



# WYRE ESTUARY PIPELINE, POULTON-LE- FYLDE, LANCASHIRE

## Archaeological Post-Excavation Assessment



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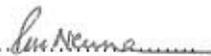
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## SUMMARY

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In 2007, United Utilities submitted proposals for the construction of a water pipeline on land to the east of Poulton-le-Fylde, Lancashire (SD 35841 30921 to SD 35559 38793; Planning References 02/07/0966-8 and 02/07/0940-1). Following recommendations by the Planning Archaeologist at Lancashire County Archaeology Service (LCAS), an archaeological desk-based assessment, walkover survey, and watching brief were undertaken by Oxford Archaeology North (OA North) during 2008–9. Features of potential Romano-British date were encountered during the watching brief and, as a result, programmes of archaeological strip and record were undertaken on land to the north of Garstang Road East, and to the south of Mains Lane.

The archaeological strip and record revealed the presence of remains indicative of at least five phases of activity, pertaining to the Romano-British, medieval, and post-medieval periods. The most conspicuous remains lay to the north of Garstang Road East and comprised an enclosed settlement dated to the Romano-British period. This settlement was defined by at least two rectilinear ditched enclosures surrounding two roundhouses; furthermore, up to four rectilinear structures were also revealed within, and adjacent to, the enclosures. Other ditches extended beyond the excavated area and might represent further inhabited enclosures, working areas, or parts of field systems. Numerous pits and ditches were encountered within the settlement and fragments of metalwork and worked stone, together with ceramics datable to the Romano-British period, were recovered from features in this area. Other features could not be dated by associated finds, but may be prehistoric in date. Samples collected for palaeoenvironmental analysis revealed that some of the soil deposits associated with these features contained preserved organic remains.

Medieval activity was represented by a series of 13 parallel furrows, which truncated the Romano-British remains and demonstrated the use of ridge and furrow agricultural techniques. Within the Mains Lane strip area, a large water channel of possible medieval date was also revealed to the north of Main Dyke. Probable post-medieval features, all largely associated with agriculture and consisting of ditches, postholes, patches of cobbled surfaces, and possible truncated wall foundations, were also represented in the Mains Lane area.

Given the paucity of data relating to Romano-British rural settlement in Lancashire, the site to the north of Garstang Road East represents an extremely valuable archaeological resource, indeed, the first such settlement in the Fylde. The data from the site provide the potential to explore issues relating to subsistence strategies, resource exploitation, ethnicity, status, and the local influences of the Roman occupation. The contribution that the site offers to the understanding of regionality and supra-regional characteristics in Romano-British rural settlements is of considerable significance, and an appropriately detailed suite of post-excavation analyses is recommended. Although not as extensive as the features relating to Romano-British settlement, the features of medieval and post-medieval date present the opportunity to examine specific facets of the local historical agricultural landscape.

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The archaeological fieldwork was undertaken by Alex Beben, with Rick Buckle, Clare Burke, Ged Callaghan, Tim Christian, Denise Druce, Pascal Eloy, Annie Hamilton-Gibney, Pip Haworth, Mikel Kempinski, Katherine Levey, David Lamb, Tom Mace, Ellen McInnes, Aiden Parker, Caroline Raynor, Daniel Taylor, Karl Taylor, Stuart Thomas, Alastair Vannan, Toni Walford, and Chris Wild. The environmental assessments were undertaken by Sandra Bonsall, Denise Druce, and Elizabeth Huckerby, the animal bone assessment was produced by Andrew Bates, and Christine Howard-Davis assessed the finds. The report was compiled by Alastair Vannan and the drawings were produced by Mark Tidmarsh. The excavation phase of the project was managed by Alison Plummer and the post-excavation phase by Stephen Rowland, who also edited the report. The document was quality assured by Rachel Newman.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In 2007, United Utilities (UU) proposed the construction of a water pipeline on land to the east of Poulton-le-Fylde, Lancashire (SD 35841 30921 to SD 35559 38793; Planning References 02/07/0966-8 and 02/07/0940-1; Fig 1). As the route of the proposed pipeline included areas with the potential to contain sites of archaeological interest relating to the prehistoric and medieval periods, Lancashire County Archaeology Service (LCAS), the county council's body responsible for advising local planning authorities on matters relating to cultural heritage, recommended that an archaeological desk-based assessment and walkover survey of the proposed route should be undertaken. Oxford Archaeology North (OA North) was subsequently commissioned by UU to undertake the programme of archaeological works.
- 1.1.2 Following consideration of the results of this initial phase of work (OA North 2007), following verbal consultation with LCAS, it was proposed to mitigate the impact of the pipeline on the heritage resource by undertaking a permanent-presence watching brief during all intrusive groundworks. The principal aims of the watching brief were to facilitate the rapid recording of all features of archaeological interest that were encountered during the groundworks and to allow a more detailed investigation of any significant remains. The early stages of the watching brief monitored topsoil stripping of the proposed site compound, on the northern side of Garstang Road East, and very quickly revealed significant remains of archaeological interest. These comprised elements of an enclosed settlement provisionally interpreted as being of Iron-Age or Romano-British date. Accordingly, LCAS requested that a programme of archaeological strip and record should be undertaken within the compound area, as a means of exposing the remains and allowing their full excavation in a controlled manner (Sites 1–3; Fig 2). LCAS required that the fieldwork stage of the project should be followed by a post-excavation stage, including the assessment of the analytical potential of the recovered data, and the subsequent undertaking of an appropriate programme of analysis, archiving and publication. Thus, during the fieldwork, it would be possible to identify, expose, investigate, and record the extent and nature of any remains of archaeological interest and generate data that through analysis would inform interpretations of the function, development, and dating of such features and of the site as a whole.
- 1.1.3 A project design for the multi-stage strip and record exercise was prepared by OA North and approved by LCAS (*Appendix 1*); OA North was subsequently commissioned by UU to undertake these detailed archaeological works. During subsequent phases of the watching brief, additional areas of archaeological remains dating to the medieval and post-medieval periods were identified at Site 4 (to the north of Site 3) and to the south of Mains Lane; these remains were also subject to programmes of strip and record (Fig 2). At the request of LCAS, a programme of palaeoenvironmental coring was undertaken to the south of Holts Lane (Fig 1), where the putative course of a Roman road had been suggested to run through an area of unimproved reed

swamp which contained peat deposits of potential palaeoecological interest (Fig 3).

- 1.1.4 The watching brief was undertaken between January 2008 and June 2009, and investigation of the strip and record areas took place between January and May 2008. This report documents the findings of a programme of post-excavation assessment of the results of the fieldwork, in accordance with the standards set out by English Heritage in *Management of Archaeological Projects*, Second Edition (MAP 2) (1991) and *Management of Research Projects in the Historic Environment* (MoRPHE; English Heritage 2006). Throughout this report, sites identified and investigated during the fieldwork are referred to collectively as the 'Wyre Estuary Sites'.

## 1.2 SITE LOCATION, TOPOGRAPHY, AND GEOLOGY

- 1.2.1 **Location:** the pipeline route (Fig 1) ran southwards from Skippool Marsh (SD 35841 30921) and crossed Main Dyke at approximately SD 357 401, to the east of Fouldrey Avenue (Fig 2). The route was parallel to the southern side of Main Dyke for approximately 0.5km, before turning south-westwards and running to Garstang Road East. The pipeline terminated to the south-west of Holts Lane (SD 35559 38793).
- 1.2.2 **Topography:** the landscape around Poulton-le-Fylde consists largely of flat and gently undulating coastal lands, with improved pasture and arable fields, interspersed with patches of mixed woodland (Countryside Commission 1998). Much of the surrounding landscape, particularly to the south and west of Poulton-le-Fylde, was formerly occupied by mosslands, although these wetlands were markedly reduced as a result of post-medieval drainage (Middleton *et al* 1995, 85-6; 101-8). The pipeline route varied in altitude between 0m and 10m (aOD).
- 1.2.3 **Geology:** the underlying geology consists of Permo-Triassic red mudstones, siltstone, and sandstones, which are overlain by thick deposits of glacial and post-glacial till and boulder clays, with pockets of post-glacial peat occurring throughout the area (*ibid*; Middleton *et al* 1995). This drift geology is overlain by fine loamy soils, with some slowly permeating soils and subsoils, creating the potential for seasonal waterlogging (British Geological Survey 1983).

## 1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

- 1.3.1 **Introduction:** the historical and archaeological background presented below is not intended to be an exhaustive account, but an overview to allow the findings to be considered within their archaeological and historical context. The research has been tailored towards those periods and themes that are most relevant to the current assessment. A more detailed background can be found within the desk-based assessment (OA North 2007) that preceded the fieldwork.
- 1.3.2 **Prehistoric Period (13,500 BC-AD 43):** the earliest evidence for human presence in the Poulton-le-Fylde area was the discovery of a Palaeolithic elk skeleton containing barbed points, at High Furlong, to the south of the town, which appears to have dated to 13,500-11,500 BC (Middleton *et al* 1995).

Although no Mesolithic finds have been made in the immediate vicinity of Poulton-le-Fylde, there is evidence to the west of Lytham Moss, to the south of the Wyre Estuary pipeline, of an anthropogenic burnt layer, dating to 7080-6800 cal BC (8390±150 BP; *op cit*, 87). Five sites of dense lithic scatters have been identified that being likely to date to the late Mesolithic or early Neolithic periods, three being concentrated to the south of Poulton-le-Fylde, centring around Peel 'island', while the remaining two were located on the edge of the Lytham-Skippool Valley (*ibid*).

- 1.3.3 Remains dating from the late Neolithic to early Bronze Age are more numerous in the area, and take the form of stray finds. Once more, the majority of the finds have been concentrated to the south of Poulton-le-Fylde, around Lytham Moss and Peel, and include perforated stone axes, pounders, and possible axe hammers. Metal finds include a palstave and a broken sword (*ibid*). During the nineteenth century, an extensive Bronze Age site was uncovered near Marton Mere, to the south-west of Poulton, which produced hide-covered coracles, a skin cap or bag, and an axe (*ibid*). Two prehistoric findspots have been identified within Poulton-le-Fylde. Sherds of Bronze Age pottery were recovered from Skippool Bridge, and a chert arrowhead was discovered in a back garden in the south-western part of the town (Lancashire County Council (LCC) 2005). In 1998, a human skull was recovered from peat deposits to the south-west of the town, and was dated to the Bronze Age (Wells and Hodgkinson 2001). By the later Bronze Age, the prevailing climatic conditions meant that the area was becoming increasingly wet, and there is very little direct evidence for human activity.
- 1.3.4 The Iron Age is notoriously under-represented in Lancashire (Hodgson and Brennand 2006, 51; Haselgrove 1996, 61). This is probably a result of the poor survival of material of this date, the lack of a temporally distinct material culture, and the inherent difficulty of recognising potentially subtle regional site-types (Hodgson and Brennand 2006, 53; Cowell 2005, 75; Haselgrove 1996, 64), as much as it is of the often-quoted suggestion of a low population density (Haselgrove 1996, 64). Indeed, the nearest known settlement of demonstrable Iron-Age date lies approximately 29km to the east, at Portfield Camp, in Whalley (Cowell 2005, 68–72). It has also been suggested that a promontory overlooking Clock House Farm, to the north-east of Preston, was demarcated by a curving ditch (T Welsh *pers comm*), and an archaeological evaluation at Roman Way, Red Scar, to the east of Preston, revealed ditches of possible pre-Roman origin (Earthworks Archaeological Services 2001). Two possible hilltop enclosures have also been identified to the east of Clayton-le-Woods, approximately 24km to the south-east of Poulton-le-Fylde (Barrowclough 2008, 182). Although there is little direct evidence of Iron-Age activity in the vicinity of the Fylde, the palaeoecological record implies that there was extensive and permanent woodland clearance throughout the area during this period (Middleton *et al* 1995, 206), suggesting that much of the area may in fact have been inhabited.
- 1.3.5 **Romano-British Period (c AD 43 – 410):** as a result of references to the port of *Portus Sentatorum* by the geographer Ptolemy in the second century AD (Shotter 2004, 6–7), Poulton-le-Fylde lies within an area that has been

suggested as the territory of the *Setantii* tribe during the Romano-British period. It has been suggested that the port may have been associated with the mouth of the River Wyre, which would place it broadly in the vicinity of Fleetwood (*ibid*). It has, however, been alternatively suggested that the port may have been located in the vicinity of the Mersey, which appears to have been named by Ptolemy as the estuary of the *Seteia*. An alternative interpretation sees *Portus Setantiorum* lying to the north of Morecambe Bay, with the tribal lands of the *Setantii* being located in southern Cumbria (*ibid*). Although the location of the port has not been established with certainty, it is possible that the *Setantii* occupied a large part of north-western England, bounded to the east by the Pennines, to the south by the *Ordovices* and *Cornovii*, of Northern Wales and Cheshire, and to the north by the *Carvetii* of northern Cumbria (*op cit*, 4).

- 1.3.6 During the nineteenth century, it was postulated that a Roman road was constructed between the fort at Dowbridge, Kirkham, approximately 6km to the south of Poulton, to Fleetwood, and the putative *Portus Setantiorum* at the mouth of the Wyre (Middleton *et al* 1995, 99; LCC 2005). Recent surveys, however, have found no evidence for this road, the route of which is suggested to lie to the west of Poulton-le-Fylde (Middleton *et al* 1995, 99). Although little evidence of a Roman date for the roads in this area has been discovered, it has been suggested that prehistoric finds recovered along the line of the road known as Dane's Pad, indicate the presence of a possible prehistoric trackway (*op cit*, 90).
- 1.3.7 The necessity for a road between the fort at Kirkham and the Fleetwood area might also be questioned, given the nearer proximity of Kirkham to the mouth of the Ribble, to the south (Howard-Davis and Buxton 2000, 3). It has been suggested that higher sea levels during the Romano-British period would have meant that Kirkham was even closer to the Ribble at that time and that it might, in fact, have represented the elusive *Portus Setantiorum* itself (*op cit*, 2–3). Excavations at the fort at Kirkham (*op cit*, 9–15) suggest that three successive temporary camps were in use during the late first and early second centuries AD, and that a small fortlet or signal station was built prior to the construction of a stone fort in the early second century (*op cit*, 68–70). The temporary camps may have been used as accommodation for troops and goods being brought into the North West, via the Ribble estuary, in association with Roman military campaigns in northern England (*ibid*). The erection of a stone fort with outworks might suggest that the role of the fort was expected to become more prominent, possibly in association with increased commerce along the Ribble valley, although this phase is only likely to have lasted for around 30 years (*op cit*, 76).
- 1.3.8 Evidence for native, or non-military, occupation at Kirkham is sparse, although it is possible that there was civilian reuse of the last temporary camp, prior to the construction of the stone fort (*op cit*, 69). There was also little indication of extensive extramural settlement associated with the fort, with insubstantial walls and ditched enclosures, and a possible small industrial area being encountered (*op cit*, 73). This lack of evidence for civilian settlement has been used to support the suggestion that there was little rural settlement in

the Fylde region during the Romano-British period (Middleton *et al* 1995, 206–7). Environmental evidence, however, suggests that there was continued and increased clearance during this period, which might correspond to a rise in permanent settlement (*ibid*). As with rural settlements of Iron-Age date, though, such sites may be extremely difficult to identify in the absence of archaeological excavation. OA North's recent excavations at Poulton-le-Fylde demonstrate that even well-defined enclosed settlements may not be able to be identified from aerial photography and walkover surveys alone.

- 1.3.9 Five artefacts found in Poulton-le-Fylde can be attributed to the Roman period, comprising three coins, a medal of Germanicus, and a horseshoe. Two of the finds were discovered at Poulton Breck Railway Station and Skippool, which lie just to the west of the pipeline easement (LCC 2005). It has also been suggested (Ratledge 2009) that a Roman fort might have been constructed at Poulton-le-Fylde, occupying the core of the present town centre. However, this has not yet been demonstrated categorically. If such a fort did exist, this would elucidate the need for the provision of a road between Kirkham and the Fylde. It has also been suggested that such a road might have provided a link to Lancaster, via a ford across the River Wyre near Staynall and a coastal route running through Knott End and Cockerham (*ibid*).
- 1.3.10 ***Early Medieval and Medieval Periods (c AD 410 – c1540)***: the name Poulton derives from the Old English *pull* and *ton*, meaning a settlement beside a pool or stream, while the le-Fylde element was a nineteenth-century addition to allow the town to be distinguished from Poulton-le-Sands, which later became Morecambe (LCC 2005). In later medieval documents, Poulton-le-Fylde is referred to as *Poulton Magna* or *Kirk Poulton*, implying that it was a major ecclesiastical centre. However, there is little pre-Conquest evidence, such as a church, and it was not mentioned in Domesday Book (*ibid*). It is possible that the church was dedicated to St Chad, a seventh-century Mercian saint, and, therefore, it may have been established prior to 1066, since Domesday Book clearly does not list all the churches in Lancashire at that time.
- 1.3.11 The study of medieval settlement in Lancashire has received very little attention, in comparison with neighbouring counties, and the archaeological record is biased towards larger nucleated settlements and moated sites, with little investigation of dispersed settlement having taken place (Newman 1996, 109–10; C Newman 2006, 116–26). It should, therefore, be recognised that our current understanding of the settlement pattern in the region is based on a limited and insufficient dataset.
- 1.3.12 It is not certain when Poulton was first settled, but the regularity of the roads and plot sizes in the area suggest that it was probably deliberately planned, perhaps when the estate was granted to St Mary's Priory (LCC 2005). Prior to this, it is likely that the majority of settlements in the Fylde, in common with those in Lancashire in general, consisted of dispersed land holdings scattered throughout large estates (Newman 1996, 114). The town's large market, occupying over 0.5ha, was not granted a formal market charter, but nevertheless flourished as it was easily accessible to the local farming population (LCC 2005).

- 1.3.13 There is little historical evidence for the exploitation of the wetlands surrounding the village, or across the wider Fylde area, during the medieval period (Middleton *et al* 1995, 207). Little land appears to have been reclaimed during this period, and, although fishing, peat cutting, and the use of reeds for thatch are historically attested, any such records are very sparse in comparison with those from other parts of the country (*ibid*). The earliest indications that these lands were of value become evident during the sixteenth century, when some minor land disputes occurred. These included a clash between the Prior of Lytham and Thomas and Dame Margaret Butler in 1530, in relation to the seizure of waste lands, including mosses (*op cit*, 100). The practice of arable agriculture in the lands fringing wetland areas in the Fylde during the medieval period is attested by a plan of Lytham Moss of 1532, which showed ploughed fields in the vicinity of dispersed farmsteads between small nucleated settlements (*op cit*, 101). Historical references to the cultivation of grass and corn demonstrate the nature of some of the agricultural practices in the area during this period (*op cit*, 100).
- 1.3.14 ***Post-medieval Period (c AD 1540–1900):*** by the seventeenth century, the mosses of the Fylde were being reclaimed, and used for a mixture of rough pasture and peat extraction (Middleton *et al* 1995, 107). Flooding, which may in part have resulted from the reduction of ground levels by peat extraction, caused disruptions to these practices, and to the transport system during the middle of the seventeenth century (*ibid*). These ongoing problems led to the eventual construction of the Main Dyke in 1731, which channelled the outflow of Marton Mere westwards to the Lytham-Skippool valley and then to the River Wyre (*ibid*). This drain also appears to have canalised a stream called the *Skippon fluvius*, which was recorded on both Saxton's and Speed's maps, of 1577 and 1610 respectively, as one of the main drainage channels in the area, and appears to correlate with Skippool Creek. The increasing intensity of land reclamation in the area meant that, by the mid-nineteenth century, wetlands were not depicted on any mapping and nearly all of the surviving peat horizons in the area are buried deposits (*op cit*, 108).

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## 2. RESEARCH AIMS AND OBJECTIVES FOR EXCAVATION AND ASSESSMENT

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### 2.1 INTRODUCTION

2.1.1 In order to maximise the potential of the heritage resource, archaeological projects are strategic in nature, with a series of clearly defined aims, often posed as research questions, and objectives, which are the practical means formulated to address the research questions. These aims and objectives are modified and developed to meet the requirements of the project and the confines of the available data. As the heritage resource of the site was to be destroyed by the works associated with the development, the first and most fundamental objective of the fieldwork was to characterise and preserve, by record, any remains of archaeological interest. The data generated from this work could then be used to reconstruct a chronological narrative of activity undertaken at the identified sites, which could be further augmented with additional research. The research aims and objectives presented below (*Sections 2.6 and 2.7*) were informed by the results of the initial topsoil removal and subsequent investigations, and were compiled to direct the fieldwork and assessment phases of the project.

### 2.2 RESEARCH CONTEXT

2.2.1 In order to formulate the aims and objectives of the project, it was necessary for the site to be placed within national, regional, and local research contexts (*Sections 2.3-5*). At each of these strata, prioritised themes for research have been presented within research agendas and frameworks compiled by various corresponding levels of government bodies, advised by archaeological specialists in various fields and periods. These research agendas are compiled by chronological period and, accordingly, those sections pertaining to the Iron Age, Romano-British, and medieval periods were considered most appropriate to the data recovered during the early phases of work on the Wyre Estuary Pipeline. Although ceramic evidence suggests at least some of the activity at the Garstang Road East settlement is of Romano-British date, the site has morphological traits characteristic of both the Iron-Age and Romano-British periods (*see Section 6.2*). It has thus been important to consider research themes relevant to rural settlement during each of these periods. The sections of the regional research agenda relating to the Mesolithic, Neolithic, and Bronze Age were also considered relevant to the data produced by palaeoecological coring.

### 2.3 NATIONAL THEMES

2.3.1 The most recent English Heritage Research Strategy documents are *Exploring our Past Implementation Plan* (2003) and *Discovering the Past, Shaping the Future* (2005), although these are, in effect, organisational strategies compiled for the use of English Heritage. The draft *Research Agenda*, circulated to the archaeological profession in 1997, may be considered outdated, although a number of research themes remain pertinent for a large part of England, and are presented in the following sections:

◆ **Processes of change**

- *Briton into Roman*: evidence for the existence of continuity or change in settlement and land-use, and social and economic organisation, between the Late Iron Age and Romano-British periods (c 300 BC-AD 200) (English Heritage 1997, 44);
- *Empire to kingdom*: evidence for the nature of change in Romano-British society in the third and fourth centuries and changes in the hierarchy and role of settlements during this period (c AD 200–700) (*ibid*);
- *Late Saxon to medieval period*: evidence for the reorganisation of the cultivated landscape. Evidence for changes in settlement patterns and economic structures during this period (c AD 700–1300) (*op cit*, 44–5);
- *Transitions from medieval to post-medieval traditions*: evidence for the nature of change in agricultural traditions during this period (c AD 1300–1700) (*ibid*).

◆ **Chronological priorities**

- *Late Bronze-Age and Iron-Age landscapes*: evidence for settlement, field systems, and enclosures in the pre-Roman period (*op cit*, 48);
- *Military and civilian interaction*: evidence for the social and economic interaction between these elements of society during the Romano-British period (*op cit*, 49).

◆ **Themes**

- *Settlement hierarchies and interaction*: evidence for the nature of settlement during the Iron Age and Romano-British period; the social and economic organisation of settlements and their relationships to each other, both temporal and spatial (*op cit*, 51);
- *Rural settlement*: evidence for the development of the rural landscape throughout history (*op cit*, 52);
- *Relict field systems*: evidence for the date and classification of relict field systems (*op cit*, 53);
- *Patterns of craftsmanship and industry (including agriculture)*: evidence for past production in the form of artefact manufacture, industrial processing, and agriculture (*op cit*, 53);

◆ **Landscapes**

- *Cognitive landscapes*: evidence for the social factors influencing the patterns of landscape inhabitation (*op cit*, 55);
- *Regional chronologies*: how the data retrieved from the excavated sites can contribute to the refining of regional chronologies (*op cit*, 55).

2.3.2 **Iron Age period-specific themes**: a period-specific national research agenda for the Iron Age has been produced (Haselgrove *et al* 2001). This document

includes several priorities for research that may be relevant to the current project and, given the possibility for the continuation of indigenous Iron-Age traditions into the Romano-British period, might be relevant to the study of features of Romano-British date:

◆ ***Chronological Issues***

- *Developing dating frameworks:* evidence that will provide opportunities for the use of absolute dating techniques to produce reliable site chronologies that are not dependent upon artefact typologies. This will contribute towards the compilation of reliable chronological frameworks and enable the chronology of artefact typologies to be refined (*op cit*, 2–6).

