Archaeological observation, recording and analysis during geotechnical investigations for the A47 Wansford to Sutton dualling Peterborough October 2018

Report No: 18/149

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OASIS REPORT

PROJECT DETAILS	**OASIS No: molanort1-333670**	
Project title	Archaeological observation, recording and analysis during geotechnical investigations for the A47 Wansford to Sutton dualling, Peterborough	
Short summary	MOLA Northampton was commissioned by Mott MacDonald Sweco Joint Venture (MMSJV), on behalf of Highways England, to carry out a programme of archaeological observation, investigation, recording and analysis on A47 Wansford to Sutton dualling, Peterborough October 2018. The resulting excavations revealed no archaeological remains of antiquity. The base of a possible filled in post-medieval pond was found in one of the test pits. Slag and nails recovered during the work were of late medieval and post-medieval date.	
Project type	Watching brief	
Site status	None	
Previous work	Geophysical surveys (Johnson 2003, MMSJV 2018)	
Current land use	Pasture and arable	
Development type	Road scheme	
Future work	Unknown	
Monument type/period	None	
Significant finds	Late medieval & post-medieval	
PROJECT LOCATION		
County	Peterborough	
Site address	A47 Wansford to Sutton dualling	
Postcode	PE8 6LB	
OS coordinates	TL 0877 9962	
Height aOD	*c*15–30m aOD	
Area (sq m/ha)	*c*31ha	
PROJECT CREATORS		
Organisation	MOLA Northampton	
Project Brief originator	Peterborough City Council Archaeological Service (PCCAS)	
Project Design originator	Mott MacDonald Sweco Joint Venture	
Project Director/ Manager	Jim Brown (MOLA)	
Project Supervisor	Adam Meadows (MOLA)	
Sponsor or funding body	Highways England	
PROJECT DATE		
Start date (dd-mm-yy)	17/09/18	
End date (dd-mm-yy)	10/10/18	
ARCHIVES	Location (Accession no.)	Content
Physical	A47 WS 18	Finds recommended for disposal following reporting
Digital		Report PDF, digital photos, deposited with the Archaeological Data Service within 6 months from work completion
Paper		Site records, context sheets, registers
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Archaeological observation, recording and analysis during geotechnical investigations for the A47 Wansford to Sutton dualling, Peterborough Oct 2018	
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Archaeological observation, recording and analysis during geotechnical investigations for the A47 Wansford to Sutton dualling Peterborough October 2018

