site, targeted on areas of potential archaeological interest identified by the geophysical survey. Seven of the trenches were devoid of archaeological features. The remaining trenches identified a small number of linear features, some of which produced a small assemblage of locally produced Roman pottery. This activity was focussed around Trenches 3 and 4 towards the western side of the site. Linear features containing small quantities of medieval material were recorded in Trenches 5 and 8, with that in Trench 8 relating to a boundary feature present on 19th and 20th century Ordnance Survey mapping. Another undated feature was recorded in Trench 10.

1.0 Introduction

1.1 Allen Archaeology Limited was commissioned by Grace Machin Planning and Property to undertake an archaeological evaluation by trial trenching on land off Gainsborough Road, Lea, Lincolnshire in support of a planning application for a proposed residential development.

1.2 All fieldwork and reporting has been undertaken in line with the recommendations of the Chartered Institute for Archaeologists '*Standard and guidance for archaeological field evaluations*' (CIfA 2014), the English Heritage document '*Management of Research Projects in the Historic Environment*' (English Heritage 2006), and a specification produced by this company (AAL 2015a).

1.3 The documentary and physical archive will be submitted to The Collection Museum in Lincoln where it will be stored under the museum accession code LCNCC: 2015.115. The agreed date of deposition is in December 2016.

2.0 Site Location and Description

2.1 The site is situated in the administrative district of West Lindsey, on land east of Gainsborough Road (A156), immediately south of Lea, Gainsborough, Lincolnshire. The site extends to 17.9ha of agricultural land that centres on NGR SK 8330 8619.

2.2 In parts the eastern side of the site borders Willingham Road (B1241). The village of Lea is situated immediately north of the site, with Gainsborough located approximately 3km to the north. The River Trent flows approximately 0.7 km to the west, with a land drainage system occupying much of the land between the two. The site is situated within a rural environment surrounded by open fields.

2.3 The bedrock geology comprises Mercia Mudstone, with a superficial geology of glaciofluvial deposits of mid-Pleistocene sand and gravel, resulting from Ice Age moraine deposits, with seasonal and postglacial outwash (http://mapapps.bgs.ac.uk/geologyofbritain/home.html).

3.0 Planning Background

3.1 An outline planning application has been submitted for the construction of 450 new dwellings on land off Gainsborough Road, Lea, Lincolnshire (Reference 133236). Prior to the determination of the application the Historic Environment Team at Lincolnshire County Council has advised for a scheme of non-intrusive and intrusive archaeological investigation in order to provide further information concerning the archaeological potential of the proposed development area. This will allow the planning authority to establish appropriate measures to mitigate the effect of the proposed development upon the potential archaeological resource. A programme of desk-based assessment (AAL 2015b) and geophysical survey, fieldwalking and metal detecting (AAL 2015c) has already been undertaken.

3.2 The approach adopted is consistent with the recommendations of the National Planning Policy Framework (NPPF), with the particular chapter of relevance being 'Chapter 12: Conserving and enhancing the historic environment' (Department for Communities and Local Government 2012).

4.0 Archaeological and Historical Background

4.1 This is a brief summary of an archaeological desk-based assessment (AAL 2015b) previously prepared for the site which provides a detailed account of the known archaeological resource for the surrounding landscape.

4.2 There is extensive evidence for prehistoric activity in the vicinity of the site comprising flint scatters, metal working evidence and possible enclosure cropmarks. Roman activity is also well represented with numerous pottery kilns recorded nearby, as well as further finds scatters.

4.3 Physical evidence for Anglo-Saxon activity is very sparse, although documentary evidence suggests settlement activity around Lea and Knaith at this time. The area was dominated by deer parks and manorial land holdings during the medieval periods and evidence from the area around the site includes settlement earthworks, ridge and furrow cropmarks and isolated finds.

4.4 The post-medieval and early modern periods are generally represented by extant historic buildings in the village cores of Lea and Knaith, as well as dispersed farmsteads in the surrounding landscape. Historic map evidence indicates that the site was agricultural land and woodland up to the present day.

4.5 Overall, the archaeological potential for the site was considered in the desk-based assessment to be moderate, with the potential being greatest for prehistoric and Roman activity.

4.6 A geophysical survey, fieldwalking and metal detecting survey of the proposed development area has been undertaken (AAL 2015b). The geophysical survey identified a small number of linear anomalies of potential archaeological interest, comprising two possible truncated enclosures and a number of linear boundary features. Evidence for recent land drainage, modern ploughing and dumped detritus around the field margins was also identified.

4.7 The metal detecting and fieldwalking identified a low density scatter of material, mainly of a post-medieval to early modern date, representing manuring of agricultural fields with domestic waste. The earliest material recovered comprised a sherd of medieval pottery, a sherd of medieval tile and a very worn silver half-penny of Henry VII.

5.0 Methodology

5.1 The trial trenching methodology entailed the excavation of twelve trenches, each measuring 50m long by 1.8m wide, targeted on the results of the geophysical survey. The positions of Trenches 8 and 12 were altered during the works due to their proximity to overhead cables running across the site.

5.2 The fieldwork was undertaken by a team of experienced field archaeologists over a period of approximately six working days, commencing on Monday 14th December 2015.

5.3 The trenches were accurately located using a Leica GS08 RTK NetRover GPS. In each trench, topsoil, subsoil and underlying non-archaeological deposits were removed by mechanical excavator with a toothless ditching bucket in spits no greater than 0.1m in thickness. The process was repeated until the first archaeologically significant or natural horizon was exposed. All further excavation was undertaken by hand.

5.4 A full written record of the archaeological deposits was made on standard AAL context recording sheets. Archaeological deposits were drawn in plan and section at an appropriate scale (1:20 and

1:50), with OD heights being displayed on each class of drawing. Colour photography formed an integral part of the recording strategy, with photographs incorporating scales, an identification board and directional arrow as appropriate.

5.5 All finds of all classes were collected, with the spoil from the excavated trenches being examined for further artefact recovery. Finds collected during the fieldwork were bagged and labelled with the appropriate deposit context number. All finds were processed (cleaned, marked and labelled as appropriate) at the offices of AAL, prior to assessment by approved specialists.

5.6 Each deposit, layer or cut was allocated a unique identifier (context number), and accorded a written description, a summary of these are included in Appendix 6. Three digit numbers within square brackets reflect cut features (e.g. ditch [302]).

6.0 Results *(Figures 2 - 7)*

6.1 Throughout the site the stratigraphic sequence was broadly consistent, comprising a mid-greyish brown silty sand 0.30 – 0.48m thick, and sealing a brownish grey silty sand subsoil, over the natural geology of orange brown to reddish brown sandy clay.

6.2 Of the twelve trenches excavated, seven proved to be devoid of archaeological features or deposits, this includes trenches 1, 2, 6, 7, 9, 11 and 12. A fragment of iron slag was recovered from the topsoil in Trench 1 and another from the subsoil in Trench 2, along with three sherds from a large late medieval jug from the subsoil in Trench 1 dating to mid-15th – mid 16th century. A fragment from a 13th – 14th century jug handle was found within subsoil, 602, in Trench 6.

Trench 3 (Figure 3)

6.3 Three ditches [302], [306] and [308] were recorded in Trench 3, cutting the natural geology 301, with ditch [308] representing a recut of ditch [306]. All features were aligned northwest to southeast and had moderately steep sides and a concave base. All the features contained single reddish brown natural silting deposits. Fill 303 of [302] produced 21 sherds of late 1st to 2nd century Roman pottery as well as an intrusive small fragment of 16th-17th century pottery (Plate 1, Figure 3). Soil samples from ditches [302] and [308] were very limited in environmental evidence, containing sparse coal and charcoal, likely to be the result of modern contaminants from bioturbation, post-medieval manuring and early modern steam ploughing (see Appendix 5).

6.4 A further small narrow irregular feature [304] was exposed at the west end of the trench and is likely to represent a natural feature, such as tree rooting and/or animal burrow. A single sherd of Roman pottery was recovered from the fill.

Plate 1: Northwest facing section of ditch [302]. Scale 1m

Plate 2: Northeast facing section of ditches [306] and [308]. Scale 1m

Trench 4 (Figure 4)

6.5 At the south end of the trench was a narrow and shallow, east to west aligned ditch [423] which contained an undated fill of soft and dark grey sandy silt, 424.

Plate 3: West facing section of ditch [423]. Scale 1m

6.6 Towards the centre of the trench was a group of contemporary linear features [group 426] (includes cuts [405], [406], [403], [416] and [425]) comprising a linear feature aligned north to south, with three linears extending to the east. A thin lens of sandy silt, 419, covered the north end of this ditch group. All these features were devoid of finds.