◆ ***Settlements, landscapes, and people***

- *Settlements:* appropriate levels of excavation of features should be employed, with total excavation of features, such as graves, floor surfaces, building structural elements and placed deposits, and excavation of hut gullies and enclosure ditches. Hut gully termini should always be excavated. Regional differences between house organisation and ritual deposits should be examined (*op cit*, 14). Bulk sampling for botanical remains and sieving for animal bones and artefacts should occur, in association with scientific techniques, such as phosphate analysis, magnetic susceptibility, and soil analysis. The potential for differential patterns of deposition within and outside enclosed areas should be recognised. The potential for features relating to successive phases of open and enclosed settlement should be considered (*op cit*, 9–10);
- *Landscapes:* attempts should be made to understand the full extent and meaning of the contemporary landscape, in terms of the experienced space during the past, and the range of activities taking place within that landscape. This should include analyses of the use of ‘near’ and ‘faraway’ landscapes and integrate diverse environments, such as wetlands, which have previously been subject to conceptual separation. Aerial photographic analyses should be undertaken (*op cit*, 10–12);
- *Burials:* any human remains should be subject to extensive laboratory analyses. Spatial patterning between burial and settlement should be examined and associated sites, such as pyres, should be investigated. Settlement boundaries and the vicinity of enclosures should be given particular attention at potential locations of reuse for burial.

◆ ***Material Culture***

- *Basic knowledge:* studies of technology, typology, distribution, and dating are necessary. The danger that the presence of Roman finds might present an artificially narrow date-range for some sites should be considered. Scientific analyses should be used in order to characterise materials, such as pottery fabrics (*op cit*, 16–17). Sieving and metal detecting should be used to aid finds recovery and reports should employ a function-based structure (*op cit*, 22);

- *Production and distribution*: production sites, such as iron-working sites, are under-studied and can inform our understandings of exchange, interaction, previously unknown artefact types, and the siting preferences for such industrial areas (*op cit*, 18-22). The use of local raw materials and of 'Roman' metal should be examined (*op cit*, 21);
- *Use*: the function of artefacts should be explored and scientific analyses, such as residue analysis for pottery, should be undertaken on a routine basis. The possibility for ethnographic parallels for artefact production, such as pre-industrial, post-medieval, ceramic manufacture, should be explored (*op cit*, 18; 22);
- *Deposition*: the nature of deposition should be examined in order to explore the possibility of deliberate ritual discard and of the potential for artefacts to reveal patterns of spatial organisation (*op cit*, 18–19);
- *Stone*: poorly understood coarse stone tools of uncertain function should be examined in an attempt to clarify function and identify types that are regionally recurrent (*op cit*, 21).

#### ◆ *Regionality*

- *Regional similarities and differences*: generalisations and models of the Iron Age should not be solely derived from southern Britain and regional differences should be recognised as indicators of distinct identities, rather than characteristics of peripherality from a southern core. Regional comparisons should also be employed to allow the recognition of supra-regional features of the Iron Age, such as roundhouses, and decrease parochialism (*op cit*, 23–4);
- *Current state of regional knowledge*: any opportunities for fieldwork in so-called 'blank areas', such as Lancashire, should be treated as potentially nationally significant (*op cit*, 24–5).

#### ◆ *Processes of Change*

- *Earlier pre-Roman Iron Age*: any sites of this period should be considered to have a high research priority (*op cit*, 31);
- *Later pre-Roman Iron Age*: the transition between the earlier and later Iron Ages requires attention. Research into the degree of social and political changes in regions outside the South East are necessary (*ibid*).

2.3.3 ***Romano-British period-specific research themes***: a period-specific national research agenda for the Romano-British period has been devised (James and Millett 2001). This document includes several priorities for future research that may be relevant to the current project:

#### ◆ *Identity*

- The process of creolisation should be examined through the examination of aspects of daily life, such as personal dress, hygiene, and the treatment of the dead, the cultural, social, and political aspects of food consumption,

the organisation of settlement and domestic space, and the acquisition of goods and objects (Hill 2001, 17).

◆ ***Analyses of finds assemblages***

- Finds from rural sites should be widely published and whole-assemblage comparisons should be made, in an attempt to identify the nature of different site-types (Evans 2001, 34–5).

◆ ***Rural Society***

- Classifications of physical structures should not dominate the study of the societies that created them. Social changes need to be explained, rather than assumed to be the result of the presumed inevitability of acculturation (Taylor 2001, 48–9);
- assumptions of wealth and poverty should not be based purely on the presence or absence of Roman symbols of status. Choices about the investment of wealth should be considered according to individual households or communities (*op cit*, 49);
- the spatial relationship between buildings and settlements and the organisation of space within them should be studied. This includes analyses of public and private spaces and the influence of indigenous architectural traditions (*ibid*);

◆ ***Agriculture***

- The role of agricultural production should be examined in the absence of assumptions that rural developments were the direct result of military and urban demand (*op cit*, 55).

◆ ***Military and civilian interactions***

- The relationships between military and civilian sites should be explored by the comparison of entire finds assemblages from contrasting sites. Attempts should be made to identify military assemblage ‘signatures’ that can be used as informers of military presence at sites that appear to have been civilian in character (James 2001, 84–5);
- differences and similarities in the material expression of identity and social relations between soldiers and civilians, in domestic settings, should be explored (*op cit*, 85);
- differences and similarities between assemblages in military and civilian contexts should be considered in relation to local constraints, such as sources and routes of supply, as well as converging or disparate cultural traditions (*op cit*, 86);
- evidence for contacts and interaction, or for continuing divergence, between indigenous and military communities should be explored (*op cit*, 88);
- environmental evidence should be used to augment potentially small quantities of cultural material, in order to explore the visibility of the

impact of the Roman military occupation on the development of local environments (*ibid*).

## 2.4 REGIONAL THEMES

2.4.1 The recent publication of the *Archaeological Research Framework for North West England* (Brennand 2006; 2007) has provided a region-specific agenda that includes several research topics that are relevant to the study of the archaeological remains at Poulton-le-Fylde. As extremely detailed national research agendas for the Iron-Age and Romano-British periods have been compiled, however, there is significant overlap between many of the research topics discussed in the regional and national research agendas, and the repetition of previously noted themes will be avoided.

### ◆ *Mesolithic, Neolithic, and Bronze Age*

- *Environment and land-use*: fully radiocarbon-dated palynological sequences should be produced in order to investigate the spatially specific onset of woodland management, clearance, and cultivation (Hodgson and Brennand 2007, 35);

### ◆ *Iron Age*

- *Settlement*: close characterisation and dating of enclosed and unenclosed settlements and enclosures needs to be undertaken in order to assess the time depth of such sites in the North West (*op cit*, 41);
- it is likely that the density of the local population during the Iron Age has been underestimated and investigations of sites with potential phases of Iron-Age activity should exploit the full range of scientific techniques available, particularly absolute dating techniques, in order to ensure that Iron-Age phases are not overlooked (*op cit*, 51).

### ◆ *Romano-British period*

- *Accessibility of data*: all excavated Romano-British sites should have an entry in *Britannia* in order to improve accessibility and awareness (Philpott and Brennand 2007, 55);
- *Military sites and the civilian population*: the relationship between the location of Roman military sites and the distribution of the native population should be investigated (*op cit*, 58);
- evidence should be sought for the fortification or refortification of enclosed sites during the first century AD (*ibid*);
- *Identity*: distinctive distributions of artefact types might be indicative of specific economic and social networks, which might allow the identification of Late pre-Roman Iron Age (LPRIA) ethnic heartlands (*op cit*, 58–9);
- *Environment*: analysis should target late Holocene peat and silt deposits, with good dating control, and using a variety of methods. Such analyses should investigate not only woodland clearance and the introduction or increase in pastoral and arable agriculture, but also surface wetness

indicators relating to climate change and indicators of industrial emissions (*op cit*, 60);

- programmes of sampling should target estuaries and tidal reaches of major rivers, including the Fylde, for geoarchaeological investigations of river deposits that might allow the locations and depths of main channels to be established. This might elucidate how far upstream such rivers were navigable and how military supplies including personnel were deployed throughout the North West region (*ibid*);
- where ditches are excavated, the sampling strategy should consider the recovery of buried soils, turves, and deposits likely to preserve pollen, insects, and micro-organisms to be used as indicators of past vegetation, water quality, and land-use (*op cit*, 60–1);
- roundwood studies of multiple sites could be employed to search for consistent patterns or site-specific *ad hoc* exploitation of resources. Dendrochronological studies of timbers should be prioritised, especially those thought to date to the mid or late Romano-British period, in order to extend the master curve for this period. Studies of timbers, dendrochronology, and roundwood need to be linked with pollen studies of clearance and deforestation, and to studies of other woodland and agricultural land-uses, climatic changes, and evidence for soil erosion (*ibid*);
- *Mineral resources and extraction*: the analysis of the origin of utilised stone, such as quern stones, may help to determine the pattern of exploitation of resources (*op cit*, 69);

#### ◆ *Late Roman and Early Medieval*

- Ensure appropriate methodologies are adopted on all sites with a potential for early medieval remains, to identify and characterise activity leaving scant and possibly confusing cultural indicators (Newman and Brennan 2007, 79);
- develop methodologies to identify British cultural remains in the post-Roman milieu (*ibid*).

#### ◆ *Medieval*

- *Land-use*: pollen analyses should explore the evidence for changes in climate and subsequent responses in the nature of agriculture and land-use (Newman and Newman 2007, 99–101).

## 2.5 LOCAL THEMES

2.5.1 At a local level, there are several council plans, including the *Adopted Wyre Borough Local Plan* (Wyre Borough Council, 1991-2006). However, this is primarily concerned with the consideration and treatment of remains of archaeological interest during the development process and offers little specific information that can be incorporated into this project at the post-excavation stage.

2.5.2 *The Lancashire Historic Landscape Characterisation Programme* (Ede and Darlington 2002) aimed to characterise the distinctive, historic dimension of the rural environment in the county and has defined the land in the vicinity of the current study area as being modern enclosure (LCC 2008). The analysis of current and historical field boundaries, and any apparent correlation with the medieval ridge and furrow encountered during the excavations, might elucidate the chronology of the origins of these boundaries.

## 2.6 RESEARCH AIMS

2.6.1 By considering the above themes and initiatives, the following research questions (RQ) and objectives (RO) can be posed to inform and guide the strategies implemented during the project. As such, many of these questions can only be fully addressed at the analysis phase of the project. However, they need to be considered at this, assessment, stage, so that the analysis can be steered in a direction that is both fruitful and meaningful within a genuine research context.

**RQ1** Can the features of archaeological interest be identified, defined, and understood?

**RQ2** Is it possible to identify the dates of the inception and abandonment of the sites and, between those dates, provide a close chronology for the identified remains of archaeological interest, and attribute them to meaningful activity phases?

**RQ3** Are specific zones of activity identifiable, including evidence for profane and ritual activity? Do these data enable differentiation between public and private space and between buildings and defined spaces inside and outside the settlement?

**RQ4** To what extent can a range of activities be identified, defined, interpreted, and understood amongst the data recovered, including aspects of defence, site organisation, agriculture, craft production, habitation, and funerary activity?

**RQ5** Can any factors relating to the status of the settlement and the occupants, or social factors influencing the location and nature of the sites, be discerned?

**RQ6** Can the sites be integrated within chronological frameworks for the wider region and contribute to a greater understanding of the nature of rural settlement in Lancashire?

**RQ7** Can similarities or differences be discerned between the nature of occupation at Poulton-le-Fylde and contemporary settlement sites elsewhere in Lancashire?

**RQ8** Is there any evidence of interaction between rural settlements at Poulton-le-Fylde and other settlement sites, such as Barker House Farm (OA North in prep), and is there any indication of communication routes linking the enclosed site with other parts of the landscape? Is there any evidence for contemporaneity and interaction

with, or divergence from, the various phases of activity associated with the military bases at Dowbridge (Howard-Davis and Buxton, 2000)?

- RQ9** Is there any evidence for distinctive regional characteristics or supra-regional shared attributes, and what evidence is there for the influence of indigenous architectural traditions during the Romano-British period?
- RQ10** Do the anthropogenic features and the artefact, ecofact, and palaeoenvironmental assemblages, including evidence for the nature of food consumption, reveal evidence of the ethnic identity of the occupants of the enclosed site, including any military influences or creolisation associated with the Roman world? Do artefact assemblages reflect specific economic and social networks that might indicate the location and extent of LPRIA ethnic heartlands?
- RQ11** Can an understanding be gained of temporal patterns in the local landscape and climate, and can the palaeoenvironmental data from Poulton-le-Fylde further this knowledge? Moreover, can an understanding of the sites' environmental context help to explain and interpret the archaeological findings or identify activity?
- RQ12** Is there any evidence of continuity or change of land-use through time, and what processes were responsible for any observable changes in the nature of settlement?
- RQ13** Is there any evidence for the exploitation of resources beyond the settlement area, such as wetland areas, or other diverse environments, mineral sources, and the importation of goods?
- RQ14** Is there any evidence for the use of locally produced pottery during the medieval period?
- RQ15** How can the results of the investigation be made available to the wider public in an accessible form, whilst undertaking appropriate archiving of the artefacts and primary data?

## 2.7 RESEARCH OBJECTIVES

2.7.1 **Overall Research Objectives:** the following over-arching objectives of the fieldwork and post-excavation programme have been formulated with reference to the research questions (*Section 2.6*). These are referenced in parentheses at the end of each objective where they are of relevance. The manner in which the analysis phase can address specific elements of these objectives is detailed in the updated project design (*Section 7*).

- ROa** Create a detailed plan of all features and excavate appropriate representative samples of each deposit (all RQs).
- ROb** Characterise the archaeological resource on-site, including the character of all features in terms of cuts, soil matrices, and interfaces, and establish the formation processes responsible for the presence of any features and deposits of archaeological interest. Attempt to ascertain the functions of recorded features and to recognise individual structures from the presence of multiple elements (all RQs).

- ROc** Recover representative ecofactual and palaeoenvironmental samples to provide evidence of function and past land-use (RQ1-4, RQ7, RQ10-13).
- ROd** Maximise the retrieval of finds by implementing a thorough and appropriate artefact recovery strategy (RQ1-10, RQ14).
- ROe** Collate, check, and enter the original site records into a relational database for the purposes of centralisation and ease of interrogation (all RQs).
- ROf** Process the site survey data, base mapping and digitise scanned pre- and post-excavation drawings within a GIS that will be integrated with the project database (all RQs).
- ROg** Using the GIS, organise context, feature, and structure groups; create matrices and undertake assessment, and then any appropriate detailed analysis, of the on-site stratigraphy. This will permit the best possible understanding of the physical form of, and relationships between, the different elements of the site, provision of a chronological framework and also the formulation of an holistic narrative of the sites (all RQs, but particularly RQ1-7, RQ9, RQ12).
- ROh** Utilising the Lancashire Record Office (LRO), the Lancashire Historic Environment Record (LHER), and libraries, other repositories and sources, undertake a detailed, but targeted, search, collation and interrogation of available published and grey literature reports on excavations of comparable sites within the close and wider locale, and aerial photographic sources (RQ4, RQ6-10).
- ROi** Using information from the above sources, together with Ordnance Survey map data, and topographic information, undertake a study of the topographic, landscape, and palaeoenvironmental history of the area around the investigated sites, including the reconstruction of the changing nature of estuarine and riverine extents, so that they can be better understood within the wider environment (RQ8, RQ11-13).
- ROj** Process, assess, then undertake any appropriate palaeoenvironmental and sedimentological analyses, of the bulk and monolith samples taken during the strip and record, and of the palaeoecological cores. This will allow a better understanding of formation processes, on-site activity, changes in land-use, and the surrounding environment, as well as maximising recovery of artefacts, material for absolute dating, and faunal remains (RQ1, RQ3-4, RQ7, RQ10-13).
- ROk** Undertake processing, cataloguing, stratigraphic integration, assessment, and then any appropriate analysis, of the artefacts recovered from the fieldwork, in terms of date, origin, quality, form, fabric and function, presence and nature of residues, spatial distribution, preservation, residuality, provenance and comparison with other sites in the locale and wider region (RQ1-10, RQ13-14).
- ROI** Undertake processing, cataloguing, stratigraphic integration, assessment, and then any appropriate analysis, of the faunal remains recovered from the fieldwork, in terms of preservation, taphonomy,

and spatial distribution, as well as the range and proportion of taxa, the reconstruction of husbandry/exploitation regimes and the comparison of the generated data with those from other sites in the locale and wider region (RQ3-4, RQ7, RQ10, RQ12-13).

- ROm** Review the stratigraphic, artefactual, and palaeoenvironmental assessment results, then conduct a programme of absolute dating of material from securely stratified key deposits. This should include an assessment of the potential of heat-affected soils to be analysed by archaeomagnetic dating (RQ1-3, RQ6-8, RQ11-12).
- ROn** Perform spatial analyses to explore the relationships between different features, and also between accumulations of artefacts and palaeoenvironmental material belonging to contemporary phases, in order to define activity areas and patterns of disposal. Such data can be compared between the Wyre Estuary sites and those identified in the immediate and wider locale (RQ1-5, RQ7, RQ9-10).
- ROo** Analyse the individual and site-wide morphology, arrangement, and juxtaposition of features, particularly enclosure ditches and structure groups, so that they might be compared with other contemporary sites of varying functions and in a range of topographic settings (RQ1-12).
- ROp** Collate and publish in an appropriate medium the results of the Wyre Estuary archaeological project, including an entry in *Britannia*, and submit the final archive to the LRO and the *Museum of Lancashire* (RQ15).

2.7.2 **Potential for assessment:** the assessment of the data recovered from the fieldwork will help to establish the potential for the dating, phasing, and characterisation of the features encountered, and should allow the excavated data to be placed within the context of comparanda from Lancashire and the wider area. The assessment of the artefacts will establish their potential to provide information relating to dating, production, exchange networks, resource exploitation, and consumption. The assessment of the ceramics will allow their suitability for residue analysis to be ascertained, whilst that of the environmental samples will establish their potential to provide palaeoenvironmental data that might inform our understanding of past climates and land-use, in addition to the identification of organic resources that may have been used by occupants of the site. The assessment of any organic remains within these samples will establish the potential for the use of radiocarbon dating.

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## 3. METHODOLOGY

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### 3.1 PROJECT DESIGN

3.1.1 The LCAS-approved project design for the programme of strip and record (*Appendix 1*) was adhered to in full throughout the fieldwork. The watching brief was undertaken in accordance with standard OA North procedure that has been approved by LCAS. All works were consistent with the relevant standards and procedures of the Institute for Archaeologists (IfA), and generally accepted best practice.

### 3.2 FIELDWORK METHODOLOGY

3.2.1 The watching brief was maintained in all areas where groundworks were undertaken, with the exception of any portions of the pipeline route that coincided with current roads (Fig 2). The programme of strip and record was undertaken at Sites 1-4, which lay to the north of Garstang Road East, and in the area to the south of Mains Lane (Fig 2). The combined area of Sites 1-4 measured approximately 7290m<sup>2</sup> and the Mains Lane area measured approximately 2892m<sup>2</sup>. This represented an overall strip and record area measuring 10182m<sup>2</sup>. A programme of palaeoecological coring was undertaken to the south of Holts Lane and Brockholes Crescent, and samples were also collected for archaeomagnetic analysis from Site 2. Detailed methodologies can be found within the specialist reports lodged in the archive (Clelland and Batt 2008 (heat-affected soils); Huckerby *et al* 2009 (botanical remains); and Vannan 2009 (stratigraphy)).

### 3.3 ASSESSMENT METHODOLOGY

3.3.1 **Introduction:** the data recovered during the fieldwork were assessed in consideration of the project research questions and in accordance with the project objectives (*Sections 2.6-7*). The over-arching objective of the assessment was to evaluate all classes of data recovered in order to determine the potential of the dataset for further analysis.

3.3.2 **Material assessed:** the entire paper, digital, photographic and material archive deriving from the fieldwork was examined for the purposes of this assessment. This included the stratigraphic records (context sheets, plans, and sections), the photographs and the survey data, as well as the finds and the palaeoenvironmental samples.

3.3.3 **Methodology:** the method of assessment used varied with the class of information examined, although in each case it was undertaken in accordance with guidance provided by MAP2 (English Heritage 1991). Detailed methodologies can be found within the specialist reports lodged in the archive (Bates 2009 (animal bone); Clelland and Batt 2008 (heat-affected soils); Howard-Davis 2009 (finds); Huckerby *et al* 2009 (botanical remains); Macphail 2009 (soil assessment); SUERC 2009 (radiocarbon dating)). During the assessment, the quantity, range, variety, provenance, and condition of all classes of data were evaluated within the framework of the project research questions and objectives. *Section 5* summarises the raw data and results of the assessment of each data category.

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## 4. SUMMARY OF FIELDWORK RESULTS

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### 4.1 INTRODUCTION

4.1.1 During the investigation, remains of archaeological interest were identified within five main areas. The most extensive remains were found within contiguous Sites 1-3, which formed a rectangular strip and record area on the northern side of Garstang Road East (Fig 2). Two additional areas, to the north of Site 3 and in the vicinity of Mains Lane, were also subject to the strip and record methodology, whilst additional features were revealed at Holts Lane and to the north of Mains Lane during the watching brief. The watching brief in the agricultural fields to the north of Garstang Road East revealed deposits of topsoil and subsoil interface, which overlay either sand- or clay-based natural drift geological deposits. To the south of Holts Lane, the watching brief area coincided with a palaeochannel, which formerly would have fed into the main waterway of the Lytham-Skippool valley.

4.1.2 **Phasing:** the assessment of the stratigraphic sequence at Garstang Road East, in conjunction with the preliminary dating of pottery and associated finds, has enabled four initial broad chronological phases of activity to be assigned to this site. These relate to at least three distinctive phases of differential land-use, dating to between the prehistoric and medieval periods. One further phase of activity appears to have been represented by features encountered at Mains Lane, where features of probable post-medieval date were revealed. The assignment of these features to phases constitutes an initial and tentative interpretation. On the basis of the spot dates provided by the preliminary assessment of the artefact assemblages, and the current limited use of scientific dating techniques, the dates, and relative chronologies, of these features cannot be established with certainty. At this stage, then, the features have been grouped on the basis of identified vertical stratigraphic relationships and apparent horizontal patterning, and dated according to the preliminary data available:

- **Phase 1:** possible pre-enclosed settlement phase
- **Phase 2:** earlier part of the Romano-British period
- **Phase 3:** later part of the Romano-British period
- **Phase 4:** medieval period
- **Phase 5:** post-medieval period.

### 4.2 RESULTS

4.2.1 **Phase 1:** the topsoil and subsoil interface to the south of Holts Lane overlay deposits of peat that were up to 2.4m deep (Plate 1). Organic preservation was extremely good within the peat, with a high density of tree trunks, branches, and roots being observed. Although this provided a high potential for the preservation of anthropogenic remains, no worked wood, man-made objects, or faunal remains were encountered in this area. These deposits did, however, present the potential opportunity to generate extended sequences of palaeoenvironmental data that subsequently might allow interpretations of past environmental conditions; a programme of palaeoenvironmental coring was

thus undertaken in this area (*Section 5.5*). Such data might relate to periods that pre-date, as well as those that coincide with, the remains of archaeological interest that were identified during the strip and record. The earliest anthropogenic remains from the strip and record comprised two struck flints, one of which is likely to be of Mesolithic date, and a second that can be assigned a general prehistoric date.

- 4.2.2 The earliest activity recognisable from an initial examination of the stratigraphic relationships appears to comprise four ditches (**609=655**, **656**, **30**, and **100=177**), a pit (**575**), and a posthole (**776**), all found close to the northern, western, and southern limits of excavation (Fig 4). The full extent of the ditches was not established and, therefore, it is not clear whether they formed the boundaries of coherent enclosures or represented discrete stretches of drainage ditches. No artefacts were recovered from the Phase 1 features.
- 4.2.3 **Phase 2:** the features assigned to Phase 2 represented the remains of an enclosed settlement, which was accessed from the western side by a trackway (Fig 4). The settlement area was defined by a multi-cellular enclosure complex, which was bounded and subdivided by a series of ditches into at least three, and probably four, rectilinear compartments (Enclosures A-D). Identified within and around these enclosures were structures, pits, and linear features indicative of domestic and possibly also industrial and agricultural activity. Although an exact chronology has yet to be established, these features are considered to be largely contemporary on the basis of their spatial relationships and mutual alignments.
- 4.2.4 **Enclosure A:** five ditches (**1015**, **1017**, **1029**, **1031**, **1033**) with regular V-shaped profiles formed the sides of this large rectilinear enclosure, which defined an area of approximately 2835m<sup>2</sup>. The ditches shared similar dimensions and profiles, although they might have been subject to slight differences in their degree of horizontal truncation as a result of later ploughing. They generally measured between 0.37m and 1.17m deep and between 1.26m and 2.2m wide (Plate 2; Fig 4). Narrow channels with vertical sides formed the bases of several of the excavated ditch segments and it is possible that these were associated with the cleaning, or dredging, of the ditches. The enclosure ditches, which contained pottery of Romano-British date, appeared to have truncated the four Phase 1 ditches and the Phase 1 pit and posthole. It is not currently clear whether banking, hedging, fencing, or walling was associated with these boundaries.
- 4.2.5 **The entranceway:** the ditches (**1019** and **1021**) on the western side of Enclosure A did not form a complete circuit, but turned at right-angles to flank a well-defined, and variably preserved, metalled entrance route running east/west to the settlement (**751**; Fig 5; Plates 3 and 4). It appears likely that the trackway, entrance ditches, and enclosure ditches were established at approximately the same time, although the metalling of the track might have post-dated the establishment of the ditches. Aerial photography revealed the trackway continuing to the west of the excavation area.
- 4.2.6 **Roundhouse 226:** the remains of a roundhouse (**226**; Fig 4), with an outer diameter of approximately 12m, were revealed within Enclosure A (Fig 6;

Plate 5). These comprised two concentric ring gullies, the complete circuits of which were interrupted by corresponding gaps to the east-north-east and west-south-west. Both of these apparent doorways were further defined by the presence of paired postholes, whilst a large posthole occupied the centre of the structure. One side of the central posthole had been disturbed by a second, smaller, posthole. Several additional postholes appeared to form the remains of a post-ring, within and concentric to the inner ring gully, although these did not form a complete circuit within the structure. The excavation of these features revealed ceramic and metal finds of probable Romano-British date.

