Lower Quinton to King's Coughton

Gas Pipeline

ARCHAEOLOGICAL INVESTIGATIONS
Evaluation, Excavation and Construction Watching Brief

Volume 1: Report

Prepared by
Network Archaeology Ltd
on behalf of

MWH
for
McAlpine - PPS Pipeline Systems JV
and
Transco

Report No. 300

December 2003

network archaeology

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1. SUMMARY

1.1 General

This report details the findings of the archaeological evaluations, excavations and permanent-presence Watching Brief which took place during the construction of the Transco 18.5km*, Lower Quinton to King's Coughton Gas Pipeline* in Warwickshire during the months of March to August 2003. The construction contractor was McAlpine - PPS Pipeline Systems JV.

The pipeline route runs roughly north-west to south-east. The northern end is at a height of approximately 55m above Ordnance Datum (AOD) and the route rises to over 100m AOD to the east of Temple Grafton and the Redhill area before falling again to around 50m AOD at its southern end. The pipeline crosses ten main and subsidiary roads including the A46 Stratford-upon-Avon to Alcester road which has Roman origins. The line also crosses three main rivers the Arrow the Alne and the largest the Avon.

This report forms part of the final part of a long and detailed staged archaeological approach. This began in 2001 with a pipeline feasibility study. Archaeological Desk-Based Assessment and pre-construction surveys, comprising field reconnaissance, fieldwalking and geophysical surveys, carried out during 2002 highlighted several areas of archaeological potential along the route. Mitigation at this early stage meant that the line could be moved away from sensitive areas.

Evaluative trial trenches were dug at the beginning of 2003 in order to assess several anomalous areas along the route and to test out the validity of the previous surveys. In all, eight areas were tested which led to area excavation ahead of construction in three areas.

The archaeological watching brief during the pipeline topsoil stripping and pipe-trenching led to the discovery of evidence for Prehistoric, Romano-British, Medieval and Post Medieval activity in the area.

1.2 Results

Fourteen sites of varying date and form were recorded along the pipeline (Table 1). A 'site' in this instance comprises a definable area of activity evidenced by a significant concentration of artefacts and/or archaeological deposits. The sites include a nationally important Bronze Age Burnt Mound located on the bank of the River Avon and similar flint deposits discovered in the pipe-trench within the Arrow River Valley. Later prehistoric features comprising a series of prehistoric pits were discovered near Long Marston during the construction watching brief. Part of an Iron Age and Romano-British settlement and field system were excavated on the edge of Long Marston Airfield. A further Roman site was identified at the north of the route close to Church Farm, King's Coughton. This site was identified from the Desk-Based Assessment as a series of undated cropmarks and the pipeline re-routed to have minimal impact. Trial trenching and excavation revealed several Roman ditches thereby tentatively dating the whole cropmark complex. A possible roadside drainage ditch was identified to the south of the present Stratford to Alcester road which has Roman origins. Several medieval, post-medieval and modern features were also discovered.

Table 1: Summary of Archaeological Sites

Site Number/ Name	Construction Section/ Plot	NGR	Description	Period
Site 1 Church Farm, King's Coughton	0/2	408550 259840	Roman enclosure system	Roman
Site 2 (a&b) Church Farm, Arrow Floodplain, King's Coughton	0/3-4-5	408740 259750	a- Pits- 'burnt mound' (0/3) b- Arrow Floodplain (3-5)	?prehistoric and Undated (palaeo-environmental)
Site 3 Coughton Fields	0/9	409490 259300	Buried soil	Medieval
Site 4 River Alne Floodplain	1/17-18	410820 258560	Alne Floodplain palaeo-environmental no archaeology	Undated (palaeo-environmental)
Site 5 Stratford Road	3/31	412290 256690	Buried soil	Undated
Site 6 Stratford Road	4/33	412370 356460	?Road side ditch	?Roman
Site 7 Disused Railway Cranhill	6/51	413300 252990	Ditch	PM
Site 8 Hillborough Farm	6/54	413080 252240	Furlong Boundaries and R&F	?Med
Site 9 Hillborough Farm, Binton	6/55	413070 251909	Pit	Undated
Site 10 (a,b&c) River Avon Welford-on-Avon	6/56-57	413000 251550	a -Burnt Mound (57) b- Burnt mound type deposits (57) c -Avon floodplain (56-57)	Bronze Age and Undated (palaeo-environmental)
Site 11 Long Marston	9/77-78	415940 248580	Roman settlement	Late Iron Age/Romano-British
Site 12 Long Marston	9/83	416920 248140	Ditches	?Romano-British
Site 13 Long Marston Airfield	9/84	417260 248080	Airfield	Modern
Site 14 Long Marston	10/86	417600 248460	Pits	Iron Age

Numerous areas of remnant ridge and furrow were recorded along the whole route highlighting the intensity of agricultural activity in the area. Topographical survey and reinstatement by the client was instigated on fifteen areas.

Historic field boundaries identified as part of the ADBA and part of the framework agreement were recorded as part of the watching brief duties. Later agricultural activity in the area was recorded in the identification of numerous redundant field-boundaries.

A background assemblage of unstratified pottery and flint was collected along the route.

2. ACKNOWLEDGEMENTS AND CONTRIBUTORS

2.1 Acknowledgements

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3. INTRODUCTION

An 18.5 kilometre long, Transco, natural gas pipeline connecting the Above Ground Installations (AGI's) at Lower Quinton (NGR 418150 248200) and King's Coughton (NGR 408300 259750) was constructed during the summer of 2003. The route runs roughly north-west to south-east passing through the county of Warwickshire (Figure 1).

The 1220mm (48'') high pressure 75 bar, steel gas pipeline has been constructed to reinforce Transco's National Transmission System and Local Distribution Zone, primarily in response to increasing demand for gas by domestic and commercial users in the West Midlands. The construction contractor was McAlpine - PPS Pipeline Systems JV (MPJV).

This report details the archaeological investigations which took the form of trench evaluation, excavation and a permanent presence archaeological watching brief during construction topsoil stripping and trenching operations from March to August 2003. It forms Stage 7 of the staged archaeological approach adopted by Transco (Table 2).

Table 2: Archaeological Staged Approach

Archaeological Stages of Investigation		**Transco's phase of works**
Stage 1	**feasibility study of route corridor option(s)** an appraisal of archaeological potential	**feasibility assessment**
Stage 2	**desk-based assessment of route corridor** a thorough synthesis of available archaeological information (1km corridor)	**conceptual design**
Stage 3	**surveys of entire preferred pipeline route** field reconnaissance survey, field walking survey, geophysical survey, metal detector survey, auger survey, as appropriate (40m corridor)	**detailed design**
Stage 4	**evaluation of targeted areas along preferred pipeline route** machine-excavated trenches, hand-dug test-pits, as appropriate (42m easement)	
Stage 5	**Excavation** detailed excavation of those sites which it is not possible to avoid or desirable to preserve (42m easement)	
Stage 6	**watching brief** permanent presence monitoring of all ground disturbing activities (42m easement)	**construction**
Stage 7	**archive and publication** synthesis and dissemination of results, leading on from each of the stages outlined above	**post-construction**

3.1 Construction Framework and Archaeology

Linear developments such as pipelines provide an opportunity to examine a transect across a landscape and the evidence of past human activity preserved within it.

Potentially, pipelines can severely impact upon the archaeological resource. In this instance, a staged approach was made to the archaeological resource with the Watching Brief being the culmination of a long process of investigation and cooperation between archaeologist and engineer resulting in minimal archaeological disturbance.

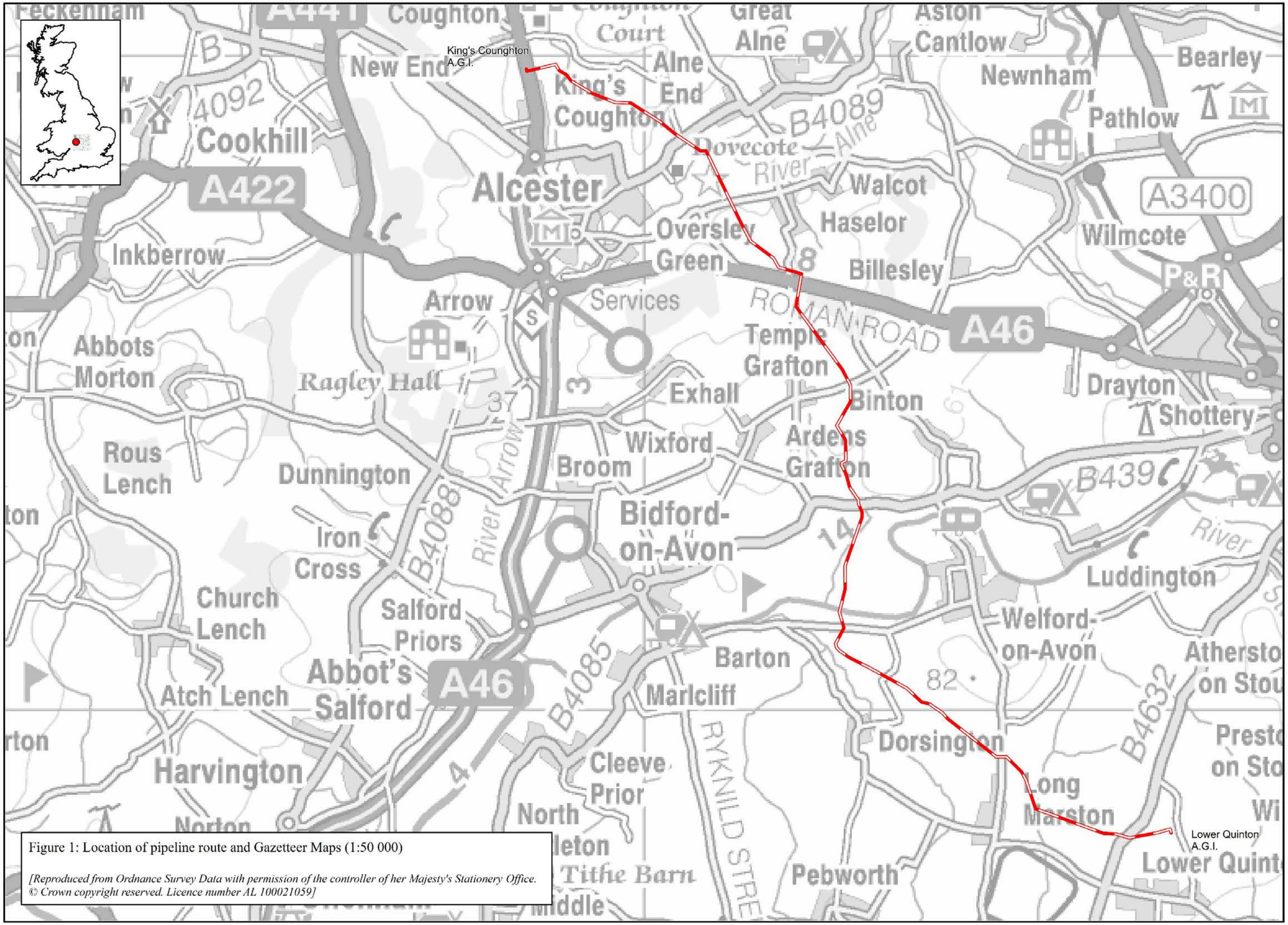


Figure 1: Location of pipeline route and Gazetteer Maps (1:50 000)

3.2. Pipeline Location and Topography

The proposed route lies in Warwickshire about five kilometres to the west of Stratford-upon-Avon, just north of the Gloucestershire border (Figure 1). Despite being referred to as Lower Quinton to King's Coughton, construction proceeded in the opposite direction, starting at King's Coughton AGI (NGR 408300 259750) and running for 18.4 km in a broadly south-easterly direction to Lower Quinton AGI (NGR 418150 248200).

King's Coughton AGI is on the east side of Ryknild Street (the A435(T)) and lies at a height of 55m AOD. From here, the route ran east, crossing the Rivers Arrow and Alne at around 45m AOD. It then runs around the east and north sides of Alcester, before sweeping to the south-east and rising quite steeply to over 100m AOD to the north-east of Temple Grafton village. Dropping more gradually, it crosses the B439 at around 50m AOD and continues to descend to under 35m AOD where it passes under the River Avon, approximately 1.5 km west of Welford on Avon. To the south of the river, it rises again to 60m AOD to the west of Bunkers Hill, before turning to the south-east and dropping to below 45m AOD. Skirting the north-east side of Long Marston village, the pipeline then heads east to Lower Quinton AGI, steadily rising to just over 50m AOD.

3.3 Field Plot Locations

The pipeline route ran roughly north-west to south-east and comprised of eleven construction sections, delimited by road crossings. The sections were numbered sequentially (0-10) from the King's Coughton AGI in the north-west to Lower Quinton AGI in the south-east. Each field crossed by the pipeline was identified by its construction section and a unique plot number (e.g. 0/1 was the first field, in section 0, while the last field was 10/89, in section 10). The fields were originally assigned a consecutive series of plot numbers (1-85) by NAL during the field surveys, and these numbers appear on earlier NAL records. They differ from those issued during construction as a result of slight re-routes. Please note that all plot numbers reference throughout this report refer to those allocated at the time of construction (see Appendix 1).

3.4 Solid Geology

The geological formations generally follow the trend for southern England as a whole, with younger rocks towards the south and southeast. The oldest strata, encountered at the northern end are of the Triassic Mercian Mudstone group. This comprises four main formations within the area crossed by the pipeline, the Keuper Marl, Arden Sandstone, Tea Green Marl, and Rhaetic Formation (BGS 1974, 1979, 1989; Landlook 2002).

- ***Keuper Marl***: reddish mudstones with occasional impersistent bands of shale and sandstone ('skerries'); occur between Lower Quinton AGI and the A46.
- ***Arden Sandstone***: pale green grey, fine-grained sandstones ('skerries') interbedded with thin bands of mudstone; used locally as a building stone; forms slightly raised ground where it outcrops to the west of Haselor.
- ***Tea Green Marl*** (Triassic): pale green grey and white mudstone with occasional sandstone bands ('skerries'); outcrops over the steep north facing slopes above the A46 (T).

- ***Rhaetic Formation***: grey calcareous mudstone over dark grey to black mudstone and shale with thinly bedded sandstone bands ('skerries'); outcrops over the steep north facing slopes above the A46 (T).

Limestones of the Blue Lias Formation were visible in two areas: Near Red Hill, to the south of Haselor, the Triassic escarpment is capped by the hard grey limestones of the late Triassic-early Jurassic Wilmcote Limestone Member; and rubbly, nodular limestones and mudstones of the Rugby Limestone Member were exposed by the Avon river crossing (J Radley, pers comm). South of Bunkers Hill, the pipeline traversed the succeeding Charmouth Mudstone Formation, also early Jurassic in age.

3.5 Drift geology

The solid geology is overlain by three drift deposits which are all post-glacial in nature (BGS 1974, 1989; Land Look 2002).

- ***Head:*** structureless mixture of clay, silt, sand and stones, derived from local material; found along the entire route with the deepest deposits being found at the foot of concave slopes.
- ***Alluvium***: red and grey silty clay, often lying over gravels; located in the valley bottoms of the Rivers Avon, Alne, Arrow and their associated tributaries. Boreholes taken 80m either side of the three major rivers recorded alluvium to a depth of 3-4m to the west and east of the River Arrow, to a depth of 1m west and 4m east of the River Alne and 4m west and 1.5m east of the River Avon (Exploration Associates 2002).
- ***River Terrace Deposits:*** loamy deposits with variable quantities of stone, loosely consolidated; flanking the Rivers Avon, Alne and Arrow. The Second Terrace sands and gravels were particularly notable just to the south of the Avon crossing.

3.6 Soils and Land Use

The proposed route crosses nine soil types, which are described below in relation to the geology over which they are derived (SSEW 1983).

- ***Arrow:*** deep permeable coarse loamy soils affected by groundwater; suitable for cereals, and some vegetables; developed over river terrace drift on either side of the River Arrow.
- ***Bishampton:*** deep fine loamy soils (over clayey soils) with slowly permeable subsoils and slight seasonal waterlogging; suitable for cereals, short term grassland and some vegetables; developed over river terrace drift.
- ***Compton:*** stoneless red clay soils affected by groundwater on flat land at risk of flooding; suitable for permanent grassland with stock rearing and dairying; developed over alluvium associated with the River Arrow.
- ***Denchworth soils***: slowly permeable, seasonally waterlogged fine loamy over clayey soils; suitable for winter cereals and short term grassland in drier lowlands and dairying on permanent grassland in moist districts; developed over Rhaetic Formation at the southern end of the proposed pipeline route.
- ***Evesham 2:*** slowly permeable calcareous clayey soils and fine loamy over clayey soils, seasonally waterlogged; suitable for cereals and grassland; developed over Lower Lias to the north and south of the River Avon.

- ***Fladbury 1:*** stoneless clayey (calcaerous) soils affected by groundwater on flat land at risk of flooding; suitable for permanent grassland with stock rearing and dairying; developed over alluvium associated with the River Avon.
- ***Salop:*** slowly permeable seasonally waterlogged red fine loamy over clayey soils; suitable for dairying on short term grassland and some cereals; developed over river terraces and associated red till flanking the River Alne.
- ***Whimple 3:*** red fine loamy or fine silty over clayey soils with permeable subsoils and slight seasonal waterlogging; suitable for dairying and stock rearing, cereals and short term grassland; developed over Keuper Marl to the north west of the River Alne.
- ***Worcester:*** slowly permeable non-calcareous and calcareous red clay soils; suitable for permanent and short term grassland and some cereals; developed over Keuper Marl to the west of Haselor and east of Alcester.

4. PROJECT BACKGROUND

4.1 Feasibility Study

A pipeline feasibility study was undertaken by Transco in 2001 which outlined the best overall available corridor considering the least damaging environmental, ecological and archaeological route (Landlook, May 2002).

4.2 Archaeological Desk-Based Assessment

An Archaeological Desk-Based Assessment (ADBA) was undertaken in October 2002 (NAL Report No. 291). This quantified and assessed the known potential archaeological resource within a 1km wide route corridor, and made recommendations for further investigations. This assessment formed the basis of the Cultural Heritage section of a non-mandatory environmental assessment undertaken to meet the requirements of The Public Gas Transporter Pipeline Works (Assessment of Environmental Effects) Regulations 1999.

The ADBA highlighted that the proposed route went through a potentially rich archaeological landscape with potential remains coming from all periods as the modern rural landscape makes it an underdeveloped and therefore understudied area. If pre-historic sites were to be found it would be most likely that they would be revealed in the three river valley locations. Roman remains are known in the area particularly at the Roman town of Alcester to the north-east of the pipeline route serviced by Ryknild Street running close to the route at King's Coughton. The pipeline route also crosses the course of another Roman road south of Haselor. Many of the parishes crossed by the pipeline have documentary evidence of Saxon settlement and there was a potential for later deserted or shrunken villages to be encountered. The route crosses a medieval agricultural landscape seen in the numerous ridge and furrow systems. The Industrial Revolution had little immediate impact on this part of Warwickshire and activities were focused on agricultural activities and associated trades. Later activity can be seen in the siting of the Second World War Long Marston Airfield which is very close to the route.

Two hundred and eighty-three archaeological 'sites' were identified within the 1km study area, of which thirty-six were likely to be directly impacted by the proposed pipeline.

Sites were placed into one of four categories, ranging in significance from Scheduled Ancient Monuments (Category A) to single finds spots (Category D). No Category A sites were to be affected by the proposed route. However one Category B and four Category C sites were to be effected with the following actions taken:

Cropmark Complex, possibly Romano-British to the north of King's Coughton WSMR 4646 (NGR 408580 259767)
Action: as the complex was very large, the pipe was routed to run through the least dense area. It was recommended that the route be re-assessed after field walking, field reconnaissance and geophysical surveys had been conducted.

Roman Road, the modern A46 follows the line of the Roman road connecting Alcester to Startford WSMR 4757, (NGR 413748 256213)
Action: as this feature is linear, avoidance by re-routing would be difficult. It was decided to re-assess after the field walking, field reconnaissance and geophysical surveys had been conducted.

Deserted Post-Medieval Settlement, visible as earthworks on the west bank of the River Arrow WSMR 5228 (NGR 408720 259760)
Action: the pipe route was to skirt the edge of this area where it was felt that there may be a possibility of field systems associated with the settlement (*pers com* from WSMR). Re-assessment following the field walking, field reconnaissance and geophysical surveys was recommended.

Long Marston Airfield, WSMR 8029 (NGR 417183 248098)
Action: the pipe route was to skirt the edge of the very edge of this area where it was thought there would be no structural remains. Re-assessment following the field walking, field reconnaissance and geophysical surveys was recommended.

Grafton Court Park, WSMR 8559 (NGR 413063 253645)
Park laid out when the house was built in c.1876
Action: from aerial photographs it was seen that this area now lay under the plough. Re-assessment following the field walking, field reconnaissance and geophysical surveys was recommended.

No immediate action was recommended for the thirty-one Category D sites, or for the parish boundaries and historic field boundaries or former field boundaries which were crossed by the proposed pipeline easement, but these sites were re-evaluated after the field walking, field reconnaissance and geophysical surveys had been concluded.

4.3 Field Survey, Fieldwalking, Field Reconnaissance and Geophysical Surveys

A programme of non-intrusive field survey (Stage 3) was carried out by Network Archaeology throughout the winter of 2003. This comprised archaeological fieldwalking, field reconnaissance and geophysical surveys (NAL Report No. 185).

The surveys provided corroboration for fifteen sites previously recorded by the ADBA, and found an additional forty-six new sites on the course of the proposed pipeline. All the newly discovered sites were considered to be of only local significance (Category D). They were predominantly of agricultural origin and comprised: areas of raised magnetic susceptibility and magnetic anomalies; earthworks of ridge and furrow

cultivation and field boundaries; soil marks indicating former ponds or natural hollows, stream courses; and low density artefact scatters mostly the result of manuring of arable fields.

The one Category B and four Category C sites highlighted from the ADBA were re-evaluated as follows:

Cropmark Complex, possibly Romano-British to the north of King's Coughton WSMR 4646 (NGR 408580 259767)
Results: field survey results negative but probability that he site could be partially masked by alluvium. *Action*: Area to be trial trenched.

Roman Road, the modern A46 follows the line of the Roman road connecting Alcester to Startford WSMR 4757, (NGR 413748 256213)
Results: field survey results negative but still potential for burial or settlement along this road. *Action:* Area to be trial trenched.

Deserted Post-Medieval Settlement, visible as earthworks on the west bank of the River Arrow WSMR 5228 (NGR 408720 259760)
Action: the pipe route passes the south-west extent of this site, in an area removed from the known settlement remains. This was confirmed by the field surveys which found no evidence for the site on the route. *Action:* Watching Brief.

Long Marston Airfield, WSMR 8029 (NGR 417183 248098)
Results: sporadic geophysical anomalies found on the edge of the airfield*; Action:* Watching Brief.

Grafton Court Park, WSMR 8559 (NGR 413063 253645)
Registered, laid out when the house was built in *c.*1876
Results: subsequent investigation showed that the park is not registered. The pipeline crosses its western side. The field surveys confirmed that the area is now used as agricultural land. *Action:* Watching Brief.

Of the sixty-one sites located by the Field Surveys, six were proposed for evaluation in advance of construction and a further two which were not corroborated by the Field Surveys were also proposed (Table 3).

4.4 Evaluations

As a combined result of the ADBA and the Field Surveys and through consultation with the County Archaeologist it was decided that a total of eight areas along the route should be evaluated prior to the main works construction (Table 3 and Gazetteer Maps 1-14). This formed part of the Archaeological Management Plan (NAL Feb 2003a) for the project and was detailed in an Evaluation and Excavation Written Scheme of Investigation (NAL Feb 2003b).

Table 3: Evaluation Trenches

Constr. Section/ plot	Site Gaz Map	Description	Number of Trenches	NGR
0/2	1	Enclosure cropmarks ?Roman (WSMR 4646)	2 x 30m	408538 259837 408565 259833 408581 259848 408611 259843
2/29	3	Geophysical anomalies: weak linear and pit-like features (FSU:023)	2 x 30m	411939 256940 411939 256910 411954 256916 411978 256898
3/32-4/33	4	Course of Alcester to Stratford Roman Road (WSMR 4757)-potential of associated features	2 x 50m	412390 256570 412382 256520 412377 256491 412368 256442
4/37	4	Geophysical anomalies: linears and pit-like features (FSU:025) in area of earthwork and soilmark ridge and furrow (DBA:FP)	1 x 30m 1 x 40m	412748 255564 412780 255541 412796 255533 412772 255515
8/67	8	Possible building indicated by brick/baked clay concentration (one with wattle impressions) and red soil mark found during fieldwalking (FSU:013). Weak geophysical disturbances and high susceptibility (FSU:032). In vicinity of earthworks of two former ponds/quarries (FSU:011-FSU:012) and in area of earthwork and soilmark ridge and furrow (DBA:EX). Two Roman sherds found during fieldwalking survey.	1 x 70m 1 x 30m 1 x 20m	414095 250268 414081 250253 414088 250259 414137 250212 414123 250241 414103 250220
9/77-78	9	Geophysical anomalies (FSU:034/035) within area of extant and ploughed out ridge and furrow (DBA:ES, DBA:EN).	3 x 30m	415932 248616 415942 248588 415952 248578 415944 248549 415951 248517 415981 248511
9/83	10	Geophysical anomalies (FSU:040) within area of high susceptibility. Ploughed-out ridge and furrow (DBA:EM) in same field.	2 x 30m	416812 248189 416839 248177 416935 248152 416911 248135
10/85	10	Geophysical anomalies (FSU:037) indicating a possible enclosure. Ridge and furrow and or drainage also highlighted. In area of DBA:EL ridge and furrow.	1 x 30m 1 x 15m	417425 248056 417453 248044 417438 248047 417444 248033

4.4.1 Methodology

Trenches were set out using global positioning satellite (GPS) equipment. Topsoil was stripped using a 20 tonne back-acting excavator fitted with a 2m wide smooth-faced bucket, until archaeology was exposed or solid or drift deposits were exposed. Hand cleaning of the trench and excavation of any archaeological features was carried out in order to:

- gather sufficient information to establish the presence or absence, extent, condition, character, quality and date of any archaeological, ecofactual, environmental and organic remains;
- provide a preliminary assessment of the significance of any remains;

- assess the potential impact of the proposed pipeline route on the remains at each site; and
- determine any need for further evaluation and mitigation prior to construction.

4.4.2 Results

The table below summarises the results of the evaluations. Where archaeological deposits were encountered and an excavation carried out, the results are discussed within the appropriate site descriptions below (Section 7). If an excavation did not ensue, the results are summarised within the Context Summary Appendix 2. The locations of the trenches are indicated on the Site Gazetteer Maps 1-14.

Table 4: Results of Evaluation Trenches

Constr. Section /plot	Trench number	Summary of findings	Archaeological finds	Status
0/2	2.1	3 x gullies	none	excavation
0/2	2.2	1 x ditch	none	excavation
2/29	29.1	ridge and furrow and drains	none	watching brief
2/29	29.2	1 x natural ponded area	none	watching brief
3/32	32.1	None	none	watching brief
4/33	33.1	1 x ditch 1 x gully 1 x natural bush hole 1 x natural gravel feature possible ploughed out ridge and furrow	post-medieval pottery found within topsoil	watching brief
4/37	37.1	None	none	watching brief
4/37	37.2	None	none	watching brief
8/67	67.1	land drains, tree holes and natural features	fired clay frags.	watching brief
8/67	67.2	land drains, tree holes and natural features	fired clay frags.	watching brief
8/67	67.3	land drains, tree holes and natural features	fired clay frags.	watching brief
9/77	77.1	Romano-British archaeological remains	Romano-British pottery	excavation
9/77	77.2	Romano-British archaeological remains	Romano-British pottery	excavation
9/78	78.1	Romano-British archaeological remains	Romano-British pottery	excavation
9/83	83.1	possible medieval ridge and furrow, grubbed/burnt out tree holes	1 x Roman or medieval pottery sherd	watching brief
9/83	83.2	2 ditches (?field system) pre-dating medieval ridge and furrow	none	excavation
10/85	85.1	land drains	none	watching brief
10/85	85.2	land drains	none	watching brief

5. WATCHING BRIEF

Network Archaeology Ltd undertook a permanent presence monitoring of topsoil stripping and trench excavation throughout April to August 2003. The results, combined with those from the evaluations, are detailed below (Section 7).

5.1 Archaeological Objectives

The main aim of the watching brief was to record any archaeological remains which would be affected by the development, in order to gain a better understanding of the archaeology of the region through which the pipelines passes.

The specific objectives were:

- provide a permanent-presence watching brief during all ground disturbing activities;
- locate, recover, identify, and conserve (as appropriate) any archaeological artefacts;
- locate, excavate and record archaeological remains;
- recommend mitigatory measures for preservation in situ of archaeological, palaeo-environmental, palaeo-economic and organic remains (where feasible and desirable);
- produce a suitable archive;
- produce a client report that addresses the above; and
- publish significant results in an appropriate journal.

5.2 Archaeological Standards

All archaeological work was undertaken in accordance with Transco's general-purpose briefs for Archaeological Desk-Based Assessment, Field Survey, Evaluation and Excavation and Archaeological Watching Brief (2001). In response to these briefs, Network Archaeology Ltd produced detailed Written Schemes of Investigation (WSI's). All schemes were submitted to and approved by the Warwickshire County Archaeologist.

All works conform to the Institute of Field Archaeologist's (IFA) *Code of Conduct* (1985, Revised September 2000), and the IFA's *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* (1990, Revised September 2000), *Standard and Guidance for Archaeological Evaluation*, (1994, Revised September 2001) and *Standard and Guidance for Archaeological Watching Briefs* (1994, Revised September 2001), *Standard and Guidance for Archaeological Excavation* (1994, Revised September 2001). The work was managed in accordance with the methods and practice described in *The Management of Archaeological Projects, second edition* (English Heritage, 1991).

5.3 Pipeline Construction

The pipeline was constructed within a 42m wide fenced working width (reduced to 15m at road crossings and to 25m at hedgerows). Construction involved four main phases of activity:

5.3.1 Right Of Way Activities

These included hedge removal, cleaning, fluming and temporary bridging of ditches, fencing the working width, topsoil stripping of access areas and the installation of pre-construction drainage along the length of the pipeline. Drainage entailed the excavation of a trench averaging 0.30m wide along one or both sides of the working width. Plastic drainage pipes were placed in the trench which was then backfilled with gravel.

5.3.2 Topsoil stripping

This took place across the length of the proposed pipeline route. Topsoil was removed to subsoil level across approximately one third of the width using hydraulic, back-acting, tracked excavators fitted with toothless ditching blades. The remaining two-thirds of the easement was stripped by bulldozers. The topsoil was piled in stacks not more than 3m high on the running track (south-west) side of the working width, being kept apart from the subsoil. Topsoil was not stripped beneath the spoil heap, so the maximum stripped width was *c*.34m. Other small areas of the working width were not stripped, such as directly underneath overhead cables and above and either side of buried service pipes and cables. The stripped surface was graded, and benched where the ground sloped transversely, in order to provide a level working surface for subsequent construction operations.

5.3.3 Pipe-Trench Excavation

This took place along the length of the pipeline route, except where it crossed roads, major rivers, major services, a dismantled railway and an access road. The pipe-trench was dug using a back-acting excavator fitted with a toothed or smooth-faced ditching bucket, and was normally approximately 2m wide and 1.5m deep (Plate 1). The excavated material was placed along the subsoil (north-eastern) side of the trench (Plate 2).

5.3.4 Auger Boring

This was used to negotiate roads, major rivers, major services, a dismantled railway and an access road. The process involved the excavation large pits on either side of the obstacle. The ‘sending pits’ were larger than the ‘reception pits’, but both were generally around five metres wide, ten to twenty metres long and up to three metres deep.

5.3.5 Reinstatement

This involves the replacement of topsoil and the installation of post-construction drainage (which uses the same technique as pre-construction drainage).

5.4 Archaeological Monitoring

Minimal disruption to the construction schedule was achieved by working with MPJV to integrate the archaeological works within the construction programme. Delays were also avoided as the evaluations highlighted the archaeological sites at an early stage thereby allowing time for their excavation.

5.4.1 Pre- and Post-Construction Drainage

This received intermittent, opportunistic observation. The narrowness of the drainage trenches provided a very limited window of observation which did not warrant continuous monitoring.

Plate 1: Pipe Trench

Plate 2: Pipe laying at the River Alne

5.4.2 Topsoil stripping

This received permanent presence archaeological monitoring. Freshly stripped areas and spoil heaps were examined for archaeological deposits and artefacts. Where it was not possible or desirable to preserve archaeological remains *in situ*, they were excavated and recorded. This involved an initial assessment of the impact of the pipeline construction, in order to determine the necessity for excavation, and where it should be targeted. If archaeology was present, one or more of the following strategies was instigated:

- Hand-cleaning of limited areas;
- Machine cleaning of limited areas;
- Hand-excavation without the need for additional personnel;
- Mobilisation of archaeologists to hand-excavate and record, thereby freeing the main archaeologists to continue the Watching Brief;
- Mitigation in the form of restricted topsoil stripping, or bog-matting a limited section of the easement in order to protect archaeological remains.

The chosen course of action would depend on a combination of factors: the density and physical nature of the archaeological deposits, the location of the deposits within the easement and the potential importance and value of the remains. Any strategy had to take into account the construction timetable; the potential compaction damage along the running track and easement, the positioning of any post-construction drainage, and the need for any eventual subsoil ripping (to relieve overall compaction) during land reinstatement.

5.4.3 Pipe-trench excavation

This received permanent presence monitoring. All archaeological deposits and significant natural deposits (such as hillwash, river valleys, former stream channels *etc*.) and artefacts were recorded.

5.5 Visibility of Archaeological Deposits

Visibility of archaeological remains is always a significant factor during the construction of a pipeline. Visibility is dependent on many factors, including machine type, depth of topsoil removal, weather and geology. These factors were recorded during the Watching Brief.

The greatest opportunity to see features was during topsoil removal in the initial strip of the working width, which typically cleared between a quarter and a half or the full width, since this was carried out using smooth-faced ditching buckets. The remainder of the easement was smeared, compacted and churned up by the bulldozers. Topsoil stripping by back-acters was therefore monitored very closely, and if a ‘site’ was discovered, negotiations were made to clear the whole site with this method under archaeological supervision.

5.5.1 Topsoil Stripping

This provided the best opportunity to see archaeological deposits in plan. The depth of stripping was not under the direct control of the archaeologist. Remnant topsoil and occasional patches of alluvium and colluvium obscured the natural substrate along parts of the route, although limited areas of residual topsoil were cleaned by machine under archaeological supervision.

5.5.2 Trenching

Back-acting excavators dug out the pipe-trench resulting in uneven sides and difficulties in defining features without considerable time spent cleaning them. The construction timetable and health and safety restrictions meant that this was not always possible. On very soft ground, machines would immediately batter the sides of the trench to minimise collapse, thus making visibility very difficult, especially if the area comprised running sands and gravels.

A further limitation in recording archaeological features within the pipe-trench was that they were rarely cut perpendicular, and therefore suffered from varying degrees of distortion, requiring rectification to ascertain their original form. Nevertheless, the pipe-trench produced useful archaeological information and was a vital part of the watching brief, allowing the study of a transect through the Warwickshire countryside.