Plate 4: South facing section of [416] part of group [426]. Scale 1m

6.7 On the east side of [426] was a shallow circular pit [408] surviving to a depth of 0.12m, it too was undated.

Plate 5: South facing section of pit [408]. Scale 0.1m

6.8 The only feature which contained any pottery in this trench was the broadly east to west aligned ditch [411] just to the north of layer 419. It measured 2.8m wide and was filled with seven distinct silting deposits; 412 – 415 and 420 - 422. A single sherd of Roman pottery was found within the secondary deposit, 413. A soil sample from this layer contained frequent charcoal and coal, potentially representing modern contaminants.

Plate 6: West facing section of ditch [411]. Scale 2m

Trench 5 (Figure 5)

6.9 The natural geology in Trench 5 was cut by a single shallow north to south aligned ditch [502]. A sherd from a 14th – mid 16th century jug handle was found within its fill 503, as well as three fragments of tile of a probable medieval to post-medieval date, and a residual flint flake.

Plate 7: North facing section of [502]. Scale 1m

Trench 8 (Figure 6)

6.10 Towards the west end of Trench 8 was a broadly north to south aligned, shallow ditch [803]. The fill, 802, contained traces of indeterminate cereal grains, charred roots and fired clay. A single sherd of roof tile dating to the 12th – 14th century was recovered along with fifteen fragments of eroded slag, which probably originates from a single large fragment.

Plate 8: South facing section of [803]. Scale 1m

6.11 The overlying subsoil 801 contained nineteen fragments of residual Roman pottery. It was cut by a post-medieval drain towards the east end of the trench, which was sealed by topsoil 800. This feature corresponded with a linear boundary feature recorded on historic maps at least until 1970.

Trench 10 (Figure 7)

6.12 A single undated northeast to southwest aligned ditch [1003] was uncovered in Trench 10. It was directly sealed by subsoil 1001 and topsoil 1000.

Plate 9: General trench shot, looking southwest, showing [1003] in plan. Scales 1m and 2m

7.0 Discussion and Conclusions

7.1 Trial trenching has identified a number of features and deposits throughout the site, although several of the trenches (Trenches 1, 2, 6, 7, 9, 11 and 12) did not expose any evidence of archaeological activity. Geophysical anomalies were targeted by these trenches, although it is likely that most of these anomalies were actually the result of geological variation (for example in Trenches 1 and 2), or modern ploughing (such as in Trenches 9 and 11).

7.2 The earliest dated archaeological activity comprised a ditch producing a small group of Roman pottery in Trench 3. Two other ditches in this trench, although undated, may be contemporary, given their shared alignment, profile, and fills. Unsurprisingly, the Roman pottery assemblage was very similar in appearance to the product of nearby kilns known at Lea and Knaith. The generally low density of finds recovered from the features suggests they are more likely to be boundary features for fields or stock enclosures, rather than a focus of settlement or industrial activity.

7.3 A further complex of ditches was recorded in Trench 4, although these were largely undated, with one ditch containing a single sherd of Roman pottery, which is insufficient to make any firm conclusions about the date or nature of this activity.

7.4 Other dated features comprised a small medieval feature in Trench 5, and another ditch in Trench 8, tentatively dated to the medieval period by a single fragment of tile. The feature in Trench 8

broadly corresponds to a linear boundary shown on the 1888 Ordnance Survey map, but absent from later editions.

7.5 It was noted that the features exposed did not always correspond to geophysical anomalies. The reason for this is unclear but it is possible that the ditch fills, generally being natural silting deposits with very limited cultural material with a similar magnetic signature to the surrounding parent geology to be detectable. It was also noted from the soil samples that there was substantial evidence for modern contaminants within the feature fills, likely to be as a result of nightsoiling, recent steam ploughing and natural bioturbation.

8.0 Effectiveness of Methodology

8.1 The evaluation methodology was appropriate to the scope of the proposed development. It has identified areas of negligible archaeological potential and areas of some archaeological interest. There was not a close correspondence between the results of the geophysical survey and the trial trenching on this site, due a number of possible reasons (see section 7.0 above). Site conditions during the evaluation trenching, with a high water table and poor weather may also have contributed to some more ephemeral archaeological features not being identified.

9.0 Acknowledgements

9.1 Allen Archaeology would like to thank Grace Machin Planning and Property for this commission. Ken Wood and Sons are thanked for providing plant and operator for trench excavation and backfilling.

10.0 References

AAL, 2015a, Specification for an archaeological evaluation by trial trenching: Land off Gainsborough Road, Lea, Lincolnshire, Allen Archaeology Limited unpublished planning document

AAL, 2015b, *Archaeological Desk-Based Assessment: Land off Gainsborough Road, Lea, Gainsborough, Lincolnshire*. Unpublished Allen Archaeology Limited report no. AAL2015055

AAL, 2015c, *Archaeological Evaluation Report: Geophysical Survey by magnetometer, fieldwalking and metal detecting: Land off Gainsborough Road, Lea, Gainsborough, Lincolnshire*. Unpublished Allen Archaeology Limited report no. AAL2015136

CIfA, 2014, *Standard and guidance for archaeological field evaluations*, Chartered Institute for Archaeologists, Reading

Department for Communities and Local Government, 2012, *National Planning Policy Framework*, Department for Communities and Local Government, London

LCC, 2012, *Lincolnshire Archaeological Handbook: a manual of archaeological practice*. Lincoln, Lincolnshire County Council, Built Environment Dept.

Appendix 1: Roman Pottery Report

By Ian M. Rowlandson

Twenty-four sherds (228g, RE0) dating from the Roman period were presented for study. Little of the material could be closely dated but context 303 contained pottery of the later 1st to 2nd century AD. All of the pottery was similar to the products of the local 'Trentside' kilns at Lea and Knaith (Palmer-Brown and Field 1991, Samuels 1983).

An archive has been produced to comply with the requirements of the Study Group for Roman Pottery (Darling 2004) using the codes and system developed by the City of Lincoln Archaeological Unit (Darling and Precious 2014). GREY was used to denote the standard local 'Trentside' sandy grey ware fabric, GRFF was a finer variant and the IAGR fabric was the typical local native tradition 'Trent valley wares' including grog/ clay pellets and quartz. A tabulated summary by context and a sherd archive are presented below (Table 1.1 and 1.2). The dates provided represent the pottery recorded here: the main text of the report and other specialist contributions should be consulted to ascertain the overall date attributed to each context.

It is recommended that this pottery should be deposited with the relevant local museum along with the rest of the archive.

LEGR15- Dating summary					
Context	**Spot date**	**Comments**	**Sherd**	**Weight (g)**	**Total RE %**
303	L1-2	A small group including grey ware and native tradition wares.	21	202	0
305	Roman	A grey ware base.	1	22	0
413	Roman?	A single grey ware sherd.	1	1	0
U/S	Roman	A single grey ware sherd.	1	3	0

Table 1.1: Roman pottery dating summary

LEGR15- Sherd data											
Context	**Fabric**	**Form**	**Decoration**	**Vessels**	**Alt**	**Drawing**	**Comments**	**Join**	**Sherd**	**Weight**	**Rim diam**	**Rim eve**
303	GREY	CLSD		1			BS		1	23	0	0
303	GRFF	J		1			BS HIGH SHLDR		7	47	0	0
303	IAGR	-		1	ABR		BS		10	63	0	0
303	IAGR	-		1			BS; OX/R		3	69	0	0
305	GREY	CLSD		1			BASE FTG		1	22	0	0
413	GREY?	-		1			BS		1	1	0	0
801	GREY	JEV		1	CONCRETION		RIM; HIGH SHLDR		1	22	20	7
801	GREY	-		11	ABR		BS		11	61	0	0

LEGR15- Sherd data											
Context	**Fabric**	**Form**	**Decoration**	**Vessels**	**Alt**	**Drawing**	**Comments**	**Join**	**Sherd**	**Weight**	**Rim diam**	**Rim eve**
801	GREY	CLSD		1			BS		6	32	0	0
801	IAGR	-		1	VAB		BS		1	10	0	0
U/S	GREY	-		1	VAB		BS		1	3	0	0

Table 1.2: Roman pottery sherd data

References

Darling, M.J., 2004, Guidelines for the archiving of Roman Pottery. *Journal of Roman Pottery Studies* 11, 67-74.

