PHASES 2&3 – LAND TO THE WEST OF B5009, WHITTINGTON, SHROPSHIRE

Archaeological Evaluation

Prepared for: Shingler Group

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STATUS OF REPORT: FINAL

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Date:	12th November 2020
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Date:	18th November 2020

1.0 Introduction

1.1 Planning Background

SLR Consulting were commissioned by Shingler Group (the Client) to undertake a programme of site investigation in accordance with a Written Scheme of Investigation[1] to mitigate the potential impacts of a new residential housing scheme on land west of the B5009 and south of the properties fronting Station Road, Whittington, Shropshire (planning ref: 18/01990/FUL) (Figures 1-1 and 1-2). The first stage of this investigation was a geophysical survey which is presented in Appendix 01 and formed the basis for the subsequent trench plan.

The archaeological work for the overall development has been carried out in two phases, in advance of Phase 1 building work on the site, and prior to application for Phases 2 & 3, in the area shown in Figures 1-2 and 3-1.

1.2 Location, topography and geology

The site is located west of the B5009 road from Queens Head and Babbinswood to Whittington (central point at approximately NGR SJ328308 (332810 330805) (Figure 1), in agricultural fields and an overgrown orchard to the rear and south of properties that face on to Station Road, Whittington. The nearest post code is SY4 1JY. The land consists of several fields of agricultural land (Figures 1-3 and 2), currently under pasture, with one small field partly under trees and scrub; the total area is about 1.7ha in extent. The highest point is at c.89m AOD in the northern corner, and it slopes south-eastwards. It is 87.5m AOD at the entranceway on the eastern side. The nearest watercourse is Common Brook, c.50.

The soil is Grade 3 agricultural land, which is of moderate fertility but with impeded drainage. The soils are classified as 'slowly permeable, seasonally wet, slightly acid but base-rich loamy and clayey soils.[2] The solid geology is Kinnerton Sandstone, and the drift geology is fluvioglacial, consisting of sands and gravels over glacial till.

The initial ground investigation, carried out by Georisk, identified grey and brown slightly clayey cobbly gravel or gravelly cobble, as well as sandy gravelly clay with cobbles at 0.4 m below ground level; on the north end of the site, firm to stiff grey and brown gravelly clay was encountered at a depth of 0.45. The initial phase of excavation found the natural geology to be at 0.35 to 0.70m, with a subsoil beneath the relict ploughsoil.

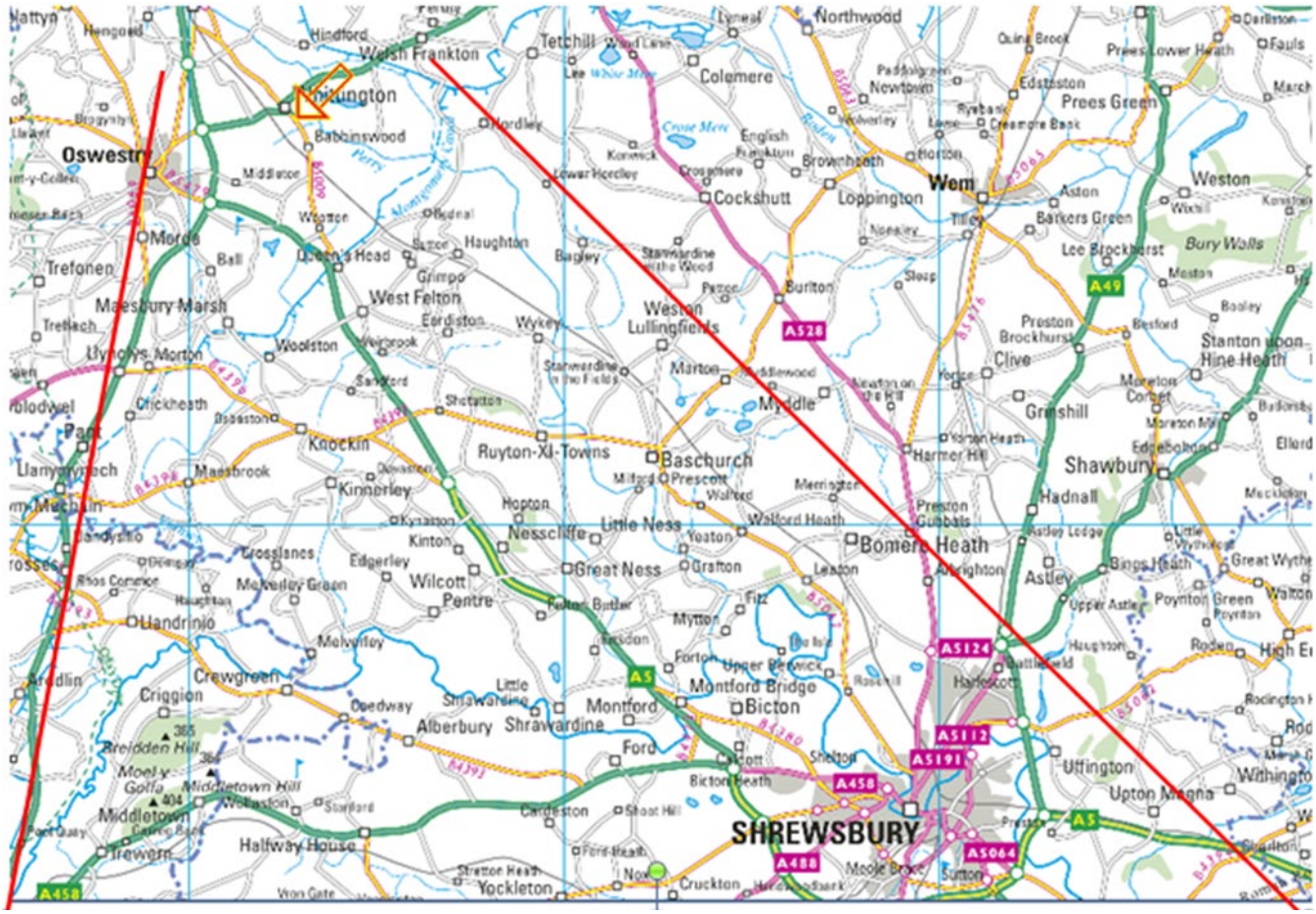
1.3 Archaeological and historical background

The proposed development site is located partially within, and immediately south of the historic core of Whittington and the associated Conservation Area. A Heritage Assessment, together with a geopysical survey report, were submitted in support of the planning application; the Heritage Assessment supplied local maps going back to 1746, all of which showed the land on the proposed development site as open or agricultural, apart from the northern-most field (Frost 2014). The tithe map of 1839 provides further detail, indicating that the fields in the development area were used for pasture and meadow, but some time between 1839 and the first edition OS map of 1874, an orchard was established in the northern end of the site (Frost 2014). The First edition OS map also shows a curving boundary through the field containing Trenches 7-9, although this boundary was removed some time before the second edition OS map in 1902 (*ibid*.)

The 13th century Whittington Castle is located about 300m to the NNW of the site. This border castle is set upon the earthworks of a substantial Iron Age enclosure, possibly a low-lying hillfort (HER /PRN 32853).

[1] PHASES 2&3 – LAND TO THE WEST OF B5009, WHITTINGTON, SHROPSHIRE Archaeological Written Scheme of Investigation SLR 2020
[2] http://www.landis.org.uk/soilscapes/

Figure 1-1:
Site Location



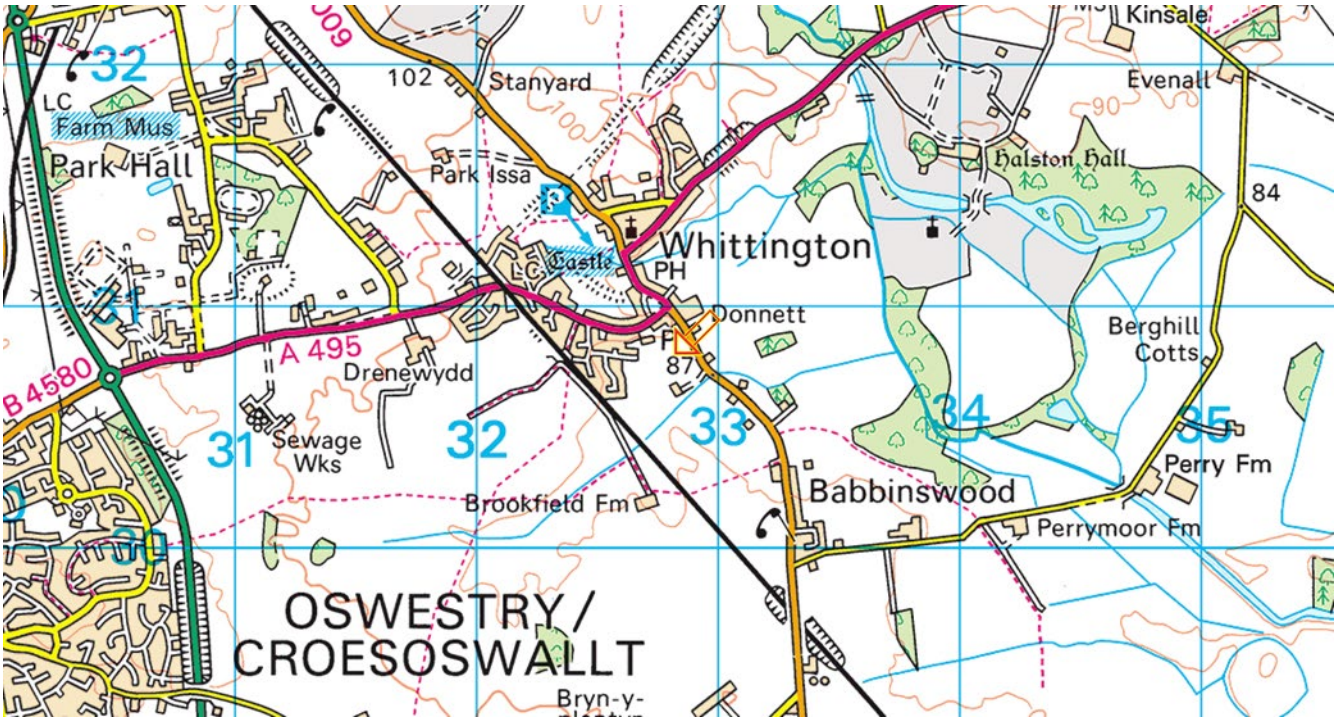
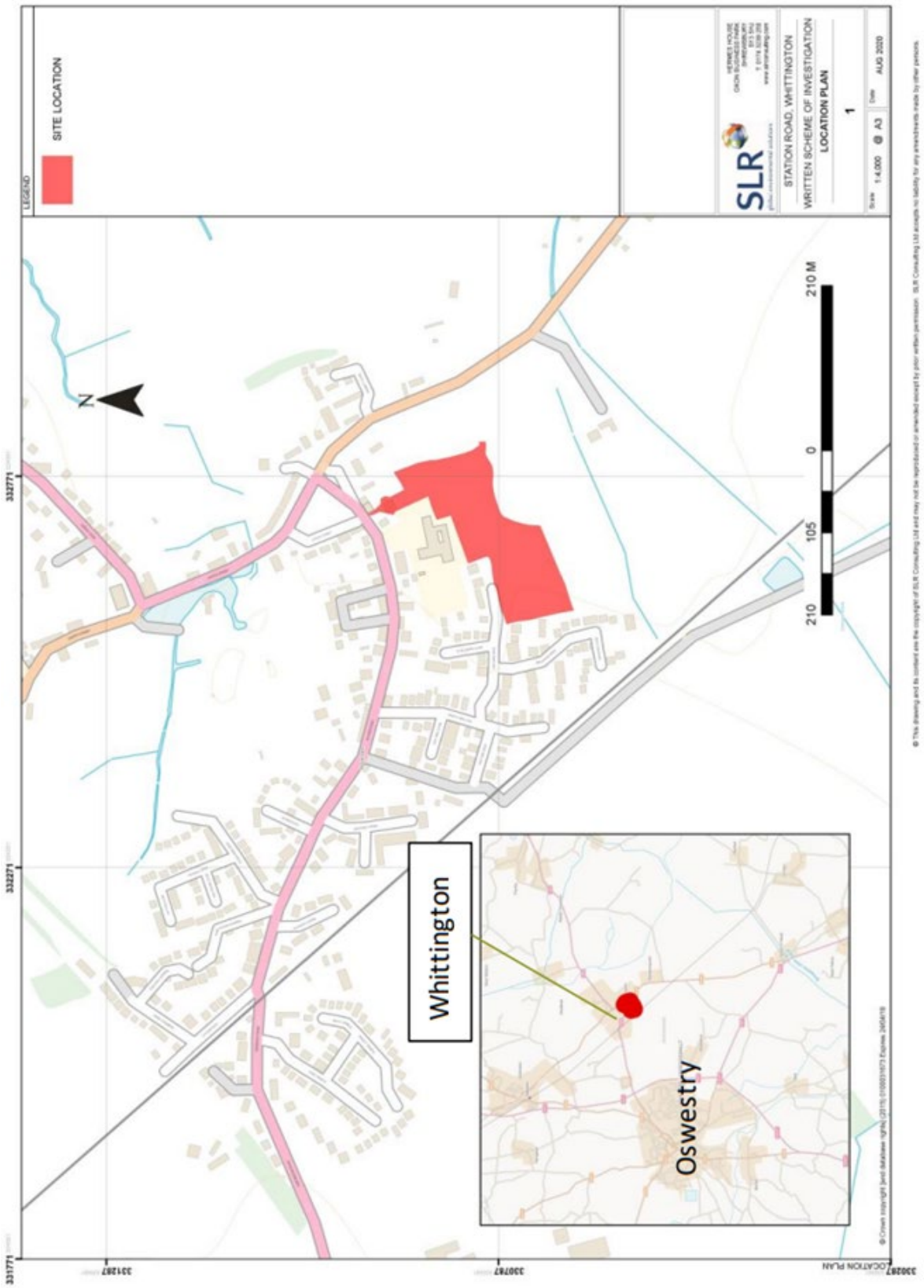