5.6 Field Records

5.6.1 Project Code and Museum Accession Number

Network Archaeology Ltd used the Project Code QKC 02 for the Lower Quinton to King's Coughton Pipeline. The Warwick Museum accession number is T/1078.

5.6.2 Site Numbers

Each 'site' identified by the Evaluation/Watching Brief was initially referenced by its construction section and plot number. This information was used by some of the archaeological specialists, and may be referenced in their reports (Appendices 1-8) and throughout the field based archive. Subsequently, site numbers 1-14 were allocated in place of the Plot references. These new site numbers are used throughout this report.

5.6.3 Context Number Allocation

Each Construction Section was given a block of unique context numbers for recording purposes. Unstratified artefacts, modern features, were similarly given identifying numbers prefixed with the Construction Section in which they were found.

5.6.4 Locating Archaeology

Archaeological features and deposits found during stripping were either hand planned in relation to the pipeline easement, or for the larger sites, planned and directly located to the national grid using differential Global Positioning Satellite (dGPS) equipment. Archaeological remains found during trenching were located in relation to the nearest pipe welds. The NGR and AOD level were later calculated from the 'As Built' plans supplied by McAlpine - PPS Pipeline Systems JV.

5.6.5 Written Records

A system of *pro forma* record sheets was used for on-site recording. This system developed by Network Archaeology Ltd is in a format acceptable to the IFA. Multi-context recording was used for all archaeological deposits and any significant natural deposits located during surface and/or trench inspection.

5.6.6 Drawn Records

These included:

- OS base plans (at an appropriate scale) showing the location of any excavation areas;
- excavation area plans (at 1:20, 1:50 or 1:100 scale, as appropriate), showing all archaeological and natural deposits;
- detailed plans at 1:20 scale of significant features, and
- section drawings at 1:10 scale or 1:20 scale (as appropriate) of all excavated features, unexcavated features seen in trench sections, and overlying site stratigraphy.

5.6.7 Photographic Record

Monochrome and colour photographs were taken in 35mm format. This included overall shots of each site, work in progress, overall pre-excavation shots and detailed feature shots. The feature context number, appropriate scales, and a north arrow (if appropriate) appeared in all photographs whenever possible.

6. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

6.1 Prehistoric

6.1.1 Desk-Based Assessment

Available evidence collated during the desk-based assessment shows the Prehistoric period to be under-represented in the study area. It is uncertain whether this is a true reflection of the level of human activity within this period or merely a reflection of the limited archaeological work in the area (NAL Report 291). The locality however, does display a number of undated cropmark sites, such as enclosures and linear features which could be dated to this period.

Palaeolithic *(c.500,000 - 10,000 BC)*

The first humans entered the area now known as Britain about 500,000 years ago. They hunted and foraged for food, and were more sophisticated than their earlier ancestors. Britain lay on the north western extremity of the Palaeolithic world, and during this period was joined to the Continent by a land bridge where the English Channel now exists.

The Palaeolithic was a period of glaciation, interspersed with long periods of slightly warmer climate, known as interglacials. The presence of humans in Britain during the Lower and Middle Palaeolithic period (*c*.500,000 - 40,000 BC) was mainly concentrated in southern and south eastern England, and occupation would have been largely limited to the warmer interglacials or, during an ice-age, to brief summer visits from mainland Europe.

The Upper Palaeolithic period (40,000-10,000 BC) is characterised by the production of more sophisticated stone tools, and personal ornaments. However, the occupation of Britain during this time was interrupted by a glaciation which prevented human settlement for several millennia (20,000-15,000 BC). At this time, the country would have resembled polar desert. It was not until the climate warmed that Britain was gradually re-colonised.

People avoided the densely wooded valley regions, preferring to build camps beside open water, swamps and grassland. River floodplains provided a variety of habitats supporting a wide range of game. Local quartzite was fashioned into axes which have been found in the upper Avon valley around Coventry and at Little Alne, to the north of Alcester (Slater 1997).

There are no known Paleolithic remains within the study corridor.

Mesolithic *(10,000 - 4,000 BC)*

Mesolithic culture appears to have been a response to dramatic environmental changes created by much warmer climatic conditions. The huge body of water freed by the melting of the ice sheets contributed to the enlargement of the oceans, and by *c*. 5800 BC the raised sea level had isolated Britain from the rest of Europe. The insulating properties of the sea caused further rises in winter temperatures.

Temperature increases caused the spread of coniferous forest. Scrub woodland and forest gradually replaced the tundra and cold steppe grassland of the Palaeolithic, providing new habitats more suitable for small woodland game than herbivorous herds

of large animals. By 6,500 BC the climate had become warmer and wetter, and the coniferous forest gave way to denser, deciduous woodland. These environmental changes provided Mesolithic people with a much broader and abundant subsistence base than had been available in the Palaeolithic. The valleys of inland rivers provided forest game, fish and plants.

Mesolithic people responded to these improved conditions in a number of ways. New tool types, tactics and skills were developed for the exploitation of resources. Projectiles, to be thrown by hand or shot from a bow, are particularly prominent in the archaeological record. Burins, awls and scrapers were also in use, and the manufacture of hafted flint axes and adzes indicates that some woodland clearance was being attempted, and that timber working was possibly taking place. Towards the end of the Mesolithic, it is possible that people were taking greater control of their environment, using fire in a more concerted effort to clear trees and create scrub and grassland. Although there is little evidence for this in the pollen record, it would have been a logical progression towards the pastoralism of the Neolithic period. Sedentism may also have increased in the Mesolithic due to the greater variety and abundance of subsistence forms.

Activity is evidenced by flint scatters, including axes, arrow heads, cores and waste flakes. Mesolithic occupation is known along the Avon valley and in the Tame Blythe basin. The settlements tended to be seasonal or temporary, but it is thought that small scale cultivation may have been used to supplement hunting and gathering.

There are no known Mesolithic remains within the study corridor. Just outside the study corridor, two archaeological evaluations to the east of Westgrove House have revealed flintwork scatters, at least one of which was Mesolithic (MON 121150), (NGR 413100 256350).

Neolithic *(c. 4,000 - 2,500 BC)*
The adoption of agriculture and the appearance of new technologies, such as ceramics characterise this period. New flint and stone technologies included cutting edges sharpened by grinding, flint sickles and stone querns used for harvesting and processing grain. Stone axes and fire were used to clear areas of dense woodland where crops were sown and stock grazed. Neolithic woodland clearance is thought to be responsible for the considerable depths of alluvium that have accumulated in areas such as Alcester.

Society by this time was sufficiently large, organised and affluent to construct immense ceremonial monuments and consequently funerary arrangements became increasingly complex. Such changes could have been engendered by new settlers from abroad, or may have resulted from a gradual influx of ideas, perhaps communicated through trading links.

The period is characterised by substantial ritual landscape features such as long barrows and henges. Only four long barrows are known in the county and all lie on the easily cultivated soils of the middle Avon valley between Warwick and Stratford (Slater 1997). The only surviving henge monument is in the far south of the county at Great Rollright on the Oxfordshire border. The region has been heavily cultivated since the Neolithic period and most known monuments are traceable only as cropmarks.

Another type of monument introduced in the Neolithic is the *cursus*. This comprises a rectilinear bank and ditch running parallel to each other and can stretch for many miles. The cursus often became a focus for later funerary activity. There is a small cursus near Thelsford in the middle Avon valley and others at Barford and Wellesbourne (*ibid*.). Quartzite and flint pebbles are common in the Boulder Clay on the sandstone plateau of Arden and in the river valley gravels and there is a quartzite ridge in the north east of the county. A quarry near Nuneaton is believed to be the source for a group of stone axes found in the upper Avon valley, but other axes were imported from Graig Lwyd in North Wales and Langdale in Cumbria. Numerous stone axes and hammers have been found over a wide area of Warwickshire, but the pattern of archaeological excavation has resulted in most of the pottery of this period being found in the area between Warwick and Coventry. There is a particular concentration around the modern town of Warwick, which may have been an important centre with a ring ditch fortification (*ibid*.).

There are no known Neolithic remains within the study corridor. There are a few Neolithic findspots immediately outside the study corridor, suggesting there was at least some activity in the area. At Coughton Court, a single flint flake was found in the backfill of an east-west oriented ditch and four postholes or small pits containing worked flints of probable early Neolithic date were discovered during excavations (Evans 1991). An axe and rubbing stone were found in 1923 between Alcock's Arbour and Oversley Wood (MON 330890, (NGR 411180 256560) and in Alcester, Neolithic remains were found in Meeting House Lane in 1927 (Salzman 1945).

Bronze Age *(c.2,500 - 700 BC)*
Influences from the continent brought the first bronze objects, new types of flint and pottery, and new forms of burial rite. These rites involved the use of grave goods and the construction of large funerary monuments, which hint at social differentiation. It is during this period that the great henge monuments were built, such as Avebury in Wiltshire.

As the Bronze Age progressed, people increasingly lived in nucleated farming communities, with the more fertile and sheltered lowland locations being most favoured. One such farmstead at Barford, south of Warwick, was occupied from the Neolithic to the Iron Age.

Many bronze implement forms were either imports from the Continent, or influenced by Continental forms. Early metal objects appear to have been limited in their use and availability. By 1000 BC, new weapon forms such as socketed leaf shaped spearheads and slashing swords were being produced. The few examples of bronzes from Warwickshire include a dagger from Rugby and spearheads from Leamington.

Pottery types vary from early period grit-tempered Peterborough and grooved wares through to Deveral-Rimbury wares, with late period angular profiled forms showing a Continental influence. Beakers are well finished decorated vessels, used throughout the period as grave goods, with examples from Warwickshire being found at Bagington, near Coventry. Most of the Bronze Age pottery in Warwickshire comes from the Sowe and Upper Avon Valley areas (Slater 1997).

Numerous Bronze Age hoards have been found throughout Britain. Hoards appear to exist for four main reasons: some were votive offerings, particularly those in the sides of streams; some were disposed of on dry land in order to create scarcity and to drive up the value of such objects; some were created by members of society who wanted to show their wealth and high standing and others were created by accidental loss. In Warwickshire four Bronze Age swords were found at Meriden (*ibid*.).

A wide variety of burial practices were employed in Britain during the Bronze Age: inhumation, cremation, simple pits, stone cists, wooden coffins, flat graves with no surface marker, and graves covered by a cairn or mound. A cremation cemetery was found at Ryton on Dunsmore, south east of Coventry (*ibid*.). The more prominent, above ground monuments have made a greater impact on the archaeological record, and very few simple pit burials are known. Monumental burials are thought to have been constructed by leading families, partly as territorial markers, particularly in the middle of the second millennium BC, when there was a great deal of land taking. Most of the thirty or so burial mounds found in Warwickshire have been ploughed flat, but there are a few standing examples, such as those at Burton Hastings north of Coventry (*ibid*.).

Burnt stones are often found in quantity on prehistoric sites and some may be remnants of features known as 'burnt mounds'. These consist of oval or crescent shaped heaps of burnt stones with a stone lined pit at the centre. Hot stones would be used to heat water in these pits, the sudden temperature change creating their characteristic cracking (Darvill 1987). They are usually located next to water and in Warwickshire are found in the headwaters of streams on the Birmingham Plateau (Slater 1997). There are no known Bronze Age remains within the study corridor.

Iron Age *(c.700 BC - 43 AD)*
New ideas about working with iron came from the continent, probably initially by communication through trade, and later by a series of Celtic tribal invasions and immigrations. Iron was largely used for weapons and farming tools, the production of which would have increased during the period. Iron ingots have been found at various sites throughout the country, including hillforts such as Meon Hill and Nadbury Camp in south Warwickshire. These ingots are known as currency bars because of their uniform size and weight and because they are often found as hoards, but should more properly be seen as evidence of a well organized industry and trade in raw materials.

Copper, bronze and gold continued to be used for utensils and decorative ware. Pottery began to be made using a potter's wheel, and inscribed coins began to be minted in Britain.

Climatic deterioration brought colder, wetter summers, and along with population growth led to competition for land and the development of a more organised and territorial society. Archaeological evidence for this social shift includes new burial practices and new forms of settlement known as *oppida.* Covering, on average, 30 to 50 hectares, these incorporated extensive, although minor, linear defences designed to protect the houses and cattle enclosures within from attack. Lowland settlement sites could be 'open', or defended with banks and ditches. In both cases, the settlement could include either an isolated farm, or a group of farms, with dwellings consisting of wattle and daub round houses. Settlement layouts varied in complexity. Some comprised banks, ditches, storage pits, trackways and rectangular plots.

Hillforts are a feature of the Iron Age landscape, reflecting a period of tribal territorial consolidation. They vary in complexity and size from rapidly constructed hilltop enclosures with a single bank and ditch, used as livestock folds and territorial boundary defence outposts, to highly developed forts with massive multiple ramparts that evolved over many years on sites of longstanding occupation. There are twelve hillforts in Warwickshire, of which Priory Park, Warwick, and Wappenbury, Leamington, are examples of the latter type.

Linear earthworks, often running for several miles and consisting of single or multiple banks and ditches are believed to be territorial boundary markers or land use divisions. The dates for these features are not certain, but Iron Age is the most commonly attributed (Thorn 1997, 1998). Hob's Ditch Causeway runs for three miles near Tanworth-in-Arden. The remains of Grim's Ditch in Warwickshire are visible as a series of discontinuous linear earthworks. 'Hob' and 'Grim' refer to 'the Devil', variations of which are appended to many historically unexplained landscape features, such as Devil's Dyke, Sussex, and Grimes Graves, Norfolk. 'Grim' is also applied to many similar, but unrelated linear earthworks, such as Grymes Dyke in Essex.

Escalating demands for agricultural land and fuel for iron smelting, meant that forestry clearance continued apace. Many new fields were cut from the forest, whilst fields established in the Bronze Age probably continued in use. Remnants of Iron Age field systems are often known as 'Celtic' fields. In Warwickshire the more easily cultivated gravel soils of the Avon Valley and the Tame-Blyth Basin meant that all of this land was farmed as intensively as was possible for that period. Stock would be driven from summer pasture on higher ground, such as the plateau country of Arden to graze and manure the valley fields during the winter.

Trade and droving were facilitated by a network of trackways throughout the country. In Warwickshire the Jurassic Way, a network of ancient tracks, ran along what is now the south-eastern border of the county. The Salt Way ran east-west through Stratford to the salt producing centre of Droitwich, crossing the north-south Ridgeway west of the Avon.

Trade contacts and influxes/invasions from Gaul in the Late (Pre-Roman) Iron Age, brought about cultural changes and new tribal and political organisation. At the time of the Roman invasion in 55 BC, the two main Belgic tribes in the Midlands were the *Catuvellauni,* who occupied the East Midlands down to the River Thames*,* and their immediate neighbours, the *Dobunni*, whose territory included present day Warwickshire, the Welsh Marches, and the iron producing region around the lower Severn Valley. The tribal capital of the *Dobunni* was Corinium Dobunorum, present day Cirencester. Caesar reached Hertfordshire before being forced to withdraw his troops to deal with troubles on the Continent. Over the following years the British tribes were frequently at war adopting varying pro or anti Roman allegiances. The aggressive, expansionist approach of the Catuvellauni brought them into conflict with the Dubunni, who looked more frequently to Rome for support (Hunter 1995).

Although places have usually been renamed, some topographical features, particularly rivers, retain the Celtic names they bore in the Iron Age. The River Arrow, or *Arwan Stream*, mentioned in the 11th century, derives from the Celtic word *arva*, meaning 'to rise, surge or flow'. Similarly, the Avon, recorded as *Afene* in the 11th century, is

formed from the Old British *Abona*, from the Celtic word *afon* meaning 'river'. Another Celtic name is commemorated by Bidford-on-Avon, which is named after the *Byd* stream. *Alne* derives from the Celtic word for white (*alwen)* and gave its name to both Great Alne (recorded as *Alne* in 1086) and to Alcester (recorded in 1138 as *Alencestre,* the second element*, ceaster,* was the Old English word for a Roman town).

A gold plated copper core coin of the Coritano (the tribe occupying north east Warwickshire) was found at Alcock's Arbour on the western edge of the study corridor (WSMR 1518), (NGR 411437 256519).

6.1.2 Field Survey Results

Fieldwalking produced only two undetermined knapped flints within plot 33 (NAL plot 32) although less than half of the fields were arable and therefore available for walking.

6.2 Romano-British (AD 43-410)

6.2.1 Desk-Based Assessment

Over most of England, the Roman invasion was followed by a rapid implementation of centralised administration based on towns and supported by a network of roads. Road networks had previously been little more than tracks formed by the feet of people and livestock. Roman army engineers built more substantial roads with metalled and cambered surfaces, to expedite the movement of soldiers, food and equipment. Naturally these roads were also exploited as trade and communication routes. The Fosse Way and Ryknild Street pass through Warwickshire, with smaller roads linking them together. Well established prehistoric trackways, such as the Jurassic Way in the south east of the county, continued to be used.

The *Dobunni*, whose territory included present day Warwickshire, and the *Atrebates*, from the Thames Valley, allied themselves with the Romans and welcomed the invasion of 43 AD which brought defeat to their enemies, the *Catuvellauni*. By 47 AD the Romans had occupied southern Britain. The construction of the Fosse Way, which runs along the Jurassic escarpment through eastern Warwickshire, established a temporary frontier from which they continued their advance northwards until they had to retreat and reorganize after the Boudiccan revolt of 60 AD.

By 75 AD Warwickshire had been given over to civilian rule, but the earlier years of intense military activity resulted in a large number of forts being built in the area, with examples at Orchard Hill near Stratford, Budbrooke near Warwick, and on Ryknild Street south of Alcester (Slater 1997).

Throughout Roman Britain, most of the population lived in farmsteads and small hamlets, where the round house, usually surrounded by rectangular ditched and banked enclosures, remained the principal structure. The countryside of Warwickshire reflected this trend and the region lacked the large villa estates seen in the more favoured Cotswolds to the south. The few examples of Roman farmhouses that exist in the county are small, square in plan and timber framed. A farming village of this type existed at Tiddington, near Stratford. Cultivation of clay soils became more widespread with the introduction of the heavier Roman plough. Arable farming with summer pastured livestock continued much as it had during the Late Iron Age.

The largest settlement of Roman Warwickshire was the market town of Alcester. It had a small, walled centre with large, well appointed merchants' houses. Outside the walls was an extensive industrial area producing metalwork and pottery and there were large cemeteries on the perimeter of the town (Slater 1997).

Mancetter was at the centre of Warwickshire's main pottery producing area, with smaller kilns at Fenny Compton and Perry Barr. The Mancetter area also produced coal which was distributed throughout the Midlands. Clay tiles, used for roofing and hypocaust pillars were a Roman innovation. The raw materials needed, sand, water, clay, and charcoal for fuel, were readily available around the north side of the Avon Valley where the tile factories were situated.

The Roman Empire was in decline by the late fourth century. The last consignment of bronze coins from Rome was sent to Britain in 402 AD and five years later the Roman army left Britain. By 411 AD, all supply of coinage had ceased and Britain was no longer part of the Roman Empire.

Roman pottery was discovered in a pit and a ditch during excavations at Coughton Court and sufficient residual material was found to indicate the presence of a Roman settlement very close by (Evans 1991).

The region through which the pipeline passes was moderately densely settled in the Roman period. As a consequence, Roman occupation in the form of villas, settlements or farmsteads can be anticipated throughout the study corridor. Areas of particular potential along the proposed pipeline route include north east of Alcester, south east of Long Marston (WSMR 9139), (415975 247959), south west of Haselor, and west of the River Arrow near King's Coughton where cropmarks indicate the location of a substantial rectilinear enclosure (WSMR 4646) (NGR 408580 259767).

One Roman road (WSMR 4757), (NGR 413748 256213) is crossed by the proposed pipeline route south of Haselor. The precise course of this road across the study corridor is not known. There is a potential for the discovery of the *fosse* and *agger* (roadside ditches and road makeup). Roman roads often attracted settlement and burial, for instance a possible Roman temple site (WSMR 1518), (NGR 411437 256519) is located next to the purported course of the Roman road approximately one kilometre west of the point where it is to be crossed by the pipeline. Ryknild Street Roman road (WSMR 445), (NGR 407588 262495) lies on the west side of King's Coughton AGI.

6.2.2 Field Survey Results

The fieldwalking was limited as more than half of the route lay beneath pasture. However, six sherds of Romano-British pottery were identified from four plots along the route (Plots 5, 24, 25 and 67 – NAL Plots 5, 23, 24 and 25).

6.3 Medieval

6.3.1 Desk-Based Assessment

Early Medieval *(AD 410 - 1066)*
The Saxon period was one of great instability. Roman rule and authority in Britain began to disintegrate long before the departure of the last Roman troops in AD 410. The effects of the breakdown were exacerbated by internecine fighting and Saxon raids from abroad. British leaders hired Saxon mercenaries to protect them against other, raiding Saxons. In return they were allowed to settle and given land. There is archaeological evidence for Germanic or Saxon people living in Warwickshire before the end of Roman rule around the strategic river crossings of Stratford and Bidford-on-Avon.

After the end of Roman rule, the system of administration rapidly broke down. Towns, the centres of administration, were abandoned, the economy stagnated, coins stopped circulating and much of the Roman infrastructure ceased to be used. By the mid-fifth century AD the Saxon mercenaries had been joined by a large number of settlers and had become farmers. South and south-east Britain were brought under Anglo-Saxon control during the later fifth and sixth centuries.

Archaeological evidence indicates that Warwickshire was settled by two main groups of Saxons. The West Saxons came up the Thames Valley to occupy the lower Avon and Severn valleys; this became part of the territory of the South Mercians. The Anglians came via the Wash and the Nene Valley to occupy the upper Avon Valley and north Warwickshire, which became part of the Kingdom of the *Hwicce*. Tribal sub-territories existed within these kingdoms. The *Stoppingas* occupied the Arrow-Alne valleys and the Stratford area. By the seventh century the Mercians, under King Penda, had absorbed the *Hwicce*.

Penda died as the last heathen king of Mercia in 654 AD. His Christian successors established a Mercian bishopric at Lichfield and a *Hwiccean* bishopric at Worcester. The diocesan boundary reflected the political landscape, running from Tanworth in Arden to Tysoe, with the Mercians to the north east and the *Hwicce* to the south west. Minster churches with their own estates were established at Stratford and elsewhere. Part of the church at Wootton Wawen survives. By the eleventh century building of churches had come under the patronage of the nobility giving rise to a system of parish churches by the twelfth century.

Early Saxon cremation ritual was gradually replaced by burial with grave goods. Examples of Saxon cremation cemeteries in Warwickshire include those at Baggington, Tiddington and Marston. Burials with grave goods of the Anglian tradition were excavated at Emscote, Longbridge and Alveston and those of the West Saxon tradition at Bidford.

Mercian power began to wane after King Offa's death in 796 AD. Danish raids increased throughout the ninth century. By 874 AD most of Mercia had been ceded to the Danes. A series of battles and skirmishes culminated in a treaty of 877 AD which divided Britain into Saxon and Danish territories. Warwickshire lay outside the Danish territory or *Danelaw*, the boundary of which lay along Watling Street. A series of fortresses or *burhs* was built at strategic points throughout the Saxon kingdom of Mercia, including Warwick, in order to maintain peace. A second Danish invasion in the early eleventh

century put a Danish king on the throne, and finally brought Danish and Saxon England under one rule. Warwick was sacked and many villages burned. Warwickshire was created from the subsequent Mercian reorganisation.

In the middle or late Saxon period, small fields were replaced by large, open fields, divided into strips. This was in response to population growth and increasing arable land requirements. Warwickshire reflected this trend, with a communal farming system based on villages. Stratford was one such example, with barley, rye and beans being grown there (Slater 1997).

Although it is not recorded before 1235, the placename Walcot (*Walcote)* is an ancient derivation meaning 'cottages of the Britons'. It is formed from the Old English words *cot(e)* and *wealh* (Welshmen or Britons) and draws a distinction between the incoming Angles and Saxon and the native British.

Many placenames in the study area are known from 8th century documents. Kinwarton was recorded in 714 as *Kineuuarton.* It means 'Cyneweard's farm'. Westgrove Wood was known as *Westgraf* in 704-9. The name refers to its position in relation to Stratford (Gover et al 1936).

Quinton, recorded as *Quentone* in 848 derives from the Old English *cwen + tun*, meaning 'the queen's farmstead or estate' and indicating royal ownership during the late Saxon period. Temple Grafton was known simply as *Greftone* in the 10th century It means 'farmstead by the pit or trench'. The affix *Temple* is a medieval addition referring to possession by Knights Templars or Hospitallers and is not recorded until 1363 (Mills 1996).

West Grove, to the west of Red Hill Wood in Haselor parish, may be the *westgraf* mentioned in an early 8th century boundary record (Salzman 1945).

Old English personal names also feature in placenames such as Dorsington (recorded in 1060 as *Dorsitune*: *Deorsige's tun* or farmstead), Braggington (*Bracca's tun*), Oversley (*Ofer's leah* or forest clearing), Binton (recorded as *Bynningtun* c.1005: estate of a man called *Bynna*) and Bickmarsh (*Bicca's* marsh). The marsh to which this refers may be the same area recorded in the placename *Merstuna* (Long Marston) in 1043. Long Marston was formerly known as Dry Marston or Marston Sicca and denotes a 'farmstead near a marsh' (Mills 1996).

Barlichway hundred was formed from the smaller hundreds of Ferncumbe and Pathlow in the twelfth century. First recorded as *Barlicheweihund* in 1174, the name is an Old English formation meaning 'barley way' or 'the road along which barley was carried' (*baerlic weg*). The hundred meeting place was near Barley Leys (Gover et al 1936).

King *Kenred* of Mercia gave Binton manor and land in Kinwarton to the church of Evesham in 708 and in *c.*709, an ecclesiastical council was held at 'the celebrated place called Alne' (probably Alcester) to consecrate the foundation of Evesham Abbey by *Ecgwin*, Bishop of Worcester. The chronicles of Evesham Abbey contain a spurious charter of 710 AD which records that *King Ceolred* gave lands in Binton, Exhall, Arrow and Grafton to the abbey. The Evesham Chronicle of *c.*1125 claims that *Ecgwin's* preaching to the people of Alcester was drowned out by the hammering of the town's smiths. *Ecgwin* therefore invoked Divine retribution in the form of an earthquake which

swallowed up both town and smiths. The site of the town was then given to Evesham Abbey. A 15th century legend tells a similar story relating to St. Chad. The Mercian king *Cenwulf* gave land in Great Alne to his new abbey at Winchcombe in Gloucestershire in *c.*809. Bickmarsh was given by *King Edgar* to his thegn *Brihtnoth* in 967 (Salzman 1945).

The road leading from the B4089 to Coughton Fields is believed to have been a Saxon highway (Saville 1985).

Several burials were discovered by quarrymen at the north end of Binton village in 1856 (MON 331044), (NGR 413900 254500). There were no accompanying grave goods and the skeletons were aligned east-west, which suggests they were Christian. The group is believed to date from the early medieval period.

An Anglo-Saxon disc brooch was discovered outside the study corridor to the south west of Kinwarton (MON 330947), (NGR 410100 258000). Brooches are commonly found in pagan burials, but it is uncertain whether this is a stray loss or representative of a cemetery in the area.

Placename evidence and charters dating from the early 8th century onwards suggest there was settlement throughout the study corridor in the early medieval period, but only Kinwarton has recorded remains. This is due to a combination of factors, notably the lack of development, the limited amount of field survey, the fragility of Saxon material culture and difficulties of identification. Many of the villages and DMVs in the study area have Old English names, but physical traces of Saxon settlement are apparently scarce.

It is suggested that there may be a Saxon cemetery (WSMR 1562), (NGR 410521 258379) to the south of Kinwarton church because some skeletons found in the churchyard were not oriented east-west. This could imply that they are pagan, which in turn could indicate a Saxon date. Although a pagan Saxon origin is proposed, there is no evidence of grave goods associated with the burials. However, the lost swords (WSMR 1563), (NGR 410600 258300) and pottery (WSMR 6330) found nearby in the rectory garden were said to be of Roman *or Saxon* date.

Roman roads such as Ryknild Street and the A46 evidently continued in use throughout the Saxon period, though others may have fallen into disrepair and disuse. The early medieval saltway known as *Sealt Stret* (WSMR 8217) (NGR 416549 254754) from Droitwich ran between Bishopton and Salford, following the course of the present B439 across the pipeline corridor.

Some of the parish boundaries within the study corridor are also potentially Saxon.

Medieval *(AD 1066 - 1540)*
There was little resistance in Warwickshire to the conquering Normans, but unrest in York persuaded William to march north, building large motte and bailey castles at Warwick and Nottingham en route. In 1085, having gained control over the northern counties, William instigated a survey of his new possessions. The resulting ‘Domesday Book’ of 1086 divided Warwickshire into ten tax paying districts or ‘hundreds’. These were streamlined into four hundreds in the later medieval period (Slater 1997). Lands

were measured in *hides*. The area of a hide could vary from 60 to 180 acres, but each hide was considered sufficient to support one family (Saville 1985).

The Domesday Survey documents many of the villages in the study area. It provides our earliest record of some settlements, including Upton (*Optone)* which is an Old English derivation meaning 'upper farm', Oversley (*Oveslei)*, Welford-on-Avon (*Welleford*) or 'ford by the springs', King's Coughton (*Coctune*) from the Old English *cocc* (hillock)+ *tun* (farmstead) and Haselor (*Haseloue*) 'the hill where hazels grow'. The manor of Alcester was not mentioned in the Domesday Book, but later evidence shows it belonged to the Crown from an early date (Salzman 1945).

At Domesday, Oversley manor was held by the Count of Meulan, who later became the Earl of Leicester. The manor belonged to the honour of Leicester throughout the Middle Ages. It passed to one of the earl's officials, *Ralph le Boteler,* in the twelfth century. *Ralph* is believed to have built 'Botelers Castle' and, with the earl, founded the monastery of Alcester, endowing it with lands in Oversley. Bordesley Abbey acquired lands in Oversley in the twelfth century. The *Botelers* of Oversley also held the manor of Upton in Haselor (*ibid*.).

The manors of Bickmarsh and Dorsington lay in the parish of Welford on Avon in Kington hundred. By 1086, Bickmarsh was held by *Edith* under the title, 'The King's Alms'for the 5 hides in Warwickshire and 'The Lands of the King's Thegns' for the hide that lay in Gloucestershire. A hide of land in 'Little Dorsington' was in the hands of *Stephen the Steersman* at this time. This estate lay at the western edge of Welford on Avon, at the boundary with Dorsington and Bidford parishes.

The bishops of Chester, Worcester, Bayeux and Coutances all held land in Warwickshire. The Bishop of Worcester's estate, centred on the valuable lands of the Avon valley around Stratford, was the most significant. Three distinct farming regions have been identified from the Domesday Survey of Warwickshire. The Feldon region, in the south east of the county was the most populous and intensively cultivated, while the north-west was well wooded and sparsely populated. The study area lies in the third region and includes the middle Avon terrace belt, east of Bidford, which was as prosperous, intensively cultivated and populous as the Feldon, with recorded population densities as high as a dozen adults per square mile. In the Arrow and Alne valleys and the upper Avon there was much more woodland and population densities of 6 to 8 per square mile. The settlement at Arrow, to the west of the pipeline corridor, was typical of the area, having 7 plough lands but only 6 plough teams, which meant that there was spare land available to be brought into cultivation if required (Slater 1997). Within the study area, the Domesday Survey reveals large variations in land use between parishes: Kinwarton had little or no woodland or waste, whereas Great Alne and Haselor were still well wooded (Saville 1985).

By 1086, Arrow and Binton were held by *Odo*, the Bishop of Bayeux. Arrow manor contained a mill, 30 acres of meadow and some woodland. Domesday mentions two mills in Binton but by the 13th century only the mill at Binton Bridge remained. This mill was granted to Bordesley Abbey in 1215 but has now disappeared. The manor of Haselor was held by *Nicholas the Crossbowman* at Domesday, but had passed to *Robert de Haselor* by 1235. *Robert* gave land and a mill in Haselor to the Prioress of Cookhill in Worcestershire. The medieval mill of Alcester stood on the River Arrow close to the abbey and Alne Mill, to the south of Great Alne village, is probably on the same site as

the mill mentioned in the Domesday Book. Hoo Mill, on the Alne, is first mentioned by name in 1609 but there was a mill in Haselor manor at Domesday and a watermill was recorded in the manor in 1315 (Salzman 1945).

By about 1215, the smaller motte and bailey castles had largely been abandoned in favour of moated homesteads. There are hundreds of moated sites in Warwickshire. A few, like Beauchamp's Court (built in 1340) and Ragley (built in 1381), were the fortified mansions of minor aristocrats, but most were ordinary farmsteads. As well as being something of a status symbol, the moat provided protection from marauders and a well drained farmyard. Wet moats could be used as a fishponds, swanneries or duckponds. Moats fell from favour after *c.*1450 and many sites were abandoned for new stone or timber houses nearby. The moats may have continued in use as fishponds but eventually many were drained. This change in fashion is seen at Coughton Court, which was built early in the 15th century. The house was substantially altered and extended in the 16th century and the moat was backfilled (Slater 1997). The moat that surrounded Kinwarton Manor House was probably much older than the now-vanished Tudor building (Saville 1985). The dovecote that stands outside the moated area dates from the 14th century and is mentioned in a grant of 1345-67 (*ibid*.).

There were marl-pits in Coughton parish in the Middle Ages and the district was subject to floods. There were hamlets to the south-east and south-west of the church (SAM 30030), (408149 260507). The settlement at Coughton Court developed at the crossroads of Ryknild Street and Coughton Lane at the edge of the Royal Forest of Arden, known locally as *Feckenham Forest*, on an acknowledged route through the forest. A gate into the forest stood near the crossroads (*ibid*.).

Travellers entering or leaving the Feckenham Forest traditionally offered prayers at a cross at the Coughton Lane crossroads. The stump of the medieval stone cross remains (SAM 30030), (NGR 408149 260507). A socket stone for a cross is also reputed to have been found south east of the church in Temple Grafton (MON 331059), (NGR 412380 254860). Standing crosses were mostly erected between the mid 10th and 16th centuries. Those in churchyards provided stations for outdoor processions and elsewhere they were used to define boundaries, rights of sanctuary, markets and places for public proclamation, penance and preaching. Some crosses commemorated saints or battles. There were probably more than 12,000 standing crosses throughout England, but many were destroyed by iconoclasts 16th and 17th centuries and now less than 2,000 remain.

The Knights Hospitallers held a ‘chapel and camera’ in Temple Grafton. This was first recorded in 1189 and last mentioned in 1604 (MON 331074), (NGR 412300 254800). It is thought that the chapel may have stood on the site of the 19th century parish church (MON 331068), (NGR 412360 254860). A church at Grafton is documented in the Domesday Book and was owned by the Hospitallers in 1277. A watching brief (Coutts 1999) was carried out during the construction of a small extension at Croft Lane, Temple Grafton (NGR 41228 25485) in 1999 because of the possibility of encountering remains associated with the Knights Hospitallers' chapel (MON 331074), (NGR 412300 254800). Only modern bricks and service trenches were found.