Abstract

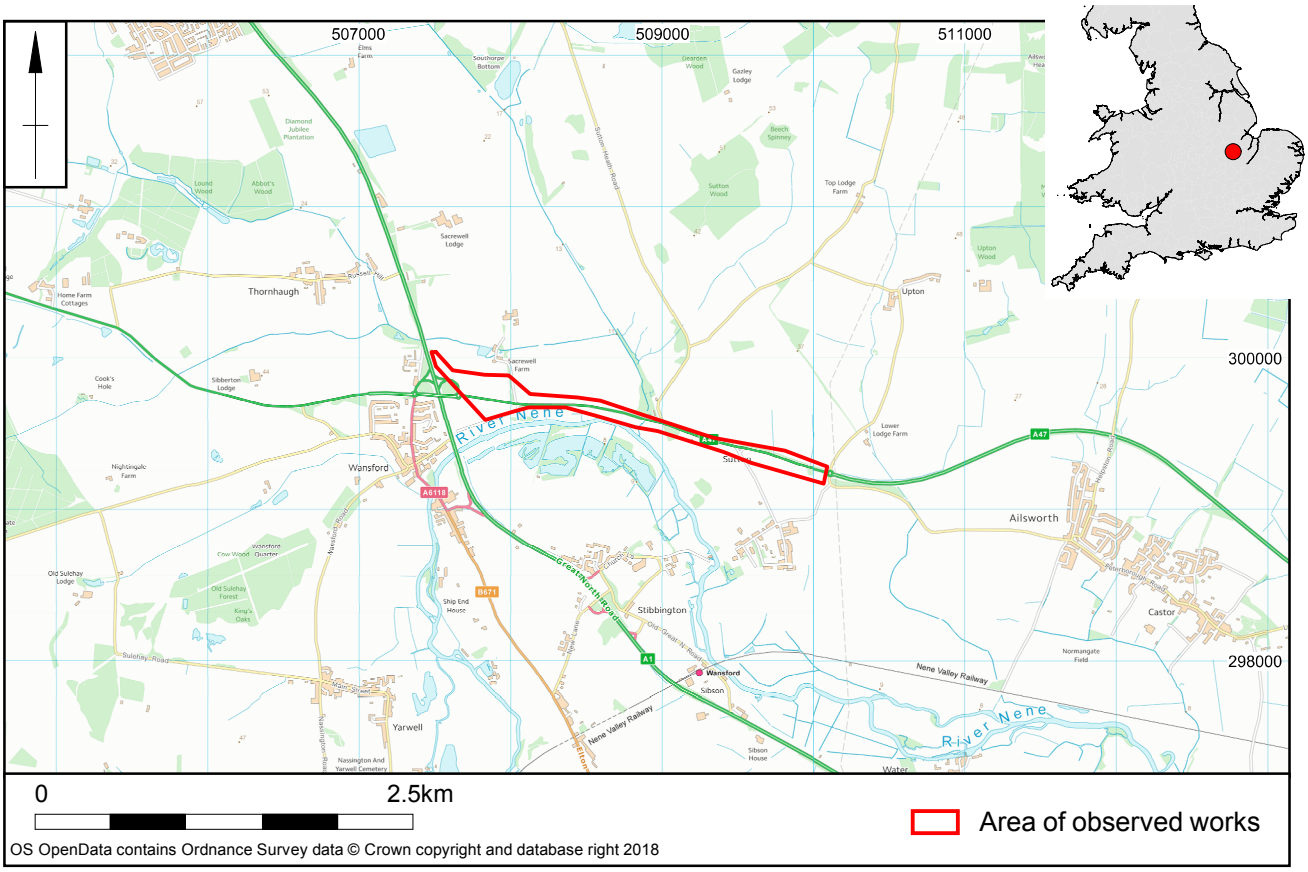
MOLA Northampton was commissioned by Mott MacDonald Sweco Joint Venture (MMSJV), on behalf of Highways England, to carry out a programme of archaeological observation, investigation, recording and analysis on A47 Wansford to Sutton dualling, Peterborough October 2018. The resulting excavations revealed no archaeological remains of antiquity. The base of a possible filled-in post-medieval pond was found in one of the test pits. Slag and nails recovered during the work were of late medieval and post-medieval date.

1 INTRODUCTION

MOLA Northampton was commissioned by Mott MacDonald Sweco Joint Venture (MMSJV) for Highways England, to undertake a programme of archaeological observation, investigation, recording and analysis on land along the A47 Wansford to Sutton Dualling, Peterborough. These works were conducted ahead of a planned road improvement scheme on the A1/A47 eastbound junction and to extend the A47 dualling from the A1 to the existing dual carriageway at Sutton (NGR TL 0877 9962, Fig 1).

The archaeological works were necessary in order to notify discovery of any possible impact upon heritage assets within the proposed development area. The results of this attendance alongside the geophysical survey (Johnson 2003) will assist in providing information to determine the requirement for further archaeological works as the project moves forward.

All works were conducted in accordance with the procedural documents Historic England's *Management of Research Projects in the Historic Environment (MoRPHE)* (HE 2015), the Chartered Institute for Archaeologists' *Standard and Guidance: Archaeological Watching Brief* (CIfA 2014b) and *Code of Conduct* (CIfA 2014a) and also *Standards for Field Archaeology in the East of England* (Gurney *et al* 2003).



Scale 1:50,000

Site location Fig 1

2 BACKGROUND

2.1 Location, topography and geology

The scheme straddles a stretch of the A47 extending *c*3km eastwards from the A1 to Sutton, linking with the existing dual carriageway (Fig 1). It is positioned north of the River Nene and continues parallel to it. The development area partially covers a number of fields that vary in land use from pasture to arable. The topography of the area tends to slope down to the east, declining from *c*30m above Ordnance Datum (aOD) in the west to *c*15m aOD to the east, mostly on the higher ground along the edge of the flood plain.

