



**ARCHAEOLOGICAL INVESTIGATIONS AT
LAUGHTON ROAD, THURCROFT, ROTHERHAM,
SOUTH YORKSHIRE**

ARCHAEOLOGICAL EVALUATION REPORT

Report Number 2013/02 April 2013



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NON-TECHNICAL SUMMARY

Archaeological works were undertaken on a site at Laughton Road, Thurcroft, South Yorkshire, in advance of a housing development. The works comprised a strip, map and sample to record features seen during topsoil stripping at the eastern end of the site, together with the excavation of 43 evaluation trenches, which were mostly 50m x 2m in size, though two measured 20m x 8m. Very few archaeological features were present on the site, and those seen largely related to agriculture in the form of furrows, plough scores and a possible drainage ditch. The site was almost devoid of artefacts suggesting that it has not been used for settlement activity in the past, but rather for agriculture.

KEY PROJECT INFORMATION

Project Name	Laughton Road, Thurcroft, Rotherham, South Yorkshire
ArcHeritage Project No.	5510
Report status	Final
Type of Project	Archaeological evaluation
Client	Barratt Homes and David Wilson Homes Yorkshire West
Planning Application No.	RB2011/1244
NGR	449974 388452 (SK 499 884)
Museum Accession No.	ROTMG:2013.1
OASIS Identifier	yorkarch1-147224
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1 INTRODUCTION

Between 14th November and 6th December 2012 ArcHeritage undertook a watching brief and an archaeological evaluation on a site at Laughton Road, Thurcroft, Rotherham, South Yorkshire; the site is centred on National Grid Reference (NGR) SK 499 884 (Figure 1). The work was commissioned by Barratt Homes and David Wilson Homes Yorkshire West, who had been granted planning permission (planning reference number RB2011/1244) for the development of the site for housing, together with the associated access roads and a footpath/cycleway subject to an archaeological planning condition.

The project followed on from a desk based assessment (Stenton 2011) and a geophysical survey (GSB 2012), the results of which are summarised in Section 4 below. The geophysical survey identified various features of potential archaeological interest (Figure 4), necessitating a programme of archaeological works to investigate and assess the nature and level of preservation of any surviving remains. The works comprised a strip, map and sample which entailed the observation of topsoil stripping at the eastern end of the site, followed by the excavation of 43 evaluation trenches across the remainder of the site. The excavated features mainly related to agriculture (plough furrows, a drainage ditch and field drains), the only other feature present being an isolated pit. The topsoil on the site was remarkably clean, with very few artefacts present. The lack of both features and artefacts suggests that the site has not been intensively settled at any stage, but rather has been put to agricultural use.

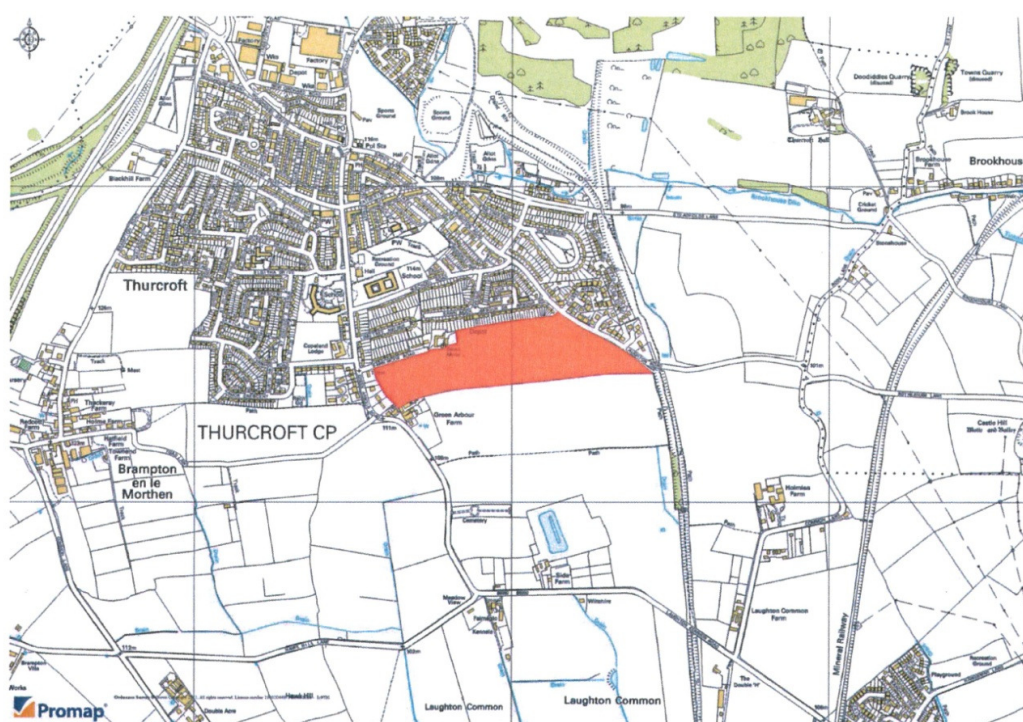


Figure 1 Site location, with the site highlighted in red, not to scale.

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2 METHODOLOGY

The original scheme of proposed archaeological works comprised the excavation of sixty-five 50m x 2m sized trenches, the location of which was designed to investigate both anomalies anomalies identified by geophysical survey and blank areas. Trenches were also proposed beyond the limits of the geophysical survey along the eastern and southern side of the site (Figure 2). The area outlined in dark blue on Figure 2 was regarded as the priority for excavation.



Figure 2 The original design for the archaeological evaluation superimposed on the geophysical plot, with the proposed trenches shown in red

The strategy was revised in consultation with Jim McNeil of South Yorkshire Archaeology service (SYAS) to facilitate the establishment of a site compound, access road and areas for construction of show housing in two areas at the eastern end of the site. These areas were stripped under archaeological supervision in consultation with Jim McNeil of SYAS and were followed by the excavation of evaluation trenches to the a revised project design. Written Scheme of Investigation (WSI) documents were drawn up by ArcHeritage for the proposed works, the first of which (ArcHeritage 2012a) related to the strip, map and sample and the second of which (ArcHeritage 2012b) related to the excavations of the evaluation trenches.

The strip under archaeological supervision was undertaken between 14th-23rd November 2012, and the topsoil was stripped using three 360° excavation machines fitted with toothless buckets. The stripping comprised areas at the south-eastern corner and north-eastern corners of the site; the central portion of the eastern side of the site, which represented the lowest point of the site Above Ordnance Datum (AOD), was not stripped. The stripped deposits comprised grass/stubble of the field and the associated topsoil. The spoil was loaded into dumper trucks and a larger Moxy tipper truck for removal to three spoil heaps located to the west of the stripped areas. Due to heavy rain, the area over which the dumper trucks and

Moxy were being driven became churned by deep wheel ruts. Damage was particularly severe adjacent to the two stripped areas of the site i.e. the central section on the eastern boundary of the site (Plate 1).



Plate 1. Machine damage to the eastern portion of the site, facing north-north-west

A meeting was held on the 22nd November 2012 between ArcHeritage staff and Mr. J. McNeil, who monitored the project on behalf of SYAS to discuss the results of the watching brief. As a result of this meeting the original trench layout was redesigned (Figure 3). As the eastern side of the site had been thoroughly sampled in the strip, map and sample no further trenches were required in that area (highlighted in blue on Figure 3), while the area to the immediate west of the strip, map and sample (highlighted in orange on Figure 3), was investigated by two large 20m x 8m trenches, in the hopes that any features which had survived the machine damage would be more clearly visible in a larger trench. The trial trench strategy for the remainder of the site followed the original project design.

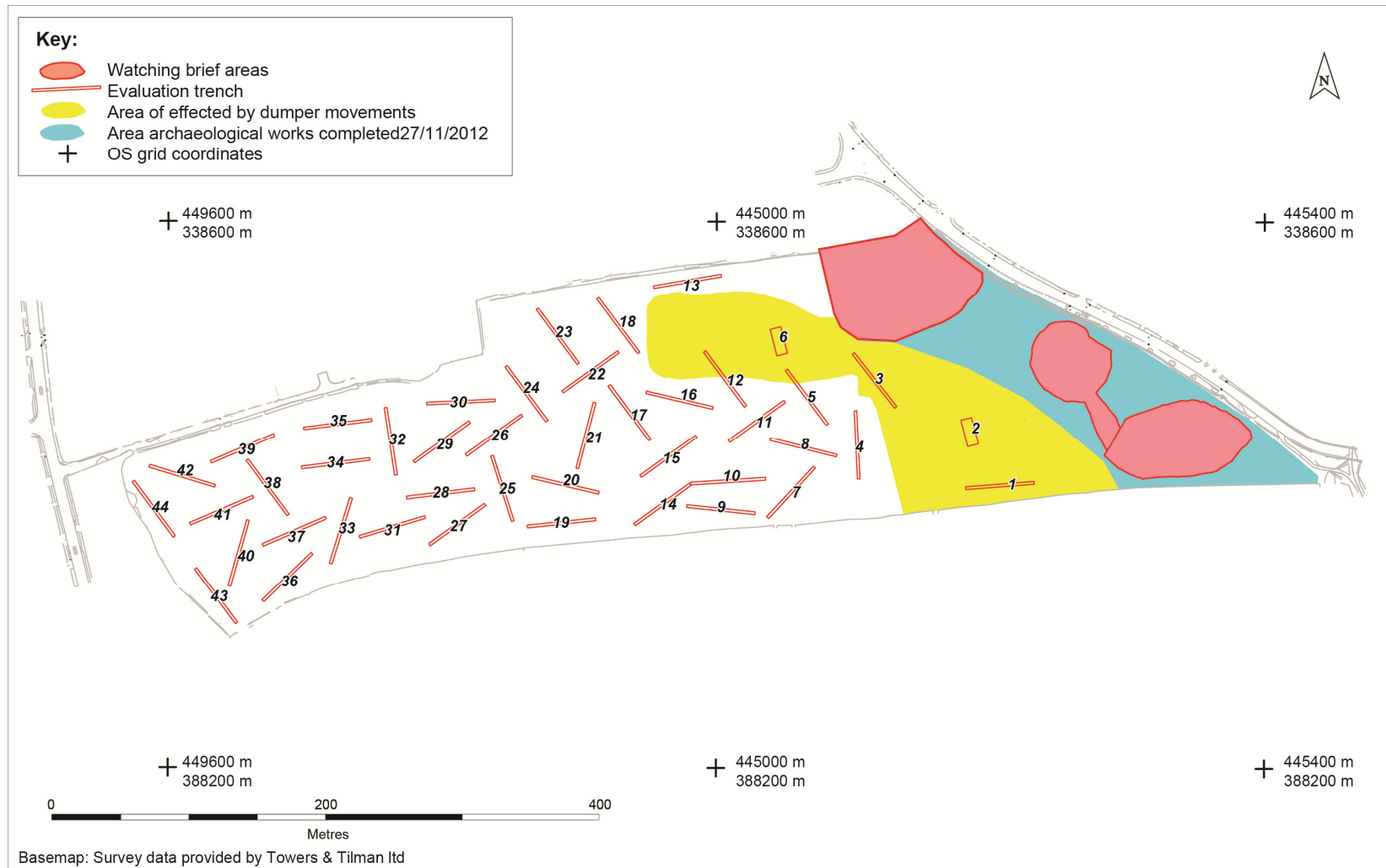


Figure 3 The location of the stripped area observed in the watching brief and of the evaluation trenches

The evaluation trenches were designed to cover 5% of the total development area. The evaluation trenches were excavated between 29th November and 6th December 2012. A total of 41 evaluation trenches 50m x 2m in area were excavated, in addition two trenches measuring 20m x 8m were excavated. One trench (Trench 3) could not be excavated due to the presence of standing water. Trench 7 had to be in-filled immediately due to flooding, which was also a problem in Trenches 5, 8, 9 and 10. The developers had constructed a substantial fence on a north-south alignment across the centre of the site which ran across Trenches 19-23, and the area immediately below the fence could not be excavated in each of these trenches. Trench 10 was accidentally machined in the wrong position, the eastern end was in the correct position but the western end was excavated too far to the south, to the western end of Trench 14. The trenches were stripped using a mechanical excavator with a toothless bucket, stripping stopped at the top archaeological deposits, or the top of the underlying natural, whichever was reached first. This resulted in trenches ranging from 0.22m to 0.48m in depth. The stripping was done as a series of spits, each approximately 0.15m deep, and the spoil was stored at the side of the trench ready for subsequent backfilling. The backfilling was undertaken on the 7th-10th December.

Sample cross-sections of linear features were excavated and each cross-section was 1m in length, with 25% of the total length of each linear feature being excavated. This sampling methodology excluded linear features of little archaeological interest notably furrows from ridge and furrow field systems, in such cases a single 1m section was excavated to confirm the identification. Modern field drains were not recorded in detail. Discrete features were half-sectioned, all termini were excavated, and the intersections of features were investigated to determine the stratigraphic relationships. A 1m wide sample section was cleaned and recorded in each excavated trench. All archaeological contexts were recorded on proforma record sheets. The features seen in the watching brief were planned by surveying, while all trenches were planned on a 1:100 trench plan, with significant archaeological features also being planned at 1:20, and sections of archaeological features being drawn at 1:10. Black and white photographs and colour slides were taken, in addition digital photographs were taken for use in this report. The digital photographs do not form part of the formal archive of the site. The site records will be deposited at Clifton Park Museum, Rotherham under accession number ROTMG:2013.1 by the end of May 2013.