The road leading north-west towards Hoo Mill from the A46 is of ancient origin. It was known as *Trench Lane* in 1280 and formed the boundary of Haselor parish (Salzman 1945). The B4089, which leads to the 13th century *Gunnings Bridge* in Alcester, is also thought to be medieval in origin (Saville 1985). The A46 was used as a salt way in the

Middle Ages and there was a salt pan attached to Haselor manor in 1086. The manor of Hillborough in Temple Grafton also had salt rights at Droitwich attached to it and the riverside path from Hillborough to Bidford may be a survival of another salt way. The field names *Great* and *Little Salters Piece* occur south east of the junction of the A46 and the Haselor to Temple Grafton road, prompting the suggestion that the Temple Grafton road was another branch of the salt way, probably continuing to Hillborough. *Salters Lane* was mentioned in the Haselor enclosure award of 1767 (Salzman 1945).

Political stability during the thirteenth and fourteenth centuries encouraged prosperity and population growth. This led to the rapid development of markets and boroughs. Towns provided the ruling class with tenement rents and market tolls. At Domesday, Warwickshire's main centres were at Tamworth and Warwick, but Stratford developed as an important trading centre in the later medieval period.

Villagers farmed large open fields which were divided into strips. In the townships of south Warwickshire strips were often separated by a strip of grass a yard or more wide or sometimes by a deep furrow. The strips were grouped into rectangular furlongs and arranged so that the furrows drained down the slope. The two-field system is thought to be the oldest form of open field cultivation. In south Warwickshire it was used until the 14th or 15th century, but population pressure resulted in the two fields being divided into four or more. By the 16th century many townships in the middle Avon valley had five to eight fields (Slater 1997). Many common fields were established in the Middle Ages. People with common rights could graze their livestock on this land in the periods between harvesting and sowing.

In the medieval period, King's Coughton had its own open fields, separate from those of Alcester. Parts of these are believed to have been enclosed as early as the 16th century (Booth & Parkinson 1993). Excavations at Kings Court revealed early ploughsoils, one of which produced two coarse potsherds of the twelfth to thirteenth centuries (*ibid*.). As late as 1752, most of Kinwarton parish was still cultivated on the strip system, with six open fields, and a map of 1834 shows parts of Great Alne's open fields still divided into strips. Temple Grafton, Exhall and Ardens Grafton each had four fields.

It is thought that Exhall manor was allocated to various freeholders in the 13th century, resulting in a confusion of civil, ecclesiastical and manorial boundaries. The process of enclosure in Haselor parish also began at an early date; in 1241, the parson was permitted to 'inclose his portion with heaps and ditches and to better it in any way'. Sir George Throckmorton made his boundary inclosure around Great Alne lordship with 'quyckset hedge & dyche' in 1532-3. There is also evidence of enclosures in Great Alne as early as the 13th century and, in a statement of recent enclosures dated 1552, three areas in the parish are mentioned as having been enclosed in 'tyme out of mynde' (Salzman 1945).

Medieval field systems can be preserved as earthworks or be traceable in soilmarks or cropmarks. Areas of ridge and furrow can be seen in aerial photographs of the study area. A number of known, undated earthwork and cropmark sites of field systems, field boundaries and trackways may also be medieval.

The sites of shrunken and deserted Medieval villages are scattered throughout the region. Throughout England, recurrent poor harvests and plagues curbed population growth at the beginning of the fourteenth century and in 1348-9 the Black Death

reduced the number of people in many settlements by a third or more. Farm holdings, particularly on marginal land, were being abandoned even before the plague struck, but the process accelerated as the population dwindled. In most villages, land came back into use within a generation, but it was held on easier terms and exploited differently. Often, uncultivated land that had reverted to rough pasture was used to graze large flocks of sheep. By the 1480s, the population had substantially recovered and wool prices were outstripping corn prices. For those rich enough to make the investment, pastoralism became very profitable. This led to many areas being turned over to pasture and drove out peasant farmers by depriving them of land on which to grow food (Slater 1997).

Many farmers who made their fortunes from sheep or cattle sought to demonstrate their improved status by building a mansion house and laying out a deer park around it. This imparking of common land provided yet another catalyst for village desertion (Slater 1997). In the mid 16th century, Sir Fulke Greville converted a large part of Alcester Heath (to the north of Alcester) into a park. Its position is now marked by Alcester Park Farm, approximately a mile west of the study area. Coughton Park was enclosed by Robert Throckmorton in 1486 and another 18 acres at Coughton were imparked in 1525.

In 1486, the priest and historian, John Rous, railed against, 'the modern destruction of villages' and listed 60 places in the Warwick region that had been 'destroyed' due to the process of enclosure. The situation became so serious that in 1489 the government passed an 'Act against the pulling down of towns' and in 1515 ordered all lands converted to grass since 1488 to be returned to tillage (Slater 1997).

Many of the parishes crossed by the pipeline have documentary evidence of Saxon settlement, and the six parish boundaries crossed, are all potentially Saxon. However, as Saxon sites are typically located away from contemporary areas of settlement, their locations are notoriously difficult to predict. Saxon burials, in the form of family or community cemeteries are unlikely to be located close to their associated settlements, and may be focussed along ridge tops. There is a potential for Saxon settlement and burial in the vicinity of Kinwarton, where burial remains (WBSMR 1562) are suggested to be Saxon.

There is also a potential for Saxon activity alongside the early medieval saltway known as *Sealt Stret* (WSMR 8217) which crosses the study corridor.

The pipeline has been routed to avoid existing built-up areas many of which have their origins in the medieval period.

The present-day field systems along the proposed pipeline appear to incorporate an extensive medieval element shown by the surviving areas of ridge and furrow earthworks.

6.3.2 The Field Surveys

The field reconnaissance and geophysical surveys produced evidence of at least fourteen areas of extant and infilled ridge and furrow field systems (NAL, Report 185).

The limited fieldwalking due to the high amount of pasture along the route produced at least fourteen medieval pottery sherds. No main concentrations were identified the pottery almost certainly being a by-product of medieval manuring practices.

6.4 Post-Medieval (AD 1540 - 1939)

6.4.1 Desk-Based Assessment

The introduction of new farming methods in the eighteenth and nineteenth centuries was necessary to feed the growing populations of England's towns and cities. In Warwickshire, many field drains were laid in the period between 1790 and 1830. They consisted of trenches filled with furze (gorse) or small stones, covered with flags or turf. After 1815, when the duty on them was lifted, tiles were often used as a covering (Rowlands 1987).

Enclosure of common lands continued as new farming techniques required land to be reorganised, and greatly changed the appearance of the countryside, creating the small geometrically shaped fields we see today.

In the Avon valley parishes of Bidford, Great Alne and Temple Grafton, there was a great deal of piecemeal enclosure between 1750 and 1780, much of it by groups of freeholders. After 1780, rising land prices encouraged wealthier landlords to enclose large, populous parishes which had previously been left alone to avoid stirring up local resistance (Rowlands 1987).

By the time of the enclosure award of 1771, much of Alcester parish had already been enclosed (Salzman 1945) and Binton parish was enclosed in 1779. A 1754 estate map of Kinwarton shows a series of irregular closes on land which was once open field. Some of these enclosures took place in 1638 and 1641, but there is some suggestion that others occurred in the Tudor period. The final Act of enclosure of Kinwarton was made in 1803. The rearrangement resulted in the removal of three farmhouses and the building of two more on the west side of the parish (Saville 1985).

Rivers had long played a significant role in the district's transport system. The Avon was made navigable as far as Stratford, so from the 1660s coal was brought upstream from Bristol and malt and agricultural produce sent back downstream (Rowlands 1987). A wharf stood near the bridge across the Avon at Binton until the river ceased to be navigable (Salzman 1945). There were seasonal changes in water levels in parts of the study area. Long Marston was sometimes known as *Dry Marston* or *Marston Sicca*, due to the scarcity of water there in summer, 'though in Winter it sometimes looks like an island, being overflow'd on all sides by 2 Currents' (Atkyns 1712).

Improvements in communications took place in the eighteenth and nineteenth centuries. The first railways were built across the region, new roads laid out and old ones improved. Relatively minor roads were the last to be turnpiked. The B4089, for example, was not turnpiked by the Alcester-Wootton Wawen Trust until 1814 (Saville 1985). Alcester was an important stopping point on the coach route from London to

Shrewsbury and Holyhead until the mid 19th century, but coaching declined with the opening of the Evesham to Redditch railway in 1866 and the Great Western Railway line from Bearley in 1876. The L.M.S. railway from Stratford to Broom Junction crossed the study corridor just south of the A436 Stratford to Bidford road but is now dismantled (Salzman 1945).

Exhall village was not approachable from either Stratford or Warwick until the 18th century, hence its traditional name ‘Dodging Exhall’. The 1767 enclosure map shows the road through the village running north east by Alcock's Arbour to Haselor. The road is now faintly traceable across the fields, but was marked on maps until 1841 (Salzman 1945).

By the 17th century Haselor was predominantly a village of yeoman and freeholders, a circumstance reflected by the number of large timber-framed farmhouses surviving there. In Binton the cottages are built of local lias stone or timber-framed, occasionally with crucks. Many of the old houses in Coughton were demolished in the late 19th century.

Wool was an important commodity and weaving flourished in Alcester during the post medieval period. A quarter of the Hearth Tax returns for 1663 came from cloth trade workers and in 1633-45 the town was described as ‘consisting of knitters’.

Much of Alcester's prosperity derived from its location at the centre of a corn-growing district. It was noted as a very good market for corn in 1746 and malting was an important industry in the town, with seven kilns operating during the 19th century. Glove, nail and gun manufacture also contributed to the local economy in the 17th and 18th centuries.

A fishery in the River Arrow was held with the site of the chief manor of Haselor in 1545 and there was also a fishery in Upton manor recorded in 1589. Fish-hooks and needles were manufactured in Binton in the 19th century and needle-making was recorded in Alcester in 1678 and by the early 19th century over 500 people were involved in the industry.

In 1618, stone for Alcester's market hall was brought from a quarry in Great Alne, and in the late 19th century there were important stone quarries at Binton and Temple Grafton. Stone and slates from Temple Grafton were used in Stratford in the early 15th century and by the mid 19th century nearly a third of Grafton's householders were employed as masons or quarrymen. A close named ‘Brick kiln ground’ in the western part of Kinwarton parish suggests that there was temporary clay-mining there in the 19th century (Saville 1985).

Welford on Avon parish was originally partly in Gloucestershire and partly in Warwickshire. In 1894 the Warwickshire portion was constituted the distinct parish of Bickmarsh. In 1931 the parishes of Dorsington and Welford on Avon were transferred from Gloucestershire to Warwickshire, while Bickmarsh was divided between Dorsington and Pebworth (in Worcestershire).

As the industrial revolution had little immediate effect on this part of Warwickshire, economic activities remained focused on agriculture and its associated trades, most of

which were undertaken in established towns and villages, which are avoided by the proposed pipeline.

6.4.2 Field Surveys

The pre-construction field survey produced Post-Medieval pottery sherds, many redundant field boundaries and drainage features (NAL Report 185).

6.5 Modern (1939 onwards)

6.5.1 Desk-Based Assessment

The population of the West Midlands has risen from *c.*600,000 in the early nineteenth century to *c.*4 million in the present day. Industry is centered on Birmingham and Coventry. There is little rural industry, with a large number of people now working in service industries and tourism. The villages and small towns of the Warwickshire countryside are now largely commuter dormitories. The busy arterial roads radiating from larger towns, such as Stratford, have been upgraded to replace a once extensive railway network. WW2 defences and airfields, such as Long Marston are found throughout the county.

6.5.2 Field Surveys

The pre-construction field survey produced Modern pottery sherds, many redundant field boundaries and drainage features (NAL Report 185).

6.6 Undated

The Desk-Based Assessment produced sites, in particular cropmark sites, that could not be allocated a date. Field reconnaissance and geophysical survey similarly produced evidence which could not be securely dated.

7. WATCHING BRIEF AND EXCAVATION RESULTS

7.1 General

A total of fourteen sites of varying date and form were recorded along the pipeline from the excavation of areas identified during the evaluation and from the construction watching brief (Figure 1). These range in type from isolated pits and ditches to small scale settlements and field systems. The sites are discussed by period, in chronological order, and where they are of a multi-period nature, they are discussed under the heading of the main period represented at the site. All relevant pre-construction survey results and Warwickshire Sites and Monuments Record (WSMR) references have been included. The locations of Sites 1-14 can be found on the Site Gazetteer Maps along with locations of field boundaries and ridge and furrow recorded during the Watching Brief (Site Gazetteer Maps 1-14 chapter 11). A summary of finds can be found in Appendix 3 and in table form at the beginning of each site narrative.

7.2 Prehistoric

The archaeological Watching Brief and Excavations produced:

- Site 2a Pits- 'Burnt Mound Type Deposits', Church Farm, King's Coughton
- Sites 10a & 10b Burnt Mounds, River Avon, Welford-on-Avon
- Site 14 Pits, Long Marston

7.2.1 Site 2a Burnt Mound Type Deposits

Section 0, Plots 3-5, Church Farm, King's Coughton Welford-on-Avon, NGR 408740 259750

Summary

In addition to the palaeo-environmental samples (see Section 7.7 below) there were a number of small, shallow features sealed beneath alluvial layers, including one with a fill containing fire-shattered river pebbles. This may have been the remains of a prehistoric 'burnt mound'.

Location and Topography

The pipeline crossed the River Arrow 700m northeast of the Kings Court Hotel on the A435(T) Birmingham Road 1.5km beyond the roundabout marking the north end of the Alcester By-Pass. The crossing was 200m to the west of Church Farm, and 150m to the southeast of Site 1 (Site Gazetteer Map 1).

Geology and Soils

The floodplain of the Arrow has varying depths of alluvium overlying river gravels. The underlying 'solid' geology consists of Triassic deposits of the Mercian Mudstone Group. Red clay soil affected by seasonally flooding has developed over the alluvium (see Section 3.6 above).

Pre-Construction Background

The floodplain extended over Plots 03, 04 and part of 05. Apart from the potential for archaeological deposits beneath buried alluvium, the ADBA did not highlight any sites in these three fields. The Geophysical Survey detected two groups of isolated magnetic

anomalies (FSU:017 and FSU:018) near the River Arrow in Plot 03. These were thought to be natural silted hollows and there was a low level of confidence regarding their archaeological significance.

Excavation Methodology
Nothing of archaeological significance was noted during the Watching Brief on topsoil stripping. A number of features masked by superficial deposits were recorded in section when the pipe-trench was excavated.

Table 5: Site 2a - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Animal Bone*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		*46 Arrow 6 Arrow 7*
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*	*48*	*0*	*0*		

Results
During the Watching Brief on the pipe-trench excavation, a series of small pits were noted towards the west side of Plot 03. The largest of these 300 was seen centred at NGR 408670 259825 (Plate 3). It was sealed by a thick layer of reddish brown silty clay and a thinner pale grey mottled silt layer. In section it was up to 1.50m wide and at least 20cm deep. Its fill consisted largely of fire-shattered river pebbles in a matrix of very dark grey silty clay, with frequent charcoal inclusions. A small pit 303 recorded in the other side of the pipe-trench was probably the same feature.

The other features extended over a distance of 28m in the side of the pipe-trench (see Figure 13, section 7.7.1 below). Most were irregular, bowl-shaped depressions and were interpreted as tree-throws or areas of root disturbance, including 201, 304, 305, 306 and 308. Two of these features 302 and 307 contained heat-shattered flint, typical of burnt-mound material, while four 301, 302,303 and 304 produced flint flakes including one from 304 which had a retouched edge. Column samples were taken from features 306 and 305 by James Rackham for possible palaeo-environmental analysis.

Unstratified finds from the same plot included two pieces of late Neolithic flint including a core flake, and two sherds of post-medieval pottery.

Discussion
The fire-shattered pebbles in the fill of Pit 300 suggest that this fill derived from a burnt mound-type feature. Though of common occurrence, burnt mounds are not well understood. They are generally assumed to be of prehistoric date, and are perhaps particularly characteristic of the Bronze Age. The pit was sealed by thick alluvial layers adding credence to its prehistoric provenance, and the flint finds from the field were very broadly compatible with this dating. Collapse of the side of the pipe-trench unfortunately made further investigation impossible.

Plate 3: Site 2a Deposits within River Arrow Floodplain

7.2.2 Sites 10a & 10b Prehistoric Burnt Mounds

Section 6, Plots 56-57, River Avon, Welford-on-Avon, NGR 413000 251550

Summary

Background activity at the site has taken place since the late Mesolithic. Direct use of the site is confirmed by at least one burnt mound of Bronze Age date. Stones, heated in the mound, may have been transferred to spring fed, water filled pits nearby in order to heat water for an unknown purpose. The spring line and the River Avon, which borders the northern side of Plot 57, may have been important factors in the choice of the site for this activity. The mound(s) have since been slighted, perhaps by later agriculture and general erosion, and re-deposited material from the mound(s) appears to have spread down slope across the site. No significant activity other than agriculture appears to have taken place at the site since the burnt mound(s) fell into disuse.

Introduction

A programme of investigations, including an auger survey, trench evaluation, test pit evaluation, and environmental sampling took place on land to the east of the pipeline centre-line, where a reception pit was to be dug so that the pipeline could be bored under the River Avon (Plates 4-7).

Table 6: Site 10a - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
1	*11*	*1*	*3*	*5*	*16*	*0*	*0*	*6*	*27*	*8*	*88*	*Heat affected stone Animal bone, Lead, Carbonised organic matter*	*4008A - 4008D, 4009A, 4009B' 39 - 44*

Location and Topography

The site is located on a north facing slope on the south bank of the River Avon (*c*. 30m – 35m AOD), about 1.5 km west of the village of Welford-on-Avon and 1.5 km north of Dorsington (Site Gazetteer Map 10, Figure 1).

Geology and Soils

Locally, the geology comprises head, alluvium and river terrace deposits (see Section 3.5 above). Boreholes taken 80m either side of the river Avon recorded alluvium to a depth of 4m on the west and 1.5m on the east side (Exploration Associates 2002). During the watching brief a blue-grey clay, extending to 40m south of the river, was recorded

The topsoil and subsoil shared a slightly clayey, very coarse, silt matrix. The topsoil was mid greyish brown, loose and very friable, and the subsoil was light orange brown to light brown with a small to moderate number of pebbles. These probably correspond to Evesham 2, Bishampton or Fladbury 1 soil types (see Section 3.6 above).

Plate 4: Site 10a Locating the mound

Plate 5: Site 10a Mound Material

Plate 6: Site 10a Mound Material

Plate 7: Planning the Deposits

Pre-Construction Background

The desk based assessment (Network Archaeology Ltd, 2002) found no evidence of archaeology in Plot 57. Two Roman settlement sites, including a scheduled ancient monument (WSMR 155) were located within an 850m radius of the plot. Earthworks of medieval or post medieval ridge and furrow were prevalent in surrounding fields, and there were two deserted medieval settlements within one kilometre of Plot 57. The River Avon, which flows past the north edge of the plot, also represents the Warwickshire and Gloucestershire county boundary.

The geophysical, field walking and field reconnaissance surveys were undertaken along the 40m wide pipeline working width. A low degree of confidence was placed in the archaeological significance of pits or hollows recorded by the geophysical survey of Plot 57 (NAL, Report 185).

An additional, 'land-take' area to the east of the working width and next to the River Avon was required for the excavation of a reception pit and storage of excavated soil. Topsoil stripping for construction revealed what appeared to be a series of six prehistoric pits, including one which was 7m by 4m north to south oriented pit containing shattered burnt pebbles and cobbles reminiscent of pot boilers, and occasional flint flakes. The remains were partially buried under layers of hillwash and alluvial deposits. Excavation of the 'pits' found that they were, in fact, prehistoric burnt mound(s) and spreads of burnt flint. Due to the importance of the findings, an auger survey and a trench evaluation were conducted to establish the extent of the burnt mound area. This was followed by hand dug test pits within the burnt mound area (Figure 2).

Excavation Methodology

Auger Survey
Thirteen hand auger holes were sunk at intervals of 5m or less, along a north to south oriented transect, in order to establish the northern limit of the burnt mound area.

Evaluation Trenches
The westerly extent of the burnt mound area was determined using a mechanical excavator. Three evaluation trenches were excavated using a 1.5m wide, toothless grading bucket. One trench (57.2) was located on the centre line of the pipeline, and another two trenches (57.1 & 57.3) were excavated at right angles to it: Trench 57.1 along the southern, higher break of slope; and Trench 57.3 along the northern, lower break of slope. The trenches were c. 1.5m - 2m wide (Figure 2). Two further hand-dug, exploratory test trenches were opened within the burnt mound area to confirm the results of the auger survey. Trench 57.4, on the lower slope, was irregular but roughly 2.5m long by 2m wide. Trench 57.5, on the upper slope, was 8m long by 0.5m wide. All trenches were taken down to the natural substrates (blue/grey alluvial clays) unless this was found to be deeper than 0.5m.

Test Pits
A baseline was set up close to the southern and eastern extents of the site, on the upper break of the slope. A grid was then marked out at 2m intervals in the burnt mound area and the south east quadrant of each 2m square was hand excavated and recorded. Forty $1m^2$ test pits were excavated in two phases. Twenty-three test pits (1 - 23) were initially

A3 1:250 with border edge

Figure 2: Site 10a, Plan of Burnt Mound with location of test pits (scale 1:250)

excavated in five evenly spaced rows. These test pits were followed by a further seventeen (24 - 40), which targeted:

- anomalies revealed by the initial phase of test pit investigation;
- the areas of thinnest colluvium where archaeology would be more susceptible to damage by plant machinery; and
- the northern, lower break of slope in order to establish whether there was any activity beyond the burnt deposits.

The depth of colluvium at the southern end of the site was thought to be sufficient to protect potential archaeological deposits beneath. It was therefore agreed that no test pits would be excavated within 6m of the base line.

Metal Detector Survey
A local metal-detectorist conducted an informal survey of the excavation and adjacent areas.

Environmental Sampling
A bulk soil sample (40008D, context 5600) of a basal peat layer, and three column samples (4008A-C) were taken from the reception pit on north side of the River Avon. Another bulk sample (40009B, context 5799), associated with the burnt mounds was taken from floodplain on the south side of the River Avon. A further six bulk soil samples (39-44) were taken from five of the test pits (2, 3, 7, 8 & 27). Charcoal found during the excavation of Test Pits 7, 8 and 17 was bagged separately for radiocarbon dating, and two of the samples (from Test Pits 7 & 8) were ultimately chosen for radiocarbon dating.

Results

Watching Brief
The watching brief of topsoil stripping took place along the pipeline working width, within the reception pits on either side of the River Avon, immediately to the west of the burnt mound area, and within the burnt mound area. A deposit, buried by alluvial and colluvial deposits was recorded. The deposit is thought to have been an old ground surface.

A number of artefacts were recovered during the watching brief, including thirty-five knapped flints. None appear to have come from discrete features. Of those flints that could be dated some, including a small serrated blade (2330), were late Mesolithic, and the majority was typical of late Neolithic or early Bronze Age industries. Fifteen of the later pieces came from an alluvial deposit (5799) located in the reception pit on the south side of the River Avon (Appendix 7).

Eighty-five fragments of animal bone were recovered during the watching brief. None appeared to come from discrete features, but had been retrieved from alluvial layers (5794-5799). The bone tended to be rounded or battered, and only two cattle fragments were positively identified. Large mammal was represented by the majority (42 fragments) of the remaining bone. Medium sized mammal was represented by four shaft fragments, and thirty-seven fragments were unidentifiable (Appendix 8).
Pottery recovered during the watching brief included an unstratified Roman sherd and five medieval sherds (Appendix 3). One fragment of unstratified heat affected clay and

nine heat affected stones, five from an occupation layer (5781) and four unstratified, were also recovered (Appendix 11).

Auger Survey
The Auger Survey established that the burnt mound(s) extended northwards, from the field boundary on the south side of the plot for 19-22m. Auger holes (1, 1a, 2 & 3) at the top of the slope at the southern end of plot 57 contained sandy colluvial deposits 0.10m – 0.13m thick. These overlay burnt stone deposits 0.05m – 0.22m thick. The upper deposits within the other nine auger holes, located further down slope, were alluvial and ranged from 0.02m – 0.43m thick. These deposits overlay coarse grey clay silt in all but three of the auger holes (4a, 9 & 10).

Evaluation Trenches
A possible ditch and hedge line were visible in Trench 57.1. Trench 57.2, along the line of the pipe trench, revealed layers of merging colluvium and alluvial deposits, and an east - west oriented hedge line (58003). Trench 57.3 was blank. As the remains in these trenches were of low archaeological importance, they were immediately backfilled.

Trench 57.4 contained what appeared to be a large, possibly sub-circular feature cut into the natural clays. Trench 57.5 contained a burnt stone layer that was virtually uniform in thickness until it began petering out towards a level area to the north. The removal of a thin layer of overlying grey colluvium revealed that the burnt stone layer extended approximately 10m to the east northeast of Trench 57.5. A number of small pottery sherds, one of which was decorated, were recovered from below the colluvium. Water was seen to well up from different parts of Trench 57.5.

It is apparent that two archaeological deposits were predominant within trenches 57.4 and 57.5: A thick layer of burnt stone in a very dark charcoal stained silt clay matrix was present towards the top of the slope on the south side of Plot 57. A thin layer of burnt stone above an almost stone free layer of dark silt clay was present towards the bottom of the slope on the north side of the plot. The clay on the north side of the plot appeared to have been stained by carbonized material leached from the burnt stone layer above.

Test Pits
As observed in the trench evaluation, burnt stone deposits, where present, lay below layers of colluvium or alluvium. Burnt stone deposits were present in twenty-three test pits (Figure 3). In three of these, the deposits were described as ‘burnt mound wash’, indicating that they were thought to be material derived from the erosion of mounds and movement of the material down slope. It is likely that the burnt stone in many more of the pits resulted from this process. The thickness of the burnt stone deposits was variable (0.1 - 0.36m), but appeared to be greatest in a group of adjacent test pits (2, 3, 7, 8 & 13) towards the south west corner of the site (Figure 3). In these test pits the thickness of the burnt stone deposits ranged from 0.22 to 0.36m.

Colluvium and alluvial deposits in the row of test pits (1-4) at the south end of the site were particularly thick (0.32m – 0.43m). Over the rest of the site, colluvium and alluvial deposits ranged from 0.06m to 0.36m in thickness.

Some archaeological features were observed within the test pits. Two features were stratigraphically later than the burnt stone layer, and included a circular pit / post hole (570403) in Test Pit 4, and a roughly north to south oriented gully (571403) in Test Pit

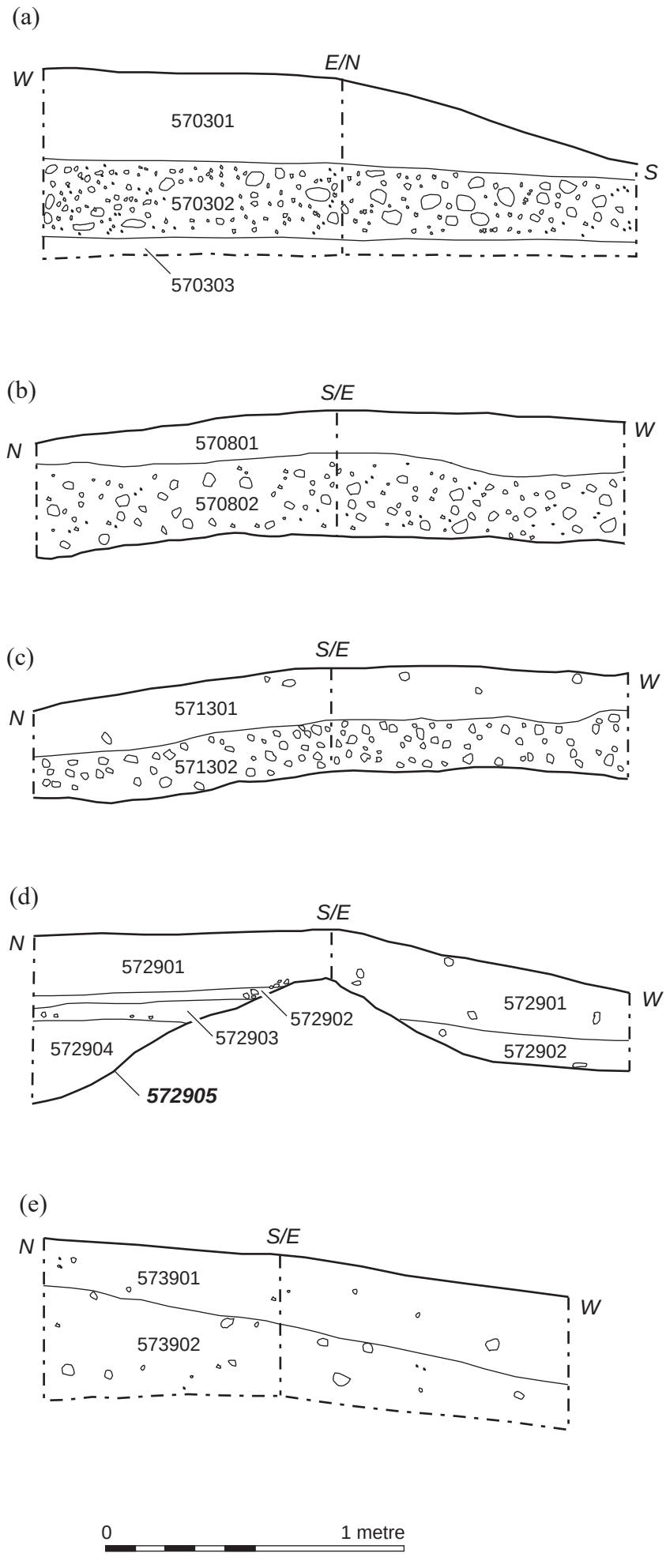


Figure 3: Site 10a Sections of Burnt Mound (1:20)

14. Pit 570403 contained a fragment of burnt clay, and seven further fragments were recovered either from the pit or from the burnt stone layer below. Two features were sealed by and therefore earlier than colluvium. The features included a possible east north-east to west north-west oriented linear feature (571603) in Test Pit 16 and a small, possibly circular, pit-like feature (573503) in Test Pit 35. There were no burnt stone deposits in either of these test pits.

A possible cut (572905) for a pit was seen in the south east corner of Test pit 29. Its fill (572904) appeared to extend into an adjoining test pit (39) to the north east, where it was recorded as 573902. The pit (572905) lay beneath burnt stone deposits and was therefore earlier than the erosion or slighting of the burnt mounds, and it may well have been roughly contemporary with or earlier than the construction of the burnt mounds. A sherd of late Iron Age pottery was found in the colluvium (572902) which overlay the burnt stone deposit.

A gully or pit (574001) in Test Pit 40 contained a dark and stony secondary fill (574002) which appeared to be re-deposited burnt mound material.

Modern land drains were recorded in test pits 12, 16, 17, 31, 32, 33, 34 & 35.

Organic carbonised matter was recovered from three burnt stone contexts. Test Pit 8 (layer 570802) yielded four fragments, and Test Pits 7 and 17 yielded a fragment each (layers 570702 and 571703 respectively).

The upper of two layers of colluvium in Test Pit 20 yielded forty-two fragments of animal bone.

It was noted that a few of the test pits flooded when the upper burnt stone layers were excavated (Test Pits 7 and 8 overflowed). In contrast, adjacent test pits remained relatively dry.

Metal Detector Survey
This produced a whistle top from a kettle, a small piece of slag, a lump of lead and a coin, tentatively dated on site as Roman. On the higher slope a small, undated, iron blade was found. All these were recovered from the colluvium.

Environmental Evidence (Appendix 10)
Fire cracked river pebbles were dominant in all but one of the samples (sample 41, context 570303). Flakes of flint, possibly debitage, were also present in all samples except sample 41. A frog bone was the only animal bone to be recovered from the samples (sample 42, context 570702). Some snail shells were recovered from Test Pit 2 (sample 39), but the number was insufficient to determine the type of environment that had existed at the site. Two of the bulk samples from the test pits contained charred seed remains, including one legume seed (sample 40, context 570302) and a small grass seed of poa (*Poa* sp.) (sample 41). All six samples contained uncharred seeds. Most were probably modern, intrusive weed seeds. The legume could have been a cultivated seed, but is equally likely to have been a weed.
Charred Alder wood from Test Pit 7 (sample 42, context 570702) had a calibrated radiocarbon date of BC 1540 to 1410. The radiocarbon date of Charred Hazel wood from Test Pit 8 (sample 43, context 570802) was calibrated to BC 1440 to 1280.

A sample (40009B) was taken from a layer (5799) recorded during the watching brief of the reception pit on the south side of the River Avon. Several flakes of possible flint debitage and a few fragments of indeterminate bone were recovered from the sample. There were also numerous calcareous concretions and several snail shells including freshwater, damp or shaded ground and open country taxa. The number of shells was not sufficient for meaningful interpretation.

A sample was taken from an organic horizon at the base of a Holocene sediment sequence on the north side of the River Avon was submitted for pollen analysis. Trees formed 10% of the flora identified and included birch, pine and willow. Herbs were present in substantial quantities, with poaceae accounting for 87-89% of the pollen. A small percentage of marsh and aquatic species were also present.

Discussion

Phasing Summary

Artefactual and stratigraphic evidence suggested that there had been six very broad phases of activity at the site:

- **Phase 1:** Late Mesolithic flint
- **Phase 2:** Late Neolithic / early Bronze Age flint & ?old ground surface
- **Phase 3**: Middle Bronze Age burnt mounds, ?pit 572905, pit / post hole (570403), linear feature (571603), pit-like feature (573503), gully or pit (574001) and spring
- **Phase 4:** pit / post hole (570403) & gully (571403)
- **Phase 5:** Late Iron Age & Roman pottery, colluvium and alluvial deposits,
- **Phase 6:** Medieval pottery
- **Phase 7:** Modern land drains

Phases 1 & 2: Late Mesolithic flint & Late Neolithic / early Bronze Age flint and old ground surface (5799)

A small number of late Mesolithic and late Neolithic / early Bronze Age knapped flints were found along the course of the pipeline, within the burnt mound area and within the reception pit on the south bank of the River Avon. None of the flint was found in discrete features. Most was unstratified, or came from alluvial or colluvial deposits which are generally thought to post-date the burnt stone deposits. One core rejuvenation flake came from a possible occupation layer (5781).

Fifteen early Bronze Age flints came from deposit 5799, which was observed in the reception pit on the south side of the river. The deposit was beneath and therefore earlier than the colluvial and alluvial deposits which also post-dated the burnt stone layer (see below). The flint within layer 5799 was not abundant and possibly intrusive, but it suggests that this ancient ground surface is several hundred years earlier than the burnt mound layer. Observation of riverine sediments on the north side of the River Avon did not find evidence of a corresponding ancient ground surface.

Nine pieces of flint were recovered from the test pits, and only two of these were found within the burnt mound layer (576402). Contemporaneity between similarly diagnostic flint from different contexts cannot be assumed. The evidence is therefore insufficient to clarify any potential relationship between the worked flint and the burnt mounds. However, the evidence does signify the activity of late Mesolithic and late Neolithic / early Bronze Age hunters in the area, who may have had short term camps. The evidence suggests that flint working in the area was not of any great intensity or

duration, but use of poor quality flint from secondary deposits and evidence of re-use of previously struck flint indicates that there was pressure on the flint resource.

