WYAS Archaeological Services

Land off Wrenthorpe Lane

Wrenthorpe

West Yorkshire

Archaeological Evaluation and Excavation

Report no. 2855
April 2016

Client: Hanover Developments

Land off Wrenthorpe Lane, Wrenthorpe, West Yorkshire

Archaeological Evaluation and Excavation

Summary

A scheme of archaeological evaluation and excavation was carried out in advance of residential development on land off Wrenthorpe Lane, Wrenthorpe, West Yorkshire. Ten trenches were excavated, each targeting anomalies detected as part of a geophysical survey, some of which were interpreted as potential kilns. On excavation five of the trenches contained archaeological features, including a small number of undated ditches and discrete features. Trench 6 contained a series deposits relating to a kiln or kilns which was later the focus of a small open-area excavation. This confirmed the presence of three brick clamps and spreads of associated material. The brick samples recovered indicate a late 19th-century date onwards for their manufacture.

WYAS Archaeological Services

Report Information

Client:	Hanover Developments
Address:	11 Marnier Court, Durkar, Wakefield, WF4 3FL
Report Type:	Archaeological Evaluation and Excavation
Location:	Wrenthorpe Lane, Wrenthorpe
County:	West Yorkshire
Grid Reference:	SE 30402 22240
Period(s) of activity:	Medieval, post-medieval, modern
Report Number:	2855
Project Number:	6283
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OASIS ID:	archaeol11-249086
Planning Application No.:	15/02079/FUL
Museum Accession No.:	TBC
Date of fieldwork:	February-March 2016
Date of report:	April 2016
Project Management:	Jane Richardson PhD MCIfA FSA
Fieldwork:	Matt Wells BSc MA
	Rosie Scales
Report:	Matt Wells
Illustrations:	Matt Wells
Photography:	ASWYAS staff
Specialists:	C.G. Cumberpatch (pottery) BA PhD
	Z. Horn (other finds) BSc
	P. Mills (CBM) PhD MCIfA
	J. Richardson (animal bone) PhD MCIfA

Authorisation for distribution: ----------

Nepshaw Lane South, Morley, Leeds LS27 7JQ
Telephone: 0113 383 7500.
Email: admin@aswyas.com

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1 Introduction

Archaeological Services WYAS (ASWYAS) were commissioned by David Rock of Hanover Developments (the Client), to undertake a programme of trial trench evaluation and excavation on land off Wrenthorpe Lane, Wrenthorpe (see Fig. 1) in advance of a residential housing development. The work was undertaken in accordance with an evaluation specification produced by West Yorkshire Archaeology Advisory Service (Appendix 1), in accordance with the requirements of the National Planning Policy Framework (2012) and employing standards laid down by English Heritage (2008) and the Chartered Institute for Archaeologists (2014a; 2014b). The evaluation was carried out between 8th and 15th February 2016 with a phase of excavation carried out between 2nd and 15th March 2016. Both are the subject of this report.

Site location, topography and land-use

The development area covers an area of 1.6ha and is located approximately 1 km south-west of the village of Wrenthorpe (Fig. 1). The site consists of three enclosed fields, bound to the south-west by the Batley Road and to the south-east by Wrenthorpe Lane. The site slopes down from the north-western corner to the meeting of the two roads. A dwelling and a small open field lie beyond the north-east boundary and a driveway runs alongside the north-western edge. The site is centred at SE 30402 22240 and lies at a height of between 65m and 75m OD. All three fields were pasture in February 2016.

Soils and geology

The underlying bedrock of the site comprises the Pennine Middle Coal Measures Formation, with no superficial deposits recorded (British Geological Survey 2016). The soils of the area are of the Dale formation and comprise slowly permeable, seasonally waterlogged clayey, fine loamy over clayey and fine silty soils on soft rock, often stoneless soils (Soil Survey of England and Wales 1983).

2 Archaeological Background

This archaeological background follows the specification (Appendix 1), with additional detail from Moorhouse and Roberts (1992). The site lies within an area known to have potential to contain archaeological deposits dating from the Bronze Age to the mid-18th century.

Finds attributed to the Lindale Hill area *c*. 250m to the west include a stone axe, bronze palstave and a Roman coin hoard (West Yorkshire HER PRN 1911, 2147 and 3785). Recent archaeological excavations in the vicinity have revealed evidence of Late Iron Age and Romano-British occupation at the Carr Gate Police Training Centre, 2km to the north of the site (PRN 12402). Undated ditches were excavated as part of an evaluation of a site to the south of Lindale Lane and north of Highfield Farm in 2015.

The site lies within an area containing a well known late medieval and early post-medieval pottery industry located in an area known as the Outwood, a large area of managed woodland during the medieval period. The pottery industry was initially characterised by Peter Brears in the 1960s and further excavations were carried out by West Yorkshire Archaeology Service in the 1980s (Moorhouse and Roberts 1992).

Evidence of late medieval pottery kilns and dumps of pottery wasters were noted during ploughing to the north of Lindale Lane in 1971 (PRN 2059), *c*. 340m to the north of the site. Several pottery kilns have been excavated close to the centre of Wrenthorpe. Although a 13th-century origin has been postulated from documentary records, the excavations found kilns dating to between the late 15th and 18th centuries, producing relatively fine glazed table wares including cups and bowls (Appendix 1).

Although the current site lies some distance from the known centre of the industry, its location on higher ground above a valley is similar to the location of potting tenements which were excavated in Wrenthope in the 1980s, which dated to the 16th century (Moorhouse and Roberts 1992, 86). Pottery production was located in small enclosures within a landscape that may have remained wooded or semi-wooded to provide the necessary raw materials for manufacturing pottery. In addition to pottery production, other woodland industries such as barking for tanning, charcoal burning, iron working and coal mining are also recorded in the Outwood during the medieval period. The remains of these all have the potential to exist on the site.

During the late 18th and early 19th century, coal mining was undertaken on a large scale to the west of Wakefield and linked to the Aire and Calder Navigation and Calder and Hebble Navigation at Lake Lock and Wakefield by early horse-drawn railways and tramways (Appendix 1).

A geophysical survey across the whole site was carried out by GSB Prospection (Gater 2015) identifying three anomalies which may be the sites of pottery kilns or other industrial activities which have enhanced the magnetic properties of the underlying subsoil. Medieval, or more likely early post-medieval, ridge and furrow ploughing was also noted, as were two possible ditches of unknown date. An area of made ground is thought to lie in the north-eastern part of the site adjacent to an early 20th-century gas “meter house”. A 20th-century septic tank and soak-away associated with a pair of houses in the south-eastern corner of the site were also detected by the geophysical survey.

3 Aims and Objectives

The aim of the archaeological investigations were to, first, provide information on the presence or absence and the extent, character, date, depth of burial and degree of survival of any archaeological features or deposits which may be present within the site through a

programme of trial trenching. Secondly, the results of the evaluation, in conjunction with the results of the geophysical survey, were used to target an area for wider excavation in order to ensure that the archaeological resource across the site was adequately recorded before development. The area for open-area excavation was agreed with David Hunter of WYAAS, who also approved the almost continuous programme from evaluation to excavation, with the results from both reported here.

4 Methodology

To achieve the aims highlighted above, a total of ten trenches were excavated, each measuring 30m x 2m. The trenches were widely placed across the site, targeting a number of geophysical anomalies (Table 1, Fig. 2). The open-area excavation was then positioned based on the results of the trench evaluation.

Soil stripping of the trenches and open area was carried out using a mechanical excavator equipped with a toothless ditching bucket until either the top of the first archaeological horizon or undisturbed natural was reached. The resulting surface was inspected for archaeological remains. Linear features were excavated in slots at least 1m in length in order to investigate their depth and profile and to recover finds, whilst discrete features were at least 50% sampled.

A full written, drawn and photographic (35mm monochrome and digital) record of all material revealed during the course of the work was made. The trench and open area locations were set out using GPS survey equipment with hand drawn trench plans and sections produced at a suitable scale and tied to the Ordnance Survey National Grid. All sections, plans and elevations included spot-heights related to Ordnance Datum in metres as correct to two decimal places.

All artefacts recovered were retained and removed from the site for assessment. Soil samples were taken of deposits, where appropriate, in order to identify and recover carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material.

An inventory of the primary archive is presented in Appendix 2, and a concordance of finds and samples by context, is presented in Appendix 3. ASWYAS currently hold the site archive in a stable and secure location, but it will be deposited with Wakefield Museum Services for long-term storage in due course.

All excavation was undertaken in line with the CIfA guidelines (2014a; 2014b), the English Heritage MoRPHE PPN3: Archaeological Excavation (2008) and in compliance with ASWYAS's own methodologies (ASWYAS 2011).

5 Results

A thin dark brown sandy-clay topsoil was encountered across the entire site, varying in depth between 0.20m and 0.30m. A thin light-yellowish-brown sandy-clay subsoil was found beneath this, with a depth generally of no more than 0.15m. Only in Trench 8 did a mid-brown sandy-clay subsoil fill a natural hollow to a depth of 0.5m. Across all of the site, the first geological layer encountered was a light yellowish-brown clay.

Phase 1: trial trench evaluation

The results from the evaluation trenches are summarised in Table 1 and trench locations are shown in Fig. 2. Five trenches contained archaeological features which were cut into the natural and were sealed by the subsoil. These are discussed in detail below. Several of these corresponded closely with geophysical anomalies, with others producing no clear response in the geophysics data. Plans for Trenches 1, 4 and 10 are provides in Figs 3-5, with representative sections for the other trenches given in Fig. 5. Trenches 5 and 6 are not illustrated as they are superseded by the subsequent open-area excavations (Fig. 6).