Figure 1-2
Proposed Development at South side of Station Road, Whittington



2.0 Archaeological Trial Trenching

2.1 Aims & Objectives

2.1.1 Aims

- to investigate and record the extent of archaeological remains within the development envelope
- to assess the evidence so that a mitigation strategy proportional to the heritage significance of the remains can be designed.

2.1.2 Objectives

A trial trench approach (Figures 3-2 and 4-1) was adopted, with the following objectives:

- to investigate sub-surface deposits;
- to establish the general deposit sequence on the site;
- to establish the extent, nature and date of archaeological features or remains present on site;
- to undertake post-excavation analysis of the records, artefacts and samples recovered during the work to produce a report for submission to the local planning authority;
- to deposit an archive of site records, reports and artefacts with an appropriate body.
- More specifically, Trenches 1 and 6-9 were placed in order to check the 'blank' areas in the geophysics, while Trenches 2, 3, 4 and 5 were placed to investigate possible features identified in the geophysics.

Figure 1-3 View of western field and trench 3, looking west

3.0 Detailed Methodology

3.1 Trial Trenching & Archaeological Investigation

Ten trenches were excavated using a mechanical excavator with a 1.8m wide toothless ditching bucket to carefully remove the topsoil to the top of archaeological remains or undisturbed natural deposits. This work was carried out under the direction of an experienced archaeologist.

The trenches were manually cleaned to expose any archaeological features cut into the natural geology. These were then recorded and excavated in order to achieve the project aims. Trenches without archaeology were also cleaned and photographed, in order to show the nature of the natural geology and to record the negative evidence.

3.1.1 Fieldwork recording

After removal of the topsoil with a mechanical excavator using a toothless ditching bucket, the trench surface was inspected and manually cleaned to identify potential archaeological remains cut into the natural geology. Cut features were recorded in plan, either in hand-drawn records or using a GPS, and a section was cut across each feature. Archaeological deposits were recorded using a pro-forma recording system, and fully cross-referenced.

Figure 3-1
Proposed Development at South side of Station Road, Whittington

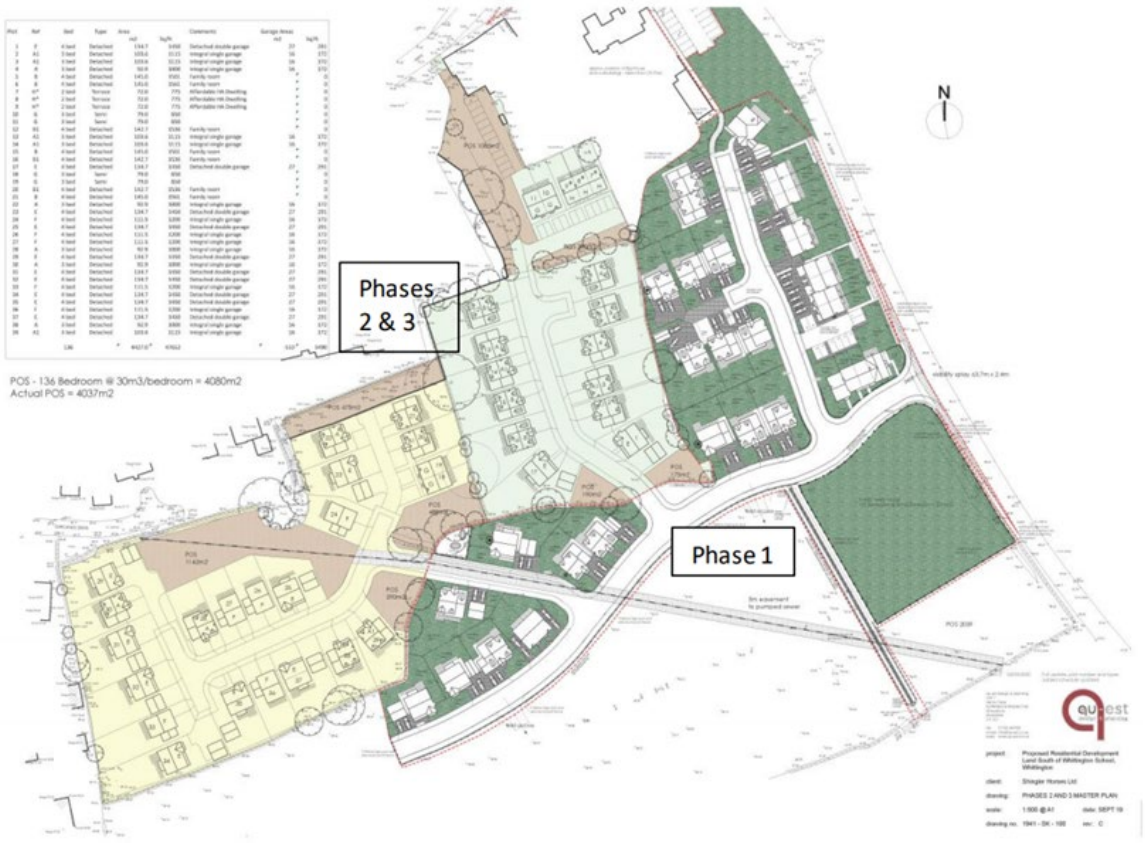
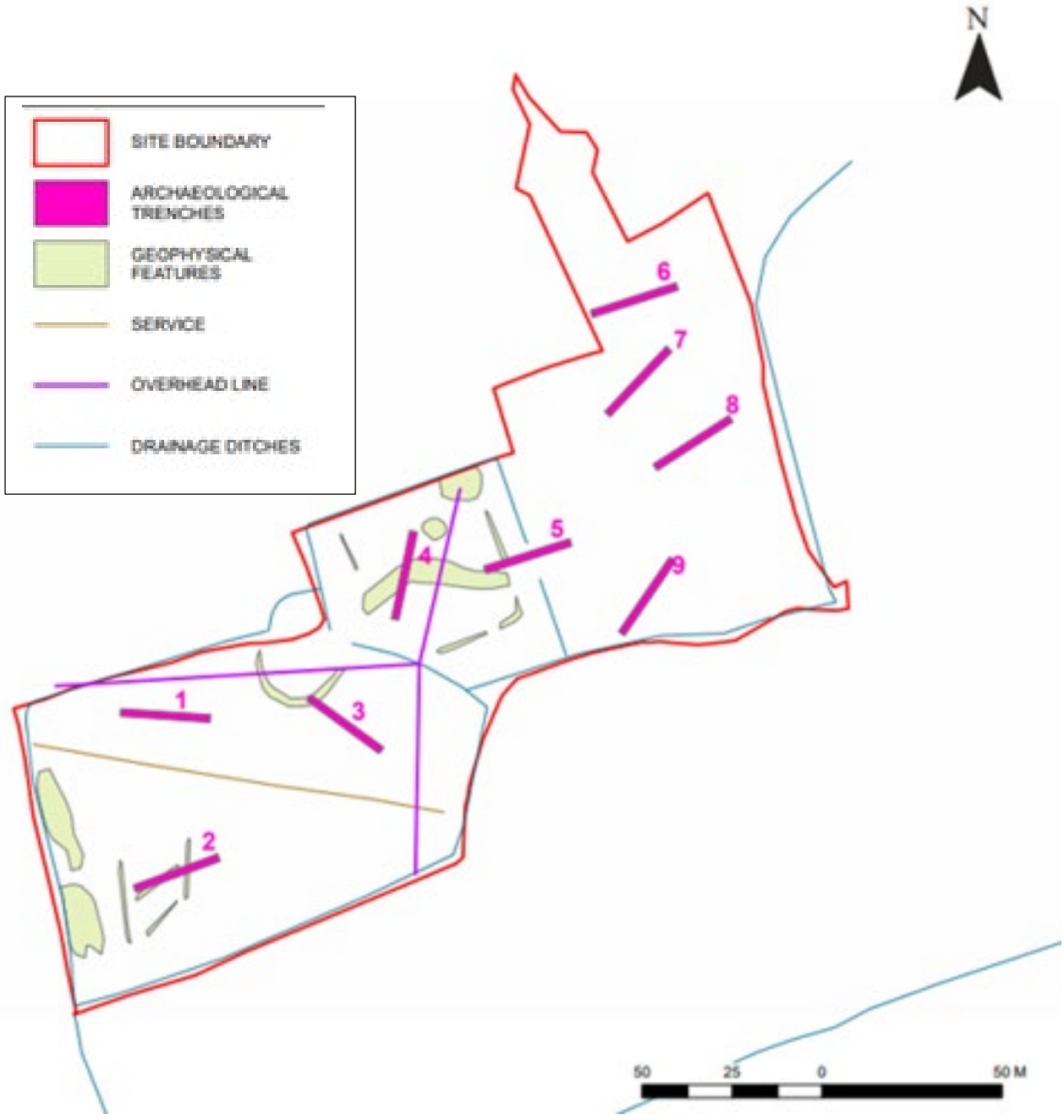


Figure 3-2
Site Plan showing location of trenches against proposed phases 2 & 3 development



The photographic record comprised high-resolution digital images with a supporting index. The drawn record comprised plans of the site at a suitable scale, with 1:20 for detail of features, and profiles and sections drawn at 1:20 or 1:10. The location of the remains were recorded using hand-measured offsets or a hand-held GPS to enable an overall site plan of remains at the site to be produced.

On completion of the evaluation Shropshire Council's Archaeological Advisor confirmed that this fieldwork stage had been satisfactorily accomplished.