'The material is broadly comparable to other mixed, predominantly Neolithic-Bronze Age Warwickshire assemblages such as Tiddington, Wasperton and the predominantly Later Neolithic assemblages from the Churchover to Newbold Pacey Gas Pipeline and the Arrow Valley. While all of these assemblages are larger and exhibit greater artefactual variety, they also include scrapers and other retouched material indicative of settlement-related activities' (see Appendix 7). The last remark indicates that the absence of flint scrapers from Plot 57 means that the assemblage in this instance does not represent settlement activity.

Phase 2: Middle Bronze Age burnt mounds, ?pit 572905, gully (571403), linear feature (571603), pit-like feature (573503), gully or pit (574001) and spring
It was apparent that there were two main areas of burnt stone: a thick, carbon-rich deposit on the upper slopes; and a thinner layer, down-slope, which was more soil rich with cleaner burnt stone inclusions and dark charcoal staining beneath. The pattern of distribution suggests a burnt stone mound may actually have been located towards the top of the slope where the deposit was thickest (Test Pits 2, 3, 7, 8, and 13). However, according to the results from analysis of the samples, there was no burnt flint in Test Pit 3, nor was there any flint debitage, which was present in the other four test pit samples (2, 7, 8 & 17). This would suggest that the deposit in Test Pit 3 had been misinterpreted, and it is possible that 'burnt mound' deposits in other test pits have also been misidentified.

Two radiocarbon dates taken from burnt mound material in Test Pits 7 and 8 indicated that the burnt mound layer dated to the middle Bronze Age (Appendix 13). The worked flint from the site was broadly dated to the late Neolithic / early Bronze Age and must therefore be residual.

A spring line was evidenced by the welling up of water in the hand-dug evaluation trench (57.4) and in Test Pits 7 and 8. This could have been a factor in the original location of the site, as it may have provided a more convenient method of collecting water than transporting it from the River Avon.

A number of features were located down-slope from the possible burnt mound, between the River Avon and the apparent spring line. The features were a possible pit (572905), a pit like feature (573503), a gully or pit (574001) and two other linear features (571403 & 571603). Gully / pit 574001 contained re-deposited burnt mound material, and had acted as a receptacle for eroding or dumped burnt mound deposits. Therefore, this feature could have been contemporary with or later than the burnt mounds. It was impossible to provide a relative chronology for the other features, which could have been earlier than, contemporary with, or later than the burnt mound. All of these features lay beneath colluvium, as did the burnt mound.

Some of the thinner burnt stone deposits appeared to lie within these features, suggesting that the material had either been re-deposited through the erosion of the mound further up the slope, or had been placed there intentionally. It has been suggested (James Rackham pers comm) that the density of the matrix of the burnt mound would have prevented the material tumbling or being washed downslope.

If burnt stones were deliberately placed in the pits, it is possible that they acted as ‘tanks’ to catch or hold water, perhaps with a system of gullies to channel the alleged spring water. The stones, which were being heated upslope, could have been transferred to the ‘tanks’ in order to heat the water contained there. This could account for the apparent leaching of charcoal into the material below the thinner stone deposits.

Burnt stones are often found in quantity on prehistoric sites and some may be remnants of burnt mounds. These tend to comprise oval or crescent shaped heaps of burnt stones with a stone lined pit at the centre. Hot stones would be used to heat water in these pits, the sudden temperature change creating their characteristic cracking (Darvill 1987). The mounds are usually located next to water and in Warwickshire are found in the headwaters of streams on the Birmingham Plateau (Slater, 1997). In terms of location, site 10a corresponds with this description, but the hypothesised water tanks seem to have been located too far from a burnt mound. It would surely have been safer and more practical to dig the holes immediately adjacent to the hot stone mound so that the stones could be kicked in with minimal handling. The layers surrounding the ‘tanks’, which were interpreted as re-deposited burnt mound material, could actually be the remains of mounds which have been slighted more than others. Intensive farming in some areas has destroyed many mounds. This scenario would correspond with James Rackham’s theory that the burnt mound material is unlikely to have washed down slope (see above).

Although generally the mounds are believed to be a Bronze Age phenomenon, it has been postulated that in some cases the use of the technology extended into 16th century AD (Hedges 1975, p76). Burnt mounds should not be confused with spreads of 'pot boilers' (similarly burnt stone) found on settlement sites, as 'pot boilers' and mounds may have had different uses. The purpose and significance of the burnt mounds remain unknown, although it has become widely accepted that they were used primarily as open air cooking places. Other suggested uses include: saunas or baths (Barfield and Hodder 1987); ritual (Bradley 1978, p83, Buckley 1999); and industrial activities such as fulling, textile production and metalworking (Jeffery 1991). An early Bronze Age, crouched inhumation was found beneath one mound excavated in the East Anglian Fens in 1993, although it was not clear if the mound and the inhumation were directly related (Roberts 1998, p192).

As the metal detector survey did not find any objects in association with the burnt mounds it is assumed that metalworking did not take place. Neither were there any artefacts associated with textile production. It was suggested (Appendix 8) that the forty-two fragments of bone found in Test Pit 20 might support the hypothesis that the mounds were domestic features associated with food preparation. However, the bones were found in the colluvium which sealed the burnt stone layer, and was therefore later than the burnt mound(s). The purpose of the mounds therefore remains enigmatic. The most likely scenario was that the stones were heated and transferred while hot, to tanks of water. It is uncertain what the ‘tanks’ of warm water might have been used for.

Pit / post hole (570403), gully (571403), linear feature (571603), pit-like feature (573503), gully or pit (574001)
These features were later than the burnt mound(s), but were beneath the colluvium. No dating evidence was recovered from them. Their purposes remain unknown, although domestic activity is suggested by eight fired clay fragments from Test Pit 4. Posthole 570403, within Test Pit 4, contained one fragment of the burnt clay, and the other seven were either from the posthole or the burnt stone layer below. This suggests that the burnt

clay was intrusive into the burnt stone layer, or that a fragment of it had been disturbed when the post hole was excavated. The linear features were probably for drainage, the need for which is evidenced by the construction of modern drainage (see below). With such small 'snapshots' of the site, it is not possible to speculate on land division and land use associated with the linear features.

Late Iron Age & Roman pottery, colluvium and alluvial deposits,
A small amount of late Iron Age and Roman pottery found in the colluvium, indicated background activity, but did not suggest direct or intensive use of the site during these periods. The finds are too few to provide a date for the deposition of the colluvium, as they could be intrusive, or may be much earlier.

Medieval pottery
A small amount of unstratified medieval pottery was probably deposited as a result of medieval or post medieval manuring.

Modern land drains
The latest addition to the site was a number of drainage ditches which cut through all the earlier layers in Test Pits 14, 16 - 18, 29 & 31 - 34.

Environment
Various taxa were found in the sample from the north bank of the River Avon that was submitted for pollen analysis. The pollen evidence shows that the depositional environment had been a grass-sedge fen mire with areas of open standing water. Areas of marshy fen surrounded this, and were dominated by sedges and other reed swamp taxa. There must also have been drier ground with a herb dominated landscape and few or no local trees. Tall herb communities, and possibly short turf grassland are also represented. Birch and pine trees produce a lot of pollen. The low quantity of their pollen therefore signifies that these trees were not local. Willow, however, produces relatively little pollen, so probably did grow locally.

The range and ratios of taxa in the pollen sample indicated that the deposit had been laid down in the early late Devensian.

Bulk samples from other parts of the site yielded insufficient material to establish the type of environment that existed during the middle Bronze Age.

7.2.3 Site 14 Iron Age Pits

Section 10, Plots 86, Long Marston, NGR 417600 248080

Summary

Evidence of late Iron Age settlement was recovered, in the form of a possible rubbish pit and a hearth containing substantial amounts of pottery, some daub and two fragments of triangular loom weight. Environmental evidence suggested that the surroundings were open grassland, probably used for stock grazing. Two ditches, possibly forming a drove way, may have been contemporary with the settlement, although they did not contain any dating evidence. Two furrows, on the same orientation as the ditches were undated, but could represent Roman, or early medieval arable agriculture. In the post medieval period, this is thought to have been superseded by ridge and furrow arranged at right angles to the original.

Location and Topography

The site is located next to the B4632, immediately south east of Long Marston airfield and about 1.5 km north of Lower Quinton. The land, at 45-50m AOD, was virtually flat, with an almost imperceptible slope down to the north east (Site Gazetteer Map 14).

Geology and Soils

Locally, the geology comprises Keuper Marls and Lower Lias mudstones and clay shales with overlying deposits of head (see Sections 3.4 & 3.5 above). The topsoil and subsoil were brown clay silts with very occasional small pebbles. This probably corresponds to soils of the Denchworth group (Section 3.6).

Pre-Construction Background

The desk based assessment (Network Archaeology Ltd, 2002) found ridge and furrow earthworks in Plot 86, and an ancient hedgerow along the south-west boundary. A post-medieval turn-pike road (WSMR 4829) from Stratford to Andersford runs about 200m west of the site on the course of the existing B road. A deserted medieval village (WSMR 1822) is located about 800m north east, Long Marston disused airfield (WSMR 8029) is about 250m north west of the site.

The field reconnaissance and geophysical surveys confirmed that there had been ridge and furrow earthworks in the field, but they were very degraded.

Excavation Methodology

Site 14 was discovered during the watching brief and was the subject of detailed excavation and recording.

Table 7: Site 14 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*Animal bone, CBM; Fe obj.*	31-34
175	*447*	*13*	*30*	*3*	*24*	*22*	*186*	*8*		*112*	*741*		

Results

Watching Brief

Prehistoric pits and linear features, some containing knapped flint, burnt stone and charcoal extended for about 31m in a roughly north to south direction. The ploughed out remains of ridge and furrow were noted. The ridges were c. 3m wide, and 5 – 7m apart.

Hedge 68 (Network Archaeology Ltd 2002i), the historic hedgerow, double bank and ditch between plots 85 and 86, was obscured by spoil and its ditch was overgrown. However, it was noted that the ditch was *c.* 2m wide by 0.9 – 1m deep. The ground on the north side of the boundary appeared to be higher than that on the south.

Excavation

Two pits (86003 & 86005), three ditches (86010, 86011 & 86016), a furrow (86014) and a possible early plough soil were recorded (Figure 4).

The pits were located less than 2m apart. Both were sub-oval, and similar sizes, being just over one metre long, and 0.25m – 0.32m deep. Pit 86003 contained a lot of burnt stones and a moderate amount of charcoal. The single fill of the pit was dark grey brown, loose silt which was quite mixed, giving the impression that it had been dumped. Sixty sherds of late Iron Age pottery and four fragments of heat affected clay, including a possible triangular loomweight were recovered from the pit suggesting it was settlement related, perhaps a domestic rubbish pit. This hypothesis was corroborated by the findings from a bulk sample (31) of the fill, which contained a further 67 fragments of pottery, as well as flint, animal bone, charred cereal remains and one small piece of magnetic slag.

Pit 86005 contained three fills, all of which were brown, gritty silt clays. There were no natural inclusions in the earliest two fills and occasional natural inclusions and Iron Age Pot sherd in the tertiary fill (Figure 17.1). Undercutting sides to the pit are interpreted as evidence of slumping, but the lack of slumped material in the pit fills suggests that it was periodically cleaned out. The presence of fire cracked stones and charcoal in all three pit fills, particularly at the interface with natural substrates around the sides of the pit, suggests that the feature was a hearth. A lack of baked deposits at the bottom of the feature could be accounted for by the evidence of periodic cleaning out. Three samples (32-34) were taken, one from each fill. Fired earth / daub, present in each sample, reinforces the theory that the pit was a hearth.

The appearance of small natural inclusions in the final fill may represent the pit falling into disuse. A late Iron Age date was provided by a total of twenty pottery sherds retrieved from the three fills (Appendix 4). Daub and a fragment of triangular loom weight, recovered from the secondary fill of the pit, signified domestic activity at the site (Appendix 11). A single fragment of cow pelvis was retrieved from the primary fill. The bone was highly fragmented but in ‘good’ condition, displaying no evidence of butchery, burning or gnawing (Appendix 8).

Ditches 86010 and 86011 were 11m apart and were located on the same (west north-west to east north-east) orientation as the furrow (86014) and the possible plough soil (86015). The third ditch (8016) ran along the east edge of the site, lay at right angles to, and cut ditches 86010 and 86011, the furrow (86014), the plough soil (86015) and pit 86005. Ditches 86010 and 86011 had similar characteristics. Both had moderately steep sides, flat bases, and measured 1m wide by 0.24m deep and 0.89m wide by 0.18m deep

Figure 4
MISSING

respectively. Their fills differed. 86010 contained light grey brown silty clay with natural inclusions of occasional small stones, and 86011 contained mid orange brown, silty sandy clay. No artefacts were recovered, and no samples were taken from ditches 86010 and 86011.

A linear feature interpreted as a plough furrow (86014) was roughly 1.94m wide by 0.22m deep. It had irregular looking edges in plan, gently sloping sides and a concave base. Its fill was light, grey brown silty clay with natural inclusions of small, sub-rounded stones. No artefacts were recovered from the feature, and no samples taken.

A layer interpreted as a plough soil (86015) was recorded towards the south end of the site. The plough soil was comparable with furrow 86014 and its fill. The plough soil extended in a linear fashion for more than 4m, disappearing beyond the west edge of the stripped area, and was 2.40m wide by 0.18m deep. It was pale yellow brown, silty clay with natural inclusions of occasional small, sub-rounded stones. No artefacts were recovered from the layer.

A linear feature interpreted as a ditch but perhaps more likely to be a furrow (86016) was not excavated. On the surface, its fill was dark grey brown, heavy clay loam. A number of artefacts were recovered from the surface of the feature, including nine Roman pottery sherds, two pieces of 13th to 16th century tile, a fragment of heat affected clay and two modern iron objects.

Discussion

Phasing Summary

Artefactual and stratigraphic evidence suggested that there had been four phases of activity at the site:

- **Phase 1: Late Iron Age** - pits (86003 & 86005), and possibly ditches (86010 & 86011),
- **Phase 2: Roman** - pottery
- **Phase 3: undated arable agriculture** - 'furrow' (86014) and 'plough soil' (86015)
- **Phase 4: Post medieval arable agriculture** - ditch / furrow (86016)

Phase 1: Late Iron Age

The pits (86003 & 86005) were dated with certainty due to the significant amount of late Iron Age pottery contained in their fills (Figure 17.1). On the other hand, ditches (86009 and 86011), the 'furrow' (86014) and 'plough soil' (86015) contained no dating evidence, and had no direct stratigraphic relationship with the pits. These features have been tentatively placed in the late Iron Age phase due to their relationship with the linear feature (86016) which cut them and pit 86005.

The evidence suggests that both pits were settlement related features. The dumped looking nature of the fills of Pit 86003, the presence of charcoal, bone, fired clay and the large assemblage of pottery sherds indicated that it was a rubbish pit. A fragment of a possible triangular loom weight suggested that weaving had taken place at the site, although the loom weight could have had have served other purposes, such as weighting thatch on the roof of a dwelling (N. Field pers comm – Appendix 11). Fragments of daub found in the fill of pit 86003 and in the sample from the pit also suggested there had been a building at the site.

Pit 86005 appeared to be a hearth. The three fills and evidence for cleaning out indicate that the hearth was used over an extended period, rather than as a one off. Daub and another fragment of triangular loom weight reinforce the theory that the site was domestic with a building that was perhaps associated with the hearth. However, there was little animal bone, and that which was found displayed no evidence of having been used for food.

Some charred cereal remains, including wheats and barley, were found in both pits. Although little comment could be made about such a small quantity of cereal, they could represent archaeo-botanical finds.

Snail shells recovered from the samples are likely to have existed in an open grassland habitat surrounding the pits. This would have been a suitable environment for stock rearing. Very little of the animal bone from the pits was identifiable, but tooth enamel fragments recovered from the secondary fill of pit 86005 (sample 32, context 86007) were from cattle. Cattle rearing and dairying may therefore have taken place at the site.

The two ditches (86010 & 86011) may have served a number of functions: mainly drainage and land delineation. The fact that they were only 11m apart and parallel may be indicative of a drove way. As such this would again imply that stock management took place at the site.

Phase 2: Roman
Nine sherds of Roman pottery dating to between AD50 and 350, recovered from the latest feature (ditch/furrow 8016) on the site, are believed to be residual as some post medieval artefacts were also recovered from this feature. A further three Roman sherds were collected during the watching brief of the topsoil stripping. The Roman pottery demonstrated that activity continued into the Roman period.

Phase 3: Undated arable agriculture
The furrow (86014) ran at right angles to the medieval/post medieval ridge and furrow detected by the reconnaissance and geophysical surveys of the plot, and is therefore thought to represent an earlier phase of arable agriculture. The layer described as a plough soil (86015) was parallel with furrow 86014. The layer and furrow shared a number of characteristics, and it is possible that both were furrows. Arable furrows are not characteristic of Iron Age arable farming, and although they do occur in the Roman period, it is more probable that the furrows dated to the medieval period. The furrows were parallel with ditches 86010 and 86011. Furrow 86014 slotted between the two ditches. This suggests the ditches and furrows were based on the same template, but as they represent different types of farming in the same place, they cannot be contemporary.

Phase 4: Post medieval arable agriculture
A linear feature (86016) ran parallel with, and almost against the eastern field boundary of Plot 86. Both the boundary and the feature were parallel with the remains of ridge and furrow located further west, and previously detected by the field reconnaissance and geophysical surveys (Network Archaeology Ltd 2002b). Feature 86016 (which was not excavated) could have been the remains of a former field ditch which was later replaced by the current boundary, or it could have been a furrow.

7.3 Romano-British

Evaluation and resulting Excavations revealed a Roman site at Long Marston. In addition, the Evaluation and Excavation at King's Coughton provided limited confirmatory dating evidence for the cropmark site to the south of the pipeline route. Two smaller sites probably also date from this period:

- Site 1, Enclosure System, Church Farm King's Coughton
- Site 6, Roadside Ditch, Stratford Road
- Site 11, Roman Settlement, Long Marston
- Site 12, Ditches, Long Marston Airfield

7.3.1 Site 1, Enclosure System, Church Farm, King's Coughton

Section 0, Plot 02, NGR 408550 259840

Summary

A substantial ditch was located, corresponding to the easternmost member of a pair of parallel linear cropmarks visible on air photographs. These cropmarks are associated with an enclosure of purported Roman date 30m to the south of the pipeline easement (WSMR 4646). Several smaller ditches were also recorded in the area where the other ditch was expected, but none was of comparable size. A small amount of Roman pottery was found, but none of the excavated features could be confidently dated.

Location and Topography

The site was 500m east of the A435(T) Alcester to Birmingham Road, just over 2km north of the centre of Alcester. The main road is on the route of Ryknild Street Roman road at this point. The pipeline route is running almost due east at this point, from the King's Coughton AGI towards its crossing of the River Arrow on the far side of Plot 03. The field is arable, and had cereal stubble when the initial Field Survey was carried out in September 2002 (Site Gazetteer Map 1)

The site is on low-lying ground at around 45m AOD with a very gentle slop to the north, and a rather more marked slope near the field boundary on the eastern side. This slope marks the edge of a river terrace slightly raised from the floodplain of the Arrow.

Geology and Soils

The archaeological features were cut into a substrate of sandy gravel with patches of finer silts; there were no recent alluvial deposits. The soil was a loamy sandy silt. The river terrace gravels overlie Triassic deposits of the Mercian Mudstone Group.

Pre-Construction Background

The ADBA highlighted the potential of this site. There is a large triple-ditch enclosed settlement visible as cropmarks on air photographs and presumed to be of Roman date (WSMR 4646) just to the south of the pipeline route, and two parallel linear features can be seen to project northwards from this across Plot 02.

By contrast, the non-intrusive survey stages of investigation produced negative findings. Fieldwalking after the land was ploughed in October 2002 recovered twenty-three pieces of ceramic building material from the field, all of it post-medieval or modern, and a single piece modern pottery. Magnetometer plots from the field were almost entirely

blank, and the susceptibility readings low and uniform. However due to the striking nature of the cropmarks this field was targeted for Evaluation.

Excavation Methodology
Two 30m long evaluation trenches were located so as to intersect the plotted positions of the two linear cropmarks (Figure 5).On machining the topsoil, it became apparent that there was a subsoil layer approximately 30cm thick of disturbed sandy gravel; this was removed in a second phase of machining.

Table 8: Site 1 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*Count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*Glass, heat-affected stone, carbonised organic.*	
2	*14*	*1*	*7*	*0*	*0*	*0*	*0*	*2*	*9*	*0*	*0*		

Evaluation Results
A large ditch was found 8.5m from the western end of Evaluation Trench 02.02. This corresponded to the position of the easternmost cropmark. This ditch 250 was hand-excavated and found to be approximately 2m wide and 1m deep (Figure 6). No artefacts were found and no other archaeological deposits were recorded in this trench.

Evaluation Trench 02.01, positioned so as to intersect the more westerly of the two parallel cropmarks, did not identify the feature responsible for the cropmark, but uncovered a series of smaller linear features and a number of rather irregular pits.

In consultation with Warwickshire County Planning Archaeologist and the site engineers, it was decided that no further evaluation work was required at this stage, and controlled investigation would take place during the topsoil stripping phase of work.

Following the removal of topsoil from the working width, a further 30cm of the sand and gravel subsoil was cleared from an area approximately 50m long by 18m wide centred on features showing in the evaluation trench and on the south side of the pipe centreline (Figure 5). As well as attempting to locate the second cropmark ditch, this was designed to enable an investigation of the smaller features seen in the evaluation trench.

Excavation Results
Two parallel linear features oriented in an east-west direction were seen in the south side of the excavation area. The more southerly of these, numbered 230, 208 and 218 in the three excavated sections, was the more substantial of the pair, being 1.40m wide and 65cm deep with convex sided to a narrow base, at least near its eastern end (Figure 6). It was visible for just over 20m, and it appeared to have rounded terminals at either end. Two sherds of pottery were recovered form its fills. One dated to the late Iron Age was abraded and clearly residual, while the other came from the rim of a Roman vessel dated to 120 to 160 AD.

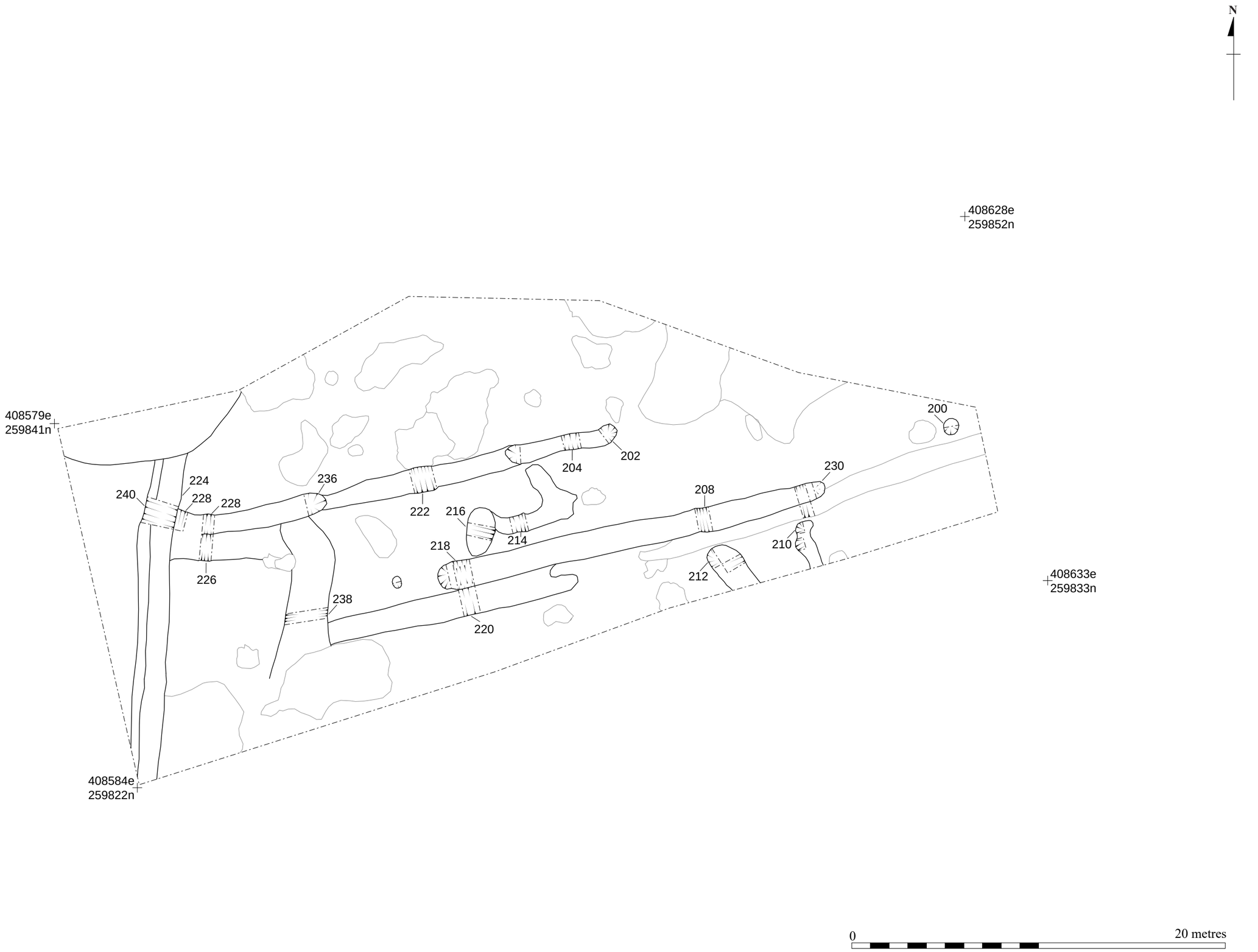


Figure 5: Site 1, Plan of Features (scale 1:200)

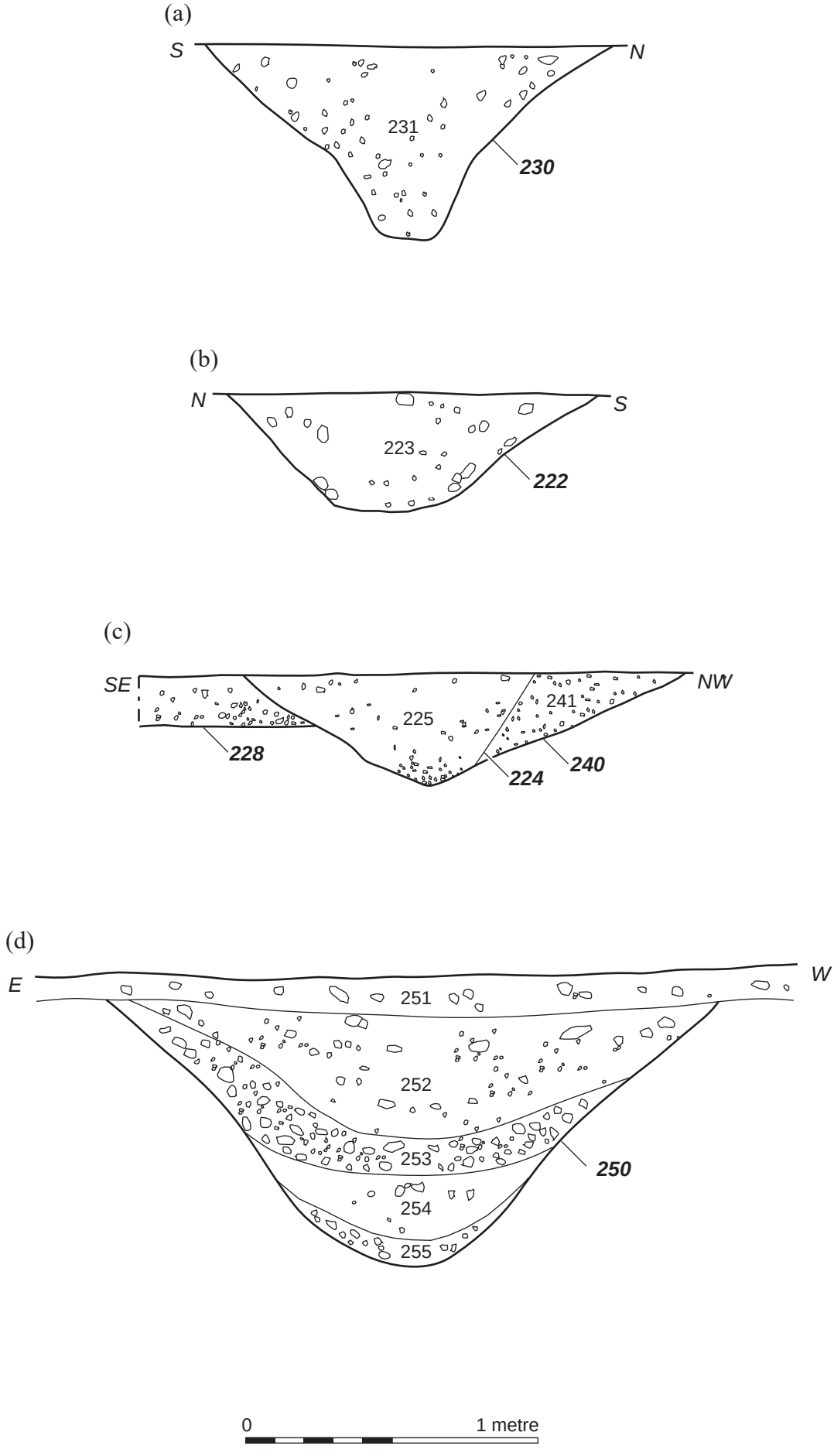


Figure 6: Site 1 Sections of Enclosure (1:20)

The parallel ditch, variously numbered 202, 204, 206, 222, 236 and 238 in its excavated sections, was 5.5m to the north. It was smaller; up to 1m wide and 40cm deep but becoming shallower towards the west. Where it was deepest it had a symmetrical V-shaped profile (Figure 6) becoming much shallower towards the west. In the rather blotchy, silty substrate, it was not always clearly visible, but it appeared to extend for 25m, with a terminus at the eastern end and cut by Ditch 240 to the west.

Ditch 240 ran in a north-south alignment on a similar orientation to the cropmark features. However, it was considerably smaller than the ditch seen in the first evaluation trench with a width of 1.5m and a depth of less than 40cm (Figure 6). It produced a single tiny sherd of late Iron Age pottery. A possible re-cut 224 recorded in this ditch seems much more likely to have been the interface at the top of a gravel-rich fill (Figure 6).

To the east of Ditch 240, a rather wider ditch 238 appeared to be on a similar alignment, although it was difficult to distinguish in plan. In the excavated section, it appeared to be only 35cm deep and is unlikely to be responsible for the cropmark feature (Figure 6).

The other recorded features were fairly insubstantial or ill-defined. Both of the parallel ditches appeared to have been re-cuts of earlier, shallower features, Ditch 226 to the south of Ditch 228, and Ditch 220, which contained a flake of worked flint probably of late Neolithic or early Bronze Age date, to the south of Ditch 218. Against the southern baulk, two shallow features 212 and 210 were interpreted a ditch terminals. Another small ditch 214 was seen in section between the two parallel ditches but could not be made out in plan for any distance. There were two small pits or postholes 200 and 234 and a larger irregular feature 216, interpreted as a tree-throw, which contained a flint core fragment. Seven other unstratified flints were recovered from elsewhere on the site during subsoil machining, including a Mesolithic scraper and flake.

Discussion

The more easterly of the two cropmark ditches was located without difficulty in Evaluation trench 02.02; its position well within the limits of accuracy with which features can be plotted by rectification of air photographs. This ditch was a substantial feature, its base around 1m below the level of the disturbed subsoil, perhaps 1.5m below the modern ground surface.

The second cropmark ditch proved more illusive. It might be equated with Ditch 240, or even with the rather ephemeral Ditch 238, but neither of these were comparable in their dimensions with Ditch 250.

None of these ditches produced any dating evidence. If they, and the triple-ditched rectangular cropmark enclosure to the south of the pipeline, are of Roman date, this is surprising; such a substantial monument of this period would be expected to have a wealth of artefactual evidence associated with it. It is, however, unlikely that such a regular enclosure would be of an earlier date, and there was no finds to suggest that it was any later.

The only closely dateable find from a stratified context on the site was a Roman rim-sherd from the early second century from one of the smaller east-west aligned ditches. The other east-west ditch was recorded as being stratigraphically earlier than the north-south aligned Ditch 240. The two east-west ditches were probably contemporary, in

which case this sherd would provide an earliest date for Ditch 240, assuming that it is not intrusive.

These results are compatible with a Roman date for the cropmark ditches, and by implication the rectangular enclosure and other cropmark features to the south, but they certainly do not provide any strong confirmation of it.

7.3.2 Site 6, Stratford Road, ?Roman Roadside Ditch

Section 4, Plot 33, Stratford Road, NGR 412370 256460

Summary

Evaluation prior to topsoil striping revealed a number of archaeological and natural features. A possible roadside ditch associated with the Alcester to Stratford Roman road was located, together with a shallow gully and a series of linear features thought to represent furrows belonging to a medieval ridge and furrow field system.

Location and Topography

The site was adjacent to the A46 Stratford Road (RDX 4), approximately 350m south-east of the centre of Alcester. The pipeline route runs approximately north-south at this point. The majority of this field is arable, and had been ploughed and harrowed at the time of field walking (Site Gazetteer Map 5).

The site is located at the northern end of the plot, on gently sloping ground at around 65m AOD. A steep east-west scarp is located at the southern end of the field, and was covered with rough pasture. Woodland covers the scarp to the east of the pipeline route.

A possible spring hollow was recorded on the scarp during field reconnaissance. This measured approximately 10m in diameter and 1m deep. It is possible that this hollow was formed by quarrying during the Roman period, but there is little evidence to support this.

Geology and Soils

The steeply rising ground to the south corresponds to an outcrop of Rhaetic mudstones and shales with sandstone bands or skerries. The site, situated below this, lies close to the boundary of the Keuper Marls and the Tea Green Marls of the Mercian Mudstone Group. The soil was a reddish-brown sandy silt.

Pre-Construction Background

The ADBA highlighted the potential of this site. The modern A46 Stratford Road (RDX 4) follows the line of the Roman road connecting Alcester to Stratford (WSMR 4757). This section of the road also formed part of the saltway from Droitwich (WSMR 446). In addition to the possibility of finding remains of the Roman road, there was also the possibility that associated features such as a roadside settlement and/or burial may be located here.

The non-intrusive survey stages did not provide any evidence of the Roman road. Fieldwalking after the land was ploughed in October 2002 recovered five pieces of ceramic building material, three pieces of glass, a single heat affected stone and two fragments of production waste of undetermined date. Four sherds of Post-Medieval and modern pottery were also recovered. Magnetometer plots from the field identified a

series of linear anomalies throughout plots 32 and 33, thought to represent former furrow belonging to a medieval ridge and furrow field system. This field was targeted for Evaluation.

Excavation Methodology
Two evaluation trenches were located at right angles to Stratford Road (RDX 4) in plots 32 and 33 in order to look for the Roman road and any potential roadside settlement.

Table 9: Site 6 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*00*	*0*	*0*	*0*	*0*	*10*	*269*	*0*	*0*	*0*	*0*		

Results
Evaluation Trench 33-1, located to determine the presence of the Roman road or associated features, uncovered a series of linear features and a number of natural features. A small quantity of Post-Medieval pottery was recovered from the topsoil (3300).