Table 1. Summary of trench results

Trench No.	Dimensions	Average Depth	Orientation	Observations
1	30m x 2m	0.40m	NE-SW	Targeting a possible kiln. Four possible archaeological features identified at the north-eastern end of the trench. See below for details
2	30m x 2m	0.30m	E-W	Targeting a possible kiln. No archaeological remains identified. See below for details
3	30m x 2m	0.30m	E-W	Targeting a linear geophysical anomaly. No archaeological remains identified
4	30m x 2m	0.30m	E-W	Targeting a linear geophysical anomaly. A modern pit feature and an undated small pit or post-hole were excavated. See below for details
5	30m x 2m	0.30m	NW-SE	Area investigated later as part of open-area excavation, and discussed accordingly below
6	30m x 2m	0.40m	NW-SE	Area investigated later as part of open-area excavation, and discussed accordingly below
7	30m x 2m	0.40m	NW-SE	Targeting a number of geophysical anomalies, but only ephemeral traces of a plough furrow observed. Otherwise no archaeological features identified
8	30m x 2m	0.30m - 0.70m	NE-SW	Targeting a possible kiln, but no archaeological remains identified

Trench No.	Dimensions	Average Depth	Orientation	Observations
9	30m x 2m	0.35m	NW-SE	Targeting a linear geophysical anomaly, but no archaeological features identified
10	30m x 2m	0.40m	NE-SW	Targeting a number of geophysical anomalies, with a ditch or furrow excavated. See below for details

Trench 1 (Fig. 3)

A deposit 5m in length was found to overlie the topsoil to a depth of 0.20m, lying 10m from the north-eastern end of the trench (100). It was made up small fragments of clinker-like material, possibly the residue of an industrial process dumped recently on the surface or material dumped during the construction of the nearby driveway. It appears most likely that this material is the cause of the strong geophysical anomaly that the trench targeted.

Four further features were excavated at the north-eastern limits of the trench (see Plate 1). All the features suffered some degree of unreliability due to root disturbance in the area and none contained any finds to indicate an archaeological origin. The two small, discrete features were the least reliable and may have been the remains of small pits or post-holes, though it is more likely they are the product of root disturbance. Feature 105 measured 0.60m long, 0.54m wide and 0.10m deep and was filled with a mid-brown sandy-clay (104). Feature 109 measured 0.70m long, 0.54m wide and 0.06m deep and was filled with a mid-brown sandy-clay (108).

Features 107 and 111 appeared more reliable and were larger and better defined. Feature 107 appeared to be the terminus of a small ditch running into the trench from its eastern edge. It measured 1.60m in length, 0.55m wide with a slightly irregular U-shaped profile (Fig. 3, S.102). Its depth was 0.25m and it was filled with a mid-brown sandy-clay (106). Feature 111 may have been a shallow pit extending beyond the south-eastern edge of the trench. Its exposed dimensions were 1.52m long, 0.52m wide, with a depth of 0.15m (Fig. 3, S.104). Again, it was filled with a mid-brown sandy-clay (110).

Trench 2

As in Trench 1 the strong geophysical anomaly, thought to indicate the presence of a kiln, appeared to have been caused by a dump of industrial material. Here, the deposit was found to a depth of 0.25m, extending 4m from the western end of the trench (200).

Trench 4 (Fig. 4)

A small pit or post-hole 404 was excavated, *c*. 5m from the western end of the trench, measuring 0.35m in circumference and 0.10m deep (Fig. 4, S.401; Plate 2). The feature contained a dark-brownish-grey sandy-clay fill, with a small fragment of burnt animal bone.

Pit (406), partially truncated by a land drain, lay in the centre of the trench. The feature's function was not clear, though it contained a large amount of stone and modern ceramic building material in its dark brown sandy-clay fill (405). The feature measured 1.15m long, 0.75m wide and 0.30m deep.

Trench 10 (Fig. 5)

A single linear feature (1004) ran across the centre of the trench, measuring 0.60m wide and 0.10m deep, with a wide, U-shaped profile (Fig. 5, S.1001). The feature was filled with a mid-brown sandy-clay (1003) with no finds, and may represent a plough furrow.

Phase 2: open-area excavation

The area selected for open-area excavation was based on the features exposed in Trenches 5 and 6. A likely kiln had been partially exposed in Trench 6 and a stone wall footing (later identified as a drain) had been recorded in Trench 5 (Plate 3). Subsequently, the open-area strip revealed three kiln clamps, various spreads of material, a number of shallow ditches, a small discrete feature containing burnt material and a stone-capped drain.

Kiln 2018 (which equates to cut 605 from Trench 6) was a wide U-shaped cut *c*. 5m in width and 6m in length which survived to a depth of 0.48m (Fig. 5, Plate 4). Redeposited natural (2021) was observed on the edge of the cut before being backfilled with kiln material (2017) consisting of mid-orange-red sandy clay containing brick fragments and clinker-like material (Fig. 6, S.5). Overlying 2017 was a second deposit (2016) containing similar material, albeit with fewer brick fragments.

Kiln 2020 represents a second U-shaped, sub-rounded cut, measuring *c*. 5m by 4m and only 0.26m in depth (Fig. 6, S.12; Plate 5). It contained a single fill (2019) of orange-red sandy clay with numerous brick fragments, clinker and occasional heat-affected stones. As with kiln 2018, kiln 2020 was probably sealed with a more compact sandy clay deposit (2034) containing fewer brick fragments.

The cut for kiln 2027/2033 was U-shaped in profile and oval in plan (Fig. 6, S.8; Plate 6). It measured 2m in length, 1.6m in width and 0.4m in depth and contained two fills, a lower fill (2032) of red-purple sandy clay and an upper fill (2031) of orange-brown sandy clay. Both fills contained brick fragments and clinker-like material. On the south-eastern side of this kiln, a mixed deposit of red-orange to dark-brown sandy clay with occasional brick fragments

(2024, not shown in plan) represents redeposited material from kiln 2027 and perhaps kiln 2018.

Spread 2010 was a mid-grey clay deposit associated with the kilns that was contained within a shallow cut (2011; Fig. 5). It is most likely to represent the accumulation of trampled material from the kilns in use, but clay extraction for the bricks themselves is also possible. Other than brick fragments, no dating evidence was recovered from this spread.

Two ditches were also investigated and although no direct association with the kilns was established, brick fragments within ditch 2029 suggest they were contemporary with or later than the kilns (Fig. 5). Ditch 2013 was a U-shaped feature measuring 1.6m in width and 0.17m in depth (Fig. 6, S.3) and was exposed for *c*. 16m in length, before terminating (as 2015). It contained a single fill of mid-brown sandy clay (2012/2014), which produced a sterile sample flot, and no finds. A second ditch or gully (2029) 16m to the east, measured a maximum of 1.35m in width and only 0.09m in depth (Fig. 6, S.7). It was exposed for at least 15m in length but narrowed considerably to the north before being truncated away. The grey-brown sandy clay fill (2028) contained brick fragments that were probably redeposited from kiln deposits.

To the north-east, spread 2003 probably represents a deposit of subsoil that had accumulated in a natural hollow (2004). It did contain some brick fragments from the clamp kilns and is likely to be contemporary or later than these. Less than 8m to the north-east, a shallow scooped feature (2006) measuring 0.5m by 0.65m, and only 0.05m in depth was investigated. In situ burning had reddened the surrounding clay and the only fill of red-brown clay (2005) was also heat-affected.

Finally drain 2009, previously identified as a wall footing in Trench 5, was orientated north-east to south-west and was formed from a straight-sided, flat-bottomed trench (2009) which was lined (each side) and topped with sandstone blocks (2008; Plate 3). This stone-lined drain contained a dark brown silty clay fill (2007). The southern limits of the drain was disturbed by cut 2036 which represents a modern rubbish dump that was not investigated further.

6 Artefact Record

The pottery by C.G. Cumberpatch

The pottery assemblage consists of fourteen sherds of pottery, weighing 430 grams, representing a maximum of thirteen vessels. The data are summarised in Table 2.

The earliest sherd of pottery is the base of a Cistercian ware cup or tyg from topsoil deposit 2000. Wrenthorpe is known to have been one of several centres for the manufacture of

Cistercian ware from the mid-15th century onwards with Blackware appearing in the 17th century (Moorhouse and Roberts 1992; Cumberpatch 2014). The base is typical of locally manufactured wares.

Late 17th to 18th-century pottery is represented by a sherd of Slipware and most probably by a sherd of Coarse Blackware, both from topsoil deposit 2000. The sherd of Coarse Blackware may be from a large jar but could also be part of a saggar.

Eighteenth-century pottery is represented by three sherds of Late Blackware and the rim of a jar in Late Coarse Blackware. Late Blackwares were manufactured much more widely than the earlier Cistercian ware and Blackware (Cumberpatch 2014) and it is unclear at present whether production continued in Wrenthorpe into the 18th century. A single sherd of Brown Salt Glazed stoneware, also from topsoil deposit 2000, appears to be of 18th-century date although it was not possible to identify the type of vessel from which it came.

Nineteenth-century pottery is represented by material from topsoil deposits 400, 800 and 1000 and includes examples of Cane Coloured ware and Sponged ware with one sherd of utilitarian Yellow Glazed Coarseware. Such pottery is found regularly on 19th-century sites and represents part of the normal range of domestic wares which were manufactured very widely throughout the century and into the early 20th century.

There was a very clear and marked distinction between the material from topsoil deposit 2000 and that from 400, 800 and 1000. The former assemblage is of a significantly earlier date than those from the latter contexts, suggesting the existence of two chronologically and spatially distinct phases of activity on the site. It should, however, be noted that the quantities of material are extremely small and chance factors could have played a part in the formation of the deposits from which they were recovered.

Table 2. Pottery by context

Context	Type	No	Wt	ENV	Part	Form	Decoration	Date range	Notes
400	Yellow Glazed Coarseware	1	49	1	Base	Pancheon	White slip int under clear glaze	C19th	
800	Cane Coloured ware	1	55	1	Ring foot base	Bowl	U/Dec	C19th	Rounded splayed ring foot
1000	Cane Coloured ware	1	7	1	Base	Dish/bowl	U/Dec	C19th	Flat base; pie dish?
1000	Sponged ware	1	13	1	Base	Pie dish	Blue sponging int & ext	c.1830+	Flat base; pie dish?
1000	Sponged ware type	2	10	1	BS	Hollow ware	Dark blue curvilinear abstract design	c.1840+	Flow Blue style design
2000	Brown Salt Glazed Stoneware	1	4	1	Base	Hollow ware	U/Dec	M – LC18th	
2000	Cistercian ware	1	44	1	Base	Cup/tyg	Dark brown glaze int & ext	c.1450 – c.1600	Wire marks on underside
2000	Late Coarse Blackware	1	34	1	Rim	Jar	Dark brown, slightly mottled glaze int & ext	C18th	Flat-topped collared rim
2000	Coarse Blackware	1	112	1	BS	Jar/Saggar	Glazed fumed int & ext	C17th – C18th	Very hard, dense semi-vitrified purple to grey fabric
2000	Late Blackware	1	44	1	Rim	Bowl	Black glaze int & ext	C18th	Small curved everted rim
2000	Late Blackware	1	14	1	BS	Bottle/flask	Black glaze ext only	C18th	
2000	Late Blackware	1	24	1	BS	Hollow ware	Black glaze int & ext	C18th	Rilled internally
2000	Slipware	1	20	1	Rim	Dish/bowl	White slip int; glazed extensively flaked	LC17th – C18th	Fine white fabric
	Total	**14**	**430**	**13**					

Ceramic building material by P. Mills

Eighteen brick samples were assessed, weighing just over 14kg. Much of the material is burnt, with some cinterd pieces and vitrified fragments. The material is all in the same fabric, although there are variations due to levels of firing and burning.

