

WELLINGTON QUARRY,
MARDEN, HEREFORDSHIRE
(1986-96): ASSESSMENT AND
UPDATED PROJECT DESIGN

Robin Jackson and Rachel Edwards
with contributions from Peter Bellamy, Alex Gibson, James Greig
Laura Griffin, David Jordan and Elizabeth Pearson

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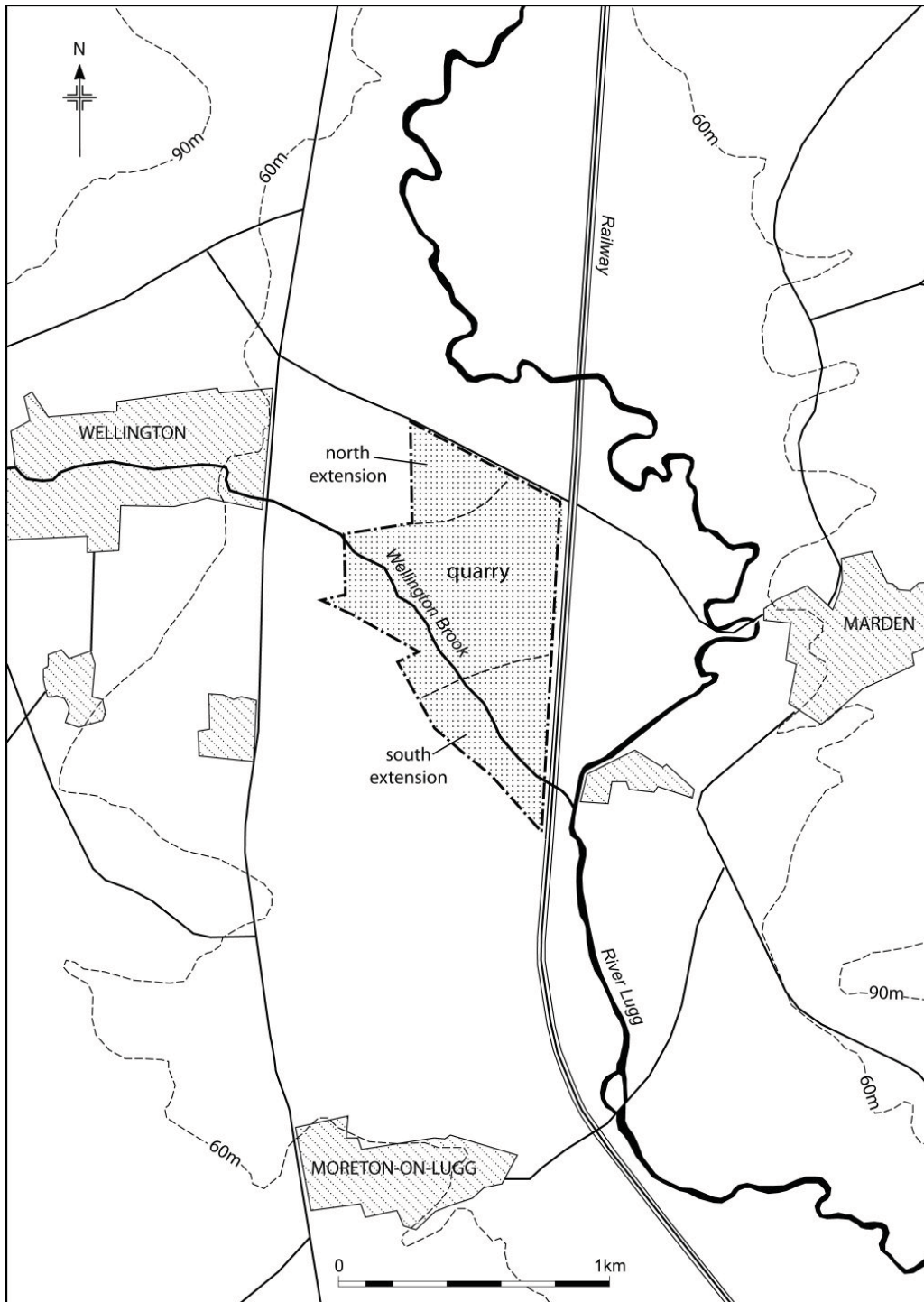
Field Section,
Archaeological Service,
Worcestershire County Council,
Woodbury Hall,
University College Worcester,
Henwick Grove,
Worcester WR2 6AJ

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Wellington Quarry, Marden, Herefordshire (1986-96): Assessment and Updated Project Design

Robin Jackson and Rachel Edwards with contributions from Peter Bellamy, Alex Gibson, James Greig, Laura Griffin, David Jordan and Elizabeth Pearson

Summary

Salvage recording on behalf of Lafarge Redlands Aggregates Limited at Wellington Quarry, Herefordshire between 1986 and 1996 has revealed significant archaeological deposits dating from the Early Neolithic to the medieval period. These have been recorded scattered across c 37ha of the quarry. Work has been supported by other pieces of fieldwork including an evaluation undertaken by a Community programme team, elements of an English Heritage funded survey of the Herefordshire Valleys and research for a doctoral thesis.

Assessment of the fieldwork archive has been undertaken on behalf of English Heritage, the results of which are presented in this document. The assessment is accompanied by an Updated Project Design for analysis and dissemination of the results of the project, funding for which is requested from English Heritage through the Aggregates Levy Sustainability Fund.

Deposits indicate a long period of exploitation of the area which lies on the floodplain of the River Lugg just above its confluence with the Wellington Brook. Periods of activity include a significant Early Neolithic pit group; sporadic Middle to Late Neolithic activity; three possible ring-ditches; a wealthy Beaker burial; an Iron Age enclosure; a high status Roman building and areas of associated activity; and a pair of medieval corn drying ovens. These deposits occur within a deep and complex alluvial sequence the deposition of which interleaved with, and influenced, periods of occupation. This sequence contributed to the excellent conditions of preservation at the site and also included evidence for former watercourses, the relict channels of which contain important palaeoenvironmental remains. These provide a long sequence of evidence for environmental change and human impact on the landscape from the Mesolithic to the post-Roman period in what is generally a very little researched region of England.

The Early Neolithic activity comprised a cluster of thirteen pits. These were well defined and sealed contexts from which important assemblages of pottery, flint and charred plant remains were recovered along with small quantities of animal bone. These represent the largest and most significant stratified material assemblage of this date to have been recovered from the West Midlands region. A small number of features of Middle to Late Neolithic date, three possible ring-ditches and a wealthy Beaker burial attest to the continued use of the site.

Together these represent the most comprehensive deposits and associated artefactual and environmental assemblages of early prehistoric date to have been excavated to date in Herefordshire, with the potential to provide evidence of changing depositional and economic practice within an archaeological landscape utilised over a long period of time. In the light of the rarity of such remains these are considered to be of both regional and national significance with the potential to contribute to the understanding of the way in which Neolithic material culture was adopted and utilised in this region.

Iron Age deposits and finds were recorded from two zones of the quarry. Deposits indicated occupation in a similar location to that of a later Roman villa and associated settlement. These lay in an area where geophysical survey identified a sub-rectangular enclosure of probable Iron Age to Romano-British date. A second concentration of finds came from the south-western corner of the quarried area, and this suggested an Iron Age occupation site close by, perhaps outside the quarry area.

Roman activity was evident across the entire area investigated, but here too, concentrations were apparent. The northern and central part of the quarry appear to contain the main focus of settlement, which included a rectilinear stone building, associated with fragments of box-flue tile indicating a hypocaust heating system. This was clearly a reasonably high status and substantially Romanised settlement for the area, with finds including Samian pottery and coins. Activity spread out to the east and south of the building, with indications of further occupation in both areas. To the west the distribution of finds was much lower, and the presence of Roman cremation deposits indicated a different use of this part of the landscape. Another concentration of finds in the south-west corner of the quarry may indicate another focus of activity.