3 LOCATION, GEOLOGY & TOPOGRAPHY

The site is located on the south-eastern side of Thurcroft, a village approximately 8.5km south-east of Rotherham, South Yorkshire. The site comprises a single field bordered to the west and north by 20th century housing, to the east by Laughton Road, and to the south by agricultural land separated from the development site by a field boundary hedge. The site is located on gently rolling landscape dropping from 115m AOD (at the western end) to between 102.4m AOD (at the eastern end of the site). The solid geology of the site is Carboniferous Lower Coal Measures.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The archaeological and historical background for the site has already been investigated in a desk based assessment (Stenton 2011) and the results are summarised here. There is no evidence of prehistoric activity on the site, but a possible palaeochannel (an old river channel) was identified on an aerial photograph in the eastern part of the site, curving from NGR SK 501 883 on the southern boundary of the site to NGR SK 502 885 (Stenton 2011, 3-4) on the sites eastern edge. Three Iron Age or Romano-British find spots have been made within 1km of the site, including a sub-square enclosure seen in aerial photographs, which has been interpreted as part of a field system of Iron Age or Romano-British date (Stenton 2011, 4). A Roman road is conjectured to run through Thurcroft 0.15km to the north of the site, but no actual evidence for this has been found (Stenton 2011, 4).

The field is named Sawn Moor, an Old English term meaning to scatter seed to grow crops, suggesting that the site may have been used for agriculture in the early medieval period (Stenton 2011, 4). The place name Thurcroft is a hybrid of the Norse personal name Thori and the Old English croft meaning an enclosed field, again suggesting early medieval farming activity in the vicinity (Stenton 2011, 4). The site appears to have been used for agriculture from at least 1464 onwards (Stenton 2011, iii). The DBA identified five medieval sites or find spots, and four 16-17th century sites or find spots located within 1km of the present site (Stenton 2011, 5). Most of the present site boundaries were created between 1771 (enclosure award) and 1835 (first edition Ordnance Survey map); by the latter date the site was divided into four rectangular fields with an east-west trackway crossing the north-easternmost field (Stenton 2011, Figure 4). The four fields remained unaltered until 1892, with the trackway going out of use sometime between 1855 and 1892 (Stenton 2011, Figures 5-6). By 1929 the easternmost two fields had been amalgamated (Stenton 2011, Figure 7), and between 1961 and 1981 all the fields within the development area had been amalgamated into one large field (Stenton 2011, iii). No buildings are depicted on the site on any maps from 1771 to the present day (Stenton 2011, iii).

Following the desk based assessment a geophysical survey of the site revealed a number of features of potential archaeological interest (Figure 4). For clarity the western and eastern portions of Figure 4 are shown in greater detail in Figures 5-6. There were a number of linear features (shown as solid brown lines on Figure 4-6) interpreted as potential field boundaries; the northernmost, southernmost and easternmost of these bore no relation to the field boundaries depicted on 18th-19th century maps of the area suggesting that they were of an earlier date. There were large numbers of parallel linear features on varying alignments across the westernmost two-thirds of the site (shown in dashed lines on Figures 4-6) suggestive of ridge and furrow farming systems. In addition, there were a number of anomalies suggestive of pits across the site, and three curvilinear features in the central portion of the site (Figure 5). The area thought to be a palaeochannel from air photographs was identified as a magnetically quiet band from the southern to the eastern sides in the south-easternmost quarter of the site (Figure 6)

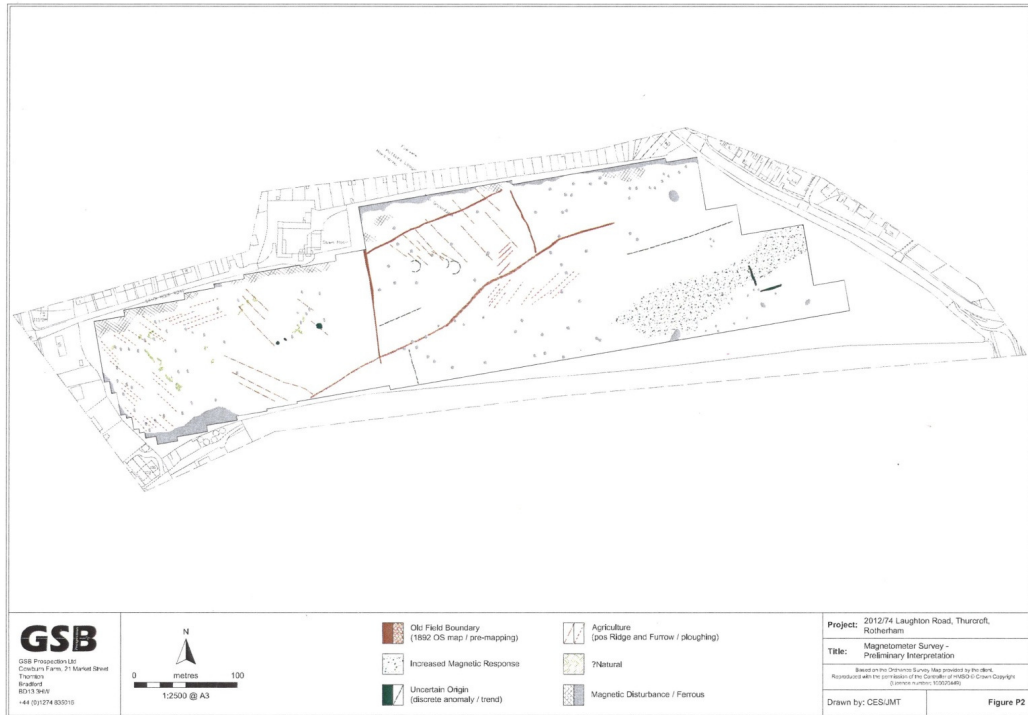


Figure 4 Interpretation of the results of the geophysical survey.



Figure 5 Detail of the geophysical survey interpretation in the western portion of the site.



Figure 6 Detail of the geophysical survey interpretation in the eastern portion of the site.

5 RESULTS

5.1 THE WATCHING BRIEF AT THE EASTERN END OF THE SITE

5.1.1 AREA STRIP AT THE SOUTH-EASTERN END OF THE SITE

The stripped area comprised a roughly sub-rectangular area in the south-easternmost corner of the site, aligned with the long axis east-west, which was destined for use as a site compound; to the north of this was a roughly circular area which was to be used for the construction of show houses, these two areas were connected by a linear strip, destined to be the site of a road.

The natural in this area (Context 1038) mainly comprised yellow clay mottled with manganese, with a band of fractured and decayed sandstone on an east-west alignment in the northernmost stripped portion. Plate 2 illustrates the difference in the natural, while the location of the differing types of natural is given on Figure 7.

Very few features were present cutting into the natural, all of which were located where the underlying natural was of clay rather than fractured sandstone; the location of the features is given on Figure 7. A shallow rectangular pit measuring 2.10m x 1.73m in area and 0.19m deep was present (cut 1021, backfill 1020, Figure 7); no artefacts were recovered from the pit to suggest its original function or date. There was a ditch on a north-east to south-west alignment; four cross-sections were excavated through the ditch, in addition the terminus was excavated (the ditch cut was numbered 1031, 1033, 1025, 1035 and 1037 in the various excavated portions, with associated backfills 1030, 1032, 1024, 1034 and 1036). The ditch was up to 1.23m in width and 0.36m in depth, and petered out at the north-eastern end; a typical cross-section is illustrated on Figure 8. This ditch terminated at exactly the point where the underlying natural changed from clay to fractured sandstone, suggesting that this ditch had

been excavated as a drainage ditch to remove water from the upper, poorly draining clay slopes of the site onto the lower more freely draining sandstone.



Plate 2. Variations in the natural in the south-eastern area strip, with clay in the foreground and fractured sandstone beyond.

A series of parallel furrows from a ridge and furrow field system were apparent on an east-west alignment. These furrows were numbered from south to north as contexts 1009, 1011, 1013, 1005, 1007, 1015, 1019, 1027/1029 and 1023, with associated backfills 1008, 1010, 1012, 1004, 1006, 1014, 1018, 1026/1028 and 1022. The furrows were up to 2.3m in width and 0.2m in depth, and they were spaced approximately 10m apart, and a cross-section through a typical furrow is given in Figure 8. The backfills of the furrows comprised pale grey clay. Although few artefacts were recovered from these furrows there was some pottery of medieval date in Contexts 1006 and 1010, the pottery was sufficiently abraded to suggest that it was not in a primary context. There was also a fragment of a horseshoe (small finds 2) within Context 1006, but this was in such poor condition its form could not be identified. The ridge and furrow system could potentially therefore be of medieval or post-medieval date. Between furrows 1015 and 1019 a single furrow on an identical alignment proved markedly different to the predominant pattern; being much narrower and filled with a dark brown clay (cut 1017, fill 1016). It is unclear therefore if this represents part of the same field system or is of a differing date, a cross-section is given on Figure 8.

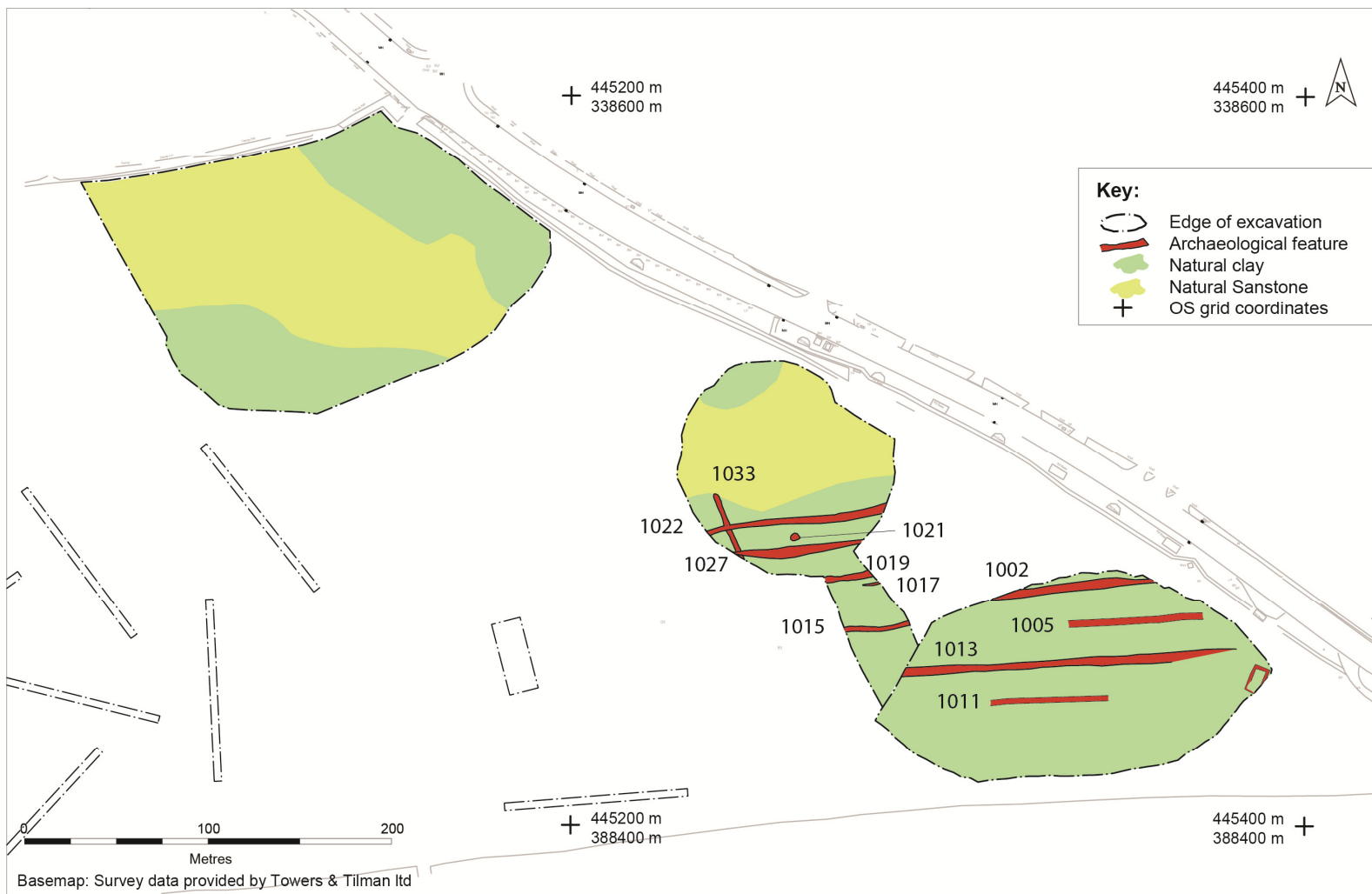


Figure 7 The location of the features in the south-eastern area-strip.

A rectilinear trench on north-north-west to south-south-east alignment measured 7.2m x 4.5m in size, with the trench being up to 0.7m wide and 0.58m deep (Context 1002). This cut contained two backfills, (Contexts 1001 and 1003) the earlier of which contained a plastic bag, clearly dating the feature as 20th century or later. Context 1001 also contained mid-19th century or later field drain fragments and 17th/18th century pottery, while Context 1003 also contained mid-19th century or later field drains. A cross-section of this feature is given on Figure 8. There were also a number of modern field drains visible some of which contained machine made ceramic drains, while others were infilled with stones; these were not recorded in detail, but examples of each type are illustrated on Plate 3. The uppermost deposit (Context 1000) comprised the turf and topsoil of the field, which was a dark silty-clay approximately 0.3m thick, and this was removed by machine.



Plate 3. Modern ceramic field drain and stone filled field drain in the south-eastern stripped area, facing north, scale unit 0.1m

5.1.2 AREA STRIP AT THE NORTH-EASTERN END

The north-easternmost stripped area observed in the watching brief was initially almost oval in shape with the long axis aligned north-east to south-west, this was later extended on the northern side to be 3m south of, and aligned to, the northern property boundary of the field; this area was to be used for the construction of show houses.