- 4.2.7 The natural ground surface in the vicinity of several of the postholes, and some of the deposits filling the postholes, exhibited a conspicuous pinkish-orange colouration. This suggested that these deposits had been affected by similar formation processes, such as oxidisation, mineral-leeching, or heating, perhaps associated with the structure. A large sub-rectangular pit, **393** (Fig 6), was discovered within the northern part of the roundhouse (Plate 6). This pit had become filled and had been overlain with a spread of stones that appeared to have formed a floor within the northern half of the structure.
- 4.2.8 *The industrial or craftworking area:* a series of postholes and curvilinear ditches (**633**) was located in the north-western corner of Enclosure A (Fig 4) and appeared to have been associated with the erection of a rectangular structure (Fig 7). The postholes were very different in style to such features encountered in other parts of the site, being densely packed with unworked stones and with at least one containing a post pad (Plate 7). A large sub-rectangular pit (**578**) in the centre of this area contained a thin primary deposit of charcoal, which might suggest that it had functioned as a heat source, or was associated with charcoal production or storage (Plate 8). Industrial waste, consisting of pieces of secondary iron-working slag, was recovered from some of these features, and it is possible that metalworking was undertaken in the area.
- 4.2.9 *Discrete features:* several discrete pits and narrow ditches or gullies were revealed within Enclosure A. Such features include a patch of cobbles and a short ditch (**67**) at the south-western corner of the site (Fig 4), which might represent the remains of a structure (Plate 9). Two short lengths of gully and a posthole to the north-east of roundhouse **226** might also represent former structural remains (**196, 230, 232**).
- 4.2.10 *Enclosure B:* this enclosure was partially exposed during the strip and record, contiguous with the eastern side of Enclosure A, and was defined by ditches **1029, 1031, and 1027** (Fig 4), which measured between 1.06m and 2.19m wide and between 0.37m and 0.75m deep. Although the northern and southern extents of the ditches in this area were not fully exposed, it is likely that they formed a narrow rectilinear enclosure that was aligned approximately north/south. The enclosure ditches were associated with pottery of Romano-British date. A possible stone causeway (**698**) between Enclosures A and B was constructed within the upper part of ditch **1031** (Fig 6). This causeway would have provided access between the two enclosures, whilst allowing water to percolate through this portion of the ditch.

- 4.2.11 *Roundhouse*: Enclosure B featured the remains of a small roundhouse, **677** (Fig 6; Plate 10). The remains of this structure comprised a single ring gully, with an outer diameter of approximately 7.9m, and several postholes. Gaps in the ring gully, at the east-north-eastern and west-south-western sides of the structure, were suggestive of entrances, and shared the orientations of those associated with the larger roundhouse in Enclosure A. A pit (**455**) to the immediate north-west of roundhouse **677** contained fragments of burnt bone and could represent a cremation burial.
- 4.2.12 *Discrete features*: in addition to several possible pits, a narrow and shallow ditch or gully (**641/643**), forming an approximate right-angle, lay to the south of roundhouse **677** (Fig 4). This might have defined a rectilinear enclosure or structure, the western side of which would have been delimited by part of enclosure ditch **1031**.
- 4.2.13 *Enclosures C and D*: it is likely that two additional enclosures existed beyond Enclosures A and B, although these areas were only partially exposed (Fig 4). Enclosure C was the easternmost enclosure encountered during the excavations, and the eastern and western sides were defined by ditches **1027** and **71**. The northern and southern extents were not exposed. Enclosure D lay to the south of Enclosure A and appeared to represent a small rectilinear enclosure defined by ditches **1033**, **1035**, and **1031**.
- 4.2.14 *The structures outside the enclosed settlement*: two possible structures were identified beyond the extent of Enclosure A (Fig 8). As the features appear to have neither truncated, nor been truncated by, the enclosure ditches, it is possible that they were contemporary with the occupation of the enclosed settlement. The first, group **41**, lay outside the enclosure's south-west corner and was associated with pottery of Romano-British date. This group was represented by two gullies or beam slots, together with possible pits, postholes, stakeholes, and patches of cobbled surfacing, collectively indicative of a rectilinear structure (or structures). A second gully or beam slot (**707=20**) lay to the south of structure **41** and, on account of its shared alignment, may have been related. The second possible structure, **736=873**, lay within the southern angle of the entranceway and Enclosure A, and might represent the remains of a sunken-floored building. It comprised a large charcoal-filled rectilinear hollow lying between two distinct areas of cobbled surfacing (Plate 11). The apparent lack of uniformity in the depth of the hollow might, however, suggest that the depression was an artefact of use, rather than a planned structural element. This could, for example, have resulted from the regular mucking-out of an animal shed, as a source of manure for arable areas.
- 4.2.15 *Phase 3*: there appears to have been a second phase of activity associated with the enclosed settlement, which was represented by a change in the form, and possibly, function, of the entranceway (Fig 5). At this time, the ditches defining the entranceway (**1019** and **1021**) appear to have become substantially infilled, possibly as a result of deliberate backfilling (Plate 4). Thus, the upper levels of the portions of the ditches directly adjacent to the entranceway were filled with large sub-rounded stones and boulders (**750** and **752**) and, in the southern ditch, these appear to have acted as packing deposits for a series of postholes following the line of the earlier ditch (Plate 12).

Between the two ditches, a sub-square arrangement of four postholes (**789**, **790**, **1010**, **1011**) was also revealed within the entranceway (Plate 13). It is possible that all of these postholes relate to the construction of a gateway and palisade, designed to enhance and reinforce the entrance into the settlement.

- 4.2.16 **Phase 4:** the use of ridge and furrow cultivation strategies during the medieval period was evident, cutting the remains of, and on a different alignment to, the enclosed settlement in Sites 2 and 3. Although the ridges had been horizontally truncated by later ploughing, the lower levels of the cultivation furrows, which contained medieval pottery, were identified as being evenly spaced at approximately 5m intervals, and aligned from south-west to north-east (Fig 4; Plate 14). A large ditch (**860**) was encountered in the Mains Lane area, lying just to the north of the easement widening associated with the Main Dyke. A single piece of medieval pottery was found in this ditch. Its proximity to the current Main Dyke, to which it was parallel, suggests that it may have been a precursor to the Dyke, and perhaps shared similar flood alleviation or land drainage functions. The line of ditch **860** appears to have been preserved by a drainage ditch that was visible on the first edition Ordnance Survey mapping of 1844.
- 4.2.17 **Phase 5:** the watching brief recorded ditches, postholes, patches of cobbled surfaces, and possible truncated wall foundations in the vicinity of Mains Lane. Few stratified artefacts were recovered from these features, but the pottery that was discovered suggested that at least one of the ditches was of post-medieval date. Portions of the cobbled surfacing (Plate 15) may have been associated with a standing post-medieval barn that fronts the southern side of Mains Lane. The original forms, extents, and functions of these features have not yet been established, and few coherent patterns of features have been identified, although it is likely that many of them relate to post-medieval agricultural activity. A brick wall attributable to this phase was revealed at Site 4, to the north of Garstang Road East.
- 4.2.18 **Currently unphased:** close to the western end of Holts Lane/Brockholes Crescent (Fig 2), the watching brief revealed an accumulation of stones, overlying the natural clay, which might represent the remains of a metalled surface. No artefacts were recovered in association with this feature and the position of the deposit, underlying layers of saturated peat within a palaeochannel, suggests that an anthropogenic origin is unlikely. Several stretches of ditch of uncertain date, and a stone-filled pit that might represent the remains of a pot boiler, were encountered within Site 4.

## 5. ASSESSMENT OF THE RESULTS

### 5.1 ASSESSMENT AIMS AND OBJECTIVES

5.1.1 The aim of this assessment was to evaluate all classes of data from the fieldwork, in order to determine the potential of the dataset for further analysis. A statement summarising the significance of the results for each class of data currently available is given below. These statements are based on the results of the specialist assessments, in relation to the original academic aims expressed in *Section 3*. Detailed individual assessments of each class of data can be found within the original specialist reports: Bates 2009 (animal bone), Clelland and Batt 2008 (heat-affected soils), Howard-Davis 2009 (finds), Huckerby *et al* 2009 (botanical remains), Macphail 2009 (soil assessment).

### 5.2 STRATIGRAPHIC DATA

5.2.1 **Quantification:** the fieldwork has enabled a full characterisation of the features within the investigated area to be undertaken. The quantity of primary documentation assessed pertaining to the fieldwork is summarised in Table 1.

Context indices	37
Plan indices	15
Section indices	11
Drawing sheet indices	10
Photographic film indices	5
Photographic indices	90
Context sheets	1009
Plans	358
Section drawings	288
Colour slides	1404 (from 48 films)
Black and white images	1512 (from 45 films)
Digital image folders	9
Digital images	814
Environmental sample indices	23

Table 1: Quantification of the archive from the fieldwork

5.2.2 **Assessment:** the archive of primary fieldwork data is a comprehensive record of the stratigraphic information recovered, with significant remains of archaeological interest having been recorded graphically, textually, and photographically. As such, it provides the basis for the understanding of the site and forms a flexible framework, within which the analysis of the other forms of data can take place. Exclusively amongst the data categories, the recorded stratigraphy has the potential to address a number of research questions, but it is only through the integration of the entire archive that a fully synthetic approach can be used to address all of the research questions in a meaningful and academically valid manner. The stratigraphic assessment thus makes occasional and brief consideration of the other forms of analytical data.

5.2.3 The excavation has successfully captured a large volume of data relating to agricultural settlement and subsistence practices in the Poulton-le-Fylde locale during different periods, which presents considerable potential for further analysis. The largest quantity of data relates to the remains encountered at

Garstang Road East, and pertains to the enclosed settlement (Phases 2 and 3). Within these areas, it has been possible to identify, characterise, and record different types and phases of structural features and signifiers of diverse past activities, including the establishment, development, and abandonment of settlement and the nature of subsequent land-use associated with arable agriculture. Artefactual evidence and radiocarbon dating has enabled activity at the settlement to be broadly dated to between the first and fourth centuries AD, within the Romano-British period. After this point, there is no evidence for subsequent settlement at the site, with medieval cultivation marking the next recognisable phase of activity.

- 5.2.4 The assessment has enabled initial understandings of the spatial arrangement of the settlement to be determined, including possible zoning in relation to differential activities and the recognition of well-defined, and differentiated, domestic spaces, as well as information relating to the control of movement into, and within, the settlement. The settlement has produced well-recorded evidence of domestic activity and enclosure morphology that will enable comparisons with other contemporary and Iron-Age sites.
- 5.2.5 The development-led extent of the strip and record area to the north of Garstang Road East means that, although a coherent portion of the settlement has been exposed, the full extent of the site, and the range of activities undertaken therein, has not been definitively established. For example, much of the exposed area is directly associated with habitation and other related settlement activities, but it is possible that similar and adjoining settled enclosures, together with unenclosed features, may lie beyond the limits of excavation, particularly to the north, south, and east of Sites 1 and 2. Although it is possible that Enclosures B-D might have been established in association with agricultural practices, any such field systems must lie beyond the excavation area, for none was recognised within it. The presence of a trackway with a metallised surface and flanking ditches has been established leading into Enclosure A and aerial photographs have enabled this routeway to be traced beyond the strip and record areas, demonstrating the presence of at least one well-defined communication route in the locale. Although the current evidence suggests a broad potential date range for activity at the settlement of up to 300 plus years (*Section 5.6*), a general lack of stratigraphic relationships between different features means that it is extremely difficult to recognise sub-phases. Any consideration of the temporal development of the site, and longevity of occupation therein, will rely upon integrated analyses of stratigraphy, artefacts, and radiocarbon dating.
- 5.2.6 In addition to evidence for medieval arable agriculture, a putative precursor to the Main Dyke has also been identified, which appears to represent water management and flood alleviation during the medieval period. Occasional agricultural features of post-medieval date, such as field boundaries, have also been identified, although a lack of medieval and post-medieval domestic evidence means that it will not be possible to identify settlement areas of these periods within the current areas of archaeological fieldwork.
- 5.2.7 **Potential:** although the meaning and causes of any recognisable contrasts and similarities between the settlement at Poulton-le-Fylde and comparator sites

has not been established during the assessment, there is significant potential for an increased understanding of such complex social, cultural, political, and economic issues as a result of further analysis. This is also true of issues relating to the cultural backgrounds, and ethnic identities, of the occupants of the settlement, as well as the status of those individuals. The restricted extent of the exposure of remains beyond Sites 1-3, as a result of the narrow dimensions of the pipeline easement, means that attempts to develop an understanding and contextualisation of these features, either individually or collectively, are likely to be extremely difficult and of limited constructive effect.

- 5.2.8 The archive of stratigraphic data generated during the strip and record of the enclosed settlement on the northern side of Garstang Road East has good potential for further analysis and integration with each of the other forms of data captured from the site. Such analyses will enable the fuller interpretation of features and deposits, both individually and as groups, and their collective consolidation in order to test, refine, enhance, and expand current notions about the inception, development, and abandonment of the site, as well as its structure, character and organisation, within a chronological and socio-cultural framework. Comparative analyses between the settlement and contemporary rural settlements within, and beyond, Lancashire will enable the typicality of the site, as a Romano-British agricultural settlement, to be gauged and allow interpretations of the sources of cultural influences represented at the site to be asserted. Our present understanding of the medieval and post-medieval remains identified during the fieldwork is unlikely to be enhanced through further analysis of the stratigraphic records, although the inspection of historic mapping might allow an understanding of the nature, extent, and date of some of these features to be refined.

### 5.3 ARTEFACTUAL DATA

- 5.3.1 **Quantification:** the material assemblage from this project is neither large, nor well-preserved, with around 20% of artefact fragments unstratified. Around 60% of the group comprises small and heavily abraded fragments of pottery (Table 2), ranging in date from the second century AD to the nineteenth century, and their poor condition perhaps implies frequent disturbance, as might be expected if the land has been under cultivation for a prolonged period.

Materials	Number of objects
Ceramic vessels	279
Iron and copper alloy	15
Glass	2
Industrial debris	23
Iron ore	2
Stone	42
Ceramic building materials	48
Daub	8
Bone	72
<b>Total</b>	<b>490</b>

Table 2: Quantification of the artefact and ecofact assemblage, by material

- 5.3.2 **Assessment:** there is pottery of both Romano-British and medieval date present, but both categories lack diagnostic sherds. The Romano-British group seems fairly typical of small rural sites in the North West (see, for instance, Nevell 1999). There is no obviously Iron Age pottery, nor, indeed, any hand-made Romano-British fabrics of 'native' type, but it includes well-dated fabrics such as Black Burnished ware category 1, Severn Valley-type ware, and Crambeck parchment ware. These allow a broad sequence of dates to be allocated to the contexts from which they were recovered, thus refining the available radiocarbon dates (*Section 5.6*), which effectively bracket the period.
- 5.3.3 The medieval pottery, recovered from contemporary agricultural features, is more problematic, as the pottery fabrics for this period in this part of the North West remain poorly known (Mellar 1994), although, the fabrics present perhaps cover the entire medieval period. Post-medieval pottery indicates continued agricultural activity.
- 5.3.4 There is not a great range of other finds (Table 2). Several material classes have very little significance: the glass is all modern, the ironwork is unstratified or modern, and the ceramic building material and daub are all extremely small fragments, none of which preserve diagnostic features.
- 5.3.5 Many of the fragments of stone are not of archaeological significance, but there are two fragments of flint debitage, implying some prehistoric activity, albeit at a low level. The two fragments of renal haematite, both worn, could have been brought to the site for some deliberate purpose, perhaps for use as reddle, and there is a worn whetstone from fill **750** of entrance ditch **1021**, although this cannot be dated closely. Quern fragments in the group, including one of beehive type, can add to a consideration of activity within the putative Romano-British settlement, being a good indicator of food processing. Despite x-radiography, only one item of metalwork could be identified with confidence. This was a copper-alloy stud from fill **239** of the cultivation furrow (**240**) that cut the features forming the eastern entrance to roundhouse **226**. As a long-lived Roman type, it cannot add to the dating or particularly illustrate the nature of activity on the site, although it again represents the low-level acquisition of conventionally 'Romanised' goods.
- 5.3.6 **Potential:** considered in isolation, the finds have only very limited potential to contribute to the dating, understanding and interpretation of the site. It is clear, however, from preliminary collation and assessment of the stratigraphic evidence, that this is a long-lived and markedly rural settlement, pottery suggesting that it was in use from at least the second to the fourth centuries AD. The paucity of surviving material culture which characterises these 'native'-type sites (Nevell 1999) could mean that it had its origins in the late pre-Roman Iron Age, although in the absence of Iron-Age material culture, this could never be confirmed from the present assemblage. Such sites are not well known in the North West, and thus any chance to examine their surviving material culture is of value, and addresses a number of the research themes (*Section 2*), perhaps most especially in terms of 'Romanisation'. It is clear that the settlement's inhabitants were acquiring some more obviously Romanised goods, including samian ware, regarded as an expensive commodity (Hartley 2005) and small amounts of metalwork. Although small, the material

assemblage can contribute to a consideration of how, and why, such objects were reaching the site.

## 5.4 ANIMAL BONE

5.4.1 **Quantification:** a small collection of 183 animal-bone fragments weighing c 0.5kg in total was recovered during the fieldwork (Table 3). This material was rapidly scanned in order to assess its condition and potential for analysis. In total, five bones were identified to species level.

Taxon	Phase						Total
	1	1-3	1-3?	2	2-3	4	
Cattle	3					1	4
Sheep/Goat	1						1
Medium Mammal		1			12		13
Large Mammal	13						13
Unidentified Mammal	85		18	49			152
<b>Total</b>	<b>102</b>	<b>1</b>	<b>18</b>	<b>49</b>	<b>12</b>	<b>1</b>	<b>183</b>

Table 3: Number of Individual Specimens (NISP) by species and phase

5.4.2 **Assessment:** all of the bone is in a poor condition, being highly fragmented and burnt to some degree (Table 4), with the exception of the medieval (Phase 4) cow femur fragment. Ten of the unidentified mammal fragments recovered from Roman Phase deposits represent what is probably a single highly fragmented sheep/goat or roe deer tooth. Burnt bone, particularly calcined bone, and loose teeth are more resistant to attack from acid soils due to their mineral, as opposed to organic, composition. A high percentage of loose teeth and burnt bone, which accounts for almost 100% of the bone and tooth fragments recovered, is thus indicative of a very poorly preserved assemblage. All other bone deposited in features of the site, therefore, appear to have been lost to the archaeological record. Pit 455, which was interpreted as a possible cremation, contained tooth fragments from a medium-sized ungulate, such as a sheep, but no diagnostic human bone or tooth fragments.

Phase	Charred (NISP)	Calcined (NISP)	% Burnt
1	36	66	100
1-3		1	100
1-3?		8	44.4
2		13	100
2-3		12	100
4			0

Table 4: NISP of burnt fragments, and percentage of burnt fragments, by phase

5.4.3 **Potential:** the material has no potential for analysis.

## 5.5 PALAEOENVIRONMENTAL DATA

5.5.1 **Quantification:** during the fieldwork programme, bulk samples of 2-30 litres volume were collected from 115 contexts, whilst eight monolith samples were taken through the excavated sections of negative features associated with the enclosed settlement on the north side of Garstang Road East. As an assessment, a sub-sample (minimum 10 litres or the complete sample,

whichever was less) from each of the 115 sampled contexts was processed so that any present charred and waterlogged plant remains could be assessed. Twenty-one sub-samples were taken from five selected monolith samples, and these were processed and assessed for pollen content. Two more monoliths were subjected to a pedological assessment. In addition, to the south of Holts Lane and Brockholes Crescent, the sediment sequence, and the projected line of a Roman road, was investigated through the extraction of 24 auger samples (WE08:1 to WE08:18 and WE09:1a and WE09:1-5) taken at roughly 10m intervals on east/west and north/south-aligned transects. A Russian-type auger was used to extract a continuous core (WE09:1R) from the thickest peat deposit at Holts Lane, from which 12 pollen sub-samples were assessed.

- 5.5.2 **Assessment of charred and waterlogged remains:** of the 115 samples assessed, 18 were judged to contain common or abundant charred plant remains. Charred plant remains in a further 15 samples were recorded as being rare; the remainder of the samples contained either no, or negligible amounts of, material. Both charred cereal grains (*Triticum* sp (wheat), *Hordeum vulgare* (barley), *Avena* sp (oat)) and chaff (including the glumes of both *Triticum spelta* (spelt wheat) and *Triticum dicoccum* (emmer wheat)) were recorded, with occasional charred weed seeds (including Poaceae (grass), *Bromus* (bromes), and *Chenopodium* (goosefoot)).
- 5.5.3 A total of 47 of the 115 samples contained very abundant charcoal fragments. These samples contained *Quercus* (oak), diffuse porous wood (such as alder, hazel, or rosaceous wood), or a mixture of both types of wood. A few of the samples contained possible *Fraxinus excelsior* (ash) charcoal, and possible charred *Calluna vulgaris* (heather) wood, and rhizome fragments. However, there appears to be no obvious correlation between wood types and features across the site.
- 5.5.4 Suitable material for radiocarbon dating, such as charred seeds or chaff, small round wood, and charcoal from short-lived wood, was identified in nearly half of the 115 environmental bulk samples. A further 33 samples contained material of possible use for scientific dating, which comprised just one or two charred seeds, oak wood charcoal, or poorly preserved charcoal fragments.
- 5.5.5 **Palynological assessment of monolith samples:** palynological assessment of the monolith samples demonstrated that charcoal particles and pollen were present in the fills of enclosure ditches **9**, **125**, **145** and **184**, and those of pit **393**. The preservation of the pollen grains was mixed. In all the samples, arboreal pollen was the major component of the pollen sum, with lesser numbers of pollen grains from herbaceous plants and fern spores. The pollen from all the samples suggested that the fills of the features accumulated when the site lay within an area of floodplain largely occupied by alder carr woodland. The data also suggest that there was some grassland, waste ground and areas of possible cultivation present. The Lower Wyre Valley district is low lying and has been wet throughout the Holocene, submerged at times by marine flooding or with extensive areas of raised mires (Middleton *et al* 1995). The region is thought to have been extensively deforested in the Late Iron Age and the woodland is unlikely to have recovered after that period (*op cit*, 197-8;

Wells *et al* 1997). The pollen record suggests a wooded landscape in the vicinity of the site, close to the River Wyre.

- 5.5.6 **Assessment of Holts Lane palaeoecological coring:** the auger survey revealed the presence of peat deposits in excess of 2m deep, in places interrupted by a band of blue/grey clay. No evidence of the putative Roman road was identified along its projected route. The underlying drift geology rose quite sharply within the southern and eastern cores (WE08:14 to WE08:18) where stiff red clay was encountered at a depth of approximately 0.5m below the ground level.
- 5.5.7 The assessment of 12 sub-samples from the Russian-type auger core (WE09:1R) confirmed that pollen was preserved within the deposits. The limited data suggest a wooded landscape with increasing clearance, and possible cultivation towards the top of the sequence. In the lower section of the core, the data might indicate that the deposits spanned the period of the Lytham VI marine transgression, when sea-levels rose in the late Mesolithic/Early Neolithic period (Tooley 1978; Middleton *et al* 1995, 194).
- 5.5.8 **Soil assessment of monolith samples 104 and 106:** the lowermost fills of enclosure ditches **184** and **145** (samples 104 and 106) are generally silty and clayey. Fills became coarser upwards and included anthropogenic material presumably associated with settlement activity. It is not clear, however, if the site was being actively influence by marine flooding during its occupation, although one aspect of the ditch system could have been to obviate against flooding. It can be suggested that ditch infilling was quite rapid, but possible periods of stasis occurred with rooting and ferruginisation taking place, as well as presumed biological homogenisation of the fills, with no clear fine stratigraphy observed.
- 5.5.9 **Potential:** there have been very few environmental investigations of rural Romano-British sites in north-west England, with only two sites from Cumbria known (Hall and Huntley 2007, 92), in addition to Barker House farm, near Lancaster (OA North in prep), Dutton's Farm, near Lathom (R Cowell *pers comm*), and Brookhouse Farm and Ochre Brook, in Merseyside (Cowell and Philpott 2000, 50-9; 104-7). Like the Poulton-le-Fylde enclosed settlement, these produced low-density assemblages of plant remains with little diversity. However, given the paucity of data from Iron-Age and Romano-British indigenous sites in the region, any data that can be recovered from the palaeoenvironmental samples can be considered important, as it would add significantly to present knowledge of the agricultural and economic practices carried out during these periods. The peat sampled has the potential to provide data relating to a long sequence of vegetation change in the area, which might reflect the effects of climate change and anthropogenic activity. A multidisciplinary approach to the environmental material will be an important element of analysis, since the integrated study of the soil micromorphology, soil chemistry, plant macrofossils and palynological data should be able to address a number of the project's research questions, once integrated with the stratigraphic data and a programme of scientific dating.