The samples are of Fabric TZ12.8, an oxidised brick fabric which is red (10R 5/6) in colour, although darker and dusky red colours are noted in the burnt examples, with a sandy feel and irregular fracture. It has inclusions of common translucent quartz at up to 0.4mm and occasional red clay pellets and black rounded iron stone at 0.2mm.

The range of burning on the bricks is consisted with material derived from a kiln or clamp. The density of the brick, their dimensions and the regularity of their proportions and shaping all suggest that the material would date from the later 18th century onwards.

The full catalogue is presented below.

Fabric TZ12.8 at x 10

Catalogue

One brick fragment from the dump (200) of industrial waste in Trench 2 weighs 1134g, has two surviving corners and is 78mm thick. This is a heavily burnt brick with melted, vitrified surfaces and extant arrises that are fairly regular and sharp, with wiped surfaces.

Four fragments of brick were recovered from the fill (603) of ditch 604 in Trench 6, weighing 185g.

Material (2017) from kiln 2018 includes one half brick, weighing 975g and measuring 90mm by 65mm, with irregular rounded arrises in a very friable condition. It has heavy dimpling on its surfaces and a vitrified stretcher. Another brick fragment, weighing 523g, with two surviving corners, 92mm wide, is a warped high-fired fragment with wiped and vitrified surfaces. A third brick fragment, weighing 1802g and measuring 120mm by 65mm, has two surviving corners with heavy dimpling on the top surface and wiped stretcher and header

surfaces, and pea gravel indentations on the base. The final brick fragment weighs 442g and is heavily eroded.

Associated with kiln 2020 was a cinterd fragment, weighing 131g, and an almost complete brick from redeposited material (2021). The brick, weighing 3178g, has seven surviving corners, and measures 247mm by 120mm by 60mm. It has fairly regular rounded arrises, regular header and stretcher, with both headers and one stretcher having dimpled surfaces, whilst the clean stretcher face has a fairly light pressure mark parallel with the base stretcher edge. There are traces of burning on the top face and slight chipping. A half brick, weighing 1374g and measuring 120mm by 63mm, with wiped surfaces and regular sharp arrises, was recovered from the material (2019) within kiln 2020.

From the upper kiln fill (2025/2031) of kiln 2027, one heavily burnt brick fragment was recovered, weighing 211g, as well as a half brick, weighing 1848g and measuring 115mm by 60mm, with regular rounded arrises with wiped surfaces and sooted all over. Another half brick fragment, weighing 1674g and measuring 120mm by 60mm, has wiped surfaces with striations and slight scoop on its base. If has fairly sharp regular arrises and a burnt patch on top. There is some light cracking on header and stretcher faces.

From ditch 2029, one brick fragment, weighing 478g and measuring 115mm by 58mm, displays regular rounded arrises. A second brick fragment, weighing 145g, also has regular rounded arrises.

Other finds by Zoe Horn

A copper alloy disc was recovered from deposit 600. It measures 34mm in diameter and 1.5mm thick. It is a probable button, which may have been covered in cloth. There are no visible markings except for the remains of a shank used to attach the button.

7 Environmental Record

Environmental samples by J. Richardson

Four environmental samples were taken in order to test for carbonised plant macrofossils and charcoal, small bones or artefacts (Table 3; Appendix 3). Bulk environmental samples were processed by ASWYAS using a Siraf-style water flotation system (French 1971) using a 1mm mesh and 300 micron sieve. The flots were dried before examination under a low-power binocular microscope typically at x10 magnification.

All four samples produced flots, with the bulk of material consisting of modern rootlets. Sample 3 from the fill (2005) of feature 2006, sample 2 from the fill (2019) of kiln 2020 and sample 1 from the upper fill (2031) of kiln 2033 contained fragments of a clinker-like vesicular residue, presumably a by-product of the fuel used. Sample 4 from ditch 2013

contained only modern rootlets. No charred cereals or wood charcoal were present in any of the samples.

Table 3. Summary of the flot samples

	Sample	1	2	3	4
	Context	2031	2019	2005	2012
	Modern	1ml	5ml	10ml	5ml
Burnt vesicular clinker		10+	10+	5+	-

The animal bone by J. Richardson

A single fragment of burnt animal bone was recovered from the fill (403) of pit 404, and a cattle rib, which had been sawn, was retrieved from the topsoil (2000) overlying the open-area strip.

8 Discussion and Conclusions

The evaluation methodology used here has been successful in understanding the character, depth and survival of archaeology within the site. The results of the geophysical survey proved to be largely reliable, although a number of anomalies identified as possible kilns (e.g. in Trenches 1 and 2) were the result of recently dumped material most probably associated with the laying of a driveway to the north-east of the site.

Five out of the ten trenches contained features worth of further investigation, although this included a likely plough furrow and features that may reflect root disturbance. Based on the results of the trenching, an area around Trenches 5 and 6 associated with a putative wall footing (later determined to be a stone-lined drain) and possible kilns was identified for further investigation.

Despite Wrenthorpe being associated with 15th to late 18th-century pottery production (Moorhouse and Roberts 1992), the evidence for industrial activity identified here relates to 18th-century or later brick clamps. These represent the traditional way of baking bricks by stacking unbaked bricks with fuel to form a simple type of kiln. The fuel used does not appear to have been wood charcoal (based on the flot samples) but instead coal or coke which left behind a clinker-type material.

Three brick clamps were identified off Wrenthorpe Lane, all a rough oval in shape and ranging in dimensions from the largest at 6m by 5m to the smallest at 2m by 1.6m. The largest clamp (2018) compares favourably to examples excavated at Westfield Nurseries, Norton (Cockburn and Scott 2013). At Norton, five probable brick clamps averaged 6m by

4m in size and were roughly rectangular in shape. They represent small-scale brick production of late 18th-century date, and based on the morphology of the bricks recovered from the Wrenthorpe clamps, the activity here is of very similar date.

With the exception of the 18th-century or later bricks, dating evidence was unfortunately sparse from this site. As such, it was not possible to clarify if the two ditches to the west and the south-east of the kilns had been used to define the area of brick-making activity. All the pottery, for example, was recovered from topsoil deposits, and while it reflects local manufacture and can be dated from the mid-15th century to the 19th century, it cannot be used to directly date any of the features excavated.

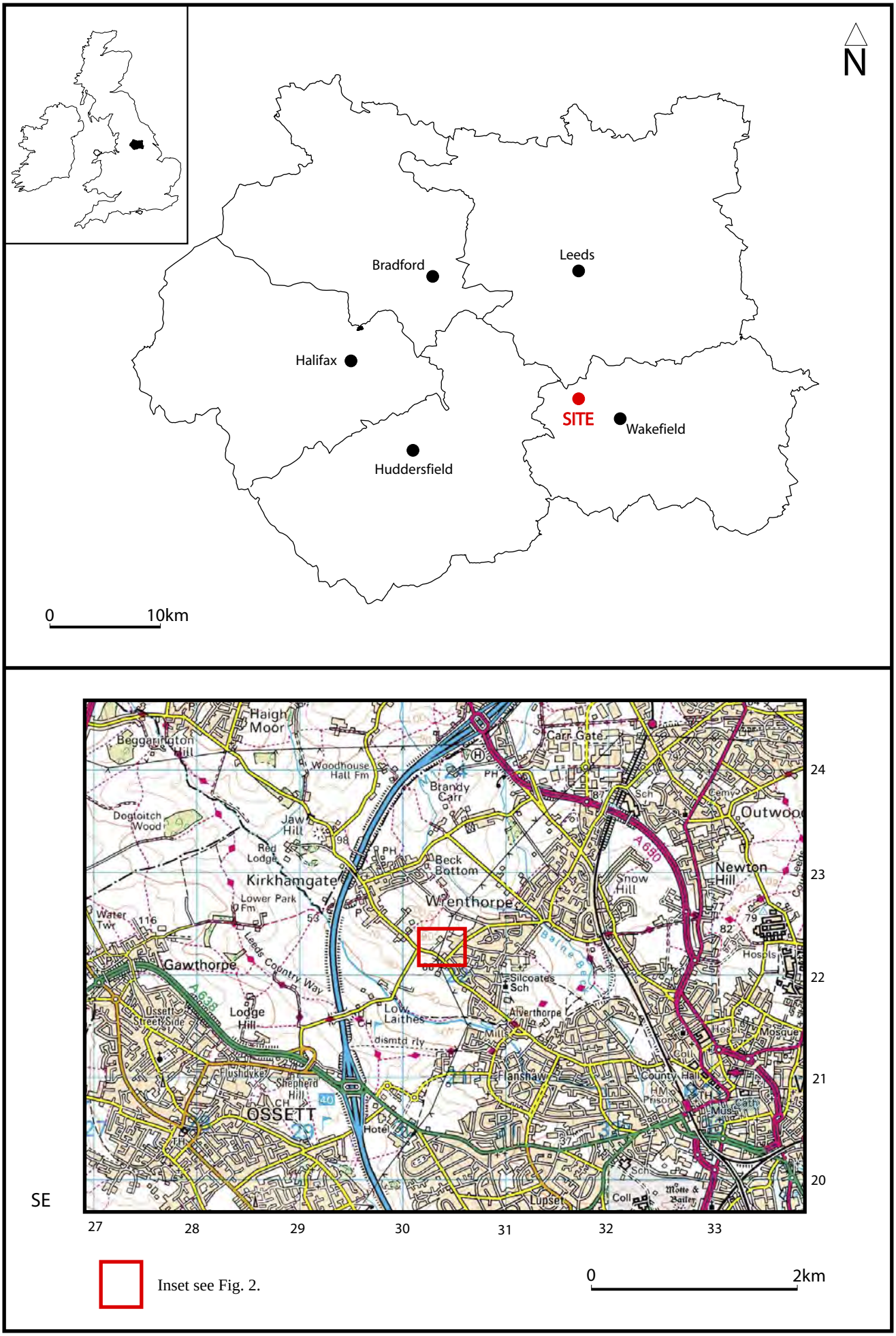


Fig. 1. Site location

PDA BOUNDARY

TRIAL TRENCH LOCATION

EXTENT OF OPEN AREA EXCAVATION

ARCHAEOLOGICAL FEATURES

N

1 2 3 4 5 6 7 8 9 10

ETL

BATLEY ROAD

Highfield Farm

128a 128 142 154 164 166 153 137 161 163 1 1a 76 72 2 39 348 29 62 25 184 182 3

75.0m 70.1m 67.1m 66.4m

Meter House

El Sub Sta

WRENTHORPE LANE

Lofthouse Colliery Memorial

422300

422200

430300 430400 430500

Archaeological Services W Y A S
Nepshaw Lane South, Morley, LS27 7JQ
Tel: 0113 383 7500 Fax:0113 383 7501