The natural deposits in this area (Context 1038) comprised a band of fractured sandstone on a north-west to south-east alignment between two areas of yellow clay. There were no features of archaeological interest cut in to the natural, though a number of geological trial pits could clearly be seen in the fractured sandstone, and four modern stone filled field drains were present in the eastern portion of the site (Plate 4). None of these modern features were

recorded in detail. The uppermost deposits removed by machine (Context 1000) comprised the turf of the present field with underlying topsoil of dark silty-clay, on average 0.3m thick.

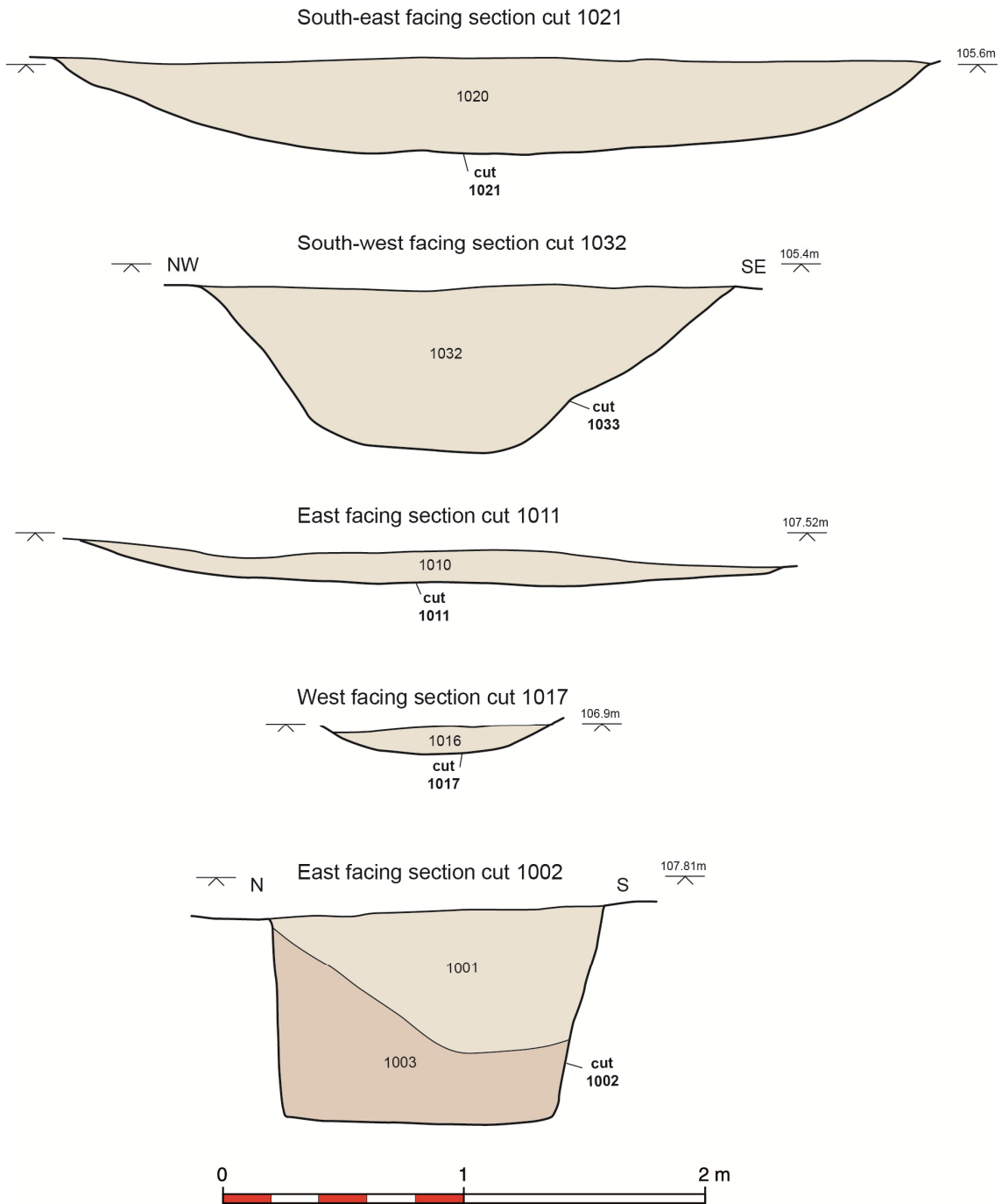


Figure 8 Sections of the various features in the south-eastern stripped area.



Plate 4. The north-eastern stripped area showing natural yellow clay in the foreground and natural fractured sandstone in the distance, with modern stone filled field drains showing as parallel lines, facing south-east

5.2 THE EVALUATION TRENCHES

To avoid repetitive trench-by-trench descriptions the results of the excavations are summarised here on a period by period basis, the context details are given in Appendix 2, while brief trench summaries are given in Appendix 3; the location of the trenches are given on Figure 3.

5.2.1 NATURAL DEPOSITS

Natural deposits across the site varied considerably. Trench 1 natural comprised light yellow clay (Plate 5), identical to that seen in the watching brief in the south-eastern corner of the site; it is clear that this clay covered the entire south-easternmost corner of the site. Elsewhere the natural mainly comprised dark red clayey-sand or sandy-clay with varying quantities of sandstone fragments, though in places the natural was of outcropping sandstone. Areas of very stony natural were present in the westernmost two-thirds of Trench 9; the westernmost half of Trench 10; the south-westernmost 3m of Trench 14; the western half of Trench 19; the northernmost 15m of Trench 24; the southernmost 14m of Trench 25; in a band 6-11m from the south-western end of Trench 27; in a band 23-27m from the western end of Trench 28; in a band 18.5-26.5m from the western end of Trench 29; in a band between 10.5 and 24.5m from the western end of Trench 30; the south-westernmost 23m of Trench 33, and in a band 29-35.5m from the south-western end of Trench 33; the westernmost 9m of Trench 34 with one large stone 13m from the western end of Trench 34; the westernmost

27.5m of Trench 35; the south-westernmost 6m and north-easternmost 6m of Trench 36; the southernmost 46m of Trench 38; the westernmost 5m and easternmost 5m of Trench 39; the north-easternmost 25m of Trench 41; and in a band 38-47m from the southern end of Trench 44. In addition frequent stones were present across the whole of Trenches 20-23, 26 and 37, while at the northern end of Trench 4, and the northern end of Trench 12 there were isolated large sandstone fragments. There was clearly a band of stony natural running north-south through Trenches 28-30 and a second band running north-south through Trenches 33-35. There was a patch of naturally occurring sand roughly midway along the southern side of Trench 16. A naturally occurring seam of sand was also present running obliquely across the northern end of Trench 4. The least stony trenches were Trenches 5 and 17. Examples of the variations in the stone content within the natural are given in Plates 6-8.



Plate 5. Natural light yellow clay in Trench 1, facing south, scale unit 0.5m

Two sections were excavated through the natural deposits, one in Trench 17 and one in Trench 23. In both cases the sections were excavated to determine whether features visible on the geophysical survey, which were interpreted as possible field boundaries on a north-east to south-west alignment were present. The southernmost of these features should have been present in Trenches 25, 26, 17, 16 and 12, but the only potential evidence seen during excavation was in Trench 17, where there was a band of sand on a north-east to south-west orientation. A section was therefore excavated through the potential feature (Context 1069, Plate 9) which was located approximately 11.5m from the southern end of the trench; this section was 1.72m wide and 0.24m deep. It became clear on excavation that this sand was

naturally occurring, it was on an oblique angle in cross section, continuing beneath the natural clay deposits seen in the southern portion of the trench.



Plate 6. Natural stony clayey sand in Trench 24, facing north-west, scale unit 0.5m



Plate 7. Varied qualities of stone in the natural of Trench 30, facing west, scale unit 0.5m



Plate 8. Outcropping sandstone in Trench 36, facing south, scale unit 0.5m



Plate 9. Exploratory slot through natural Context 1069, facing north-east, scale unit 0.1m

The northernmost of the two potential field boundaries should have been seen in Trenches 23 and 18, but only Trench 23 contained any potential evidence in the form of a band of sand on a north-east to south-west alignment, which was located approximately 23m from the south-eastern end of the trench. This did not continue into Trench 18. On excavation (Context 1082, Plate 10) this proved to be 1.2m wide but only 0.07m deep, and the sand again seemed to be a naturally occurring pocket within otherwise sandy-clay natural.



Plate 10. Exploratory slot through natural Context 1082, facing south-west, scale unit 0.1m

5.2.2 UNDATED FEATURES

There was a large lump of slag in Trench 20 located at the interface between the topsoil and the natural (Context 1083, small find 3, Plate 11). This object weighed 4kg and comprised nine fragments having been damaged by modern ploughing. It should be noted that 1083 represented the only artefact recovered from the evaluation trenches. There was no sign of burning around this object, nor any associated artefacts in the immediate vicinity. There was a small hollow 0.4m in diameter and 0.08m deep beneath the slag object (Context 1084) it was by no means certain that this represented a deliberate cut rather than damage done to the underlying natural when the slag object was hit and moved by modern ploughing, for this reason the plan and section of 1084 are not given in the present report.



Plate 11. Context 1084 facing north, scale unit 0.1m

5.2.3 *POST-MEDIEVAL AND MODERN FEATURES*

The only post-medieval and modern features on the site were field drains. Five of these were seen in Trench 1 (Figure 9), with a stone filled field drain also being visible at the south-eastern end of Trench 5, though this did not continue into Trench 8 to the south. The pattern of field drains matched that seen in the watching brief, most were located above clay natural (Trench 1) with only one being above a sandy-clay natural (Trench 5). Modern plough scores which had penetrated the underlying natural were visible on a north-south alignment in Trench 11, on a north-west to south-east alignment in Trench 33 (Figure 9), and most notably on an east-west alignment in Trench 42 (Plate 12, Figure 9).

The uppermost deposits comprised the turf and topsoil of the field which was typically mid brown silty-clay 0.3m thick. In places there was some variation reflecting the underlying natural (for example in the stone content, and sand content).



Plate 12. Modern plough scores in Trench 42 (running diagonally from left to right across the photograph), facing south-east, scale unit 0.1m



Figure 9 The base of Trenches 1, 33 and 42

6 ARTEFACTS

6.1 THE POTTERY

A total of fifteen sherds were recovered from three contexts (see Table 1 below). The assemblage comprised material of post medieval and medieval date. The assemblage is of a domestic nature and sherds are generally small (0-5cm across) to medium (5-10cms across) in size (measurements are made at the widest point). Most of the medieval material is abraded, suggesting that it may not be in a primary context.

The medieval wares were probably made in the Hallgate area of Doncaster. Small sherds of what is probably Hallgate 'A' ware occur in context [1001]. These oxidised red wares are dated to the 13th/14th century (McCarthy and Brooks 1988, 243) but are mixed with later types. Below these the coarse white fabrics resemble Hallgate 'B' wares (see Hayfield and Buckland 1989 for a fabric description). These wares are thought to be a 12th century phenomenon, though pottery made using coal measure clays was made in South Yorkshire from the late 13th through fourteenth century (McCarthy and Brooks 1988, 246).

There are no further recommendations for work as these wares are fairly typical of the area.

Context	Find	Quantity	Dating	Details
1001	BF1	13	LATE 17TH/18TH CENTURY	1 tin-glazed 1 Hallgate 2 Hallgate 2 coal measure white coarse unglazed ware 1 purple glazed ?tile 1 brown glazed lightly oxidised moderately gritted 1 ?Hallgate type abraded 1 coal measure white ware jug rim with thin patchy green brown glaze 3 lightly oxidised wares with soapy feel white slip and a patch of flakey light green glaze abraded All small to medium sherds
1006	BF2	1	MEDIEVAL	1 Hallgate type coal measure white coarse ware base wiith patchy light green glaze medium sized sherd slightly abraded
1010	BF3	1	MEDIEVAL	1 Hallgate type small sherd slightly abraded

Table 1 Pottery by context

6.2 THE CERAMIC BUILDING MATERIAL

The only ceramic building material (CBM) recovered from the site comprised fragments of field drains. All the sherds were badly broken, but the drains had a built in base plate and were machine made suggesting a mid-19th century or later date.

There are no further recommendations for work as these sherds are typical of mass produced field drains.

Context	Weight	Thickness	Comments
1001	525	12	6 Non-adjointing fragments of machine made field drain. Has a curving profile and built in base plate. Bright orange fabric with silty streaks.
1003	550	12	14 Non-adjointing fragments of machine made field drain. Has a curving profile and built in base plate. Bright orange fabric with silty streaks.

Table 2 CBM by Context

6.3 THE ARTEFACTS

SF1 is a 14th - 15th century copper alloy buckle in poor condition.

SF2 is a horseshoe fragment which is in poor condition and is currently un-datable.

SF3 comprises 9 lumps of non-diagnostic ironworking slag (4kgs total). Fresh breaks and scrapes are suggestive of plough damage. The slag was found at the interface of the natural and the topsoil. There were no traces of metalworking taking place in the vicinity and indeed no other artefacts present. No conclusions can be drawn about these fragments.

6.4 CONSERVATION ASSESSMENT

SF1 - Assessment: the object is in poor condition, broken up and with substantial amounts of powdery light green unstable corrosion products. Parts of the buckle frame retain a more stable and smooth dark brown/grey patina. There are also textile threads present. X-ray shows the metal core of the frame itself to be present and quite even. The core of the buckle plate and the pin is much more mineralised and fragile.

The buckle has been cleaned and conserved and is awaiting deposition at Rotherham Museum.