Few Iron Age and Romano-British lowland rural settlements have been investigated in Herefordshire or indeed the Welsh Marches as a whole. Consequently regional patterns and characteristics of settlement, economy, landuse and continuity of use through this period are poorly understood. Assessment indicates that in association with the palaeoenvironmental record, the deposits and associated assemblages from Wellington Quarry have considerable potential to contribute to this area of research.

Medieval activity was concentrated in the north-west corner of the site. Here three bread ovens were recorded, with associated features. Significant assemblages of charred cereal remains provide rare and important evidence of crops in use locally at this period and thus of an important element of the rural economy. No associated settlement was identified at the time of recording, but it is hoped that a reconsideration of the records allied to documentary and cartographic evidence may indicate potential areas of occupation, since the pottery assemblage was domestic in character. A phase of post-Roman ditches with characteristic alluvial fills is also of interest, and it is intended to investigate these further to broaden understanding of the landscape as a whole. Lastly, a post-medieval stone structure located adjacent to the Wellington Brook may represent a domestic or mill building, or an access to a ford.

These archaeological deposits form a significant and locally unique sequence. It is one of the few sites in the West Midlands with the potential for the examination of the changing character of human activity within a landscape over a long period of time, and as such is of considerable regional importance. Their association with a similarly long sequence of palaeoenvironmental and alluvial deposits provides an opportunity to consider their relationship to the local environment and elevates the significance of the site to a national level.

The potential of the deposits recorded from 1986-96 is further enhanced by the results from subsequent phases of archaeological recording at the quarry. This has revealed further material contemporaneous with that discussed above along with regionally important Late Bronze Age deposits and the remains of an early 8th century watermill, a find of national significance. These both complement and enhance the data from the earlier investigations providing further evidence of continuity of use and importance of this landscape over a long period of time. A separate post-excavation and publication programme for the first six years of this work is due to be undertaken during 2002/3 subject to completion of the final phase of fieldwork on this area of the quarry. Methodologies for post-excavation work will reflect those for the current application to ensure the two projects and their reports complement each other.

In the light of the considerable regional and national significance of the 1986-96 archive as indicated by this assessment a full programme of analysis is proposed. Funding is sought from the Aggregates Levy Sustainability Fund to support analysis and dissemination of the results. The satisfactory completion of this programme of work would also provide a platform for an outreach initiative aimed at presenting the results to the local population for which funding will be sought.

1. Background

1.1 Introduction

Archaeological investigations by the Field Section of Hereford and Worcester County Archaeological Service (now the Archaeological Service of Worcestershire County Council), have been undertaken at a gravel extraction site at Wellington Quarry, Marden Lane, Marden, Herefordshire since 1986 (County Sites and Monuments Record number HSM 5522). The work has followed successive seasons of sand and gravel extraction and has been undertaken on behalf of Redland Aggregates Limited (now Lafarge Redland Aggregates Limited). Work undertaken up to (and including) 1996 was undertaken with the voluntary agreement and support of Redland Aggregates Limited.

It was not possible within the circumstances of the work carried out between 1986 and 1996 to undertake any synthetic or detailed analysis. Consequently in 1999, in the light of the significance of the results from the quarry, an application was made to English Heritage for a grant to fund the production of a Project Design for an assessment of the fieldwork archive (CAS letter dated 23 February 1999). Following approval of this Project Design a grant was made for the production of a Post-fieldwork Assessment and Project Design (CAS 1999). This document presents the results of that assessment and an accompanying updated project design for analysis and dissemination for which funding is requested under the Aggregates Levy Sustainability Fund (ALSF).

1.2 Location

Wellington Quarry is located at NGR SO 508 479 and lies between the villages of Marden and Wellington, 7km north of Hereford (Fig 1). It is situated on the broad floodplain of the River Lugg, occupying a flat area to the west of the current course of the river. The Wellington Brook runs across the west side of the site and joins the Lugg a short distance to the south. Slight undulations may reflect former courses of either the Lugg or the Wellington Brook. The site was under pasture prior to quarrying, and covers an area of approximately 37 ha.

The solid geology is of Lower Old Red Sandstone, overlain by deep drift deposits of fluvio-glacial sand and gravel which in turn are overlain by deep alluvial deposits.

1.3 Archaeological background

Prior to quarrying, only limited archaeological fieldwork had been undertaken in the vicinity, however, both prehistoric and Roman finds are known from the area. These are recorded on the Herefordshire County Sites and Monuments Record.

Evidence of earlier prehistoric activity is limited to cropmarks showing three ring-ditches to the north-west of the quarry (HSM 7054, 7591 and 7592) and flint finds from the village of Marden (HSM 8416).

Later prehistoric activity is represented by the Iron Age hillfort at Sutton Walls, some 2km to the south-east. This was partially excavated in the 1940s and 1950s (Kenyon 1953; HSM 912) and produced extensive evidence of Iron Age occupation and subsequent Roman activity. To the west of the quarry, at St Donat's Farm a cropmark enclosure has recently been dated to the late Iron Age and Roman periods (Jackson *et al* 1999). Several other undated cropmark enclosures in the vicinity are liable to be of similar date (HSM 5523, 8576 and 10857) while unstratified Roman pottery has been reported from both Wellington (HSM 6897) and Marden (HSM 6543 and 6545). Lastly a Roman road runs to the south.

A study of the nearby parish of Marden has investigated the medieval and earlier settlement of the vicinity from an historical perspective (Sheppard *nd*). The Herefordshire Field Names Survey (Makin and Gwatkin *nd*) has mapped both Wellington and Marden parishes.

1.4 Planning background

The planning background to the project is given in *Winning Sand and Gravel* (Hereford and Worcester County Council 1989) and the *Draft Minerals Local Plan* (Hereford and Worcester County Council 1990). The project pre-dates Planning Policy Guidance 16 (PPG16), the original application having been approved in November 1985 (County Council reference 407104; South Herefordshire District Council reference SH 85/0283). Full processing commenced in March 1987 and continued until spring 1997 when sand and gravel extraction in the original application area was completed.

No arrangements were included for archaeological provision in the original application, although subsequent correspondence led to access being allowed to an archaeologist during stripping operations (letter dated 8 July 1986 to GL Shearer, County Museum Officer). A later application (dated 12 August 1988, County Council reference 407205; South Herefordshire District Council reference SH 88/1422), included conditions to ensure that the Service was given advance notice of phases of topsoil stripping. This also stipulated that the Service be allowed access to the site for the observation and recording of any archaeological remains which might be revealed.

A new application area is now being worked within which archaeological provision has been made in line with PPG16 practice and following an evaluation of the new area (Jackson *et al* 1996). This latest phase of work at the quarry is separately funded and is not covered by this project design. However, post-excavation analysis of a large volume of data from this subsequent extraction area is due to commence on completion of the current phase of extraction (due Autumn/Winter 2002). Compatible methodologies will be used to ensure that the results will enhance and complement the information from the original application area and if appropriate (subject to programme) that publication can be integrated.

1.5 Future and ongoing threats to the resource

The completion of the analysis proposed in this document will support and inform the ongoing permitted quarrying operation (for which a further 8ha remain to be worked over the next four to five years). In particular, description and critical assessment of the methodologies used at Wellington and interpretation of the results will inform this ongoing work.

The work proposed can also be used to inform future management and evaluation strategies for any future extensions to the existing quarry and new quarrying (or other development) applications in the wider area. In particular, a large adjacent site (comprising in excess of 50ha to the west) is earmarked for development. An area of this is currently being evaluated for quarrying while other areas are under consideration for industrial units and other uses.