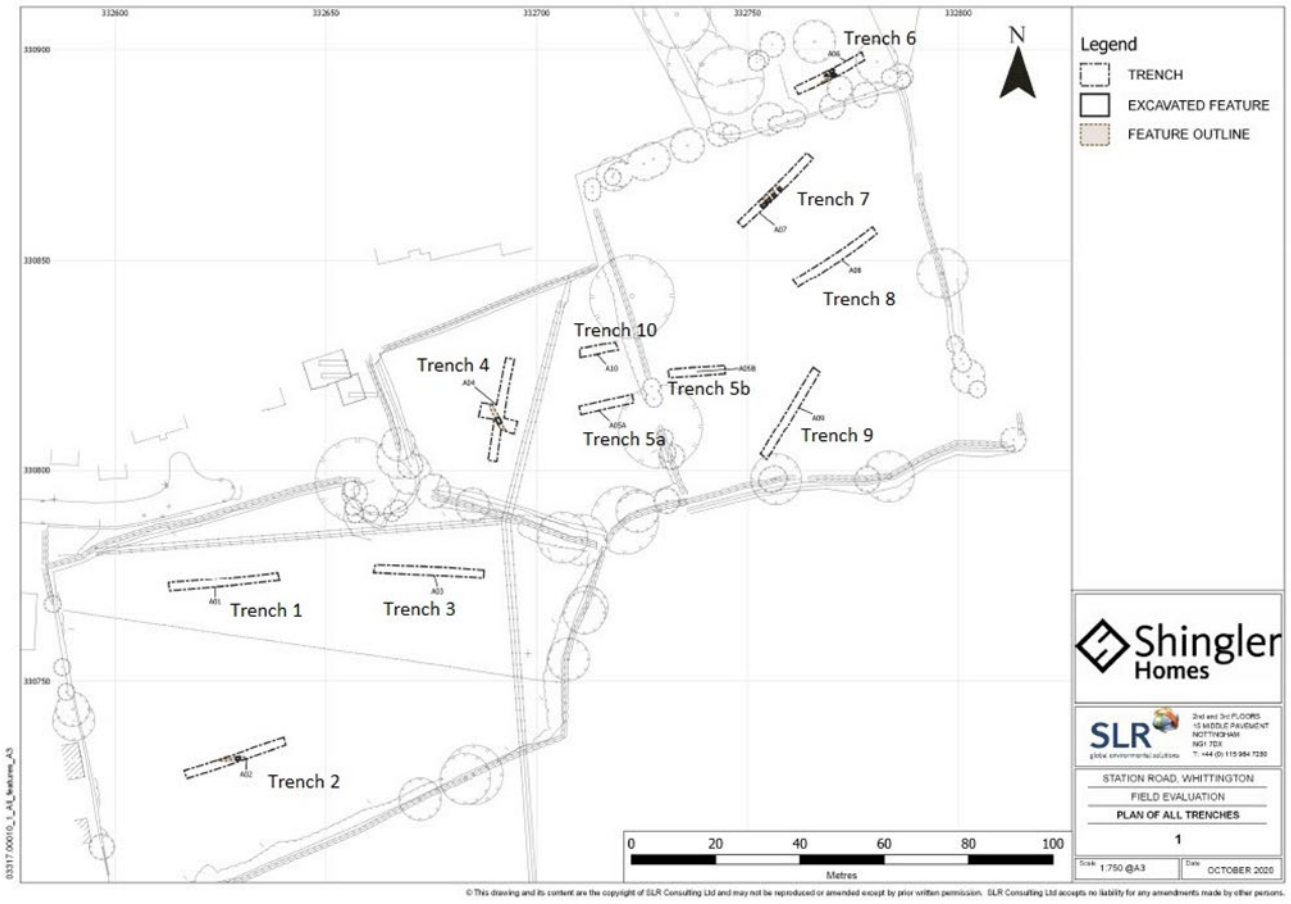
Figure 3-3
View of eastern field looking east to trenches 7 and 8, with Trench 5B in foreground

4.0 Results

4.1 General Site Description

Trial trenching and excavation were undertaken on 20-22 October 2020 in sun, rain and drizzle. The trenches were excavated with lengths of approximately 30m. All trenches were 1.80m wide. The topsoil was a friable brown silt loam. Drawing 1 and Figure 4-1 show the final location of all the trenches, while Drawing 2 and Figure 4-2 shows the details of the archaeological features within the trenches. Details of recorded archaeological features and their fills are presented in Appendix 02.

Figure 4-1
GPS Plan showing final map of trenches with archaeological features



4.2 Trench 1

Trench 1 was 25.20m long, 0.45-0.53m in depth, and was oriented roughly east-west. The topsoil (1000) was 0.20m deep above a yellowish-brown clayey subsoil (1002) with modern inclusions including brick and coal. This overlay the natural geology, a very stony orange and yellowish-brown silty sand (1003), which transitioned to a pale yellow-brown and pale orange clayey silt in the western 3 metres of the trench (also 1003). There were no features and no finds.

4.3 Trench 2

Trench 2 was 24.40m long, 352 to 0.62m deep, and was ENE-WNW. It was excavated onto sandy red-brown gravel and grey sandy silt, with large cobbles up to 0.25m and frequent patches of ferro-manganese nodules (2002). The topsoil was 0.20m and the subsoil was 0.15m thick. One feature was recorded: Ditch [2004] was c. 6m long, 0.60m wide, and was orientated east-west (Figure 6). The feature had a shallow, round-based profile and was filled by (2005), a loose sand with occasional stones, similar in colour to the very heterogeneously coloured red-brown and yellow-brown natural. There were no finds.

Figure 4-2 Plan of Archaeological Features

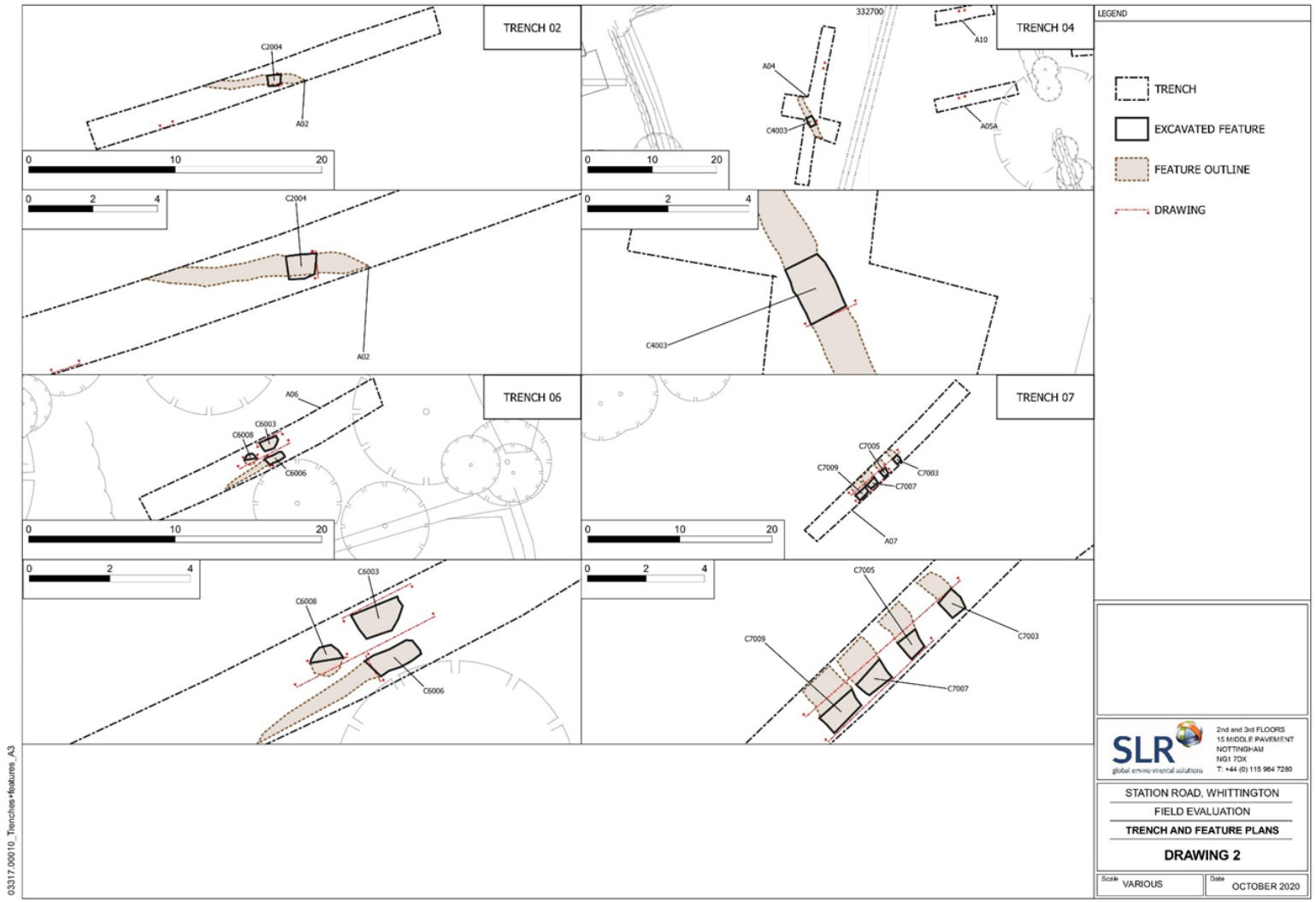


Figure 4-3
Trench 3 Section showing modern pond deposits

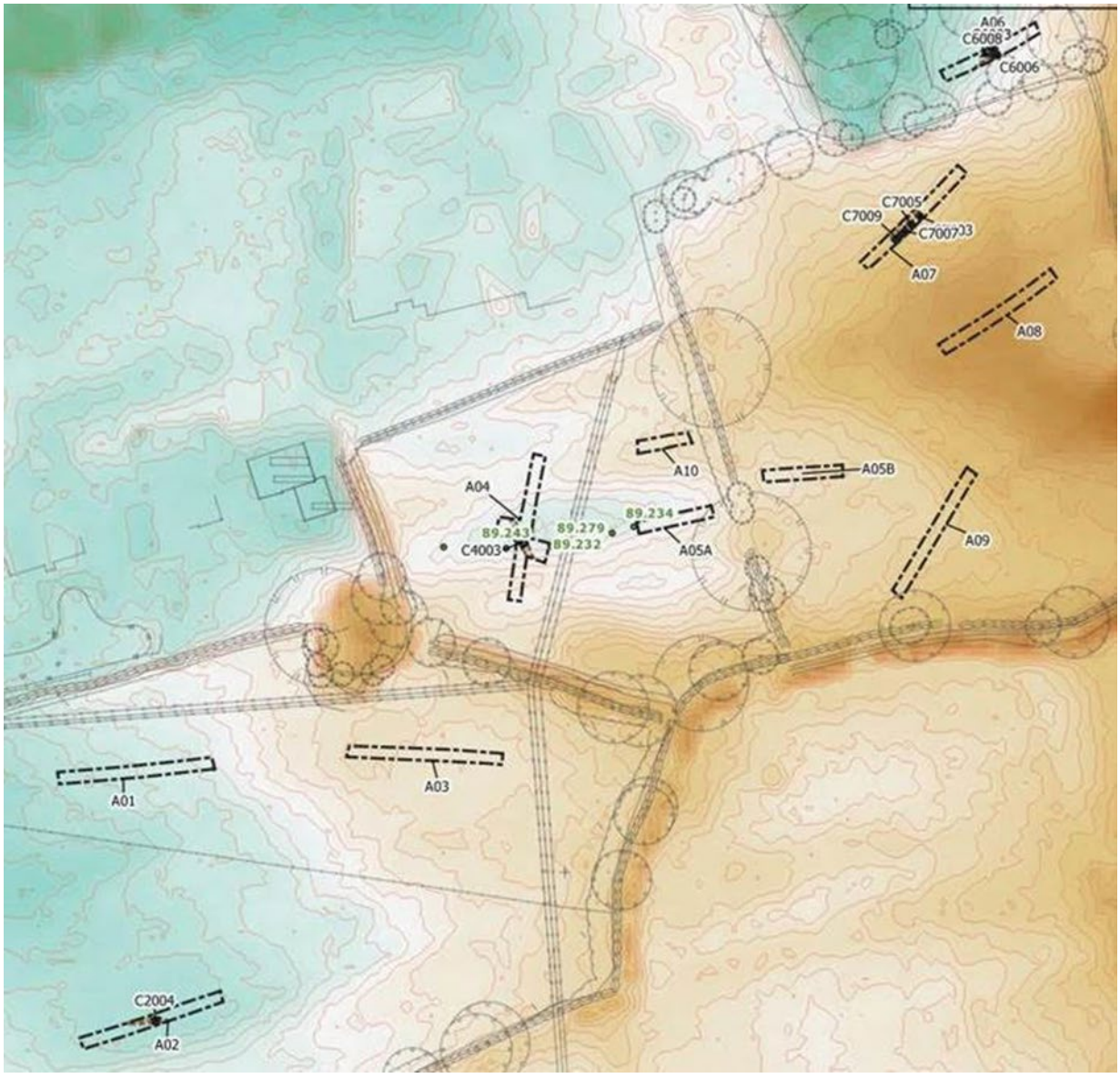
4.4 Trench 3

Trench 3 was 24.8m long and 0.45-0.60m deep, dropping to 0.71m at the north-western end. It was orientated NW-NE. The trench was placed to investigate a circular feature at the north-west end of the trench, though it had to be moved slightly in order to avoid two electricity lines and a water main. The topsoil (3000) was 0.24m deep, and overlay a brownish clay subsoil 0.16m in depth (3001) (Figure 4-3). At the western end the subsoil overlay a brown deposit that appeared to be decayed organic material; it contained a sherd of glazed modern pottery and fragments of ceramic building material; this layer was interpreted as a pond deposit (3004). Below this, again on the western end, was a gleyed clay, interpreted as another pond deposit (3002). Below this was the natural geology (3003)—a stony, stiff, mottled grey clay with (on the eastern end of the trench) orange mottling. The gleying, as always, related to alternating wetting and drying, reflecting the rising and falling water table.