SF2 - Assessment: the fragment is in poor condition with active corrosion causing spalling of the surface and structural losses at about the mid-point. The active corrosion seems to have stabilised in dry storage. The rest of the surface is covered with a thin layer of orange corrosion products and soil. X-ray shows the metal core to be almost completely mineralised. One square nail hole survives.

Recommendations: no further action.

7 INTERPRETATION OF THE RESULTS

7.1 THE RELATIONSHIP OF THE EXCAVATED SITE TO THE GEOPHYSICAL SURVEY

The geophysical survey plot (GSB 2012) has been reproduced here to aid the discussion, for legibility the western portion of the site is shown on Figure 10, while the eastern portion of the site is shown on Figure 11.

There are two areas where the geophysical survey showed limited magnetic responses (which appear as 'smoother' areas on the geophysical survey plot), and these are located across the extreme south-eastern part of the site and in a band aligned south-west to north-east running diagonally from the southern to the eastern sides of the site (Figure 11 labelled areas A and B). These two areas clearly relate to the presence of natural clay, as opposed to stonier sandy-clays seen elsewhere on the site. There was no trace of a palaeochannel in this area, as had been suggested in the desk based assessment (Stenton 2011, 3), and the variations seen on the geophysics were simply due to the presence of two very different types of natural on the site.

At the western end of the site there were linear responses aligned north-north-west to south-south-east, or north-west to south-east (Figure 10), all of which can be related to bands of exceptionally stony natural.

The exceptionally strong geophysical response in the area to the immediate north of Arbour Farm cottage (located south of the south-west corner of the development site) also relates to the presence of very stony natural in the area.

The dominant features seen on the geophysical survey were four field boundaries labelled C-F on Figures 10-11. The boundaries C, D and E were on a very different alignment to that seen on 19th century maps of fields in the area, and were potentially thought to relate to earlier field systems. Boundary C should have been visible within Trenches 23, 18 and possibly 13. No traces were visible in either Trenches 18 or 13, but in Trench 23 there was a linear band of naturally occurring sand which may account for this geophysical anomaly. It was not possible to investigate boundary D as it was in an area severely damaged by the site machinery. Boundary E should have been visible within Trenches 25, 20, 17, 16 and 12, but was not seen in any of these trenches. In Trench 20 there was, however, a linear outcrop of sand which may account for the presence of the anomaly. Boundary F clearly relating to a field division of early 19th century date, and in theory this boundary should have been visible within Trench 29, but no trace was seen. It is possible that the boundary was originally a hedge the roots of which did not penetrate into the underlying natural, thereby leaving no trace. There was no trace of the north-south aligned anomaly in Trench 19 (labelled F on Figure 10), again this may have been an earlier hedge line which had left no clear trace.

There were a number of arc shaped geophysical responses in the centre of the site, shown in green on Figures 10-11, and a number of small pit like responses over much of the site, but none of these were well-defined in the geophysical survey. There were no traces of any human derived features in the areas of these geophysical anomalies, and any variations on the geophysical survey probably relate to the highly variable nature of the natural.

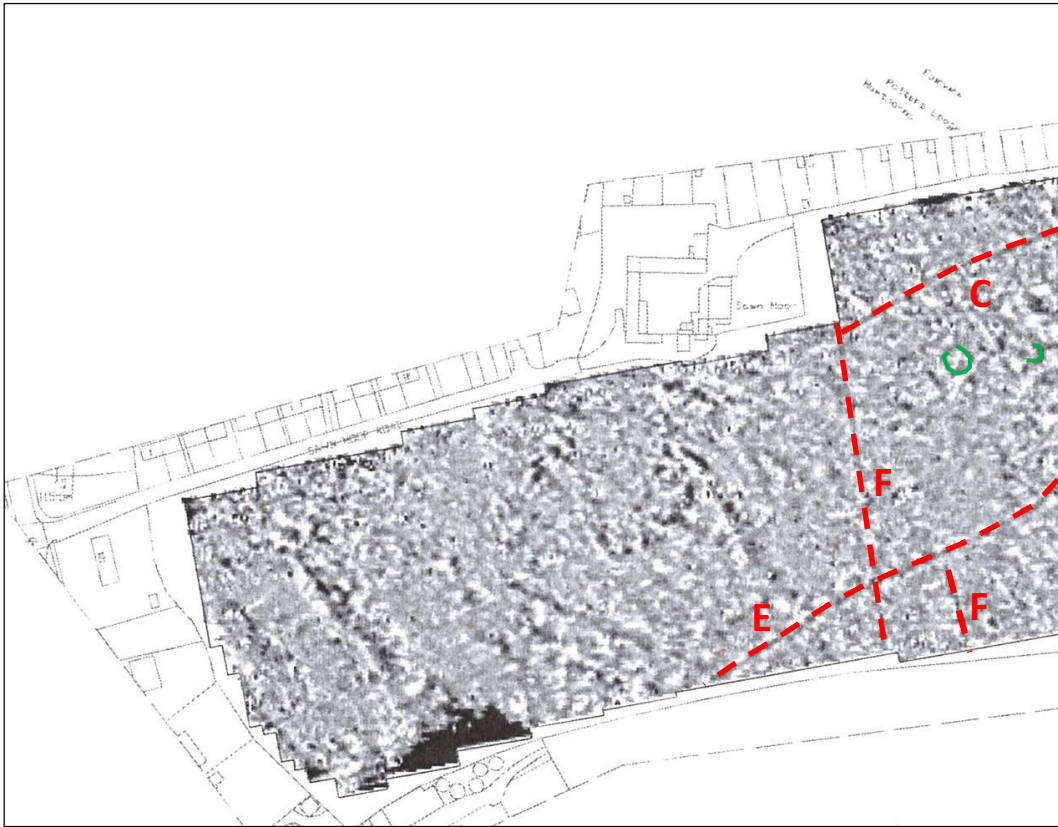


Figure 10 Geophysical survey of the western portion of the site, not to scale

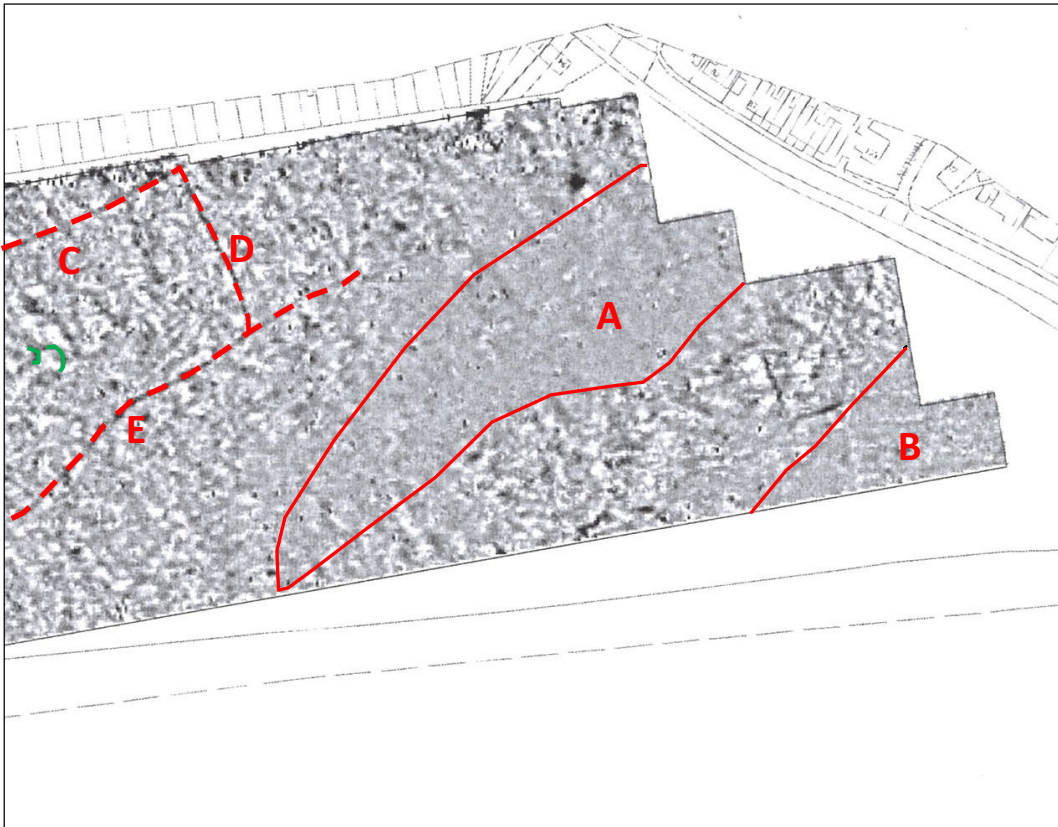


Figure 11 Geophysical survey of the eastern portion of the site, not to scale

The remaining features on the geophysical survey comprise groups of parallel lines in varying directions (see Figures 5-6). These almost certainly represent modern plough scores which for the most part did not penetrate the underlying natural, though in Trench 42 where the topsoil was thinner these plough scores were clearly visible.

7.2 THE SIGNIFICANCE OF THE SITE

It is clear from the watching brief and evaluation that there were no remains of archaeological significance on the site. There was no trace of a palaeo-channel, with the variations seen on the geophysical survey being explained by variations in the underlying natural. This variation is likely to have caused groundwater retention in areas of clay natural resulting in the cropmark. There was also no evidence of direct settlement on the site at any period, with the only features present relating to agricultural usage. Although a small quantity of medieval pottery was present on the site this was severely abraded, suggesting it represented material which had been abraded through agricultural activity of medieval or post-medieval date. No further analysis is recommended for either the recorded features or the artefacts from the site.

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APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Context sheets	128 A4 sheets
Photographic register	9 A4 sheets
Levels register	11 A4 sheets
Drawing register	Not applicable
Original drawings	54 sheets
B/W photographs (films/contact sheets)	3 films
Colour slides (films)	3 films
Digital photographs	350 photographs
Written Scheme of Investigation	2 documents
Report	1 document

Table 3 Index to Archive

APPENDIX 2 – CONTEXT LIST

Trench	Context no.	Description
Area strip	1000	Turf and topsoil – Moderately compact dark brown silty-sandy-clay.
Area strip	1001	Backfill of 1002 – Friable mid-grey brown silty-sandy-clay with moderate orange mottling and concentrations of orange sandy clay. Moderate medium sandstone fragments, occasional small CBM field drains and charcoal flecks.
Area strip	1002	Cut - Rectilinear trench on NNE-SSW alignment, 7.2m c 4.5m up to 0.7m wide and 0.58m deep. Sharp break of slope into steep sides. Sharp break of slope into flat base. Function uncertain.
Area strip	1003	Backfill of 1002 – Friable dark-grey brown silty-sandy-clay. Moderate medium fragments of sandstone, and medium fragments of CBM and a fragment of plastic, occasional charcoal flecks.
Area strip	1004	Backfill of 1005 – Firm to friable mid yellow-brown silty-clay. Occasional flecks of charcoal, small sandstone fragments and flecks of burnt clay.
Area strip	1005	Furrow – Linear cut aligned north-west to south-east, 2.3m wide and 0.04m deep, with a gentle break of slope into gently sloping sides and a concave base.
Area strip	1006	Backfill of 1007 – Firm to friable mid grey to yellow-brown silty-clay. Occasional flecks of charcoal and small sandstone fragments.
Area strip	1007	Furrow – Linear cut aligned north-west to south-east, 2.8m wide and 0.18m deep, with a gentle break of slope into gently sloping sides and a concave base.
Area strip	1008	Backfill of 1009 – Firm to friable mid grey to yellow-brown silty-clay. Occasional small sandstone fragments.
Area strip	1009	Furrow – Linear cut aligned north-west to south-east, 0.74m wide and 0.1m deep, with a gentle break of slope into gently sloping sides and a concave base.
Area strip	1010	Backfill of 1011 – Firm to friable mid yellow-grey-brown silty-clay. Occasional small sandstone fragments.
Area strip	1011	Furrow – Linear cut aligned north-west to south-east, 1.46m wide and 0.07m deep, with a gentle break of slope into gently sloping sides and a concave base.
Area strip	1012	Backfill of 1011 – Firm to friable mid yellow-grey-brown sandy-silty-clay. Occasional small sandstone fragments.
Area strip	1013	Furrow – Linear cut aligned north-west to south-east, 1.9m wide and 0.04m deep, with a gentle break of slope into gently sloping sides and a concave base.
Area strip	1014	Backfill of 1015 – Plastic pale grey manganese speckled silty-clay with occasional small manganese fragments and stones.
Area strip	1015	Furrow - Irregular linear cut aligned north-west to south-east, edges amorphous and broken. Sides break gently from surface and fall steeply on north-west side and gently on south-east side, leading to an imperceptible or gently rounded bottom edge with a slightly concave base.
Area strip	1016	Backfill of 1017 – Moderately compact dark grey-brown slightly silty-clay.