No evidence of the road surface was discovered, but an east-west orientated ditch was recorded at the northern end of the trench, close to the existing road. This was V-shaped with a rounded base, measuring approximately 1.5m in width and surviving to a depth of 0.30m. The location and orientation of this ditch indicate that it may be a roadside ditch associated with the known Roman road. No dating evidence was recovered from this feature.

A shallow gully was revealed within the evaluation trench. This was orientated north-west to south-east. No artefacts were recovered from the single fill of this feature.

A series of north-south aligned linear features were recorded during the evaluation, and more were revealed during topsoil stripping. These features represent furrows belonging to a medieval ridge and furrow field system. They measured 1m in width and survived to a depth of 0.40m. The distance between these furrows varied between 5.5m and 8m.

A number of natural features representing bush holes were also noted within the evaluation trench. Nothing further was noted during the Watching Brief.

Discussion
Little evidence of the existence of the Roman road was recorded during the evaluation and subsequent watching brief. It is likely, given the location and orientation of the ditch, that this represents one of the roadside ditches associated with the Alcester to Stratford Roman road. No evidence of the actual road surface was revealed during the Evaluation. This suggests that it may lie buried beneath the present roadway. It is also possible that later agricultural activity in the vicinity may have destroyed any surviving traces of the road. There was no evidence of any other Roman features associated with the road.

The presence of furrows indicates that the field was under cultivation during the medieval period. It is possible that this may have destroyed earlier deposits and traces of earlier activity here.

None of the features located here produced any datable evidence. Unstratified artefacts were recovered from the topsoil, but this material was post-medieval and modern in date.

7.3.3 Site 11, Iron Age/Romano-British Settlement, Long Marston

Section 9, Plots 77-78, Long Marston, NGR 415940 248580

Summary
This site, extending for 200m along the pipeline route contained a number of small, late Iron Age curvilinear gullies, overlain by a rectilinear pattern of field system ditches, which produced pottery dating from the first and second centuries AD. Although no structural remains were found, the relative richness of the pottery assemblage suggests that the site was close to a centre of settlement during this period.

Location and Topography
The site lies 600m to the east of the centre of Long Marston village, approximately half way between 'The Goodwins' and the sewage works occupying the southwest corner of the disused wartime airfield. The archaeological features spread across two field, Plots 77 and 78 (Site Gazetteer Map 13).

The northern end of Plot 77 is bounded by the track of the disused railway from Stratford on Avon to Honeybourne Junction on Oxford to Worcester line. The 'Monarch's Way' Recreational Route now follows this former railway track north towards Stratford. At the southwest corner of the field it joins another long distance footpath, the 'Heart of England Way' which runs along a trackway between Plots 77 and 78.

The ground in both fields is fairly flat and relatively low-lying, at around 43m AOD. There is a very slight slope to the west, the land draining into Noleham Brook, which flows north to join the Avon near Bidford Grange.

Geology and Soils
The site lay on a substrate of thick, intractable clay with occasional patches of gravel. This was probably 'head' derived from periglacial erosion of higher ground to the south and east. The underlying solid geology consists of mudstones and clay shales of the Lower Lias. The soil was a reddish brown silty clay.

Pre-Construction Background
The ADBA recorded the former branch of the Great Western Railway (DBA.DM) to the north of Plot 77 and the presence of upstanding ridge-and-furrow earthworks in both Plot 77 (DBA.ES) and Plot 78 (DBA.EN).

At the time of the field survey, Plot 77 was closely grazed permanent pasture, while Plot 78 was under a maize crop, so low ground visibility in both fields precluded fieldwalking. Two groups of ridge-and-furrow earthworks Plot 77 (DBA:ES) were recorded by the field reconnaissance survey. The larger component was oriented east south-east to west north-west, and the smaller north north-east to south south-west. Most of the ridges were about 8-12m wide and 0.3-0.6m high, but there were some exceptionally large ridges about 16m wide and 1.2m high.

Some strong magnetic anomalies were recorded by the geophysical survey in both Plot 77 (FSU:034) and Plot 78 (FSU:035), but there was no clear plan of features. These results were interpreted as indicating the irregular filling in of sub-surface hollows NAL Report 185). The full character, significance and extent of the archaeology represented by the geophysical anomalies was not known, but a moderately high degree of confidence was accorded to the archaeological significance of the anomalies.

Excavation Methodology
As a result of the findings of the field survey, it was recommended that a topographic survey should be carried out on the upstanding ridge-and-furrow earthworks, and that both fields should be targeted for Evaluation. The results of the Topographic Survey are shown in Appendix 14.

Three Evaluation Trenches were excavated by machine in advance of the main pipeline construction work on the site. During hand excavation and recording of features revealed in these trenches, it quickly became apparent that a large number of archaeological deposits were visible, including moderate quantities of pottery and animal bone. The site appeared to be rich in finds, especially in comparison to other sites in the county.

The archaeological remains were generally covered by a subsoil layer relating to medieval cultivation of the area. This layer varied in thickness between 0.1m and 0.5m, but was 0.3-0.4m on average.

An excavation strategy was agreed in consultation with the pipeline engineers and the curatorial authorities. Across both plots, the topsoil was stripped as normal and stored in accordance with the standard construction methodology. A layer of the medieval subsoil was then removed by machine across an area up to 20m wide in the middle of the 44m easement. It was agreed that archaeological excavation was unnecessary along the eastern side of the working width where the subsoil was stacked, and also beneath the topsoil stack on the western side, as the depth of the subsoil meant that potential impacts in these areas was likely to be low. The visible features were found to extend for a distance of approximately 95m in both plots.

Because of constraints imposed by the engineering programme, the time available for hand excavation was limited to just over two weeks, however, it was agreed that a team of twelve archaeologists could be used for this period. They initially concentrated on the

western side of both plots, in order to clear a running track to allow free access for construction traffic. After this, the central zone was cleared for pipe stringing and excavation of the pipe trench to proceed. In addition to normal excavation and recording, a programme of soil sampling was agreed with James Rackham, as environmental archaeology consultant, and with the county archaeologist. The whole area was scanned by a local metal detectorist who found several items however, the site as a whole was not rich in such items (Appendix 9).

Table 10: Site 11 - Finds Summary

Iron Age pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*Cu Alloy brooches & coin, Animal bone, heat-affected flint & stone, production waste*	01-45
128	*344*	*1873*	*26151*	*3*	*21*	*0*	*0*	*0*	*0*	*874*	*1922*		

Results

General: The recorded features can mostly be characterised as linear features or small, relatively shallow pits. The linear features range from quite substantial ditches to small curvilinear gullies. The pit-like features tend to be quite irregular, and include a proportion which are of natural origin, as tree-throw holes or animal burrows. In addition, some areas had spread layers and irregular patches of remnant subsoil. The fills of some features were rich in finds, especially of pottery, which suggests proximity to an area of settlement, although no features that could be readily interpreted as structural remains were found. The few posthole-like features had no discernable pattern to their distribution.

The site plans (Figures 7-8) clearly shows that there were a number of phases of activity. Elucidation of the sequence of phases presents a number of difficulties. With few exceptions, the fills of features were all very similar; the soil descriptions in the site records are generally variations on 'firm greyish or yellowish brown clay.' Clay soils are always very plastic and tend to homogenise over time, so that interfaces quickly lose definition. Although the members of the excavation team generally attempted to propose stratigraphic relationships, the similarity between fills meant that there was a high probability of misinterpretation.

The assemblages of pottery from some of the features can be quite closely dated. In almost all of these cases, they date to a relatively short period, from mid-first to mid-second centuries. As a result, features that have been recorded as relatively high up in the stratigraphic sequence have pottery from an overlapping date range to early features.

Many of the features have no dateable finds, or pottery that is not particularly diagnostic and can not be well dated. On the site as a whole there was a relatively large quantity of pottery, so there is a high risk that finds could be residual. In addition, the similarity of fills means that later features or disturbance could be missed, increasing the risk that finds might be intrusive.

Because of these difficulties, the phasing outlined below needs to be treated as very tentative. In general, it preserves the stratigraphic relationships recorded by the excavators on site, although in a few instances these have been reinterpreted where they appear to conflict with evidence from pottery dating. Orientation and morphological similarity have been used to relate groups of features in different parts of the site.

Excluding the activity from the medieval or later periods, such as the ridge-and-furrow earthworks, four broad phases can be proposed. Phase 1 includes a number of small linear or curvilinear gullies in the central regions of both Plots 77 and 78 which probably date from the late Iron Age. Soon after this, in the mid to late first century AD, the main rectilinear pattern of field system ditches seems to have been established. Although these ditches seem to have been re-cut a number of times, this seems to have happened in a relatively short space of time, and they have been collectively assigned to Phase 2. Phase 3, a partial re-alignment of the field system especially Plot 77, probably occurred towards the end of the first century. Thereafter, activity declined and evidence for Phase 4 is confined to a few ill-defined features and spread layers containing small amounts of pottery from the second century or later.

Phase 1: Late Iron Age gullies and associated features
A group of features in the central part of Plot 77 were stratigraphically early, and contained pottery dated to before AD.70 (Appendix 4).

Curvilinear Ditch 77127 and Ditch 77125
The small, heavily truncated curvilinear ditch 77127 (Figure 7) yielded twenty-six sherds of pottery, including nineteen fresh sherds from a barrel-shaped butt-beaker with burnished latticing (Figure 17.2), possibly from vessel dating from 0 to 50 AD, and six fragments of a 'Belgic' grog-tempered ware jar. An abraded piece of Severn Valley Ware, however, indicates a rather later date for the feature and it may have remained open for a short time after the Roman Conquest. Gully 77132 = 77138, containing four late Iron Age sherds, was immediately to the north of Gully 77127 (Figure 9) and may have been associated with it.

Towards the western side of the site, and partially obscured beneath layer 77067, a wider but still rather shallow feature 77125 yielded three furrowed storage-jar sherds in black 'Belgic' grog-tempered fabric, a rim sherd from an everted-rim necked-jar or bowl in a very-fine variant of 'Belgic' grog-tempered ware dating from 50 BC to 50 AD (Figure 17.3) and two other pottery fragments, one of which, in Malvernian ware, may have been intrusive. The presence of a sherd in Romanised greyware suggests a date after the Roman Conquest but before 60 AD.

A small gully 77093, which appeared to be cut by Ditch 77125, also contained a small amount of pottery of a similar date.

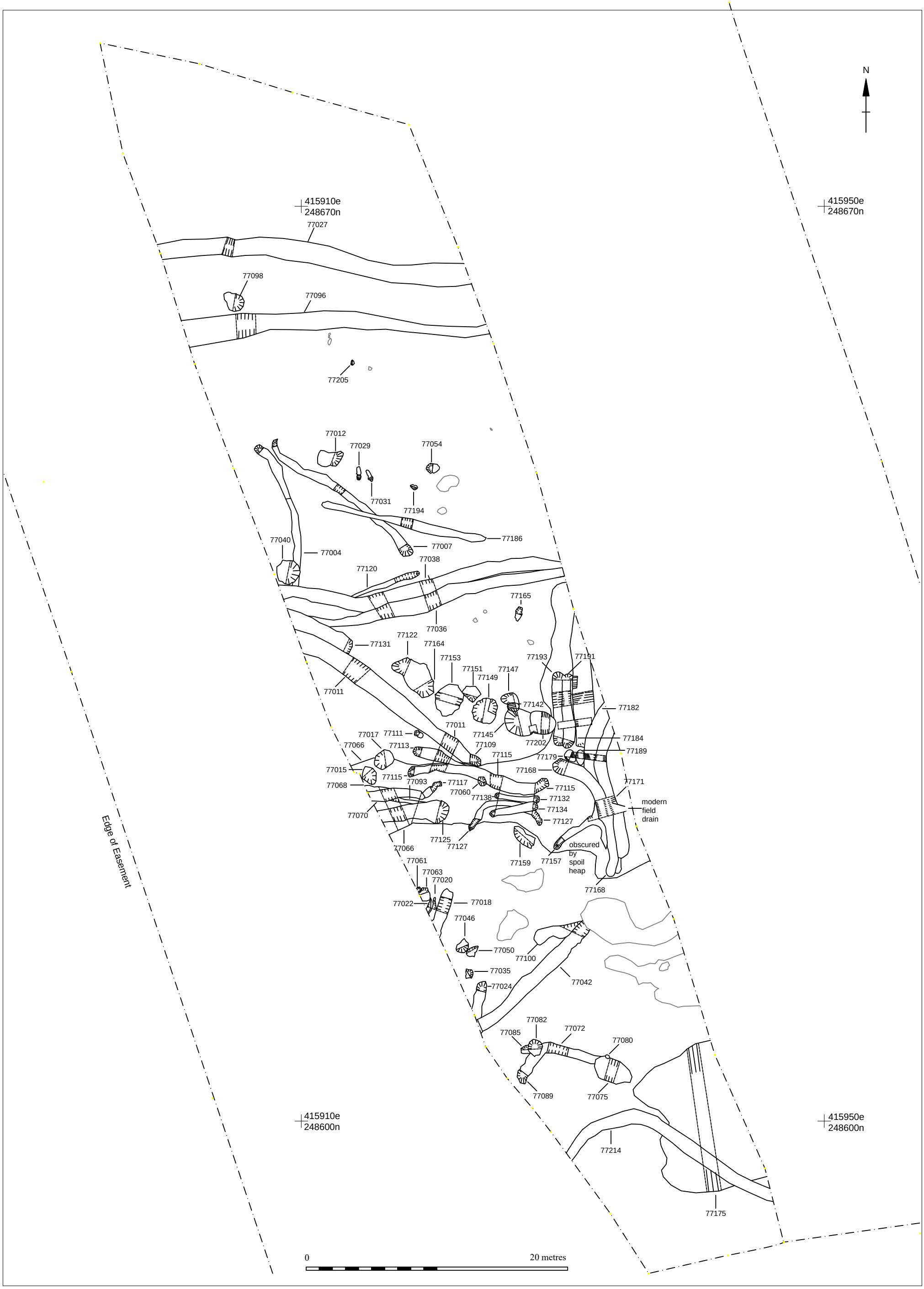


Figure 7: Site 11, Plot 77. Plan of south part of Roman Settlement (scale 1:250)

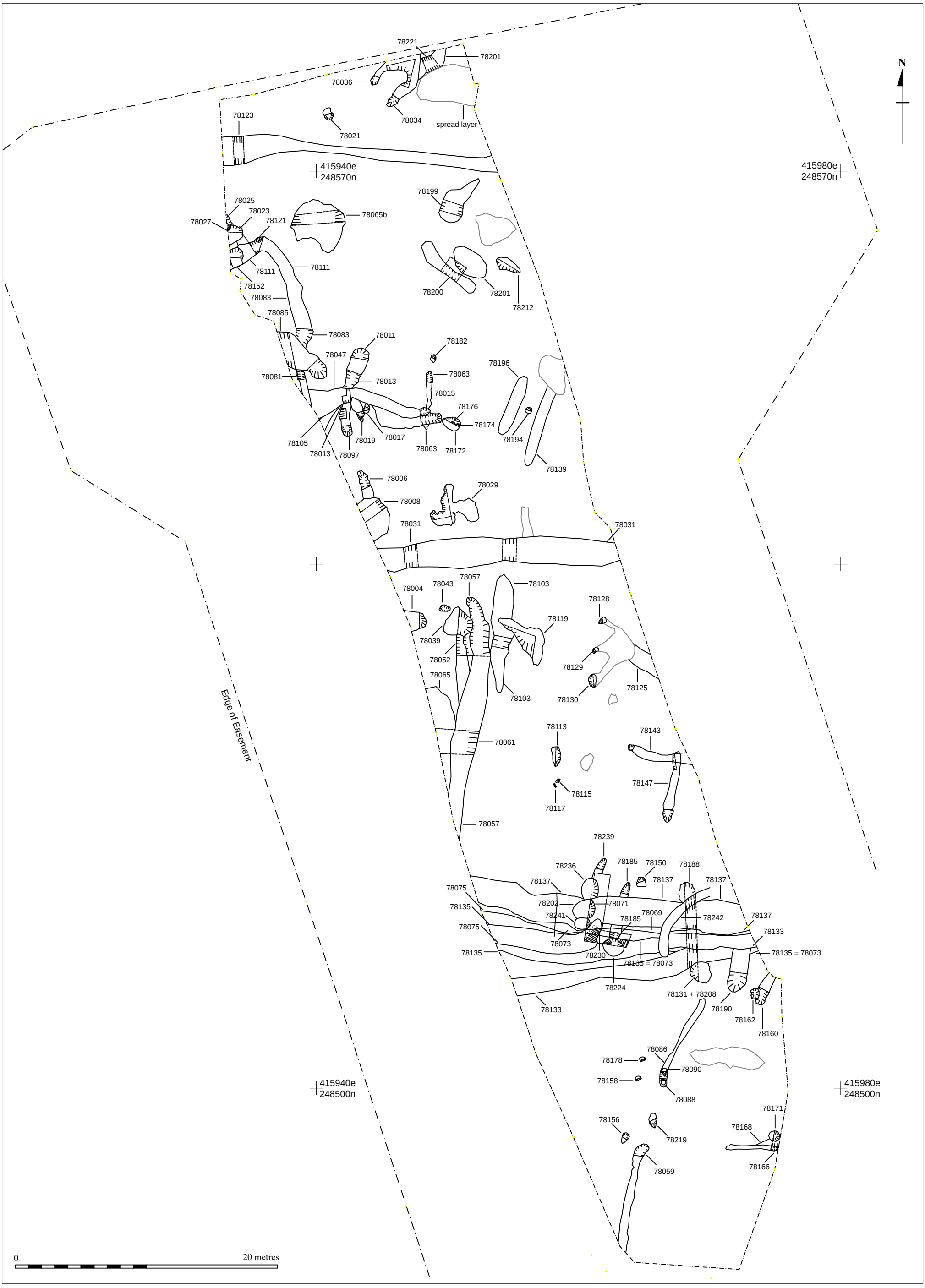


Figure 8: Site 11, Plot 78. Plan of south part of Roman Settlement (scale 1:250)

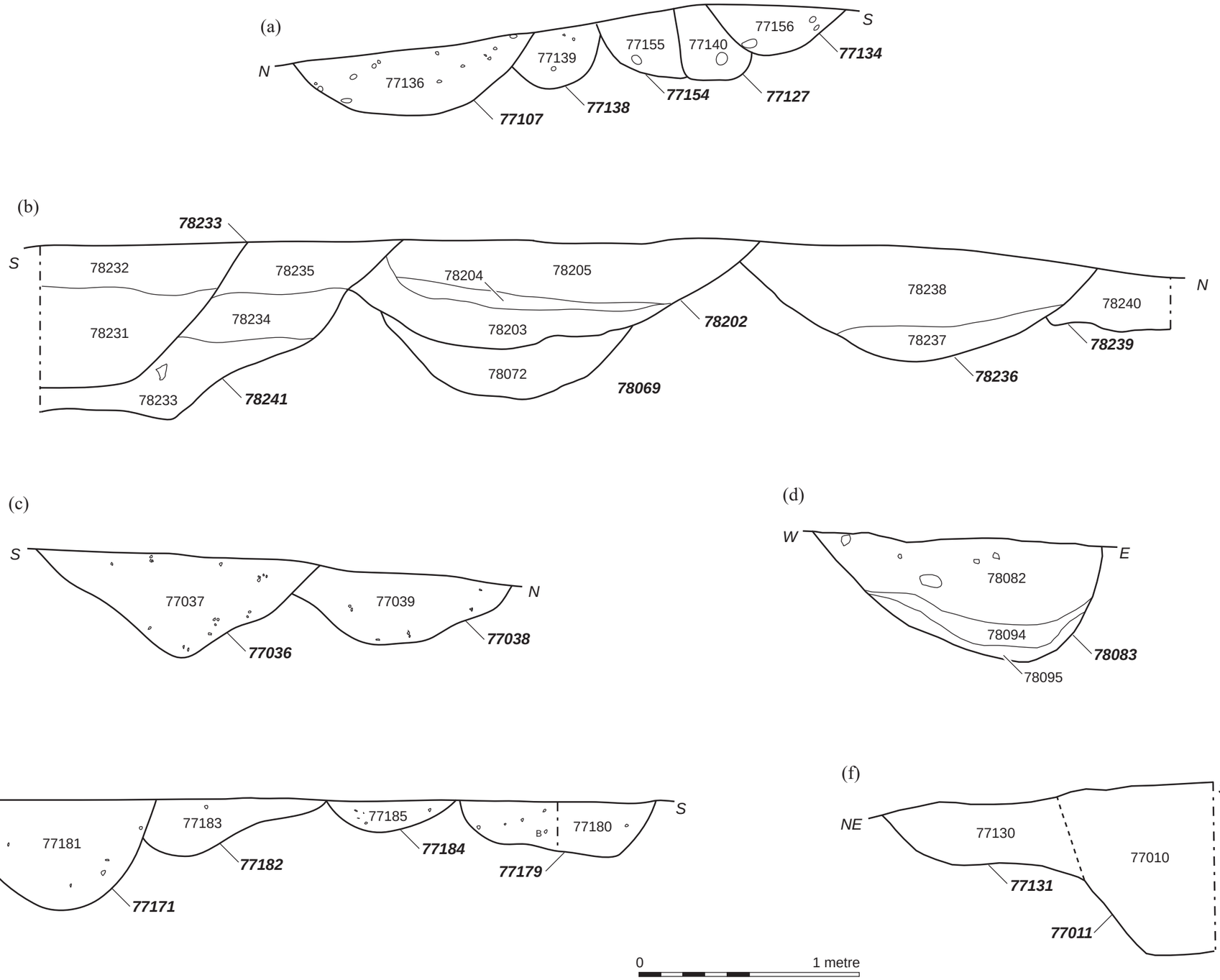


Figure 9: Site 11 Sections (1:20)

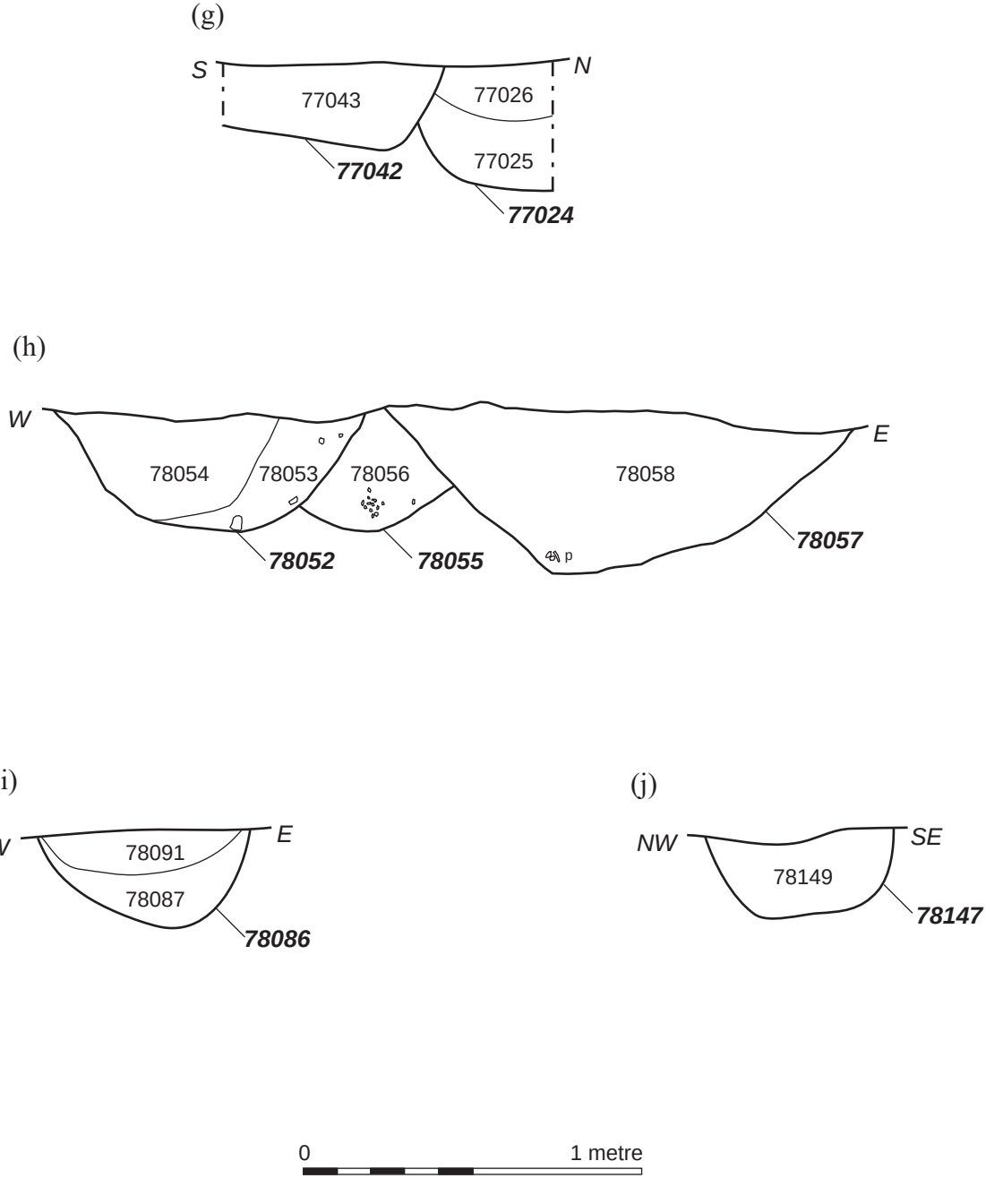


Figure 10: Site 11 Sections (1:20)

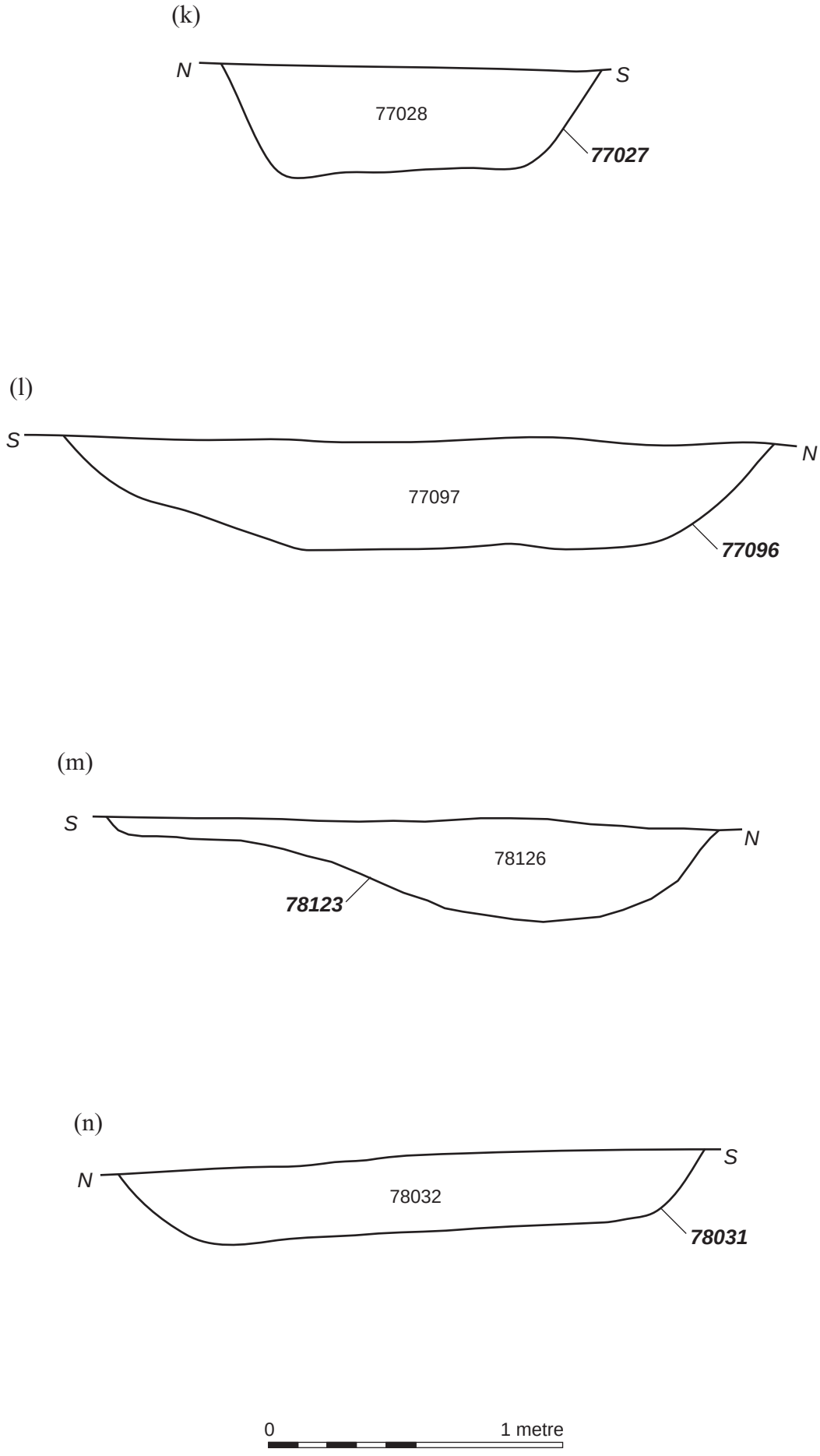


Figure 11: Site 11 Sections (1:20)

Gully 78166
This feature appears to have been located at the south end of the site, although there was some confusion in the recording, and the number may have been misassigned. It contained 67 tiny sherds all of the same fabric and possibly from a single vessel of late Iron Age date. From the section drawing, this gully appears to be a re-cut of an earlier feature 78168, and the pottery may derive from that feature.

Stratigraphically early features without pottery
A number of features, mostly small linear or curvilinear gullies, were early in the stratigraphic sequence but had no secure dating evidence. Gully 77004 appeared to be cut at its south end by the earliest member 77038 of a complex of larger ditches. At its north end, it seems to respect Gully 77007, suggesting that this is a contemporary feature. Gully 77120 is also cut by the same complex of ditches. Among group of features against the west baulk of Plot 77, Pit 77061 and Gully 77020 might also be of this phase.

In Plot 78, Gullies 78185 and 78239 (Figure 8), both cut by a complex of east-west ditches, could also be of this phase.

Phase 2: Late Iron Age to Early Roman Field System
The bulk of the pottery on site could date from the period from 70 to 150 AD. This period has been tentatively split into two phases on the basis of stratigraphic relationships, the earlier features being assigned to Phase 2.

Curvilinear Ditch 77171 and associated features
On the east side of Plot 77, Ditch 77171 was a quite substantial feature, up to 1.2m across and 0.5m deep (Figure 9) sealed beneath Spread 77167.

The fills of this ditch yielded 50 sherds of pottery including fresh sherds from a bead-rim jar in very-fine-sanded grey fabric dated to around 50 to 100 AD, and a narrow necked storage-jar in patchy black/orange Severn Valley Ware fabric (Figure 17.4-17.5) of similar age. Eight of the remaining sherds are in oxidised Severn Valley Ware. There is no handmade Malvernian ware in this assemblage which can probably be dated to 70 to100 AD. The ditch also contained a fragment of a triangular loom-weight (Appendix 11).

Gully 77182 and Ditch 77184 were both stratigraphically earlier than Ditch 77171, the latter appearing to be a north-south aligned component of the rectilinear field system. If the relationships have been interpreted correctly, this implies that the pattern of field ditches was probably established initially in the pre-Roman period.

Ditch 77036 could have been an east-west aligned return of Ditch 77184, and appeared to be a re-cut of an earlier, rather smaller ditch 77038 (Figure 9).

Curvilinear Ditch 78111 (=78083)
This ditch (Figure 9) had a right-angled bend and ran into the western baulk of Plot 78. It contained nineteen sherds of pottery consisting largely of fragments from a butt-beaker in grey-cored oxidised Severn Valley Ware (Figure 17.12) dating from 50 to100 AD. This ditch appeared to cut an earlier feature 78121. The south end of the ditch was cut by a later feature 78085, but may have continued beyond that as Ditch 78081.

The intersection between this and the roughly east-west aligned gully 78047 was in a confused area of the site and their relationship was unclear. The small amount of pottery from the group of rather irregular features cut by Gully 78047, including 78011, 78013, 78063 and 78184 is undiagnostic but the fill of Gully 78064 contained a Colchester Derivative copper alloy brooch (registered find 2, Figure 19:2, Plate 9) probably dating to the mid to late first century AD.

Overall, the main outline of the rectilinear pattern of field system ditches seems to have been firmly established by the end of this phase, at least in the north part of the site.

Posthole or small pit 78178
This small circular feature, barely 14cm deep, near the south end of the site contained a relatively large amount of pottery. This included six fresh sherds from a copy of a Samian bowl in coarse Severn Valley fabric dated to 70 to 120 AD and ten fragments from a jar base, with large central perforation made after firing, dated to 50 to100 AD (Figures 17.7-17.8).

Posthole or small Pit 77111
This small pit on the south side of Ditch 77011 also had a fill rich in pottery, most noticeably the greater part of a wheel-turned reeded-rim bowl in pale nougat-textured fabric (Figure 17.6) dated 70 to 150 AD. The other sherds come from a jar in blue-grey fabric but are not diagnostic sherds.

Phase 3: Early Roman Additions and Modifications to the Field System.
The division into Phases 2 and 3 is fairly arbitrary as they both include features that are broadly dated to the period from 70 to 150 AD. In the case of the field system ditches in Plot 77, a greater number of phases could be described as these ditches appear to have been re-cut on slightly different alignments up to three times during this period. However, with little reliable dating evidence from them and the uncertainty in recorded stratigraphic relationships such fine discrimination would have little interpretative value.

Ditches 77168 and 77157
A curvilinear ditch 77168 appeared to be the latest component in the complex of ditches and re-cuts on the east side of Plot 77, and may mark a realignment in the pattern of fields in this area. It contained 77 sherds of pottery including a copy of a Samian bowl pink Severn Valley fabric (Figure 18.23) from 50 to 200 AD, a slack-profiled jar in polished black Malvernian fabric (Figure 18.24) dated to 100 to 200 AD, a jar with heavy rolled over rim in ‘nougat-textured’ fabric (Figure 18.25) dated to 70 to 150 AD, an everted rim cooking-pot in reddish-brown fabric (Figure 18.26) from 120 to 200 AD and lid-seated jar rim (Figure18.27) from 70 to 150 AD. Overall, the pottery seems to place the fills of this feature firmly within the range 70 to 150 AD.

The southern end of this feature lined up with Ditch 77042 suggesting that they were part of the same functional unit. Near the western baulk, Ditch 77042 cut a short length of ditch 77024 on a more north-south alignment (Figure 10). To the north Ditch 77011 is on a perpendicular alignment to Ditch 77042 and had a small quantity of pottery within its fill which was of a similar 70 to 150 AD date range. Ditch 77011 appeared to cut an earlier, shallower ditch 77131 (Figure 9) which in turn cut Ditch 77036, although the interfaces between these features lacked clear definition.

Ditch 77157 bisected the internal curve of Ditch 77168 and, although recorded as being stratigraphically earlier, contained 48 sherds of pottery of a similar date range. This included fresh fragments from a rusticated conical jar in blue-grey fabric (Figure 17.9) dated 70 to 120 AD, a rim sherd from Severn Valley Ware tankard (Figure 17.10) dated 70 to 200 AD and rim from pear-shaped jar in rough grey fabric (Figure 17.11) of 70 to 120 AD date. The presence of eleven sherds from probably from the same vessel as similar sherds in Ditch 77168 strongly supports the supposition that these features were open at the same time.