4.5 Trench 4

Trench 4 was 24.3m long and orientated north-south. Two extensions were added after the discovery of a ditch running northwest-southeast across the trench; the western extension was 3.30 x 3.40m, and the second, eastern extension was 2.70 x 2.80m. The trench was placed on what appeared to be a bank or – as shown in the Lidar plot—a ridge (Figure 4-4). This could be natural, but might also be a medieval headland situated on a slight rise. The topsoil (4000) at the low northern end was 0.26m deep, and overlay a subsoil (4001) 0.30m deep, making an overall trench depth of 0.58m. Near the centre of the trench, the topsoil was 0.22m and overlay a subsoil 0.20m deep (4001), so here the trench depth was 0.42m in total, being shallower but situated at a higher level on a slight ridge. The appropriate level was certainly reached, as a ditch [4003] could – with great difficulty—be seen to cut the natural geology. The natural (4005) was a gleyed, very stony gravel in a stiff, gleyed clay with frequent pea grits and iron/manganese nodules and mottles. The subsoil (4001) was a very friable clayey silt, mid yellow brown, and containing coal, charcoal and flecks of ceramic building material, including a fragment of brick.

Figure 4-4
Trenches plotted against the Lidar data



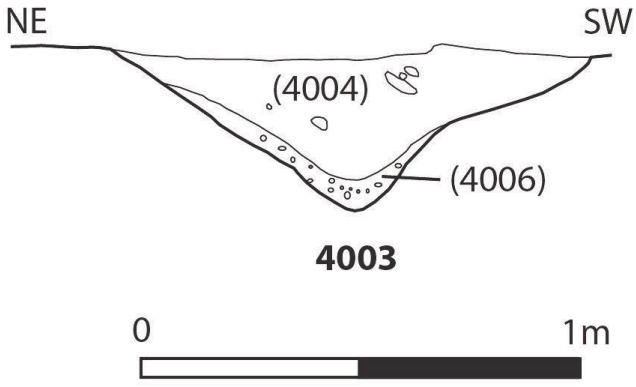
The ditch [4003] was excavated in a 1.50m slot (Figure 4-6). It was 0.90 to 1.10m wide and had a rounded 'V' shaped profile. The North-Eastern side was gradual in slope, while the South-Western side had a break of slope halfway down to the base – rather like a Roman 'ankle-breaker' ditch.

The primary fill (4006) was an edge slump deposit, and was a mid-grey silt with frequent poorly sorted stones. This deposit contained a burnt stone and a small fragment of pottery. The secondary fill (4004) was a pale grey-brown silty clay with stones up to 0.80m, and a tip line running in from the North-Eastern side, indicating a possible bank on that side. The fill contained a burnt stone and a material like slag or pumice that could not be identified. It also contained 17 sherds of Black Burnished Ware (probably BB2), including a rim and several sherds with a lattice pattern (Figure 4-5). BB2 is wheel-thrown Roman pottery and dates to AD 150-225; it is a type of pottery used for cooking pots, and is commonly found on Roman military sites.

The extensions to the trench exposed a greater length of the ditch, but did not expose any associated features.

Figure 4-5 Black Burnished Ware category 2, with lattice decoration

Figure 4-6 Trench 4, Roman Ditch [4003] photograph and section drawing



4.6 Trenches 5a and 5b

Trench 5 was intended to be placed through the gap between two fields, but the gap was essential for access, so the trench was moved slightly to the north and was split in two, with Trench 5a on the west side of the hedge and 5b on the east; the trench was orientated east-west. The aim of the trench was to investigate a possible feature identified in the geophysics.

The western trench, 5a, was 12.20m long and 0.48-0.60m deep; the topsoil (5000) was 0.36m and the subsoil (5001) was 0.15m deep. The natural geology (5004) was a pale to mid yellow-brown stony clay; the boundary between natural and subsoil was very diffuse, and the interface layer—a stone-free yellow brown silty clay-- was given the number (5002). The geophysics identified a feature running north-south through this point, but no archaeological features were found. However, there was a line of very stony natural geology that ran north-south through the trench, and this may be what the geophysics was picking up.

The eastern trench, 5b, was 12.50m long and 0.38-0.52m deep, with topsoil 0.26m over a 0.20m subsoil. The natural was a compact stony gleyed and mottled slightly sandy clay. There were no archaeological features or finds in either trench.

4.7 Trench 6

Trench 6 was 16.70m long and 0.71-0.78m deep, and was moved to the east in order to avoid a dense stand of trees and understory shrubs. The topsoil (6000) was 0.40m deep, and differed from the topsoil in the other trenches in being much blacker, deeper, and more humic; this trench was located in an orchard, and the soil was more organic-rich than the relict ploughsoils found in the other trenches. Below the topsoil was a mid- grey-brown clayey silt subsoil (6001) with heavy root disturbance. The natural geology (6002) was a very stony orange gritty clay silt.

Two ceramic field drains were hit during the machining. Two pits and a gully were also revealed.

Pit [6003] appeared to be oval in shape, running under the Northern baulk of the trench. It had steep sides and a flattish, slightly concave base. It measured 1.25 x 0.76m in plan and was 0.44m in depth. It had two fills; the upper fill (6004) was a loose and friable greyish brown clayey silt with frequent stones. The lower fill (6005) was a compact light blue-grey clay with frequent large stones and occasional charcoal. There were no finds.

Gully [6006] was oriented roughly North-West to South-East and ran into the Southern baulk. It was c. 2.5m+ long, 0.60m wide, and 0.10m deep. The base was very irregular. The terminal was excavated, but there were no finds in this shallow feature.

Pit [6008] was sub-circular in plan, with a maximum diameter of 0.78m. The cut was a concave bowl shape, with a depth of 0.12m and the single fill (6009) contained no finds.

4.8 Trench 7

Trench 7 was 21.7m long, 0.56-0.72m deep and was orientated northeast – southwest. The topsoil (7000) was c. 0.20m, and overlay a ditch [7011] cut into the subsoil. The pale grey-brown silty subsoil (7001) was 0.45 to 0.50m deep, and overlay four parallel ditches which were numbered (from northeast to southwest) [7003], [7005], [7007] and [7009] (Figures 4-7 and 4-8). All four ditches ran straight across the trench, in a northwest-southeast orientation, and all cut the natural (7002).

Ditch [7003] was 0.56m wide and 0.14m in depth with a shallow, irregularly concave base. It was filled by (7006), a compact, largely stone-free bluish-grey clay with occasional charcoal and occasional large cobbles. The feature had no finds.

Ditch [7005] was 0.76m wide and 0.26m in depth, with slightly concave sides and a flattish base. The fill, (7006), was identical to (7006). There were no finds.

Ditch [7007] was 1.20m wide and 0.20m deep, with a wide, slightly 'v' shaped base and flat sides. The fill was identical to (7006). There were no finds.

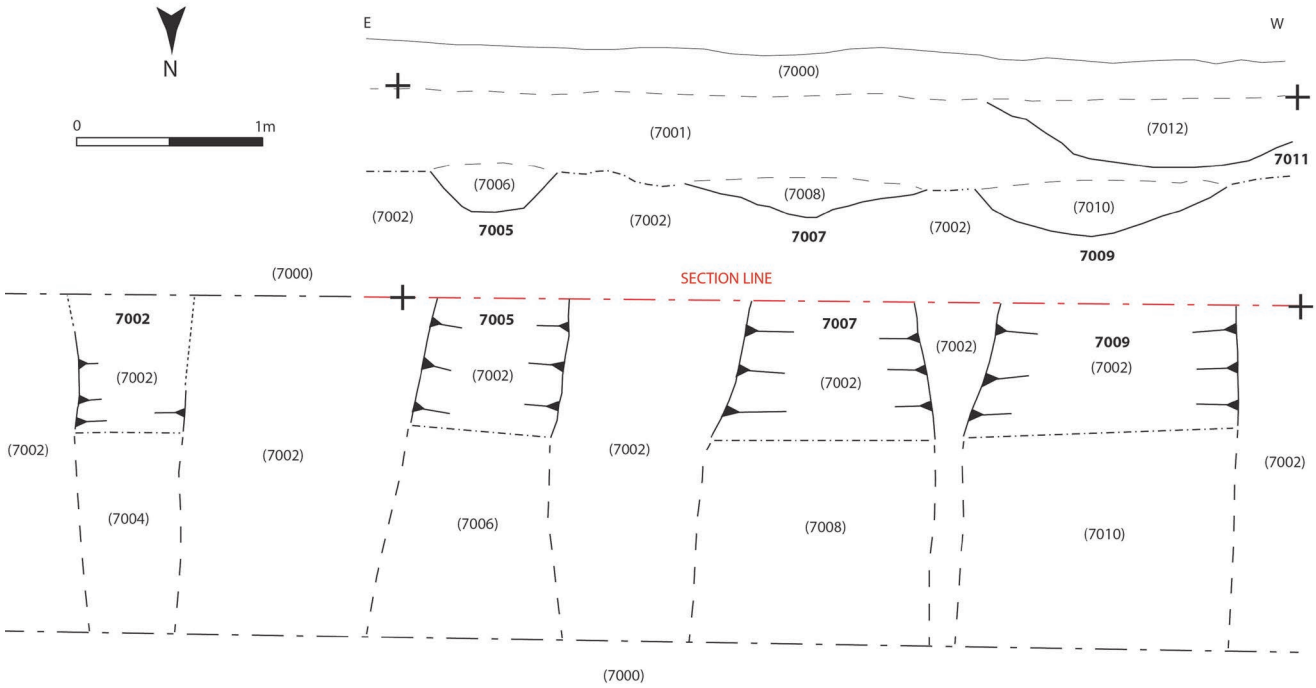
Ditch [7009] was 1.45m m wide and 0.30m deep, with a wide, shallow, concave base and sides. It was filled by (7010), which was identical to (7006). Two fragments of animal bone were recovered from the fill.

Ditch [7011] was above, but not cutting, ditch [7009]. Sealed beneath the topsoil and cutting the subsoil, this feature was c. 1.70m wide and 0.34m in depth. The fill, (7012), was a loose dark grey brown silt with two sherds of modern glazed pottery and a small glass bottle; these were probably late 19th century to early 20th century in date.

All of the ditches in Trench 7 were roughly where a field boundary used to cross the field on a northwest-southeast orientation. The upper ditch [7011], and possibly also the lower ones, probably represent the ditch along the former field boundary.

Figure 4-7
Trench 7, detail of four parallel ditches

Figure 4-8
Trench 7, plan and section drawing of parallel ditches



4.9 Trench 8

Trench 8 was 21.50m long and 0.42-0.68m deep, and was orientated WSW-ENE; it was placed on a slope, with the lower end to the WSW. The underlying natural geology (8000) was very variable (Figure 4-9), with a stony clay in the WSW end of the trench, and a black peat (8003) to the ESE. The peat contained ceramic building material, and overlay the natural clay. Above (8003), and again towards the ENE, was a soft, very friable mid-brown very clayey silt (8002) with eight sherds of modern glazed pottery probably dating to the 19th century. The blue-grey clay natural was visible to the east of (8002), changing to a stony pale grey clay at the eastern end of the trench, where the gleying was not so evident.

The peat (8003) and the overlying brown silt deposit (8002) are interpreted as fills of a former pond. Above these layers was a pale grey-brown, very clayey silt subsoil (8001), which was cut by a ditch or pit [8005]. This feature was 0.60m wide and 0.40m deep, and was just below the topsoil. The fill, (8006), was a friable mid-grey brown silt loam with large brick fragments. The subsoil (8001) through which this feature was cut was 0.27m deep, and was below the dark grey-brown friable silt loam topsoil (8000), which was 0.28m in depth.