0 30m

Fig. 2. Site plan showing trial trench locations and excavation area (1:1000 @ A3)

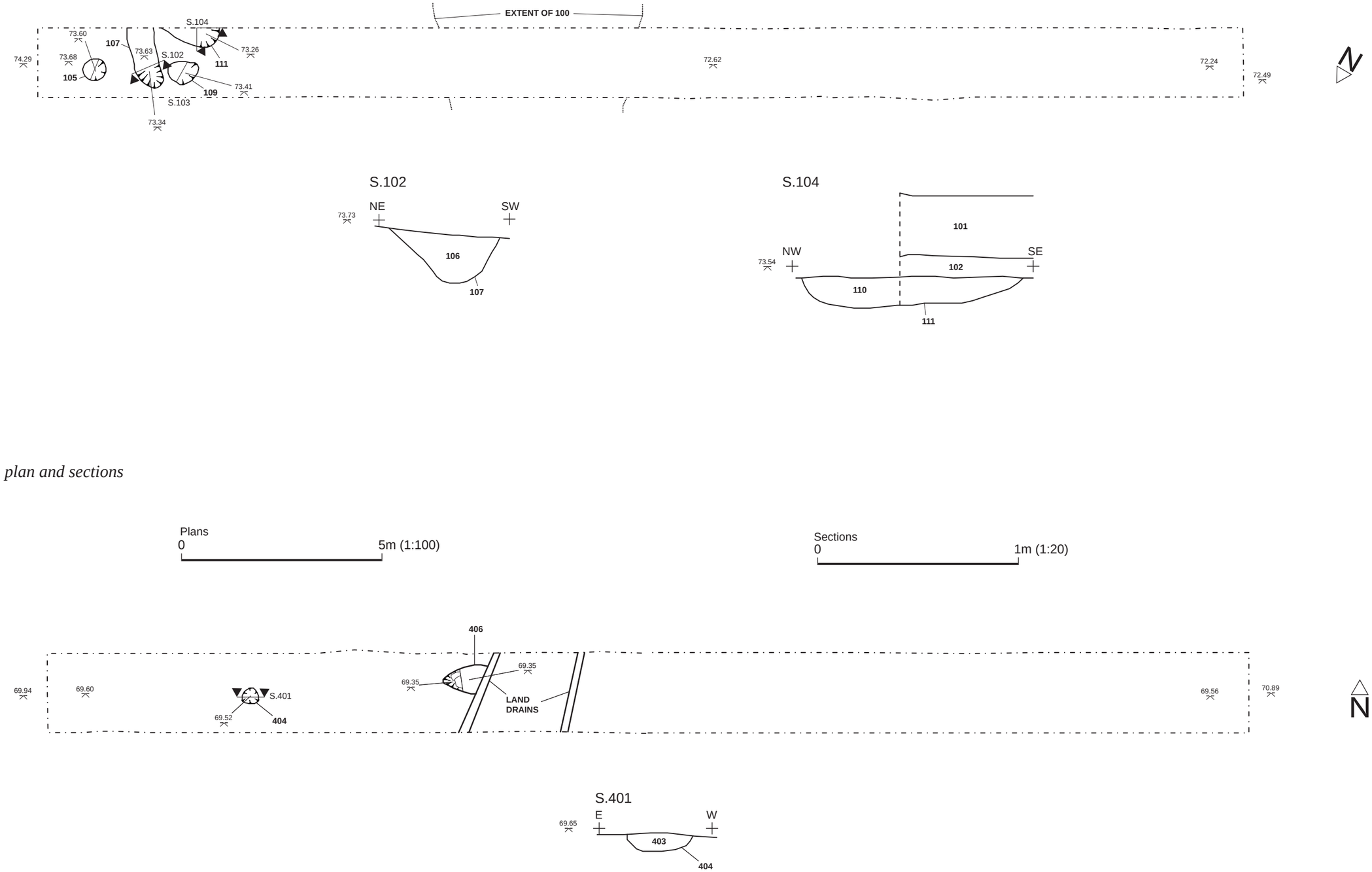
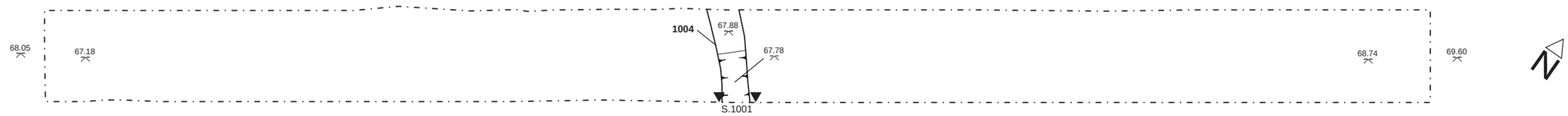
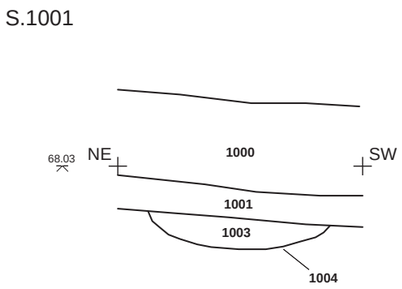


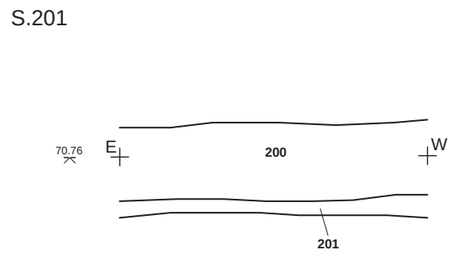
Fig. 3. Trench 1 plan and sections

Fig. 4. Trench 4 plan and section

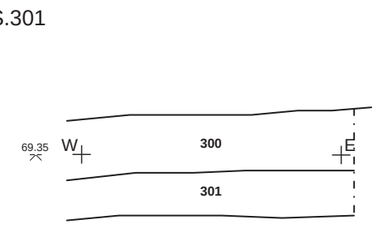




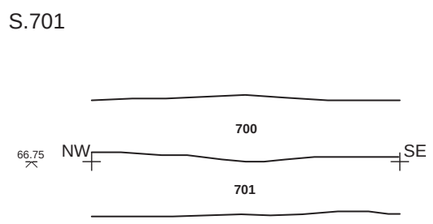
Trench 1



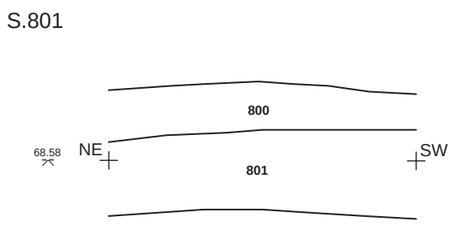
Trench 2



Trench 3



Trench 7



Trench 8

Trench 9

Fig. 5. Trench 10 plan and section plus representative sections of trenches devoid of archaeology

	PDA BOUNDARY
	EXTENT OF OPEN AREA EXCAVATION
	ARCHAEOLOGICAL FEATURES

N

68.94

2006

2004

68.75

2009

S.8

2027/2033

68.09

S.3

2013

2011

2036

67.80

S.5

2018

67.83

2015

S.12

2020

2029

S.7

67.63

67.93

70.1m

Meter House

422200

ITHORPE LANE

El

Sub

430400

Archaeological Services W Y A S
Nepshaw Lane South, Morley, LS27 7JQ
Tel: 0113 383 7500 Fax:0113 383 7501

Fig. 6. Plan of excavation area (1:250 @ A3)