Darling, M.J. and Precious, B.J., 2014, *Corpus of Roman Pottery from Lincoln*, Lincoln Archaeological Studies No. 6, Oxbow Books, Oxford

Field F. N. & Palmer-Brown, C. P. H., 1991, New evidence for a Romano-British greyware pottery industry in the Trent Valley, Lincolnshire Hist Archaeol, 26, 40-56

Samuels, J., 1983, The Production of Roman Pottery in the East Midlands, Unpublished PhD, Nottingham University

Appendix 2: Post-Roman Pottery Report

By Jane Young

Introduction

A small group of six Post-Roman pottery sherds and four tile fragments recovered from the evaluation were examined for this report. The assemblage ranges in date from the medieval to the post-medieval periods. The material was examined both visually and where necessary using a x20 binocular microscope, then recorded using the fabric codenames (CNAME) of the City of Lincoln Archaeology Unit. The assemblage was quantified by three measures: number of sherds/fragments, vessel count and weight and the resulting archive entered onto an Access database (pottery archive and ceramic building material archive). Recording of the assemblage was in accordance with the guidelines laid out in Slowikowski, *et al.* (2001), the Archaeological Ceramic Building Materials Group (2001) and complies with the Lincolnshire County Council's *Archaeological Handbook* (sections 13.4 and 13.5).

Condition

The material is in a variable condition although most pieces are in a slightly abraded to abraded condition with fragment size varying from small (1 gram) to large (145 grams). The material is in a stable condition.

The range and variety of materials

In total six sherds representing four vessels weighing 490 grams and four tile fragments of 31grams weight were examined. A range of four identifiable post-Roman pottery ware types were identified; the type and general date range for these fabrics are shown in Table 2.1. The post-Roman pottery ranges in date from the medieval to post-medieval periods and includes Lincolnshire-produced and regionally imported vessels.

Codename	Full name	Earliest date	Latest date	Total sherds	Total vessels	Total weight in grams
BERTH	Brown glazed earthenware	1550	1800	1	1	6
HUMB	Humber Basin fabrics	1250	1500	1	1	11
NLFMSW	North Lincolnshire Fine to Medium Sandy ware	1150	1450	1	1	103
PNR	Flat roof tile	1150	2000	4	4	31
TOYII	Toynton Late Medieval ware	1450	1550	3	1	343

Table 2.2: Ceramic types with total quantities by sherd and vessel count

The pottery

In Trench 1 layer 101 produced three large sherds from a large Late Medieval Toynton-type (TOYII) jug. These vessels date to between the mid-15th and mid-16th centuries but are most commonly found in deposits dating to the first half of the 16th century. The fairly fresh condition and size of the sherds could indicate primary deposition. A small sherd from a Brown-glazed Earthenware (BERTH) jug or jar of late 16th to mid-17th century date was recovered from linear feature 302 in Trench 3. The fabric suggests a Humber Basin provenance. Linear feature 502 in Trench 5 contained a handle sherd from a jug of 14th to mid-16th century type. The fabric is consistent with a Humber Basin source (HUMB). Another handle sherd found in layer 602 in Trench 6 is of North Lincolnshire Fine to Medium Sandy ware type (NLFSW). The rod handle comes from a jug of 13th to 14th century type.

The tile

Four tile fragments are from flat roof tile of medieval to post-medieval type. Two tiny flakes and a small fragment from flat roof tiles in an oxidised sandy fabric (PNR) were recovered from linear feature 502 in Trench 5. The fragments are un-diagnostic and could come from tiles of 13th to 18th century date. Linear feature 803 in Trench 8 produced a small fragment from a flat roof tile in a reduced fine to medium sandy fabric. The tile has been fired to a near-vitrification point. The manufacture of this tile suggests a mid-12th to 14th century date.

Summary and recommendations

This is a small group of medieval to post-medieval material suggesting background activity. The coarsewares are typical for the area. Only the large sherds from the Late Medieval Toynton-type bunghole jug in Trench 1 are likely to represent primary discard.

Two tile flakes have been discarded otherwise the assemblage should be kept for future study.

References

2001, Draft Minimum Standards for the Recovery, Analysis and Publication of Ceramic Building Material, third version [Internet]. Available from <http://www.geocities.com/acbmg1/CBMGDE3.htm>

Lincolnshire Archaeological Handbook 2009 edition [Internet]. Available from http://www.lincolnshire.gov.uk/upload/public/attachments/1073/Archaeological_Handbook.pdf

Slowikowski, A.M., Nenk, B. and Pearce, J. 2001. *Minimum standards for the processing, recording, analysis and publication of post-Roman ceramics*. Occasional paper 2. London: Medieval Pottery Research Group.

Pottery Archive

Context	Cname	Sub fabric	Form type	Sherds	Vessels	Weight	Part	Description	Date
101	TOYII		large bunghole jug	3	1	343	base & bunghole	Plain bung; rim stacking scar on underside of base	Mid-15th to mid-16th
303	BERTH	Humber type	jug/jar	1	1	6	BS	Int & ext glaze	late 16th to mid-17th
503	HUMB	oxid med sandy	jug	1	1	11	handle	Abraded; grooved oval handle	14th to mid-16th
602	NLFMSW		jug	1	1	103	handle	Abraded; rod handle;2 upper handle pressings; reduced glaze	13th to 14th

Ceramic building material archive

Context	Cname	Fabric	Frags	Weight	Action	Description	Date
503	PNR	fine-med oxid sandy	1	1	discarded	flat roofer ?; small flake	13th to 18th
503	PNR	fine-med oxid sandy	1	3	discarded	flat roofer ?; small flake	13th to 18th
503	PNR	fine-med oxid sandy	1	12		flat roofer	13th to 18th
802	PNR	reduced fine-med sandy	1	15		flat roofer; near vitrified	Mid-12th to 14th

Appendix 3: Lithic Report

By Joshua T. Hogue

A single piece was recovered from context 503 during trial trenching on land off Gainsborough Road, Lea, Lincolnshire. It is the remnant of a notched piece made on dark greyish-brown flint. It is the distal end of a blank with evidence of a retouched notch formed by semi-abrupt removals along left margin. It is probable that the formation of the notch is semi-contemporaneous with the break and might have caused the break itself. Nonetheless, this piece does not appear to be a failed attempt at utilising the microburin technique. Based on the dorsal scar patterns it appears that the piece was struck from a single platform core, although due to the absence of the proximal end the method of percussion cannot be established. It does not appear to have been rolled, although there is some microchipping along the margins consistent with post-depositional damage. It measures 18.5mm in width and 4.5 mm in thickness. The piece is not closely datable, but technological attributes indicate that is probably later Prehistoric.

Appendix 4: Slag Report

By Mike Wood BA (hons) MLitt MClfA

Introduction
Twenty-two fragments of slag weighing 8.53kg were recovered during an archaeological evaluation on land at Gainsborough Road, Lea.

Methodology
The material was counted and weighed in grams, then examined visually to identify any diagnostic pieces and the overall condition of the assemblage. A summary of the material is recorded in Table 4.1.

Assemblage

Context	Material	Date	No	Wt (g)	Comments
101	Slag	Undated	2	120	Very abraded iron smelting slag
200	Slag	Undated	4	600g	Abraded iron smelting slag retaining frequent charcoal impressions and traces of naturally occurring silica.
303	Coal	Modern	1	1	Fragment of coal - discard
309	Clinker	Undated	1	1	discard
401	Slag	Undated	1	7.8kg	Very large and abraded fragment of iron smelting slag retaining frequent charcoal impressions.
802	Slag	Undated	15	10g	Small sandy lumps of eroded slag and natural material, presumably from a fragment of broken smelting slag.

Table 4.1: Slag

Discussion

The assemblage comprised a small group of furnace slag related to iron production of uncertain date. Unfortunately the majority of the material was derived from topsoil or subsoil with only the small quantity of slag from context 802 actually from a cut feature, which was undated at the time of writing.

As such there is little to be said beyond the likely presence of an iron smelting furnace relatively near trenches 1, 2 and 3 as such large fragments of slag are unlikely to have travelled too far. The small fragments in Trench 8 are small enough to have travelled some distance and heavily eroded and were likely dumped into a convenient open feature.

Recommendations for further work
No further work is recommended and the material is in a stable condition. The slag could be archived, returned to the landowner or donated to a slag reference collection. The coal and clinker should be discarded.

Reference
English Heritage, 2011, *Pre-industrial Ironworks*, English Heritage

Appendix 5: Environmental Report

By Val Fryer

Introduction and method statement

Evaluation work at Lea, undertaken by Allen Archaeology, recorded a limited of number of features, few of which were securely dated at the time of excavation. However, prehistoric, Roman, medieval and later activity is recorded within the immediate vicinity. Samples for the evaluation of the content and preservation of the plant macrofossil assemblages were taken from fills within four ditches and a linear feature, and five were submitted for assessment.