Figure 4-8
Trench 8, looking East

4.10 Trench 9

Trench 9 was 23.60m long, 0.33-0.55m deep and it was orientated northeast-southwest. The topsoil (9000) was 0.25m deep, and the subsoil (9001)—a friable mid-yellow brown clayey silt—was 0.16m deep, with a diffuse boundary to the natural geology (9002). The natural geology was a gleyed, mottled clay with stony patches, especially at the north-eastern end of the trench. There were no features and no finds in this trench.

4.11 Trench 10

Trench 10 was 8.30m long and 0.55-0.65m deep, and was orientated east-west. The topsoil (10,000) was 0.28m in depth, and overlay a mid-yellow brown clayey silt subsoil 0.10m in depth (10,001). The subsoil had a diffuse boundary to the natural geology (10,002), which was a compact pale yellow-brown gleyed clayey silt. A band of very stony natural ran in a north-south strip across the trench at a point 5.20 to 7m west from the eastern end of the trench. This well-defined natural band of stones is probably what was interpreted in the geophysics as a possible archaeological feature. There were no features in this trench, and no finds.

5.0 Discussion and Conclusions

Trenches 2, 3, 4 and 5 were placed in order to investigate the anomalies identified in the geophysical report, while Trenches 1 and 6-9 were placed to investigate 'blank' areas. Trenches 1 and 9 did not contain archaeological finds or features. A ditch was found in Trench 2, but it produced no dating evidence.

Potential features were investigated in Trenches 4 and 5a, and though the Roman ditch was found in Trench 4, this did not actually match up with any of the plotted magnetometer anomalies. Trenches 5a and 10 were blank, but Trench 10—added in order to chase up the missing geophysical feature—contained a line of distinct, stony geology that may explain the crop mark. This stony strip also occurred in Trench 5a, but was less clear than in Trench 10. Trench 5b was blank.

5.1 Modern features

Trenches 3 and 8 both revealed pond deposits, which relate to ponds shown on the OS maps of 1902 and 1949. These ponds can be seen overlain onto the modern-day flood risk map (Figure 5-1), which shows the current drainage pattern. The pond at the western end of Trench 3 is still in existence, and while that in Trench 8 has dried out, the flood map indicates that it reappears temporarily during storms. The field drains in Trench 6 are presumably part of the effort to drain these low-lying fields. The pottery in the pond deposits in Trenches 3 and 8 was modern, dating to the 19th to early 20th century.

Figure 5-1
Modern flood risk map, showing location of former ponds

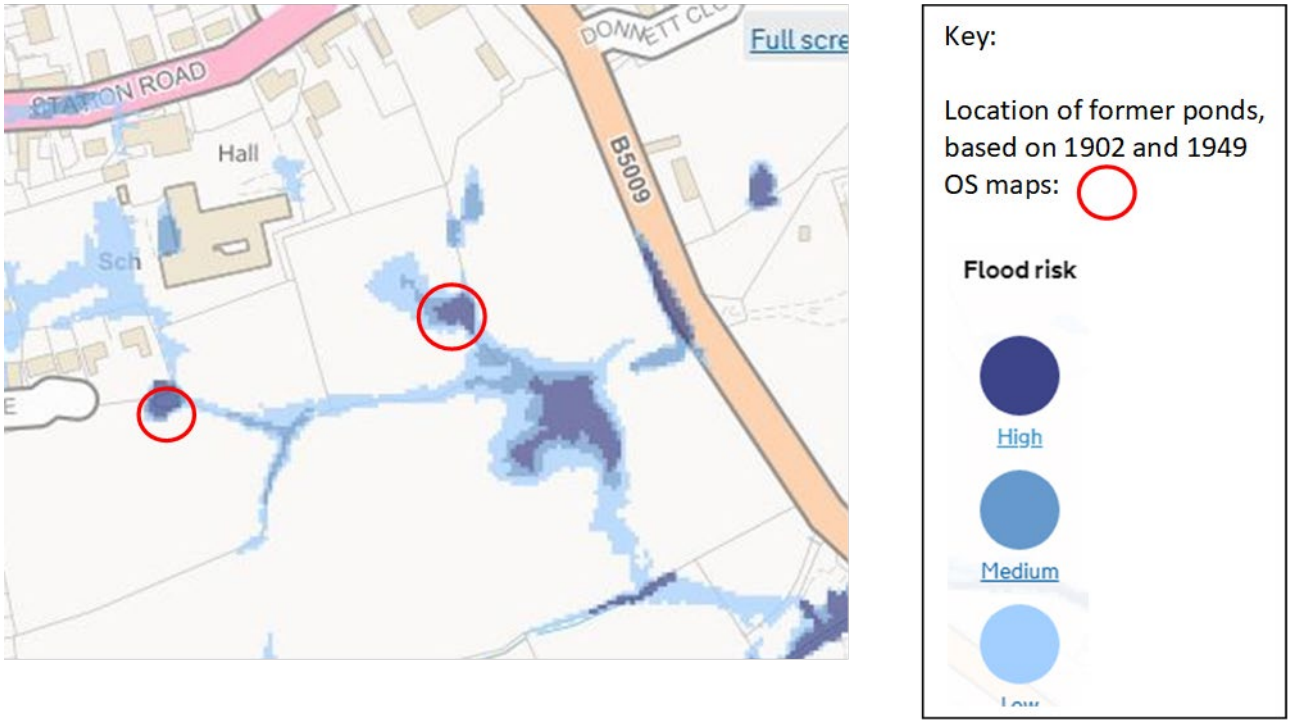


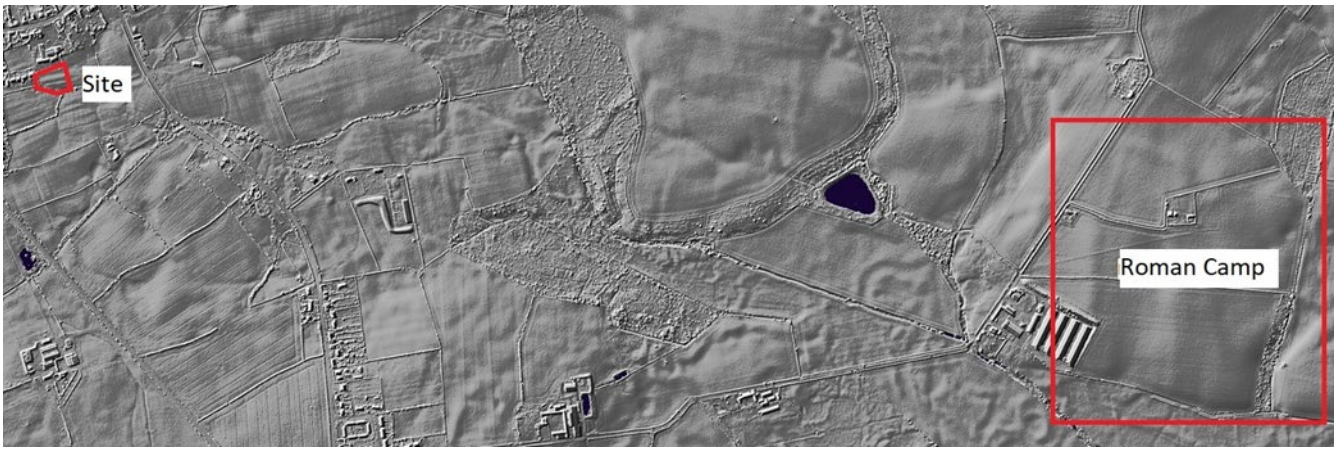
Figure 4-4 shows the trenches overlying the lidar data, and it shows the poorly drained areas in darker colours. The deposits in Trench 3, including the gleyed clay at the base of the trench, suggest that the pond at the western end of Trench 3 was once larger—at least seasonally.

Figures 4-4 and 5-4 show the ridge of land on which Trench 4 was situated. This appears to be natural and is parallel to other ridges aligned in the same direction. However, Figure 5-2 shows that there is ridge and furrow

in the wider region, and it is possible that ridge and furrow was present in and around the study area. This would explain the presence of a subsoil in all of the trenches. This is not to say that the subsoil has not subsequently been disturbed by occasional deep ploughing or mole draining.

Figure 5-2 Lidar plot of the site in its setting

Figure 5-3 The site in relation to the nearby Roman military camp



The higher of the ditches in Trench 7, Ditch [7011], occurred just below the topsoil and cut the subsoil; this feature contained modern pottery. This may be associated with the former field boundary that is shown on the first edition OS map; the boundary would have crossed the field at about that point. The multiple ditches in Trench 7 that were seen below the subsoil could also be features associated with the former field boundary, but equally they may relate to some earlier land use. They could have been for drainage—they run up and down the

slope—or they may be the remnants of 'lazy beds', hand dug field or garden features which are more narrowly spaced than medieval ridge and furrow, which is more substantial and widely spaced.

Trench 8 contained a shallow modern ditch below the topsoil and cutting into the subsoil—possibly a continuation of the uppermost ditch in the same stratigraphic position in Trench 7. The feature contained modern brick.

5.2 Roman finds and ditch

The 'ankle-breaker' style of the ditch in Trench 4 (Figure 4.6) is unlike a typical field boundary. This could be a coincidence, but since it occurs together with the presence of Black Burnished Ware category 2 (BB2) pottery (Figure 4.5), it suggests a possible Roman military presence. BB2 was produced for the Roman military, and is widely found on military sites. There are two further factors that might support the suggestion of a Roman military connection: firstly, there is an Iron Age fort just 200m to the north of the Whittington site, and secondly, there is a Roman marching camp just 2.2km to the east (Figure 5-3).

The pottery in Trench 4 included five sherds that could be re-assembled, and the breaks were clearly not of recent origin. This suggests that the pottery did not suffer the 'rolling' that occurs when pot sherds end up in the ploughsoil, because when this occurs the pot sherds are smaller, rounder, and do not fit together. The pottery therefore may indicate that there is settlement or a camp in close proximity, although nothing was seen in the other trenches in this field. Trench 4 was expanded in two directions in order to look for further features (Figure 5-5), but none were found. Nevertheless, the evidence suggests more Roman features could be in the vicinity.

Figure 2-4 View of middle field with Trench 4, beneath ridge or relict headland, looking north

Figure 5-5
Trench 4 western extension showing excavated section of ditch

References

Cranfield University Soilscapes maps: http://www.landis.org.uk/soilscapes (accessed 30/08/2019)

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Environment Agency flood maps available at https://flood-map-for-planning.service.gov.uk/ (accessed 01/08/2019)

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APPENDIX 01

Geophysical Survey Report

Geophysical Investigations

Of land to the south of

Whittington School, Shropshire

Author : Christopher Mark Matthews MRes BSc
Produced by Archaeological Survey West LLP
2020

v1

Geophysical Investigations

Of land to the south of

Whittington School, Shropshire

C M Matthews MRes BSc

2020

Produced on behalf of

SLR

version 1.02

Abstract

This report describes the results of an archaeological geophysical investigation undertaken over 1.1 hectares of land to the south of Whittington Primary School in Shropshire. The investigations which were requested by SLR, were conducted by Archaeological Survey West LLP (ASW) as part of predetermination for a proposed housing development. The small scale of the survey areas and modern electrical and metallic disturbances has limited the interpretation; however no significant features were identified.

Contents

Figures

1. Introduction

This report describes the results of an archaeological geophysical investigation undertaken on 1.1 hectares of land to the south of Whittington Primary School in Shropshire.

The survey was requested by Timothy Malim of SLR. Archaeological Survey West were commissioned to carry out the fieldwork and produce this report. The purpose was to determine the presence and extent of archaeological features.

The work was carried out as part of an application for the erection of residential dwellings, forming the second phase of an ongoing development situated to the southeast.

The survey was carried out in accordance with national standards, as laid out by 'Geophysical survey in archaeological field evaluation by David A, Linford N (2008)' and the Chartered Institute for Archaeology's (CIfA) 'Standard and guidance for archaeological geophysical survey' (2014).