5.5.10 There is good potential for further analysis of the charcoal fragments found in 47 samples (Table 5). Although there could be some value in identifying the taxon of the larger piece of charred timber from the fill 577 of sunken-floored feature, further analysis of the charcoal assemblage would be satisfied by the integration of the existing charcoal assessment results into the wider analytical framework.

Sample	Context	Feature type	Prelim phase	Potential CPR	Potential Charcoal	Potential C14
1	15	Gully	2	Yes		Yes
3a	34	Possible gully	2	No	Yes	Yes
3b	34	Possible gully	2	No	Yes	Moderate
4	19	Gully	2	Yes		Yes
6	29	Ditch	1	Yes	Yes	Yes
10	48	Posthole	2	Moderate		Moderate
13	10	Furrow	1-3?	Moderate		Moderate
16	81	Tree bole	1-3?	No	Yes	Yes
17	86	Tree bole	1-3?	No	Yes	Moderate
21a	131	Tree bole	1-3?	Yes	Yes	Yes
24	140	Posthole	1-3?	No	Yes	Yes
31	193	Pit	1-3	No	Yes	Moderate
33	209	Pit	1-3	No	Yes	Moderate
35	248	Drip gully terminus	2	Moderate		Yes
36	274	Drip gully	2	Moderate	Yes	Yes
37	261	Drip gully	2	No	Yes	Yes
38	267	Pit	1-3	No	Yes	Yes
39	270	Drip gully	2	No	Yes	Yes
40	285	Drip gully	2	No	Yes	Yes
41	345	Postpipe	2	No	Yes	Yes
42	335	Tree bole	1-3?	No	Yes	Yes
43	333	Tree bole	333	Yes	Yes	Yes
45	326	Post gully terminus (lower fill)	2	Moderate	Yes	Yes
46	365	Pit/natural hollow	1-3?	No	Yes	Moderate
49	453	Pit	1-3?	Yes	Yes	Yes
50	454	Pit	1-3?	Moderate		Moderate
52	428	Posthole	2	No	Yes	Yes
54	425	Pit	2	Yes		Yes
55	429	Posthole	2	Yes	Yes	Yes
60	462	Pit	1-3?	Yes		Yes
61	463	Pit	1-3	No	Yes	Moderate
62	476	Pit/natural hollow	1-3?	No	Yes	Moderate
66	610	Ditch	2-3	Moderate	Yes	Yes
67	493	Pit	1-3?	Moderate		No
68	497	Ditch	2-3	Yes		Moderate
69	534	Pit	1-3?	Yes	Yes	Yes
71	503	Posthole	2	No	Yes	Yes
72	552	Ditch	2	No	Yes	Yes
73	556	Posthole	2	No	Yes	Yes
76	568	Pit	1-3?	Moderate	Yes	Yes
77	512	Posthole	2	No	Yes	Yes
78	566	Posthole	2	No	Yes	Yes
79	572	Pit	2	No	Yes	Yes
80	497	Ditch	2-3	Moderate		Yes
81	562	Pit	1	Yes	Yes	Yes
83	560	Ditch	2	Yes	Yes	Yes
84	599	Ditch	1-4?	Yes	Yes	Yes
85	577	Pit	2	No	Yes	Yes

Sample	Context	Feature type	Prelim phase	Potential CPR	Potential Charcoal	Potential C14
86	<b>509</b>	Posthole	2	No	Yes	Moderate
87	<b>487</b>	Posthole	2	No	Yes	Yes
88	<b>154</b>	Posthole	2	No	Yes	Yes
89	<b>628</b>	Pit	1	Yes	Yes	Yes
90	<b>576</b>	Pit	2	No	Yes	Yes
92	<b>624</b>	Ditch	2	Moderate		Yes
93	<b>626</b>	Ditch	2	Yes		Yes
96	<b>540</b>	Posthole	2	No	Yes	Yes
97	<b>654</b>	Ditch	1	Moderate		Moderate
98	<b>678</b>	Tree bole	1-3?	No	Yes	No
110	<b>913</b>	?Pot boiler	1-3	Yes	Yes	Yes
111	<b>870</b>	Possible sunken-floored building	2	No	Yes	Moderate
114	<b>760</b>	Ditch	2-3	Moderate		Yes
122	<b>796</b>	Ditch	2	Yes		Yes
123	<b>795</b>	Ditch	2-3	Moderate		Yes
130	<b>788</b>	Posthole	2-3	Moderate		Yes

Table 5: Samples suitable for analysis of charred plant remains, charcoal, and for radiocarbon dating

- 5.5.11 Should radiocarbon dating indicate that portions of the Russian-type auger core (WE09:1R) spanned the occupation of the enclosed settlement, then analysis of its pollen content will help to elucidate the nature of, and any changes in, the wider environment of the settlement. If it is indicated by range finder AMS dates (one from the upper part of the sequence and the second from the base of the main wood peat) that the core's sequence does indeed span the settlement of the site, the pollen from the core has excellent potential for further analysis. This can provide an excellent ecological context for the site, highlighting any factors that would have influenced the location, longevity and activities undertaken at the settlement. This will provide a context for each of the other forms of palaeoenvironmental analysis, for example, allowing a good basis for comparison with the more locally derived pollen assemblages from ditches **9**, and **145**, and pit **393**, and thus an understanding of the interaction of the settlement with its immediate surroundings. These interpretations should be further enhanced by the soil micromorphological analysis, which also has a tenuous potential to determine whether the ditches were associated with banks and hedges.
- 5.5.12 When considered with the charred plant remains, collectively, this will allow research questions pertaining to the nature, and perhaps also the distribution, of local economic and domestic activity (including evidence for cultivation, pastoralism, human waste components, *etc*) to be addressed. Analysis of the charred plant and charcoal assemblage from specific features also has some potential to elucidate questions regarding selection and utilisation of the wild and cultivated resource from various plant communities for general and more specific economic, domestic and industrial functions.
- 5.5.13 There is very good potential for refining the site chronology once the charred material from the site has been combined with stratigraphic data and this will enable the results of the analysis to be compared with those from other sites in the region and further afield.

## 5.6 RADIOCARBON DATING

5.6.1 **Quantification:** five samples of organic material were submitted to Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating. The samples were selected according to the presence of organic material suitable for radiocarbon analysis, such as charcoal, charred seeds, and cremated bone. The samples derived from features that demonstrated the potential to provide information relating to the chronological development of the site.

5.6.2 **Assessment:** all of the radiocarbon dates lay within the Romano-British period, with four very similar date-ranges representing spans between the first and third centuries AD (Table 6). Where the probability of an accurate date assignment exceeded 90%, a considerable degree of overlap existed between the date ranges for each of the five samples. However, as the span of these date ranges varied between 180 and 300 years, the overlap is not necessarily representative of contemporaneity between the associated features. Indeed, it would be possible for several successive and distinct phases of activity to be represented within the margins of the narrowest of these ranges.

Sample	Feature	BP Date	Calibrated Date	Lab Code
35	Fill of ring gully <b>248</b>	1870±35BP	AD 60-240 (95.4%)	SUERC-24693
83	Ditch fill <b>560</b>	1845±35BP	AD 70-250 (95.4%)	SUERC-24694
85	Pit fill <b>577</b>	1905±35BP	AD 20-220 (95.4%)	SUERC-24695
130	Posthole fill <b>788</b>	1825±35BP	AD 80-260 (92.8%)	SUERC-24696
OR 1053	Ditch fill <b>654</b>	1760±35BP	AD 130-390 (95.4%)	SUERC-24700

Table 6: The results of assessment-stage radiocarbon assay

5.6.3 **Potential:** additional radiocarbon dates from stratigraphically distinctive features, such as the backfilled portion of the entrance ditches, might allow further understanding of the duration of activity associated with the enclosed settlement and whether such activity was continuous or punctuated by periods of disuse. The use of statistical analyses on the current radiocarbon data, and on any additional dates, might enable the date ranges to be narrowed and, therefore, allow the recognition of chronological patterns representative of distinctive phases of activity at the settlement. This might allow the longevity, and the degree of continuity, of activity to be better understood and might also elucidate the relative chronologies of different features.

## 5.7 ARCHAEOMAGNETIC DATING SAMPLES

5.15.1 **Quantification:** 30 samples of silty clay soils that were suspected to have been affected by heat were taken. All of the samples were taken from three features associated with roundhouse **226**. These were fill **213** of the northern post-gully, a deposit (**224**) surrounding posthole **208**, and a deposit (**300**) surrounding posthole **381**. An assessment of the potential of the samples for archaeomagnetic dating was undertaken.

5.15.2 **Assessment:** the intensity of natural remanent magnetisation was very low, and suggested that, if the clay had been fired, the temperatures achieved were

not sufficient to alter the magnetism of the material. The reddening of the clay might, therefore, have been the result of the decomposition of nearby timber posts.

5.15.3 **Potential:** without a consistent magnetic signal, there is no benefit in comparing the magnetic direction recorded by the material with the archaeomagnetic calibration curve, as it will not provide a realistic or reliable date. Further magnetic analysis could identify the magnetic mineralogy of the samples, but they would remain unsuitable for archaeomagnetic dating.

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## 6. STATEMENT OF POTENTIAL

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### 6.1 INTRODUCTION

6.1.1 The data recovered from the Wyre Estuary sites provide the opportunity to explore a wide range of research themes. The following section seeks to synthesise the current results of the fieldwork, and of the assessment, to establish the nature of detailed analysis that should be undertaken. As such, it will determine the validity of the original research questions (*Section 2.6.1*) and, where appropriate, adjust them as updated research questions (URQ, *Section 6.3*) to be addressed by updated research objectives (URO; *Section 6.4*). It is these UROs that will form the basis of the updated project design for analysis (*Section 7*).

### 6.2 STATEMENT OF SIGNIFICANCE

6.2.1 The Wyre Estuary fieldwork, which involved controlled soil stripping across a wide area, has enabled the identification of sites of archaeological significance that had not been identified previously and were not expected. The majority of the features encountered at Sites 1-4 appear to date to the Romano-British period, with the possibility of an earlier phase of activity. These are likely to represent the first Romano-British farmstead set within rectilinear enclosures to have been excavated in Lancashire, although specific elements, such as roundhouses with opposing entrances, have similarities with comparable sites in the county.

6.2.2 Due to a high degree of population and cultural continuity between the Iron Age and Romano-British period, and the potential for Iron-Age sites to be misidentified as being established during the Romano-British period, a thorough understanding of any Romano-British rural site in the region will rely upon a comprehension of Iron-Age settlement. Recognised examples of lowland rural settlements of Iron-Age and Romano-British date are extremely rare on the Lancashire and Amounderness plain. Indeed, the only two excavated examples are at Barker House Farm, in Lancaster, and Dutton's Farm, in Lathom, with Dutton's Farm providing evidence of activity during both periods (OA North in prep; Cowell 2005). Even if the regional consideration is extended to include Merseyside and Greater Manchester, few comparable sites have been subject to archaeological excavation. Only ten lowland sites within this wider region have received some archaeological investigation, six of which have produced evidence of Iron-Age activity, and eight of which have produced evidence of Romano-British activity (*see* Cowell 2005, 71; Cowell 2000, 172; Philpott 2000, 175–6; Nevell 1999; OA North forthcoming). However, numerous undated enclosures have been identified in the region that, on morphological grounds, might be of Iron-Age or Romano-British date, and clusters of surface-finds discovered during fieldwalking might also indicate the presence of Romano-British settlements (Philpott 2000, 178–9; 182–3; 189).

6.2.3 Several types of Iron-Age lowland settlement have been identified within north-west England, including sites associated with single-ditched rectilinear enclosures, although few such sites in Lancashire have been subject to

excavation and dating (Phillpot 2000, 183–4). Evidence from Cumbria and Shropshire, however, suggests that such sites may have been in use during the Iron Age and Romano-British period, and continuity of occupation between both periods has been demonstrated at some sites (*ibid*).

- 6.2.4 Many such sites are, however, generally considered to be of Romano-British date (*ibid*; Cowell 2000, 173), although the paucity of material culture associated with the Iron Age in the region, in comparison with the more frequent occurrence of Romano-British artefacts, means that caution should be exercised when dating rural sites on artefactual grounds (Hodgson and Brennand 2006, 52; Philpott 2006, 73–4). The potential for earlier phases of occupation to be masked by more conspicuous Romano-British activity should also be considered when interpreting such sites (Philpott 2006, 73–4). Indeed, the earliest phases of the Roman fort at Kirkham, located 9km to the south of Poulton-le-Fylde, were demonstrated to have been pre-dated by features of uncertain function that contained hand-made pottery of possible Iron-Age date (Howard-Davis and Buxton 2000, 9). Although identified Iron-Age settlement sites are rare in the North West, the palaeoecological record suggests that clearance activity was widespread in the Fylde during the Iron Age (Middleton *et al* 1995, 206) and the current site, therefore, represents a rare opportunity to explore the date, nature, and duration of a settlement with the potential to have been founded during the Iron Age.
- 6.2.5 The identification of enclosed settlements in Lancashire has been limited, in comparison with the numerous examples known from Cheshire and Merseyside, although the role of systematic aerial photography in these latter areas is likely to be largely responsible for this disparity (Hodgson and Brennand 2006, 52; Phillpot 2000, 183). However, the ineffectiveness of aerial photography to reveal such sites in many areas of the North West, in particular the Fylde, may relate to the predominance of heavy soils, which are not conducive to the visibility of sub-surface features as crop and soil marks (Middleton *et al* 1995, 200). River valleys and wetland areas are subject to covering deposits, such as peat and alluvium, which can also mask features from aerial photography (*ibid*). Indeed, the discovery of extensive enclosure ditches during the recent excavations at Poulton-le-Fylde demonstrates that such sites can remain undetected unless revealed by the removal of topsoil.
- 6.2.6 Although open, or unenclosed, Iron-Age and Romano-British settlements have been discovered within the North West, such as the possible Iron-Age site excavated at Cutacre Clough, near Atherton (OA North forthcoming), once again, the recognition of such sites, prior to excavation, is extremely difficult (Hodgson and Brennand 2006, 53). The potential for unenclosed phases of activity to have been succeeded by later, more conspicuous, enclosed settlement should also be considered, particularly when evaluating rural settlement during the Iron Age.
- 6.2.7 The quantities of finds recovered from some of the excavated sites in the region has been low, with, for example, three fragments of samian pottery comprising the only datable sherds found at Brook House Farm (*op cit*, 186) and an absence of Romano-British artefacts being conspicuous at Barker House Farm (J Quartermaine *pers comm*). Larger and more diverse Romano-

British assemblages were, however, recovered from Dutton's Farm, in Lathom (Cowell 2005, 70) and Ochre Brook and Brunt Boggart in Tarbock, Merseyside (Jones 2000a, 85; 2000b, 137). Only the site at Rainsough, in Greater Manchester, has, thus far, produced artefacts that might be considered to be elite goods of Roman type (*op cit*, 176).

- 6.2.8 Within such a context, the significance of the Poulton-le-Fylde settlement is readily apparent. It represents one of the few rural settlements with scientifically dated Romano-British activity (including its large roundhouse, various discrete features, and the ditch surrounding Enclosure A) to have been excavated in the region. Whilst it is possible that scientific dating of stratigraphically early features may identify evidence of Iron-Age activity, the absence of such activity does not diminish the significance of the recovered data. Indeed, the fact that there are well-dated comparanda in the vicinity and the wider region means that the Poulton site can be interpreted, and make a more coherent contribution to the archaeology of the region, than if it were a unique entity within a vacuum. As such, if a tight scientifically dated chronology can be established, there is potential for the recovered data to be both tied into, and tested against, a framework of historically documented activity and human and natural processes. Such processes could include climatic amelioration facilitating the movement of settlement into formerly marginal areas, as well as the Romanisation (in all or any of its multifarious and incremental forms) of the region.
- 6.2.9 Moreover, whilst it is not possible to establish the exact extent of the settlement, nor the proportion that has been excavated, certainly that part which has been investigated represents a series of coherent units. The exposure of the well-defined extents of up to four conjoined enclosures, and the comprehensive excavation of most of the interior space of two of these enclosures, provides an opportunity to examine the spatial organisation of the settlement, which, even in basic forms, has rarely been possible at Romano-British lowland rural settlements in Lancashire, Merseyside, or Greater Manchester.
- 6.2.10 The presence of such varied forms of data, and the excavation of such a large portion of the settlement, means that the site at Poulton-le-Fylde represents an extremely valuable resource for the understanding of Romano-British settlement in the north-west of England. The rarity of this type of site in Lancashire means that the contribution that it offers to the understanding of regionality and supra-regional characteristics in Romano-British rural settlements is of considerable importance.
- 6.2.11 There is also evidence for medieval ridge and furrow cultivation techniques and drainage ditching, and ditches and fragmented structural remains of probable post-medieval date. The medieval cultivation furrows are of local significance, as they relate to previously unrecorded field systems, the presence of which had been entirely concealed as a result of the successive, and differently aligned, post-medieval field system. The medieval drainage ditch (860) is also of local significance, as it relates to the establishment of systems of land drainage that subsequently increased in scale throughout the post-medieval period, decreasing the extents of local mosslands and

dramatically altering the landscape (*see* Middleton *et al* 1995, 85-6; 101-8). The limited nature of the post-medieval remains, in terms of their degree of survival, extent of exposure, and coherence as feature groups, means that they are not particularly significant as informers of the local or regional post-medieval agricultural landscape.

### 6.3 POTENTIAL FOR FURTHER ANALYSIS

- 6.3.1 This section discusses whether, and how, any or all of the original research questions for excavation and assessment (*Section 2.6*) can be addressed by the dataset, and thus remain appropriate aims for analysis. The research context for the present investigation, including appropriate frameworks and regional studies, has been outlined in *Section 2*.
- 6.3.2 Although there have been finds, and several radiocarbon dates, of Romano-British date, and limited finds of medieval pottery, there is no artefactual evidence to suggest activity during the Iron Age (RQ1-2, RQ6). The survival of well-stratified charred plant remains will provide the opportunity to undertake further radiocarbon dating, in order to date securely the earliest stratigraphical units (material permitting) and augment a revised chronological sequence for the site that will be generated by further artefactual and stratigraphic analyses, and possibly identify phases of activity that were not represented by cultural remains (RQ1-2, RQ6).
- 6.3.3 Areas of apparently diverse Romano-British activity were revealed to have been located in distinct spaces throughout the settlement, as suggested by the differential siting of morphologically distinct structures; it is possible a rapid analysis of the distribution of the material assemblages may also provide some support for such patterns, albeit without the statistical validity assured by larger assemblages (RQ3). In addition, well-defined plots appear to have delineated differing areas of domestic space (RQ3-5). The conclusive demonstration of any such zoning will, however, depend upon being able to identify contemporaneity between comparative areas of the site. Further environmental and artefactual analyses, in tandem with the analysis of the fieldwork archive, have the potential to increase our understanding of the nature of activities being undertaken in spatially differentiated areas, as well as changes in the nature and function of the site over time (RQ3-4). Evidence for the division of space, and related distributions of finds, in relation to possible domestic structures, has the potential to provide additional information relating to the roles, and possibly status, of the structures and their occupants (RQ5). Such data might also elucidate an understanding of any expression of social stratification within the layout and organisation of the site (RQ3, RQ5).
- 6.3.4 No features that could be definitively interpreted as representative of funerary activity were encountered during the fieldwork (RQ4). However, small pit 455, which contained burnt material, including fragments of sheep tooth, may represent a structured deposit of the sort that are fairly common on contemporary sites where bone preservation is better (Hill 1995).
- 6.3.5 A timber structure at the western entranceway appears to represent a gateway with possible functions relating to defence, restrictions of access, or the

symbolic expression of status or defensive capacity (RQ3-5). Further analysis of the fieldwork archive, artefactual and environmental data, and programmes of scientific dating, provide the potential to discern details of the nature of the site boundaries that might represent the physical expression of behaviour, activities, lifestyles, or attitudes of the occupants and their changing character over time (RQ3, RQ4-5, RQ12). Such analyses might allow the possibility of banking, walling, fencing, and causeways associated with the enclosure ditches to be explored, and aerial photographic analysis could provide information relating to the extent of the enclosures beyond the excavation area (RQ1, RQ4). A trackway leading to the gateway was encountered running westwards from the settlement and further analysis could allow more information to be generated about the extent of this routeway and, therefore, the association between the settlement and other parts of the landscape (RQ5, RQ8).

- 6.3.6 An extensive programme of environmental sampling means that the potential exists for the reconstruction of past landscapes that were contemporary with the excavated sites. This will allow a greater degree of understanding of any temporal patterns in the local landscape and climate, and provide an environmental context within which to interpret the sites, including the identification and characterisation of previous episodes of land-use (RQ11, RQ12). The analysis of preserved plant remains will also enable us to explore evidence for the exploitation of specific plant resources within the enclosed settlement (RQ3-4, RQ7, RQ10-13).
- 6.3.7 Botanical remains are present within numerous environmental samples, including the stratigraphically earliest features at the site and features of Romano-British date. The environmental data, in tandem with finds of mortaria and quern stones, provides evidence of food processing, consumption, and possible production associated with the enclosed settlement (RQ1, RQ3-5, RQ7, RQ10). Additional stratigraphical, environmental, cartographical, and chemical analyses provide the potential to explore the nature and extent of Romano-British and medieval field systems, the roles of arable and pastoral agriculture, and environmental influences that might have contributed to the siting and longevity of the settlement (RQ1, RQ3-5, RQ11). The analysis of soil micromorphology retains the potential to provide information relating to the possible provision of hedges or banks in association with the enclosure ditches (RQ1, RQ4).
- 6.3.8 The exploitation of natural resources, and the presence of naturally occurring plants, is also represented to differing degrees by environmental and artefactual evidence, and feature morphology at the enclosed settlement (RQ4, RQ5, RQ10-13). This includes environmental evidence for timber of possible structural use and iron slag; further environmental analysis might identify additional such materials (RQ1, RQ4). Further analysis, including comparative studies, might elucidate the nature of industrial or craftworking activities, or building techniques that might have exploited natural resources. This includes the potential for environmental analyses to provide evidence relating to thatching materials and the exploitation of wild plants (RQ4, RQ11-13).

- 6.3.9 It has been suggested, although this idea has rarely been tested by excavation, that Iron-Age and Romano-British rectilinear enclosures are more likely to have been associated with arable agriculture than stock rearing (Philpott 2000, 185). Certainly, the rural nature of the enclosed settlement, as suggested by the overall morphology, has been confirmed by the identification of quern stones, evidence of cereal processing, and environmental evidence suggestive of local cultivation (RQ2, RQ4). The environmental samples retain the potential to inform about the nature and, perhaps, the proximity of arable and, to a lesser extent, pastoral, agriculture. The absence of an adequate assemblage of animal bone, however, means that a comprehensive analysis of the pastoral economy will not be possible. Moreover, with such a skewed data set, an association between the rectilinear enclosures and arable cultivation is virtually inevitable (RQ4).
- 6.3.10 The finds assemblage from the enclosed settlement, containing several sherds of Roman pottery, contrasts with that from Barker House Farm, which produced very little pottery (OA North in prep). More detailed analysis of all categories of data will be necessary in order to undertake comprehensive comparative analyses that have the potential to demonstrate similarities and differences between this site and other rural settlements at regional and intra-regional levels (RQ5, RQ7-10). Such analysis might also allow structural interpretations of previously standing buildings from the negative features recorded on-site and, therefore, interpretations relating to their uses and any forms of cultural expression inherent in their design (RQ1, RQ3-4, RQ7, RQ9-10).
- 6.3.11 The nature of the finds, evidence for food consumption, and the wider character of the enclosed settlement, might also allow an exploration of issues relating to the influence of the Romanised world on rural settlements and questions relating to the degree of contact with the Roman military and Romanised civilian settlements, such as Dowbridge Roman fort at Kirkham, as well as with rural settlements of indigenous character, such as Barker House Farm (RQ8). This has implications for attempting to understand the ethnic background and political allegiances of the settlement's occupants (RQ10).
- 6.3.12 Further analysis of the medieval pottery from drainage ditch **860**, and from the cultivation furrows, might allow a refined date for these features to be ascertained, and the study of primary historical sources, including cartography, might also allow the extent and nature of the ditch to be examined (RQ1). Although analysis of the medieval pottery may allow the identification of its origin, it is unlikely that a specific kiln source or producer associated with the medieval pottery could be discerned as a result of further analysis (RQ14). Documentary research, comprising the study of historical maps, might provide additional information relating to the original extents and functions of some of the post-medieval features.