2. Fieldwork

2.1 Fieldwork history

Archaeological deposits were first identified during groundwork for the original processing plant in July 1986 when substantial stone walls and Roman pottery were noted by Ron Shoemith, Director of the City of Hereford Archaeology Committee. Geophysical survey undertaken by the Ancient Monuments Laboratory in 1987 and an evaluation in 1988, (funded mainly through the Manpower Services Commission with a contribution from Redlands; Clarke *et al* 1988), established a 'core area' for the Roman settlement and an area of lower settlement intensity. A temporary agreement was reached to enable the preservation of the 'core area' below the plant and storage areas, and this arrangement has now been made permanent with this area excluded from extraction in the latest application.

Subsequent to the identification of the 'core area', work was funded by Redlands under a voluntary agreement. This comprised a brief programme of salvage recording and production of an interim report accompanying each stage of stripping (Figure 1). This provided evidence of an extensive spread of regionally and nationally significant archaeological deposits ranging in date from the prehistoric to medieval periods. In addition, work on alluvial sediments as part of an English Heritage Project (Herefordshire Valleys Survey; Dinn 1996) and as part of a doctoral thesis has provided information on the history of the landscape use in the area (Roseff 1992; Dinn and Roseff 1992).

The funding provided voluntarily by Redland Aggregates for the original application area has enabled some processing and limited analysis of results. Interim reports have been produced for each phase of salvage recording (Clarke *et al* 1988; Edwards 1989; Shelley 1989; Edwards 1990; Brown 1992; Fagan *et al* 1993; CAS 1995; CAS 1996; and Napthan *et al* 1997). In addition, Redlands have recently provided further funding to allow for more detailed analysis and publication of a Beaker burial recorded in 1996 (Harrison *et al* 1999).

Summary of work at or including Wellington Quarry, 1986-96

Date	Type of work and title	Funding	Report reference
1987	Evaluation	Manpower Services Commission	Clarke <i>et al</i> 1988 Taylor 1987
1988	Watching brief	Redland	
1989-92	Herefordshire Valleys Survey	EH	Gater and Gaffney 1989 Dinn and Roseff 1992 Dinn 1996 Dinn and Moran 1996 Hemingway and Dinn 1996
Summer 1989	Salvage recording I (SR1)	Redland	Edwards 1989
Winter 1989	Salvage recording II (SRII)	Redland	Shelley 1989
Summer 1990	Salvage recording III (SRIII)	Redland	Edwards 1990
April-May 1992	Salvage recording IV (SR IV)	Redland	Brown 1992
August 1993	Salvage recording V (SRV)	Redland	Fagan <i>et al</i> 1993
April-June 1994	Salvage recording VI (SRVI)	Redland	CAS 1995
June-July 1995	Salvage recording VII (SRVII)	Redland	CAS 1996
March 1996	Salvage recording VIII (SRVIII)	Redland	Napthan <i>et al</i> 1997 Harrison <i>et al</i> 1999
November 1996	Salvage recording IX (SRIX)	Redland	Napthan <i>et al</i> 1997

2.2 Fieldwork methodology

2.2.1 Evaluation

An evaluation and accompanying watching brief was undertaken in 1988. The evaluation comprised hand-excavation of 15 box trenches, each measuring 2m x 2m. Of these only two were fully investigated, the remainder only being excavated to the top of Roman deposits. Beyond the evaluated area, in areas of ongoing quarrying, features were observed in plan and where possible these were cleaned, sampled and recorded.

2.2.2 The Herefordshire Valleys Survey

Wellington Quarry was a key site for the Herefordshire Valleys Survey, an English Heritage funded research project. Project methodology at Wellington Quarry is detailed in one of the three reports for the survey (Dinn and Moran 1996). In brief this comprised geophysical survey, extensive auger survey, a large-scale programme of phosphate and magnetic susceptibility analysis and recording of a long exposed section. Samples of the alluvium were taken for micromorphological and chemical analysis, and for radiocarbon and infrared-stimulated luminescence dating.

These were considered alongside the results of the 1988 evaluation and also tied into analysis being undertaken as part of a doctoral thesis being undertaken at the time. The latter used the alluvial sequence at the quarry to produce a model for the hydrological and land-use history of the Lugg Valley (Roseff 1992).

2.2.3 Salvage recording

Approaches to salvage recording were largely dictated by the various methods adopted by the quarry operators to remove both the overburden and topsoil.

Topsoil was removed by either box-grader (1988-95) or by bulldozer (2 strips during 1996). This revealed features in plan in areas where they are cut into the top of the alluvial sequence or are not deeply buried within it. Where the bulldozer was used, the surface finish was poor for the identification and recording of deposits, however, where box-graders were used definition of archaeological deposits was much better, although still far from ideal.

The overburden (the alluvial sequence) was removed with a combination of box-grader and 360° excavator. Where box-graders cut into the sequence, features were recorded in plan and this occurred particularly in the north-west of the site. This approach has the advantage of allowing the alignment of linear features and overall distribution of features to be recorded, although the relationship of features in these instances is not usually particularly well related to the alluvial sequence in which they occur. Most of the overburden was, however, removed with a 360° excavator working in approximately 5.00m wide strips. This has the effect of producing a series of sections across the stripping area. These were usually on broadly north to south alignments. Although this does not allow for recording in plan, the advantage of this approach is that features observed in section can be readily related to the alluvial sequence and long sections through the sequence can be recorded.

Within the programmes of salvage recording, the co-operation of the contractors also played a part in the approach taken. In certain years, where important deposits were revealed, the co-operation of Redlands and the stripping contractors allowed greater periods of access to areas for the investigation and recording of deposits than would normally have been the case. In particular, a practice evolved (in some years) whereby the contractors left partially stripped areas of overburden standing for up to a week where important remains had been identified, thus allowing more time to investigate and record deposits in plan.

The hours worked by the contractors also affected the record made. In general they worked long hours, often including Saturdays. The nature of the archaeological funding meant that overtime could not be paid to the archaeologists on site, so it was not possible to observe all stripping operations.

As a result of these recording conditions the record should not be seen as comprehensive. The identification of any feature or deposit was largely dependent on a combination of stripping method, location of stripping face and depth of deposit within the alluvium. In addition, the timing of visits to the site played a part and it is therefore clear that at times a degree of luck has been involved in the recording of remains. Conversely, it must also be the case that many significant features and deposits have been missed.

2.3 Fieldwork aims and objectives

2.3.1 Evaluation

The evaluation in 1988 aimed to determine the extent and nature of the archaeological deposits relating to the Roman building and associated buried soils and features. This was undertaken to enable recommendations to be made for the management of the 'monument', the latter term referring to the building/s and surroundings. As result of the evaluation and following consultations with Redlands, a 'core area' was defined and protected with a cap of gravel onto which the quarry plant was set-up and storage areas established. Redlands has agreed not to extract gravel from this area and the 'core area' should thus remain preserved *in situ* upon completion of quarrying.

2.3.2 The Herefordshire Valleys Survey

This English Heritage funded project aimed to provide a broad-based assessment of the archaeological resource and archaeological potential in the Herefordshire Valleys and to assess the use and effectiveness of fieldwork techniques. Wellington Quarry provided one of the main test-beds for this assessment with the ongoing salvage recording feeding into and adding to the survey.

2.3.3 Salvage recording

This has focused on the areas beyond the 'core area.' The aim has been to record any archaeologically significant deposits, in order to obtain a broad view of the functions fulfilled at different periods by the various parts of the site. In particular, where possible recording targeted areas where stratified and well sealed contexts, previously unidentified phases of activity, well preserved sequences of alluvial and archaeological deposits and palaeoenvironmental remains were present.