The samples were processed by manual water flotation/washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Table 5.1. All plant remains were charred. Modern roots and seeds were also recorded.

The non-floating residues were collected in a 1mm mesh sieve and will be sorted when dry. Any artefacts/ecofacts will be retained for further specialist analysis.

Results

Although comminuted charcoal/charred wood fragments are present within all five assemblages, other plant macrofossils are exceedingly scarce. Fragmentary indeterminate cereal grains are recorded from linear [304] (sample 1) and ditch [803] (sample 5), and small pieces of charred root/stem are also present, but no further plant remains are noted (table 5.1). The black porous and tarry residues are distinctly hard and brittle, and it would appear most likely that all are bi-products of the combustion of coal, small pieces of which are also present within three of the five assemblages. Although such material could be contemporary with the features from which the samples were taken (particularly if the contexts are of Roman or post-Roman date), it is thought most likely that all are modern contaminants, probably introduced via the post-depositional bioturbation of the deposits. Similar remains are often recorded where night soil was deposited during the post-medieval period or where steam ploughs were used on the land during the early modern era.

Conclusions and recommendations for further work

In summary, the current assemblages are extremely small (i.e. <0.1 litres in volume) and very limited in composition. The few remains which are recorded are almost certainly derived from scattered refuse, but it is unclear how much of this material is relatively modern in origin as opposed to being of archaeological import. However, as charred plant remains are present within the archaeological horizon, it is suggested that if further interventions are planned, additional plant macrofossil samples of 20 – 40 litres in volume could be taken from features which are both well-sealed and fixed within the sites stratigraphic sequence. Within this brief, special emphasis should be placed on the sampling of features which are directly associated with any focus of domestic, agricultural or pastoral activities, where these can be identified.

Key to Table

x = 1 – 10 specimens xx = 11 – 50 specimens xxx = 51 – 100 specimens

fg = fragment cf = compare ss = sub-sample

Sample No.	**1**	**2**	**3**	**4**	**5**
Context No.	**305**	**303**	**309**	**413**	**802**
Feature No.	**304**	**302**	**308**	**411**	**803**
Feature type	**Linear**	**Ditch**	**Ditch**	**Ditch**	**Ditch**
Plant macrofossils					
Cereal indet. (grains)	xfg				xcffg
Charcoal <2mm	x	x	x	xxx	x
Charcoal >2mm	x	x		xx	
Charcoal >5mm				x	
Charred root/stem	x			x	x
Mineral replaced root channels					xx
Other remains					
Black porous 'cokey' material	x	xxx	xx	x	
Black tarry material	x	x			
Burnt/fired clay	x			x	x
Small coal frags.	x	xx	x		
Small mammal/amphibian bone			x		
Mollusc shells					
Woodland/sahde loving species					
Discus rotundatus				x	
Catholic species					
Trichia hispida group			x		
Sample volume (litres)	**15ss**	**15ss**	**20**	**15ss**	**15ss**
Volume of flot (litres)	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
% flot sorted	**100%**	**100%**	**100%**	**100%**	**100%**

Table 5.1

Appendix 6: Context Summary List

Trench 1

Context No	Type	Description	Interpretation
100	Layer	Mid greyish brown silty sand, occ. charcoal flecks. 0.30m thick. Seals 101.	Topsoil
101	Layer	Mid greyish brown silty sand, occasional iron panning 0.20m thick. Seals 102, sealed by 100.	Subsoil
102	Layer	Light brownish grey sand. No inclusions. 0.10m+ thick. Sealed by 101.	Natural

Trench 2

Context No	Type	Description	Interpretation
200	Layer	Mid greyish brown silty sand. Occasional sub-angular flint. 0.36m thick. Seals 201.	Topsoil
201	Layer	Mid brownish grey silty sand. 0.24m thick. Seals 202, sealed by 200.	Subsoil
203	Layer	Mid orangey brown sand. 0.10m+ thick. Sealed by 201.	Natural

Trench 3

Context No	Type	Description	Interpretation
300	Layer	Mid greyish brown silty sand, occasional sub angular stones. 0.30m thick. Seals 303, 305 and 309	Topsoil
301	Layer	Red clay. 0.10m+ thick. Cut by [302], [304] and [306]	Natural geology
302	Cut	Linear, mod steep sloping sides, uneven base. 1.80m wide, 0.58m deep. Contains 303, cuts 301.	Ditch
303	Fill	Loose mid reddish brown silty sand. Frequent mid-large sub angular and rounded flint. 1.80m wide, 0.58m thick. Sealed by 300	Fill of [302]
304	Cut	Linear, steep concave sides, flat to concave base. 1.00m wide, 0.24m deep. Contains 305, cuts 301.	Hedgerow or natural feature
305	Fill	Loose reddish brown sandy clay. 1.00m wide, 0.24m thick. Sealed by 300	Fill of [304]
306	Cut	Linear, orientated NW-SE, moderate to steep sides, concave base. 0.56m wide, 0.30m deep. Contains 307, cuts 301.	Ditch
307	Fill	Friable mid brownish red sandy clay, occasional charcoal. 0.56m wide, 0.30m thick. Cut by [308]	Fill of [307]
308	Cut	Linear, orientated NW-SE, moderate to steep sides, concave base. 1.06m wide, 0.46m deep. Contains 309, cuts 307	Ditch
309	Fill	Friable mid reddish brown sandy clay. Occasional. charcoal and rounded stones. 0.46m wide, 1.80m thick. Sealed by 300	Fill of [308]

Trench 4

Context No	Type	Description	Interpretation
400	Layer	Mid greyish brown silty sand. 0.30m thick. Seals 401.	Topsoil
401	Layer	Light brownish grey silty sand. 0.30m thick. Seals Sealed by 400, seals 407, 404, 419, 422, 409 and 424	Subsoil
402	Layer	Light yellowish brown sand. 0.04m+ thick. Cut by [405], [406], [403], [425], [416], [411], [408] and [423]	Natural geology

Context No	Type	Description	Interpretation
403	Cut	Linear, orientated N-S, moderately steep side, concave base. 1.00m wide, 0.20m deep. Contains 404, cuts 402	Ditch, contemporary/same as [425]. Part of group 426
404	Fill	Friable dark grey silty sand, occasional charcoal. 0.20m thick. Sealed by 401	Fill of [403] and [425]
405	Cut	Curvilinear, orientated N-S. Gradually sloped sides, flat base. 0.14m deep. Contains 407, cuts 402	Ditch, contemporary with/same as [406] and [425]. Part of group 426
406	Cut	Curvilinear, orientated E-W. Gradual sides, flat base. 0.05m deep. Contains 407, cuts 402	Ditch, contemporary with/same as [405], [425]. Part of group 426
407	Fill	Friable dark grey silty sand, occasional charcoal. 0.14m thick. Sealed by 401	Fill of ditch [405] and [406]
408	Cut	Sub circular, moderately steep sides, concave base. One fill. 0.50m wide, 0.12m deep. Contains 409, cuts 402	Cut of pot
409	Fill	Friable mid grey silty sand, occasional charcoal. 0.50m wide, 0.12m thick. Sealed by 401	Fill of posthole [408]
410	Void		
411	Cut	Linear, orientated NW-SE, moderately steep sides, flat base. 2.80m wide, 0.44m deep. Contains 412, 413, 414, 415, 420, 421, 422	Cut of ditch
412	Fill	Soft mid greyish brown silty sand. Very occasional small sub rounded stones. 0.16m thick. Sealed by 413	Primary fill of ditch [411]
413	Fill	Soft light brownish grey silty sand. Frequent small charred seeds, frequent charcoal flecks. 0.14m thick. Sealed by 414 and 415, seals 412	Secondary fill of ditch [411]
414	Fill	Soft light yellowish grey sand, frequent small - midsized iron stone. 0.14m thick. Sealed by 420, seals 413	Slumped fill of ditch [411], same as 415
415	Fill	Soft light yellowish grey sand, frequent small-midsized iron stone. 0.20m thick. Sealed by 420, seals 413	Slumped fill of ditch [411], same as 414
416	Cut	Curvilinear, orientated N-S turns W. Moderately steep sides, concave sides and a flat base. Very shallow E-W. 1.80m wide, 0.50m deep. Contains 417, 418, cuts 402	Cut of ditch, same as [425]. Part of group 426
417	Fill	Loose dark brownish grey sandy silt. 0.14m thick. Sealed by 418	Primary fill of ditch [416]
418	Fill	Loose mid brownish grey sandy silt. 0.14m thick. Sealed by 419, seals 417	Secondary fill of ditch [416]
419	Layer	Loose light brownish grey sandy silt. 0.06m thick. Sealed by 401, seals 418.	Layer around ditch [416]
420	Fill	Soft mid brownish grey silty sand. 0.16m thick. Sealed by 421, seals 420	Fourth fill of ditch [411]
421	Fill	Firm dark greyish brown silty sand, occasional charcoal flecks. 0.04m thick. Sealed by 422, seals 420	Fifth fill of ditch [411]
422	Fill	Soft mid greyish brown with darker brown mottling silty sand, occasional small sub rounded stones. 0.08m thick. Sealed by 401, seals 421	Sixth and uppermost fill of ditch [411]
423	Cut	Linear, orientated E-W, moderately shallow with concave sides and base. 0.94m wide and 0.14m deep. Contains 424, cuts 402	Cut of ditch
424	Fill	Soft dark brownish grey sandy silt. 0.14m thick. Sealed by 401	Fill of ditch [423]
425	Cut	Linear, orientated E-W, gradual sides with concave base. 0.50m wide, 0.03m deep. Contains 404	Cut of ditch, same as [403], [406], [405],