The underlying geology varies across the proposed development. The higher lands to the west around Wansford junction comprise of Upper Lincolnshire Limestone, changing to Lower Lincolnshire Limestone towards Sacrewell Farm. The superficial geology is not recorded in these areas (BGS 2018). A band of Whitby Mudstone formation, flanked by Grantham Formation silt, sand and mudstones lies in a north by south alignment before following the course of the River Nene to the centre. These deposits are partially covered by alluvium and river terrace gravels. Finally, deposits of Rutland Formation Argillaceous Rocks are present in the eastern part of the development area around Sutton. These are predominantly overlain by deposits of river terrace gravels.

The soils are of Sutton 1 Association (LAT 1983, 571u) for the greater part of the area comprising well drained fine and coarse loamy soils that are chalky in places or shallow over limestone gravel. To the west, towards Wansford, the Jurassic limestone gives rise to soils of Elmton 1 Association (LAT 1983, 343a), described as shallow, well drained brashy calcareous fine loamy soils over limestone with some similar deeper non-calcareous and calcareous clayey soils.

2.2 Historical and archaeological background

Two geophysical surveys were conducted by Oxford Archaeotechnics (Johnson 2003) and West Yorkshire Archaeological Services (MMSJV 2018). Both surveys detected extensive archaeological remains including prehistoric ring ditches, a Roman building, and multiple ditches and pits within the proposed Scheme.

A search of Peterborough County Historic Environment Record (HER) was conducted to identify any assets within the fields that are directly affected by the proposed development.

Prehistoric

The earliest archaeological remains in the area include three large Neolithic henge-like structures located south of the Roman town (HER 09106) and Bronze Age ditches. A Neolithic flint arrow head was recovered from land located to the north-west of Sutton (HER 00229) and a unspecified lithic implement of similar age was recovered from land south-west of Sacrewell Farm, north of the A47 (HER 01976). Bronze Age records were identified in the fields directly to the east of the trackway to Sacrewell Farm and north of the A47. These include an inhumation found within a cist; a stone built coffin (HER 00176) and a ring ditch (HER 00190g). Just south east of this lies an Iron Age pit alignment (HER 00190e).

Roman

Evidence of Roman iron working was uncovered within fields to the south-west of Sacrewell Farm, north of the A47 (HER 50343). A Roman villa was excavated to the south of the A47, west of the junction into a layby near an old pumping station (HER 01991; 00131) where masonry and finds were uncovered relating to what would have been quite an affluent structure. Two coin findspots lay in a field north of the A47 and west of Sutton Heath Road (HER 00190; 01989). The remnants of a Roman road were identified through aerial photography to the north of Sutton, east of the dismantled railway (HER 08369).

The development site lies in an area rich in Roman archaeology including villas, roads, a fort and a Roman town. This stretch of the A47 is believed to lie along Margary's route 25 – Fen Causeway or the Fen Road which is the modern name for a Roman road of England, which links Peterborough with Denver, Norfolk (Margary 1967), and is connected to Ermine Street in the east. Ermine Street (HER 50012) is a major Roman road located *c*200m east of the development area, aligned north-west to south-east and it links *Londinium* (London) with *Lindum* (Lincoln), and then with *Eboracum* (York). The Roman town of *Durobrivae* (Water Newton, Scheduled Monument NHLE ID: 1021429) is located *c*3km south of the study area and is largely mapped through aerial photographs. This small town is the largest Roman settlement in the country. Its name loosely translates to 'fort (by the) bridges' and it is likely that the Roman fort located to the north-west of the walled town was constructed to protect an important crossing point. The chaotic, unplanned street layout within the walled-in core of the town is nothing exceptional and there are many examples in Britain where this is the case (Upex 2008, 63). Domestic and industrial structures are present throughout the town. Most notably pottery kilns are commonly found, which were used for production of well-known pottery fabrics. The Nene Valley Colour Coated wares, Grey Wares and Mortaria are known to have been produced here (Fincham 2004, Upex 2008; HE 2018).