2.4 Summary of results (1986-96)

The work has identified several episodes of flooding and alluviation interspersed with periods of stasis (stability) and human occupation over a long period of time. Certain elements of the human activity are sealed within the alluvial sequence and have enabled refinement of the dating sequence derived from radiocarbon and infrared-stimulated luminescence dating undertaken during an early phase of work (Dinn and Roseff 1992).

Deposits have been associated with well preserved artefactual and ecofactual assemblages (though bone preservation is poor) and have been sealed within a deep alluvial sequence which has been recorded in some detail.

Former channels of the River Lugg have also been identified at the base of the alluvial sequence and cut into the surface of the gravel. These contain well preserved

palaeoenvironmental deposits in the form of peat deposits and organically rich alluvium and silts.

In summary, the model for the development of the sequence within the 1986-96 extraction area at Wellington is as follows:

Glacial and early post-glacial deposits

The base of the sequence comprises glaciofluvial sand and gravel deposited during the late glacial period. This has been deposited and subsequently modified by former watercourses of the River Lugg and its tributaries which during the early Holocene gradually rationalised into fewer channels, and, finally into a single main channel which runs to the east of the quarry.

Post-glacial alluviation

The sand and gravel is overlaid by a deep and complex alluvial sequence. The first major phase of alluviation occurred during the early post-glacial period, interrupted at some stage by a period of stasis represented by a buried soil and turfline, possibly dating to some 12-13500 years ago. There is no evidence for human activity during this period, however, well preserved palaeo-environmental remains have been recorded from former channels of the River Lugg indicating the development of post-glacial woodland through the Mesolithic period.

Prehistoric activity

The first major phase of alluviation was followed by a long period of stasis to 3890-3640 BC, and then a period of slow aggradation (build up of alluvium). During this period, parts of the site formed the focus for human activity and occupation.

The earliest evidence of human activity has been taken to be represented by flint finds of Mesolithic date, interpreted as reflecting occasional exploitation of a wetland habitat adjacent to a former river channel and associated marshy area. Assessment (see below) has questioned the dating of these flint finds and indicates that they may be of Early Neolithic date. Neolithic activity across much of the site has been attested by occasional flint finds but most importantly by a group of pits (Fagan *et al* 1993) associated with flint, pottery and other finds and dated to the 4th Millennium BC (Early Neolithic).

Fairly regular (probably seasonal) exploitation of this landscape throughout the early prehistoric period is indicated. Scattered Middle to Late Neolithic activity, three possible ring-ditches, a Beaker burial and other deposits of Neolithic to Early Bronze Age date have all been identified (Shelley 1989; Fagan *et al* 1993; Napthan *et al* 1997; Harrison, Jackson and Napthan 1999). The pollen sequence shows indications of human impact but lime dominated woodland appears to have remained widespread.

Within the 1986-96 quarry area, this long-lived period of early prehistoric activity appears to coincide with a second major phase of alluviation occurring from the Bronze Age through to the Iron Age. This is marked by an absence of evidence for human activity at the site, presumably as conditions were too wet for continuous occupation, although evidence for Late Bronze Age activity has been identified immediately to the north on slightly higher ground (Section 2.5). The relationship of this phase of alluviation to a currently undated major phase of woodland clearance shown in the pollen sequence is unknown but is of considerable interest since the two events may to at least some extent be linked.

Iron Age and Roman occupation

Mid to Late Iron Age occupation debris and a ditch reflect the resumption of settlement and probably coincide with the end of a long period of alluviation and the beginning of a further period of stasis (Clarke *et al* 1988). Extensive Roman activity associated with a villa or farmstead followed. Roman occupation, identified between 1986 and 1988 (Clarke *et al* 1988),

includes the remains of a substantial stone founded building. A broad extent of the contemporary ground surface also survives (Edwards 1989 and 1990). Beyond the main building, evidence of farm structures, field systems, rubbish disposal and burials extend across a wide area.

Post-Roman alluviation and medieval activity

A final episode of alluviation began during the late Saxon period (11th century). Ridge and furrow earthworks survive in the fields to the east of the quarry, and there appears to have been little alluviation since their abandonment. Three medieval ovens identified in 1992 (Brown 1992) indicate that a part of the site at least was in use in the medieval period. These included an extensive and well preserved assemblage of charred plant remains.

2.5 Summary of results of fieldwork at Wellington Quarry 1996-2002

Subsequent work (within two extensions) has supported and extended the model for the development of the archaeological landscape at the quarry. In particular, previously unrepresented phases of Late Bronze Age and post-Roman activity have been recorded, extending the sequence of occupation and use.

Late Bronze Age deposits comprise dumps of artefacts and bone surviving within hollows north of the 1986-96 extraction area. The ground surface here is marginally higher than that to the south and appears to have supported activity even during what seems to have been a period of regular flooding indicated in the alluvial record. As with earlier periods of prehistoric activity, this is believed to have been seasonal. Although the material assemblage in many ways resembles domestic rubbish, the presence of disarticulated human remains and earlier cultural material suggests that at least elements of the assemblage may have social significance beyond simple rubbish deposition. An undated skull has also been recovered from a palaeochannel and may represent a ritual deposition of Iron Age or earlier date.

The post-Roman activity is represented by the discovery of the wheel pit and surviving base of the timber frame for the wheel of a vertical watermill. Dendrochronology has dated the timbers to the late 7th or early 8th century, making this one of the earliest post-Roman watermills to have been discovered in England. Apart from its importance in economic and technological terms, this high status indicator of early medieval activity is of particular interest in the light of the status of the Romano-British occupation and the fact that the area lies within a Mercian royal estate.

In addition to these remains, late glacial organic deposits have been identified surviving in a palaeochannel fragment in the northern extension. Dating indicates deposition spanning the later Dimlington Stadial/older Dryas-Windermere Interstadial boundary, which corresponds to the Late Upper Palaeolithic period and the Creswellian tool tradition. This period is poorly represented in the palaeoenvironmental record for England and is of considerable importance.

Post-excavation analysis for the results from the initial four extraction phases in the extended area is programmed for completion by March 2004 (subject to completion of the current phase of extraction) under funding from Lafarge Redland Aggregates. Fieldwork methods, numbering sequences and recording procedures have extended and built on those used in the 1986-96 extraction area to ensure compatibility of results. Approaches to post-excavation analysis will also be compatible with those designed for the ALSF project to ensure that the two complement each other and that, if appropriate (subject to programming), publication can be integrated.

2.6 Summary of significance

The significance of deposits at the quarry was first assessed in 1988, when English Heritage stated that they were of 'demonstrable national importance'. Diversity, group value, survival and significance in the context of wider landscape studies were cited as being factors contributing to its high rating (Dr A Streeten, correspondence dated 26 August 1988).

Since 1988 the results of the salvage recording (as outlined above) have gone a long way to support this statement and increased the importance of the site. Peat deposits, former river channels, alluvial sequences and waterlogged material considerably add to the evidence for the former physical landscape and palaeoenvironment. Extensive evidence of both earlier and later activity has extended the sequence of human activity considerably, adding to the group value of the site and including periods and types of activity rarely encountered in Herefordshire or the region as a whole. These include the Early Neolithic pit group, Middle and Late Neolithic/Early Bronze activity, the wealthy Beaker burial, Late Bronze Age activity, further areas of Iron Age and Roman occupation, post-Roman activity, a 7/8th century watermill, agricultural features and medieval ovens. The preservation of deposits of all periods has been shown to be good to very good.