Context No	Type	Description	Interpretation
			[416]. Part of group 426
426	Group	Intercutting contemporary ditches [405], [406], [403], [425] and [416]	Ditches part of a smaller field system

Trench 5

Context No	Type	Description	Interpretation
500	Layer	Mid brownish grey sandy silt. 0.30m thick. Seals 503.	Topsoil
501	Layer	Mid brownish red clay. 0.10+ m thick. Cut by [502]	Natural geology
502	Cut	Linear, orientated N-S, moderately sloped sides, flat base. One fill. 0.76m wide, 0.30m thick. Contains 503, cuts 501.	Ditch
503	Fill	Friable mid brown clayish silty sand, occasional charcoal and rounded stone. 0.76m wide, 0.30m thick. Sealed by 500.	Fill of [502]

Trench 6

Context No	Type	Description	Interpretation
600	Layer	Mid greyish brown silty sand. 0.36m thick. Seals 601.	Topsoil
601	Layer	Light brownish grey with mid brownish mottle silty sand. Occasional small stones. 0.24m thick. Sealed by 600, seals 602	Subsoil
602	Layer	Mid brownish grey silty sand. 0.05m thick. Sealed by 601, seals 603	Subsoil
603	Layer	Mid yellowish brown sand. 0.01m + thick. Sealed by 602.	Natural geology

Trench 7

Context No	Type	Description	Interpretation
700	Layer	Mid brown silty clay, occ. stones. 0.32m thick. Seals 701.	Topsoil
701	Layer	Mid brownish red clay. 0.10m thick, sealed by 700, seals 702	Subsoil
702	Layer	Mid yellow sand. 0.08m + thick. Sealed by 701.	Natural geology

Trench 8

Context No	Type	Description	Interpretation
800	Layer	Dark brown silty sand. 0.30m thick. Seals 803	Topsoil
801	Layer	Dark greyish brown silty sand. 0.24m thick. Sealed by 800, seals 803	Subsoil
802	Fill	Loose mid brownish grey sandy silt. 0.28m thick. Sealed by 801.	Fill of [803]
803	Cut	Linear, orientated N-S, moderately shallow with concave sides and base. 1.30m wide, 0.28m deep. Contains 802, cuts 804	Ditch
804	Layer	Light orangey yellow clay. 0.10m + thick. Cut by [803]	Natural geology

Trench 9

Context No	Type	Description	Interpretation
900	Layer	Dark brown sand, occasional stone. 0.48m thick. Seals 901.	Topsoil
901	Layer	Moderate yellowish brown sand, occasional. stone. 0.38m thick. Sealed by 900, seals 902.	Subsoil

Context No	Type	Description	Interpretation
902	Layer	Light orangey yellow sand, occasional. stone. 0.2m + thick. Sealed by 901.	Natural geology

Trench 10

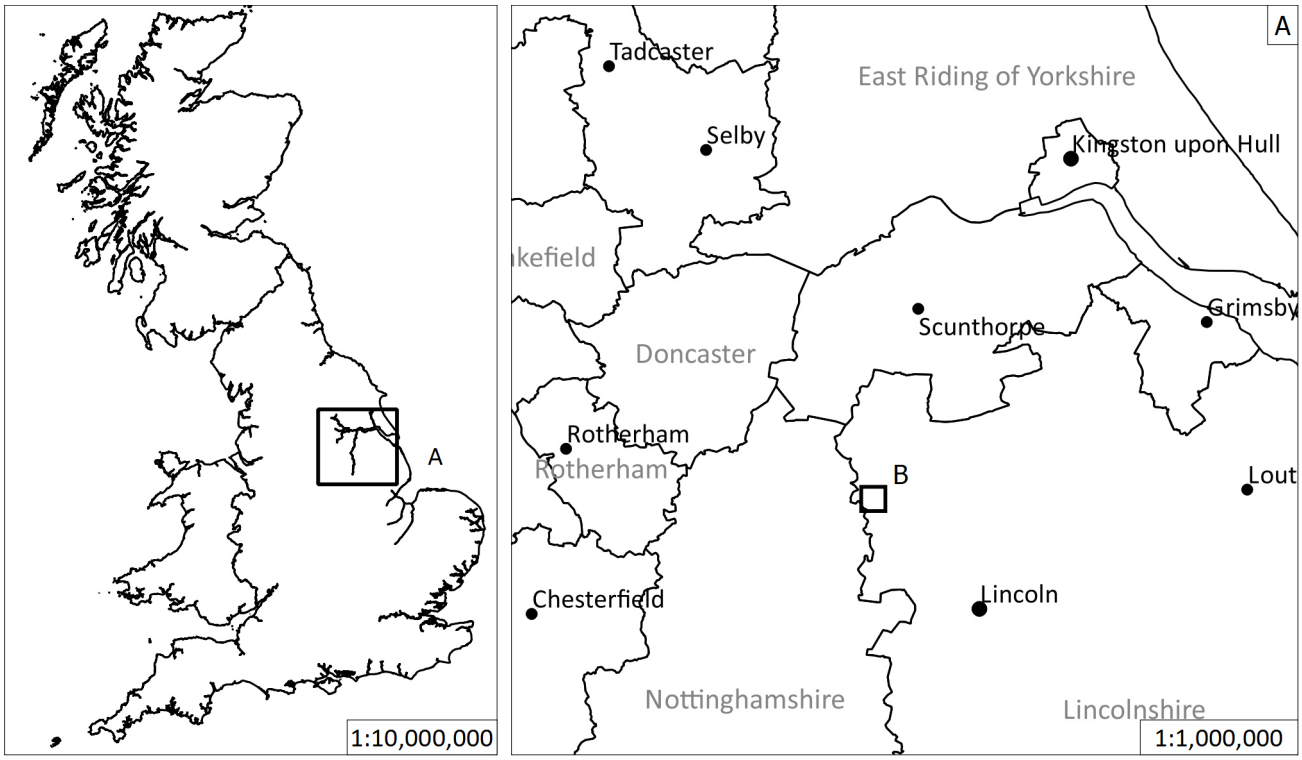
Context No	Type	Description	Interpretation
1000	Layer	Dark brown sand. 0.17m thick. Seals 1001.	Topsoil
1001	Layer	Dark orangey brown sand, moderate manganese. 0.28m thick. Sealed by 1000, seals 1004	Subsoil
1002	Layer	Light orangey yellow sand, frequent manganese. 0.41m + thick. Cut by [1003]	Natural geology
1003	Cut	Linear, orientated NE-SW, very shallow, concave sides with flat base. 0.55m wide, 0.06m deep. Contains 1004, cuts 1002	Shallow linear
1004	Fill	Loose mid greyish brown sandy silt. 0.06m thick. Sealed by 1001	Fill of [1003]

Trench 11

Context No	Type	Description	Interpretation
1100	Layer	Dark brown sand. 0.20m thick. Seals 1101.	Topsoil
1101	Layer	Moderate orangey brown sand. 0.30m thick. Sealed by 1100. Seals 1102	Subsoil
1102	Layer	Light greyish orange clay, moderate manganese. 0.10m + thick. Sealed by 1101.	Natural geology

Trench 12

Context No	Type	Description	Interpretation
1200	Layer	Dark brown sand. 0.24m thick. Seals 1201.	Topsoil
1201	Layer	Moderate yellowish orange, occasional flint. 0.06m+ thick. Sealed by 1200.	Natural geology