## **6.4 UPDATED AIMS AND OBJECTIVES FOR ANALYSIS**

- 6.4.1 This section presents the updated research aims (URQs) and objectives for use during the analysis phase of the project. These aims and objectives are derived from those formulated for use during the excavation and assessment phases of

the project (*Section 2*), but have been modified and augmented following the consideration of the results of these initial phases of work. The updated aims and objectives necessarily emphasise the presence, absence, and sufficiency of data to support further analysis of relevant components of the archaeological data recovered. The role of these further analyses will be to inform our understanding of the human past in the study area, with specific reference to the national, regional, and local priorities for research outlined in *Section 2.2*.

6.4.2 **Updated research aims:** on the basis of the assessment results, the updated research questions (URQ) are presented below. Questions that have been partly, or wholly, addressed are indicated in *Section 6.3*. To avoid confusion, the original numbering and wording of those research questions, set out in *Section 2*, have been retained. Additional research aims and modifications to the original research aims are displayed in italics:

**URQ1** *How can the features of archaeological interest be defined, and understood further?*

**URQ2** Is it possible to *refine* the date of the inception and abandonment of the site and, between those dates, provide a *more accurate* chronology for the identified remains of archaeological interest and attribute them to meaningful activity phases?

**URQ3** *Which of the well-defined zones of Romano-British activity were contemporary with each other, how were they used, and does the chronological data demonstrate that this apparent zoning was consciously established? Do these data enable differentiation between public and private space and between buildings and defined spaces inside and outside the settlement?*

**URQ4** To what extent can a range of activities be *further* identified, defined, interpreted, and understood amongst the data recovered from the site; including aspects of defence, site organisation, agriculture, craft production, and habitation?

**URQ5** *How can any factors relating to the status of the settlement and the occupants, or social factors influencing the location and nature of the site, be discerned and further understood?*

**URQ6** *How can the site be integrated within chronological frameworks for the wider region and contribute to a greater understanding of the nature of rural settlement in Lancashire?*

**URQ7** *What are the specific similarities and differences between the nature of occupation at Poulton-le-Fylde and contemporary settlement sites elsewhere in Lancashire, and are these similarities and differences the result of cultural, economic, political, social, environmental, or communications phenomena?*

**URQ8** Is there any evidence of interaction between rural settlements at Poulton-le-Fylde and other settlement sites, such as Barker House

Farm and *what is the identifiable extent of the communications network* that linked the site with other parts of the landscape? Is there any evidence for interaction with, or divergence from, the *second-century military base at Dowbridge*?

**URQ9** *How do the styles of the roundhouses, and other buildings, compare with other examples of similar, and also Iron-Age date, from the wider region, and do they appear to reflect any demonstrable regional traditions, or exhibit divergences from local architectural styles for which there are parallels in other regions?*

**URQ10** Do the artefact, ecofact, and palaeoenvironmental assemblages and anthropogenic features, including evidence for the nature of food consumption, reveal evidence of the ethnic identity of the occupants of the site, including any military influences or creolisation associated with the Roman world? Do artefact assemblages reflect specific economic and social networks that might indicate the location and extent of LPRIA ethnic heartlands?

**URQ11** Can we gain an understanding of temporal patterns in the local landscape and climate, and can the palaeoenvironmental data from Poulton-le-Fylde further this knowledge? Moreover, can an understanding of the sites' environmental context help to explain and interpret the archaeological findings or to identify activity?

**URQ12** Is there any evidence of continuity or change of land-use through time and what processes were responsible for any observable changes?

**URQ13** *How can the evidence for the exploitation of resources beyond the settlement area be related to specific wetland areas, mineral sources, or other diverse environments and trade networks, and can a site exploitation territory, and wider catchment area, be defined?*

**URQ14** Is there any evidence for the use of locally produced pottery during the medieval period?

**URQ15** How can the results of the investigation be made available to the wider public in an accessible form, whilst undertaking appropriate archiving of the artefacts and primary data?

6.4.3 **Updated Research Objectives:** the following objectives of the post-excavation analysis programme were formulated with reference to the updated research questions (*Section 6.4.2*). Unlike the URQ, the updated research objectives (URO) are presented completely anew, coded in the most logical order.

**UROa** Using the database, GIS, and primary field records; undertake detailed analysis of the on-site stratigraphy. This will permit the best possible understanding of the physical form of, and relationships between, the different elements of the site, provision of a refined chronological

framework, and also the formulation of an holistic narrative of the sites (all RQs, but particularly RQ1-4, RQ7, RQ9, RQ12).

**UROb** Utilising the LRO, the LHER, and other libraries, repositories and sources, undertake a detailed, but targeted, search, collation and interrogation of available published and grey literature reports on the archaeology of the region, excavations of comparable contemporary sites within the close and wider locale, and aerial photographic sources (RQ1, RQ3-14).

**UROc** Using information from the above sources, together with Ordnance Survey map data, and topographical information, undertake a rapid review of the landscape, and palaeoenvironmental history of the immediate area, including the reconstruction of the changing nature of estuarine and riverine extents. Such an appraisal would focus only on those aspects that would elucidate factors influencing and revealing the position, activities and extents of the Romano-British settlement site and its components, and aid the most basic understanding of the medieval and post-medieval land organisation and drainage systems (URQ1, URQ4-5, URQ7-8, URQ11-13).

**UROd** Undertake palaeoenvironmental and sedimentological analyses of the bulk and monolith samples taken during the strip and record, and of the palaeoecological cores taken to the south of Holts Lane. This will allow a better understanding of formation processes, on-site activity, changes in land-use, and the surrounding environment, as well as maximising recovery of artefacts, and provide material for absolute dating. It should:

- ◆ analyse the nature of plant cultivation and the exploitation of wild plant resources, changes in such practices over time, and their relationship with the identified enclosures and structures;
- ◆ analyse the evidence for thatching materials and the availability of any such materials within the local environment;
- ◆ analyse the charcoal for evidence relating to structural timber and the species, origin, and function of any such timber (URQ4, URQ7, URQ10-11 and URQ13);

**UROe** Undertake analysis of the artefacts recovered from the fieldwork, in terms of date, origin, quality, form, fabric and function, presence and nature of residues, spatial distribution, preservation, residuality, provenance and comparison with other sites in the locale and wider region, including:

- ◆ analyses to attempt to date closely the worked flints and to ascertain the specific nature of activity that they represent;
- ◆ petrological analyses of stone tools, such as quern stones, in order to ascertain the source of the stone resource and inform an understanding of the nature and extent of the site exploitation territory (URQ15).

- ◆ basic comparative analyses of the limited finds assemblage and the evidence for food production and consumption from Poulton-le-Fylde with those from Dowbridge, in order to determine whether distinctive forms of material expression and subsistence styles are recognisable between these military and civilian populations (see also UROh) (URQ1-8, URQ10, URQ13-14).

**UROf** Review the stratigraphical, artefactual, and palaeoenvironmental assessment results, then conduct a programme of absolute dating of material from securely stratified key deposits (RQ2-3, RQ6-7, RQ11-12).

**UROg** Perform spatial analyses to explore the relationships between different features, and also between artefacts and palaeoenvironmental material belonging to contemporary phases in order to define activity areas and patterns of disposal. Such data can be compared between the Wyre Estuary sites and those identified in the immediate and wider locale, and analyses should include:

- ◆ attempting to establish whether the roundhouses were contemporary with each other, or if the structures represent shifting foci of habitation, and whether there is any evidence for differing functions or status between the structures;
- ◆ examining whether all of the enclosures were contemporary, and if the impression of multiple well-ordered plots is the result of the establishment of a pre-planned settlement, or whether successive phases of activity are represented by different enclosures (URQ1-5, URQ7, URQ9, URQ12).

**UROh** Analyse the individual and site-wide morphology, arrangement, and juxtaposition of features, particularly enclosure ditches and structure groups, so that they might be compared with other contemporary sites of varying functions and in a range of topographical settings. This should include:

- ◆ analysis of the size, shape, structural style, and orientations of the roundhouses at Poulton-le-Fylde, and evidence for enduring and developing cultural traditions and practices;
- ◆ analysis of any associations between rectilinear enclosures and arable agriculture;
- ◆ attempting to determine whether banks, palisades, or hedges were associated with the enclosure ditches;
- ◆ examining whether the gateway, and the enclosure boundary in general, represented functionality associated with defence, display, restriction of access, or other motivations for spatial definition and differentiation (URQ1, URQ3-5, URQ7-9).

**UROi** Compare the overall results of the analysis with the results of archaeological investigations of contemporary sites in the North West, including:

- ◆ evidence for local constraints, such as climate and supply routes, which might dictate any observable similarities or differences in the assemblages from Poulton-le-Fylde, Dowbridge, and Barker House Farm;
- ◆ indications of cultural expression at Poulton-le-Fylde that conflict with any such local constraints and might reflect specific imported cultural traits (URQ1, URQ3-10, URQ).

**UROj** Collate and publish in an appropriate medium the results of the Wyre Estuary archaeological project, including an entry in the annual review in *Britannia*, and submit the final archive (URQ15).

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## 7. METHOD STATEMENT FOR POST-EXCAVATION ANALYSIS

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### 7.1 METHOD STATEMENT

7.1.1 **Scope of the analysis:** the proposed programme of analysis is a vital step in achieving the full potential of the data generated during the fieldwork at the Wyre Estuary sites, as assessed by the present document. It will seek to address the updated research aims (*Section 6.8.3*) as comprehensively as possible, in order to place the sites within wider chronological and thematic contexts, at both local and regional levels. The body of data relating to the enclosed settlement will allow detailed analyses of numerous aspects of this site to be undertaken. Evidence relating to the medieval and post-medieval periods is, however, sparse and, although some analyses of local medieval agricultural practices and land drainage will be possible, the exploration of the post-medieval period will be limited to attempts to correlate the fragmentary remains encountered of field boundaries and structural remains with features depicted on historical maps. The programme of analysis will, therefore, make the most effective possible contribution to an understanding of Romano-British rural settlement in the North West and of medieval and post-medieval rural sites in the vicinity of Poulton-le-Fylde. It will be undertaken in accordance with the guidelines issued by English Heritage as MAP2 (English Heritage 1991) and MoRPHE (English Heritage 2006), and will comprise three main objectives:

- the preparation of a final client report detailing the results of the analysis, including appendices of specialist information and data that will be summarised in the main text. Although this will be an academically valid document, it will not be in a format suitable for publication;
- the preparation of a draft publication text detailing the salient results of the programme of analysis, with appropriate background, contextualisation, discussion, and conclusions;
- the completion and submission of the project archive of original records, and of artefacts to the appropriate repository (*see Section 7.9*).

7.1.2 **Stages, products and tasks:** the tasks necessary to complete the post-excavation analysis (labelled 'PAT' – Post-excavation Analysis Tasks), the staff by whom they will be undertaken, and the final product of each task (Table 8), are considered in more detail below, whilst the estimated duration, order, and interdependencies of each task are illustrated within the accompanying gantt chart (*Appendix 2*). For ease of clarity, the tasks within Table 8 have been grouped in thematic order, although practicalities will dictate that a more integrated progression will be utilised for their enactment.

PAT	Description	Product	Staff	Days
1	<b>Management</b>			
1.1	Management, liaison, and review	General management, including, liaison with team members and ongoing quality assurance	SR RN MC	8 1 1
1.2	Project Briefing	Project team fully briefed	SR EH DD ANV	0.25 0.25 0.25 0.25
2	<b>Background research</b>			
2.1	Examination of primary sources relevant to the Wyre Estuary sites, including tithe maps and awards, and estate maps	A clearer indication of the landscape development in the local area, such as the development of field systems and water-management features, which could relate directly to some of the features encountered during the excavations	ANV	1
2.2	Analysis of aerial photographs and Lidar	Information relating to the extents of the recorded sites, and the identification of additional sites, landforms and earthworks beyond the excavated areas, in order to understand better the nature of the sites and their role within the local landscape	ANV	2
2.3	Identification and consultation of general literature on Iron-Age and Romano-British rural settlement and agricultural strategies, in both the North West and wider British regions.	A better understanding of the historical, social, political, environmental, and geographical context of the sites and of the nature, character, and composition of rural settlements during these periods	ANV	3
2.4	Identification of comparative and contemporary sites in the broader area through consultations with local repositories, particularly the LHER and LRO	Provision of additional contextual frameworks within which to understand the sites. Provision of data to aid with the interpretation of the results from the excavation and to enable comparative analyses to be undertaken	ANV	2
2.5	Compilation of data relating to changing riverine, estuarine, and marine extents in the local area during the later prehistoric and early historic periods	Survey and collation of paleoenvironmental and physical context to the site	EH ANV	1 1
2.6	Integration of environmental information and images into GIS	GIS-compatible representations of previous water levels and horizontal extents	MT	2
3	<b>Stratigraphic analysis</b>			
3.1	Assimilation of dating derived from artefact analyses, radiocarbon dating, and stratigraphy. Testing of stratigraphic relationships and attribution of contexts to additional feature and structure groups	Integrated database. Thorough understanding of site developmental sequence, establishment of the final phasing of the site, and of the structural and physical character of the site during each phase	ANV	16
3.2	Production of detailed, dated phasing and plan of features pertaining to each phase of the site		ANV	4
4	<b>Palaeoenvironmental processing and analysis</b>			
4.1	Flotation of 33 selected palaeoenvironmental samples	Samples floated/bulk-sieved, residues sorted and any finds there-in washed, dried, and bagged	SB	4
4.2	Bulk processing of remaining palaeoenvironmental samples	All remaining samples reduced to residues so that finds can be removed	SB	5
4.3	Sorting and recording of floated and bulk-sieved sample residues	All finds removed from residues, and notes made of the residue matrix components	SB	6
4.4	Catalogue of data from palaeoenvironmental residues	Above observations recorded into database	SB	2

PAT	Description	Product	Staff	Days
4.5	Removal of sub-samples from two monoliths	Samples removed for pollen preparation	DD/EH	1
4.5a	Removal of sub-samples from Russian auger core	Samples removed for pollen preparation	DD/EH	3
4.6	Processing of pollen sub-samples from monoliths	Pollen samples processed and ready for analysis	SB	2
4.6a	Processing of pollen sub-samples from Russian auger	Pollen samples processed and ready for analysis	SB	3
4.7	Analysis of charred plant remains (CPR) and burnt timber	A chronological understanding of: the nature of the past local environment (including land-use, industrial activities, and specific modes of agrarian production); of the variety of plant resources utilised at the site (including imports and local products); and of climatic changes (from surface wetness indicators and climate-sensitive plants and organisms)	EH/DD	10
4.8	Analysis of pollen sub-samples from monoliths		EH/DD/MR	10
4.8a	Analysis of pollen sub-samples from Russian auger		EH/DD/MR	24
4.9	Micromorphological analysis of selected monolith soil samples	Inform an understanding of the formation processes responsible for the filling of cut features and, therefore, provide information on the nature of the local landscape and the chronological development of the site	RM	8.5
4.10	Reporting on CPR	Brief catalogues and reports on each form of data for inclusion within the archive and their subsequent synthesis for inclusion within the final report	DD	2
4.11	Reporting on pollen from monolith samples		EH/DD/MR	3
4.11a	Reporting on pollen from Russian auger samples		EH/DD/MR	5
4.12	Production of pollen diagram of results from monoliths		Illust'r	0.25
4.12a	Production of pollen diagram of results from Russian auger		Illust'r	0.25
4.13	Production of report on faunal remains		AOB	1
4.14	Compilation of palaeoenvironmental overview		EH	2
4.15	Environmental management	Organisation and quality-assurance of palaeoenvironmental tasks and analyses	EH	3
4.15a	Environmental management of Russian auger analysis		EH	1
5	<b>Artefact analysis</b>			
5.1	Examination and cataloguing of additional finds recovered from sample residues	Catalogue of identified finds recovered from processed bulk samples for integration with assessment catalogue to produce a single entity	CHD	2
5.2	Detailed catalogue of pottery and stone artefacts	Full catalogue of all the artefacts for inclusion in the archive	CHD	3
5.3	Analysis and compilation of reports on stone and pottery	Detailed analysis in terms of close dating, identification of source, function, status, degree of fragmentation, abrasion of individual ceramic sherds, and understanding of groups of material from selected deposits. Specialist report and database. Greater understanding of the artefactual assemblage, recorded in a format easily comparable with other assemblages. Closer dating of the stratigraphic sequence	CHD	3
5.4	Compilation of synthetic finds overview	Integrated text on the artefacts recovered from the site	CHD	2
5.5	Illustration of artefacts (selected)	Scale drawings of significant artefacts	Illustr'r	2

PAT	Description	Product	Staff	Days
5.6	Comparative analysis	An understanding of the similarities and differences between the Wyre Estuary sites and others in the region, allowing greater comprehension of the regional context of the site. An understanding of potential points of contact directly or indirectly linking settlements and shared, or disregarded, local supply routes	CHD/ ANV	1
6	<b>Scientific dating</b>			
6.1	Review of stratigraphic and palaeoenvironmental data and selection of radiocarbon samples	Radiocarbon samples collected from appropriate contexts	ANV/ EH	1
6.2	Radiocarbon dating	Provision of calibrated absolute dates for features associated with the settlement	SUERC	12
6.3	Integration of radiocarbon results	Radiocarbon assay results incorporated into stratigraphic sequence and report text	ANV/ EH	1
7	<b>Integrated analysis</b>	The results of the further documentary research, finds and environmental analysis, radiocarbon dating, and stratigraphic and archival interrogation will be integrated to allow a deeper and more comprehensive understanding of the site		
7.1	Identification and interpretation of phased intra-site zones of activity and areas of functional and spatial differentiation	Identification and interpretation of the status, economy and usage of the site and its immediate surroundings through time, by study of the form, function, filling sequences of, spatial distribution of, and relationships between, palaeoenvironmental remains, ecofacts, artefacts, features, structures and activity areas and the manner in which they are divided	ANV	10
7.2	Identification of the economic basis during each phase, or subsequent sub-phase		ANV	2
7.3	Identification of the status of the occupants during each phase		ANV	2
7.4	Landscape analysis relating to the local topographical and environmental context of the site	Identification of natural environment factors in the siting and usage of the site, and an understanding of the extent of the site exploitation territory and broader catchment area	ANV	3
7.5	Identification of sources of resource exploitation, including stone, plant materials, ceramics, and metals		ANV	1
7.6	Comparative analysis of the raw and interpreted data recovered from the site with those from other sites in the region and further afield, as appropriate	Possible interpretations for enigmatic or partial features. An understanding of the site, as far as can be ascertained, in terms of typicality and place within a local and regional framework, with regard, as far as the evidence to permits, to economy, social structures, ethnic identity, politics, and temporality	ANV	5
8	<b>Synthesis, presentation and archive deposition</b>			
8.1	Assembly and editing of specialist reports	Formatted reports for integration into archive	SR	1
8.2	Compilation of client report	Report with contract, historical, and research backgrounds; methodologies, results, bibliography and appendices, plates, and the discussion of results within the research framework	ANV	9
8.3	Preparation of illustrations for client report	Scaled and plated digitised drawings showing general and detailed elements of the site to illustrate the report	MT	5
8.4	Editing of report	Corrections to report returned to original	SR	2

PAT	Description	Product	Staff	Days
		authors		
8.5	Corrections made	Corrections to text Corrections to illustrations	ANV MT	1 1
8.6	Copy-editing	Final correction to text	LM	1
8.7	Preparation of a text for publication	Text and illustrations prepared for insertion into an appropriate medium	ANV EH	9 2
8.8	Preparation of illustrations for publication		MER	5
8.9	Editing, correcting, and quality assurance	Publication fully-checked and quality assured	SR, RN, ANV	3 1 2
8.10	Submission of publication text	Text submitted for publication	SPR	0.25
8.11	Preparation of archive of primary fieldwork records, including marked slides, contact prints and negatives and all subsequent material generated by analysis	Comprehensive project archive	JL, Ass	5 10
8.12	Preparation of artefactual and ecofactual archive, including appropriate conservation, storage, and packaging for recipient museum and discard those finds unsuitable for retention	Archive prepared and packaged in line with recipient museum guidelines	SB, CHD	2 1
8.13	Submit finds and paper archive to museum and LRO	Archives received by museum and LRO	JL, SB	1
8.14	Submit client report and summary of the archive to the LHER and LRO	Report received by LHER and LRO	SR	0.25

Table 7: Task list for post-excavation analysis, archiving and publication

## 7.2 PAT 1, MANAGEMENT

7.2.1 This element facilitates the completion of all Updated Research Objectives (URO) and ensures the efficient execution of this stage of the project to time and budget. OA North operates a project management system, whereby the team is headed by a Project Manager, who assumes ultimate responsibility for the implementation and execution of the Project Design and for the achievement of performance targets, be they academic, budgetary, or timetable-related. The Project Manager may delegate specific aspects of the project to other key staff, who both supervise others and have a direct input into the compilation of the report. The Project Manager will define and control the scope and form of the post-excavation programme, whilst the Project Executive will provide academic leadership and any necessary high-level liaison.

7.2.2 **General Management (PAT 1.1):** general management time will be required to deal with the organisation of non-specific tasks, administration, and correspondence. Time will also be required by the Project Executive to provide academic advice and assure quality at all stages. Basic project review, including the tracking of task completion and logging of resource expenditure, will be undertaken internally on a weekly basis.

7.2.3 **Project Briefing (PAT 1.2):** it will be necessary to brief each member of the project team concerning the aims and objectives of the project, expected outcomes, and their specific roles, responsibilities, products, and timetable. Where possible, the briefing will be undertaken collectively. Following the completion of each task sub-division, the responsible staff member will inform

the project manager, preferably through a brief email, with details of the work that was undertaken, the time taken, and any positive or negative issues arising that may affect further works. Should any issues arise during the undertaking of a task, the responsible staff member will inform the project manager by whatever convenient method guarantees that the information is transmitted and received.

- 7.2.4 Communication between all concerned in the post-excavation programme is of paramount importance, and it is essential that all team members working on different aspects of the project liaise closely in order that comparable data are obtained. To this end, regular meetings and reviews are envisaged between all project staff and between particular groups of specialists.

### **7.3 PAT 2, BACKGROUND RESEARCH**

- 7.3.1 A rapid and targeted programme of background research is required to help contextualise and further the understanding of the remains of archaeological interest in terms of the individual sites, the inhabitants of the sites, and their place within the wider landscape. Such research will enable an exploration of the form and nature of the Poulton-le-Fylde Romano-British settlement's contemporary physical landscape and environment that formed the context of the enclosed settlement, allowing an identification of opportunities and constraints, such as the range and location of available natural resources and the physical accessibility of different parts of the landscape. Such an appraisal would permit a brief examination of how that landscape was perceived by the inhabitants of the settlement, with respect to the proximity to, and relationships between, the enclosed settlement and any contemporary occupation sites and communication routes in the surrounding area. In relation to the medieval and post-medieval periods, limited documentary research presents an opportunity to explore the localised development of the historical landscape in terms of patterns of enclosure and land-use. This will also allow an exploration of the degree to which inherited and enduring characteristics might have influenced successive phases of land-use and organisation. To facilitate the comparative and formal analysis of the physical remains recorded at the Wyre Estuary sites, it will be necessary to identify and draw together relevant sources that have the potential to provide the most informative comparanda. Further documentary research will be essential in order to complete UROb-d and UROi.

- 7.3.2 **Documentary research (PAT 2.1-4):** the most relevant libraries, as well as the LHER and LRO, will be consulted for pertinent documentation. This will comprise the examination and collation of relevant primary documents pertaining to the Wyre Estuary sites, including historical maps, and information about the previous land-uses of the sites. In the case of the enclosed settlement, both published, and unpublished archaeological reports, relating to comparable and contemporary sites, and regional syntheses for the relevant periods, will also be consulted. Together with aerial photographs from the 1940s, 1960s, and the present day, any suitable LiDAR (Light Detection and Ranging) images will be briefly inspected for related features in the vicinity, that might elucidate the nature and extents of the excavated site and aid in the consideration of the geographical context of the site.

7.3.3 **Former riverine, estuarine, and marine extents (PAT 2.5):** environmental data relating to the effect of changing sea-levels in the Fylde during the occupation of the enclosed settlement site, and particularly relating to the Lytham-Skippool valley and the Wyre estuary, will be collated. This data will be used to form GIS-compatible representations of the changing landscape to provide an overview of the contemporary setting of the Wyre Estuary sites, the location of different local landscape forms, and the physical accessibility of different parts of the landscape.