3 OBJECTIVES AND METHODOLOGY

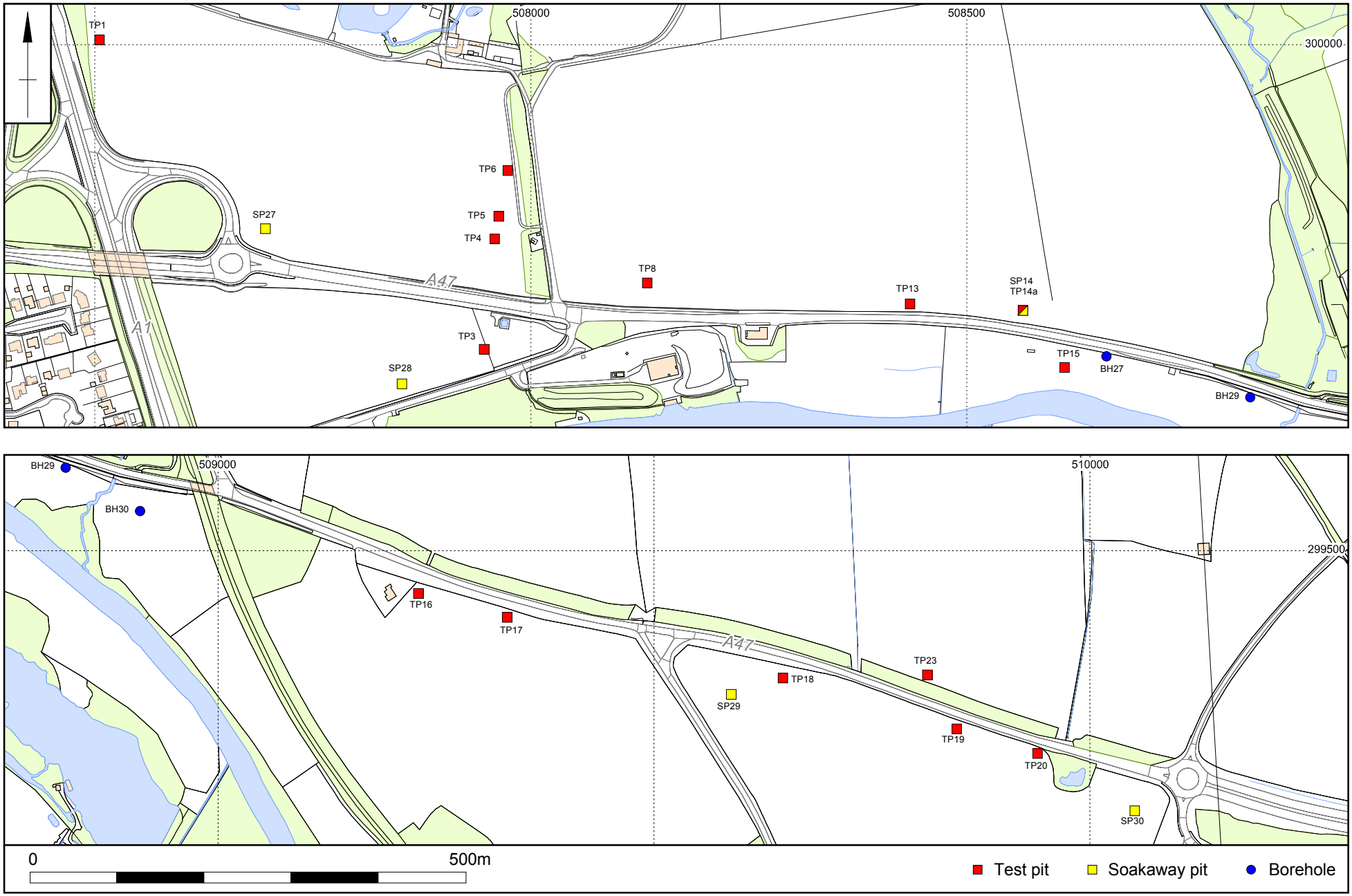
3.1 Objectives

The aim of archaeological monitoring will be to observe the excavation of ground investigations that have the potential to damage or destroy archaeological deposits and heritage assets.

- To record disturbance to archaeological deposits and heritage assets, and;
- to determine the nature, date, complexity and condition of any encountered archaeological deposits or heritage assets.

Further specific regional research questions were considered, where appropriate, following those outlined in Brown and Glazebrook (2000) and Medlycott (2011). However, given the absence of archaeological remains on the site, no research agendas were able to be addressed.