0 10m

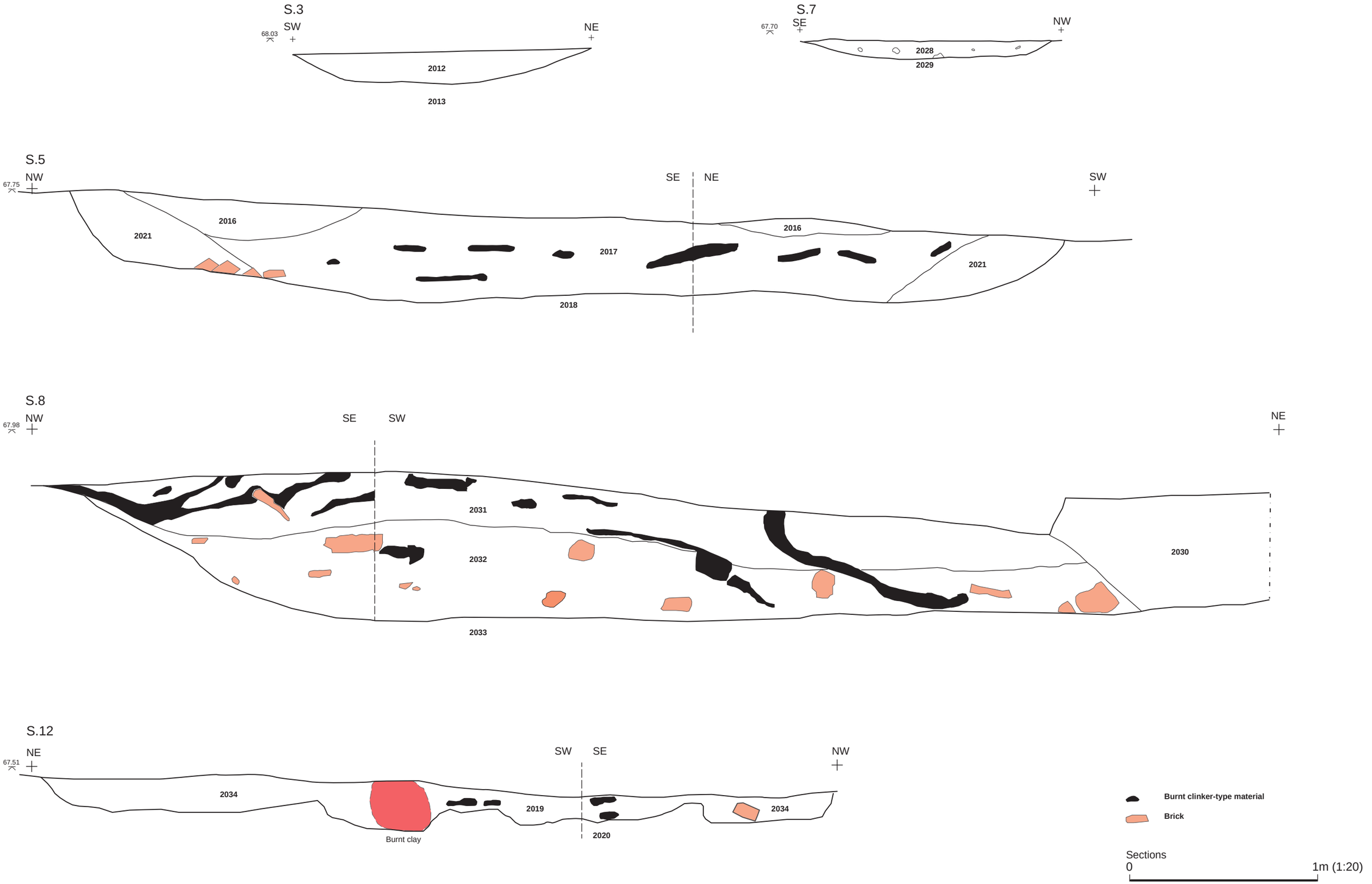


Fig. 7. Sections

Plate 1. Trench 1 excavated features, looking east

Plate 2. North-facing section of small pit or post-hole 404

Plate 3. Stone-capped drain in Trench 5, looking south-west

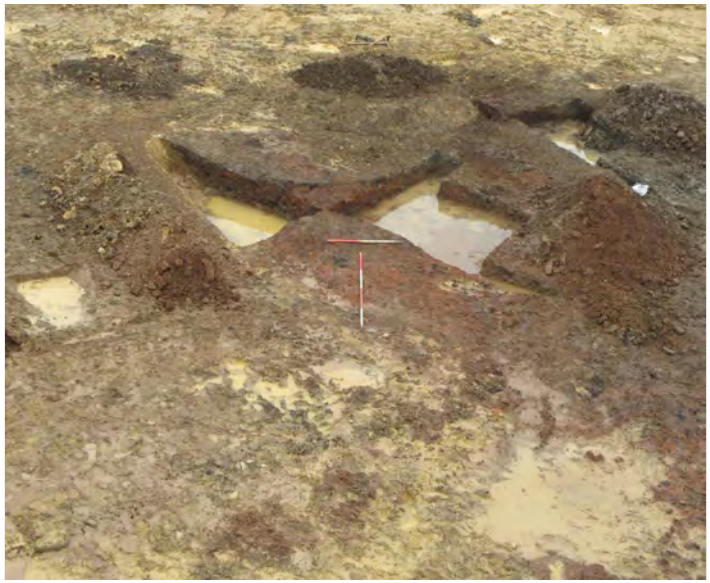


Plate 4. Kiln 2018, looking north

Plate 5. Kiln 2020, looking north-east

Plate 6. Kilns 2018 and 2033, looking north-east

Appendix 1: Specification for archaeological trial trenching

WEST YORKSHIRE ARCHAEOLOGY ADVISORY SERVICE (WYAAS): SPECIFICATION FOR ARCHAEOLOGICAL TRIAL TRENCHING TO EVALUATE AND RECORD ARCHAEOLOGICAL REMAINS IN ADVANCE OF DEVELOPMENT AT BATTLEY ROAD/WRENTHORPE LANE, WRENTHORPE (SE 30402 22240)

Specification prepared for Andrew Spires of Rouse Homes Ltd. on behalf of Wakefield Metropolitan District Council (Planning Application reference 15/02079/FUL)

1.0 **Summary**

1.1 A limited amount of archaeological work consisting of archaeological trial trenching is proposed to help establish the archaeological significance of the above site. Any work arising from the results of the evaluation will be covered by a further specification.

1.2 This specification has been prepared by the West Yorkshire Archaeology Advisory Service, the holders of the WY Historic Environment Record

NOTE: The requirements detailed in paragraphs 6.3, 6.4, 6.5, 6.6 and 9.1 are to be met by the archaeological contractor **prior** to the commencement of fieldwork by completing and returning the attached form to the WY Archaeology Advisory Service.

2.0 **Site Location & Description**

Grid Reference (centred): SE SE SE 30402 22240

2.1 The site is located on the south-west of Wrenthorpe and north-west of Alverthorpe and has an area of 1.6ha. Batley Road which runs along the southern edge of the site meets Wrenthorpe Lane, which forms its eastern boundary, just beyond the site's south-eastern corner. The site slopes down from the north-western corner to the meeting of the two roads. The site comprises three small, regular, fields with hedged boundaries. All three fields were pasture in December 2015.

A pair of semi-detached houses are located outside the site's south-eastern corner. A date plaque states that they were built in 1904. The field to the east of the house contains a septic tank and soak-away (see the site's geotechnical investigation report). A derelict gas "meter house" of early 20th century date is located midway along the Wrenthorpe Lane side of the application site and the adjacent north-eastern corner of the site contains marked undulations, this is likely to be the result of dumped building rubble (see the site's geotechnical investigation report). A high tension overhead electricity line crosses the development area from south-south-east to north-north-west.

The site lies in the historic township of Alverthorpe with Thornes.

The underlying geology comprises the Pennine Middle Coal Measures Formation.

3.0 **Planning Background**

3.1 Planning application (15/02079/FUL) is being sought for a residential development on the. The Planning Authority have been advised by the West Yorkshire Archaeology Advisory Service that there is reason to believe that important archaeological remains may be affected by the proposed development. The applicant has commissioned a geophysical survey which has identified possible archaeological features of interest. This specification is for a pre-determination archaeological evaluation to assess the potential and significance of these features.

3.2 Depending upon the results obtained, additional archaeological work governed by separate specifications of work, may be required.

3.3 This specification has been prepared by the West Yorkshire Archaeology Advisory Service at the request of Mr Andrew Spires (Rouse Homes Limited 8 Carr Crofts, Drive Armley, Leeds LS12 3AL Tel.: 0113 204 6900), to detail what is required for the evaluation and to allow an archaeological contractor to provide a quotation.

4.0 **Archaeological Interest**

4.1 The proposed development site lies within an area known to have some potential to contain archaeological deposits dating from the Bronze Age to the mid-18th century.

Finds attributed to the Lindale Hill area c. 250m to the west include a stone axe, bronze palstave (a type of axe) and a Roman coin hoard (West Yorkshire Historic Environment Record PRN 1911, 2147 and 3785). Recent archaeological excavations in the vicinity has revealed evidence of late Iron Age and Romano British occupation at the WY Police Training Centre at Carr Gate 2 km to the north (PRN 12402). Backfilled ditches of unknown date were excavated as part of the evaluation of a site to the south of Lindale Lane and north of Highfield Farm in mid-2015. These features had not been detected by a geophysical survey of the site.

Evidence of late medieval pottery kilns and dumps of pottery wasters were noted during ploughing to the north of Lindale Lane in 1971 (PRN 2059), some 340m to the north of the site. These remains are associated with a well known late medieval and early post medieval pottery industry located in an area known as the Outwood, the Outwood being a large area of managed woodland during the medieval period. The pottery industry was initially characterised by Peter Brears in the 1960s and further excavations were carried out by the West Yorkshire Archaeology Service in the 1980s. Although a 13th century origin has be postulated from documentary records excavation has established the Wrenthorpe potovens operated between the late 15th and 18th centuries and produced relatively fine glazed table wares including cups and bowls.

Although some distance from the known centre of the industry the site's location on higher ground above a valley is similar to the location of potting tenements which were excavated in Wrenthope in the 1980s. These sites have been dated to the 16th century. Pottery production was located in small enclosures. The surrounding landscape may have remained wooded or semi wooded and provided the necessary raw materials for manufacturing pottery.

In addition to pottery production other woodland industries such as barking for tanning, charcoal burning, iron working and coal mining are also recorded in the Outwood during the medieval period.

During the late 18th and early 19th century coal mining was undertaken on a large scale to the west of Wakefield and linked to the Aire and Calder Navigation and Calder and Hebble Navigation at Lake Lock and Wakefield by early horse-drawn railways and tramways.

The geophysical survey carried out by Geophysical Surveys of Bradford (Report No. G15141) identified three anomalies which may be the sites of pottery kilns or other industrial activities which have enhanced the magnetic properties of the underlying subsoil. Medieval, or more likely early post-medieval, ridge and furrow ploughing was also noted as were two possible ditches. The latter are currently of unknown date. Several areas of enhanced magnetic response were also noted although these did not suggest any specific or well defined past activities. An area of made ground is thought to lie in north-eastern part of the site adjacent to an early 20th century gas "meter house". A 20th century septic tank and soak-away associated with a pair of houses in the south-eastern corner of the site was also detected by the geophysical survey.

The site, although an outlier to the known focus of pottery production at Wrenthprpe, has the potential to contain remains of this or other early industries. Remains of the pottery industry, if present, may be of up to national significance.