7.3.4 **Integration of environmental information into GIS (PAT 2.6):** the collated environmental, cartographical and image data will be integrated into the site GIS. This will enable more accurate and relevant modelling of past environmental landscapes, and will allow considerations of the site within frameworks of contemporarily experienced physical and cognitive landscapes.

#### 7.4 PAT 3, STRATIGRAPHIC ANALYSIS

7.4.1 Although basic collation of the stratigraphy has been undertaken as part of the production of the post-excavation assessment, a thorough analysis of the stratigraphy will be undertaken in order to develop a refined understanding of the data and, therefore, provide a context within which to facilitate, and consider the results of, the specific and comparative analyses. This will ultimately contribute to most of the Updated Research Objectives, but specifically will address UROa, UROf-h.

7.4.2 **Analysis and phasing of stratigraphic sequences (PAT 3.1-2):** all stratigraphic records and data relating to the development and dating of the site, including the results of radiocarbon dating and artefact analysis, will be reviewed and integrated. This will allow reconsideration of the vertical and horizontal stratigraphy and the subdivision of the site. Specific groups of records will be examined in order to identify and test key spatial and chronological relationships, and assign the refined chronological phases. This process may require the allocation of new context numbers and the modification of the site database. Overall, it will use all available data to establish the best possible scheme of site phasing and enable the formulation of a stratigraphical narrative, describing the chronological development of the components of the settlement at Garstang Road East site, and the manner in which they related to each other during each identifiable phase.

#### 7.5 PAT 4, ENVIRONMENTAL ANALYSIS

7.5.1 The assessment has indicated the potential of the environmental samples to enhance an understanding of the area. Analysis of these samples will assist in a range of post-excavation tasks, including the identification of suitable materials for radiocarbon dating, the reconstruction of the past botanical and organic environment, which will aid an understanding of past land-use and agricultural activity, the provision of evidence for climate change and industrial activity, an understanding of plant materials utilised at the site, and of the formation processes responsible for the deposition of soils (UROd and UROf-g).

7.5.2 **Selected bulk sample analysis (PAT 4.1-4, 4.7):** the remaining 32 tubs of sediment, from those 33 samples that were assessed as having moderate or high potential for the analysis of their charred plant (CPR) content (*Section 5.5*), will be subject to flotation using standard OA North techniques (Table 9). Among these, the flots from the 18 samples that were assessed as having high CPR potential will be combined with those generated during the analysis-stage processing, and each complete CPR assemblage will be analysed. Those flots that derive from samples assessed as having only moderate potential for further CPR analysis will be archived for the purposes of future research. The 59 tubs remaining from those samples that were assessed as having no potential for further CPR analysis will be wet-sieved to 2mm for the recovery of any small artefacts or other cultural debris.

Action	Sample Nos (remaining tubs in brackets)
Flotation and CPR analysis of 13 remaining tubs from seven samples	<b>1</b> (2), <b>6</b> (1), <b>49</b> (2), <b>60</b> (3), <b>69</b> (2), <b>89</b> (1), <b>122</b> (2)
CPR analysis of flots from 11 samples fully processed during assessment	<b>4, 21a, 43, 54-5, 68, 81, 83-4, 93, 110</b>
Flotation of 19 remaining tubs from nine samples and archival retention of flots	<b>10</b> (1), <b>35-6</b> (2), <b>50</b> (2), <b>66-7</b> (2), <b>76</b> (4), <b>80</b> (2), <b>123</b> (2)
Archival retention of flots from six samples fully processed at assessment	<b>13, 45, 92, 97, 114, 130</b>
Wet sieving of sediments to 2mm for finds retrieval (one tub remaining unless specified)	<b>3a, 3b, 5, 9</b> (2), <b>17, 22-3</b> (2), <b>34</b> (2), <b>37</b> (2), <b>38</b> (3), <b>39</b> (2), <b>42</b> (2), <b>51</b> (2), <b>58</b> (4), <b>59</b> (6), <b>63</b> (2), <b>64, 65</b> (2), <b>77, 85, 111</b> (2), <b>115-6</b> (2), <b>117, 118-9</b> (2), <b>121</b> (2), <b>124</b> (2), <b>129</b> (2), <b>132</b> (2)
Palynological analysis of monolith samples	102, 105
Palynological analysis and radiocarbon dating of Russian augur sample	WE09:1R

Table 9: Summary of proposed palaeoenvironmental analytical work

7.5.3 **Monolith sample analysis (PAT 4.5-6, 4.8, 4.9):** two monolith samples will be subject to palynological and soil micromorphological analysis. Both of these were taken from portions of ditches that defined Enclosure A, with Sample 102 (ditch **9**) representing part of the southern boundary and Sample 105 (ditch **145**) representing part of the northern boundary. In addition to providing information related to the local ecology and land-use, the analysis of these samples retains the potential to identify differences in pollen concentrations between the northern and southern parts of Enclosure A. The palynological analysis will involve the extraction and processing of eight sub-samples at appropriate points from each of the monolith samples. These 16 samples, together with those removed during assessment, will be fully analysed in accordance with standard OA North practices. Soil micromorphological analysis will comprise:

- soil micromorphology (description, thin-sectioning, counting, SEM/EDAX/microprobe etc, as necessary, digital scanning and photomicrograph archive);
- measurements of organic matter (LOI);

- phosphate (fractionated phosphate may be able to differentiate organic P from dung and mineral P from bone and cess);
- magnetic susceptibility (burned material inputs);
- pH measurements could provide background information of marine influences/marine resources;
- enigmatic materials can be analysed in thin section employing SEM/EDAX.

7.5.4 **Russian auger sample analysis (PAT 4.5a, 4.6a, 4.8a):** analysis of the Russian auger sample (WE09:1R) taken from peat deposits to the south of Holts Lane will be undertaken in two stages. First, samples for radiocarbon dating will be taken from appropriate points at the top and the bottom of the core and submitted for analysis. Following assimilation of the radiocarbon dates, 24 sub-samples will be removed from strategic points on the auger core, and each sub-sample will be subject to palynological analysis. This will help to provide a general palaeoenvironmental context within which to consider the sites, including the potential for evidence of long-term ecological changes.

7.5.5 **Reporting on CPR, monolith samples and Russian auger samples (PAT 4.10-12):** specialist reports, including pollen diagrams where appropriate, will be produced for inclusion in the project archive, providing details on the results of the analysis of CPR, monolith samples, and Russian auger samples.

7.5.6 **Report on animal bones (PAT 4.13):** a catalogue and a report will be prepared on the animal bone recovered from the site.

7.5.7 **Palaeoenvironmental overview (PAT 4.14):** an overview of the integrated results of the palaeoenvironmental analyses will be prepared for inclusion within the publication.

## 7.6 PAT 5, ARTEFACT ANALYSIS

7.6.1 The present assessment has indicated the potential of the finds assemblage to enhance an understanding of the various episodes of activity. Analysis will assist in a range of post-excavation tasks, including helping to date more closely the stratigraphic sequence and the provision of information concerning the status of the inhabitants. In the case of the enclosed settlement, finds also provide evidence relating to the range of activities undertaken at the site and the differentiation of space according to function and use, as well as evidence for trade and exchange networks (UROe-g).

7.6.2 **Examination and cataloguing of residue finds (PAT 5.2):** any finds recovered as a result of the processing of residues from environmental samples (PAT 4.2) will be examined and briefly recorded into the existing finds catalogue. In addition, the components of the pottery and worked stone artefact assemblages will be recorded on the catalogue.

7.6.3 **Detailed analysis of selected material (PAT 5.3):** the pottery will be identified using any necessary reference material and recorded fully, including details of form, fabric, fragmentation, abrasion, and numbers of vessels or objects. The results will be recorded within a database linked into the site context database, and any appropriate and statistically valid analyses will be undertaken in terms of dating, source, form, function, status, and spatial and temporal distribution. A report and database for inclusion within the project archive will be produced to document the results of the artefact analysis.

7.6.4 **Finds reporting and illustration of artefacts (PAT 5.4-5):** a synthetic finds overview will be compiled for inclusion in the publication, and scale drawings will be produced of any significant pottery or stone artefacts. Selected example may be used for the publication, but all will be included in the project archive.

7.6.5 **Comparative analysis (PAT 5.6):** comparative analysis of the artefact assemblages from the site will be of assemblages recorded from selected contemporary rural and military sites.

## 7.7 PAT 6, SCIENTIFIC DATING

7.7.1 The provision of absolute dates will allow a refined understanding of the chronology and longevity of activity at the site. This includes the potential to identify additional phases of activity that are not clearly represented by the site stratigraphy or finds assemblage. This will directly address UROf but will also contribute to most of the other objectives, particularly UROa and UROg-h.

7.7.2 **Review, selection and submission of material (PAT 6.1):** the selection of organic samples for dating by radiocarbon assay will be a rigorous process based upon three factors. Firstly, it is necessary to have a thorough knowledge of the stratigraphical framework, so that key deposits can be identified; secondly, the taphonomy of the constituents of these deposits must be understood; thirdly, the results of the palaeoenvironmental assessment will establish the presence, and degree of suitability, of organic material for dating. Once appropriate samples have been selected, these will be submitted to SUERC for dating.

7.7.3 **Radiocarbon dating (PAT 6.2):** approximately 12 samples of charred plant materials will be submitted for radiocarbon dating from a range of features, including those associated with the enclosure ditches, roundhouses, rectilinear structures, and discrete features.

7.7.4 **Integration of results and establishment of wider strategy (PAT 6.3):** following receipt of the dates, these will be incorporated into the site database and a full absolute dating strategy for the analysis programme will be established through the integration of the palaeoenvironmental and stratigraphic data. Specialist advice will be sought, if and where appropriate, to aid the interpretation of the dates and the establishment of the wider dating programme.

## 7.8 PAT 7, INTEGRATED ANALYSIS

- 7.8.1 The integrated analysis is the most important element of the post-excavation programme. It will pull together each of the different threads of research and data to form a coherent whole that will allow the best possible understanding of the sites. It will allow the enclosed settlement to be understood as an individual entity and, more importantly, for it to be placed within wider historical, economical, social, political, environmental, and geographical contexts. These analyses will contribute to virtually all of the URO, but is particularly relevant to UROc and UROg-i.
- 7.8.2 *Integrated analysis (PAT 7.1-11)*: the results of the documentary research, analysis of the stratigraphy, finds and environmental material, and the scientific dating will be integrated to allow a deeper and more comprehensive understanding of the sites, although inevitably this will focus primarily on the settlement at Garstang Road East. This analysis will allow wide-ranging questions to be addressed, including those concerning the relationships between the change and development of the local environment and the changing nature of activity at the site, patterns of economic practice and specialisation, and the role of the site in terms of the local and regional social, political, and economic contexts. Detailed investigations of the specific types of activity and functions represented by the features encountered at the site will be undertaken, and of the formation of their fills, which might provide further evidence of their use, decommissioning or abandonment. Spatial analyses of features, finds and inter-relationships will allow an exploration of the organisation of space at the settlement, in relation to differential functions, and the generation of ideas relating to restrictions of access, and public and private spaces. These analyses will be aided by the incorporation of data into a GIS, within which numerous types of data can be graphically represented and interrogated in order to identify quantitative and spatial patterns and relationships. In particular, this will assist with the modelling of the site's physical environment, which will not only aid its holistic interpretation, but may also allow the correlation of certain elements and natural features, and the reverse, where anomalous situations arise.
- 7.8.3 The ultimate aim of these investigations will be to use the amassed data in an attempt to understand not just the physical elements of the data (*ie*, the remains of houses, the finds, the charred grain, *etc*) but, through them, to touch upon some of the human and socio-economic dimensions of the people that once lived there. Through the integration of the various forms of data, and in comparison with other sites, a brief exploration will be undertaken of the status of the occupants and the manner in which they fitted into, and engaged with, wider social, political, economic and belief systems. Very briefly, a review will be undertaken of the evidence that might provide clues on how these people perceived themselves and the landscape and other people around them.
- 7.8.4 populate the site and, therefore, to allow an examination of the site in terms of the people responsible for the production of the material encountered. These analyses will enable us to consider issues relating to the origins, status, and ethnic identities of the settlement inhabitants. We will also be able to consider

the different scales of landscapes that the occupants experienced, with regard to settlement-based activities, natural resource exploitation from the wider landscape, access to trade and exchange networks, and contact with other sites. This will be enabled by the comparative analysis of the cultural indicators represented at the site, such as architectural, agricultural, subsistence, and artefactual styles, with those from other sites within the region, in order to attempt to identify the social mechanisms by which this particular suite of cultural attributes was accumulated.

## **7.9 PAT 8, SYNTHESIS, PRESENTATION AND ARCHIVE DEPOSITION**

7.9.1 One of the primary aims of the project is to make the results of the investigation available to the wider public. This will be achieved in two stages, the first of which will be the compilation of the client report. This will comprise the collation of the detailed data deriving from each stage of analysis and will include a synthesised conclusion. It will not be suitable for publication, but will form the basis for the synthesised publication text (*Section 7.9.12*) and will be an excellent reference for any future researchers seeking a detailed account of the works undertaken at the Wyre Estuary sites and the results of those investigations. Another primary objective is to produce a synthetic publication (UROj), based on the results of the documentary, stratigraphical, artefactual, environmental, and integrated analyses. This publication text will aim to present a high degree of integration between the multi-thematic analyses and the wider economic, social, and political contexts of the region.

7.9.2 As recognised by UROj, the deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects in the code of conduct issued by the IfA (IFA 2001). The collated results of each stage of the project will form the basis of a full archive to professional standards in accordance with EH's and other guidelines (EH 1991; 2006; Walker 1990). The archive will be provided in the former EH Centre for Archaeology format, and will include printed documents and computer disks as ASCii files (as appropriate). An OASIS form has been filed and the ultimate place of deposition for the material and paper/record archives will be the *Museum of Lancashire*, and the LRO, respectively, both in Preston.

7.9.3 ***Assemble and edit specialist reports (PAT 8.1)***: each specialist report will be formatted within the OA North house style and edited for consistency with the stratigraphic sequence, and in terms of style and content. Liaison will be maintained with the specialists, who will receive edited drafts for final comment. In this form, the specialist reports will be ready for incorporation into the client report.

7.9.4 ***Compile client report (PAT 8.2)***: the client report will present:

- an introduction detailing the contract background, site location, and historical and research context, as well as the updated aims and objectives presented in this document;

- a section presenting the methodologies employed on site, as well as those of the specialist analyses;
- a summary of the detailed documentary research undertaken and the sources examined;
- a stratigraphical narrative arranged by phase and site component;
- individual sections presenting details of specialist analyses;
- a synthetic discussion of the results of the investigation as a whole, and an appraisal of the extent to which the URQs and UROs could be, and were, addressed by the project;
- a bibliography;
- appendices of raw data, together with key documents comprising the OA North project designs for the fieldwork and for the programme of post-excavation analysis;
- selected illustrative plates.

7.9.5 **Prepare illustrations (PAT 8.3)**: suitable illustrations for the client report will be devised and prepared using a GIS, at an appropriate scale. Selected artefacts will be illustrated by hand, scanned, and enhanced digitally using Adobe Illustrator or a similar graphics package. Photographic plates will also be selected.

7.9.6 **Editing and quality assurance (PAT 8.4-6)**: the report text and illustrations will be edited by the project manager, with corrections returned to the original authors.

7.9.7 **Preparation of text for publication (PAT 8.7)**: it is envisaged that a text presenting the synthesised results of the analysis of the Poulton-le-Fylde Roman-British settlement will form part of a monograph on the archaeology of rural Lancashire. As such, some of the results of the project are likely to be presented in specific sections of the report, whilst certain others will probably be integrated into a discussion of the results from contemporary rural sites. Provisionally, the following format might be envisaged (data within each section may be integrated to for sake of both clarity and brevity):

### **1. Background**

Incorporating details of the circumstances of the Wyre Estuary project, the site location and its surrounding environment (including the results of those rapid analyses that indicate the nature of the site's physical environment in the Romano-British period); a brief historical and archaeological background with reference to previously known rural sites of Romano-British date in the region.

### **2. Results of the Archaeological Investigation**

Interpretive description of the structures and features encountered during the archaeological investigation of the Romano-British settlement, according to phase and theme. The results of the radiocarbon assay, artefact and palaeoenvironmental analyses will be either integrated directly with the stratigraphical presentation, or will be presented as separate overviews.

### 3. Discussion

This section will integrate data from the Poulton-le-Fylde Romano-British settlement with those from contemporary sites recently excavated in the region, as well as more general data from previously published sites, in order to examine and discuss the manner in which these sites address the URQs (*Section 6.4.2*). Discussion will pay particular regard to chronological, social, economic and political themes within a context of regionality, intra-regional shared attributes, and interaction with the Roman world.

### Bibliography

### Acknowledgements

- 7.9.8 ***Prepare illustrations for publication (PAT 8.8)***: the text will be supported by illustrations, comprising drawings and photographs, tables providing summaries of data and, where appropriate, interpretative phase drawings. The drawings will be prepared using GIS packages and Adobe Illustrator. All illustrations will be saved on CD for inclusion within the project archive.
- 7.9.9 ***Editing and Quality Assurance (PAT 8.9-10)***: the text and illustrations will be edited by the project manager, with corrections returned to the original authors. Once the publication draft is deemed satisfactory, and has been copy-edited, it will be passed to the project executive for quality assurance (QA), to check and ensure that it is complete, appropriate for the purpose intended, and academically legitimate. Any corrections arising from the QA will be addressed by the project manager before the document is signed-off by the project executive. Following sign-off, the project manager will submit all components of the draft for publication.
- 7.9.10 ***Preparation of primary archive (PAT 8.11-12)***: the complete project archive generated during the fieldwork and post-excavation stages, which will include records, plans, black and white print and colour slide photographs, artefacts, and digital data, will be prepared following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1990, Conservation Guidelines 3) and *Guidelines for the preparation of excavation archive for long-term storage* (Walker 1990). All photographic media, including slides, contact prints and negatives, will be marked for identification and digital photographs will be stored on disk. Paper records, including context sheets, field notes, and the various indices, will be ordered and filed, as will original drawings and sections. These records will be stored in standard acid-free cardboard archive boxes.
- 7.9.11 ***Conservation and storage***: the finds have been stored in such a manner that they are in a stable condition, and require no specialist conservation work. The artefact assemblage is thus well-packed according to the *Museum of Lancashire's* specifications (acid-free cardboard boxes or airtight plastic boxes, as appropriate). Metalwork constitutes the only category which is potentially unstable and, although the items will be packaged in airtight plastic boxes, they will need to be stored in controlled conditions once deposited. Box

lists have been prepared and will be updated from the database once the full cataloguing of the archive is complete.

7.9.12 **Discard policy:** in accordance with the museum's policy for finds retention, it is likely that all unstratified post-medieval pottery, glass, ceramic building material and undiagnostic metalwork will be discarded following cataloguing and the completion of the project for publication.

7.9.13 **Submission of archive and client report (PAT 8.13-14):** the *Museum of Lancashire*, and the LRO, both in Preston, will be the ultimate places of deposition for the paper, digital and material archive, as these are the nearest repositories that meet the Museums' and Galleries' Commission criteria for the long-term storage of archaeological material (MGC 1992):

Museum of Lancashire	Lancashire Record Office
Stanley Street	Bow Lane
Preston	Preston
PR1 4YP	PR1 2RE
01772 534075	01772 533039

7.9.14 A copy of all reports on the archaeological work undertaken at the site, together with the client report and an index to the archive, will be deposited with the Lancashire HER.

## 7.10 PROJECT TEAM

7.10.1 The provisional project team to undertake the programme of post-excavation works is detailed in Table 9.

Team member	Responsibility	Principal role and relevant experience
Rachel Newman (RN), BA (Hons), FSA	Project Executive	OA North Senior Executive Officer: Research and Publications, responsible for quality assurance, academic leadership.
Murray Cook (MC), MA (Hons), FSA (Scot)	Post-Excavation Programme Co-ordinator	Staff scheduling and strategic leadership
Stephen Rowland (SR), BSc (Hons), MSc	Project Manager	Project organisation and budget management; liaison; preparation of management documents and editing of reports
Alastair Vannan (ANV), BA (Hons)	Project Officer Principal data analyst	Collation of the archives, interpretation of the results and compilation of report text
Christine Howard-Davis (CHD), BA (Hons)	Finds Manager - Expert	Analysis of finds, conservation advice; detailed academic input
Elizabeth Huckerby (EH), BA (Hons), MSc	Environmental Manager - Expert	Palaeoenvironmental advice, academic leadership and analysis (including CPR, and pollen)
Denise Druce (DD), BA (Hons), PhD	Project Officer, Palaeoenvironmental - Expert	Identification of plant macrofossils, charred and waterlogged wood
Mairead Rutherford (MR), MSc (Hons), PhD	Project Officer, Palaeoenvironmental - Expert	Extraction and identification of pollen

Team member	Responsibility	Principal role and relevant experience
Sandra Bonsall (SB), BSc (Hons)	Finds/ palaeoenvironmental Supervisor	Co-ordination of processing palaeoenvironmental samples and any finds, together with the submission of the finds archive and supervision of the discard policy
Mark Tidmarsh (MT),	Illustrator	GIS-based analyses
Marie Rowland (MER), BA (Hons), MA	Illustrator - Team member	Presentation of site drawings and artefact illustration for report and publication
Joanne Levey (JL)	Archive co-ordinator	Compilation, organisation, and submission of the project archive
Project Assistant (Ass)	Support tasks	Project Assistants will undertake support tasks, including filling in database records, marking photographs, bagging material, etc
<b>External Specialists</b>		
Richard Mcphail	Expert	Soil micromorphology
SUERC	Expert	Radiocarbon assay

Table 9: The project team

## 7.11 HEALTH AND SAFETY

7.11.1 All OA North post-excavation work will be carried out under relevant Health and Safety Legislation, including the Health and Safety at Work Act (1974). A copy of the Oxford Archaeology Health and Safety Policy can be supplied on request. The nature of the work means that the requirements of the following legislation are particularly relevant:

*Workplace (Health, Safety and Welfare) Regulations (1992)* – offices and finds processing areas;

*Manual Handling Operations Regulations (1992)* – transport of bulk finds and samples;

*Health and Safety (Display Screen Equipment) Regulations (1992)* – use of computers for word-processing and database work;

*COSSH (1998)* - finds conservation and environmental processing/analysis.

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APPENDIX 1: PROJECT DESIGN

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**WYRE  
ESTUARY  
PIPELINE,  
POULTON-LE-  
FYLDE,  
LANCASHIRE**

Strip and Record  
Project Design

**Oxford Archaeology North**

January 2008

United Utilities

OA North Job No: L9793  
NGR: SD 35841 40921 to 35559  
38793

## 1. INTRODUCTION

- 1.1 United Utilities (hereafter the client) has proposed the construction of a pipeline from Skipool Creek to Holts Lane, Poulton-le-Fylde, Lancashire (SD 35841 40921 to 35559 38793). Following recommendations made by the Lancashire County Archaeology Service (LCAS), Oxford Archaeology North were commissioned by United Utilities to undertake a desk-based assessment and walkover survey of the site (OA North 2006). After the consideration of the results of this initial phase of work, and in verbal consultation with the Planning Archaeologist, a further phase of investigation in the form of a watching brief was proposed.
- 1.2 In light of the findings of the ongoing watching brief, the Planning Archaeologist at LCAS has issued verbal recommendations for an archaeological strip and record exercise. This is to be undertaken for all areas of ground disturbance within the proposed access area and site compound, which is located on land adjacent to Garstang Road East in Poulton-le-Fylde. The following document represents a project design for this task.
- 1.3 OA North has considerable experience of the assessment, evaluation and excavation of sites of all periods, having undertaken a great number of small and large-scale projects during the past 20 years. Watching briefs, evaluations and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables.
- 1.4 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, registration number 17, and all its members of staff operate subject to the IFA Code of Conduct.

## 2 OBJECTIVES

- 2.1 The following programme has been designed to provide for the identification and recording of any archaeological deposits in the area to be affected by the construction of the access and compound area.
- 2.2 **Strip and Record:** the objective of this exercise is to make a full graphic, photographic and written record of the archaeological evidence, in a manner whereby the extent, nature, form, date, function and relationships of archaeological features and/or deposits can be established to achieve reservation by record in advance of the development;
- 2.3 **Report and Archive:** production of a report following the collation of data during *Sections 2.3* above.

## 3 METHOD STATEMENT

- 3.1 The excavation methodology would follow the principles and guidelines for archaeological excavation as set down out in the Institute of Field Archaeologists: Standard and Guidance for Archaeological Excavations (IFA 2001). The area subject to the strip and record exercise will be the access land immediately adjacent to Garstang Road East and the northern extent of the adjoining contractors compound. It should be noted that if archaeological deposits of a significant nature are encountered within the northern extent of the compound then it might be considered necessary to extend the strip and record exercise to the remainder of the site. This would require consultation with the LCAS Planning Archaeologist.
- 3.2 The programme of archaeological works will take the form of strip and record investigations in two stages: Stage 1 - in the first instance, topsoil and overburden material will be removed to expose the first archaeological horizon. All archaeological features thus exposed will be sufficiently cleaned to allow them to be recorded, and a pre-excavation plan will be produced; Stage 2 - then, following agreement of a strategy with the LCAS Planning Archaeologist, any archaeology revealed in the strip will be sample excavated and recorded. The sample will be

appropriate and proportional to the importance, quantity and complexity of the archaeology exposed, as well as its perceived research value.