Ditch 78075 ?= 78230
This ditch was recorded as 78075 in the western side of the site. It was equated with Ditch Terminal 78230 seen in a section excavated 3m to the east. This area was confused by ditch re-cuts and intrusive pits (Figure 8), and it is by no means clear that these two features are the same. Terminal 78230 contained 55 sherds of pottery, of which 32 come from a lid-seated conical jar in sandy grey fabric (Figure 17.13) dating to 70 to 120 AD. Fragments were also present from an imitation Gallo-Belgic platter of Camulodunum in white Terra Nigra style fabric (Figure 17.14) dated to 50 to 80 AD, and a convex-sided bead-rim dish in grey fabric (Figure 17.15). Other sherds from this context included two fragments from a closed form in Gallo-Belgic Whiteware from 43 to 70 AD, but no handmade Malvernian fabrics were present.

The fill of Ditch 78075 yielded a further 46 sherds of badly broken pottery, including Severn Valley oxidised wares and handmade Malvernian fabrics.

The recorded stratigraphic relationships suggest that this ditch is later than the other ditches and pits recorded in this section, cutting successively Pits 78241 and 78202, Ditch 78069 = 78137, Pit 78236 and Gully 78239, as well as Ditch 78135 = 78073 obscured in section by Pit 78241 (Figure 9). It is perhaps more likely that some of these relationships were misread; Pit 78202 for instance may well be later than Pit 78241 and Ditch 78069. On the basis of pottery dating, Ditch 78069 = 78137 is probably a later feature than Ditch 78075. There is an unresolved problem with Ditch 78073 which was recorded as an early feature but contained relatively late pottery.

Ditch 78200
This ditch was obscured beneath an amorphous spread of remnant subsoil, and was only recognised at a late stage in the excavation. A section was hastily excavated and recorded, but its location on the site plan has been reconstructed from information recorded on context sheets. Its fill was particularly rich in pottery, the excavated section producing 171 sherds. These included a ring-neck flagon in pink Mancetter fabric (Figure 17.16) dated 70 to 150 AD; a small globular jar (Figure 18.17); a necked-jar in ‘off-white lumpy fabric’ (Figure 18.18) of similar date; another larger example in similar fabric (Figure 18.19) and a small, lid-seated hemispherical bowl in fine-grey fabric (Figure 18.20) dated.70 to 130 AD. It also contained a small piece of copper alloy wire (registered find 3) which may have been part of a brooch pin.

Ditch 78139
This ditch was also rapidly recorded and has again been located from rather scant information on the context sheets. It was in the same region of the site as Ditch 78200, but had a north-south orientation. It produced 37 sherds of pottery including large fresh fragments from a Bowl with lid-seated rim in rough grey fabric (Figure 18.21) dated 100 to 140 AD, and a cornice-rim beaker in similar fabric (Figure 18.22) dated 120 to 200

AD, allowing a fairly precise date in the second-quarter of the second century to be inferred for the fill of this feature.

The fill also contained an almost complete copper alloy brooch (registered find 1, Figure 19:1, Plate 8). Colchester Derivative brooches of this kind were first produced around the time of the Conquest, remaining in use well into (and throughout) the Flavian period, although the rear hook on this example probably dates it to the Claudio-Neronian period, around 40 to 65 AD (Appendix 9).

A sample taken from the fill contained a shell of a water snail, of a species typical of ditches prone to seasonal drying out (Appendix 10). There was a relatively large quantity of cereal grains in this sample, together with quantities of chaff. The cereal was largely wheat, with a high proportion of the 'glume wheats' spelt and emmer. Barley and oats were also present.

Ditch 78057
This was probably on a similar alignment to Ditch 78139, and produced 13 sherds of pottery, which included a large rim sherd from an unusual vessel in grey fabric (Figure 18.29) and dating from between 100 and 200 AD. The other sherds include an abraded fragment from a closed form in an unusual black fabric with iron slag filler.

This ditch cut an earlier linear feature 78052, which in turn cut another feature 78055 not visible in plan (Figure 10). These two earlier ditches or gullies presumably belonged to earlier phases of the field system, but were not well dated. The relationship of a fourth ditch in the same area 78103 was not recorded.

Gully 78059
This small gully at the southern end of the site yielded ten fresh sherds from a coarse grey Severn Valley Ware tankard (Figure 18.28). This gave a rather broad date range for the feature of 50 to 200 AD, so it could belong to a later, or earlier, phase. This feature is in alignment with another gully 78086 (Figure 10) and with a small pit 78219 which are likely to be contemporary with it. This pit contained a coin of Vespasian (registered find 6) dating to 70 or 71 AD. Gully 78147 to the north had similar dimensions (Figure 10) and might also be of the same date.

Other undated features possibly from this phase
The rather complicated sequence of ditch re-cuts makes phasing across the site difficult, but Ditch 78137 for instance, which is high in the stratigraphic sequence, could also be assigned to this phase. Feature 78135 in the same region appears to be stratigraphically very early and its very clean fill suggests that it might be of natural origin, perhaps as a palaeo-channel.

Phase 4: Evidence for continued activity in the later Roman period
A number of features appear to be late second century or later. These are rather scattered across the site, and do not form any coherent pattern. Most of the pottery finds suggest dates before 250 AD for these features.

Plate 8: Site 11 Roman Brooch

Plate 9: Site 11 Roman Brooch

Re-cut 77218 of Ditch 77216
This is unfortunately another hastily dug and poorly located feature, probably crossing the south end of Plot 77. Its fill yielded 99 sherds of pottery, most of which come from two similar storage-jars, one in patchy black/orange-brown Malvernian ware (Figure 18.30), similar to 3rd-4th century examples but of a type which changed little during the Roman period, and a copy of a Samian bowl in grey fabric (Figure 18.31). Considered together, these vessels suggest 150 to 250 AD as the most likely date range for the feature.

Gully 77085
This small gully towards the south end of Plot 77 contained 14 fresh sherds from a handmade bead-rim jar in patchy black/buff-brown/orange Malvernian fabric (Figure 18.32) dated 140 to 200 AD. It also yielded a tiny fragment in grey fabric of probable 2nd century date.

Pit 77060
This pit in the centre of Plot 77 contained the truncated lower half of a large handmade storage-jar in black Malvernian ware fabric, weighing over 7.5 kilos. There was no other diagnostic ceramic material and this, coupled with the absence of the storage-jar rim makes close dating of the impossible. All that can be said is that the jar was probably put in place at some time during the second-century.

There is a near complete absence of ceramic evidence for Late Roman occupation on the site although field walking over the site did yield a fragment from an Oxfordshire Red Colour-coat bowl dated to 240 to 400 AD.

Unphased Features
Of the undated features, the most striking are the roughly east-west aligned linear features crossing both fields. These include Ditches 77027 and 77096 near the north end of Plot 77, and 78123 and 78031 in Plot 78. These could be components of the Roman field system, but all share rather odd, flat-bottomed profiles for ditches (Figure 11). Apart from two tiny sherds of pottery in Ditch 77096, there were no finds from any of these features and they all lack clear relationships with other features that would anchor them into a stratigraphic sequence. Given that the field reconnaissance and topographic surveys of these fields recorded exceptional ridge-and-furrow earthworks, these features may be more reasonably be interpreted as the bases of ploughed furrows. If this is correct, then the ploughing would have truncated the archaeological features in the immediate vicinity of the exceptionally deep furrows, while protecting the areas between them; this seems to account for the pattern of features which was found, especially in Plot 78.

A similar explanation might also account for Gully 77186. The rather strange shape of Ditch 77214 at the south end of Plot 77 seems to mirror the change in the pattern of the ridge-and-furrow that was noted in this part of the site so it may have similar explanation. This ditch cut the fills of a large irregular feature 77175 interpreted as an infilled pond. The presence of a water snail shell in one of the samples taken from the fill of this feature tended to support this interpretation (Appendix 10). This part of the site is low-lying and there are two ponds still in existence in the southeast corner of the field, less than 40m away. The various excavated fills of Feature 77175 contained pottery dating from 50 to 200 AD and a fragment of fired clay with a burnished face, possibly form a triangular loom-weight (Appendix 11).

Plate10: Site 11 Roman Pottery

Plate11: Site 11 Roman Pottery

Plate12: Site 11 Roman Pottery

Plate13 Site 11 Roman Pottery

Continuation of the pattern of deep furrows in Plot 78 would require that there was another furrow corresponding with the group of linear features around Ditches 78075, 78137 and 78135. This may have been present and gone unrecognised for what it was; this would certainly help to explain the observed complexity of this part of the site, and with the confusion which arose in its recording.

The other notable unphased features were the numerous pits, most of which were rather amorphous in shape and had few if any finds. Most striking is the line of features in the central part of Plot 77 which appears to roughly align with the ends of Ditches 77131 and 77168. The irregular form of these features suggests that they may best be interpreted as tree holes rather than as deliberately dug pits, in which case this line would indicate that the field system was perhaps marked by hedgerows as well as ditches. There are similar clusters of pits associated with the complex of ditches in the south part of Plot 78. Some of these however may require different interpretations, for instance Pit 78202 was notable for a layer of charcoal and heat-reddened clay 78204 within its fill, indicating *in situ* burning. A sample from this layer contained a relatively large number of chaff fragments from processing of grain.

Unstratified finds included the bow and catchplate of another Colchester Derivative copper alloy brooch (registered find 5), dating to the mid to late first century.

Post-Roman activity

The presence of ridge-and-furrow earthworks has already been noted. The pattern was highly unusual, with every third furrow being very deep. This was presumably a deliberate attempt to drain this rather flat, low-lying piece of land. The change in pattern in the south end of Plot 77 could have been related to presence of the two ponds in the southeast corner of the field.

A number of spread layers were recorded, especially on the east side of the site, and it is likely that these were remnants of unmachined subsoil accumulated in areas of lower ground formed by ploughing. A good example is the broad spread across the centre of Plot 77, recorded as Feature 77066 and Layer 77167 which contained a single sherd from a 13th to 14th century green-glazed Midland white ware candlestick.

Two other stratified contexts contained medieval pottery. Ditch 78085 on the west side of Plot 78 contained single sherd from a sandy, utilitarian ware jar dating from the 11th to 14th century. This pottery could have been intrusive, but it is a reasonable supposition that this feature is associated with the medieval agricultural use of the land. A small sherd of a highly decorated jug in sandy tableware from the stratigraphically early feature 77138 was presumably intrusive. Four unstratified surface finds of medieval pottery were also found along with thirty-two sherds of post-medieval pottery.

Discussion

The earliest activity seemed to be concentrated at the west side of the site, although to some extent this may reflect the way that the site was machined and excavated, pressure of time being rather greater when the east side was being cleared. The early features seem mostly to be curvilinear features, originally probably quite substantial, but now little more than shallow gullies where they have been truncated down to their bases by later ploughing. This activity probably dates to the early first century AD.

The main phases of activity, occurring around the time of the Roman conquest and immediately after, involved the establishment of field ditches, presumably for both drainage and land demarcation. These were maintained and modified, perhaps over the course of the next century. From the middle of the second century, activity at the site seems to have dwindled to a very low level.

The quantity of finds from the site strongly suggests that there was a centre of settlement close by, perhaps immediately to the west of the pipeline easement. There was a surprising lack of ceramic building materials for a site of this period, so presumably any structure would have been of wood, possibly with clay daub, and roofed with thatch.

In addition to the pottery finds, an appreciable quantity of animal bone recovered from some contexts, the site as a whole, yielding nearly 9kg from 74 contexts, with 12 contexts having more than 250g (Appendix 8). This material appears broadly typical of rural producer settlements practising a mixed agrarian and pastoral economy, based largely on sheep and cattle, with a small number of pigs. The limited data suggested that sheep were being used for primarily for meat, with meat, with wool production not especially important. A large proportion of cattle consumed at the site were close to prime-meat age while the rest were animals that had been kept until no longer useful for breeding stock, milk and for traction.

The material from the processed samples showed an appreciably greater density of waste from domestic activity in Plot 77 than in Plot 78, suggesting that the habitation area was towards the north end of the site (Appendix 10). The relative absence of charcoal from domestic fires, however, implied that this was not in the immediate vicinity of the excavation area. The charred material contained a high proportion of cereal grain and chaff which would be typical of yard areas adjacent to a farmstead.

In addition to the crop processing residues, most of the 26 analysed samples from the site contained seeds from wild plants. Weeds of arable land were well represented, but there were also some typical heath and grassland species, suggesting that there was uncultivated land nearby. Pollen analysis, which may have provided more information on the broader environment, gave disappointing results due to the poor conditions for preservation of pollen grains.

In the post-Roman period the land would have been used exclusively for agriculture. The ridge-and-furrow earthworks were probably first established in the medieval period, but their state of preservation and unusual size perhaps means that they were deliberately maintained in order to allow the land to drain more quickly. The earlier deposits were undoubtedly been damaged and truncated by this medieval ploughing, but it also allowed for the accumulation of a deep subsoil, especially on the ridges, which has protected the site from the greater depredations of modern agriculture.

The evidence form the excavation suggests that the pipeline easement cut through the periphery of the Iron Age and early Roman site, so it is likely that more extensive archaeological deposits remain beneath the undisturbed part of these fields. The clay-lands of this part of the country generally have a rather low archaeological potential, heightening the significance of this site. It is probable that the site is linked to a Roman settlement identified on an earlier pipeline to the east (Ed Wilson pers comm.).

7.3.4 Site 12, Ditches, Long Marston

Section 9, Plot 83, Long Marston, NGR 416920 248140

Summary

A number of small ditches were recorded, possibly forming a rectilinear pattern of former field boundaries. The ditches pre-date the ridge-and-furrow in the field and have been tentatively dated as Romano-British, although artefactual evidence was scarce.

Location and Topography

This small site was 1.5km northwest of Lower Quinton and 400m west of the B4632 Cheltenham to Stratford road. The edge of the former airfield at Long Marston was 250m to the north (Site Gazetteer Map 13). The land here is fairly flat at about 45m AOD, but slopes up very gently to the southeast. The field is permanent pasture and had been closely grazed at the time that the Field Survey was carried out.

Geology and Soils

The clay substrate of the site probably consisted of 'head' from the higher ground to the south overlying mudstones and clay shales of the Lower Lias. The soil was a reddish brown clay silt.

Pre-Construction Background

The ADBA had recorded the presence of ridge-and-furrow ploughing (DBA:EM), but this was no longer visible as upstanding earthworks and no other archaeological remains were noted. The Geophysical Survey noted minor magnetic disturbances but with no linear or other features within an area of high susceptibility (FSU:040).

Excavation Methodology

The western part of the field was targeted for Evaluation trenching on the basis of these geophysical survey results.

Table 11: Site 12 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Production waste*		*CBM*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*4*	*1*	*6*		

Evaluation Results

Two 30m-long trenches were excavated by machine so as to intersect the locations of several of the more prominent geophysical anomalies. Apart from a burnt out tree stump and an extensive system of land drains, no features were initially visible, but differential drying of the machined surface revealed a number of possible archaeological features. Hand excavation confirmed the presence of medieval ridge and furrow and a series of natural features within Trench 83.1, and found two ditches, possibly belonging to a field system predating the medieval ridge-and-furrow in Trench 83.2.

These remains were chiefly located on the northern, subsoil side of the working width, although several of the ditches extended to the southern side. Following topsoil stripping, the surface of an area 50m long and up to 18m wide was machine-cleaned to allow excavation and recording of the archaeological features.

Excavation Results
The linear feature initially seen in the evaluation trench was a small ditch 8307 = 83002 on a roughly east-west alignment (Figure 12).It was approximately 1m wide and 45cm deep with fairly steep sides to a narrow rounded base. It had a rounded terminus disturbed by root activity at its western end.

Just over 3m beyond this terminal, the first of a series of north-south aligned ditches 83026 crossed the excavation area. This was a rather more substantial feature, 1.7m wide and over 50cm deep, and was visible for the entire 14m width of the cleaned area. A second parallel ditch 5m to the west 83022 was slightly narrower but of similar depth. A re-cut 83018 was recorded in its fills. Another 7m to the west, a third ditch 83010 was rather smaller.

Two other smaller linear features were also recorded with approximately the same north-south orientation. There was a gully with a rounded profile 83036 = 83037 = 83038 just to the west of Ditch 83022. This was recorded as stratigraphically earlier, but there was little overlap between the two features and this relationship may be spurious. The area where they were recorded, against the northern baulk of the site, had patches of remnant subsoil which were initially interpreted as the fills of a curvilinear feature 83008 = 83024. A small fragment of 13th to 16th century tile was recovered from one of these subsoil patches. Another north-south linear feature 83006 to the east of Ditch 83026 was a rather ephemeral feature, probably also a patch of subsoil.

At the east end of the excavation area, a short length of a V-shaped ditch 83014 could be seen running into the northern baulk. A few scattered discrete features could have been small pits or postholes, but are more likely to have been of natural origin. These included Pits 83029, 83032 and 83004.

The only clear stratigraphic relationships were between the north-south aligned ditches and the remnant furrows from the ridge-and-furrow ploughing. Three furrows were recorded, 83048, 83047 and 83020, spaced 6-7m apart.

A base sherd from a jar dating from 50 to 70 AD was recovered from the subsoil surface. Other unstratified finds during topsoil stripping included a late Neolithic or early Bronze Age chunk of worked flint, another small sherd of Roman pottery, four sherds of 17th to 19th century pottery and a copper alloy button.

Discussion
The best that can be said about the dating of this site is that the ditches definitely pre-date the ridge-and-furrow ploughing. This pattern of ploughing was probably established some time in the medieval period, although it could have continued until relatively recent times. The small piece tile found in one of the patches of remnant subsoil from to the 13th to 16th centuries could well have been incorporated into the base of a furrow during this period.

In the absence of dateable finds from stratified contexts, interpretation of this small group of features is difficult. If the ditches are contemporary with each other, then they can perhaps be seen as defining a series of small enclosures, perhaps for use as stock pens. Sites from the Roman period often include similar rectilinear ditched enclosures of this kind.

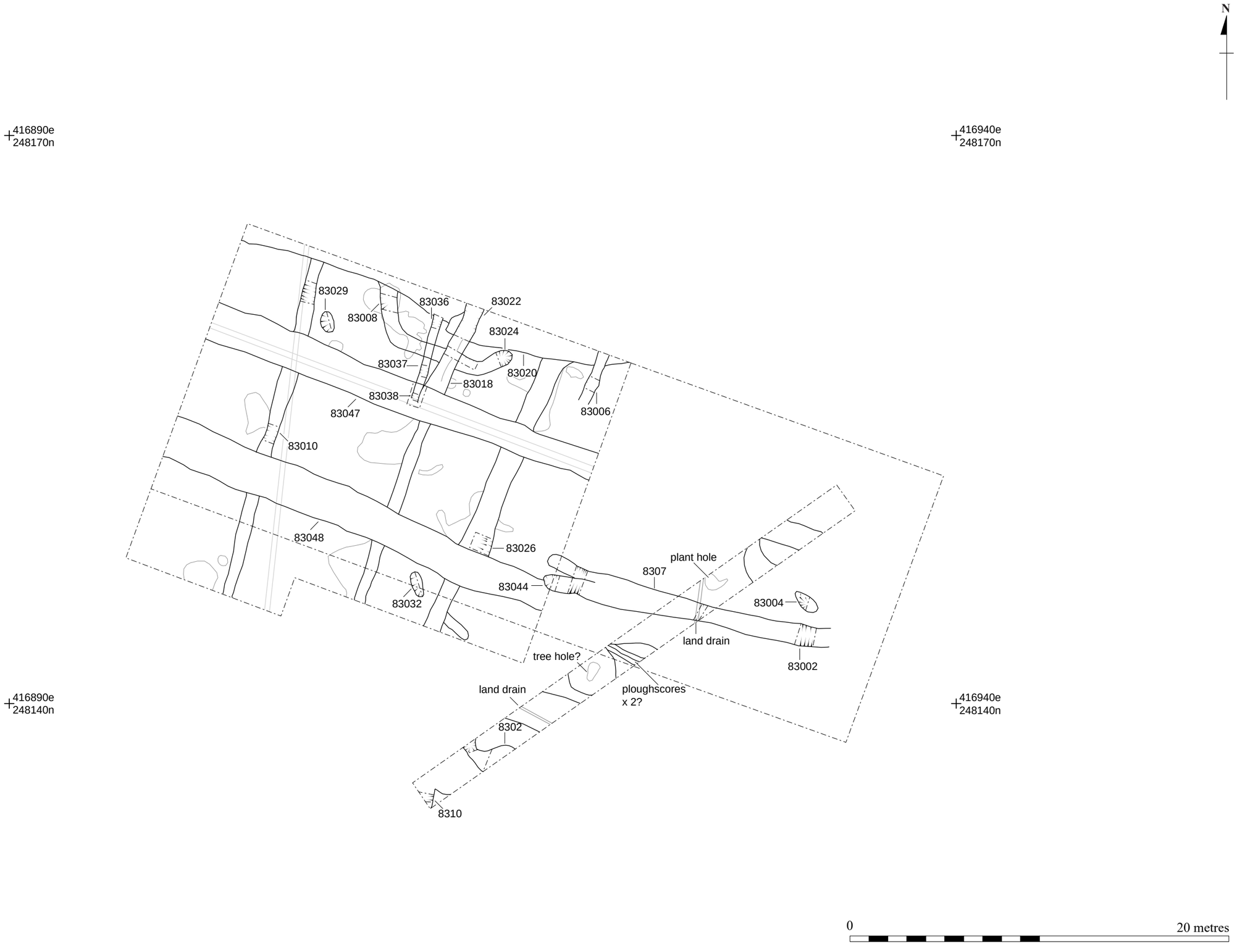


Figure 12: Site 12. Plan of Features (scale 1:200)

Roman sites are commonly rich in finds, and the lack of finds from this period apart from two unstratified pottery sherds, casts doubt on this interpretation. If these small enclosure ditches do date from the early Roman period, then they would probably have been in use at the same time as the site in Plots 77 and 78, 850m to the east, indicating that there was a fairly rich material culture in the area at that time. However, if these were merely stock-rearing pens far removed from any centres of settlement the lack of finds may not be so surprising.

7.4 Medieval

The Watching Brief produced:

- Site 3, Buried Soil, Coughton Fields
- Site 8, Ditch, Hillborough

7.4.1 Site 3, Buried Soil, Coughton Fields

Section 0, Plot 09, Coughton Fields, NGR 409490 259300

Summary

Stratified layers of silty clay subsoil were seen in the side of the pipe-trench overlying a dark brown organic layer at a depth of 40cm below the stripped surface. This was interpreted as a buried soil horizon. A number of sherds of medieval pottery from the layer immediately below suggested that the upper layers had been deposited by flooding of the River Arrow since that time.

Location and Topography

Plot 09 was 600m due north of Arden Valley Industrial Estate on the northern edge of Alcester and 500m south of Coughtonfields Farm (Site Gazetteer Map 1). The boundary between Coughton and Kinwarton parishes runs along the far side of the adjacent field to the east. The long distance recreational paths, the Arden Way, the Heart of England Way and the Monarch's Way all follow a track over a small but prominent hill 700m to the southeast, but Plot 09 is fairly flat and low-lying, at around 49m AOD, with a gentle slope down to the southwest.

Geology and Soils

The underlying 'solid' geology probably consists of Keuper Marl, but the superficial drift deposits are quite complex. This field is around 500m to the east of the River Arrow, and probably lies on the edge of the river terrace gravels. There is also likely to be some thickness of 'head' transported from the higher ground to the east by solifluxion. Alluvial flood deposits may have also contributed to the development of subsoil strata. The soil was a mid-brown sandy silt with occasional inclusions of pebbles and grit.

Pre-Construction Background

At the time of the Field Survey, Plot 09 was under pasture, but had fairly recently been ploughed and re-sown. The Geophysical Survey detected a single isolated pit-like anomaly (FSU:020) in this field. Nothing of archaeological significance was seen during the Watching Brief on the topsoil stripping. The only find was an unstratified sherd of a 17th to late 18th century dish.

Table 12: Site 3 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*4*	*13*	*0*	*0*	*0*	*0*	*0*	*0*		

Results

During the Watching Brief on excavation of the pipe-trench, a series of well stratified layers of silty clays were noted, extending over much of the eastern half of Plot 09. An upper layer of pale reddish brown subsoil 15cm deep overlay a thin band of mid grey, slightly peaty silt. A third layer of pale grey fine clay was up to 7cm thick and contained occasional small rounded pebbles. This came down onto a 12cm thick layer of mottled grey and brown clay with occasional charcoal flecks.

The putative buried soil was beneath these four distinct upper layers. It was dark brown, with abundant peaty inclusions in a fine silt matrix. The layer was up to 7 cm thick, and had an irregular base.

The layer immediately below the buried soil horizon was a greenish grey coarse silt with small pebbles. Four sherds of 11th to 14th century pottery (Context 900) were retrieved from this layer. A further mottled reddish brown and pale grey silty clay layer was visible below.

Discussion

Buried soils are particularly rich in environmental information. Although in this instance Health and Safety considerations precluded sampling, knowledge of its presence will enable a systematic strategy of environmental investigation to be implemented should future construction projects affect this field. As new pipelines are often laid alongside existing ones for parts of their route, this is a distinct possibility.

7.4.2 Site 8, Furlong Boundaries and Remains of Ridge and Furrow Ploughing

Section 6, Plot 54, Hillborough Farm, Binton, NGR 413080 252240

Summary

The remains medieval or post-medieval ridge and furrow ploughing, grouped into furlongs, were recorded in two areas within this plot.

Location and Topography
The northern limit of the plot lay approximately 335m due south of the line of the dismantled East and West Junction railway; its southern limit lay 250m north of the River Avon (Site Gazetteer Map 9).

There were two concentrations of archaeological features within the plot, at NGR 413175 252495 and NGR 413071 252179. Both concentrations were located on low-lying ground, between 40 and 35m AOD, which slopes down gently to the south west. The slope marks the edge of a river terrace, slightly raised above the flood plain of the River Avon.

Pre-Construction Background
Possible remains of ridge and furrow ploughing were identified in this plot in the DBA. A direct, but minor, impact on these was identified.

The plot had been ploughed and harrowed in advance of the Stage 3 fieldwalking: as a result visibility was excellent. A small number of post-medieval pottery sherds and some brick were recovered. Linear magnetic anomalies were recorded during the geophysical survey, and these were interpreted as possible remains of ridge and furrow ploughing. No other anomalies were recorded within the Plot.

Geology and Soils
The archaeological features were cut into light yellowish-brown pebbly and silty clay. The solid geology, which was seen in the pipe trench, comprised bands of mudstone and silt.

Excavation Methodology
No evaluation excavations were required within this plot and there were no pre-construction excavations.

Table 13: Site 8 - Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Animal bone*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*15*	*22*	*1*	*4*		

Watching Brief Results
Two concentrations of archaeological features were recorded during the watching brief in this plot: a northern and southern concentration. The former was located in the northernmost quarter of the plot, centred upon NGR 413175 252495, and the second in the central part of the plot, centred upon NGR 413071 252179, immediately south of the inflection point (IP).

Northern Concentration
An infilled ditch, located 24m south of the northern boundary of the plot, at NGR 413213 252541 and oriented west south west – east north east, was observed to run across the spread. It was 0.9m wide. A second, clay-filled, ditch ran parallel to this, 13m to the south. Between these two ditches a number clay-filled linear cut features, each approximately 2m wide and spaced between 9 and 5m apart, on a north north west – south south east alignment, was observed. These were interpreted as possible infilled

plough furrows. Further possible furrows were observed immediately to the south of the second of the above two ditches, on a north west – south east alignment. These furrows apparently cut a narrow linear feature, which was 0.4m wide.

Approximately 60m to the south of this second ditch, at NGR 413179 252454, a broad and low bank of topsoil was observed, running north east – south west across the spread. This was interpreted in the field as a possible headland.

Southern Concentration
A series of parallel, north - south oriented, clay-filled linear cut features was observed at NGR 413086 252185. These were, again, interpreted as infilled plough furrows. At their northern end they terminated at a broad, low bank of topsoil, oriented north east – south west, to the north of which was recorded a series of parallel former plough furrows.

A possible infilled plough furrow was observed toward the southern end of the plot, at NGR 413093 252052.

Interpretation and Discussion
The dimensions and spatial patterning of the various clay-filled linear cut features described above give credence to an interpretation of them as infilled plough furrows. Parallel plough furrows (often, though not in this instance, with interleaved topsoil ridges) are a type fossil of medieval and post-medieval ridge and furrow ploughing. A number of ridges and furrows, sharing a common alignment, are typically grouped into furlongs, and furlongs into fields. Furlongs were often divided by headlands, which formed when the ploughshare was lifted clear of the ground when turning the ploughing rig. Soil adhering to the share was deposited at the end of each ridge during this manoeuvre, and over time this accumulated into ridges such as those recorded here.

In the northern concentration of archaeological features, described above, the plough furrows appear to have been grouped into at least two furlongs. The northernmost furlong would appear to have been defined by the two parallel ditches, aligned west south west – east north east, and comprised the block of north north west – south south east aligned furrows. The ground between the southernmost of these two ditches and the broad headland 60m to the south probably comprised a second furlong.

The northernmost of these two land parcels was, at only 13m wide, very narrow even for a furlong. This might indicate an expansion northward (an intake) or conversely a contraction southward at some point in the past. This is a plausible scenario given the presence of a small stream 30m north.

In the southern concentration of archaeological features a low broad headland apparently divided two further furlongs, a northern one, with furrows aligned north east south west, and a southern on, with furrows aligned north-south.

7.4.3 Ridge and Furrow
Seventy-five areas of ridge and furrow have been identified along the route, although it is probable that not all these relate to the medieval period (Table 14). Seven extant examples were surveyed and recommended for reinstatement (Appendix 14). For direction and description of ridge and furrow refer to the Context Summary, Appendix 2. Only ridge and furrow identified as part of the Watching Brief is listed below; please

refer back to NAL Reports 224 and 226 for systems which were noted during these pre-construction phases.

The more extensive earthwork features were topographically surveyed prior to construction works as detailed in the Archaeological Management Plan and Watching Brief WSI. These surveys are detailed in Appendix 14.

In the table below a tick represents the project phase/s the systems were identified; Desk-Based Assessment (DBA), Field Reconnaissance/Geoghysics (FR/Geo) and WB (Watching Brief). All ridge and furrow was recorded, be it extant or remnant, on construction plot record sheets or context sheets. A tick has also been given if the earthwork has been reinstated.

Table 14: Ridge and Furrow Recorded During the Watching Brief

R& No.	Const Section/ Plot	NGR	Topographically Surveyed	Reinstated Ewk	ADBA	FR/Geo	WB
R&F1	0/1	408307 259776			√		√
R&F2	0/2	408550 259840			√		√
R&F3	0/5	408960 259560			√		√
R&F4	0/6	409130 259460			√		√
R&F5	0/7	409220 259410			√		√
R&F6	0/11	409800 259270			√		√
R&F7	0/12	409940 259180			√		√
R&F8	0/13	410070 259090			√		√
R&F9	0/14	410240 258980			√		√
R&F10	0/15	410390 258870			√		√
R&F11	1/16	410530 258760					√
R&F12	1/17	410680 258660					√
R&F13	1/23	411250 257910					√
R&F14	2/24	411360 257690					√
R&F15	2/25	411450 257500					√
R&F16	2/26	411540 257330					√
R&F17	2/27	411590 257220	√	√	√	√	√
R&F18	2/29	411910 256950			√		√
R&F19	2/30	412030 256800			√		√
R&F20	3/31	412220 256640			√		√
R&F21	3/32	412400 256640			√		√
R&F22	4/33	412350 256340			√	√	√
R&F23	4/34	412370 256080			√	√	√
R&F24	4/35	412480 255940					√
R&F25	4/36	412580 255800					√
R&F26	4/37	412730 255600			√	√	√
R&F27	4/38	412820 255480					√
R&F28	4/39	412930 255330					√
R&F29	4/40	143070 255120			√	√	√
R&F30	5/41	413120 255020	√			√	√
R&F31	5/42	413150 254900					√
R&F32	5/43	413150 254740	√	√		√	√
R&F33	5/44	413110 254640					√
R&F34	5/45	413000 254450			√		√
R&F35	5/46	413020 254210			√		√
R&F36	5/47	413070 253920			√		√
R&F37	5/50	413190 253320			√		√
R&F38	6/51	413300 253080	√		√	√	√

R& No.	Const Section/ Plot	NGR	Topographically Surveyed	Reinstated Ewk	ADBA	FR/Geo	WB
R&F39	6/52	413300 252860			√		√
R&F40	6/53	413220 252650			√		√
R&F41	6/54	413080 252240	√	√	√	√	√
R&F42	6/55	413070 251850			√		√
R&F43	6/56	413030 251680					√
R&F44	6/58	412990 251510	√	√	√	√	√
R&F45	6/59	413020 251380					√
R&F46	7/60	413040 251220			√		√
R&F47	7/61	412960 251070	√		√	√	√
R&F48	7/62	413020 250870			√		√
R&F49	7/63	413310 250700			√		√
R&F50	7/64	413580 250570			√		√
R&F51	8/65	413670 250520			√		√
R&F52	8/66	413860 250420	√		√	√	√
R&F53	8/67	414160 250190			√	√	√
R&F54	8/68	414430 250040			√		√
R&F55	8/69	414610 249890			√	√	√
R&F56	8/70	414950 249620			√	√	√
R&F57	8/71	415300 249340	√	√	√	√	√
R&F58	9/72	415430 249280			√		√
R&F59	9/73	415540 249270			√	√	√
R&F60	9/74	415720 249100	√		√	√	√
R&F61	9/75	415840 248900	√	√	√	√	√
R&F62	9/76	415860 248790			√		√
R&F63	9/77	415910 248680	√	√	√	√	√
R&F64	9/78	415970 248500	√	√	√	√	√
R&F65	9/79	416090 248440	√	√	√	√	√
R&F66	9/80	416210 248400	√	√	√	√	√
R&F67	9/81	416410 248330	√	√	√	√	√
R&F68	9/82	416650 248240			√		√
R&F69	9/83	416920 248150			√		√
R&F70	9/84	417200 248100			√		√
R&F71	10/85	417390 248050				√	√
R&F72	10/86	417590 248070			√	√	√
R&F73	10/87	417710 248100			√	√	√
R&F74	10/88	417920 248140			√	√	√
R&F75	10/89	418050 248130			√		√

7.5 Post-Medieval to Modern

The Watching Brief produced:

- Site 7, Disused Railway, Cranhill
- Site 13, Long Marston Airfield

7.5.1 Site 7, Boundary Ditch

Section 6, Plot 51, Cranhill, NGR 413300 252990

Summary

A wide, V-shaped cut feature, oriented east-west and located a short distance to the north of the boundary between Plots 51 and 52, was interpreted in the field as an infilled droveway. Further analysis of its form, location and orientation, however, suggests a more likely interpretation as a land division, the line of which was adopted for the later East and West Junction railway.

Elsewhere in Plot 51, a series of infilled plough furrows are indicative of likely medieval or post-medieval ridge and furrow ploughing.