5. Aim of the Specified Work

5.1 The aim of the evaluation is to gather sufficient information to establish the extent, condition, character and date (as far as circumstances permit) of any archaeological features and deposits within the area of interest. The information gained will allow the Planning Authority to make a reasonable and informed decision on the planning application as to whether archaeological deposits should be preserved in-situ, or more appropriately, be recorded prior to destruction (whether this be a summary record from a salvage excavation or watching brief, or a detailed record from full open area excavation).

6. General Instructions

6.1 Health and Safety

6.1.1 The archaeologist on site will naturally operate with due regard for Health and Safety regulations. This work may require the preparation of a Risk Assessment of the site, in accordance with the Health and Safety at Work Regulations. The WYAAS and its officers cannot be held responsible for any accidents or injuries that may occur to outside contractors while attempting to conform to this specification. Any Health and Safety issues which may hinder compliance with this specification should be discussed with WYAAS at the earliest possible opportunity (see section 13.2).

6.2 Location of Services, etc.

6.2.1 The archaeological contractors will be responsible for locating any drainage pipes, service pipes, cables *etc*. which may cross any of the trench lines, and for taking

the necessary measures to avoid disturbing such services. The known presence of a septic tank and soak-away has already been mentioned above.

6.3 Confirmation of Adherence to Specification

6.3.1 Prior to the commencement of *any work,* the archaeological contractor must confirm adherence to this specification in writing to the WYAAS, or state (with reasons) any proposals to vary the specification. Should the contractor wish to vary the specification, then written confirmation of the agreement of the West Yorkshire Archaeology Advisory Service to any variations is required prior to work commencing. Unauthorised variations are made at the sole risk of the contractor. **Modifications presented in the form of a re-written specification/project design will not be considered by the WYAAS.** Any technical queries arising from the specification detailed below should be addressed to the WYAAS *without delay*.

6.4 Confirmation of Timetable and Contractors' Qualifications

6.4.1 Prior to the commencement of *any work*, the archaeological contractor **must** provide WYAAS **in writing** with:

- a projected timetable for the site work;
- details of the staff structure and numbers;
- names and *CVs* of key project members (the project manager, site supervisor, any proposed specialists, sub-contractors *etc.*),

6.4.2 All project staff provided by the archaeological contractor must be suitably qualified and experienced for their roles. The timetable should be adequate to allow the work to be undertaken to the appropriate professional standard, subject to the ultimate judgement of WYAAS.

6.5 Notification

6.5.1 WYAAS should be provided with **as much notice as possible in writing** (and certainly not less than one week) of the intention to start work. A copy of the archaeological contractor's risk assessment of the site should accompany the notification.

6.5.2 The Wakefield Museums curator should be notified of the date of commencement of fieldwork. In this case the contact is Mr David Evans (davidevans@wakefield.gov.uk) Wakefield M.D.C. Museum and Arts, Pontefract Museum, 5 Salter Row, Pontefract, WF8 1BA. telephone 01977 722760.

6.5.3 The Historic England regional science advisor should be notified that the excavation is commencing. Please notify Dr Andy Hammon (Andy.Hammon@HistoricEngland.org.uk).

6.6 Documentary Research

6.6.1 Prior to the commencement of *fieldwork*, the HER should be visited by either the project manager or the site supervisor, in order to gain an overview of the archaeological/historical background of the site and environs. In addition to providing a knowledge base for the work in hand, the results of this assessment may be incorporated into the contractor's report where they are considered to contribute to

that report, but any extraneous material should be omitted. Please note that the HER makes a charge for consultations of a commercial nature. The results of this exercise should be used to inform the whole project. A formal desk-based report is not required and the results of this stage of work should be incorporated in the final report.

7.0 Trenching Methodology

7.1 Trench Size and Placement (Figure 1)

7.1.1 The work will involve the excavation of 10 30m x 2m trench, which can be machine-opened. The contractor should also allow for a contingency amount of 100m^2 square metres. The use of the contingency will depend upon the results obtained in the initial trial trenching. The use of the contingency will be at the decision of the WYAAS, whose decision will be issued in writing, if necessary in retrospect after site discussions. Proposed trench locations were determined from the GSB geophysical survey report, which should be used to assist in the placing of the trenches and are shown on Figure 1.

Trench No	Dimensions (m)	Area (m^2)	Reason
1	30 X 2	60	To evaluate a possible kiln (GSB #2)
2	30 X 2	60	To evaluate a possible kiln (GSB #1)
3	30 X 2	60	To evaluate a ditch feature
4	30 X 2	60	To evaluate possible features
5	30 X 2	60	To evaluate possible features
6	30 X 2	60	To evaluate a possible kiln (GSB #3)
7	30 X 2	60	To evaluate possible features
8	30 X 2	60	To evaluate possible features
9	30 X 2	60	To evaluate possible features
19	30 X 2	60	To evaluate possible features

Total site area: **16000m^2**
Total area of trenching: **600m^2**
Contingency trenching: **100m^2**

7.2 Method of Excavation

7.2.1 The trial trenches may be opened and the topsoil and recent overburden removed down to the first significant archaeological horizon in successive level spits of a **maximum** 0.2m. thickness, by the use of an appropriate machine using a wide toothless ditching blade. **Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits.** Any machine work must be carried out under direct archaeological supervision and the machine halted if significant archaeological deposits are encountered. The top of the first significant archaeological horizon may be exposed by the machine, but must then be cleaned by hand and inspected for features and then dug by hand.

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7.2.3 No archaeological deposits should be entirely removed unless this is unavoidable in achieving the objectives of this evaluation, although **all** features identified are expected to be half-sectioned and the **full** depth of archaeological deposits must be assessed. All trenches are to be the stated dimensions at their base.

7.2.4 All artefacts are to be retained for processing and analysis except for unstratified 20th-century material, which may be noted and discarded. Finds will be stored in secure, appropriate conditions following the guidelines in First Aid for Finds (3rd edition).

7.3 Method of Recording

7.3.1 The trenches are to be recorded according to the normal principles of stratigraphic excavation. The stratigraphy of each area is to be recorded, even when no archaeological deposits have been identified.

7.3.2 Section drawings (at a minimum scale of 1:20) must include heights A.O.D. Plans (at a minimum scale of 1:50) must include O.D. spot heights for all principal strata and any features. At least one section of each trench edge, showing a representative and complete sequence of deposits from the modern ground surface to the natural geology, will be drawn. In trenches where no archaeological features are encountered a representative section illustrating the soil profile will be drawn and included in the site report.

7.3.3 The actual areas of excavation and all archaeological (and possibly archaeological) features should be accurately located on a site plan and recorded by photographs, scale drawings and written descriptions sufficient to permit the preparation of a detailed archive and report on the material. The trench locations, as excavated, will be accurately surveyed, tied into the O.S. National Grid and located on an up-to-date 1:1250 O.S. map base.

7.3.4 Except where otherwise requested, black and white photography using orthodox monochrome chemical development should be used. Film should be no faster than ISO400. Slower films should be used where possible as their smaller grain size yields higher definition images. Technical Pan (ISO 25), Pan-F (ISO50), FP4 (ISO125) and HP5 (ISO400) are recommended. The use of dye-based films such as Ilford XP2 and Kodak T40CN is unacceptable due to poor archiving qualities. Black and white photography should be supplemented by colour photography; this should be in transparency format (i.e. slides or digital photography as an acceptable alternative, see paragraph 7.3.5 below).

7.3.5 Digital photography: as an alternative for colour slide photography, good quality digital photography may be supplied, using cameras with a minimum resolution of 10 megapixels. Digital photography should follow the guidance given by Historic England in Digital Image Capture and File Storage: Guidelines for Best Practice, July 2015. Note that conventional black and white print photography is still required and constitutes the permanent record. Digital images will only be acceptable as an alternative to colour slide photography if each image is supplied as both a JPEG and a TIFF versions. The latter as an uncompressed 8-bits per channel TIFF version 6 file of not less than 25Mbs (See section 2.3 of the Historic England guidance). The contractor must include metadata embedded in the TIFF file. The metadata must include the following: the commonly used name for the site being photographed, the relevant centred OS grid coordinates for the site to at least six figures, the relevant township name, the date of photograph, the subject of the photograph, the direction of shot and the name of the organisation taking the photograph. **Any digital images are to be supplied to WYAAS on gold CDs by the archaeological contractor accompanying the hard copy of the report.**

7.4 Use of Metal Detectors

7.4.1 Spoil heaps are to be scanned for non-ferrous metal artefacts using a metal detector capable of making this discrimination, operated by an experienced metal detector user (if necessary, operating under the supervision of the contracting archaeologist). Modern artefacts are to be noted but not retained (19th-century material and earlier should be retained.)

7.4.2 If a non-professional archaeologist is to be used to carry out the metal-detecting, a formal agreement of their position as a sub-contractor working under direction must be agreed in advance of their use on site. This formal agreement will apply whether they are paid or not. To avoid financial claims under the Treasure Act a suggested wording for this formal agreement with the metal detectorist is: "In the process of working on the archaeological investigation at [*location of site*] between the dates of [*insert dates*], [*name of person contributing to project*] is working under direction or permission of [*name of archaeological organisation*] and hereby waives all rights to rewards for objects discovered that could otherwise be payable under the Treasure Act 1996."

7.5 Environmental Sampling Strategy

7.5.1 Bulk samples must be taken from **all** securely stratified deposits using a strategy which combines systematic and judgement sampling, but which also follows the methodologies outlined in the English Heritage (2011) 'Environmental Archaeology: A

Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Second Edition)' guidance

7.5.2 Samples for specialist environmental analysis and scientific dating (soil profiles, archaeomagnetic dating, dendrochrology etc.) should be taken if suitable material is encountered during the excavation. The Historic England Regional Science Advisor should be consulted (Dr Andy Hammon (Andy.Hammon@HistoricEngland.org.uk, tel.: 01904 601983) and provision should be made for an appropriate specialist(s) to visit the site, take samples and discuss the sampling strategy, if necessary.

7.6 Conservation Strategy

7.6.1 A conservation strategy must be developed in collaboration with a recognised laboratory. All finds must be assessed in order to recover information that will contribute to an understanding of their deterioration and hence preservation potential, as well as identifying potential for further investigation. Furthermore, all finds must be stabilised and packaged in accordance with the requirements of the receiving museum. As a guiding principle, only artefacts of a "displayable" quality would warrant full conservation, but metalwork and coinage from stratified contexts would be expected to be x-rayed if necessary, and conservation costs should also be included as a contingency.