As stipulated by CIfA guidelines, this report and its associated archive will be deposited with the relevant local and national curators, and an electronic record of the project details will be deposited with the Shropshire Historic Environment Record.

2. Site background

Geology and Topology

The site is situated immediately to the south of Whittington Primary School and Oakland's Drive and is comprised of two small pastoral fields enclosed by mature hedgerows, with housing along the western boundary (**SJ 32674 30780**).

The geology of the site consists of Kinnerton Sandstone Formation, a bedrock formed approximately 247 to 252 million years ago in the Triassic Period with superficial deposits of Devensian glacial till formed up to 2 million years ago in the Quaternary Period. (BGS, 2018).

Historical background

The site is situated immediately to the south of Whittington, Shropshire and 190m south of a scheduled 12th century Norman Castle and Iron Age earthworks (NHLE 1019450).

Surveys were undertaken in the fields to the east of the site in 2015 by Stratascan, which produced no significant archaeological features.

3. Survey methodology

The purpose of geophysical survey is to identify the archaeological potential of an area of land in a non-intrusive, quick and relatively inexpensive way. To achieve all three and still produce the highest standard of data possible, which also identifies the widest range of past human activity, the survey method of magnetometry was chosen. As a secondary method and in order to collect comparative data over possible structural remains, targeted resistance surveys were also conducted alongside small tests strips to determine the viability of further resistance surveys.

All fieldwork and the resulting reports follow the recommendations set out by the Chartered Institute for Archaeologists guidelines for geophysical survey in archaeology (CIFA, 2014).

Magnetometry measures and maps the background magnetic field and any local anomalies. These anomalies can be caused by the presence of features containing greater or lesser magnetic properties than the soils around them. This can be due to the natural magnetic properties of a material, as well as, a range of tophonomic processes that can alter magnetic properties. As a broad example, buried walls and built-up features which generally comprise of low magnetic materials, such as stone, appear as weak negative magnetic anomalies, where as a ditch would often appear as a weak positive anomaly due to a collection of more magnetic material. These can be distinguished from responses caused by high ferrous materials such as iron and ceramic or areas of intense burning (thermoremnance), based on the strength and gradient of the magnetic response. The strength of the magnetic field is measured in nano Tesla (nT), a unit of measurement of magnetic flux density, equal to one billionth of a Tesla [T] (1T = 1000000000 nT) (Milsom & Eriksen, 2011).

The equipment used for the survey was a dual sensor Bartington Instrument Grad 601-2 fluxgate gradiometer. This instrument consists of two sets of sensors, each mounted with a vertical separation of 1m, one set at each end of a 1m long horizontal bar. This provides two sets of parallel readings and, under normal operating conditions, is capable of surveying to a depth of between 0.5m to 1m, although, materials with higher magnetic properties can be detected at a greater depth.

To set out the survey grids, a Trimble R4 GPS run with a VRS correction was used, operating at an accuracy of 0.014m to 0.03m. The survey area was plotted with a temporary grid of 20mx20m. Each 20m grid was then walked using a zig-zag traverse with a sample interval of **0.25m** (4 points per meter) and a traverse interval of **1m**.

Processing and interpretation

Data collected in the field was downloaded and processed using TerraSurveyor software version 3.0.32.4. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies. Full survey and processing metadata can be seen in the appendix with additional plots available on request.

The results of this survey have been presented as combination of greyscale plots and interpretations published through GIS.

The types of features have been classified using established typologies based on Gafney and Gater (Revealing the buried past: geophysiscs for archaeologists, 2003), as well as, the standardised interpretation key used by Archaeological Survey West.

4. Survey analysis

Summary

The survey data covers 2 areas of pastoral land totalling 1.1 hectares. The ground conditions during the survey comprised of mostly short grass with dense patches of approximately 0.25m high nettles. Surface disturbances included a pylon in the eastern field and debris associated with the gardens of houses on the western boundary.

There was a significant amount of background noise visible in this data suggesting either unfavourable conditions within the topsoil or scatters of topsoil debris. The following details the analysis of features as shown on Map 2 (figure 2):

A/ This feature consists of a strong sharply defined positive response. The feature is obscured in the raw data by the strong magnetic disturbance generated by a nearby pylon and therefore it is difficult to determine whether this is also a product of that modern disturbance or a feature of archaeological interest.

B/ This feature consists of a spread of magnetic noise forming a curving linear that links the two entranceways of the smaller field. This feature is likely the result of a track way.

C/ This feature consists of a weak linear anomaly following the southern boundary of the smaller field and turning 90^{o} and following the eastern boundary. The anomaly is likely to be a pathway or associated with cultivation.

D/ This feature consists of a service cable or pipe.

E/ This feature consists of weak linear striations that are likely the result of cultivation.

F/ These anomalies are the result of modern debris associated with the adjacent houses.

G/ This feature consist of a curvilinear defined area of disturbance adjacent to the small pond and are likely associated with its former extent.

5. Discussion and conclusion

The results of this survey have been difficult to interpret due to the small nature of the survey areas and surrounding magnetic interference, as well as, the presence of a service cable or pipe running through the larger field.

Within the larger field were some traces of cultivation on a north to south and northeast to southwest alignment. A weak area of disturbance was visible adjacent to the small pond which could indicate its former size.

Other features consisted mainly of metallic disturbances from surface features and debris, as well as, a linear of magnetic noise which likely defines a track way connecting the two entrances of the smaller field.

Bibliography

BGS. (2018). *British Geological Survey Open Geoscience*. Retrieved May 2019, from www.bgs.ac.uk/opengeoscience

CIFA. (2014). *Standard and Guidance: for archaeological geophysical survey.* Chartered Institure for Archaeology.

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Gaffney, C., & Gater, J. (2003). *Revealing the buried past: geophysiscs for archaeologists.* Stroud: Tempus.

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Appendices

Glossary of terms

Industrial: This consists of anomalies with a strong positive to negative magnetic gradient that can be distinguished as separate from surface ferrous spikes. These readings indicate a thermoremanence where the action of heating has altered the magnetic properties within the ground or a structure and are usually associated with features such as kilns or furnaces.

Strong Positive linear: This is a linear feature defined by strong positive readings that are not of a gradient associated with ferrous but stronger than a weak positive anomaly. This can indicate fired materials such as ceramic and is often associated with field drains.

Wall (positive): This is a sharply defined positive linear feature that occurs when the wall materials have higher magnetic properties than the surrounding soils.

Wall (negative): This is a sharply defined negative linear feature that occurs when the building materials have lower magnetic properties than the surrounding soils.

Disturbed area (Structural): This is a feature associated with structural remains but where the footprint of the building cannot be determined. The depth and survival of an archaeological structure can often result in an area of magnetic noise as oppose to a clear rectilinear feature. This can be due to a number of tophonomic processes including demolition and the extraction of materials (robbing).

Disturbed area: This is an area of increased noise that cannot be associated with modern activity and therefore is of potential archaeological interest.

Modern service: This is a feature defined by a strong positive-negative linear that regularly alternates between positive and negative polarity and is caused by modern piping and cables. Electricity cables tend to create a very broad area of disturbance.

Modern disturbance: This is a feature of disturbance generated by modern surface activity, often in the form of ferrous anomalies.

Geological: These include features believed to be of a geomophological origin.

Raw data and metadata

SURVEY

Instrument Type: Bartington (Gradiometer)
Units: nT
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.

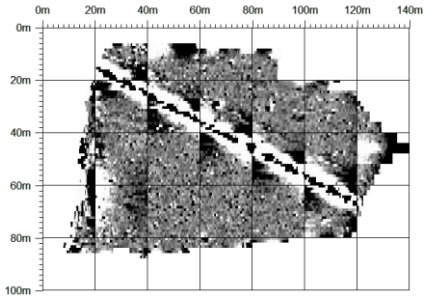
PROGRAM

Name: TerraSurveyor
Version: 3.0.33.10

Area 1 data

Area 1: Survey 1 (-10 to 10 nT Clip)

RAW Magnetic Data (-3 to 3 nT Clip)

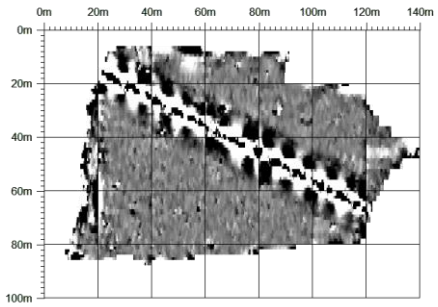


Heading south

Dimensions
Composite Size (readings): 1120 x 100
Survey Size (meters): 140 m x 100 m
Grid Size: 20 m x 20 m
X Interval: 0.125 m (surveyed @ 0.25 m)
Y Interval: 1 m

Stats
Max: 3.00
Min: -3.00
Std Dev: 1.65
Mean: 0.00
Median: 0.01
Composite Area: 1.4 ha
Surveyed Area: 0.79915 ha

Processed Magnetic Data (-3 to 3 nT Clip)



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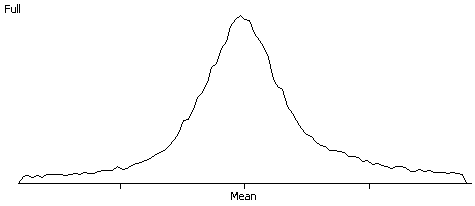
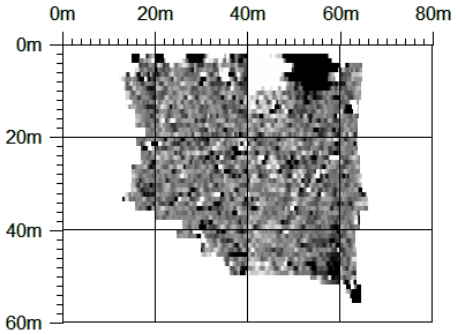
4 Despike Threshold: 1 Window size: 3x3
5 High pass Gaussian filter: Window: 21 x 21
6 Interpolate: X & Y Doubled.
7 Clip from -3.00 to 3.00 nT



Area 2 data

Area 2a: Survey 1 (-10 to 10 nT Clip)

RAW Magnetic Data (-3 to 3 nT Clip)



Heading north

Dimensions

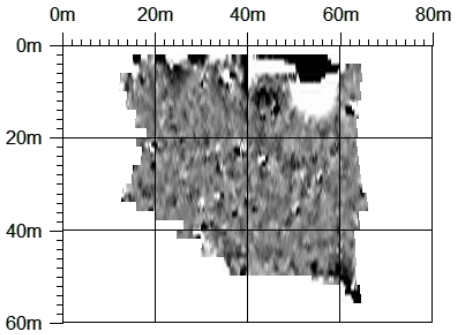
Composite Size (readings): 560 x 100
Survey Size (meters): 140 m x 100 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats

Max: 3.00
Min: -3.00
Std Dev: 1.82
Mean: -0.04
Median: 0.00
Composite Area: 1.4 ha

Surveyed Area: 0.79915 haSurveyed Area: 0.0789 ha

Processed Magnetic Data (-3 to 3nT Clip)



Processes: 7

1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 De Stagger: Grids: All By: 0 intervals, 20.00cm
4 Despike Threshold: 1 Window size: 3x3
5 High pass Gaussian filter: Window: 21 x 21
6 Interpolate: X & Y Doubled.
7 Clip from -3.00 to 3.00 nT