Area strip	1017	Furrow – Shallow linear feature on a north-west to south-east alignment. Peters out at the north-western end. 0.4m wide and 0.5m deep. Gentle break of slop at surface, sides taper to an almost flat base.
Area strip	1018	Backfill of 1019 – Moderately compact mid brown slightly silty-clay with occasional fragments of manganese
Area strip	1019	Furrow – Linear cut aligned north-west to south-east. 1.9m wide, in excess of 13m long and 0.17m deep. Southern side breaks imperceptibly from surface and falls gently to an irregular base, which gets noticeably deeper on the northern side. The Northern side breaks sharply and falls steeply to a U shaped channel running along the north-eastern side of the furrow.
Area strip	1020	Backfill of 1021– Moderately compact mid red-brown slightly silty-clay.
Area strip	1021	Pit cut – Shallow sub-rectangular cut, 1.78m x 2.1m in size and 0.19m deep. Gradual break of slop at top, sides gently sloping to a slightly irregular base.
Area strip	1022	Backfill of 1023 - Stiff mid orange-brown clayey-sand with occasional small fragments of manganese and stone, and fleck and small lumps of mid orange clay.
Area strip	1023	Furrow – Linear cut aligned north-west to south-east. Amorphous sides which break gently from surface to fall irregularly to a rounded basal edge with an uneven base.
Area strip	1024	Backfill of 1025 – Plastic mid reddish brown silty-sandy-clay with frequent brown manganese flecks, occasional small to medium stone fragments, manganese fragments and lumps of red clay.
Area strip	1025	Ditch cut – Linear cut aligned north-east to south-west. Sides break gently from surface, fall steeply to a rounded basal edge, and an undulating base.
Area strip	1026	Backfill of 1027 – same as 1028. Soft light grey-brown clay with occasional charcoal flecks.
Area strip	1027	Furrow same as 1029– Linear cut aligned north-west to south-east. 0.69m wide, 0.07m deep. Moderate break of slop at top, moderately steep sides, moderate break of slope at base, base flat.
Area strip	1028	Backfill of 1029 – same as 1026. Soft light grey-brown clay with occasional charcoal flecks.
Area strip	1029	Furrow same as 1027– Linear cut aligned north-west to south-east. 0.52m wide, 0.05m deep. Moderate break of slop at top, shallow concave sides, gradual break of slope at base, base flat.
Area strip	1030	Backfill of 1031 – Firm mid grey-brown sandy-clay with occasional charcoal flecks.
Area strip	1031	Ditch cut – Linear cut aligned north-east to south-west. Sides break gently from surface, moderately steep slides, slightly concave break of slope at base, base flat. 0.23m deep and in excess of 0.31m wide.
Area strip	1032	Backfill of 1033 – Firm light grey-brown sandy-clay with occasional charcoal flecks.
Area strip	1033	Ditch cut – Linear cut aligned north-east to south-west. Sides break sharply from surface, concave slides, moderate break of slope at base, base flat. 1.11m wide and 0.36m deep.
Area strip	1034	Backfill of 1035 – Firm light brown-grey sandy-clay with occasional charcoal flecks.

Area strip	1035	Ditch cut – Linear cut aligned north-east to south-west. Sides break sharply from surface, concave slides, moderate break of slope at base, base flat. 1.23m wide and 0.26m deep.
Area strip	1036	Backfill of 1037 - Moderately compact mid-brown sandy-clay.
Area strip	1037	Ditch cut – Terminus of a linear cut aligned north-east to south-west. Irregular break of slope at top, irregular northern side, southern side concave, peters out on the north-eastern end. Base concave.
Area strip	1038	Natural – the natural seen in the area stripping at the eastern side of the site varied from compact yellow clay to areas of fractured sandstone.
Trench 1	1039	Turf and topsoil – Firm mid brown silty-clay ranging from 0.22-0.45m thick
Trench 1	1040	Natural – Firm light yellow brown clay with grey mottling
Trench 2	1041	Turf and topsoil – Soft mid brown to light brown silty-clay ranging from 0.38-0.50m in thickness
Trench 2	1042	Natural – Firm mid reddish brown clay with moderate fine grained sand and medium sized fragments of fractured sandstone.
Trench 4	1043	Turf and topsoil – Firm mid grey brown to light grey-brown silty-clay ranging from 0.3-0.35m thick
Trench 4	1044	Natural – Firm mid reddish brown clay with moderate fine grained sand and occasional small fragments of sandstone, with a seam of orange sand within the clay and a patch of outcropping sandstone at the southern end of the trench.
Trench 5	1047	Turf and topsoil – Soft mid brown silty-clay ranging from 0.33-0.44m in thickness
Trench 5	1048	Natural – Firm mid orange brown clay with occasional fine grained sand
Trench 6	1049	Turf and topsoil – Soft mid brown silty-clay ranging from 0.29-0.33m thick
Trench 6	1050	Natural - Firm mid red-orange brown clay with moderate patches of fragmented sandstone and occasional fine grained sand patches
Trench 8	1045	Turf and topsoil – Soft mid brown silty-clay ranging from 0.24-0.36m thick
Trench 8	1046	Natural - Firm mid orange brown clay with moderate patches of fine grained sand
Trench 9	1051	Turf and topsoil – Soft mid brown silty-clay ranging from 0.32-0.39m thick
Trench 9	1052	Natural - Firm mid orange brown clay with bands and patches of fractured sandstone and occasional fine grained sand.
Trench 10	1053	Turf and topsoil – Soft mid brown silty-clay ranging from 0.26-0.39m thick
Trench 10	1054	Natural - Firm mid orange brown clay with bands and patches of fractured sandstone and occasional fine grained sand.
Trench 11	1055	Turf and topsoil – Soft mid brown silty-clay ranging from 0.26-0.39m thick
Trench 11	1056	Natural - Firm mid orange brown clay with bands and patches of small sandstone fragments and occasional fine grained sand.
Trench 12	1057	Turf and topsoil – Soft mid brown silty-clay ranging from 0.24-0.44m thick

Trench 12	1058	Natural - Firm mid orange brown clay with patches of fragmented sandstone and occasional fine grained sand. One larger sandstone fragment 0.6x0.4m in size located 6m from the north-eastern end of the trench.
Trench 13	1059	Turf and topsoil – Soft mid brown silty-clay ranging from 0.31-0.38m thick
Trench 13	1060	Natural - Firm mid orange brown clay with occasional fine grained sand, and patches of fragmented stone and one larger stone
Trench 14	1061	Turf and topsoil – Soft mid brown silty-clay ranging from 0.39-0.46m thick
Trench 14	1062	Natural - Firm mid orange brown silty-clay with patches of fragmented sandstone and occasional fine grained sand
Trench 15	1063	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.4m thick
Trench 15	1064	Natural - Firm mid orange brown silty-clay with patches of fragmented sandstone and occasional fine grained sand
Trench 16	1065	Turf and topsoil – Soft to friable mid brown silty-clay ranging from 0.29-0.35m thick
Trench 16	1066	Natural - Firm mid orange brown silty-clay with patches of fragmented sandstone, occasional fine grained sand and a patch of natural sand
Trench 17	1067	Turf and topsoil – Soft to friable mid brown silty-clay ranging from 0.25-0.35m thick
Trench 17	1068	Backfill of 1069 - Soft mid orange brown slightly clayey sand with frequent medium to large sandstone fragments.
Trench 17	1069	Linear slot 1.72m wide aligned NE-SW. This slot was excavated to investigate an anomaly showing up on the geophysical survey of the site; on excavation it was clear that this represented a band of sand within the natural which outcropped at this point.
Trench 17	1070	Natural - Firm mid orange brown clay with patches and bands of fragmented sandstone and occasional fine grained sand
Trench 18	1071	Turf and topsoil – Soft mid brown silty-clay ranging from 0.25-0.35m thick
Trench 18	1072	Natural - Firm mid orange brown clay with occasional medium to large sandstone fragments and frequent fine grained sand
Trench 19	1085	Turf and topsoil – Soft mid brown silty-clay ranging from 0.29-0.31m thick
Trench 19	1086	Natural - Firm mid orange brown slightly clayey sand with frequent medium to large sandstone fragments one of which was 400x200x100mm in size.
Trench 20	1073	Turf and topsoil – Soft mid orange brown clayey sand ranging from 0.26-0.4m thick
Trench 20	1074	Natural - Firm mid orange brown clayey sand with frequent medium to large sandstone fragments and moderate fine grained sand
Trench 20	1083	Deposit – a lump of dark grey slag or a badly decayed metal object, which had clearly been hit by modern ploughing and damaged.
Trench 20	1084	Possible cut – Containing 1083. Sub-circular in plan with a moderate break of slope at the top, concave sides, a moderate break of slope at the base and flat base. It was not clear if this represented a deliberate cut or was simply resultant from a large

		lump of iron or slag (Context 1083) being dragged and moved by modern p0loughing.
Trench 21	1075	Turf and topsoil – Soft mid brown silty-clay ranging from 0.33-0.41m thick
Trench 21	1076	Natural - Firm mid orange brown clayey sand with moderate large sandstone fragments
Trench 22	1077	Turf and topsoil – Soft mid brown clayey silt ranging from 0.32-0.4m thick
Trench 22	1078	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments
Trench 23	1079	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.39m thick
Trench 23	1080	Natural – Soft mid orange brown clayey sand with frequent medium to large sandstone fragments and moderate fine grained sand
Trench 23	1081	Backfill of 1082 – Soft mid orange brown slightly clayey sand with occasional medium to large sandstone fragments
Trench 23	1082	Linear feature – aligned NE-SW with a moderate break of slope at the top, concave sides, moderate break of slope at the base and flat base. Possibly naturally occurring rather than man made
Trench 24	1089	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.43m thick
Trench 24	1090	Natural – Soft mid orange brown clayey sand with frequent small to medium sandstone fragments occurring in patches across the entire trench, though the northernmost third of the trench was noticeably stonier.
Trench 25	1087	Turf and topsoil – Soft mid brown silty-clay ranging from 0.25-0.34m thick
Trench 25	1088	Natural – Soft mid orange brown clayey sand with frequent small to medium sandstone fragments occurring in patches across the entire trench, though the southernmost quarter of the trench was noticeably stonier with the largest individual stone measuring 500x590x120mm in size
Trench 26	1091	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.39m thick
Trench 26	1092	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments the largest measuring 300x130x120mm
Trench 27	1093	Turf and topsoil – Soft mid brown silty-clay ranging from 0.23-0.3m thick
Trench 27	1094	Natural – Soft to friable mid orange brown clayey sand with moderate medium to large sandstone fragments
Trench 28	1095	Turf and topsoil – Soft mid brown silty-clay ranging from 0.29-0.34m thick
Trench 28	1096	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments with a band of outcropping stone between 23-27m from the western end of the trench
Trench 29	1097	Turf and topsoil – Soft mid brown silty-clay ranging from 0.28-0.32m thick

Trench 29	1098	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments and a band of stone 18-30.5m from the south-western end of the trench
Trench 30	1099	Turf and topsoil – Soft mid brown silty-clay ranging from 0.24-0.35m thick
Trench 30	1100	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments and a band of stone 10.5-19.5m from the western end of the trench
Trench 31	1103	Turf and topsoil – Soft mid brown silty-clay ranging from 0.29-0.35m thick
Trench 31	1104	Natural – Soft to friable mid orange brown clayey sand with moderate medium sandstone fragments
Trench 32	1101	Turf and topsoil – Soft mid brown silty-clay ranging from 0.27-0.31m thick
Trench 32	1102	Natural – Soft to friable mid orange brown clayey sand with moderate medium to large sandstone fragments
Trench 33	1105	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.4m thick
Trench 33	1106	Natural – Soft to friable mid orange brown clayey sand with moderate small to medium sandstone fragments, occasional large sandstone fragments up to 210x200x70mm in size. The southernmost 23m of the trench was stonier as was a band 29-35.5m from the southern end of the trench.
Trench 34	1107	Turf and topsoil – Soft mid brown silty-clay ranging from 0.32-0.36m thick
Trench 34	1108	Natural – Soft to friable mid orange brown clayey sand with occasional small to medium sandstone fragments, occasional large sandstone. The southernmost 9m of the trench is notably stonier with the largest stone measuring 660x300x120mm in size.
Trench 35	1109	Turf and topsoil – Soft mid brown silty-clay ranging from 0.29-0.37m thick
Trench 35	1110	Natural – Soft to friable mid orange brown clayey sand with occasional small to medium sandstone fragments and frequent larger sandstone fragments towards the western end
Trench 36	1111	Turf and topsoil – Soft mid brown silty-clay ranging from 0.24-0.34m thick
Trench 36	1112	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments, very frequent at the southern end with large stones up to 550x430x120mm in size, and very stony at the northernmost end of the trench
Trench 37	1113	Turf and topsoil – Soft mid brown silty-clay ranging from 0.26-0.34m thick
Trench 37	1114	Natural – Soft to friable mid orange brown clayey sand with frequent small to medium sandstone fragments and one large stone 540x330x100mm in size
Trench 38	1115	Turf and topsoil – Soft mid brown silty-clay ranging from 0.27-0.35m thick
Trench 38	1116	Natural – Soft to friable mid orange brown clayey sand with frequent small to medium sandstone fragments. The natural in the south-easternmost 41m of the trench was stony, while that at the north-western end was almost devoid of stone

Trench 39	1117	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.35m thick
Trench 39	1118	Natural – Soft to friable mid orange brown clayey sand with occasional small to medium sandstone fragments, but frequent stones in the westernmost and easternmost 5m of the trench.
Trench 40	1119	Turf and topsoil – Soft mid brown silty-clay ranging from 0.3-0.33m thick
Trench 40	1120	Natural – Soft to friable mid orange brown clayey sand with moderate small to medium sandstone fragments
Trench 41	1121	Turf and topsoil – Soft mid brown silty-clay ranging from 0.26-0.3m thick with moderate small to medium sized stones.
Trench 41	1122	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments in the western half of the trench and occasional small to medium sized sandstone fragments in the eastern half of the trench
Trench 42	1123	Turf and topsoil – Soft mid brown silty-clay ranging from 0.25-0.3m thick
Trench 42	1124	Natural – Soft to friable mid orange brown clayey sand with moderate small to medium sandstone fragments
Trench 43	1127	Turf and topsoil – Soft mid brown silty-clay ranging from 0.28-0.3m thick
Trench 43	1128	Natural – Soft to friable mid orange brown clayey sand with moderate small to medium sandstone fragments
Trench 44	1125	Turf and topsoil – Soft mid brown silty-clay ranging from 0.24-0.32m thick
Trench 44	1126	Natural – Soft to friable mid orange brown clayey sand with frequent medium to large sandstone fragments up to 380x250x100mm in size between 43-52m from the southern end of the trench. Lower density of stone elsewhere in the trench

Table 4 Context List

APPENDIX 3 – TRENCH BY TRENCH DESCRIPTIONS

TRENCH 1

Trench 1 was 50m x 2m in size and up to 0.45m deep. There were five modern field drains running obliquely across the trench, these were noted on plan but not recorded in detail.