Scale 1:6000 (A4)



Observed works Fig 2

3.2 Methodology

The archaeological investigation and recording took place in two stages. The initial phase occurred on the 17th September and comprised of three boreholes (Fig 2). These works involved the hand excavation of small pits measuring no more than 0.5m² down to natural in preparation for the boring equipment. Further works followed between the 26th September and the 10th October that comprised archaeological observation during the excavation of five soakaway pits (Fig 2), each 1.5m long and 0.6m wide and 15 test pits, each 3m long and 0.6m wide. The pits range in depth down to natural horizons between 0.24m and 0.43m with an intended final depth of 1.5m for soakaways and 4.5m for test pits. These depths were not always achieved due to the solid underlying geology and the limitations of the machinery.

Archaeological works comprised the continuous observation of all ground intrusive activities conducted either by hand or using a mechanical excavator. The excavator was fitted with a 0.6m-wide toothless bucket operating under archaeological direction down to the natural horizons and then followed by investigation and recording. In each pit a record was also made of the uppermost natural substrate and the overlying subsoil and topsoil where possible. The ground reduction was undertaken under close archaeological observation in order to recover any potential artefacts within the subsoil and metal detector was used to scan the spoil heaps. A full digital photographic record was maintained. The field data from the evaluation has been compiled into a site archive with appropriate cross-referencing.

4 THE EXCAVATED EVIDENCE

The works were conducted within agricultural land that straddles the existing A47. Three land uses are apparent, with two fields growing hay, one pasture field and the remaining land used as arable farmland. This has resulted in two distinct soil horizons that were encountered within the test pits (Fig 3).

Test pit 7 soil horizon, looking north Fig 3

4.1 Geology

The natural encountered within the test pits varied with the topography. The higher ground to the west of the study area encountered Cornbrash limestone, whereas the eastern pits came upon a mixture of alluvial silts and clays alongside chert gravels. This variation to the east is likely to represent river terracing and flood deposits from Ice Age glacial outwash or to the nearby River Nene. This was particularly evident with test pits 17 and 18 where bands of clay, silt, sands and gravels were observed deeper in their excavation revealing small channels typical of a braided river system.

4.2 Test pits

Test pits 1, 8, 13 and 14a were situated within hay meadows and test pit 15 was within a pasture field. The soil horizons of the pits consisted of natural overlaid by layers of subsoil and topsoil. The subsoil was 0.09–0.27m thick and consisted of yellow to orange coloured brown silty clay with a variable concentration of stone inclusions. The topsoil generally comprised 0.10–0.18m of grey-brown, friable loamy topsoil, heavily disturbed by grass roots, with small chert and limestone inclusions.

Pits 3, 4, 5, 6, 18, 19 and 23 were located within arable farmland and for the most part ploughing had removed the subsoil (Fig 4). The pits excavated within the plough soil exhibited a thick layer of dark, organic rich, loamy soil ranging between 0.24m and 0.38m thick. A small quantity of chert and limestone inclusions was observed in these deposits.

Test pit 5 overview, looking north Fig 4

Pits 16, 17 and 20 were positioned along the northern edges of arable fields within a grass verge that was used as a trackway, thus avoiding intrusive agricultural groundworks (Fig 5). The subsoil in these pits was 0.12–0.24m thick, exhibiting an orange to red-brown silty clay with increases of chert inclusions. The overlying topsoil

was 0.10–0.24m thick and it comprised heavily root-disturbed grey brown silty clay with occasional chert inclusions.

Test pit 17, geological stratigraphic sequence, looking south-west Fig 5

Test pit 19 was located very near to the roadside ditch that lines the southern side of the A47. At this point the ditch appeared to be at its widest with a straight edge on the southern bank. It is highly likely that the test pit was dug through a former pond or a pit that was backfilled to 'square off' the arable field.

The base of the feature, [1904], was larger than the test pit, and is over 3m wide with a concave base at a depth of *c*2.15m. The fill comprised of red-brown silty clay (1902), mixed with small chert inclusions and the occasional fragment of coal. The coal was found alongside a lump of slag, which is likely to originate from smelting. A layer of compact dark grey-brown loamy topsoil, 0.30–0.32m thick, lay directly over backfill. The finds included a pottery fragment, a glass bottle base and fragments of iron.

4.3 Soakaways

Five soakaways were excavated under archaeological supervision. Although the archaeological methodology was the same, these pits were only 1.5m in length. No archaeological remains were encountered within the soakaways. However, two iron nails were recovered from the topsoil of pit 27.