7.7 Human Remains

7.7.1 Any human remains that are discovered must initially be left *in-situ*, covered and protected. WYAAS will be notified at the earliest opportunity. If removal is necessary the remains must be excavated archaeologically in accordance with the *Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England* published by English Heritage (2005), a valid Ministry of Justice licence, if appropriate, and any local environmental health regulations.

7.8 Treasure Act

7.8.1 The terms of the Treasure Act 1996, as amended, must be followed with regard to any finds that might fall within its purview. Any finds must be removed to a safe place and reported to the local coroner as required by the procedures as laid down in the "Code of Practice". Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

7.9. Unexpectedly Significant or Complex Discoveries

8.9.1 Should there be unexpectedly significant or complex discoveries made that warrant, in the professional judgement of the archaeologist on site, more detailed recording than is appropriate within the terms of this specification, then the archaeological contractor should urgently contact the WYAAS with the relevant information to enable them to resolve the matter with the developer.

8. Access/Monitoring Arrangements

8.1 The representative of the WYAAS will be afforded access to the site at any reasonable time. It is usual practice that the visit is arranged in advance, but this is not always feasible. The WYAAS' representative will be provided with a site tour and an overview of the site by the senior archaeologist present and should be afforded the

opportunity to view all trenches, any finds made that are still on site, and any records not in immediate use. It is anticipated that the records of an exemplar context that has previously been fully recorded will be examined. Any observed deficiencies during the site visit are to be made good to the satisfaction of the WYAAS' representative, by the next agreed site meeting. Access is also to be afforded at any reasonable time to Historic England's Regional Archaeological Science Advisor.

8.2 Please note that WYAAS now make a charge for site monitoring visits. An invoice will be raised on the archaeological contractor. Up to two (2) monitoring visit will be charged for this project. Please contact us for the current charge.

8.3 During fieldwork monitoring visits WYAAS officers will take digital photographs which may be published on the Advisory Service's social media feeds as part of an ongoing strategy to enable public access to information about current fieldwork in the county.

9. Excavation Archives Deposition.

9.1 Before commencing any fieldwork, the archaeological contractor must contact the relevant District museum archaeological curator to determine the museum's requirements for the deposition of an excavation archive. In this case the contact is Mr David Evans (davidevans@wakefield.gov.uk) Wakefield M.D.C. Museum and Arts, Pontefract Museum, 5 Salter Row, Pontefract, WF8 1BA telephone 01977 722760. Agreement for deposition should be confirmed in writing by the archaeological contractor; this correspondence is to be copied to the WYAAS.

9.2 It is the policy of Wakefield Museums to accept complete excavation archives, including primary site records and research archives and finds, from all excavations carried out in the District that it serves.

9.3 It is the responsibility of the archaeological contractor to endeavour to obtain consent of the landowner, in writing, to the deposition of finds with Wakefield Museums.

9.4 It is the responsibility of the archaeological contractor to meet Wakefield Museums' requirements with regard to the preparation of excavation archives for deposition.

10. Post-Excavation Analysis and Reporting

10.1 Requirement for Further Fieldwork

10.1.1 It is anticipated that upon (or approaching) completion of fieldwork a meeting with WYAAS will be arranged by the archaeological contractor, either at the WYAAS offices or on site, to discuss the results and agree what, if any, additional work may be warranted. The developer should also be invited to attend this meeting. The meeting may take the form of a telephone discussion at WYAAS' discretion. Following the meeting the archaeological contractor will either produce a report (if no further archaeological work is warranted), or draft a specification (if further work is required) to be submitted to WYAAS for written approval prior to the commencement of any further work.

10.1.2 If further fieldwork is required, the results of the evaluation will be integrated into an overall report encompassing all stages of work. However, if a different contractor is employed by the developer to undertake subsequent works, then a full, formal evaluation report (see paragraph 10.3 below) should be prepared and accepted by WYAAS before further fieldwork commences.

10.2 Finds and Samples

10.2.1 On completion of the fieldwork, any samples taken shall be processed and any finds shall be cleaned, identified, assessed/analysed, dated (if possible), marked (if appropriate) and properly packed and stored in accordance with the requirements of national guidelines.

10.2.2 Samples should be processed for the recovery of artefactual material, animal/fish/human bones, industrial residues (e.g. fuel residues), shell, molluscs, charcoal and mineralised plant remains as a minimum. 'Specialist' samples (e.g. monoliths, cores, plant/invertebrate macrofossils) should be processed separately as appropriate.

10.2.3 Material suitable for scientific dating (e.g. charcoal) should be identified to species and assessed for suitability by an environmental specialist prior to submission to a dating laboratory. Any human remains submitted for C14 dating should also have carbon (delta 13C) and nitrogen isotope analysis carried out by the radiocarbon laboratory.

10.2.4 All finds and biological material must be analysed by a qualified and experienced specialist.

10.2.5 Following identification, finds of 20th-century date should be noted, quantified and summarily described, but can then be discarded if appropriate. All finds which are of 19th century or earlier date should be retained and archived.

10.3 Field Archive

10.3.1 A fully indexed field archive shall be compiled consisting of all primary written documents, plans, sections, photographic negatives and a complete set of labelled photographic prints/slides. Standards for archive compilation and transfer should conform to those outlined in *Archaeological Archives – a guide to best practice in creation, compilation, transfer and curation* (Archaeological Archives Forum, 2007). The contractor should also take account of any additional requirements imposed by the recipient museum (see section 9.1 above). An index to the field archive is to be deposited with the West Yorkshire Archaeology Advisory Service (preferably as an appendix in the report).

10.3.2 Prints may be executed digitally from scanned versions of the film negatives, and may be manipulated to improve print quality (but **not** in a manner which alters detail or perspective). **All digital prints, including those in the report, must be made on paper and with inks which are certified against fading or other deterioration for a period of 75 years or more when used in combination. If digital printing is employed, the contractor must supply details of the paper/inks**

used in writing to the WY Archaeology Advisory Service, with supporting documentation indicating their archival stability/durability. Written confirmation that the materials are acceptable must have been received from the WYAAS prior to the commencement of work on site.

10.3.3 The original archive is to accompany the deposition of any finds, providing the landowner agrees to the deposition of finds in a publicly accessible archive (see para. 9 above). In the absence of this agreement the field archive (less finds) is to be deposited with the West Yorkshire Archaeology Advisory Service.

10.4 Report Format and Content

10.4.1 A report should be produced, which should include background information on the need for the project, a description of the methodology employed, and a full description and interpretation of results produced. It is not envisaged that the report is likely to be published, but it should be produced with sufficient care and attention to detail to be of academic use to future researchers.

10.4.2 Location plans should be produced at a scale which enables easy site identification and which depicts the full extent of the site investigated (a scale of 1:50,000 is not regarded as appropriate unless accompanied by a more detailed plan or plans). Site plans should be at an appropriate scale showing trench layout (as dug), features located and, where possible, predicted archaeological deposits. Upon completion of each evaluation trench all sections containing archaeological features will be drawn. Section drawings (at a minimum scale of 1:20) must include heights O.D. Plans (at a minimum scale of 1:50) must include O.D. spot heights for all principal strata and any features. Where no archaeological deposits are encountered at least one long section or representative section of each trench will be drawn. Where archaeological features are encountered a full section drawing will be included in the report.

10.4.3 Artefact analysis is to include the production of a descriptive catalogue, quantification by context and discussion/interpretation if warranted, with finds critical for dating and interpretation illustrated.

10.4.4 Environmental analysis is to include identification of the remains, quantification by context, discussion/interpretation if warranted, and a description of the processing methodology. Radiocarbon results must be presented in full (laboratory sample number, conventional radiocarbon age, delta C13 value, calibration programme). Copies of the laboratory-issued dating certificates must be included as an appendix to the report.

10.4.5 Details of the style and format of the report are to be determined by the archaeological contractor, but should include a full bibliography, a quantified index to the site archive, and as an appendix, a copy of this specification.

10.5 Summary for Publication

10.5.1 The attached summary sheet should be completed and submitted to the WYAAS for inclusion in the summary of archaeological work in West Yorkshire to be published on WYAAS' website. During fieldwork monitoring visits WYAAS officers will take digital photographs which may be published on the Advisory Service's social

media feeds as part of an ongoing strategy to enable public access to information about current fieldwork in the county. See Section 8.3 above.

10.6 Publicity

If the project is to be publicised in any way (including media releases, publications etc.), then it is expected that the WYAAS will be given the opportunity to consider whether it wishes its collaborative role to be acknowledged, and if so, the form of words used will be at the WYAAS' discretion.

11. Report Submission and Deposition with the HER

11.1 **A hard copy of the report (including a digital copy on gold compact disk) is to be supplied directly to the WYAAS within a period of two months following completion of fieldwork**, unless specialist reports are awaited. In the latter case a revised date should be agreed with the WYAAS. Completion of this project and advice from WYAAS on an appropriate mitigation strategy are dependant upon receipt by WYAAS of a satisfactory report which has been prepared in accordance with this specification. Any comments made by WYAAS in response to the submission of an unsatisfactory report will be taken into account and will result in the reissue of a suitably edited report to all parties, within a timescale which has been agreed with WYAAS.

11.2 The report will be supplied on the understanding that it will be added to the West Yorkshire Historic Environment Record where it will be publicly accessible once deposited unless confidentiality is explicitly requested, in which case it will become publicly accessible six months after deposition.

11.3 Copyright - Please note that by depositing this report, the contractor gives permission for the material presented within the document to be used by the WYAAS, in perpetuity, although The Contractor retains the right to be identified as the author of all project documentation and reports as specified in the *Copyright, Designs and Patents Act* 1988 (chapter IV, section 79). The permission will allow the WYAAS to reproduce material, including for commercial use by third parties, with the copyright owner suitably acknowledged.

11.4 A copy of the final report (in .pdf format) shall also be supplied to Historic England's Science Advisor (Dr Andy Hammon (Andy.Hammon@HistoricEngland.org.uk).

11.5 The West Yorkshire HER supports the Online Access to Index of Archaeological Investigations (OASIS) project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork. The archaeological contractor must therefore complete the online OASIS form at **http://ads.ahds.ac.uk/project/oasis/**. Contractors are advised to contact the West Yorkshire HER officer prior to completing the form. Once a report has become a public document by submission to or incorporation into the HER, the West Yorkshire HER may place the information on a web-site. Please ensure that you and your client agree to this procedure in writing as part of the process of submitting the report to the case officer at the West Yorkshire HER.