TRENCH 2

Trench 2 was 20m x 8m in size and up to 0.38m deep. No archaeological features were observed in the trench.

TRENCH 3

Trench 3 could not be excavated as this area of site was flooded.

TRENCH 4

Trench 4 was 50m x 2m in size and up to 0.45m deep. No archaeological features were seen in the trench, but a naturally occurring drainage channel infilled with sand was present running obliquely across the trench on a NNW-SSE alignment at the northern end of the trench, in addition there was a patch of outcropping sandstone at the southern end of the trench.

TRENCH 5

Trench 4 was 50m x 2m in size and up to 0.33m deep. There was a modern stone filled field drain running on a SE-NE alignment at the southern end of the trench, which was noted on the plan but not recorded in detail.

TRENCH 6

Trench 6 was 20m x 8m in size and up to 0.38m deep. No archaeological features were observed in the trench.

TRENCH 7

Trench 7 was machined to a depth of 0.22m but had to be immediately backfilled as it began to flood. No archaeological features were observed in the trench. No detailed records were made, but the natural observed was dark reddish brown silty-clay with occasional small fragments of sandstone.

TRENCH 8

Trench 8 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench.

TRENCH 9

Trench 9 was 50m x 2m in size and up to 0.40m deep. No archaeological features were observed in the trench. The natural in the westernmost 37m of the trench was very stony, while the remainder of the trench was mainly of clay.

TRENCH 10

Trench 10 was 50m x 2m in size and up to 0.48m deep. No archaeological features were observed in the trench. The natural in the westernmost 28m of the trench was very stony, while the remainder of the trench was mainly of clay.

TRENCH 11

Trench 11 was 50m x 2m in size and up to 0.33m deep. A band of silt on a SW-NE alignment roughly half way along the trench represents the base of a modern field drain, and was noted on plan but not recorded in detail.

TRENCH 12

Trench 12 was 50m x 2m in size and up to 0.30m deep. No archaeological features were observed in the trench. One larger stone was present within the natural 6m from the northern end of the trench.

TRENCH 13

Trench 13 was 50m x 2m in size and up to 0.30m deep. No archaeological features were observed in the trench.

TRENCH 14

Trench 14 was 50m x 2m in size and up to 0.46m deep. No archaeological features were observed in the trench. The natural in the westernmost 2.5m of the trench was very stony, between 2.5-6m from the westernmost end of the trench was moderately stony, while the remainder of the trench was mainly of clay.

TRENCH 15

Trench 15 was 50m x 2m in size and up to 0.30m deep. No archaeological features were observed in the trench.

TRENCH 16

Trench 16 was 50m x 2m in size and up to 0.30m deep. No archaeological features were observed in the trench. A patch of naturally occurring sand within the otherwise clay natural was located between 25-27m from the western end of the trench.

TRENCH 17

Trench 17 was 50m x 2m in size and up to 0.35m deep. A linear slot was excavated 37-39m from the northern end of the trench, to investigate a geophysical anomaly; on excavation this proved to be a naturally occurring band of sand within the natural (Context 1068-69).

TRENCH 18

Trench 18 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench.

TRENCH 19

Trench 19 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench. The natural varied within the trench being very stony over the westernmost 23m of the trench and less stony over the remainder of the trench. It should be noted that a small area of the trench could not be excavated as it was beneath a fence erected by the developers.

TRENCH 20

Trench 20 was 50m x 2m in size and up to 0.4m deep. A lump of slag or iron was present at the interface between the natural and topsoil 22.5m from the western end of the trench (Context 1083); this was within a small circular depression, but it was unclear if this represented a cut feature or was the result of the slag/iron being dragged and moved by modern plough damage. It should be noted that a small area of the trench could not be excavated as it was beneath a fence erected by the developers.

TRENCH 21

Trench 21 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench. It should be noted that a small area of the trench could not be excavated as it was beneath a fence erected by the developers.

TRENCH 22

Trench 22 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench. It should be noted that a small area of the trench could not be excavated as it was beneath a fence erected by the developers.

TRENCH 23

Trench 23 was 50m x 2m in size and up to 0.39m deep. A linear slot 1.2m wide and 0.13m deep was excavated 26.5m from the northern end of the trench to investigate a geophysical anomaly; it was unclear on excavation whether this was a ditch of manmade origin or simply a band of sand within a naturally occurring drainage channel (Context 1080-81). It should be noted that a small area of the trench could not be excavated as it was beneath a fence erected by the developers.

TRENCH 24

Trench 24 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench. The natural in the northernmost third of the trench was much stonier than in the remainder of the trench.

TRENCH 25

Trench 25 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench. The natural in the southernmost quarter of the trench was much stonier than in the remainder of the trench, with the largest individual stone measuring 500x590x120mm in size.

TRENCH 26

Trench 26 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench.

TRENCH 27

Trench 27 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench. The natural in the westernmost 6.5m of the trench was less stony than the natural in the remainder of the trench.

TRENCH 28

Trench 28 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench. A band of stone was present within the natural between 18-30.5m from the western end of the trench.

TRENCH 29

Trench 29 was 50m x 2m in size and up to 0.43m deep. No archaeological features were observed in the trench. A band of stone within the natural was present between 18-30.5m from the south-western end of the trench.

TRENCH 30

Trench 30 was 50m x 2m in size and up to 0.35m deep. No archaeological features were observed in the trench. A band of stone within the natural was present between 10.5-19.5m from the western end of the trench.

TRENCH 31

Trench 31 was 50m x 2m in size and up to 0.35m deep. No archaeological features were observed in the trench.

TRENCH 32

Trench 32 was 50m x 2m in size and up to 0.35m deep. No archaeological features were observed in the trench.

TRENCH 33

Trench 33 was 50m x 2m in size and up to 0.4m deep. A modern plough score was present 28m from the western end of the trench; this was noted on plan but not recorded in detail. A band of stone within the natural was present 29-35.5m from the southern end of the trench, and the southernmost half of the trench was noticeably stonier.

TRENCH 34

Trench 34 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench. The natural in the southernmost 9m of the trench was notably stonier than in the remainder of the trench.

TRENCH 35

Trench 35 was 50m x 2m in size and up to 0.36m deep. No archaeological features were observed in the trench. The natural in the south-westernmost third of the trench contained larger stones than in the remainder of the trench.

TRENCH 36

Trench 36 was 50m x 2m in size and up to 0.34m deep. No archaeological features were observed in the trench. The natural in the south-westernmost 7m of the trench and the north-easternmost 6m of the trench was very stony.

TRENCH 37

Trench 37 was 50m x 2m in size and up to 0.34m deep. No archaeological features were observed in the trench.

TRENCH 38

Trench 38 was 50m x 2m in size and up to 0.34m deep. No archaeological features were observed in the trench. The natural in the south-easternmost 41m of the trench was stony, while that at the north-western end was almost devoid of stone.

TRENCH 39

Trench 39 was 50m x 2m in size and up to 0.34m deep. No archaeological features were observed in the trench. The natural in the westernmost 5m and easternmost 5m of the trench was notably stonier than in the remainder of the trench.

TRENCH 40

Trench 40 was 50m x 2m in size and up to 0.34m deep. No archaeological features were observed in the trench.

TRENCH 41

Trench 41 was 50m x 2m in size and up to 0.3m deep. No archaeological features were observed in the trench. The natural in the easternmost half of the trench was notably stonier.

TRENCH 42

Trench 42 was 50m x 2m in size and up to 0.3m deep. Eight modern plough score lines were present in the trench which were noted on plan but were not recorded in detail.

TRENCH 43

Trench 43 was 50m x 2m in size and up to 0.3m deep. No archaeological features were observed in the trench.

TRENCH 44

Trench 41 was 50m x 2m in size and up to 0.3m deep. No archaeological features were observed in the trench. The natural was stonier in a ban 33-52m from the southern end of the trench, but less stony elsewhere.

**WRITTEN SCHEME OF INVESTIGATION
FOR ARCHAEOLOGICAL INVESTGATIONS
LAUGHTON ROAD, THURCROFT.**

Site Location:	Laughton Road, Thurcroft
NGR:	SK 500 885
Proposal:	Housing development at Land west of Laughton Road, Thurcroft
Prepared for:	Barratt Homes and David Wilson Homes and Persimmon Homes
Status of WSI:	Final (Amended in line with comments from SYAS)

1 SUMMARY

- 1.1 Barratt Homes and David Wilson Homes and Persimmon Homes have received planning consent for a housing development on land west of Laughton Road, Thurcroft. The development will include the construction of housing, access roads and a footpath/cycleway. The archaeological desk-based assessment (DBA) for the scheme demonstrates that archaeological remains may exist on the site but little is known as to their possible extent or state of preservation. The archaeological investigation will assess the potential for archaeological remains by undertaking a geophysical survey of the entire site in so far as is practicable, followed by trial excavation of 5% of the site.
- 1.2 This Written Scheme of Investigation (WSI) has been prepared in response to a request by South Yorkshire Archaeology Service (SYAS). The work will be carried out in accordance with the Brief and this WSI, and according to the principles of the Institute for Archaeology (IfA) Code of Conduct and all relevant standards and guidance.

2 SITE LOCATION & DESCRIPTION

- 2.1 The proposal site is located immediately west of Laughton Road, Thurcroft, approximately 1.2Km east of the Junction of the M1 and M18, centred on NGR 449974, 388452 (location shown in Figure 1).
- 2.2 The site is situated within a single arable field, surrounded by 20th century housing development to the north, and open fields with a small number of domestic properties to the south. The underlying geology of the site comprises of Lower Coal Measures.

3 DESIGNATIONS & CONSTRAINTS

- 3.1 The scheme does not lie within a conservation area. The nearest Scheduled Ancient Monument (SAM) to the site is approximately 1.3km to the east, namely the Castle Hill motte and bailey castle, Laughten en le Morthen (SAM no.13227). Two listed buildings are situated immediately next to the development area, Green Arbour Farm Cottage (17th century Grade II listed) at its southeast end and Sawn Moor Farm (Grade II listed building present on a 1835 map of the area) located roughly centrally to the north of the site's boundary. There are no Registered Parks, Gardens or Battlefields within 1km of the proposed development.

4 ARCHAEOLOGICAL INTEREST

- 4.1 The ArcHeritage DBA (ArcHeritage Report 2011/33) has shown that the development area is likely to have been in agricultural use since the early medieval period, and that no archaeological remains are known from preceding periods. A possible palaeochannel of unknown date was identified from aerial photographs of the western end of the site.

It is however, possible that undiscovered archaeological remains may be present within the site. Because of the relative lack of development and its continuing agricultural nature, any archaeological features at the site may be relatively well preserved. For this reason, a programme of archaeological works is required to further identify the archaeological potential of the site and evaluate the nature, extent and condition of any surviving remains that may be present. The results of the evaluation will also contribute to the development of a suitable mitigation strategy if required. The archaeological investigation will comprise geophysical survey of the property, followed by a scheme of trial trenching. Further works may be required, depending on the results of the evaluation phase.

5 AIMS

- 5.1 The aims of the evaluation are:
- to determine the extent, condition, character, importance and date of any archaeological remains present;
 - to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made; and
 - to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site

6 EVALUATION METHODOLOGY

- 6.2 The archaeological evaluation will comprise the following elements:
- Geophysical survey
 - Trial trenching
 - Reporting

Please note that further stages of work or other mitigation measures could be required by the local authority, depending upon the results of the evaluation. Any subsequent work will be the subject of a further WSI.

Stage 1 Geophysical Survey

- 6.3 A detailed magnetometry survey of the entire site will be conducted, as far as practicable. Survey will not be possible close to metal fences, large overhead cables or other physical obstruction, including tall vegetation. The guidelines in Geophysical Survey in Archaeological Evaluation (English Heritage 2008) will be followed. The survey will be conducted on 0.25m interval on 1.0m spaced traverses, to 0.1nT sensitivity.
- 6.4 The results of the geophysical survey will be processed by a trained geophysicist. An interim report on the results of the survey will be submitted to ArcHeritage not later than 3 days after completion of fieldwork in order to inform the location of trial trenches. A full report on the survey will be submitted not later than 2 weeks after completion of the fieldwork. The full report will include:
- clear locations plans of all fields surveyed
 - images of minimally processed survey data
 - at least two different formats of presentation for each type of survey conducted, one of which will be an X/Y trace plot (where appropriate), at a minimum 1:500 scale
 - archaeological interpretation drawing(s) at an appropriate scale
 - fully qualified explanation of 'negative evidence'
 - CAD drawing with survey data and survey stations located to the National Grid

Stage 2 Trial Trenching

- 6.5 The geophysical survey results will inform the scheme of trial trenching across the whole of the area directly affected by groundworks for the development. A 5% sample of the site will be subject to trial trenching. Trenches will be located to target geophysical anomalies and to test 'blank areas'. The location and sizes of trenches will be determined through discussion with the SYAS Archaeologist. Trenches will be stepped if necessary, to ensure their stated size at the base of the trench.
- 6.6 The trench locations will be accurately plotted using an EDM Total station, by measurement to local permanent features shown on published Ordnance Survey maps. All measurements will be accurate to +/-10cm, and the trenches locatable on a 1:2500 Ordnance Survey map. This is to ensure that the trenches can be independently relocated in the event of future work.
- 6.7 Overburden such as turf, topsoil or other superficial fill materials would be removed by a machine fitted with a toothless bucket. Mechanical excavation equipment would be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil, whichever appears first. If archaeology is present machining will cease and excavation will normally proceed by hand. Where deep homogenous deposits, or deposits such as rubble infills, are encountered, these may be carefully removed by machine, after consultation with SYAS.
- 6.8 The use of mechanical, air-powered, or electrical excavation equipment may also be appropriate for removing deep intrusions (e.g. modern brick and concrete floors or footings) or through deposits to check that they are of natural origin, after consultation with SYAS. The machine will not be used to cut arbitrary sondages down to natural deposits.