Plates

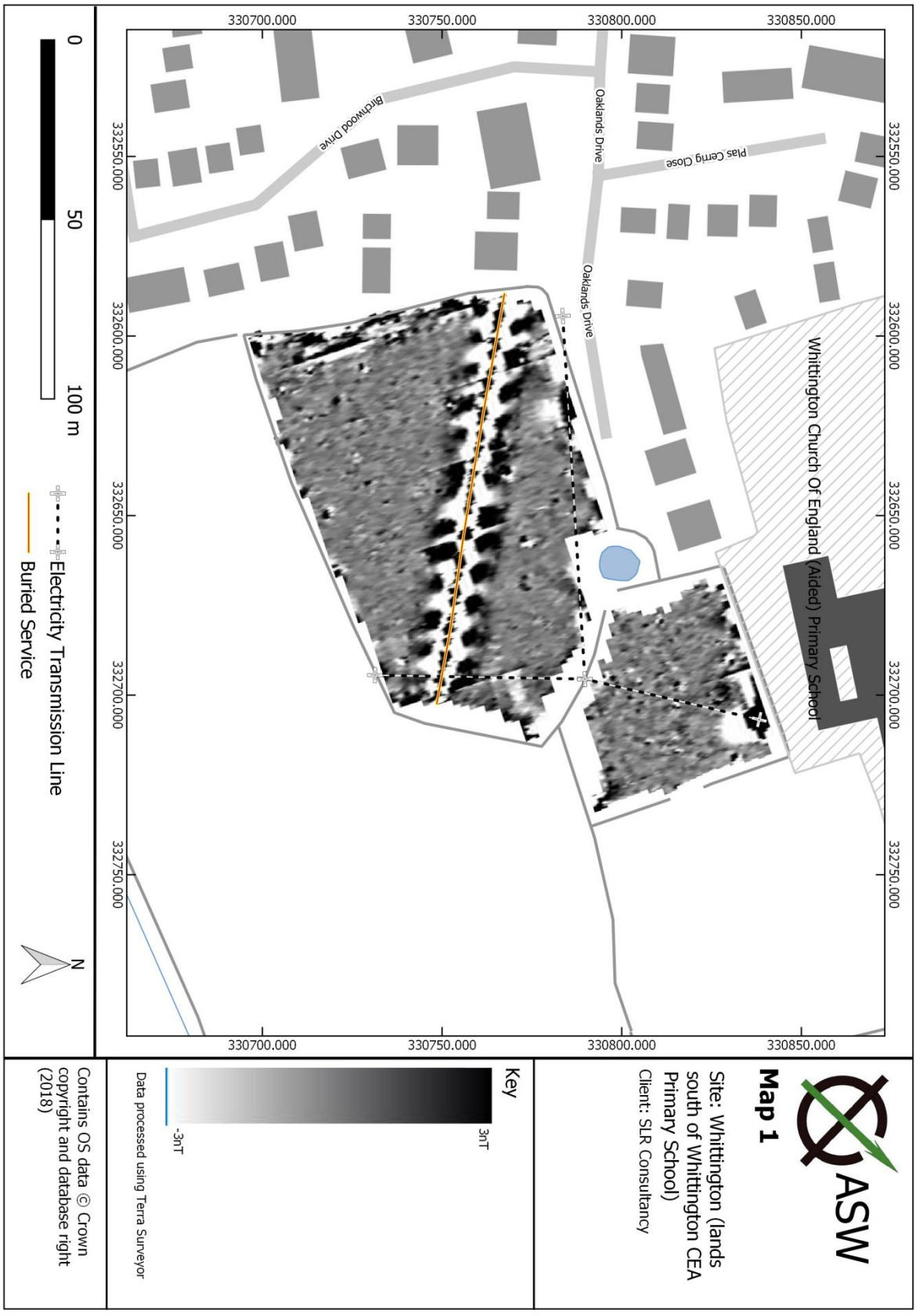


Figure 1 Grey scale survey plot

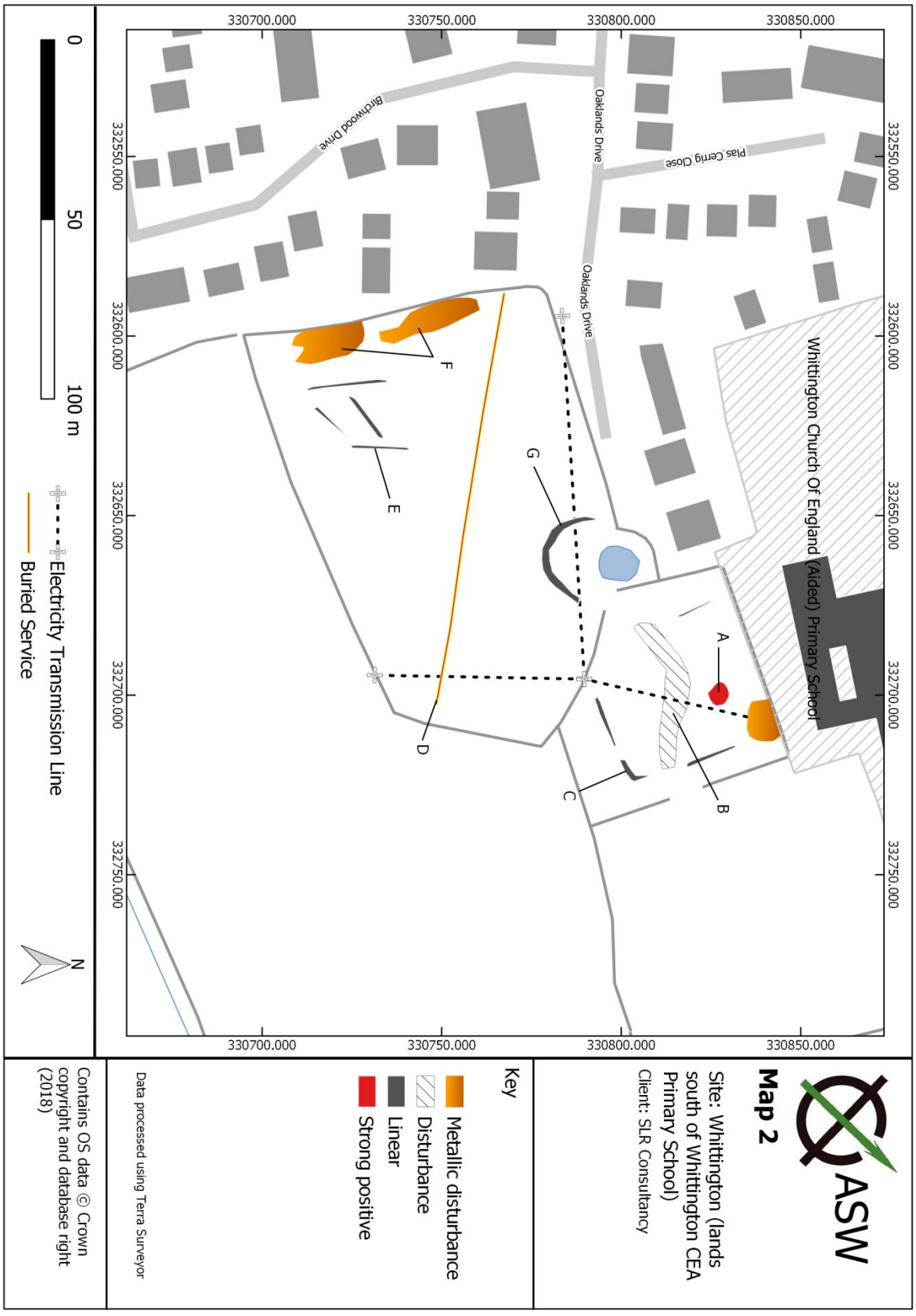


Figure 2 Feature interpretation plot

Published by Archaeological Survey West LLP

For more information visit

www.archaeologicalsurveywest.co.uk

APPENDIX 02

Recorded Features and Fills

Context No	Type	Fill of	Length (m)	Width (m)	Depth (m)	Description	Interpretation
1000	Layer				0.2	Mid-brown clayey silt	Topsoil
1001	Layer				0.14	yellowish brown clay with modern inclusions (brick and charcoal)	Subsoil
1002	Layer				0.2	yellowish brown clay	Subsoil
1003	Layer				0.9	sand and gravel	interface of subsoil/natural
1004	Layer				N/A	Variable; stony orange and yellowish-brown silty sand and pale yellow-brown and pale orange clayey silt.	Natural
2000	Layer				0.2	Mid-brown clayey silt	Topsoil
2001	Layer				0.22	Brownish grey stony silt	Subsoil
2002	Layer				N/A	Reddish brown sand and gravel	Natural
3000	Layer				0.24	Mid-brown clayey silt	Topsoil
3001	Layer				0.16	Brown clay	Subsoil
3002	Layer				0.12	blueish gleyed clay	Pond deposit
3003	Layer				0.18	Stony yellow-brown clay	Natural
3004	Layer				0.1	Reddish brown silt with flecks of coal	Pond deposit
4000	Layer				0.26	Mid-brown clayey silt	Topsoil
4001	Layer				0.3	subsoil	subsoil
4002	Layer				0.12	Stone-free yellowish-brown silty clay	subsoil
4003	Cut		7	1.1	0.34	Ditch cut	Roman ditch
4004	Fill	4003	7	1.1	0.27	Ditch fill	Fill of Roman ditch
4005	Layer					Stony gravel in gleyed clay	Natural
4006	Fill	4003		0.64	0.07	Mid grey silt with freq. poorly sorted stones	Primary fill of Roman ditch (edge slump)
5000	Layer				0.36	Mid-brown clayey silt	Topsoil
5001	Layer				0.15	subsoil	subsoil
5002	Layer				0.12	Stone-free yellowish-brown silty clay	Subsoil
5003	Layer				0.2	blueish grey clay with flecks of coal	subsoil
5004	Layer				N/A	compact stony gleyed and mottled slightly sandy clay	Natural
6000	Layer				0.4	Humic black silt loam	Topsoil

6001	Layer				0.38	mid grey-brown clayey silt	subsoil
6002	Layer				N/A	very stony orange gritty clay silt	Natural
6003	cut		1.25	0.76	0.44	Oval pit	undated pit
6004	fill	6003	1.25	0.76	0.24	pit fill	secondary pit fill
6005	fill	6003	1.08		0.2	pit fill	primary pit fill
6006	cut		2.5+	0.6	0.1	cut of gully	cut of gully
6007	fill	6006	2.5+	0.6	0.1	gully fill	fill of undated gully
6008	cut		0.78		0.12	pit cut	pit cut
6009	Fill	6008	0.78		0.12	pit fill	pit fill
7000	Layer				0.2	Mid-brown clayey silt	Topsoil
7001	Layer				0.5	pale grey-brown silt	subsoil
7002	Layer				N/A	Stiff, compact blueish grey and yellow-brown clay	Natural
7003	cut		1.80+	0.56	0.14	ditch cut	undated ditch fill
7004	fill		1.80+	0.56	0.14	blueish-grey compact clay with occ. large cobbles, occ. charcoal	undated ditch fill
7005	cut		1.80+	0.76	0.26	ditch cut	undated ditch
7006	fill	7005	1.80+	0.76	0.26	blue-grey clay, occ charcoal	undated ditch
7007	cut		1.80+	1.2	0.2	ditch cut	undated ditch
7008	fill	7007	1.80+	1.2	0.2	blue-grey clay, occ charcoal	undated ditch
7009	cut		1.80+	1.45	0.3	ditch cut	undated ditch
7010	fill	7009	1.80+	1.45	0.3	blueish-grey compact clay with occ. large cobbles, occ. charcoal	undated ditch
7011	cut		1.80+	1.7	0.34	ditch cut	late 19th /early 20th century ditch
7012	fill	7011	1.80+	1.7	0.34	loose dark grey brown silt with modern pot and glass	late 19th /early 20th century ditch

8000	Layer				0.28	dark grey-brown friable silt loam	Topsoil
8001	Layer				0.27	pale grey-brown very clayey silt	Subsoil
8002	Layer				0.09	soft, very friable mid-brown clayey silt	Pond deposit
8003	Layer				0.02m+	Peat in base of trench	Pond deposit
8004	Layer				N/A	Pale blue-grey gleyed clay	Natural
8005	cut			0.3	0.21	ditch cut	modern ditch
8006	fill	8005		0.3	0.21	friable mid-grey brown silt loam with large brick fragments	modern ditch
9000	Layer				0.25	Mid brown clayey silt	Topsoil
9001	Layer				0.16	friable mid-yellow brown clayey silt	subsoil
9002	Layer				N/A	gleyed, mottled clay with stones	Natural
10000	Layer				0.28	Mid brown clayey silt	Topsoil
10001	Layer				0.1	mid-yellow brown clayey silt	Subsoil
10002					N/A	compact pale yellow-brown gleyed clayey silt	Natural

Finds

Context	Trench	Description	Date
3004	3	One sherd glazed pottery	Modern (19th-20th Century)
4001	4	2 fragments CBM, including 1 brick frag	Modern (19th-20th Century)
4004	4	11 sherds pottery. 1 burnt stone. 1 unidentified material like pumice or slag	Roman (2nd-3rd Century)
4006	4	1 burnt stone. 1 small fragment of pottery	Roman
7010	7	2 fragments animal bone	
7012	7	1 small glass bottle. 2 sherds glazed pottery	Modern (19th-20th Century)
8002	8	8 sherds glazed pottery. 1 fragment coal	Modern (19th-20th Century)
8003	8	Ceramic building material	