3. Assessment

Assessment has been undertaken of the full range of information recorded between 1986-96. Within this section assessment is initially made of the quality and integrity of the site record (the archive and depositional sequence). This is followed by assessments of the associated alluvial and pollen sequences which provide evidence of the changing physical landscape and local environment. Subsequently, assessment is made of the evidence for each period of human activity represented, followed by consideration of artefactual and ecofactual evidence not previously covered. Assessment is also made of the potential for scientific dating. The section concludes with an integrated assessment of the evidence provided by all sources of data for the changing pattern and character of human activity, resource utilisation and impact within the landscape through time.

3.1 The archive (by Robin Jackson and Rachel Edwards)

3.1.1 Description

The project archive is extensive comprising numerous pro-formae records, plans, photographs, indices, artefacts and ecofacts. As part of the assessment these have been collated to form a single project archive. The quantity, quality and integrity of each season's archive have been assessed (Appendix 1) as well as that of the overall project archive.

Record type	Sheet code	Number
Context record	AS1	661
Fieldwork progress record	AS2	145
Photographic record	AS3	40
Drawing number catalogue	AS4	7
Context number catalogue	AS5	20
Matrix record	AS7	8
Context finds record	AS8	188
Recorded finds index	AS13	2
Sample record	AS17	45
Sample index	AS18	3
Auger record	AS26	11
Drawing sheets – scale field drawings		110
Colour transparencies		1032
Monochrome negatives/prints		596
Boxes of artefacts		31

The fieldwork record is of variable quality and coverage of the stripped areas is by no means uniform. Due to the voluntary nature of the funding which provided a fixed number of days watching brief per annum, it was not always feasible to record all areas of stripping. This was especially the case when more than one phase of stripping occurred within a given year. Where important and relatively discrete deposits were recognised at an early stage (for instance in the case of the Neolithic pit group), short periods of time were negotiated for their excavation. As a result relatively high quality recording was possible in selected areas. Consequently, the archive presents a mixture of well recorded areas interspersed with blank areas or areas with only a minimal record.

In addition, the weather and the efficiency and approach of the contractors carrying out the topsoil and overburden strip affected the resulting surfaces or sections recorded during the watching brief. In good weather, where operators were skilled and time was not limited the archaeological record was of higher quality than when these conditions were less favourable.

Assessment has been made of the quality of each season's archive and record (Appendix 1). Records for each phase of fieldwork have been checked and cross-referenced or, where large volumes of uncross-referenced data have been recorded, they have been assessed for their potential to contribute to the project aims and objectives. A preliminary structural database (Microsoft Access) has been established providing an index and basic source of deposit information.

Artefacts have been checked for their condition and sorted into classes for specialist assessment. The processing and sorting of environmental flots, unsorted residues and bulk soil samples (c 350 litres) has been completed allowing assessment of this material and other sources of environmental data. Preliminary databases have been set up each class of data (Microsoft Access).

3.1.2 Statement of potential: site archive

The archive, although the product of the work of numerous individuals and varying circumstances, provides a reasonably consistent source of data for analysis and interpretation of the results.

Since it was always understood that the site was of significance and that at the completion of fieldwork an assessment would be undertaken, consistent approaches to recording have been taken throughout the project. In particular the allocation of context numbers in individual blocks for each phase has ensured that there is no need for re-numbering of contexts which have all been recorded according to standard Service practice (Archaeology Section, 1987 *Archaeology Section recording manual* - and subsequent amendments).

In addition, a fairly standardised approach has been taken to the recording of alluvial sequences. Most phases of fieldwork have involved the recording of long sections through the alluvium with the use of Munsell colour charts and colour photographs a consistent feature of the records. Archaeological features and layers observed within this sequence have been consistently related to it.

As a result of its integrity and quality, the archive is considered capable of supporting the overall aims and objectives of the project (see below).

As defined in the original project design (section 5: task 2), assessment has identified further remedial work on the archive. This will complete and update the stratigraphic/structural data and enable digital mapping of information (AutoCAD Map2000; Task 2.1 and 2.2; Appendix 1), thus ensuring that the full potential of the fieldwork archive can be realised.

Lastly, critical assessment of the methods adopted and developed during the course of the fieldwork (and post-excavation analysis) will be undertaken. This has the potential to inform future work at the quarry along with management and mitigation strategies within similar alluviated landscapes in the region (Task 20.2). In the light of the ongoing work at the quarry and the imminent development of the adjacent site (Section 1.5), the continued development of appropriate techniques for investigating, understanding and recording this alluviated landscape is regarded of considerable importance.

3.2 Deposits (by Robin Jackson and Rachel Edwards)

3.2.1 Description

Assessment of the depositional sequence has been based upon preliminary analysis of the overall site archive and the information contained in the interim reports on each season of salvage recording.

Distribution of the deposits and their relationship to the alluvial sequence have also been considered along with information from the assessments of the associated artefactual and environmental data (see Sections 3.3 to 3.13). This has enabled the assessment of the research potential of the structural information and production of a preliminary database providing an index of deposits and basic interpretation.

3.2.2 Statement of potential: deposits

The salvage recording has demonstrated the existence of an extensive multi-period landscape with deposits representing Neolithic, Early Bronze Age, Iron Age, Roman, post-Roman and medieval activity. An area of *c* 37 ha was investigated over the period from 1987 to 1996, resulting in the identification of numerous areas of alluvium, former river channels, buried soils and archaeological features including ditches, pits, postholes and stone structures. This potential has been enhanced by the results of work since 1996 (see Section 2.5).

Although variable in terms of preservation and quality of record, in places deposits are exceptionally well preserved and have been well recorded. Feature definition is generally good with well sealed deposits in discrete features. These provide secure contexts for important elements of the artefactual and ecofactual assemblages.

Most areas only have a single phase of human occupation or only limited earlier or later activity than the main phase. There are few stratigraphic relationships between archaeological features and features are present which did not produce dating evidence. However, the association with the alluvial sequence introduces a means by which a number of undated features can be stratigraphically associated with dated ones. Thus there is the potential for localised elements of the site sequence to be phased, although assessment has indicated that caution must be exercised in relying on the alluvial sequence in this manner (Section 3.3).

The complex alluvial sequence includes evidence of former watercourses and well preserved palaeoenvironmental remains (in particular the pollen sequence; Section 3.4). As a result of the migration of the watercourses and complex post-depositional processes, deposits and elements of the alluvial and archaeological sequence have been truncated and disturbed in some areas. However, in others the alluvial sequence has contributed to the survival and preservation of significant deposits by burying them deeply, sometimes in waterlogged conditions.

Taken together the evidence from archaeological remains (Section 3.5-3.9), plant macrofossils (Section 3.11), alluvial deposits (Section 3.3) and pollen (Section 3.4) provides a rare opportunity to relate a sequence of human occupation to a model for processes of environmental development and change from the late Mesolithic onwards.

Information derived from analysis of the date and character of deposits will allow structural/stratigraphic data to be updated (Task 2.3). In conjunction with other sources of data and through links to digital mapping of deposits (Task 2.2) this will enable analysis of the distribution patterns of the varying evidence for human activity in relation to that for the physical landscape (Tasks 2.4 and 3.4).

3.3 Alluvial deposits (David Jordan)

3.3.1 The alluvial sequence

Introduction

The alluvial and archaeological histories of Wellington Quarry are closely linked. The alluvium forms the context and parent material of the archaeological deposits. The flooding and river channel migration by which the deposits have been laid down have constrained human activity and, in part, conditioned the preservation of the archaeological remains. The

alluvium and channel peats are also the contexts in which other environmental evidence of past human activity - especially pollen, plant remains and molluscs - has been preserved. The alluvium itself reflects the results of soil erosion higher in the catchment and this may cast light on human effect on a little understood archaeological landscape. Soil formation within the alluvium at Wellington Quarry has greatly complicated this picture but is, in itself, of importance in our understanding of the valley's development.