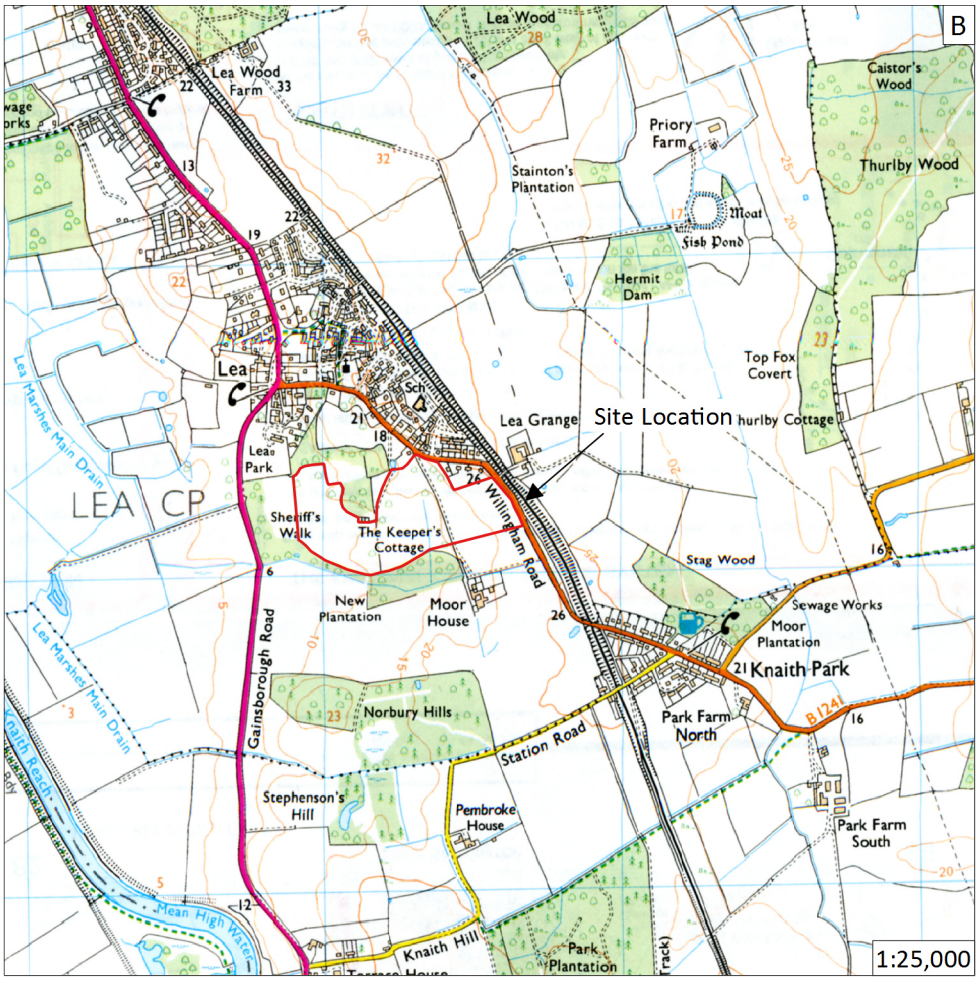


Figure 1: Site location outlined in red

Site Code	LEGR 15
Scale	1:10,000,000 1:1,000,000 1:25,000 @ A4
Drawn by	R Evershed
Date	25/01/16

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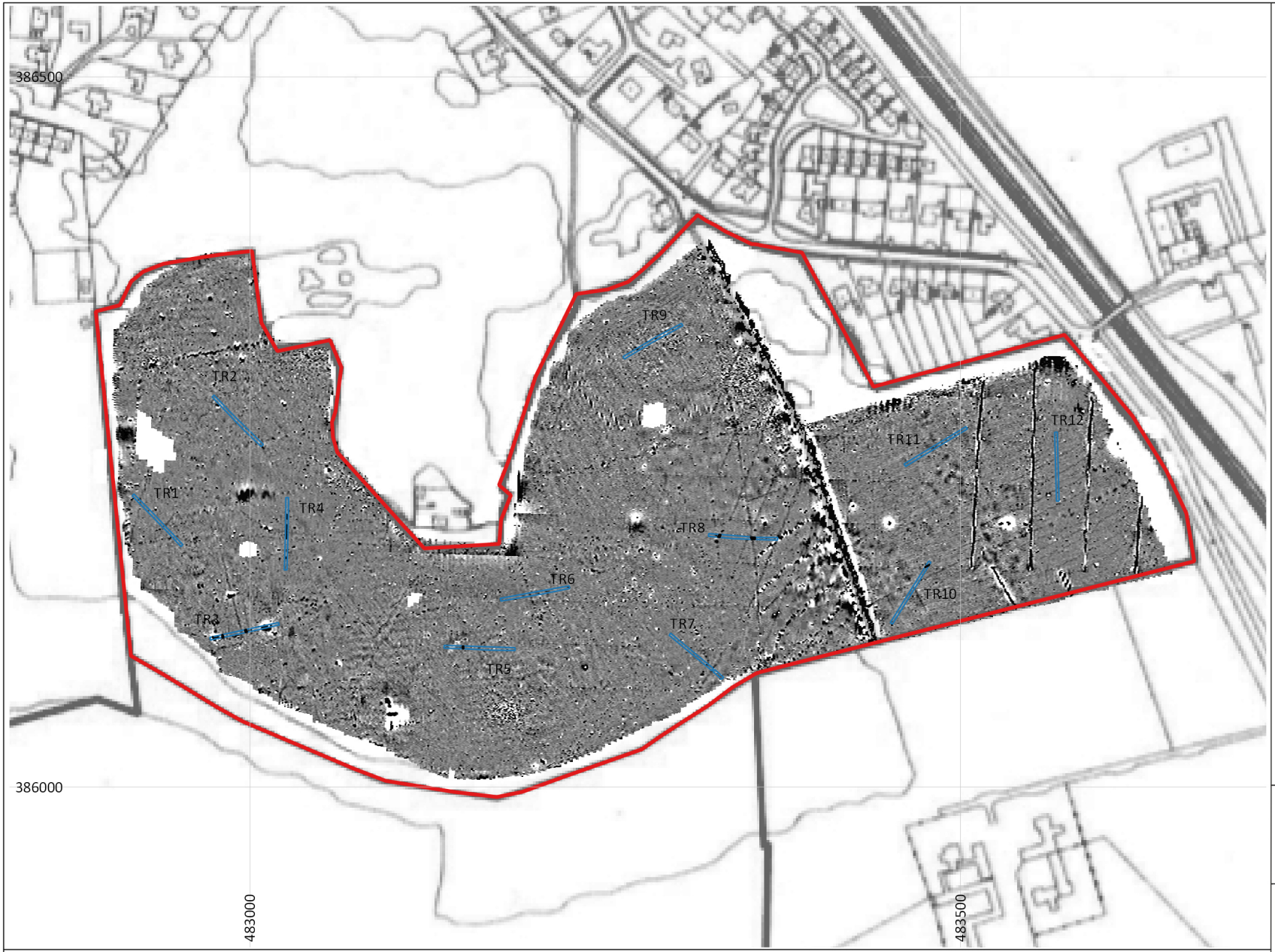

N

Key

Features

Trench boundary

Site boundary

Site Code	LEGR15
Scale	1:4000 @ A4
Drawn By	M. Piirainen
Date	25/01/15

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0 100 200 m

Scale 1:4000

Figure 2: Site location showing geophysics results and trench location with superimposed archaeology in black