Site drawings

No.	Trench	Description	Initials	Scale
1	3	Rep Sec	HT	1:20
2	2	Rep Sec	HT	1:20
3	4	Rep Sec	HT	1:20
4	1	Rep Sec	HT	1:20
5	3	Rep Sec (second section)	HT	1:20
6	5	Rep Sec	HT	1:20
7	4	Section, Ditch [4003]	HT	1:20
8	4	Plan, Ditch [4003]	HT	1:20
9	5	Rep Sec (second section	HT	1:20
10	9	Rep Sec	EGB	1:10
11	10	Rep Sec	EGB	1:10
12	8	Rep Sec 1, with Ditch [8005]	EGB	1:10
13	8	Rep Sec 2	EGB	1:10
14	4	Ditch section [4003], fully excavated	EGB	1:10
15	7	Ditch section [7003]	HT	1:20
16	7	Ditch sections [7005], [7007], [7009], [7011]	HT	1:20
17	7	Ditch plans [7003], [7005], [7007], [7009]	HT	1:20
18	6	Pit [6003] section	HT	1:20
19	2	Ditch [2004] section	HT	1:20
20	2	Ditch [2004] plan	HT	1:20
21	6	Gully [6006] section	HT	1:20
22	6	Pit [6008] section	HT	1:20
23	6	Plan of Gully [6008], Pit [6003] and Pit [6008]	HT	1:20

DRAWINGS

332600 332650 332700 332750 332800

330900 330850 330800 330750

N

A06 A07 A08 A09 A10 A04 A05A A05B A01 A03 A02

Legend

- TRENCH
- EXCAVATED FEATURE
- FEATURE OUTLINE
- CONTOUR

0 20 40 60 80 100

Metres

Shingler Homes

SLR global environmental solutions
2nd and 3rd FLOORS
15 MIDDLE PAVEMENT
NOTTINGHAM
NG1 7DX
T: +44 (0) 115 964 7280

STATION ROAD, WHITTINGTON

FIELD EVALUATION

PLAN OF ALL TRENCHES

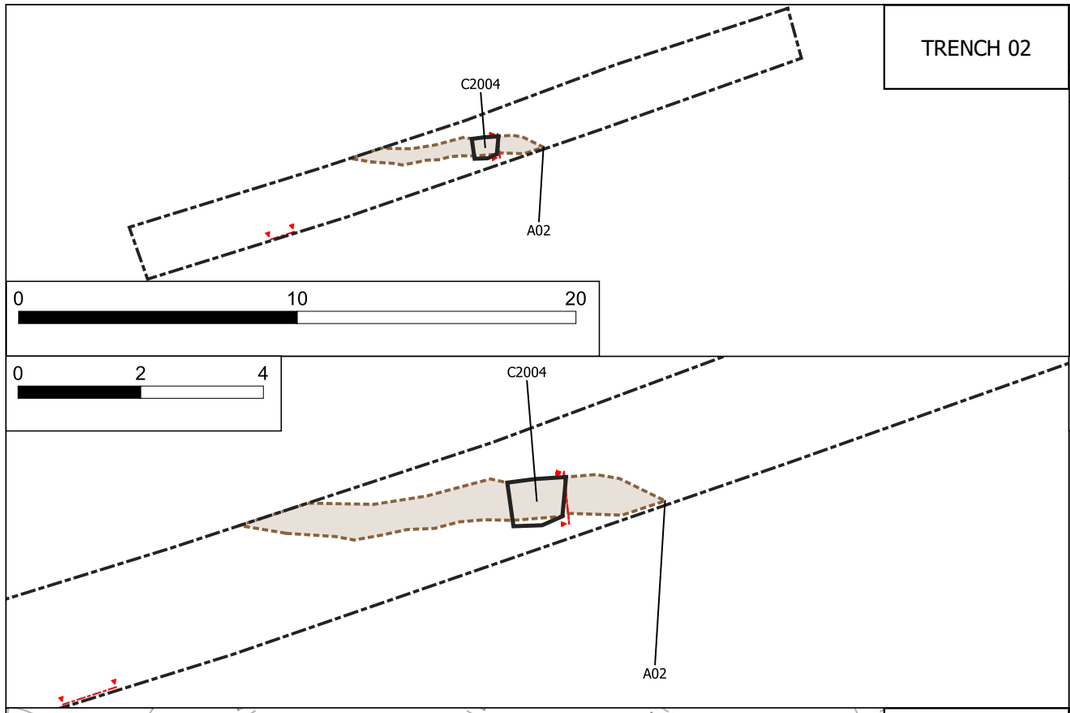
1

Scale 1:750 @A3

Date OCTOBER 2020

03317.00010_1_All_features_A3

TRENCH 02



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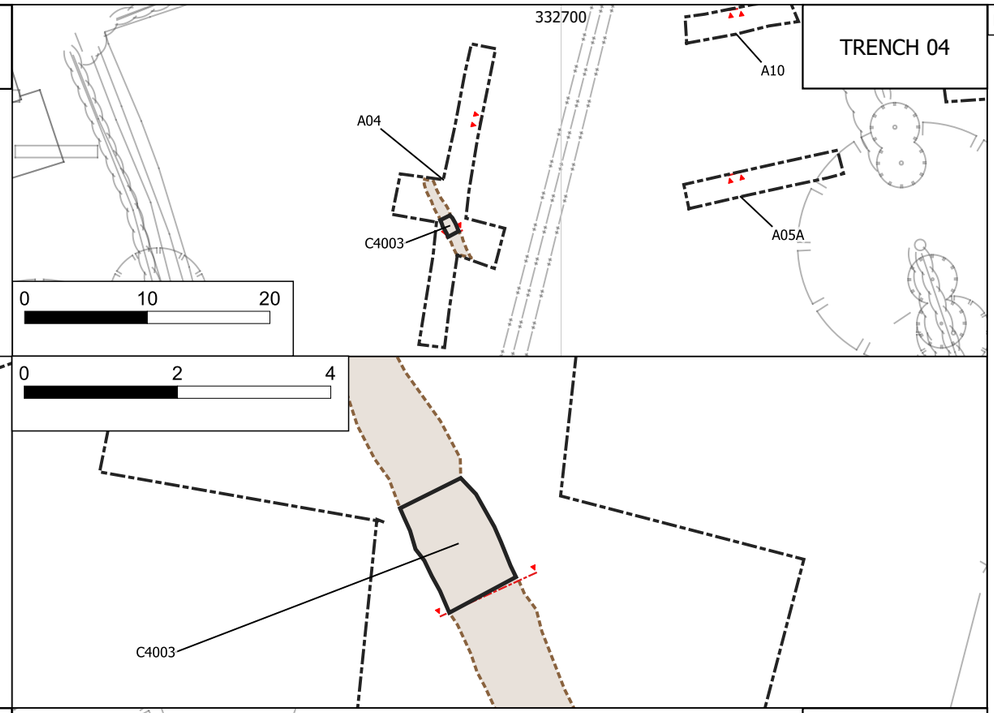

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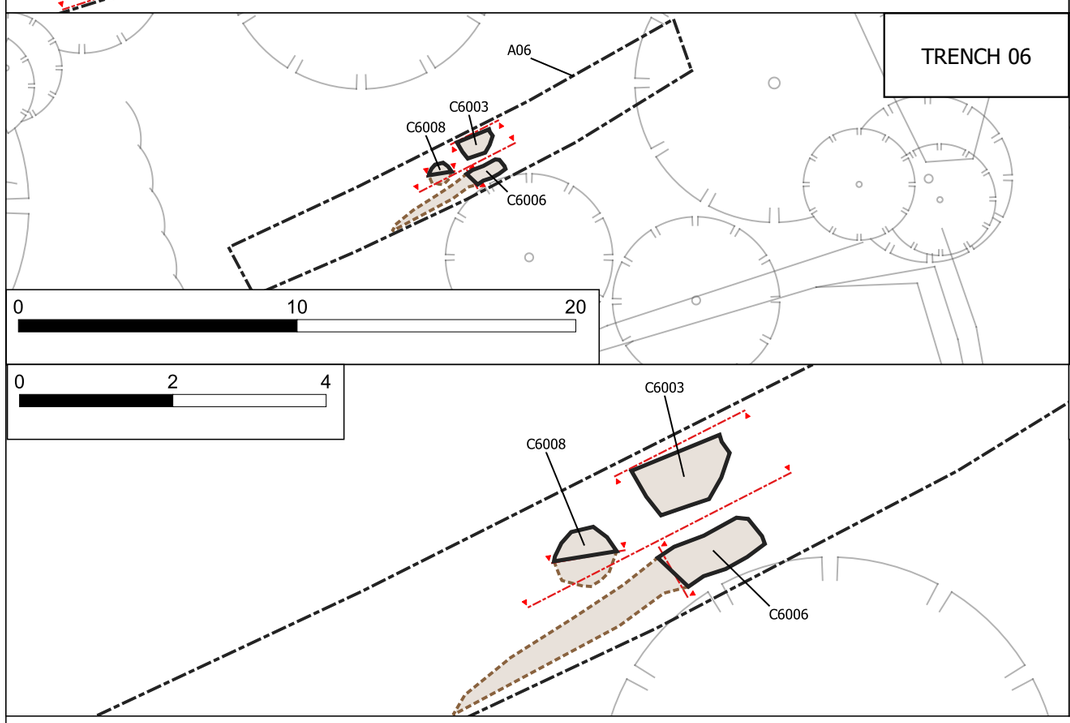

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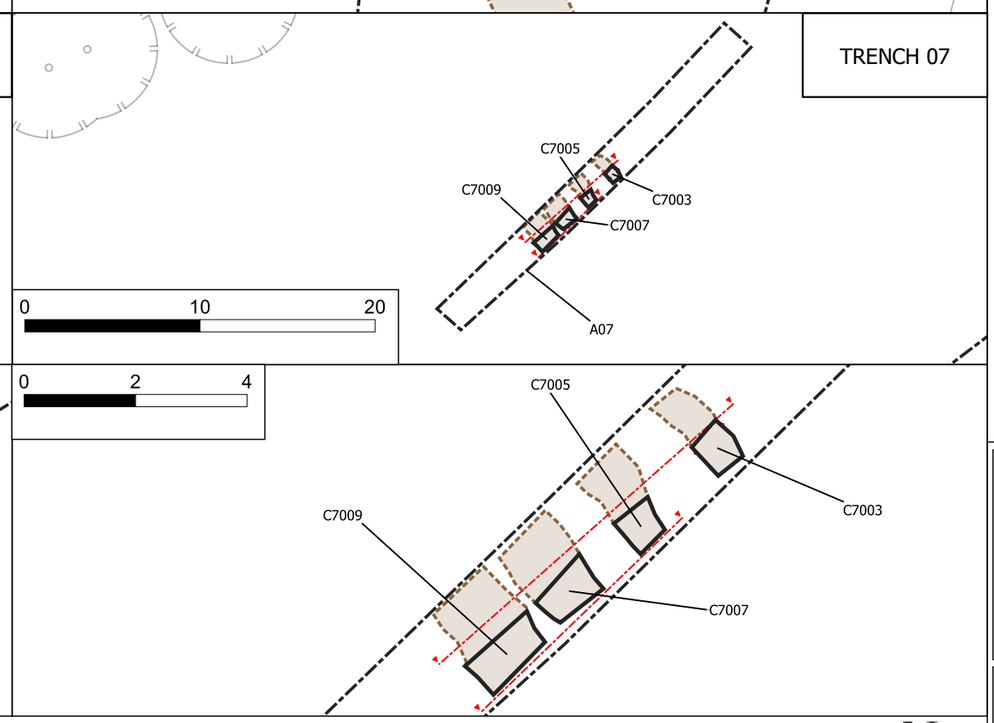

LEGEND

- TRENCH
- EXCAVATED FEATURE
- FEATURE OUTLINE
- DRAWING

N

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STATION ROAD, WHITTINGTON

FIELD EVALUATION

TRENCH AND FEATURE PLANS

DRAWING 2

Scale VARIOUS

Date OCTOBER 2020

03317.00010_Trenches+features_A3

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