Analysis of the alluvial evidence therefore has a high potential to support and enhance the understanding of other key elements of the archaeological record at the site.

Method of assessment

The site archive was examined and in particular those sources - drawings, photographs, context records and reports - which had the greatest potential to provide information relating to the alluvial sequence.

The records were assessed, as far as possible, independently from conclusions about the alluvium reached by previous studies (especially Roseff 1990; Dinn and Roseff 1992; and Dinn 1996) in order to consider whether they could be used to test these conclusions. This will be only partly possible because these conclusions were built into some of the field recording and reports for this present study. It would be unwise, however, to accept untested the earlier work since subsequent work has allowed an opportunity to examine a much larger and more representative area of the valley floor.

The quantity of the information

A high proportion of the large project archive (Section 3.1) may provide information about the alluvium and soil formation. It is a characteristic of the project that there is much only partly relevant information widely dispersed which will need to be collated for analysis. Almost all of the context records, auger records, field drawings and photographs may be of use although no more than half are likely to be important to the post-excavation analysis.

The provenance of the information

The information is distributed very patchily across the quarry because of the constraints on the fieldwork (Section 3.1). Alluvium over a large part of the quarry in and to the south of SR III is almost completely unrecorded. Other areas are better served. However, the long sections, from which almost all of the most useful alluvial information will come, are too widely spaced to allow reconstruction of the changing structure of the whole valley floor through the Holocene at a scale useful for understanding its detailed relationship to the archaeological deposits. This is the case even where evidence (such as palaeochannels and individual flood deposits) survived and was recorded.

This means that it will be difficult to tie together the alluvial sequence except for the most obvious changes in colour and texture. This is important because the finer sedimentary and soil structures, which are important in understanding the detailed sequence of alluvial development, are particularly difficult to see in these deposits. The uniform grain size, limited range of minerals and ubiquitous grain coatings conspire to hide many of the finer details.

It is important therefore to avoid a naïve interpretation of the alluvium, which assumes that the sequence is relatively simple because the larger changes in colour and texture seem to tell a simple story. Complexities are to be expected, as a preliminary study of more easily analysed strata downstream (at Lugg Bridge quarry) has confirmed. Recent evidence from a more informed recording programme in the northern and southern extensions to Wellington quarry, has identified complex sedimentary structures (such as small palaeochannels) which it must be assumed existed in the alluvia being assessed here (Terra Nova 2002).

The quality of the information

This varies widely between the phases of the project and between the different sources of information. The relevance of the record for each phase to the understanding of the deposits depends partly on how much time was available for recording given the limited access to the site, difficult conditions and the competing need to record archaeological strata. The recording was largely descriptive and, in most cases, was neither sufficiently detailed nor analytical to allow reconstruction of the finer processes of deposition and soil formation represented by the sections. Some records, however, - the photography in particular - contain good-quality information and have the potential to provide useful information about the deposits and soil seen in most phases of the project.

With these comments in mind the following specific observations can be made:

- The Evaluation and watching brief, combined with Dr Roseff's study, provide good quality information about the deposits in the 1987/8 area.
- SR I produced only a few records about the alluvium although there are a large number of good, relevant photographs.
- SR II produced more and useful records but poorer and less useful - though more numerous - photographs.
- SR III produced a poor record of the deposits. No long-section was recorded and the photographs of the deposits are also mostly poor with a few, useful exceptions.
- SR IV produced almost no information of use in understanding the alluvium.
- SR V produced the best record with useful section recording and photographs.
- SR VI produced a very poor section record but a number of useful photographs.
- SR VII produced useful section records but only poor photographs.
- SR VIII and IX produced only patchy records and uninformative photographs.

3.3.2 Statement of potential: alluvial sequence

An analysis of the archive will clarify the broad range of depositional processes and their approximate distribution - both vertical and horizontal (Tasks 3.1, 3.2 and 3.3).

This will allow:

- The testing and refinement of earlier ideas (Roseff 1990; Dinn and Roseff 1992; and Dinn 1996) about how the environment of the valley bottom has changed through the Holocene (Task 3.6);
- The archaeological features to be placed into a broad environmental context (Task 3.4);
- Comparison with the pollen diagram for evidence of human impact on the landscape (Task 3.4);
- Dating of some parts of the sedimentary sequence, if only approximately, and this broad dating structure might be extrapolated more widely through the phase-areas if convincing stratigraphic correlations can be found (Task 3.5);

- Definition, with more confidence than hitherto, of the scope that this valley bottom provides for the recovery of evidence for regional environmental change (Task 20.2);
- Identification of the type of deposits surviving across the valley bottom from which such environmental information might be recovered in future studies of adjacent areas. This will inform ongoing and future management of the archaeological resource (Task 20.2).

Understanding of the alluvium and its soils is therefore highly important in supporting the development of an understanding of the sequence of human activity at the quarry as well as the wider river valley. It also has the potential to support and complement our understanding of the pattern of environmental change as evidenced in the pollen sequence. This in turn has the potential to inform future work on aggregate extraction and other sites in the Lugg Valley and wider region.

The archive will not be able to provide much detail of alluvial processes or dating. It will not, in particular, allow detailed correlation of specific archaeological features and depositional events or trace lesser palaeochannels from one phase-area to another. The archive may enable earlier interpretations of sedimentary history to be challenged or refined but it is unlikely to give more than a general indication of the nature and extent of soil formation or its relationship with the sequence of alluvial deposition. This may be a significant limitation on our interpretation of the deposits because it is possible that the true nature, extent and effect of soil formation has not been recognised and recorded. The pervasive, three-dimensional effects of soil formation are often incompletely appreciated and recorded by archaeologists who, with good reason, are used to applying standard archaeological site recording methods to understanding and recording stratigraphy. It certainly seems likely that the results of soil processes and of depositional processes have become confused in some of the project records because they were not distinguished clearly enough at the beginning.

Although this provides limitations on analysis, in conjunction with ongoing work at the quarry and critical assessment of the methods used, this will help to support and extend approaches to investigating and recording deeply alluviated sites in conjunction with more established archaeological practice. Such methodological advances are important in relation to improving archaeological approaches on other aggregate extraction sites (and other developments) in alluviated landscapes.

3.4 Pollen assessment (James Greig)

3.4.1 Introduction and provenance

A sample section across a major palaeochannel was chosen for environmental sampling. The selected section had the deepest stratigraphy. Several hundred metres were examined, exposed by removal of the material over the gravel.

Samples

- 100 - 125 box 6 macrofossil sample 6
- 125 - 150 box 5 macrofossil sample 5
- 150 - 175 box 4 macrofossil sample 4
- 175 - 200 box 3 macrofossil sample 3
- 200 - 225 box 2 macrofossil sample 2
- 225 - 250 box 1 macrofossil sample 1
- gravel

- Wood sample for dating from 184 cm

Basically, there was buff alluvium becoming blue-grey with depth. There were some tufa deposits, usually fairly small. The lower sediment became increasingly organic towards the gravel, and there was large amounts of wood, some in large pieces and charred. Some of this material has been radiocarbon dated.

3.4.2 Character

The stratigraphy can be described as follows:

Depths in cm from surface (minus missing topsoil)

0 - 70	buff alluvium
70 - 100	as above, becoming increasingly blue-grey. Some root channels, shells
100 - 112	blue-grey alluvium
112 - 118	shelly marl/tufa
118 - 129	blue-grey alluvium
129 - 150	shelly silt, similar to above
150 - 165	as above but less shelly, with gley and clay
165 - 180	more organic content
180 - 250	organic material with plenty of wood
250 -	gravel

3.4.3 Preservation

Pollen is certainly present and countable, although not particularly abundant in some samples.