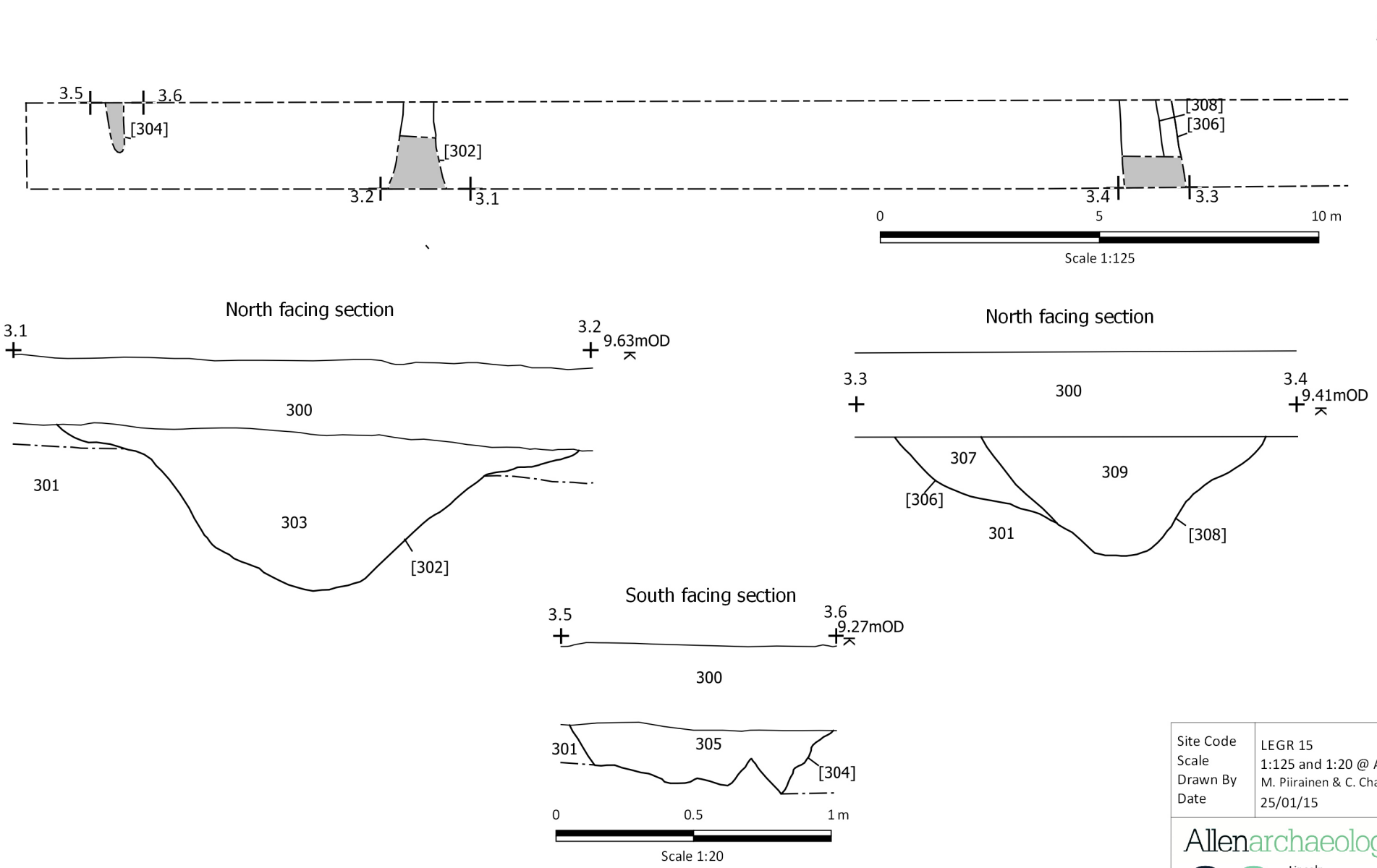
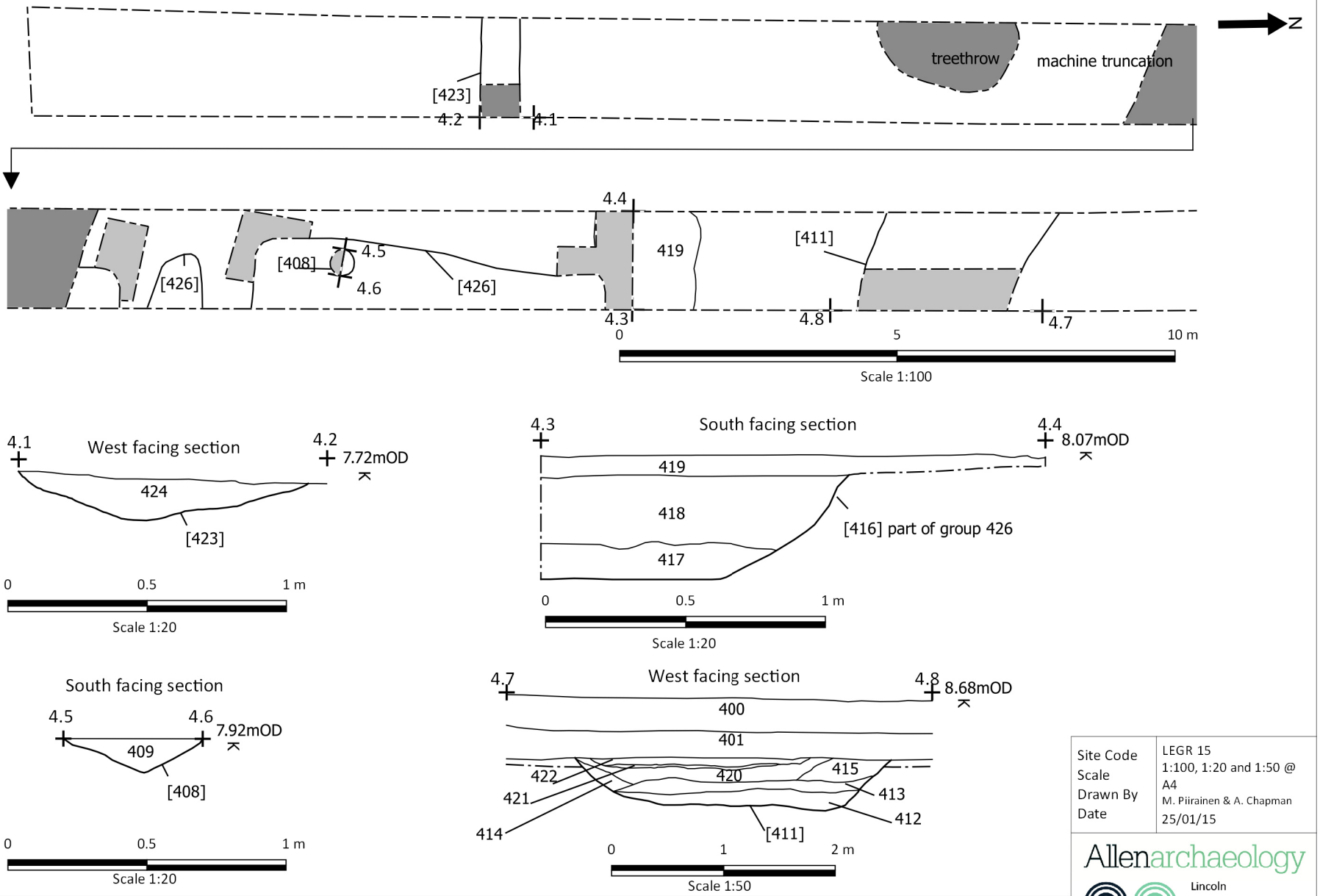


Figure 3: Trench 3 plan and section drawings



Site Code	LEGR 15
Scale	1:100, 1:20 and 1:50 @ A4
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Date	25/01/15

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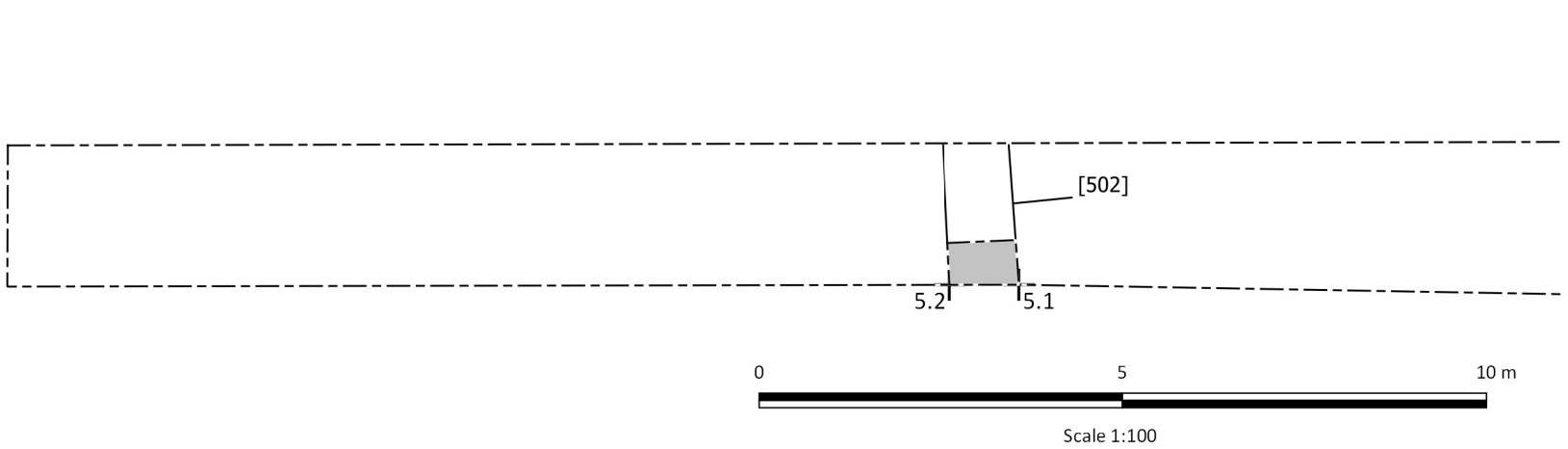
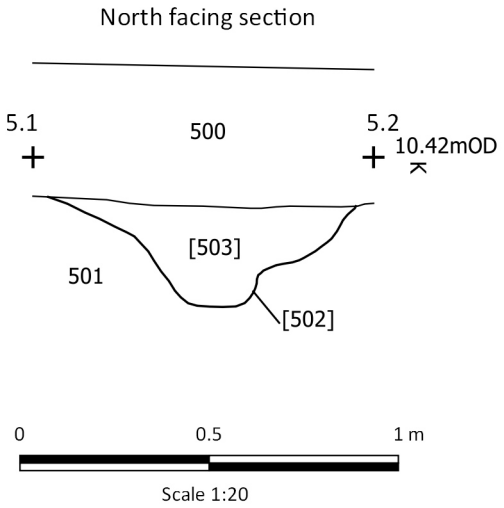
Figure 4: Trench 4 plan and section drawings