- 3.3 **Stage 1:** the initial topsoil stripping will be designed to expose the character and nature of the archaeological remains, and assess their potential research value. The primary aims will be:
- To expose archaeological remains across the whole archaeological site by the mechanical removal of topsoil and any masking subsoil;
  - To create a pre-excavation plan of exposed deposits;
  - To collect datable/activity specific material from the surface of exposed deposits;
  - To confirm the priorities for further archaeological investigation.
- 3.4 **Stage 2:** further archaeological investigations will be designed to recover data sufficient to allow for “preservation by record” and establish the extent, date, character and significance of the archaeological remains. The primary aims will be:
- To characterise the overall nature of the archaeological resource and to understand the process of its formation;
  - To create a detailed plan of all archaeological features;
  - To establish the character of those features in terms of cuts, soil matrices and interfaces;
  - To recover, where appropriate, across the archaeological site representative ecofactual and palaeoenvironmental samples to provide evidence of function and past land-use;
  - To establish in outline a dated sequence of structures and/or deposits and thus to define changes in site organisation over time.
- 3.5 **Stripping:** during the strip and record exercise, the topsoil will be removed under archaeological supervision by a mechanical excavator fitted with a toothless ditching bucket. Stripping will proceed until the uppermost horizons of significant archaeological remains have been revealed or, where these are absent, the natural substrate. The topsoil will be stockpiled separately from other deposits. The stripped areas, including the edges if necessary, will be cleaned sufficiently to enhance the definition of features.
- 3.6 The mechanical excavator used to accomplish the topsoil strip will be fitted with a toothless ditching bucket. If appropriate, further machine excavation will be carried out after hand excavation and recording of such deposits has been completed. (Such techniques are only appropriate for the removal of homogenous low-grade deposits, which may give a "window" into underlying levels; or for characterising features where there is no danger of removing important stratigraphic relationships and sufficient stratigraphy will remain to allow the excavation of hand excavated samples). The machine used will be safe, in good working order and powerful enough for the work and to be able to mound spoil and overburden neatly, at a minimum distance of 1m from the trench edges. The topsoil will be stripped in a systematic and logical manner, to ensure that where practicable the excavators and machines used to remove spoil do not rut, compact or otherwise damage buried or exposed archaeological features and deposits by crossing previously stripped areas.
- 3.7 **Mapping:** the strip and record area will be planned using a Total Station and the resulting plan tied into the national grid. The stripping team will pay close attention to achieving a clean-stripped surface, using the mechanical plant under close archaeological supervision, to reduce the need for extensive hand cleaning. Limited areas may still require hand cleaning, to clarify complex feature intersections. The principal aim of the initial work will be to produce a plan

of the revealed features that can be used to define and quantify the second stage of formal and detailed excavation. Plans will be maintained as stripping progresses and features will be defined on the ground. A general site plan will be produced at an appropriate scale to map the exposed features.

- 3.8 **Sampling:** the research value of the archaeology and the necessity to achieve “preservation by record” in advance of the development will inform the second stage excavation sampling strategies. The exact sampling levels will be determined by the nature of the remains.
- 3.9 Any structures will be excavated to the extent that they are sufficiently characterised and understood, this will involve excavating a representative range of structural elements such as post-holes, construction trenches, hearths etc. Some sufficiently important structures eg hearths, kilns, midden deposits etc may require 100% samples.
- 3.10 Any positive feature, archaeological feature or deposit likely to obscure earlier features will be completely removed in the most appropriate fashion, after being recorded.
- 3.11 Linear features will be excavated to the extent that they are characterised and understood. This will include 100% of terminals and ditch intersections and sufficient interventions to provide evidence of dating and formation. As a guide linear features up to 5m in length will be subject to a 20% sample while linear features over 5m long will be subject to 10% (samples to be at least 1m wide);
- 3.12 An appropriate range of discrete/isolated features (pits, postholes etc) and non-linear negative features will be investigated. It should be noted that in most cases such features will be half-sectioned, but where either no dating/functional evidence has been obtained, or where artefacts have been recovered of such a nature that the recovery of additional material of a similar nature is thought to be worthwhile, then further sampling will be undertaken. Where clusters of like features occur, it may prove sufficient to investigate a representative sample.
- 3.13 All contexts will be recorded using standard recording systems in accordance with the IFA Standards and Guidance for archaeological excavations; planning and surveying will be based on a site grid tied into the Ordnance Survey National Grid and ordnance datum levels will be taken where appropriate.
- 3.14 Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation *in situ*. Any hand excavation will respect the stratigraphy of archaeological layers, features, deposits and structures. When required, each context will be excavated in sequence.
- 3.15 Complex features and excavated interventions will be recorded by, individual hand-drawn plans made at a scale of 1:20 or 1:10. These detailed plans and the area plan produced in Stage 1 will be digitised and combined to produce a post-excavation plan of the site. Sections will be drawn at 1:10 or 1:20 unless circumstances dictate otherwise. All features revealed in the excavated area will be planned.
- 3.16 A full photographic record comprising black and white negative achievable film will be made. In addition digital photographs taken with an optical zoom camera of at least 300 dpi will be taken.
- 3.17 All finds will be processed according to the IFA Guidelines for Finds Work. In all cases, all bags and boxes will be marked with the site code and context number and Museum Accession Number.
- 3.18 Consideration should be given to taking environmental samples (30 litres each where possible) from well stratified, datable deposits. This programme will be undertaken to enable the recovery of carbonised and waterlogged remains, vertebrate remains, molluscs and small artefactual material. An environmental specialist will be consulted as to the validity of any sampling strategy employed. If appropriate monolith samples will be taken for pollen etc.

3.19 Any finds of human remains will be left *in situ*, covered and protected and the local Coroner informed. If removal is essential it will only take place under appropriate Department of Constitutional Affairs licence, section 25 of the Burial Act 1857 and local environmental health regulations, and if appropriate in compliance with the Disused Burial Grounds (Amendment) Act 1981.

3.20 All finds of gold and silver will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act of 1996. Where removal can not be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

#### 4. GENERAL WORKING PRACTICES AND STANDARDS

4.1 The work will be undertaken in accordance with the submitted project design (this document) and in general accordance with the methods and practices described in the Management of Archaeological Projects (English Heritage, 1991 (revised 1996)).

4.2 All OA North staff are appropriately qualified and experienced professionals, and work in compliance with the 'Standard and Guidance for Archaeological Field Evaluation (Institute of Field Archaeologists, 1994 (revised 2001)).

4.3 The fieldwork will be undertaken in a manner likely to cause the minimum of disturbance commensurate with achieving its objectives.

4.4 **Health and Safety:** OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties.

#### 5. ARCHIVE/REPORT

5.1 **Archive:** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the HER (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office (Preston) and a full copy of the record archive (microform or microfiche) together with the material archive (artefacts, ecofacts, and samples) with an appropriate museum. Wherever possible, OA North recommends the deposition of such material in a local museum approved by the Museums and Galleries Commission, and would make appropriate arrangements with the designated museum at the outset of the project for the proper labelling, packaging, and accessioning of all material recovered.

5.2 The Arts and Humanities Data Service (AHDS) online database *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

5.3 **Report:** one bound and one unbound copy of a written synthetic report will be submitted to the client and a further two copies submitted to the Lancashire HER within twelve weeks of completion of fieldwork. The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, with an assessment of the overall stratigraphy, together with appropriate illustrations, including detailed plans and sections indicating the locations of

archaeological features. Any finds recovered will be assessed with reference to other local material, any particular or unusual features of the assemblage will be highlighted, and the potential of the site for palaeoenvironmental analysis will be considered. The report will also include a complete bibliography of sources from which data has been derived.

- 5.4 This report will identify areas of defined archaeology. An assessment and statement of the actual and potential archaeological significance of the identified archaeology within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans. This report will be in the same basic format as this project design; a copy of the report can be provided on CD-ROM, if required.
- 5.5 Provision will be made for a summary report to be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork, if relevant results are obtained. This would be subject to separate costs.
- 5.6 **Confidentiality:** all internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

## 6 PROJECT MONITORING

- 6.1 Monitoring of this project will be undertaken through the auspices of the LCAS Planning Archaeologist, who will be informed of the start and end dates of the work.

## 7 STAFFING

- 7.1 The project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North Senior Project Manager) to whom all correspondence should be addressed.
- 7.2 Present timetabling constraints preclude detailing at this stage exactly who will be undertaking the strip and record, but this element of the project is likely to be supervised by an OA North supervisor experienced in these types of project. All OA North project officers are experienced field archaeologists capable of carrying out projects of all sizes.

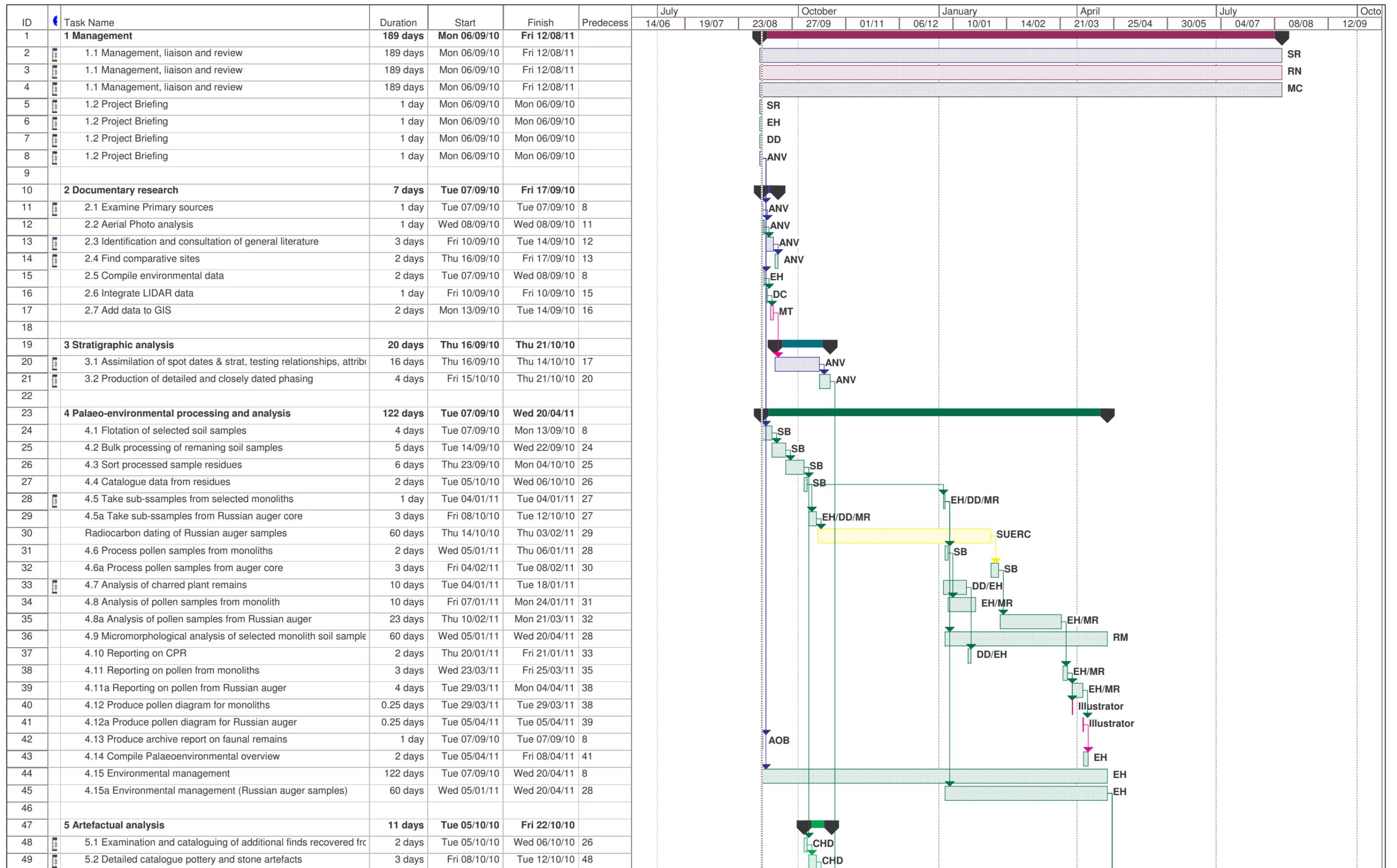
## 8 INSURANCE

- 8.1 OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.

## APPENDIX 2: TIMETABLE FOR ANALYSIS, PUBLICATION AND ARCHIVING

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The timetable for each of the tasks listed in Table 8 and explained in *Section 7* is presented on the following gantt chart.

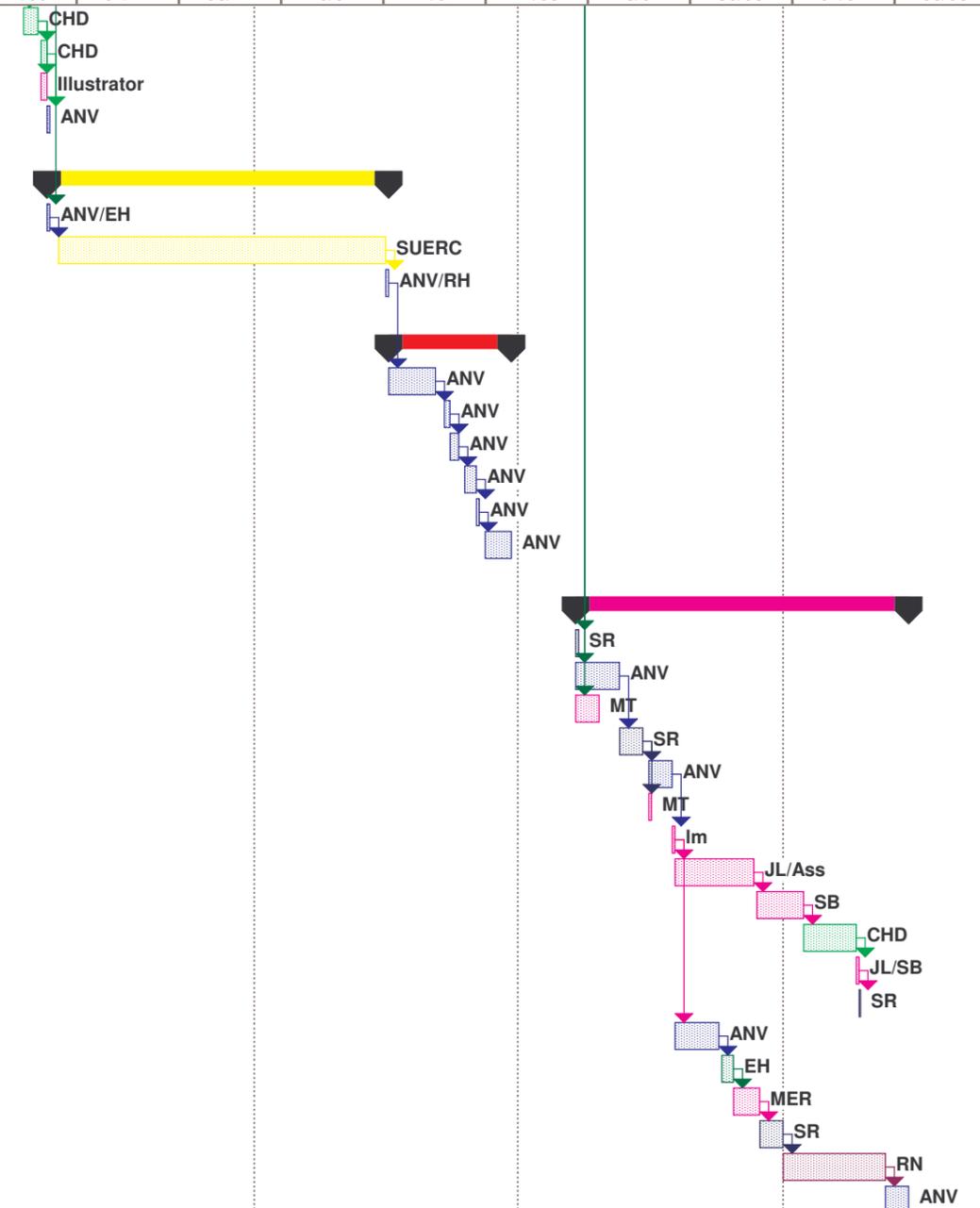


Project: Wyre analysis prog  
Date: Tue 07/09/10

Task: Progress Summary External Tasks Deadline   
Split: Milestone Project Summary External Milestone

Page 1

ID	Task Name	Duration	Start	Finish	Predecessor	July			October			January			April			July			Octo
						14/06	19/07	23/08	27/09	01/11	06/12	10/01	14/02	21/03	25/04	30/05	04/07	08/08	12/09		
50	5.3 Analyse and compile reports on stone and pottery	3 days	Thu 14/10/10	Mon 18/10/10	49																
51	5.4 Compile synthetic finds overview	2 days	Wed 20/10/10	Thu 21/10/10	50																
52	5.5 Illustrate artefacts (selected pottery and stone)	2 days	Wed 20/10/10	Thu 21/10/10	50																
53	5.6 Comparative analysis	1 day	Fri 22/10/10	Fri 22/10/10	51																
54																					
55	<b>6 Scientific dating</b>	<b>62 days</b>	<b>Fri 22/10/10</b>	<b>Tue 15/02/11</b>																	
56	6.1 Review data and select radiocarbon samples	1 day	Fri 22/10/10	Fri 22/10/10	21																
57	6.2 Radiocarbon dating	60 days	Tue 26/10/10	Mon 14/02/11	56																
58	6.3 Integrator of radiocarbon results	1 day	Tue 15/02/11	Tue 15/02/11	57																
59																					
60	<b>7 Integrated analysis</b>	<b>23 days</b>	<b>Wed 16/02/11</b>	<b>Tue 29/03/11</b>																	
61	7.1 Id & interpret phased intra-site activity zones	10 days	Wed 16/02/11	Thu 03/03/11	58																
62	7.2 Id economic basis during each phase	2 days	Mon 07/03/11	Tue 08/03/11	61																
63	7.3 Id status of the occupants during each phase	2 days	Wed 09/03/11	Fri 11/03/11	62																
64	7.4 Landscapel analysis relating to the local topographic and env	3 days	Mon 14/03/11	Thu 17/03/11	63																
65	7.5 Id sources of resource exploitation	1 day	Fri 18/03/11	Fri 18/03/11	64																
66	7.6 Comparative analysis	5 days	Mon 21/03/11	Tue 29/03/11	65																
67																					
68	<b>8 Report production and archive submission</b>	<b>66 days</b>	<b>Thu 21/04/11</b>	<b>Fri 12/08/11</b>																	
69	8.1 Assemble and edit specialist reports	1 day	Thu 21/04/11	Thu 21/04/11	45																
70	8.2 Compile archive report	9 days	Thu 21/04/11	Thu 05/05/11	45																
71	8.3 Prepare illustrations for archive report	5 days	Thu 21/04/11	Thu 28/04/11	45																
72	8.4 Edit report	5 days	Fri 06/05/11	Fri 13/05/11	70																
73	8.5 Corrections	5 days	Mon 16/05/11	Mon 23/05/11	72																
74	8.5 Corrections	1 day	Mon 16/05/11	Mon 16/05/11	72																
75	8.6 Copy-editing	1 day	Tue 24/05/11	Tue 24/05/11	73																
76	8.7 Prepare archive of primary fieldwork records	15 days	Wed 25/05/11	Mon 20/06/11	75																
77	8.8 Prepare artefactual archive, discard and retention	10 days	Wed 22/06/11	Thu 07/07/11	76																
78	8.8 Prepare artefactual archive, discard and retention	10 days	Fri 08/07/11	Mon 25/07/11	77																
79	8.9 Submit finds and paper archive to museum	1 day	Tue 26/07/11	Tue 26/07/11	78																
80	8.10 Submit archive report and summary of the archive to the HE	0.5 days	Wed 27/07/11	Wed 27/07/11	79																
81	8.11 Prepare publication text	9 days	Wed 25/05/11	Wed 08/06/11	75																
82	8.11 Prepare publication text	2 days	Fri 10/06/11	Mon 13/06/11	81																
83	8.12 Prepare publication illustrations	5 days	Tue 14/06/11	Wed 22/06/11	82																
84	8.13 Editing, QA nd corrections	5 days	Thu 23/06/11	Thu 30/06/11	83																
85	8.13 Editing, QA nd corrections	20 days	Fri 01/07/11	Thu 04/08/11	84																
86	8.13 Editing, QA nd corrections	5 days	Fri 05/08/11	Fri 12/08/11	85																



Project: Wyre analysis prog  
Date: Tue 07/09/10

Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

## ILLUSTRATIONS

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Figure 2: Location of areas subject to works

Figure 3: Location of palaeoenvironmental auger cores

Figure 4: Phased plan of Sites 1–3

Figure 5: Detail of the Phase 2 and Phase 3 entranceways

Figure 6: Detail of the roundhouses

Figure 7: Detail of possible craftworking area

Figure 8: Detail of structures outside the settlement enclosures

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Plate 2: South-facing section of V-shaped enclosure ditch

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Plate 5: Roundhouse **226**, facing east

Plate 6: Pit within the northern half of roundhouse **226**, facing west-south-west

Plate 7: Posthole with post-pad in the possible craftworking area of Enclosure A

Plate 8: Pit (**578**) possibly associated with charcoal production, facing south-south-west

Plate 9: Possible structural elements in the south-western corner of Enclosure A, facing east

Plate 10: Roundhouse **677**, facing west

Plate 11: Possible sunken-floored building, facing north-west

Plate 12: Postholes within the southern entrance ditch, facing north

Plate 13: Four postholes forming a timber gateway at the entrance to the settlement, facing west