- 6.9 All trenches will be sufficiently cleaned by hand to enable potential archaeological features to be identified and recorded; areas without archaeological features will be recorded as sterile and no further work will take place in these areas. The stratigraphy of all trenches will be recorded on trench record sheets even where no archaeological features are identified.
- 6.10 A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner in order to establish the aims of the evaluation.
- Discrete features will be half-sectioned in the first instance.
 - Linear features will be sample excavated (minimum 25% of their length) sufficient to meet the objectives of the evaluation; with each sample being not less than 1m in length. All termini will be investigated.
 - Deposits at junctions or interruptions in linear features will be sufficiently excavated to allow relationships to be determined.
 - Structures will be sample excavated to a degree whereby their extent nature, form, date, function and relationships to other features and deposits can be established.

7 RECORDING METHODOLOGY FOR EXCAVATION

- 7.1 All archaeological features will be recorded using standardised pro forma record sheets. Plans, sections and elevations will be drawn as appropriate and a comprehensive photographic record will be made where archaeological features are encountered.
- 7.2 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-section of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation.
- 7.3 Each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions. Each context will be given a unique number. These field records will be checked and indexes compiled.
- 7.4 Photographs of work in progress and post-excavation of individual and groups of features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic record will comprise 35mm format colour slides and black and white film. Digital photography may be used in addition, but will not form any part of the formal site archive. All site photography will adhere to accepted photographic record guidelines.
- 7.5 Areas which do not contain any archaeological deposits will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded.
- 7.6 All finds will be collected and handled following the guidance set out in the IfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

- 7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds*, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.
- 7.8 Samples will be taken from all securely stratified archaeological contexts; features that are clearly modern or of little archaeological value (field drains, furrows etc); or those that evidence a high degree of residuality will not be sampled. Sampling will be carried out in consultation with ArcHeritage specialists and the English Heritage Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments. All sampling for environmental and biological material will take place in accordance with the recommendations contained in the papers *Environmental Archaeology and Archaeological Evaluations*, Association for Environmental Archaeology (1995) and *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post -Excavation 2nd Edition* (English Heritage 2011).
- 7.9 The sampling regime will include samples of the four types of deposit sample described below:
- Bulk-sieved Sample (BS). Sample size will depend upon the context/feature size, but should be up to 40- 60 litres in size (if the context size allows). They are taken for the recovery of charcoal, burnt seeds, bone and artefacts. The samples will be processed (flotation) on site where possible with 1mm and 500micron sieves on a rack to collect the carbonised washover. The retents and flots will then be dried, sorted and assessed to advise the potential for further analysis.
 - General Biological Sample (GBA): These are only taken if a deposit is waterlogged. A 10 litre sample size will be used (if the context size allows). These samples will be processed in the laboratory, to recover macrofossils and microscopic remains such as pollen and insects.
 - Column monolith: Kubiena tin samples may be taken for soils and pollen analysis and to determine soil accumulation processes.
 - Spot samples: these samples are taken as required. they may be contexts or material not suited to sieving, such as caches of seeds, pieces of eggshell or any specific finds of organic material. They may also be specialist samples (e.g. charcoal for radiocarbon dating).
- 7.10 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice. An osteoarchaeologist will be available to give advice on site.
- If **disarticulated** remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will

be removed and boxed, for immediate reburial by the Church.

- If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.11 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, IfA Technical Paper 13 (1993) and English Heritage guidance (2005).

8 SPECIALIST ASSESSMENT

8.1 The stratigraphic information, artefacts, soil samples, and residues will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.

8.2 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilization of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), IfA (2007) and Museums and Galleries (1992).

8.3 All finds will be cleaned, marked and labelled as appropriate, prior to assessment. For ceramic assemblages, any recognised local pottery reference collections and relevant fabric Codes will be used.

8.4 Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with SYAS.

9 REPORT & ARCHIVE PREPARATION

9.1 Upon completion of the site work, a report will be prepared to include the following:

- a) A non-technical summary of the results of the work.
- b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
- c) An account of the methodology and detailed results of the operation, describing structural data, archaeological features, associated finds and environmental data, and a conclusion and discussion.
- d) A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, trench locations, selected feature drawings, and selected artefacts, and phased feature plans where appropriate.
- e) Specialist artefact and environmental reports where undertaken, and a context list/index.

- f) Details of archive location and destination (with accession number, where known), together with a context list and catalogue of what is contained in that archive.
 - g) A copy of the key OASIS form details
 - h) Copies of the Brief and WSI
 - i) Additional photographic images may be supplied on a CDROM appended to the report
- 9.2 Three copies of the report will be submitted to the commissioning body. A bound and digital copy of the report will be submitted direct to SYAS for planning purposes, and subsequently for inclusion into the SMR.
- 9.3 A field archive will be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs will be produced. ArcHeritage will liaise with the Rotherham Museum Service (Clifton Park Museum) prior to the commencement of fieldwork to establish the detailed curatorial requirements of the museum and discuss archive transfer and to complete the relevant museum forms. The relevant museum curator would be afforded access to visit the site and discuss the project results.
- 9.4 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.
- 9.5 Upon completion of the project an OASIS form will be completed at <http://ads.ahds.ac.uk/project/oasis/>.

10 POST EXCAVATION ANALYSIS & PUBLICATION

- 10.1 The information contained in the evaluation report will enable decisions to be taken regarding the future treatment of the archaeology of the development site and any material recovered during the evaluation.
- 10.2 If further archaeological investigations (mitigation) take place, any further analyses (as recommended by the specialists, and following agreement with SYAS) may be incorporated into the post-excavation stage of the mitigation programme unless such analysis are required to provide information to enable a suitable mitigation strategy to be devised. Such analysis will form a new piece of work to be commissioned.
- 10.3 In the event that no further fieldwork takes place on the site, a full programme of post excavation analysis and publication of artefactual and scientific material from the evaluation may be required by SYAS. Where this is required, this work will be a new piece of work to be commissioned.

- 10.4 If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the evaluation and of the location and material held within the site archive.
- 10.5 The results of the work will be publicised locally e.g. by presenting a paper at the South Yorkshire Archaeology Day and talking to local societies, as appropriate.
- 10.6 A summary report accompanied by illustrations will be presented in digital format for publication in the appropriate volume of *Archaeology in South Yorkshire*.

11 HEALTH AND SAFETY

- 11.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.
- 11.2 A Risk Assessment will be prepared prior to the start of site works.

12 PRE-START REQUIREMENTS

- 12.1 The client will be responsible for ensuring site access has been secured prior to the commencement of site works, and that the perimeter of the site is secure.
- 12.2 The client will provide ArcHeritage with up to date service plans and will be responsible for ensuring services have been disconnected, where appropriate.
- 12.3 The client will be responsible for ensuring that any existing reports (e.g. ground investigation, borehole logs, contamination reports) are made available to ArcHeritage prior to the commencement of work on site.

13 REINSTATEMENT

- 13.1 Following excavation and recording the spoil from the trenches will be backfilled unless requested otherwise. The backfill material will be levelled and compressed as far as possible with the mechanical excavator bucket, but will not be compressed to a specification. ArcHeritage are not responsible for reinstating any surfaces, including reseeding, unless specifically commissioned by the client who will provide a suitable specification for the work.
- 13.2 During the first monitoring visit (see section 15) an agreement on a suitable staged backfill timetable for the trenches will be agreed, to avoid leaving all trenches open at once for health and safety reasons.

14 TIMETABLE & STAFFING

- 14.1 The timetable for the archaeological works is to be confirmed.
- 14.2 A list of specialist staff available for this work and their CVs will be provided to SYAS prior to commencement of site works.

15 MONITORING OF ARCHAEOLOGICAL FIELDWORK

- 15.1 As a minimum requirement, SYAS will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed and to discuss the requirement any further phases of archaeological work. ArcHeritage will notify SYAS of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with SYAS.
- 15.2 With the client's agreement illustrated notices will be displayed on site to explain the nature of the works.

16 COPYRIGHT

- 16.1 ArcHeritage retain the copyright on this document. It has been prepared expressly for the named client, and may not be passed to third parties for use or for the purpose of gathering quotations.

KEY REFERENCES

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See also the **HELM** website for a full list of English Heritage Guidance documents.

<http://www.helm.org.uk/server/show/nav.19701>

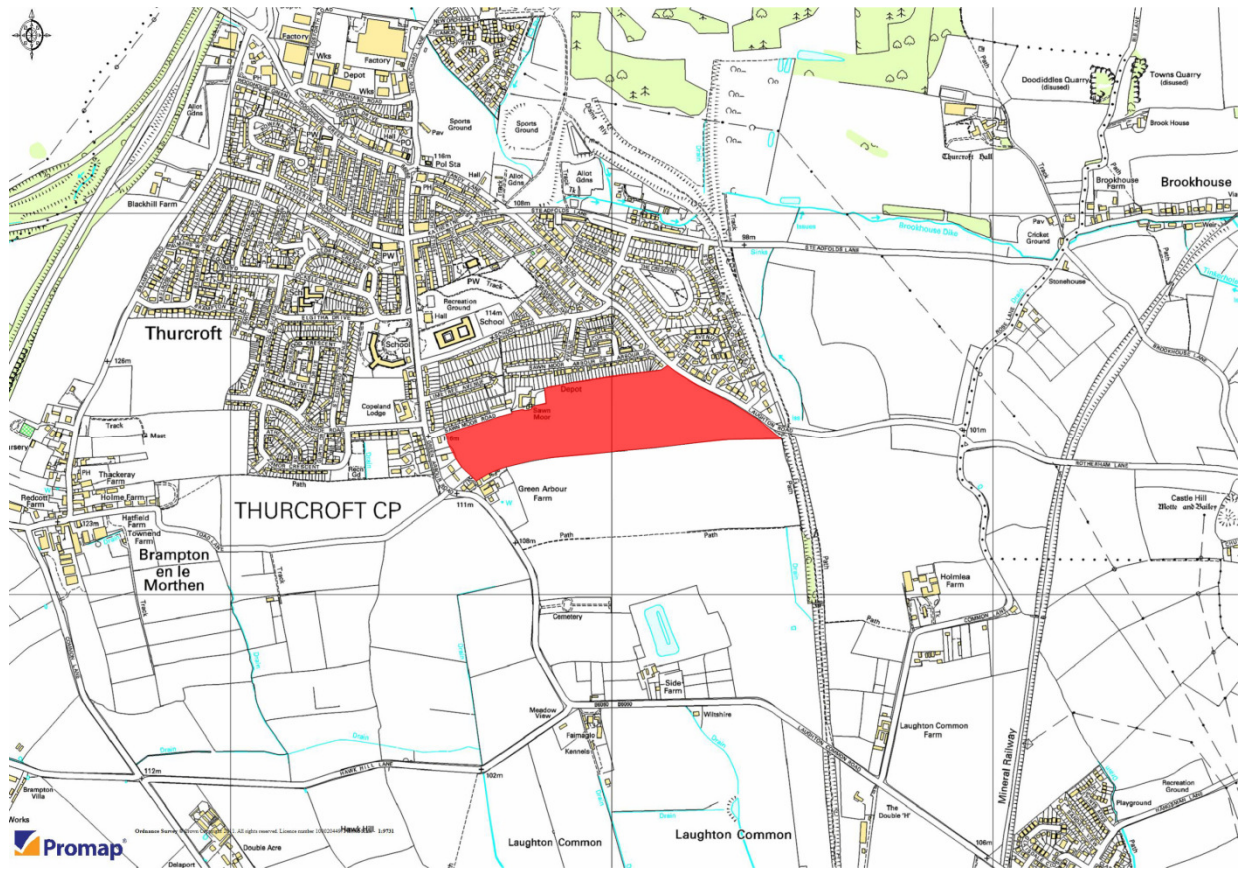


Figure 1. Site location map

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WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL STRIP, MAP AND SAMPLE

Site Location:	Laughton Road, Thurcroft, Rotherham, South Yorkshire
NGR:	SK 5008 8855
Proposal:	Housing development at Land west of Laughton Road, Thurcroft
Planning ref:	RB2011/1244
Prepared for:	Barratt Homes and David Wilson Homes and Persimmon Homes by ArcHeritage, 8th November 2012
Status of WSI:	Draft, for approval

1 SUMMARY

- 1.1 Barratt Homes and David Wilson Homes and Persimmon Homes have received planning consent for a housing development on land west of Laughton Road, Thurcroft. The development will include the construction of housing, access roads and a footpath/cycleway. The archaeological desk-based assessment (DBA) for the scheme demonstrates that archaeological remains may exist on the site but little is known as to their possible extent or state of preservation. The archaeological investigation will assess the potential for archaeological remains by undertaking a geophysical survey of the entire site, in so far as is practicable, followed by trial excavation of 5% of the site.
- 1.2 This Written Scheme of Investigation (WSI) has been prepared in response to a request by South Yorkshire Archaeology Service (SYAS). The work will be carried out in accordance with the Brief and this WSI, and according to the principles of the Institute for Archaeology (IfA) Code of Conduct and all relevant standards and guidance.
- 1.3 This Written Scheme of Investigation (WSI) has been prepared to meet the requirements of the South Yorkshire Archaeology Service for works to be undertaken during the stripping of the site compound and site access. The work will be carried out in accordance with the WSI.
- 1.4 This WSI covers the work to be undertaken in the area of the site compound and site access roads. A separate WSI has been produced dealing with the archaeological trial trenching to be undertaken across the rest of the site. The results of the initial topsoil strip will be used to guide the locations of the trial trenches. If archaeological features are identified in the areas where topsoil is removed a programme of map and record will be implemented in consultation with South Yorkshire Archaeology Service. The trial trench locations will therefore be agreed following completion of the topsoil strip.