Site Code	LEGR 15
Scale	1:100 and 1:20 @ A4
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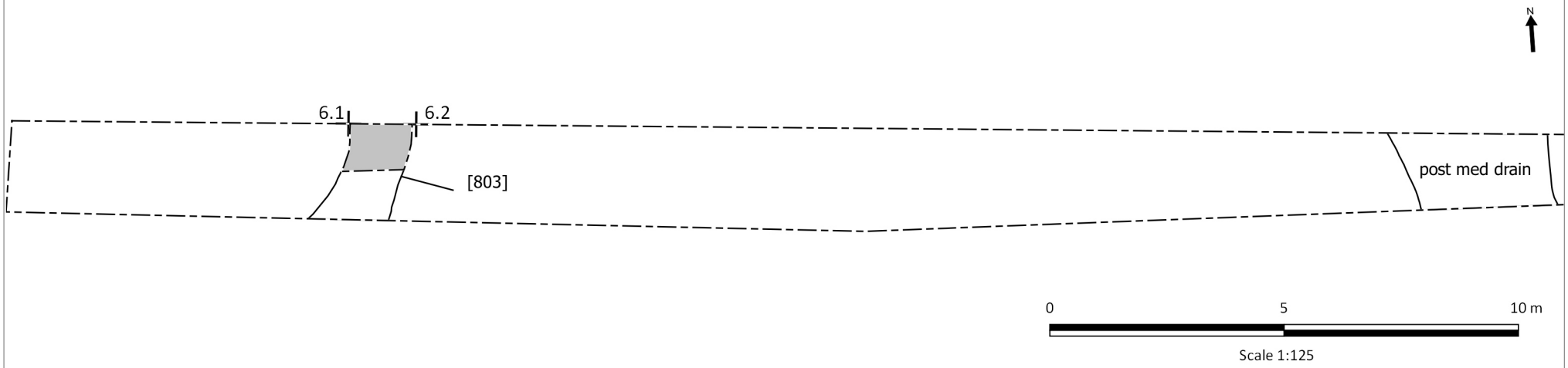
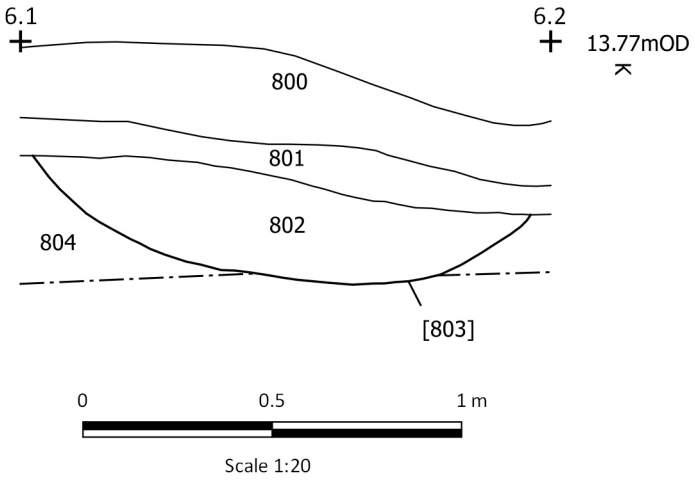
Figure 5: Trench 5 plan and section drawing



South facing section



Site Code	LEGR 15
Scale	1:125 and 1:20@ A4
Drawn By	M.Piirainen & A.Chapman
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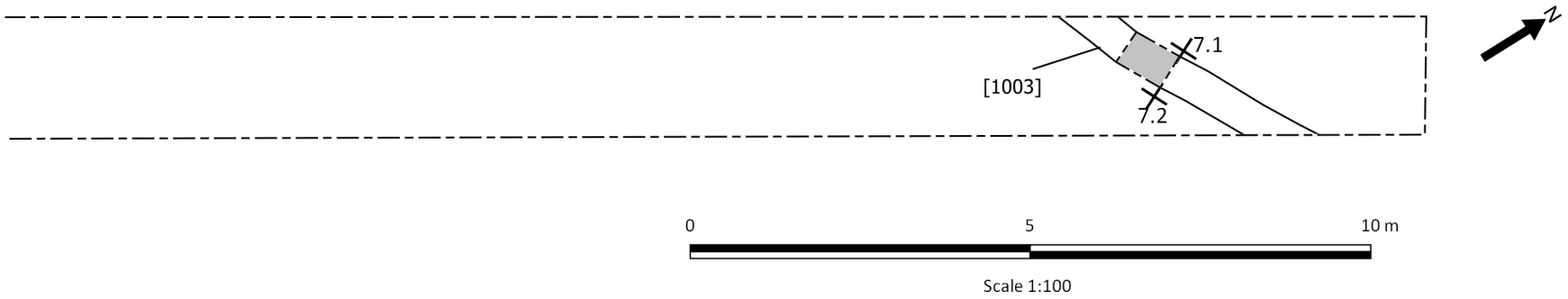
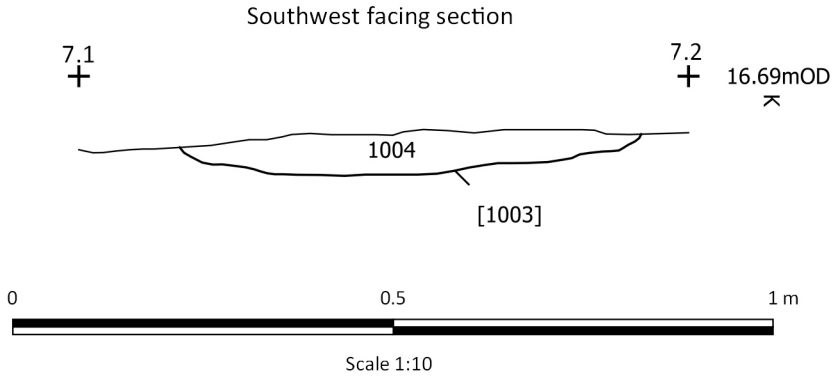
Figure 6: Trench 8 plan and section drawing





Site Code	LEGR 15
Scale	1:100 and 1:10 @ A4
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Figure 7: Trench 10 plan and section drawing

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Company Registered in England and Wales No: 6935529

Lincoln
Whisby Lodge
Hillcroft Business Park
Whisby Road
Lincoln
LN6 3QL

Tel/Fax: +44 (0) 1522 685356
Email: info@allenarchaeology.co.uk

Birmingham
Arion Business Centre
Harriet House
118 High Street
Birmingham
B23 6BG

Tel/Fax: +44 (0) 800 610 2545
Email: birmingham@allenarchaeology.co.uk

Cambridge
Wellington House
East Road
Cambridge
CB1 1BH

Tel/Fax: +44 (0) 800 610 2550
Email: cambridge@allenarchaeology.co.uk

Southampton
International House
Southampton International Business Park
George Curl Way
Southampton
SO18 2RZ

Tel: +44 (0) 800 610 2555
Email: southampton@allenarchaeology.co.uk