11.6 A note on the fieldwork should be prepared for inclusion in the Council for British Archaeology's Yorkshire Forum publication (please contact the editor or CBA's website for more information forum-editor@cba-yorkshire.org.uk). A note should also be prepared for inclusion in an appropriate national journal, e.g. PPS, Medieval Archaeology or Post Medieval Archaeology as appropriate and warranted.

12. General Considerations

12.1 Authorised Alterations to Specification by Contractor

12.1.1 It should be noted that this specification is based upon records available in the West Yorkshire Historic Environment Record and on a brief examination of the site by the WYAAS. Archaeological contractors submitting tenders should carry out an inspection of the site prior to submission. If, on first visiting the site or at any time during the course of the recording exercise, it appears in the archaeologist's professional judgement that

i) a part or the whole of the site is not amenable to recording as detailed above, and/or
ii) an alternative approach may be more appropriate or likely to produce more informative results, and/or

then it is expected that the archaeologist will contact WYAAS as a matter of urgency. If contractors have not yet been appointed, any variations which the WYAAS considers to be justifiable on archaeological grounds will be incorporated into a revised specification, which will then be re-issued to the developer for redistribution to the tendering contractors. If an appointment has already been made and site work is ongoing, WYAAS will resolve the matter in liaison with the developer and the Local Planning Authority.

12. 2 Unauthorised Alterations to Specification by Contractor

12.2.1 It is the archaeological contractor's responsibility to ensure that they have obtained WYAAS' consent in writing to any variation of the specification prior to the commencement of on-site work or (where applicable) prior to the finalisation of the tender. Unauthorised variations may result in WYAAS being unable to recommend determination of the planning application to the Local Planning Officer based on the archaeological information available and are therefore made solely at the risk of the contractor.

12.3 Technical Queries

Similarly, any technical queries arising from the specification detailed above, should be addressed to WYAAS without delay.

12.4 Valid Period of Specification

This specification is valid for a period of one year from date of issue. After that time it may need to be revised to take into account new discoveries, changes in policy or the introduction of new working practices or techniques.

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West Yorkshire Archaeology Advisory Service
David Hunter **December 2015**

Historic Environment Record
West Yorkshire Archaeology Advisory Service
Registry of Deeds
Newstead Road
Wakefield
WF1 2DE

Telephone: (01924) 306798
Fax: (01924) 306810
E-mail: dhunter@wyjs.org.uk

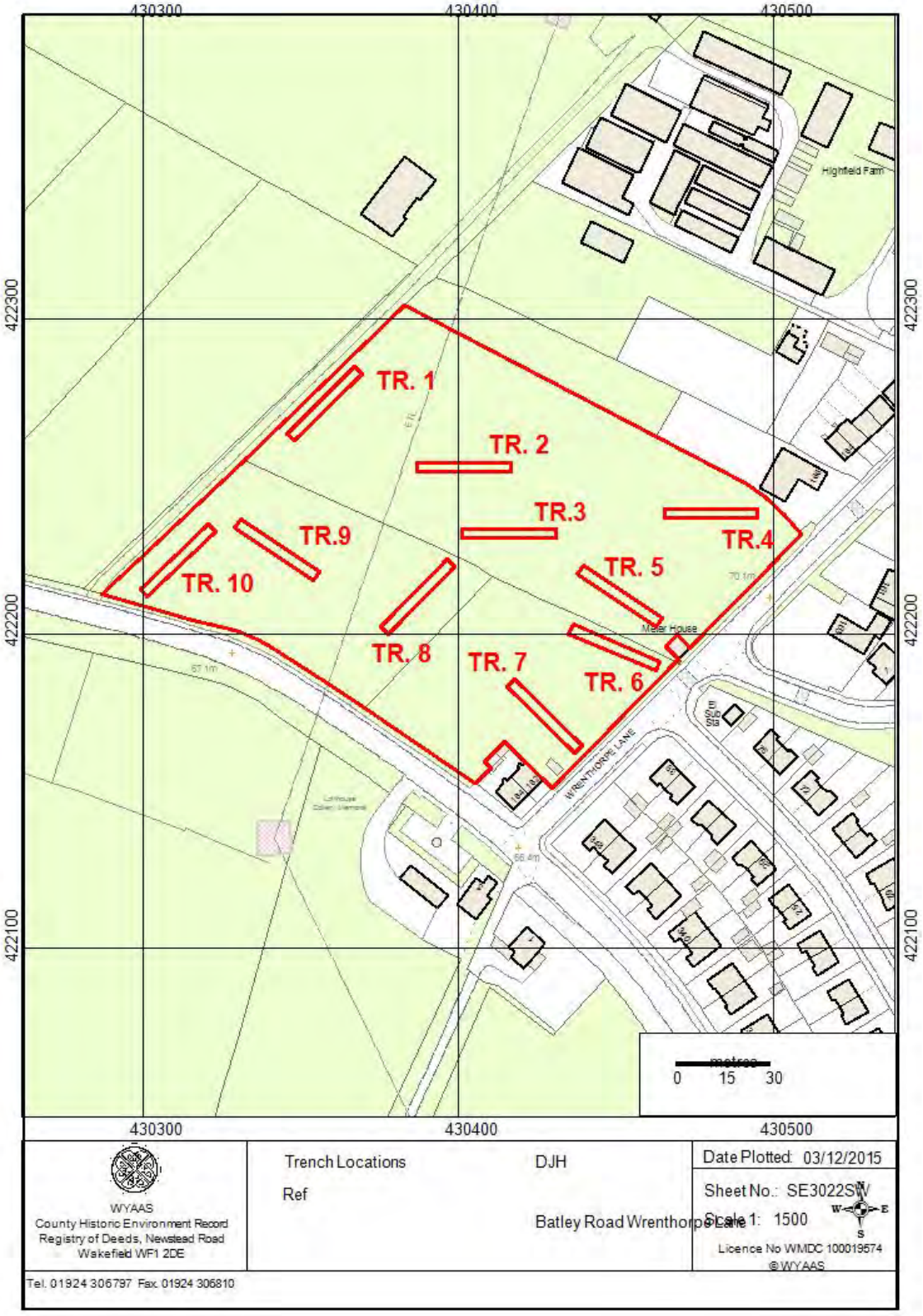

Figure 1 Site location and trenching plan

Appendix 2: Inventory of primary archive

File	Description	Quantity
File 1	Trench record sheet	10
	Context register	2
	Context cards	59
	Digital photo record sheet	2
	Photo record sheet (film nos 9265, 9293)	2
	Sample register	1
	Drawing register	1
	Permatrace sheets	7
	Levels sheet	3

Appendix 3: Concordance of contexts yielding artefacts or environmental remains

Context	Trench	Description	Artefacts and environmental samples
100	1	Dump of industrial waste	
101	1	Topsoil	
102	1	Subsoil	
103	1	Natural	
104	1	Fill of 105	
105	1	Cut of possible pit/post-hole	
106	1	Fill of 107	
107	1	Fill of possible terminus	
108	1	Fill of 109	
109	1	Cut of possible pit/post-hole	
110	1	Fill of 111	
111	1	Cut of possible pit	
200	2	Dump of industrial waste	CBM sample
201	2	Topsoil	
202	2	Subsoil	
203	2	Natural	
300	3	Topsoil	
301	3	Subsoil	
302	3	Natural	
400	4	Topsoil	Pottery (1)
401	4	Subsoil	
402	4	Natural	
403	4	Fill of 404	Burnt bone (1)
404	4	Cut of pit/post-hole	
405	4	Fill of 406	
406	4	Ct of modern pit	
500	5	Topsoil	
501	5	Subsoil	

Context	Trench	Description	Artefacts and environmental samples
502	5	Natural	
503	5	Stone drain	
504	5	Backfill around drain	
505	5	Cut for drain 503	
600	6	Topsoil	Cu alloy 'button'
601	6	Subsoil	
602	6	Natural	
603	6	Fill of 604	CBM sample
604	6	Cut of ditch	
605	6	Cut of kiln	
606	6	Fill of kiln	
607	6	Kiln debris	
608	6	Kiln structure	
609	6	Burnt layer	
610	6	Redeposited natural clay	
700	7	Topsoil	
701	7	Subsoil	
702	7	Natural	
800	8	Topsoil	Pottery (1)
801	8	Subsoil	
802	8	Natural	
900	9	Topsoil	
901	9	Subsoil	
902	9	Natural	
1000	10	Topsoil	Pottery (3)
1001	10	Subsoil	
1002	10	Natural	
1003	10	Fill of 1004	
1004	10	Cut of possible furrow	
2000	-	Topsoil	Pottery (9), animal bone (1)
2001	-	Subsoil	
2002	-	Natural	
2003	-	Fill of 2004	
2004	-	Cut of spread	
2005	-	Fill of 2006	GBA3
2006	-	Cut of burnt shallow feature	
2007	-	Fill of 2009	
2008	-	Stone drain in 2009	
2009	-	Construction cut for drain 2008	
2010	-	Fill of 2011	
2011	-	Cut of spread	
2012	-	Fill of 2013	GBA4
2013	-	Cut of ditch	
2014	-	Fill of 2015	
2015	-	Cut of ditch	
2016	-	Material built up over kiln	

Context	Trench	Description	Artefacts and environmental samples
2017	-	Kiln material in 2018	CBM sample
2018	-	Cut of kiln base	
2019	-	Kiln material in 2020	GBA2, CBM sample
2020	-	Cut of kiln base	
2021	-	Redeposited natural in edge of 2018	CBM sample
2022	-	Modern grey layer	
2023	-	Redeposited natural clay	
2024	-	Waste spread from kiln	
2025	-	Upper fill of kiln 2027	CBM sample
2026	-	Lower fill of kiln 2027	
2027	-	Cut of kiln	
2028	-	Fill of ditch 2029	CBM sample
2029	-	Cut of ditch	
2030	-	Redeposited natural clay	
2031	-	Upper fill of kiln 2033	GBA1, CBM sample
2032	-	Lower fill of kiln 2033	
2033	-	Cut of kiln	
2034	-	Deposit sealing 2019	
2035	-	Fill of 2036	
2036	-	Cut for modern rubbish	

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