3.4.4 Initial results

Pollen

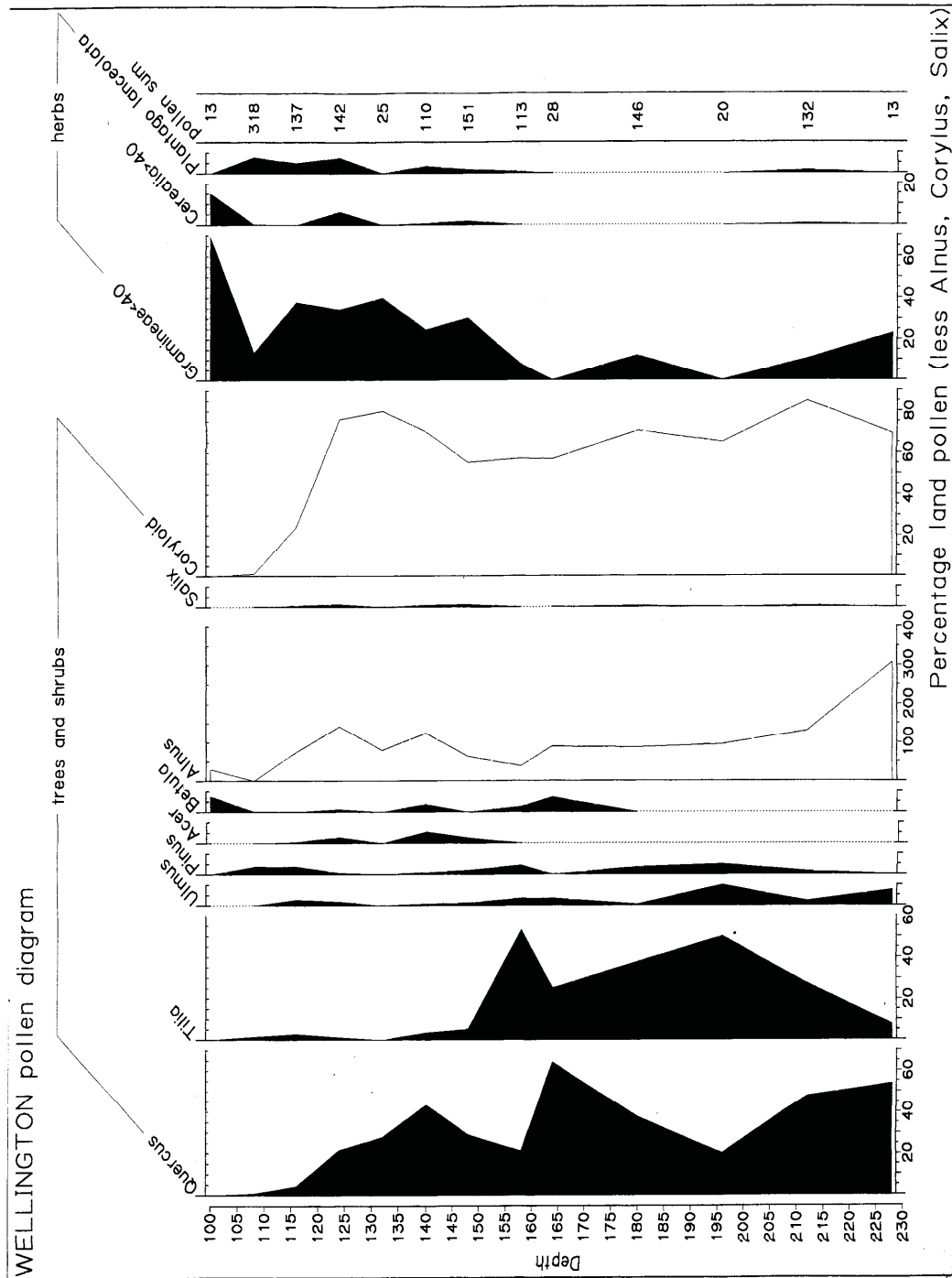
The outline pollen diagram shows the following:

- The base of the section radiocarbon dated around 6800 BP indicates woodland developing through immigration of trees and deepening soils. *Alnus* (alder) is very abundant, and together with *Corylus* (hazel) and *Quercus* (oak), probably formed wet woodland (alder carr) in the valley. The drier landscape was wooded with oak, *Ulmus* (elm) and *Tilia* (lime), the latter still spreading at this stage.
- The next stage, dated from oak charcoal to ca 5000 BP is suggestive of the first human impact. Other signs of human impact are a very slight *Cerealia* (cereal) and *Plantago lanceolata* (plantain) pollen records from 212cm. However the woodlands were still widespread, consisting mainly of lime together with oak, elm and hazel. This region seems to be one of the furthest extensions of lime woodland in the west; in Wales the main woodland was of oak, elm and hazel. Local wetland vegetation is clearly shown by the macrofossils. Alder is confirmed, together with hazel and elder and sloe (scarcely represented in the pollen diagram) and a range of herbs. There is little sign of extensive aquatic and swamp vegetation.
- Woodland clearance seems to be shown in an elm decline around 180cm, and then in a decline in oak and lime from c 165cm. At the same time there is a corresponding increase of pollen indicating farming, such as cereals, and also grassland indicators such as *Plantago lanceolata*, Compositae Cichorioidae and grasses themselves.

Macrofossils

Macrofossils were found floating in the water of the quarry floor. These probably come from the more organic lower layers with the wood:

Figure 2: Pollen diagram based upon assessed samples



Nuphar lutea (yellow waterlily)
Prunus spinosa (sloe)
Prunus avium (cherry)
? *Crataegus* (hawthorn)
Cornus sanguinea (dogwood)
Alnus (alder) seeds and catkins
Corylus (hazelnuts)
Sambucus nigra (elder)
? *Viburnum opulus* guelder rose
? *Quercus* (Oak) bud

Results from macrofossil samples recovered from trimming the monoliths before taking the pollen samples:

100 – 112cm (200ml)

Urtica dioica

Snails

“grassy” debris

112 – 118cm (100 ml)

118 – 129cm (120 ml)

125 – 150cm (350 ml)

(a very quick list, not yet thoroughly identified)

Ranunculus subg *Ranunculus*

Ranunculus subg *Batrachium*

Hypericum

Stellaria

Stellaria palustris

Chenopodium/Moehringia

Rubus fruticosus

Prunus spinosa

Epilobium/Lythrum

Urtica dioica

Rumex

Corylus

Solanum

Mentha

Lycopus

Lamiaceae

Galium

Sambucua Nigra

Eupatorium cannabinum

? *Cirsium*

Juncus

Eleocharis

Carex

Tufa lumps

Snails +++

Charred wood

150 – 175cm

Urtica

Prunus spinosa

Alnus
Corylus
Carex
Few seeds, no shells

175 - 200cm (900 ml)
Ranunculus subg Ranunculus
Moehringia
Prunus spinosa
Rumex
Urtica dioica
Alnus +++
Corylus avellana
Sambucus nigra
Cirsium
Twigs and buds

200 - 225cm (500 ml)
Cerastium
Moehringia trinervia
Rubus fruticosus
Prunus spinosa
Mercurialis perennis
Rumex
Urtica dioica
Alnus +++
Carduus
Sambucus nigra
Alisma

225 - 300cm (300 ml)
woody bed, not much sediment

The macrofossils indicate alder carr and other woodland and scrub, a habitat in which Mesolithic activity could have taken place, as at Westwood Ho! (Balaam *et al* 1987). From these it will be possible to differentiate between regional and local parts of the pollen diagram.

3.4.5 Dating

There are already a number of dates obtained from the site, two of which can be applied to this environmental material (Dinn and Roseff 1992). Further dating from the sample is recommended (estimated 4 samples) to refine understanding of the periods of environmental change represented (see below; Section 3.12).