Location and Topography

The site is located approximately 400m south of the B439, Evesham Road, along the line of the now-disused East and West Junction Railway, close to the boundary with Plot 52 (Site Gazetteer Map 8).

The site is on low-lying ground, at around 45m AOD, which slopes down gently to the south east. The slope marks the edge of a river terrace, slightly raised above the flood plain of the River Avon.

Geology and Soils

The archaeological features were cut into light yellowish-brown pebbly and silty clay, developed from the underlying pale deposits of the Tea Green Marl or Rhaetic mudstones.

Pre-Construction Background

A direct, but minor, impact to the dismantled East and West Junction railway was identified in the ADBA.

The plot was under stubble at the time of the Field Survey, so could not be fieldwalked; geophysical survey was possible, however, and this recorded magnetic disturbances associated with the disused railway line. No other anomalies were recorded within the Plot.

Excavation Methodology

No evaluation excavations were required within this plot and there were no preconstruction excavations.

Table 15: Site 7 -Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		

Watching Brief Results

A large cut feature [5107] was recorded toward the southern end of the plot during topsoil striping operations, and was more fully observed in the sections of the pipe trench. Its position and alignment mirrored that of the later East and West Junction railway: it followed a broadly east-west course and was centred upon a line seven to eight metres north of the boundary between Plots 51 and 52. The ditch had a shallow V-shaped profile and was four metres wide at the surface and one metre deep. It contained a series of sterile orange-brown clay fills, (5108), (5109), (5110) and (5111), from which no datable cultural material was recovered.

These were sealed by a number of layers of markedly different character, which extended beyond the limits of the cut feature. First in the sequence was a layer of sand and gravel (5112), which was sealed by dark-brown stony clay (5114), and that by a bluish-green clay (5114). These layers were sealed by a cambered surface of pebbles and limestone and coal fragments, which was approximately 6.5m wide. This surface was observed in advance of topsoil stripping operations, but did not survive to be recorded in the pipe trench. It was consequently not allocated a context number.

Elsewhere in Plot 51 a sequence of east-west oriented bands of paler orange-brown clay, each approximately three metres wide and spaced about three to five metres apart, was recorded. These filled shallow depressions in the clay subsoil.

Discussion

Cut feature [5107] was interpreted in the field as being a possible infilled droveway, the line of which was subsequently adopted for the railway. The V-shaped profile of this feature, however, suggests that this interpretation is unlikely to be correct; one would expect a droveway to have had a flatter base.

A more convincing interpretation of a feature of this form, and one containing a sequence of sterile clay fills, is as a field boundary ditch. A boundary ditch at this location is also likely on topographic grounds: it would have defined fields similar in size to those in the wider landscape. The orientation of this feature also broadly reflects the orientation of the surrounding field boundaries, as far as it is possible to ascertain in the small stretch of ditch observed. A boundary ditch at this location might also have provided a convenient alignment to be adopted for the course of the railway, particularly if, as today, it delineated landholdings in separate ownership.

The sequence of sandy and stony clay layers – (5112), (5113) and (5114) almost certainly derives from the groundworks associated with the construction of the later railway line. The cambered, metalled surface, recorded in advance of the topsoil stripping, functioned as a farm access track right up to the pipeline construction works occasioning this report.

7.5.2 Site 13 Long Marston Airfield

Section 9, Plot 84, Long Marston Airfield, NGR 417260 248080

Summary
The pipeline route crosses the southern tip of the former RAF airfield at Long Marston (WSMR 8029). During the watching brief several features associated with the airfield were recorded. Limestone and brick rubble was recorded throughout the plot, with greater concentrations recorded at the eastern end of the field. An aircraft dispersal bay was located at the eastern end of the plot, and a brick structure at the western end.

Location and Topography
The site lies close to the southern end of the pipeline route, immediately west of the Campden Road B4632 (RDX 10) (Site Gazetteer Map 14). The site forms part of the former World War II RAF airfield located close to the village of Long Marston, approximately 750m south-west of the centre of Stratford.

The site is on low-lying ground at around 45m AOD, with a very gentle slope towards the north-west. When the initial field survey was carried out in September 2002, the field was under long term pasture.

Geology and Soils
The site was on yellowish brown silty clay, probably 'head' deposits derived from the higher ground to the south overlying Lower Lias mudstones.

Pre-Construction Background
The ADBA highlighted the presence of this site. The site of a World War II RAF airfield is located here; the majority of it is still visible, and a series of runways and associated buildings remain to the north-east of the pipeline.

The non-intrusive survey stages of investigation produced little evidence. No obvious remains of the airfield were located during field reconnaissance. Strong magnetic disturbances were recorded by the geophysical survey, and were interpreted as probable recent infilling.

Excavation Methodology
The site was recorded following the Watching Brief on topsoil stripping.

Table 16: Site 13 -Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*2nd WW Bullets*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*48*	*212*		

Results
At the eastern end of the field a circular area of hard-standing was recorded (8402). This measured approximately 40m in diameter, and extended beyond the northern limit of the pipeline working width. This was covered with a 0.05m layer of asphalt and delineated by concrete sewer pipes measuring 0.20m in diameter. It is thought that this is an aircraft dispersal bay. Much of the surface of this had been damaged by ploughing and during topsoil stripping.

The remains of a modern structure (8410) were located 14m from the western field boundary. This feature survived as an H-shaped structure, consisting of concrete foundations (8412) with a brick structure (8413) built on top.

The foundation trench (8416) was cut into a natural periglacial layer, measuring 0.20m deep (8414). A grey-brown alluvial layer (8415) which was recorded throughout the eastern half of the field was also cut by the foundation trench for structure 8410.

The concrete foundation (8412) was 0.50m deep. The width varied between 1.50m and 2.12m, and extended for a length of 4m. An H-shaped brick structure was built on top, measuring between 0.61m and 1.10m wide. Only three courses bricks survived.

Above structure 8410, was a layer of demolition debris (8411) contained within cut 8417 and extending to the west. This consisted of light brown silty clay within which were substantial quantities of brick and limestone rubble, pebbles and concrete. The bricks are the same as those used in the construction of structure 8410. Numerous spent bullets were also contained within this material. Cut 8417 had moderately steep sides sloping to a concave base. This measured 1.25m deep and approximately 8m wide. The debris extended beyond the edge of the pit westwards for approximately 12m.

Adjacent to the western field boundary, a pebbled area was revealed by the removal of the topsoil. This consisted of sub-rounded pebbles approximately 0.05m in diameter forming an area of hard-standing. Significant quantities of bullet casings and spent bullets were recorded here, suggesting that this area may have been used as a “rifle range”, in connection with structure 8410.

Concentrations of limestone and brick rubble were located throughout the plot. A large concentration was recorded at the eastern end of the plot, adjacent to 8402. Tarmac fragments and bitumen covered pebbles were visible among this rubble, and it is thought that this may represent debris from a former runway, associated with the aircraft dispersal bay. Very few artefacts were recovered from these limestone scatters. Asbestos fragments and pieces of cast-iron guttering were recorded.

A rubbish pit, measuring 1m in diameter and 0,20m deep was located at the western end of the plot. This contained a variety of artefacts including iron nails and fittings, glass, asbestos fragments and fragments of a white-glazed sink. This pit is clearly modern in date, and may be associated with the airfield.

Discussion

The features identified here appear to be associated with the World War II airfield and its subsequent disuse. Only a small section of the airfield has been affected by the construction of the pipeline, and this had already been allowed to fall into disuse and was a long-term pasture field. No remains of this section of the airfield were visible on the surface.

Feature 8402 is thought to represent an aircraft dispersal bay which would have been used during World War II to afford better protection to aeroplanes while on the ground during bombing raids. This corresponded with one of three similar features that were visible as on aerial photographs.

Evidence of extensive shooting was recorded in the vicinity of the brick structure. It is possible that this was a firing range butt or protective wall, used during training and target practice. The cobbled surface that was recorded to the west of this was also littered with bullets, providing further evidence that this area was used as a "rifle range".

Refuse pit 8417, and the layer of material over the remains of structure 8410, represents demolition debris. This material may have been deliberately deposited here following the disuse of this area of the airfield in order to level the area, which has since been allowed to grass over.

A second, smaller rubbish pit was also recorded. This contained modern refuse, and may post-date the disuse of the airfield.

All of the material recovered from here was modern in date, corresponding with the date of the features recorded. The evidence obtained during the watching brief confirmed that this formed part of Long Marston airfield.

7.5.3 Former Field Boundaries

A total of nineteen former field boundaries were recorded during the construction of the pipeline, following both the initial topsoil strip and during pipe trenching. These were assigned context numbers in the field, and were later given a field boundary number between 1 and 19 (Table 17).

Table 17: Field Boundaries recorded during the Watching Brief

Field Boundary No.	Const Section / Plot	NGR	Context No. (if applicable)
FB1	0/1	408337 459792	001
FB2	0/2	408330 259799	
FB3	0/3	408701 259775	
FB4	0/7	409201 259443	700
FB5	0/7	409169 259437	702
FB6	0/9	409500 259300	
FB7	0/12	409888 259236	
FB8	0/12	410027 259152	
FB9	0/17	410785 258554	
FB10	0/17	410840 258595	
FB11	0/17	410807 258569	
FB12	1/19	410993 258440	1900, 1910
FB13	5/42	413152 254796	4200 HFB 37
FB14	6/54	413189 252524	5405
FB15	6/54	413071 252148	5407
FB16	6/57	413000 251599	
FB17	7/62	413012 250885	6200
FB18	8/67	414130 250230	
FB19	8/68	414350 250090	6801

7.5.4 Historic Field Boundaries

As part of the Archaeological Management Plan (AMP) and Written Schemes of Investigations (WSI's) it was recommended that all historical field boundaries identified

in the Archaeological Desk-Based Assessment should be recorded during the Watching Brief.

The working width at these boundaries was reduced so as to minimise their disturbance and during the watching brief cross-sections were recorded and photographed (see Site Gazetteer Maps for locations).

7.6 Undated

The Watching Brief produced:

- Site 5, Buried Soil, Stratford Road
- Site 9, Pit, Hillborough

7.6.1 Site 5, Buried Soil, Hillborough

Section 3, Plot 31, NGR 412290 256690

Summary

Deposits seen in the pipe-trench were initially thought to be evidence of a buried soil horizon, but are much more likely to be the result of modern ploughing. A single worked flint from the site is almost certainly a residual find within a modern deposit.

Location and Topography

Plot 31 lies on the north side of the A46(T) 8km west of Stratford and immediately to the east of the junction with a minor road to Upton village (Site Gazetteer Map 1). It is on gently undulating land, between 60m and 65m AOD. The ground slopes up to the southwest towards a small wooded hill known as the Night Cap on the other side of the main road.

Geology and Soils

The site lies close to the boundary of the Keuper Marl and the later Tea Green Marl and Rhaetic mudstones, and was probably covered by a layer of 'head'. The soil was a reddish brown sandy silt.

Pre-Construction Background

The non-intrusive survey stages of work found nothing of archaeological significance in this field. The Watching Brief on the topsoil stripping recorded ploughed out ridge-and-furrow, a large peat-filled depression on the east side of the field and patches of root disturbance.

Table 18: Site 5 -Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Fired clay*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		*40005*
0	*0*	*0*	*0*	*0*	*0*	*3*	*11*	*1*	*36*	*0*	*0*		

Excavation Methodology
The site was not identifies until the Watching Brief on the excavation of the pipe-trench.

Results
The side of the pipe-trench revealed clear evidence of ridge-and-furrow ploughing within a well- developed subsoil layer. The furrows were on an approximate 8m spacing and were up to 35cm deep. The section was initially interpreted as showing preserved ridge-and-furrow earthworks buried beneath later alluvial or colluvial layers. An organic peaty layer 3101 was present within the subsoil at one point, giving credence to this interpretation. A sample from this peat deposit was sampled and examined pollen, but none was found, probably because a combination of factors, extreme humification, oxidation and micro-biological activity caused by drying out, had destroyed any pollen originally present (Appendix 10). A late Neolithic or early Bronze Age flake from a flint core 5527 was retrieved from this layer, but three sherds of late 17th to mid 19th century pottery were also present.

Discussion
It seems likely that the interface observed in the trench-side was the base of the ploughing layer, the overlying subsoil having formed as a result of this ploughing rather than as a colluvial layer sealing a pre-existing soil-surface horizon. Although apparently beneath the furrows, presumed to be medieval, the finds from the organic layer 3101 suggest that it formed as a result of modern agricultural practice rather than being a preserved ancient surface horizon. It is doubtful whether there is any great archaeological significance in its occurrence.

A rather dramatic pattern of periglacial ice wedges in the natural clay substrate may have contributed to the difficulty in interpreting the higher deposits.

7.6.2 Site 9, Pit, Hillborough Farm, Binton
Section 6, Plot 55, NGR 413070 251909

Summary
A pit, initially thought to be of prehistoric date, was excavated and recorded in this plot. Specialist analysis of an iron tool that it contained, however, indicates a post-medieval or modern date for this feature.

Location and Topography
The site was within a meander of the River Avon to the West of Welford. It consisted of a single pit centred upon NGR 413070 251909 (Site Gazetteer Map 9). The ground was around 42m AOD and gently undulating, sloping down to the river 400m to the south, and 1km to the north-east.
Geology and Soils

The site was on terrace gravels associated with the River Avon, lying over Lower Lias mudstones. The soil was a mid-grey silty clay.

Pre-Construction Background
No archaeological remains were identified in this plot in the ADBA. The plot had been ploughed and harrowed in advance of the Stage 3 fieldwalking: as a result visibility was excellent. A small amount of brick was recovered. No geophysical anomalies were recorded within the Plot.

Excavation Methodology
No evaluation excavations were required within this plot and there were no pre-construction excavations. The pit observed in the header trench was initially half sectioned; the remaining fill material was then removed for finds retrieval purposes

Table 19: Site 9 –Finds Summary

Prehistoric pot		*Romano-British pot*		*Medieval pot*		*Post medieval pot*		*Knapped Flint*		*Iron object*		*Other*	*Sample Nos.*
count	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*	*count*	*weight (g)*		
0	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*4*	*1*	*557*		

Watching Brief Results
An infilled circular pit [5515], 1m in diameter and 0.4m deep, was excavated and recorded at the above location. Its primary fill (5517) comprised oxidised clay and charcoal and contained an iron object. This was sealed by two clay fills, (5518) and (5516) in succession.

Interpretation and Discussion
The pit was first observed in the base of the header trench, so could have been truncated by up to 0.2m.

The nature of its primary fill led to its interpretation in the field as a pit used for cooking, which suggested a possible prehistoric date. Specialist analysis of the iron object which it contained, however, (Appendix 9) indicates a post-medieval or even modern date for this feature.

7.7 Floodplains of the Rivers Arrow, Alne and Avon

General
The ADBA drew attention to the archaeological potential of alluvia and colluvia. A recording strategy was agreed during subsequent meetings with the Curator and English Heritage. This focussed upon the need to sample alluvial deposits within the floodplains of the rivers Arrow, Avon and Alne, for archaeological material, such as buried sites or artefacts, and for evidence of changing environmental conditions. Information about past environments can be established through study of the alluvial and colluvial deposits themselves and from stratified material such as wood, leaves, snail shells, beetle wing cases, and pollen grains. Datable material of this kind is rare and of great significance when found.

The pre-construction borehole survey recorded alluvium up to 4m deep lying on either side of the Rivers Avon, Alne and Arrow (Exploration Associates 2002). Because of the difficulties in detecting archaeological remains in areas of deep alluvium it was recommended that adequate resources should be put in place for dealing with any findings during the archaeological Watching Brief. Provision was made for James Rackham (the environmental archaeology consultant for the project), to visit the site and sample deposits, as necessary.

The pipe-trench lying to the north west of the River Arrow was machine excavated on June 17th 2003, and could be seen to contain a good sequence of colluvial and/or alluvial silts and peat. Arrangements were made for both James Rackham and David Jordan (NAL's environmental archaeology and geo-archaeological sub-contractors) to visit the site. Lisa Moffit (English Heritage Scientific Advisor) was also notified. The following summary of their findings (7.7.1 – 7.7.3) is based on their reports, which are given in full in Appendix 15.

The soil samples taken are currently in storage, and are available for future palaeo-environmental research.

7.7.1 Site 2b Arrow Floodplain

Section 0, Plots 3-5, NGR 408740 259750

Summary

A number of old river channels were noted in the pipe-trench and auger pits for the crossing of the River Arrow. Peat deposits containing well-preserved organic remains were present in these, and samples were taken through these layers for palaeo-environmental analysis, as outlined above.

Location and Topography

The pipeline crossed the floodplain of the River Arrow to the southwest of Church Farm, King's Coughton (Site Gazetteer Map 1). Infilled stream channels were visible in the pipe-trench on both sides of the river, but more so to the west side.

Geology and Soils

Reddish-brown clay-silt alluvial deposits covered the fields on either side of the river, Plots 3 and 4, but underlying gravels could be seen exposed in the river bank prior to construction. The soil was a friable greyish-brown sandy silt.

Pre-Construction Background

The ADBA drew attention to the archaeological and palaeo-environmental potential of the river floodplains. Two groups of isolated magnetic anomalies (FSU:017 and FSU:018) were detected by the Geophysical Survey, but there was a low level of confidence regarding their archaeological significance. Little of archaeological significance was observed by the Watching Brief during topsoil stripping, due to a thin layer of alluvium which masked the underlying deposits.

Excavation Methodology
On excavation of the pipe-trench in Plot 03, it became clear that there were good exposures of peat deposits in the trench side (Figure 13). Column samples were taken by NAL's on site-archaeologist (Table 20). Further monolith samples, bulk samples and samples suitable for radiocarbon analysis were taken by the environmental archaeology and geo-archaeological consultants.

Table 20: Palaeo-environmental Samples From River Arrow Floodplain

Sample	Description	Sample type	Plot	Location
Arrow 1	River channel, taken by JR	Column	0/3	408703 259775, river channel 9
Arrow 2	River channel, taken by JR	Column	0/3	408694 259792, river channel 7
Arrow 3	River channel, taken by JR	Column	0/3	408676 259821, river channel 4
Arrow 4	River channel, taken by JR	Column	0/3	408667 259837, river channel 3
Arrow 5	River channel, taken by JR	Column	0/3	408641 259857, river channel 1
40000	riverine deposits	Column	0/4	408801 259697, 0.94m deep
40001A	riverine deposits	Column	0/3	408702 259776, top 1.65m deep
40001B	riverine deposits	Column	0/3	408702 259776, base 2.30m deep

Results
At least nine distinct palaeo-channels were seen to the west of the present river channel. These contained alluvial silts up to 1.3m deep overlying basal organic sediments. The channels cut through coarse sandy gravel of probable glacial age. The organic sediments could be seen to contain reeds, twigs, wood, hazelnuts, seeds and beetle fragments. The preservation was good and included intact and identifiable tree leaves. A cattle horn core 320 was retrieved from the same peat deposit as Samples 40001A and B. This was of a size and form typical of animals of late Iron Age, Roman or later date. A skull fragment of a very large red deer complete with most of the left antler 2446 was recovered form the auger pit on the south-east side of the river, at NGR 408800 259724 at a depth of 2.20m and probably from the same channel as Sample 4000.

In one area burnt and fire-cracked pebbles could be seen within the alluvial sediments (see Site 2a, Section 7.2.1 above). These appeared to be associated with features cut through the lower alluvial sediments and channel fills. If these fire-cracked pebble deposits derive from typical 'burnt mound' material, they may be of late Bronze Age date, suggesting that the underlying channels in this area were of an earlier period.

Interpretation and Discussion
An initial examination of the pollen from the organic deposit at the base of the sequence on the north bank of the river has suggested that it dates to about 10,000BC or earlier (J. Rackham, pers comm). A shell-rich freshwater sediment above may have accumulated in a lake or redundant glacial channel of late glacial or Mesolithic date.

This would indicate that alluviation started much earlier in the Arrow valley than has previously been thought. Further study of this sequence of palaeo-channels would contribute considerably to our understanding of the impact of humans on the early environment of the area.

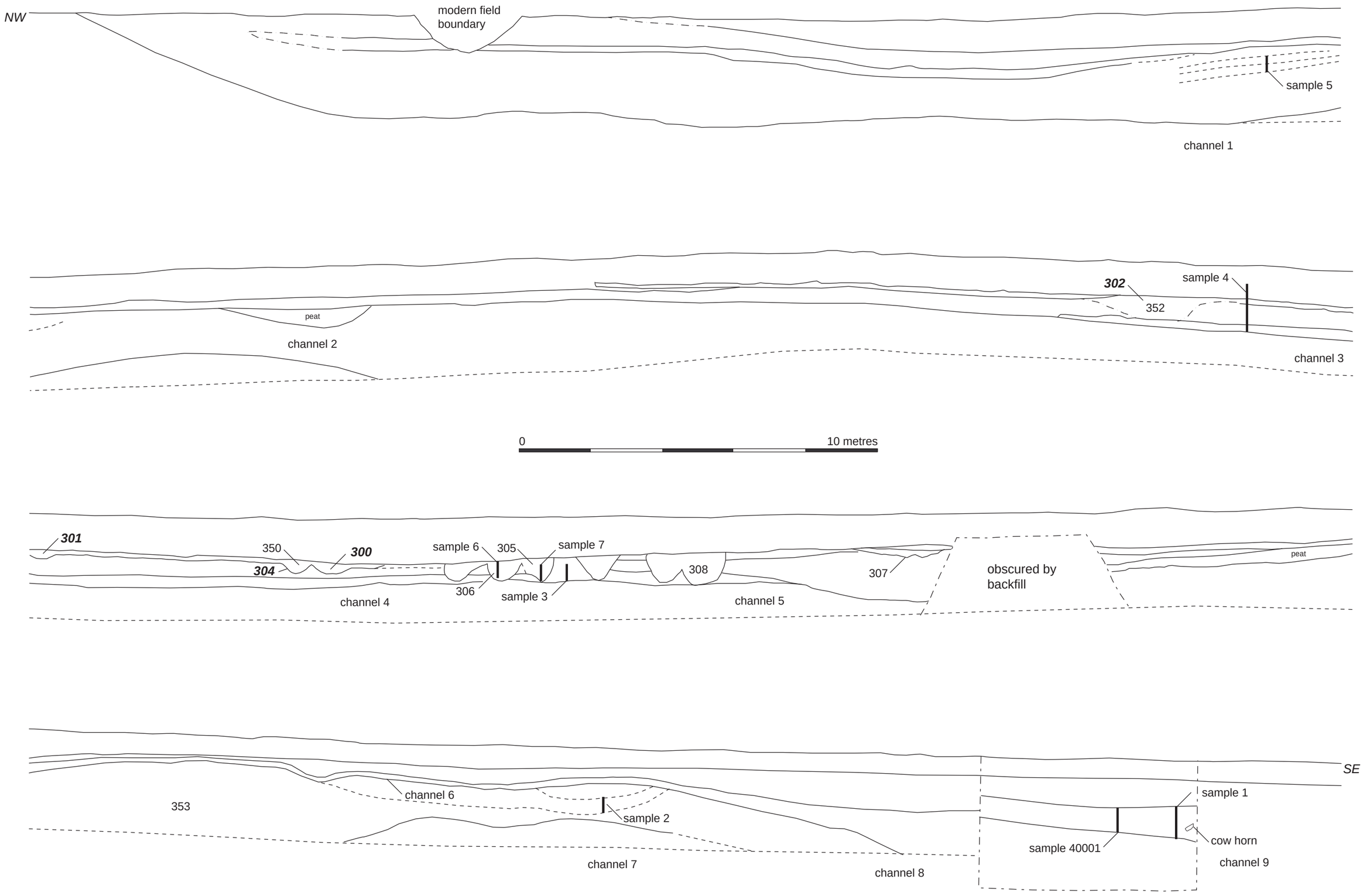


Figure 13: Site 2b Section through Arrow floodplain deposits (1:100)

7.7.2 Site 4 Alne Floodplain

Section 1, Plots 17-18, NGR 410825 258560

Summary

A programme of palaeo-environmental sampling was implemented in the alluvial deposits revealed by the engineering works for the river crossing, as outlined above. There were no other significant archaeological deposits recorded in these two fields.

Location and Topography

The pipeline crossed the River Alne 400m northeast of Glebe Farm, Kinwarton and 350m south of the B4089 Alcester to Wooton Wawen Road. The ground here is gently undulating, and the river floodplain is relatively narrow, extending over most of Plot 18, but only a small strip on the southeast side of Plot 17.

Pre-Construction Background

Apart from the potential for deposits sealed by later alluvial layers, the ADBA noted little of archaeological significance in these two fields (Site Gazetteer Map 3). The Field Survey recorded an old field boundary on the north side of Plot 17 (FSU:006) and a semi-dry river meander in plot 18 (FSU:007). Both fields were permanent pasture. The Geophysical Survey showed pit-like features near to river in field 18. The Watching Brief on the topsoil stripping noted ploughed out ridge-and-furrow, and an unstratified flint core 2338 was retrieved 5m from the river bank in Plot 17. An old river channel was visible in the stripped topsoil surface, centred on NGR 410736 258623.

At the time of the visits by the environmental archaeology and geo-archaeological consultants there were no promising exposures in the auger pit under excavation but at least two redundant channels on the south side of the present river course were visible in the pipe trench. It was anticipated, however, that well-preserved organic remains might be exposed when the pipe trench was excavated.

Excavation Methodology

Column samples were taken from the peat deposits in the two former river channels that were seen in the pipe trench. Bulk samples for palaeo-environmental analysis were also taken from the top, middle and base of these deposits. The top of a third possible channel was also sampled.

Table 21: Paleo-environmental Samples Taken From River Alne Floodplain

Sample	Context	Description	Sample size	Plot
40002	1801	Through riverine deposits	column	1/18
40002.1	1801	Top of peat	1 tub (10 litre)	1/18
40002.2	1801	Middle of peat	1 tub (10 litre)	1/18
40002.3	1801	Base of peat	1 tub (10 litre)	1/18
40003	1803	Through riverine deposits	column	1/18
40003.1	1803	Top of peat	1 tub (10 litre)	1/18
40003.2	1803	Middle of peat	1 tub (10 litre)	1/18
40003.3	1803	Base of peat	1 tub (10 litre)	1/18
40004.1	1804	Top of peat from possible third channel	1 tub (10 litre)	1/18

Results
There were two broad peat-filled channels clearly visible in the side of the pipe trench. Channel 1800 was up to 13m wide centred on NGR 410943 258520 (Plate 2). It contained a layer of peat 1801 up to 0.4m thick sealed beneath just over 2m of fine bluish-grey alluvial silt. A horse scapula 1802 was recovered from the top of the peat layer.

A second channel centred on NGR 410888 258540 was 65m closer to the river. It was visible in the side of the pipe-trench for 35m, and had a shallowly dished profile to a depth of 3.20m. Its base contained a layer of peat 1803 up to 0.3m thick, beneath silty alluvial layers (Figure 14).

During backfilling of the pipe-trench, a third possible channel was identified, centred on NGR 410853 258548. The peat layer 1804 was only 0.06m thick at the point where it was sampled.

Interpretation and Discussion
In the absence of dating for these peat deposits, it is difficult to judge their significance. However, the presence of a horse bone hints at the possibility that they may be contemporary with early human occupation in the area, and they are potentially of considerable importance for palaeo-environmental study.

7.7.3 Site 10c Avon Floodplain
Section 6, Plots 56-57, NGR 413000 251550

Location and Topography
The pipeline crossed the river 1.5km to the west of Welford-on-Avon (Site Gazetteer Map 9). The land to the south of the river rises quite steeply at this point, but there is flatter ground to the north.

Geology and Soils
Locally, the geology comprises head and river terrace deposits, overlain by alluvium. Boreholes taken 80m either side of the river Avon recorded alluvium to a depth of 4m on the west and 1.5m on the east side (Exploration Associates 2002). During the watching brief a blue-grey clay, extending to 40m south of the river, was recorded. The topsoil was mid-greyish brown, loose, friable coarse silt, and there was a light orange brown subsoil.

Pre-Construction Background
The ADBA drew attention to the potential of the river floodplains for archaeological and palaeo-environmental remains. The fields on either side of the river were under grass at the time of the Field Survey, Plot 56 being arable set-aside while Plot 57 was pasture, and the ground visibility was too poor for fieldwalking. Magnetic anomalies typical of pits or hollows were recorded in the Geophysical Survey, but there was thought to be a low degree of confidence in their archaeological significance.

The Watching Brief on the topsoil stripping recorded an old field boundary ditch and probable furrows in Plot 56, while to the south of the river, the burnt mound deposits in Plot 57 (see Site 10a & b, section 7.2.2 above).

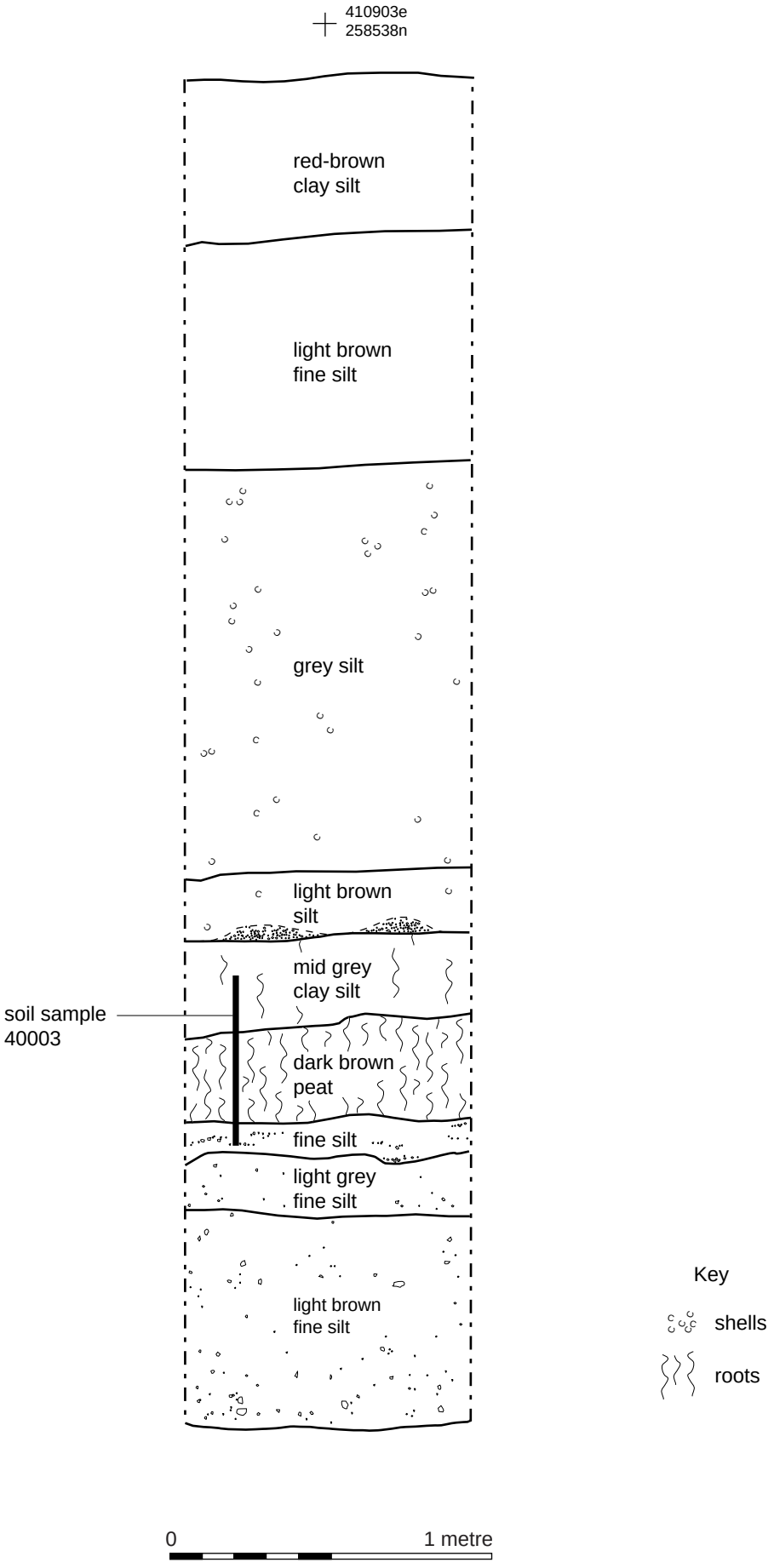


Figure 14: Site 4 Section through Alne floodplain deposits (1:20)

Excavation Methodology

Excavation of pits used to auger-bore beneath the river allowed examination of the deposits masked by the overlying alluvium. The environmental archaeology and geo-archaeological consultants observed the exposed deposits in the auger pits for the Arrow River crossing. Sections through the full sequence of deposits, to a depth of more than 8m, were visible in the bore-pits and could be examined and sampled to a depth of 4-6m. Selected sections were cleaned and photographed, and samples were taken through the uppermost quaternary and Holocene deposits (Figure 15). Readings of magnetic susceptibility were taken from the cleaned sections.

Table 22: Palaeo-environmental Samples Taken From Site 10c River Avon

Sample	Context	Location	Sample type	Plot
40008A	5600	Auger pit, north of river	Column	6/56
40008B	5604	Auger pit, north of river	Column	6/56
40008C	5604/02	Auger pit, north of river	Column	6/56
40008D	5604	Auger pit, north of river: basal peat layer	Bulk	6/56
40009A	5798	Auger pit, south of river (taken by David Jordan)	Column	6/57
40009B	5799	Layer of silted channel –south side of river	Bulk	6/57

Results

A flint blade and small fragments of bone were recovered from basal deposits in the north east corner of the auger pit on the south side of the river, beneath a 1m build up of colluvial sediments. These finds suggested that there may have been a prehistoric site at this location, which would be of considerable significance if the flint was from an early period. The alluvial sediments were calcareous with good preservation of snail shells.

The sequence of deposits exposed on the north side of the river was different, and included layers especially rich in shells of water-snails. A localised peat layer at the base of the sequence was sampled for pollen analysis.

Discussion

A rapid assessment was made by the geo-archaeological consultant. The sequence of layers from the weathered Jurassic bedrock to the modern ground surface show that Devensian periglacial processes gave way to gradual peat and organic clay accumulation on the wet valley floor during the earlier Holocene. This gave way abruptly to a more rapid accumulation of strata which may have been deposited by colluvial erosion and slope failure nearby. This may be the result of clearance close to the site. There is no gradual change in the rate of mineral accumulation below this boundary which might otherwise have suggested gradual small-scale clearance upstream prior to this event.

The more rapidly accumulated, coarser strata above this boundary have been strongly affected by soil formation under a variable drainage regime. It is likely that the deposits accumulated gradually, perhaps at a rate of around 1mm per year. This allows time for biological activity to have reworked the accumulating deposits and destroyed evidence for the processes responsible for their sedimentation. Evidence for episodes of soil formation, and especially restructuring, are found throughout the upper strata, implying that there were some periods of deep drying across the valley floor which allowed shrinkage cracks to form and columnar prisms of soil to develop in the deepening profile. These cracks were filled with clay deposited by later floods.