Plate 14: Section through a medieval cultivation furrow

Plate 15: Probable post-medieval cobbled surface to the south of Mains Lane

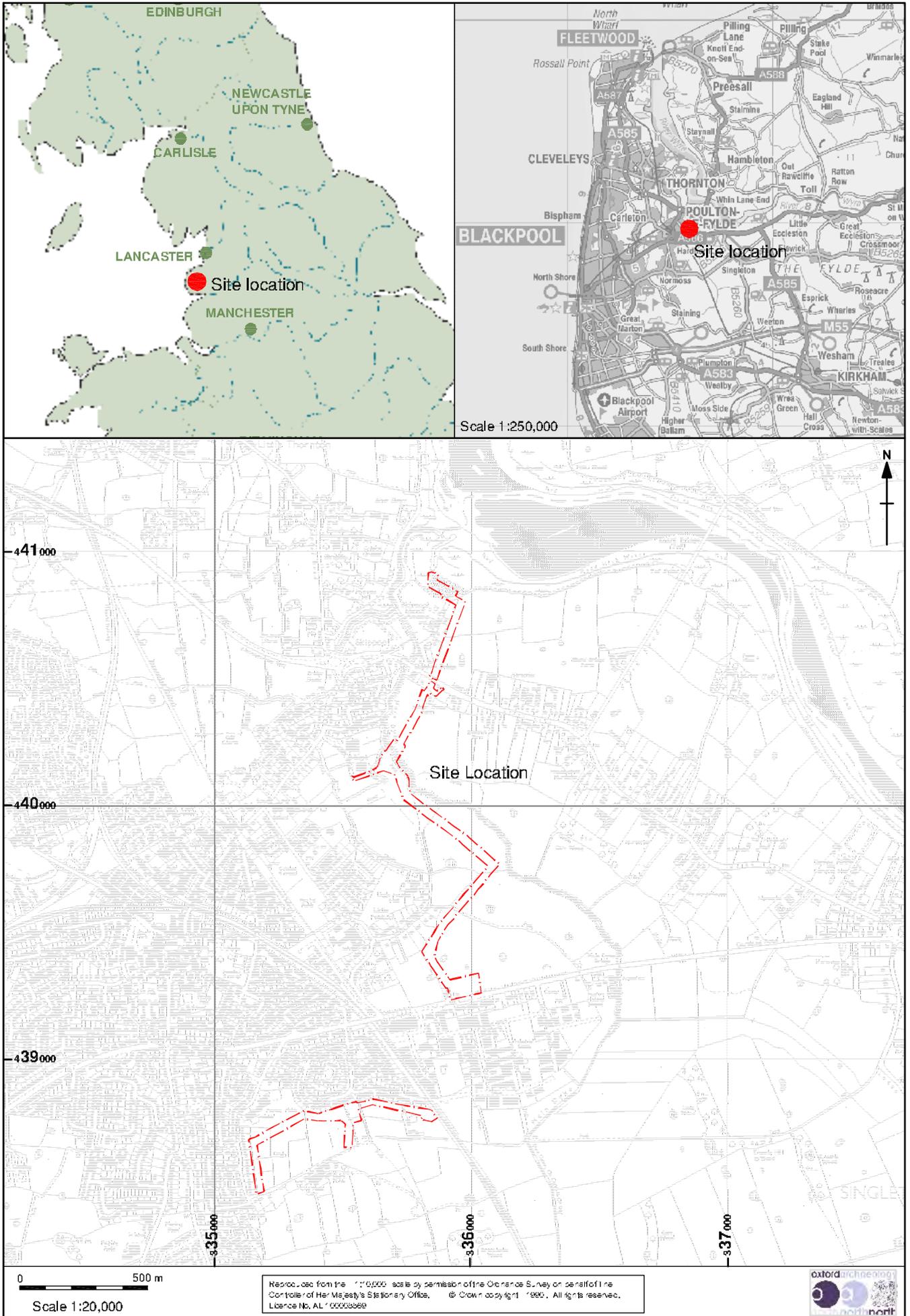


Figure 1: Site Location

SR/L10015\*1MAT\*July 09

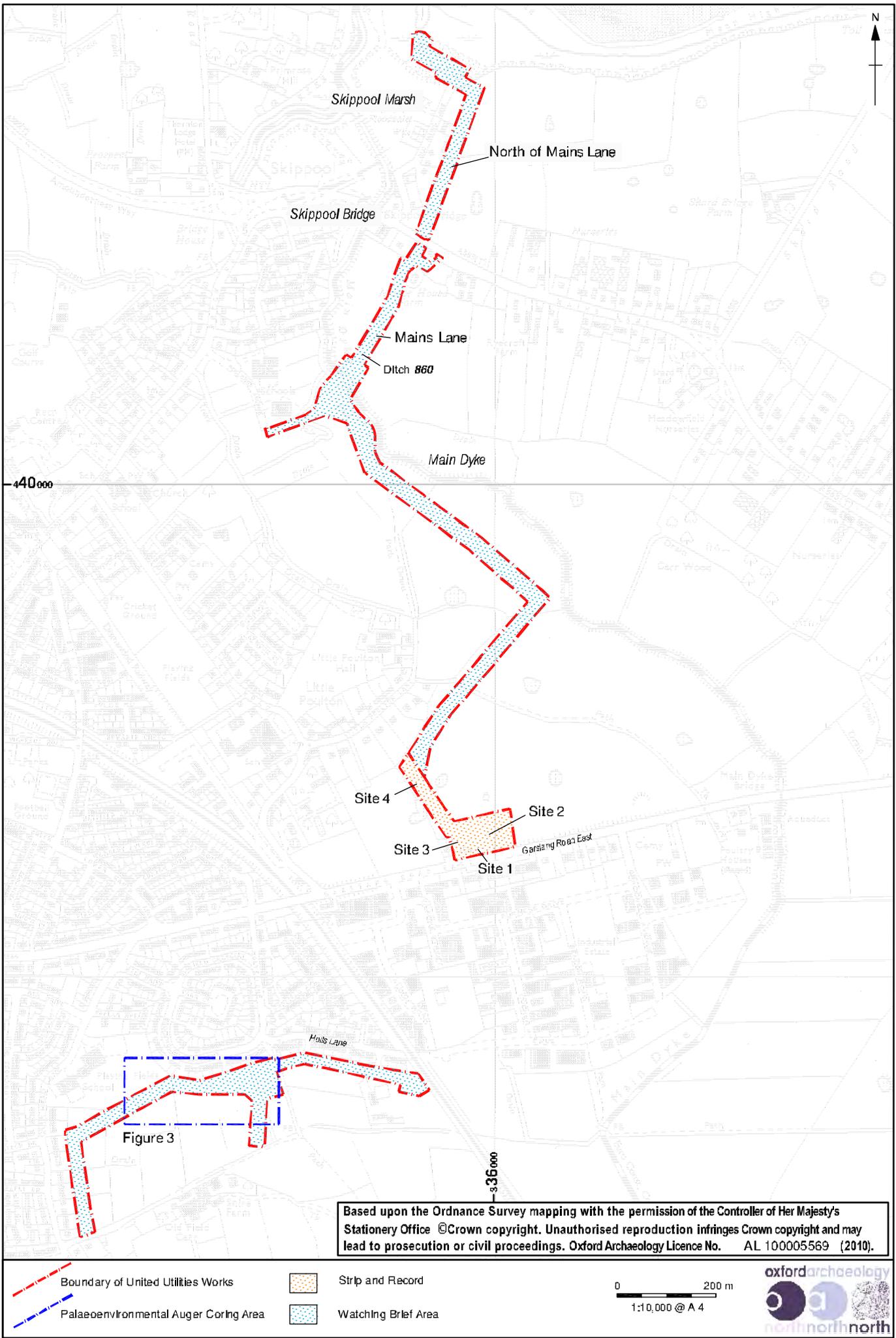
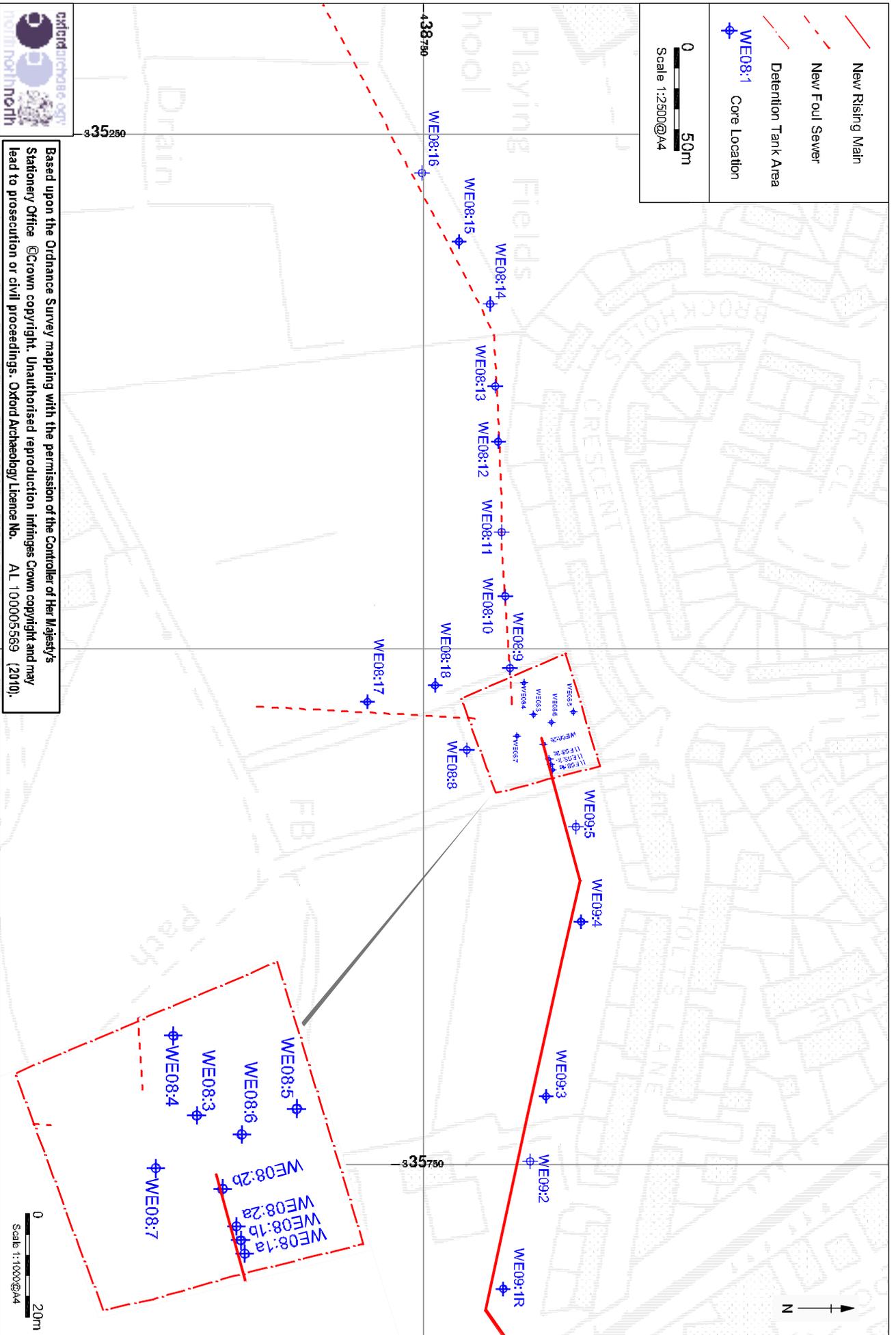


Figure 2: Location of areas subject to archaeological works



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Figure 3: Location of palaeoenvironmental auger cores

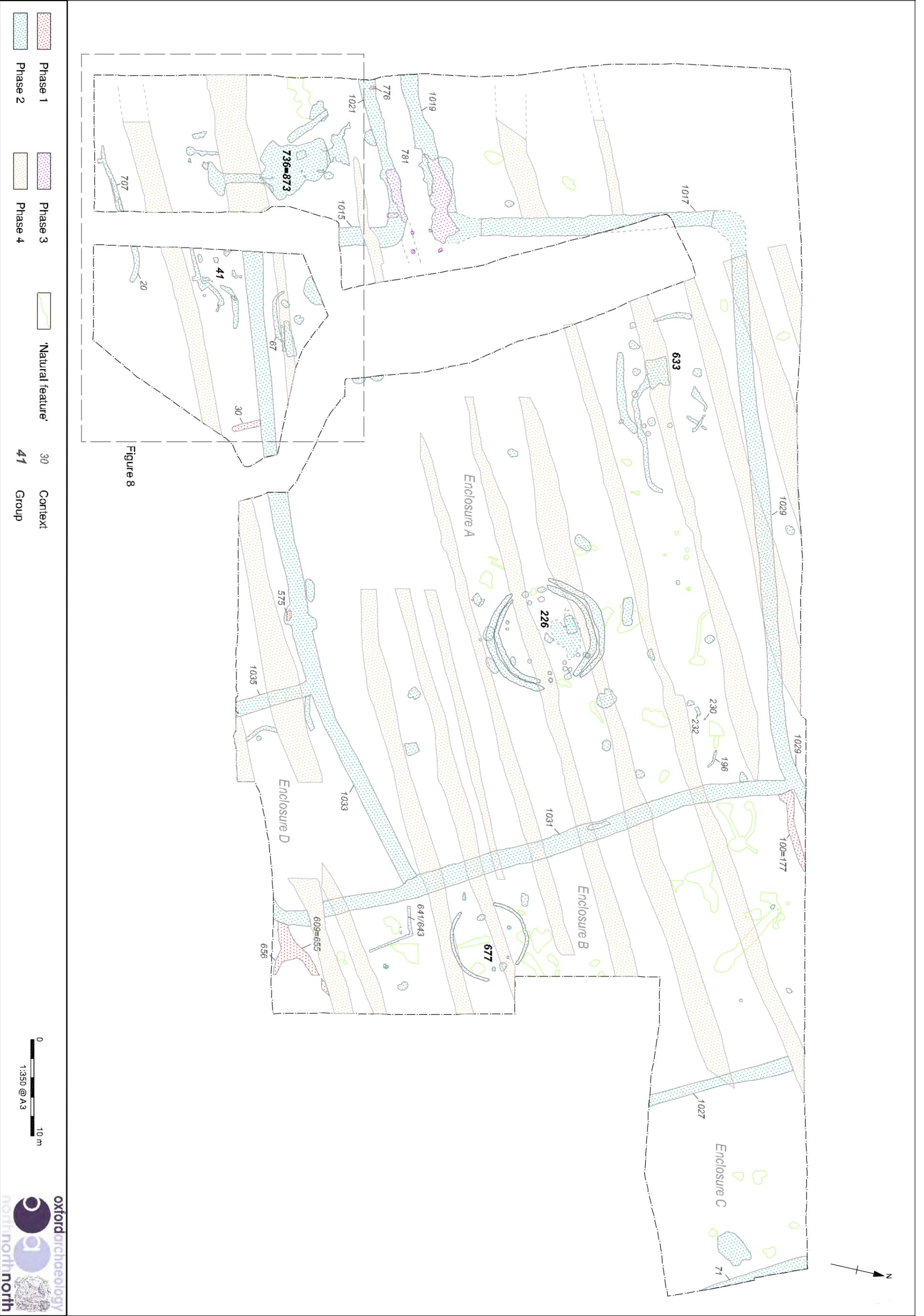


Figure 4: Phased plan of Sites 1-3

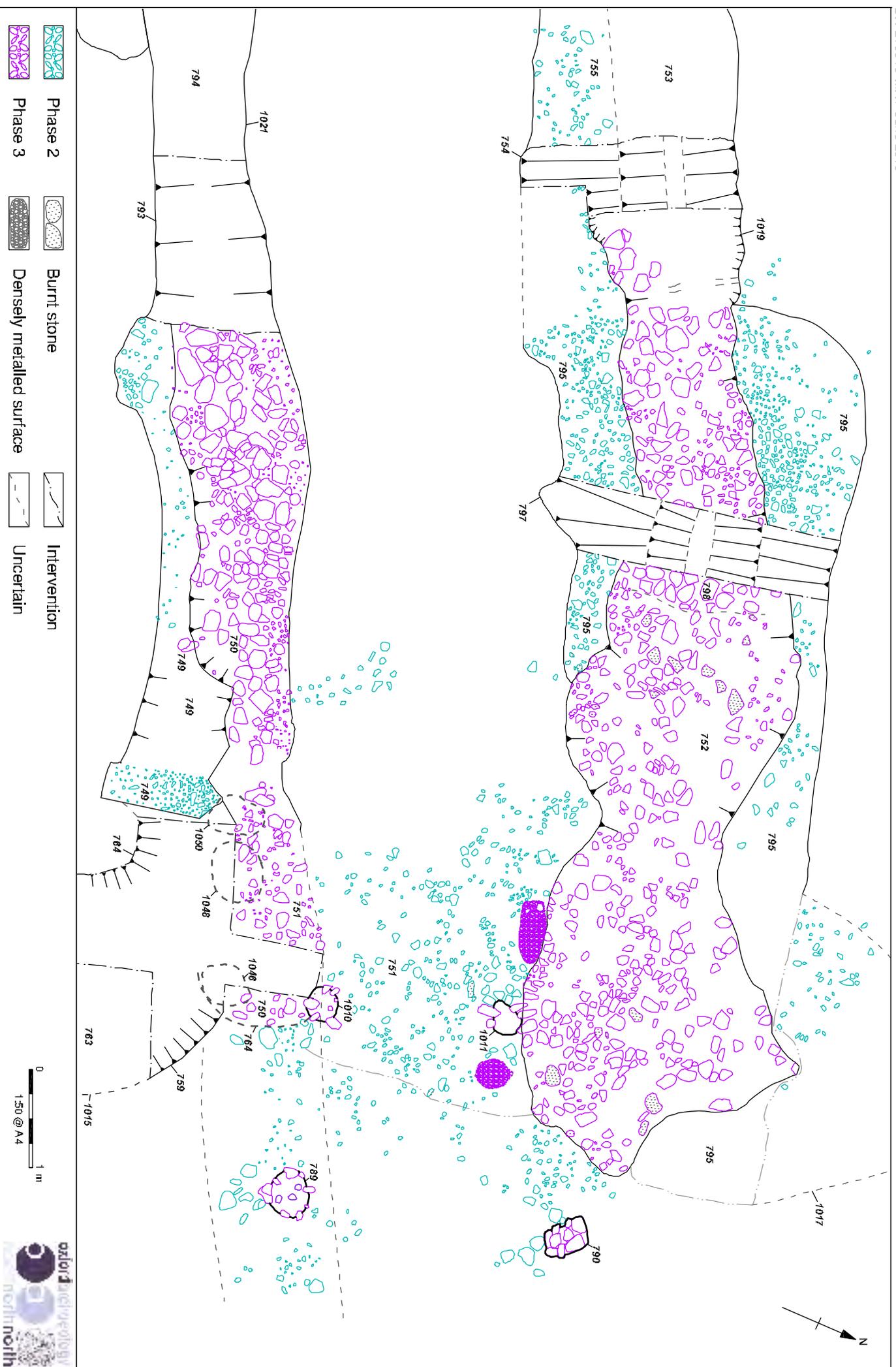


Figure 5: Detail of the Phase 2 and Phase 3 entranceways

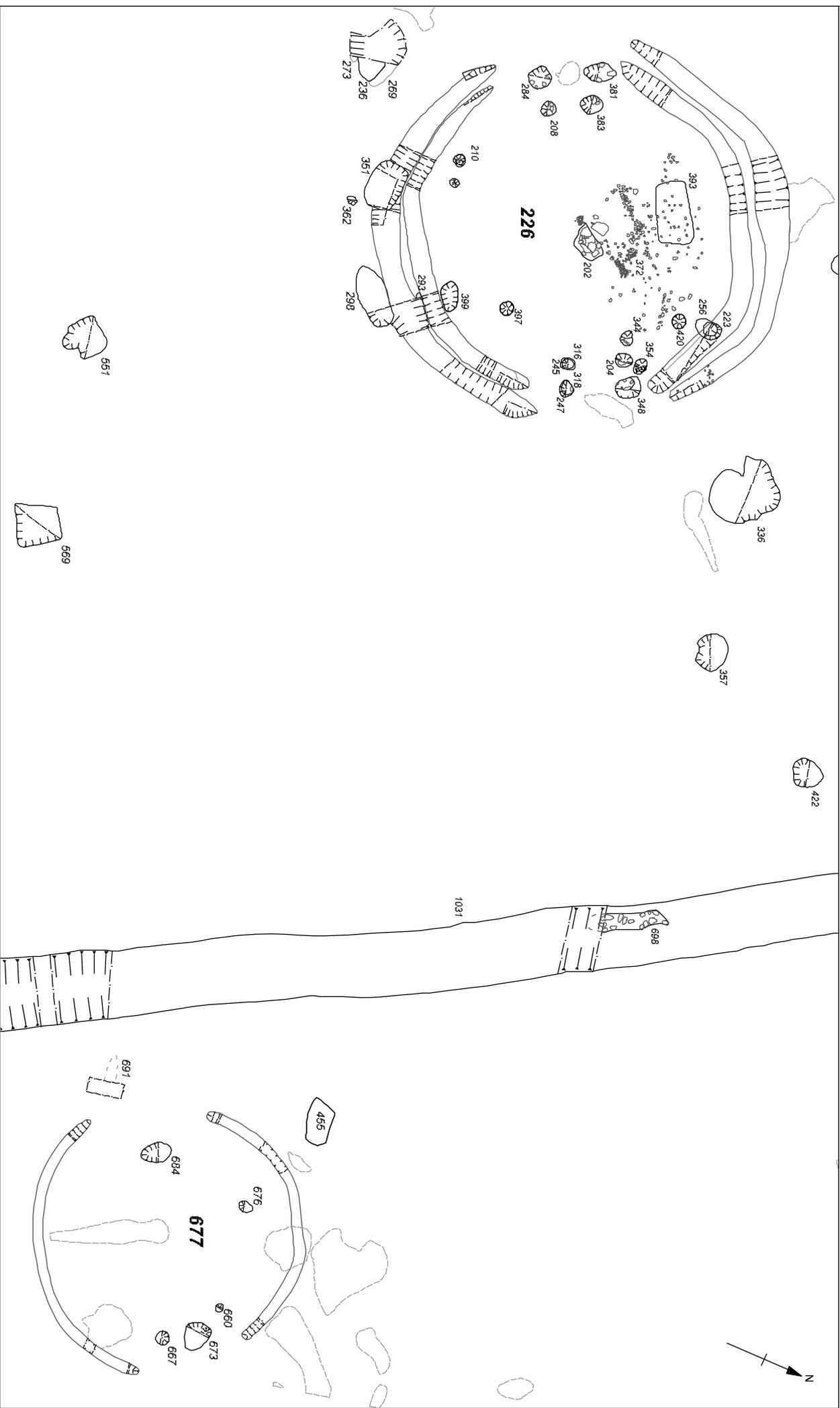


Figure 6: Detail of the roundhouses

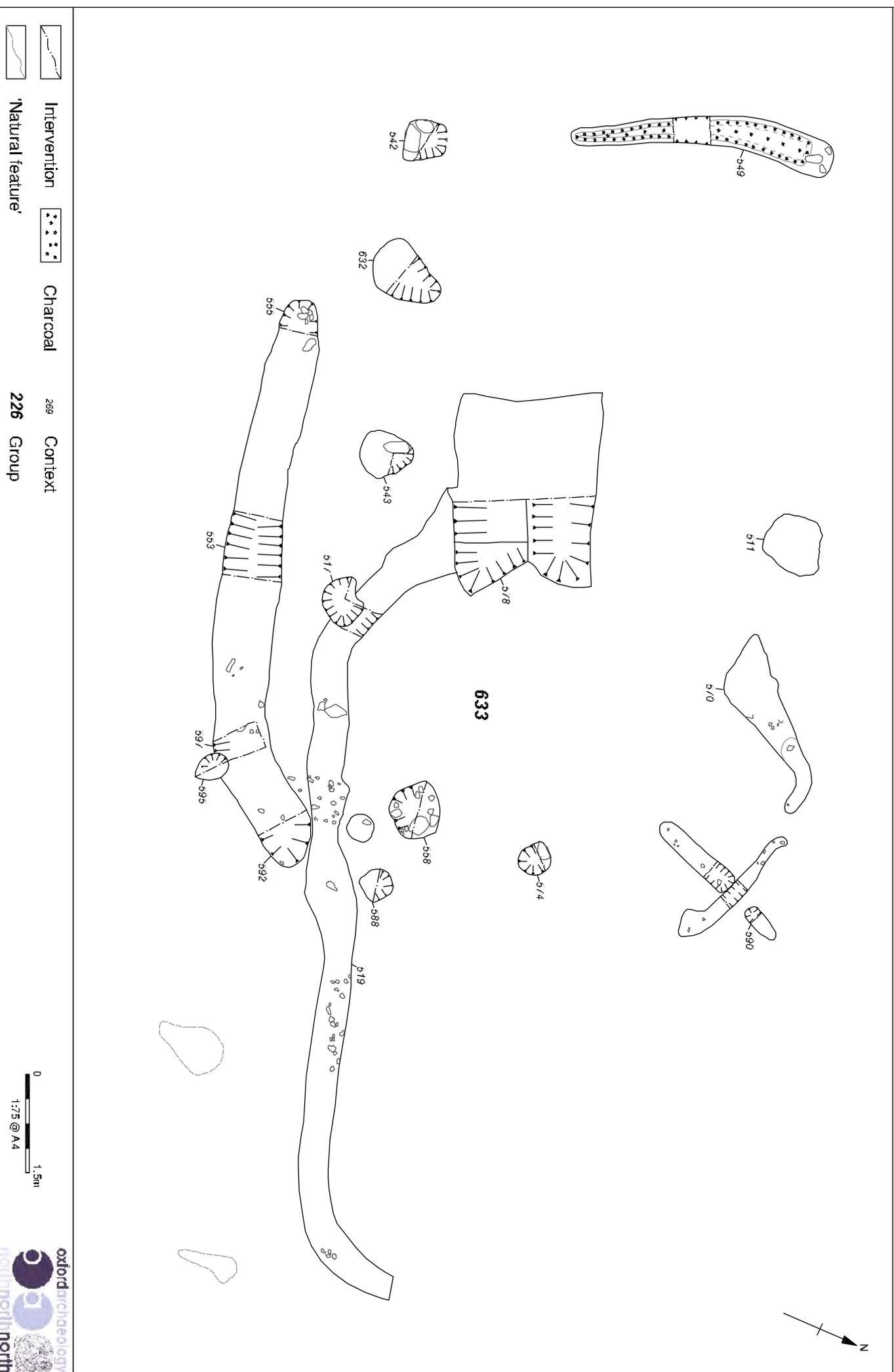


Figure 7: Detail of possible craft-working area



Figure 8: Detail of structures outside the settlement enclosures



Plate 1: Deposit of peat observed within the pipe trench to the south of Holts Lane



Plate 2: South-facing section of V-shaped enclosure ditch



Plate 3: View of enclosure ditches and entranceway, facing north-west



Plate 4: Trackway at entrance to the Enclosure A, facing west-south-west



Plate 5: Roundhouse 226, facing east



Plate 6: Pit within the northern half of roundhouse 226, facing west-south-west



Plate 7: Posthole with post-pad in the possible craftworking area of Enclosure A



Plate 8: Pit (578) possibly associated with charcoal production, facing south-south-west



Plate 9: Possible structural elements in the south-western corner of Enclosure A, facing east



Plate 10: Roundhouse 677, facing west



Plate 11: Possible sunken-floored building, facing north-west



Plate 12: Postholes within the southern entrance ditch, facing north



Plate 13: Four postholes forming a timber gateway at the entrance to the settlement, facing west



Plate 14: Section through a medieval cultivation furrow



Plate 15: Cobbled surface to the south of Mains Lane



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