2 SITE LOCATION & DESCRIPTION

- 2.1 The proposal site is located immediately west of Laughton Road, Thurcroft, approximately 1.2Km east of the Junction of the M1 and M18, centred on NGR 45008, 58855 (location shown in Figure 1).

- 2.2 The site is situated within a single arable field, surrounded by 20th-century housing development to the north, and open fields with a small number of domestic properties to the south. The underlying geology of the site comprises of Lower Coal Measures.

3 DESIGNATIONS & CONSTRAINTS

- 3.1 The scheme does not lie within a conservation area. The nearest Scheduled Ancient Monument (SAM) to the site is approximately 1.3km to the east, namely the Castle Hill motte and bailey castle, Laughten en le Morthen (SAM no.13227). Two listed buildings are situated immediately next to the development area, Green Arbour Farm Cottage (17th century Grade II listed) at its southeast end and Sawn Moor Farm (Grade II listed building present on a 1835 map of the area) located roughly centrally to the north of the site's boundary. There are no Registered Parks, Gardens or Battlefields within 1km of the proposed development.

4 ARCHAEOLOGICAL INTEREST

- 4.1 The ArcHeritage DBA (ArcHeritage Report 2011/33) has shown that the development area is likely to have been in agricultural use since the early medieval period, and that no archaeological remains are known from preceding periods. A possible palaeochannel of unknown date was identified from aerial photographs of the western end of the site. Geophysical survey has identified a series of old field boundaries and confirmed the presence of at least one palaeochannel.
- 4.2 It is however, possible that as yet undiscovered archaeological remains may be present within the site. For this reason, a programme of archaeological evaluation is required to further identify the archaeological potential of the site and assess the nature, extent and condition of any surviving remains that may be present. The results of the evaluation will also contribute to the development of a suitable mitigation strategy, if required.
- 4.3 The archaeological evaluation will comprise two elements firstly a watching brief on the topsoil strip of areas indicated on Figure 2, this will include mapping and sampling of archaeology if required, and secondly a programme of trial trenching which will follow on from the stripping, the trenching scheme will be informed by the results of the strip, map and sample. **Further mitigation works may be required, depending on the results of the evaluation phase.**

5. GROUNDWORKS TO BE MONITORED

- 5.1 The areas for topsoil strip will be set out prior to commencement of site work (Figure 2). The total area for topsoil strip is c. 1ha. Following setting out the areas will be stripped of topsoil or overburden. The area must be stripped using a machine fitted with a suitable toothless bucket (e.g. ditching bucket) to produce a clean, flat surface for archaeological inspection. The stripping activity will be monitored at all times by an archaeologist. Areas will be cleaned by the archaeologist(s) as necessary to allow any archaeological features to be identified.

6 DELAYS TO THE DEVELOPMENT SCHEDULE

- 6.1 All earth-moving machinery must be operated at an appropriate speed to allow the archaeologist to recognise archaeological deposits and material.

- 6.2 In order to fulfil the requirements of this WSI, it may be necessary to halt the earth-moving activity to enable the archaeology to be cleaned properly.
- 6.3 Plant or excavators shall not be operated in the immediate vicinity of stripped areas until the site has been inspected by South Yorkshire Archaeology Service and agreement has been reached for construction operations to proceed. If archaeological remains are identified in the areas of topsoil strip development works must cease.

7 RECORDING METHODOLOGY

- 7.1 If archaeological deposits are identified in areas of topsoil strip the following methodology for subsequent excavation and recording will be used.
- 7.2 If archaeology is present the stripped area will be mapped using hand held GPS or Total Station Survey to record the location of and extent of all archaeological features present.
- 7.3 Archaeological; deposits identified during the strip and map will be sample excavated to determine their character and date.
- 7.4 A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner in order to establish the aims of the evaluation
- Discrete features will be half-sectioned in the first instance.
- Linear features will be sample excavated (minimum 20% of their length) sufficient to meet the objectives of the evaluation; with each sample being not less than 1m in length. All termini will be investigated.
- Deposits at junctions or interruptions in linear features will be sufficiently excavated to allow relationships to be determined.
- Structures will be sample excavated to a degree whereby their extent nature, form, date, function and relationships to other features and deposits can be established.
- 7.5 Unique context numbers will be assigned to all archaeological contexts. In archaeologically 'sterile' areas, soil layers will be described but no context numbers will be assigned. Where assigned, each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions.
- 7.3 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-section of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation. All drawings will be drawn on inert materials. All drawings will adhere to accepted drawing conventions
- 7.4 Photographs of archaeological deposits and features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic register will comprise 35mm format black and white prints. Digital photography and/or 35mm colour slides may be used in addition, but will not form the primary site archive. All site photography will adhere to accepted photographic record guidelines.

- 7.5 Areas which are inaccessible (e.g. for health and safety reasons) will be recorded as thoroughly as possible within the site constraints. In these instances, recording may be entirely photographic, with sketch drawings only.
- 7.6 All finds will be collected and handled following the guidance set out in the IfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.
- 7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds*, and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.
- 7.8 Samples will be taken from all securely stratified archaeological contexts; features that are clearly modern or of little archaeological value (field drains, furrows etc); or those that evidence a high degree of residuality will not be sampled. Sampling will be carried out in consultation with ArcHeritage specialists and the English Heritage Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed from site will be stored in appropriate controlled environments. All sampling for environmental and biological material will take place in accordance with the recommendations contained in the papers *Environmental Archaeology and Archaeological Evaluations*, Association for Environmental Archaeology (1995) and *Environmental Archaeology: A Guide to the Theory and Practice of Methods from Sampling and Recovery to Post-Excavation* 2nd Edition (English Heritage 2011).
- 7.9 The sampling regime will include samples of the four types of deposit sample described below:
- Bulk-sieved Sample (BS). Sample size will depend upon the context/feature size, but should be up to 40- 60 litres in size (if the context size allows). They are taken for the recovery of charcoal, burnt seeds, bone and artefacts. The samples will be processed (flotation) on site where possible with 1mm and 500micron sieves on a rack to collect the carbonised washover. The retents and flots will then be dried, sorted and assessed to advise the potential for further analysis.
 - General Biological Sample (GBA): These are only taken if a deposit is waterlogged. A 10 litre sample size will be used (if the context size allows). These samples will be processed in the laboratory, to recover microfossils and microscopic remains such as pollen and insects.
 - Column monolith: Kubiena tin samples may be taken for soils and pollen analysis and to determine soil accumulation processes.
 - Spot samples: these samples are taken as required. they may be contexts or material not suited to sieving, such as caches of seeds, pieces of eggshell or any

specific finds of organic material. They may also be specialist samples (e.g. charcoal for radiocarbon dating)7.9 There is no evidence of industrial activity within the site. If industrial activity of any scale is detected, however, industrial samples and process residues will be dealt with according to English Heritage guidelines (English Heritage 2001).

7.11 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and SYAS will be informed immediately. An osteoarchaeologist will be available to give advice on site.

- If disarticulated remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed for assessment by an osteoarchaeologist.
- If articulated remains are encountered, these will be excavated in accordance with recognised guidelines and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.11 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, IfA Technical Paper 13 (1993) and English Heritage guidance (2005).

8 REPORT & ARCHIVE PREPARATION

8.1 On completion of the strip map and sample a report will be produced on the results of the work. If no archaeology is identified during the stripping the results of the work will be reported along with the results of the trial trenching programme.

8.2 The report will be prepared to include the following:

- a) A non-technical summary of the results of the work.
- b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.
- c) An account of the methodology and results of the operation, describing structural data, associated finds and environmental data.
- d) A selection of photographs and drawings, including an overall plan of the site accurately identifying the areas monitored.
- e) Specialist artefact and environmental reports as necessary.
- f) Details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive.
- g) A copy of the key OASIS form details
- h) Copies of the Brief and WSI

- i) Additional photographic images may be supplied on a CDROM appended to the report
- 8.3 Copies of the report will be submitted to the commissioning body and the HER/SMR (also in PDF format).
- 8.4 The requirements for archive preparation and deposition will be addressed and undertaken in a manner agreed with the recipient museum. In this instance, Clifton Park Museum, Rotherham, is recommended and an agreed allowance should be made for the curation and storage of this material.
- 8.5 Provision for the publication of results, as outlined in the Brief, will be made.
- 8.6 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the County Council and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

9 HEALTH AND SAFETY

- 9.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.
- 9.2 A Risk Assessment will be prepared prior to the start of site works.

10 TIMETABLE & STAFFING

- 10.1 The topsoil strip will commence on Monday, 12th November 2012 and is expected to last 2 days.
- 10.2 Specialist staff available for this work are as follows:

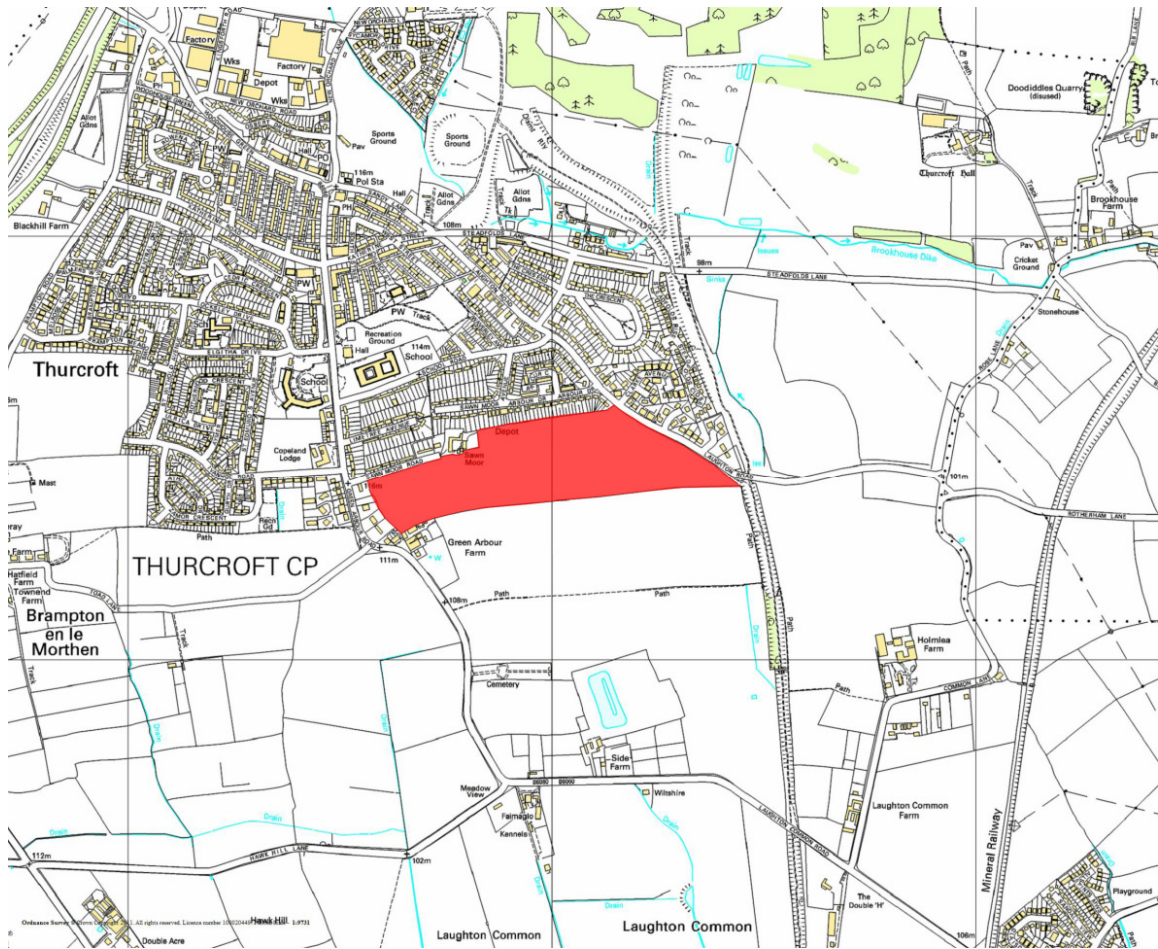
- Head of Artefact Research - Dr Ailsa Mainman
- Human Remains - Malin Holst (York Osteoarchaeology Ltd) & Rebecca Storm (University of Bradford)
- Palaeoenvironmental remains – Dr Jennifer Miller (Northlight Heritage)
- Head of Curatorial Services - Christine McDonnell
- Finds Researcher - Nicky Rogers
- Medieval Pottery Researcher - Anne Jenner
- Finds Officers - Geoffrey Krause & Rachel Cubitt
- Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie & Dr Roger Doonan
- Conservation – Ian Panter

11 COPYRIGHT

- 11.1 ArcHeritage retain the copyright on this document. It has been prepared expressly for the named client, and may not be passed to third parties for use or for the purpose of gathering quotations.

12 KEY REFERENCES

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Figure 1: Site location map