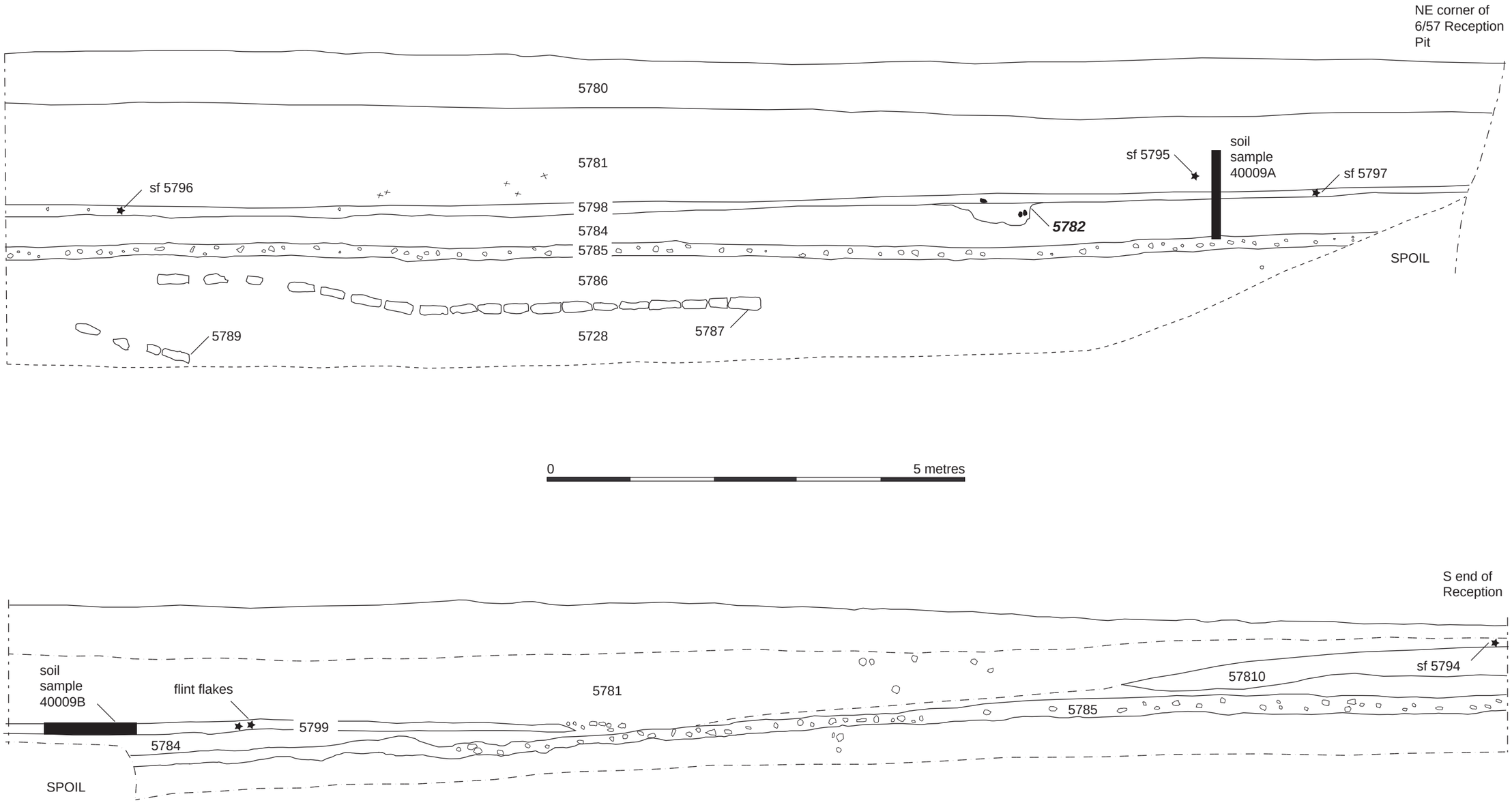


Figure 15: Site 10c Section through Avon floodplain deposits seen in pit for auger bore, plot 6/57 (1:50)

Evidence for changing soil conditions suggested that preservation of all palaeo-environmental remains could be patchy and subject to taphonomic biases. Despite this disruption there may be some evidence of stratification preserved in changes in texture or magnetic susceptibility within the upper strata. These could be worth further investigation to help determine the source of the deposits, the processes by which they were deposited and the kind of environment within the Avon catchment during the latter part of the Holocene (Jordan, Appendix 15).

The flint from the basal alluvial deposits in the auger pit in Plot 57 was not very diagnostic but was probably of late Neolithic or early Bronze Age date. The stratigraphic relationship of the deposits revealed in the auger pit with the burnt mound at Site 10a was not clear, but it is likely that the burnt mound post-dated much of the alluvial build-up. Burnt mounds are rarely well-dated, but are generally assumed to be typical of the Bronze Age. On this assumption, the alluvium would have accumulated over a relatively short period of time.

Without more reliable dating, the potential significance of the collected samples cannot be assessed with any degree of confidence. Palaeo-environmental evidence for the post-glacial and Mesolithic periods is rare, and the site would be of national importance if it was of this date. Although the indications are that the alluvial build-up was more recent, perhaps dating to the early Bronze Age, analysis of these samples would still provide valuable evidence of the development and evolution of the environment in the region,

7.8 Unstratified Artefacts

A quantity of unstratified artefacts were recovered from along the pipeline route, many of these were associated with the sites excavated in plots 52 and 75. The unstratified artefacts are discussed by period below. The artefacts are located on the Site Gazetteer Maps 1-14 and their co-ordinates detailed in the Finds Summary (Appendix 3).

7.8.1 Prehistoric

The majority of the unstratified finds attributed to the prehistoric periods were worked flints. Twelve fragments were typical of Mesolithic flint technology; five of these were from Plot 57. There were fifty-two flints dated to the Neolithic or Bronze Age. Plot 57 again yielded the largest number, with seven, but other plots also had multiple finds, with five in Plot 2 and four each in Plots 33 and 59. Overall, the flint assemblage included five scrapers and a possible piercer, four blades or blade-like flakes, eleven cores or core-fragments and a rejuvenation flake, and five retouched flakes or fragments.

There were two sherds of pottery which were thought to be of Iron Age or earlier, but neither was very diagnostic. Several other sherds were classed as late Iron Age or early Roman.

7.8.2 Romano-British

There was a fairly even spread of unstratified Romano-British pottery, the total of fifty-two sherds being distributed over twenty-six different plots. Only Plot 75 with seven sherds and Plot 77, where the five unstratified sherds were probably associated with the field system site in the plot, showed any significant concentrations.

7.8.3 Medieval

Plot 50 yielded 287 sherds of medieval pottery, probably all from a single vessel. Elsewhere along the pipeline there were thirty-eight other pottery sherds dated to this period.

7.8.4 Post Medieval

The most notable post-medieval unstratified finds were the ninety-one fragments of clay tobacco pipe. This total included forty-two from Plot 15, along with a background of scattered finds from the rest of the pipeline. The group from Plot 15 included six bowl fragments, including three which were decorated with a rouletted line. The other three bowl fragments from this plot and the five from elsewhere on the pipeline were undecorated.

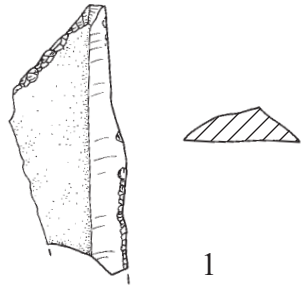
7.9 Miscellaneous Features

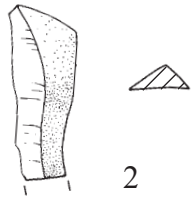
There were a number of isolated features recorded during the Watching Brief. In some cases these were given context numbers and had sections drawn, but the majority were recorded only as sketches on Plot Record sheets. They are listed in the table below, and their location shown on the Site Gazetteer maps 1-14. Most are of little or no archaeological significance, but knowledge of their presence may help in interpretation of features showing in geo-physical data or on air photographs

Table 23: Miscellaneous Features Recorded During the Watching Brief

Miscellaneous Feature No.	Feature Type	Description	Const Section/ Plot	NGR	Context No. (if applic)	WB
MF1	Modern drainage	N-S aligned land drains.	0/1	408022 259746		√
MF2	Trackway	2 parallel bands of stone and brick 1.80m apart, 7m from eastern field boundary.	0/7	409270 259390		√
MF3	Track of dismantled railway.	Cinders, slag, glass frags dump.	1/16	410548 258748		√
MF4	Drainage features	Parallel linear features on NW-SE alignment, 6m spacings.	1/19	411032 258359		√
MF5	Modern dump	Brick, mortar lumps, tile, concrete- either side of field boundary- poss hardstanding	1/19	410949 258512		√
MF6	Drain or service trench	WSW-ENE linear, 0.75m wide.	1/21	411105 258249		√
MF7	Tree throw	U-shaped pit 6m wide, 1m deep.	2/24	411386 257632	2400	√
MF8	Linear feature - ?tree root or animal burrow	N-S irregular linear 0.30m wide, 0.18m deep, peaty-clay fill.	2/27	411593 257221		√
MF9	Amorphou	0.65m wide, 0.40m deep	2/27	411595		√

Miscellaneous Feature No.	Feature Type	Description	Const Section/ Plot	NGR	Context No. (if applic)	WB
	s feature - ?plant hole	seen in pipe-trench, peaty-silt fill.		257220		
MF10	Amorphous features	0.60-1m wide feature seen in pipe-trench, blue-grey soft silt fills.	2/28	411715 257094		√
MF11	Large silt-filled hollow - ?pond	Bowl-shaped feature 42m wide, 1.25m deep.	2/29	411960 256910	2900	√
MF12	Amorphous feature	2m wide, 0.7m deep, dark grey-brown, fine silt fill, ?plant-hole.	2/30	412015 256844		√
MF13	Burnt clay patch	1m diam. No finds. ?plant clearance pit..	4/35	412464 255956		√
MF14	Burnt clay areas	2 irreg. burnt clay areas-uncertain dimensions, ?plant clearance pits	4/36	412614 255757		√
MF15	Culvert	Brick built culvert, aligned 240º SW-NE.	4/38	412839 255458		√
MF16	Field boundaries/ drove-way/ furrows	2 linear grey-brown clay-silt filled features 7m apart with widths 1-1.20m- aligned NNE-SSW.	5/44	413084 254589		√
MF17	?Ditch	V-shaped cut in SSE side of pipe-trench. c.2m wide x 0.65m deep-not seen in opposite trench side but poor conditions	6/53	413216 252626		√
MF18	Track	Concrete - 3m wide, parallel to field boundary.	6/55	413072 251940		√
MF19	Quarry pit	c. 5m wide- 0.80m depth seen in both pipe-trench sides- fill-red brown slightly clayey coarse silt	6/55	413046 251742	5500	√
MF20	Tree hole	0.55m diameter- pale-grey coarse silt, frequent mica specks.	9/72	415407 249289		√
MF21	Ponded area	Amorphous feature, 4m diameter, 0.10m deep-dark grey silty clay fill.	9/73	415576 249264		√
MF22	Plant-hole	0.40m diameter x 0.18m deep- mid grey silty clay.	9/73	415561 249293		√
MF23	Patch of burnt clay	1m by 0.5m, poss. tree clearance feature.	9/83	416939 248152		
MF24	?Pit/furrow	Broad V-shape, 3m wide, 0.65m deep, fill organic and fresh-looking.	10/87	417710 248095	8700	√





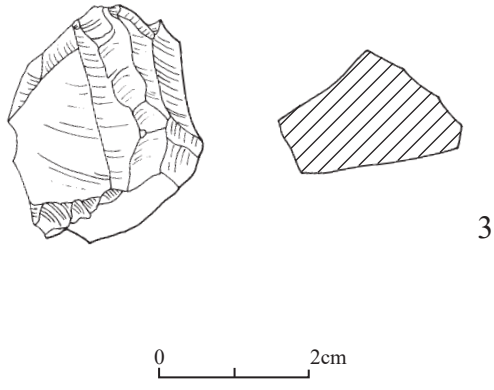


Figure 16: Flint (1:1)

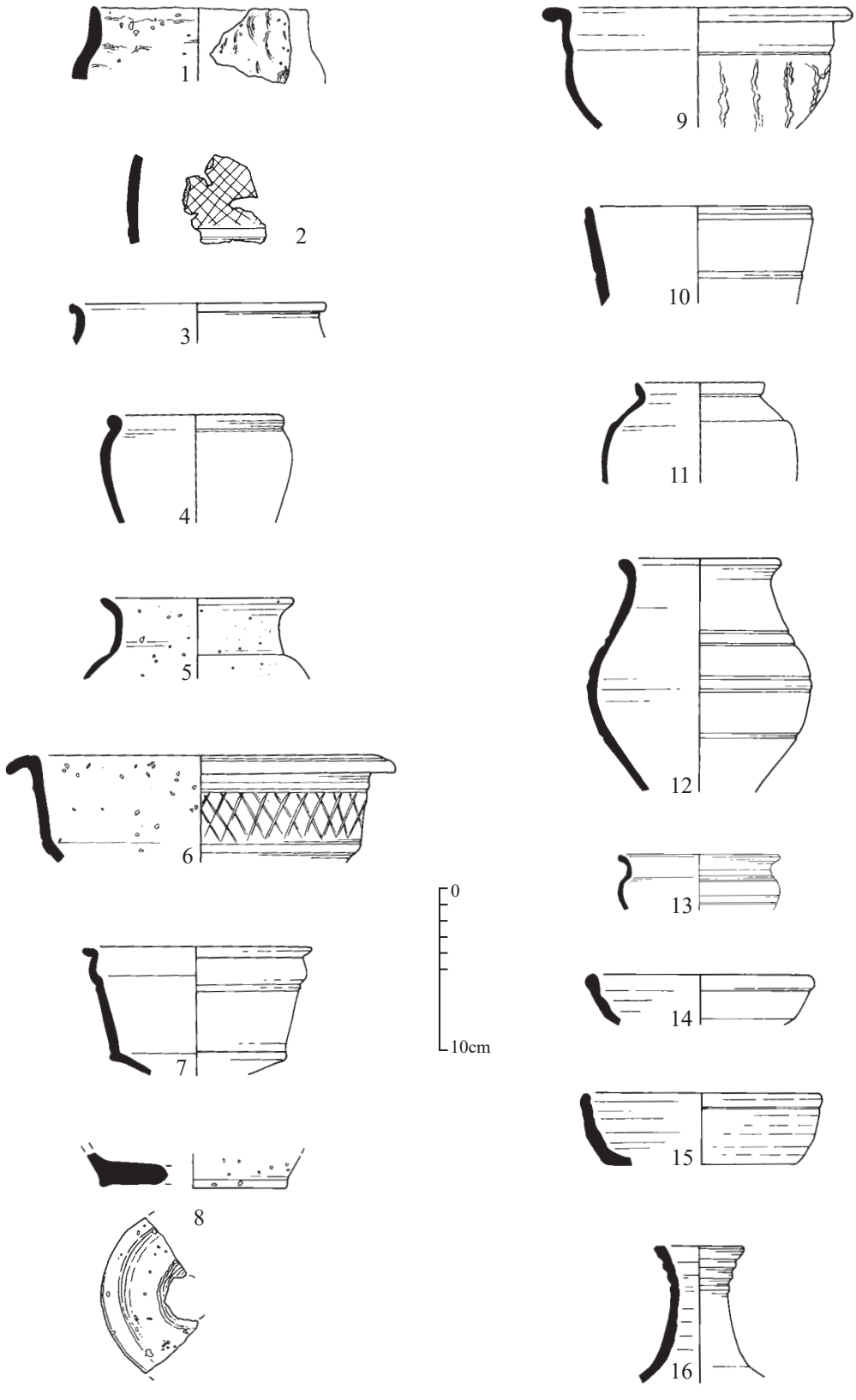


Figure 17: Romano-British Pottery (1:20)

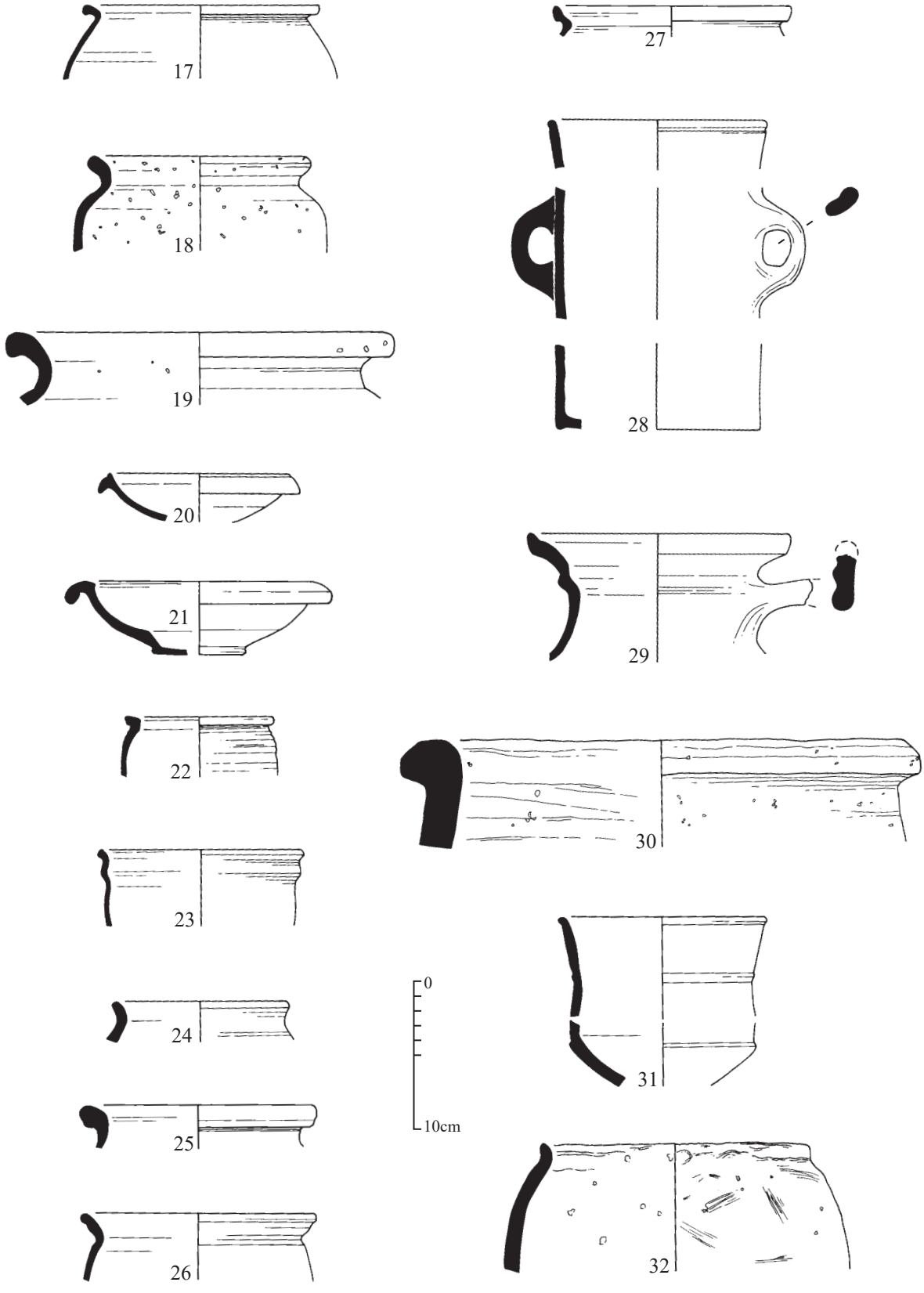


Figure 18: Romano-British Pottery (1:20)

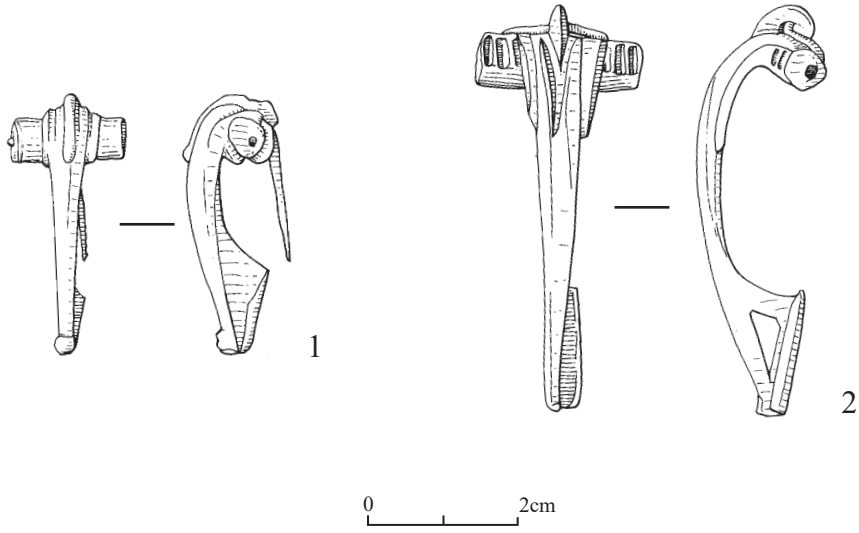


Figure 19: Romano-British brooches (1:1)

8. CONCLUSION

The archaeological investigations throughout all the stages of the pipeline planning and construction have resulted in a significant increase in our understanding of the archaeological record of the region. The area was previously relatively unstudied, and in the absence of the opportunity to examine the evidence provided by the pipeline construction, this would almost certainly have otherwise remained undiscovered.

The prehistoric burnt mound deposits found near the River Avon are considered to be of national importance.

The Romano-British site to the east of Long Marston was previously unknown and is of regional importance for understanding the pattern of settlement in the first and second centuries AD. Investigation of the cropmark site to the northeast of King's Coughton, provided tentative evidence to confirm that this complex, centred to the south of the pipeline, also dates to the Romano-British period.

The high evidence for ridge and furrow field systems (extant, seen on aerial photographs or identified as soilmarks during the watching brief) is dramatic with 84% of the plots encountered along the route displaying such practices. This highlighting the regions agricultural importance throughout the medieval and post-medieval periods.

Overall, the information gained from the Evaluations, Open-Area Excavations and Watching Brief has considerably enhanced our understanding of past settlement and land use in this part of Warwickshire.

9. REPORT, FINDS AND ARCHIVE DEPOSITION

The site records, drawings, photographs and artefacts have been prepared in accordance with the *Required Procedures for Transference of Archaeological Archives to Warwickshire Museums Service*.

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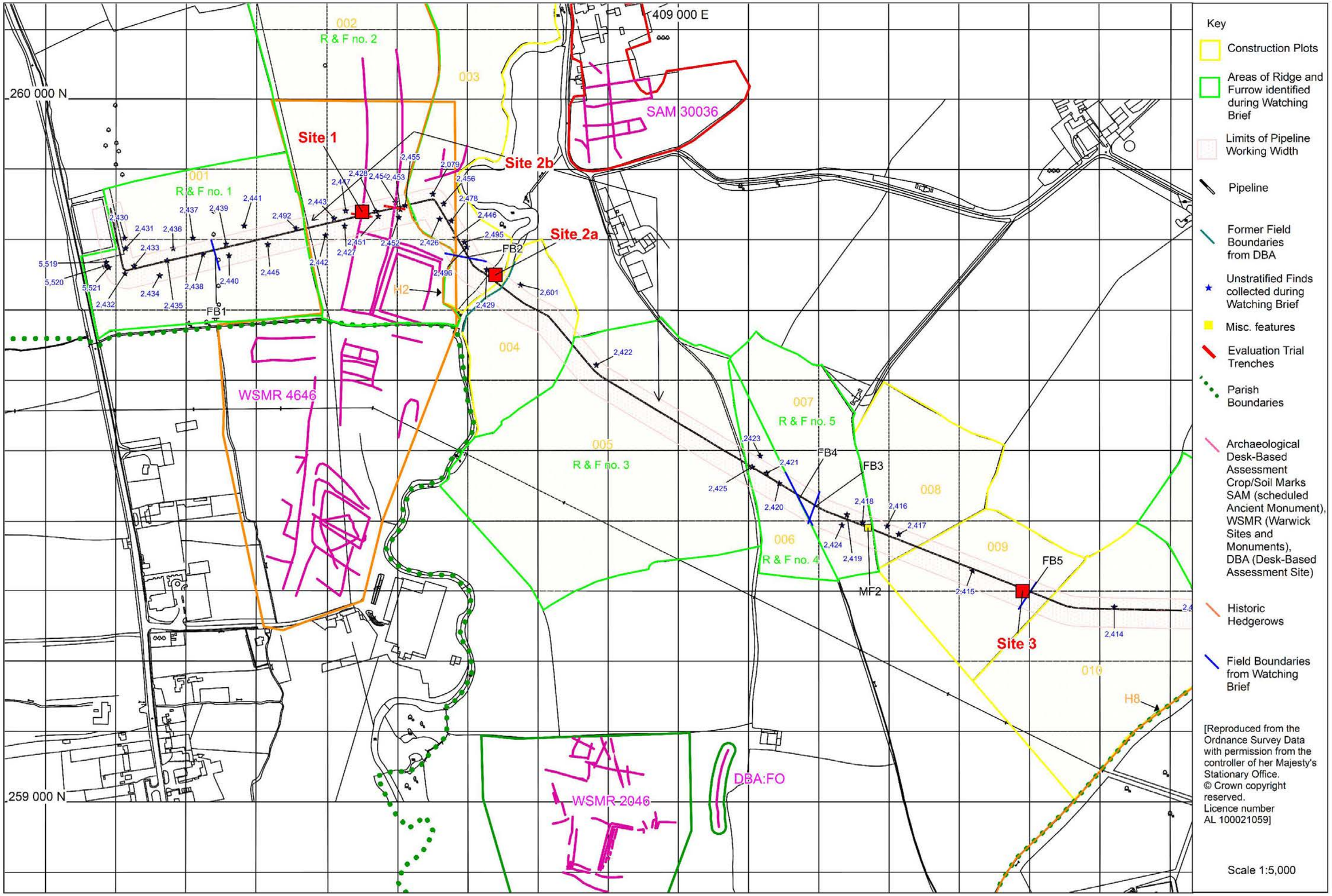
SITE GAZETTEER MAPS 1-14

The following maps show the location of Sites 1-14 recorded during the Evaluation, Excavation and Watching Brief stages of the project. They also locate other Watching Brief features; redundant and historic field boundaries and ridge and furrow. Areas recorded during the Archaeological Desk-Based Assessment (ADBA) are also shown for contextual reasons.



Site Gazetteer Map 1

410 000 E

411 000 E

259 000 N

Site 3

Site 4

009

010

011
R & F no. 6

012
R & F no. 7

013
R & F no. 8

014
R & F no. 9

015
R & F no. 10

016
R & F no. 11

017
R & F no. 12

018

H8

H9

H10

H11

H12

H13

FB5

FB6

FB7

FB8

FB9

FB10

FB11

MF3

MF4

MF5

Road crossing 1

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 2

411 000 E

411 800 E

258 000 N

Site 4

WSMR 4670

MF3

MF4

MF5

MF6

MF7

FB8

FB9

FB10

FB11

017

R & F no. 12

018

019

020

021

022

023

024

R & F no. 13

R & F no. 14

Road crossing 2

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 3

411 000 E

412 000 E

257 000 N

Road crossing 2

Road crossing 3

024
R & F no. 14

025
R & F no. 15

026
R & F no. 16

027
R & F no. 17

028

029
R & F no. 18

030
R & F no. 19

031
R & F no. 20

032
R & F no. 21

DBA:GO

Site 5

MF7
MF8
MF9
MF10
MF11
MF12

H23
H24
H27
H28

2,323
2,324
2,325
2,326
2,322
2,321
2,320
2,315
2,317
2,314
2,318
2,316
2,319
2,313
2,490
5,525
5,524
2,491
2,310
5,526
2,308
2,309
2,444
2,299
2,302
2,304
2,305
2,303
2,306
5,527
2,264
2,267
2,268
2,269
2,270
2,300
2,301
2,499
2,307
2,271
2,295
2,273
2,274
2,298
2,297
2,276
2,277
2,296
2,275

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 4

412 000 E

413 000 E

-256 000 N

MF12

MF13

MF14

Site 5

Site 6

R & F no. 20

030
R & F no. 19

032
R & F no. 21

033
R & F no. 22

034
R & F no. 23

035
R & F no. 24

036
R & F no. 25

037
R & F no. 26

H27

H28

H29

Road crossing 3

Road crossing 4

2,308 2,309 2,444 2,299 2,300 2,301 2,302 2,303 2,304 2,305 2,306 2,307 2,499 5,527 2,264 2,267 2,268 2,269 2,270 2,271 2,295 2,273 2,298 2,274 2,297 2,276 2,277 2,275 2,296 5,518 2,265 2,269 2,221 2,227 2,225 2,234 2,235 2,236 5,528 2,237 2,238 2,217 2,218 2,219 2,220 5,529 2,498 2,222 2,226 2,223 2,224 2,228 2,231 2,229 2,230 2,232 5,555 2,239 2,241 2,240 5,541 2,244 2,245 2,242 2,243 2,246 2,247 2,248 2,249 2,251 2,250 5,517 5,516 5,556 2,257 2,256 2,258 2,255 2,254 2,253 2,252

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 5

412 000 E

413 000 E

255 000 N

MF14

036
R & F no. 25

037
R & F no. 26

038
R & F no. 27

039
R & F no. 28

040
R & F no. 29

041
R & F no. 30

042
R & F no. 31

043
R & F no. 32

044
R & F no. 33

WSMR 3909

Road crossing 5

MF15

MF16

FB12

H37

2,262
2,259
2,216
2,260
2,261
2,204
2,205
2,206
2,207
2,208
2,198
2,201
2,199
2,200
2,202
2,203
5,532
2,193
5,531
5,530
2,173
2,168
2,170
2,174
2,175
2,176
2,169
2,172
2,179
2,177
2,178
2,180
2,181
2,183
2,184
2,182
2,185
2,186
2,187
2,192
2,188
2,190
2,191
2,189
2,171
5,533
2,167

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 6

413 000 E

414 000 E

254 000 N

043
R & F no. 32

044
R & F no. 33

045
R & F no. 34

046
R & F no. 35

047
R & F no. 36

048

H37

H40

MF16

2,168 2,173 2,174 2,170 2,175 2,176 2,169 2,172 2,179 2,177 2,178 2,180 2,181 2,183 2,184 2,182 2,185 2,186 2,187 2,192 2,190 2,191 2,188 2,189 2,171 5,533 2,167

2,159 2,158 2,160 5,557

5,572 2,150 2,151

2,010 2,152 2,153 2,154 2,155 2,157 2,162 2,156 2,147

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 7

413 000 E

414 000 E

253 000 N

2,154
2,155
2,157
2,162
2,156
2,147
048
049
2,135
2,136
2,137
2,139
2,138
050
R & F no. 37
2,474
2,141
2,142
2,148
2,140
2,143
2,145
2,144
H41
Road crossing 6
2,128
2,194
2,129
2,195
2,196
2,130
2,133
2,132
2,131
2,134
Site 7
H42
051
R & F no. 38
2,011
2,124
052
R & F no. 39
2,012
2,125
2,015
2,014
2,013
053
R & F no. 40
2,122
MF17

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
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- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 8

413 000 E

414 000 E

252 000 N

053
R & F no. 40

054
R & F no. 41

055
R & F no. 42

056
R & F no. 43

R & F no. 44

MF17

MF18

MF19

FB13

FB14

FB15

Site 8

Site 9

Site 10a

Site 10b

Site 10c

WSMR 1728

DBA:AL

2,015
2,014
2,013
2,122
2,117
2,116
2,115
2,114
2,113
2,112
2,111
2,110
2,109
2,108
2,107
2,105
2,104
5,535
5,534
5,537
2;101
5,545
5,542
5,543
2106
5,544
5,799
2,118
2,412
2,473
2,411
2,163
2,494
2,493
5;546
2,164
5,558
2,330
2,120
2,119
2,165

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
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- Unstratified Finds collected during Watching Brief
- Misc. features
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- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 9

413 000 E

414 000 E

251 000 N

Site 10a

Site 10b

Site 10c

R & F no. 43

R & F no. 44

R & F no. 45

R & F no. 48

R & F no. 49

R & F no. 50

R & F no. 51

R & F no. 52

056

057

058

059

060

061

062

063

064

065

066

H48

H49

H50

H51

Road crossing 7

Road crossing 8

5,799 2,412 2,118 2,473 2,411 2,163 2,494 5,546 2,493 5,558 2,164 2,330 2,120 2,119 2,165 2,121 2,166 5,554 5,553 5,536 5,552 5,559 5,551 5,548 5,550 5,549 5,547 5,560 5,563 5,562 2,600 5,515 5,514 5,512 5,513 5,511 5,510

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field boundaries from DBA
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- Historic Hedgerows

Scale 1:5,000

Site Gazetteer Map 10

414 000 E

415 000 E

250 000 N

Road crossing 8

064
R & F no. 50

065
R & F no. 51

066
R & F no. 52

067
R & F no. 53

068
R & F no. 54

069
R & F no. 55

070
R & F no. 56

5,514
5,512
5,513
5,511
5,510
5,509
5,508
5,506
5,561
5,507
5,540
5,539
5,505
5,504
5,503
5,502

H54

FB17

FB18

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
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- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 11

415 000 E

416 000 E

249 000 N

070
R & F no. 56

071
H58
R & F no. 57

072
R & F no. 58

073
R & F no. 59

074
R & F no. 60

075
R & F no. 61

076
R & F no. 62

R & F no. 63

MF20

MF21

MF22

Road crossing 9

Railway Crossing

WSMR6450

5,503
5,502
5,564
5,538
2,100
5,565
2,021
2,096
2,097
2,022
2,017
2,092
2,018
2,091
2,090
2,089
2,088
2,025
2,086
2,027
2,026
2,082
2,083
2,085
2,025
2,290
2,289
2,010
2,009
2,008
2,007
2,005
2,285
2,004
2,003
2,293
2,294
2,279
2,283
2,002
2,476
2,475
2,286
2,288
2,287
2,311
2,312
2,006
2,078
2,080
2,079
2,011
2,084
2,602
2,081
2,029
2,098
2,028
2,087
2,024
2,019
2,023
2,093
2,094
2,020
2,095
2,016

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 12

Railway Crossing

416 000 E

417 000 E

248 000 N

WSMR 6450

R & F no. 62

076

R & F no. 63

077

Site 11

R & F no. 65

080

079

R & F no. 66

078

R & F no. 64

Site 12

MF23

R & F no. 67

081

R & F no. 68

082

R & F no. 69

083

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
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- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 13

417 000 E

411 800 E

248 000 N

Road-crossing 10

Site 12

Site 13

Site 14

MF23

MF24

H66

H67

H68

H69

R & F no. 68

R & F no. 69

R & F no. 70

R & F no. 71

R & F no. 72

R & F no. 73

R & F no. 74

R & F no. 75

082

083

084

085

087

088

Key

- Construction Plots
- Areas of Ridge and Furrow identified during Watching Brief
- Limits of Pipeline Working Width
- Pipeline
- Former Field Boundaries from DBA
- Unstratified Finds collected during Watching Brief
- Misc. features
- Evaluation Trial Trenches
- Parish Boundaries
- Archaeological Desk-Based Assessment Crop/Soil Marks SAM (scheduled Ancient Monument), WSMR (Warwick Sites and Monuments), DBA (Desk-Based Assessment Site)
- Historic Hedgerows
- Field Boundaries from Watching Brief

Scale 1:5,000

Site Gazetteer Map 14

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