Soakaway 14 was located within a hay meadow. The natural in this pit comprised orange-yellow silty sand full of chert gravel representative of aqueous deposition (1403). The subsoil over natural consisted of layer of orange-brown silty clay with frequent chert inclusions, 0.15m thick (Fig 6). The heavily root-disturbed topsoil was friable grey-brown loam with infrequent small chert inclusions, 0.13–0.15m thick.

Soakaway pit 30 soil horizon, looking south Fig 6

Soakaway 28, general view, looking north Fig 7

The remaining soakaways were excavated within arable farmland (Fig 7). The western two pits, 27 and 28, encountered a layer of orange-brown loamy topsoil that was 0.25–0.30m thick. Clasts of fractured limestone were frequently uncovered within this layer and are likely to originate from the underlying Cornbrash limestone. Test pits 29 and 30 were located in the lower land to the east where the dark grey-brown topsoil was 0.39–0.43m thick with infrequent inclusions of chert. Interfacing directly onto natural, both pits encountered differing geological horizons. Test pit 29 had sterile orange-brown silty clay while test pit 30 encountered red-brown silty sandy gravel, both likely to derive from river terrace deposits.

4.4 Boreholes

Three boreholes were observed along the southern bank of the existing A47 within pasture fields to the west of a disused railway line. The natural encountered within these pits comprised of orange-brown silty sandy gravels typical of river terracing Borehole 30 contained chalk rubble likely to represent a recently dumped layer of hardcore to create a track and stabilise damp soil conditions. The subsoil was 0.25m thick and was overlain by topsoil, 0.10m thick. Boreholes 27 and 29 both exhibited layer of topsoil directly over natural that was 0.20–0.25m thick.

Two finds were recovered from these boreholes. A small fragmented triangular sherd that is 15mm along its longest axis by 12mm wide and 1mm thick came from borehole 29. Upon cleaning this was identified as ironstone. A small flint flake was recovered from borehole 30, 13mm long by 7mm wide and *c*1mm thick which is probably a natural flake occurring from erosion (Wolframm-Murray pers comm).

5 FINDS

5.1 Fuel ash slag by Jim Brown

There are four fragments (20g) of fuel ash slag from TP19 (1902). The material is extremely lightweight, porous and cokey. Dark purple-blue semi-vitrified ferrous oxide is adhered to light blue-grey and cream calcareous oxide within the same mass. Over half of the material is derived from limestone, suggesting that this is a by-product from smelting. The burning is complete throughout and partial vitrification has been achieved in the darker oxide component from the ore. There are no partially burned elements or residual fuel. This slag is derived from burning coke, a practise that was first employed in Shropshire in 1709 but rapidly became redundant after the invention of the hot blast furnace and the move to using anthracite coal after 1837 (Hayman 2003).

5.2 Iron, glass and ceramics by Tora Hylton

A small group of mainly post-medieval/modern finds were recovered from topsoil and subsoil deposits overlying five trenches (Table 1). With the exception of two horseshoe nails with squared wedge-shaped heads which may be late medieval/early post-medieval in date, the entire assemblage appears to be modern.

Table 1: Description of finds by context/trench number

Context	Finds
501	Horseshoe nail, iron. Squared wedge-shaped head, terminal clenched. Date: late medieval/early.
1401	Horseshoe nail, iron. Squared wedge-shaped head, terminal of shank missing. Date: late medieval.
1601	Rod, iron. Square-sectioned shank, both terminals missing. L: 32mm
1701	Nail, iron. Rectangular-sectioned shank, head missing. L: 29mm
1901	Shard of green glass from modern beer bottle. Measurements: 45 x 35mm
1902	Parallel-sided strip with D-shaped cross-section, curved profile, possibly a handle. L: 100mm W: 16mm Small ceramic rim sherd from flower pot. Weight: 5g
2301	Nail, iron. Incomplete with flat sub-circular head and vestige of shank.
2701	Nail, iron. Tapered rectangular-sectioned shank, flat head. L: 50mm

6 CONCLUSION

No historical archaeological remains were uncovered within any excavated deposits. The only sub-surface activities encountered during the excavations comprised of modern chalk rubble within borehole 30 and a post-medieval pond or pit within test pit 19. All the finds are dated as being potentially late medieval to modern, none are worthy of retention and will be disposed of following reporting.

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