3.4.6 Statement of potential: pollen sequence

The outline pollen diagram from organic and alluvial deposits at Wellington gravel quarry shows the development of woodland from ca 7000 BP, woodland maximum ca 5000 BP followed by phases of woodland clearance and increasing signs of arable farming. The sequence ends with alluvium, which may be Roman or Saxon in date.

Analysis (Tasks 4.1-4.4) has the potential to:

- Investigate the original woodland of this region;

- To see when the organic deposits started forming, and whether there is evidence that this was the result of human impact affecting the drainage pattern, and whether there is any evidence of Mesolithic activity;
- To discover if there is an elm decline horizon, and what evidence there is of human impact at this stage;
- To obtain dated evidence of phases of human activity shown by woodland clearance, crops and weed records;
- To discover the main uses of the landscape (arable land, pasture, wood pasture etc.) in the various periods;
- To find out when alluviation buried the organic sediment, and whether pollen analysis can usefully be done on such alluvial material;
- To correlate the results with those for human activity at the site and especially with the results of charred plant remain and faunal analysis from periods of occupation (Section 3.11);
- To correlate the results with the evidence for valley floor development derived from the analysis of the alluvial sequence (Section 3.3);
- To correlate these results with those from short pollen sequences from this region.

In conclusion, this site has the potential to show the phases of human settlement in detail, by their effects upon the landscape in this area. There are no comparable results from the region apart from some pollen diagrams from the Severn Valley some 30km or more distant (Barber and Twigger 1987). Further work would therefore be of considerable regional importance to provide data on the prehistory of this landscape.

3.5 Earlier prehistoric activity

3.5.1 Deposits (Robin Jackson)

Earlier prehistoric deposits and artefacts have been recorded across much of the investigated area. These are focused in a band towards the western side of the quarry with significant deposits having been recorded during four phases of salvage recording (SR II, V, VI and VIII). Other phases of recording have produced unstratified or residual scatters of early material.

The stratified deposits can be dated to three periods, the Early Neolithic, the Middle Neolithic and the Beaker period (Late Neolithic/Early Bronze Age). Following analysis, further features are liable to be broadly dated to the earlier prehistoric period on stratigraphic grounds. The deposits will also be related to the palaeoenvironmental sequence and potentially the alluvial sequence.

Early Neolithic

Early Neolithic deposits comprise a discrete group of 12 pits excavated during SR V (Fagan *et al* 1993). One further pit excavated in an adjacent area during SR IV (Brown 1992) can be identified as being of comparable date. These were all well sealed, clearly defined features and are recorded in both plan and section.

The fills of twelve of the pits were sampled for environmental remains and bulk earth samples of between 45% and 100% were taken of eight of these. Significant assemblages of well

preserved Early Neolithic pottery (Section 3.5.2), flint (Section 3.5.3), fired clay (Section 3.10.4), burnt stone and possible burnishing stones (Section 3.10.5), charred plant remains (including hazelnuts and cereals; Section 3.11.7) and small quantities of animal bone (Section 3.11.5) were recovered from several of the features.

Most pits were relatively small in size and contained only a single fill, however, assessment indicates that there were considerable variations in the character of the fills and associated assemblages across the group, probably representing some form of structured deposition.

Middle Neolithic

Middle Neolithic material, characterised by the presence of impressed wares (see below) has been recorded at a number of locations scattered across the quarry. These derive from features (including two pits) and deposits (including a possible ring-ditch; SR V), an alluvial deposit (SR VI) and a posthole (SR VIII). The latter was associated with a group of other similar features likely to be contemporary.

Late Neolithic/Early Bronze Age

Deposits dating from the Beaker period have also been recorded in the form of a wealthy Beaker burial (from SR VIII), the importance and discrete character of which has led to its publication in advance of the other findings from the quarry (Harrison *et al* 1999).

From SR II, two features were identified as Bronze Age ring-ditches at the time of excavation (Shelley 1989). The presence of Iron Age and Roman pottery in the upper fills of these annular features has, however, raised the suggestion that they may represent Iron Age round houses. The circumstances of the salvage recording were not ideal, and it may not be possible to establish the date of these features for certain. The records neither rule out nor confirm the possibility that there may have been gaps in the features representing entrances to round houses.

3.5.2 The Neolithic pottery (by Alex Gibson)

Introduction

The entire Neolithic ceramic assemblage from the various operations at Wellington Quarry between 1986 and 1996 was submitted to the writer for assessment in November 1999. The assemblage comprises almost 10kg of pottery, all in a fragmentary state, from a mainly early to middle Neolithic assemblage. The bulk of the pottery (9kg) comes from two contexts, 3852 and 3854, both pit fills from a cluster of pits in the south of the 1993 excavations. Some Iron Age material was also identified amongst the assemblage. This was bagged separately, and is not considered here. None of it came from Neolithic contexts. The sherds were not counted individually. This was considered inappropriate, as the material was friable and poorly packed. As a result, the sherd count will undoubtedly rise with each examination and/or transportation. Indeed, new breaks could be clearly detected and refits were identified, especially in the larger bagged groups.

Fabric

It is considered inappropriate in the assessment of earlier prehistoric ceramics to attribute vessels to detailed fabric groups. This is because the fabric is generally so coarse, that significant details such as fabric colours, surface textures and proportion of inclusions can generally vary within an individual vessel. Furthermore, the coarseness of the fabrics can often make it difficult to distinguish between naturally occurring and deliberately added inclusions. Consequently, macroscopic fabric identifications in such material can often be radically amended by microscopic analysis. Accordingly, the following broad fabric groups have been macroscopically identified.

1. Soapy-textured, grog-filled fabric with sparse voids and black core.

2. Quartz inclusions. Often pinkish surfaces.
3. Soft and flaky fabric with what appears to be small angular mud- or sandstone inclusions.
4. Quartz sand inclusions with what appears to be mica giving a 'sparkly' appearance to the surfaces.

Fabric 1 occurs in a single, sherd. This represents the upper part of the collar and the rim from a Peterborough Ware vessel in the Fengate sub-style (context 3819). The sherd is abraded and residual and the fabric typical of Fengate Ware from elsewhere in the Marches and the west and south of England.

Catalogue of Ceramics

F = fabric

Context	No. of Sherds	F	ID	Description
3639	12+	2	EN	Single simple rim and many small undecorated and formless sherds
3800	8	1 & 2		Small undiagnostic sherds, abraded.
3819	1	1	P/F	Rim from a Fengate style vessel. The rim has an internal lip and a slightly convex internal bevel bearing FN herringbone motif. Externally, the collar is convex and decorated with an opposed filled chevron motif executed with broad incisions. The fabric has a dark brown outer surface, light brown inner surface, a black core and averages 11mm thick.
3852	Many	2	EN	Numerous sherds amounting to some 6kg. Rim sherds are usually fairly simple and everted though rilled and thickened forms are present. At least 20 vessels are represented. Shoulder sherds comprises rounded carinations as well as angular variants though the shoulder profile can vary in such ceramics. Some profiles suggest fairly slack-profiled pots, more baggy than angular.
3854	Many	2	EN	Numerous sherds amounting to some 3kg. Rim sherds from are usually simple and everted. One rim is thickened considerably and decorated on the top with radial rilling. Carinations do not occur as frequently as the rims. Two carinated sherds may be from the same vessel and bear rounded carinations applied as a cordon. The fabric invariably contains quartz inclusions though these vary in their degree of abundance and in their coarseness. The fabric quality also varies considerably. Joining sherds were encountered. Possibly 10 vessels represented.
3856	1	2		Possibly Neo or Beaker. Pink sherds with grey core.
3861	4	2		Small crumbs. Undiagnostic.
3861	22+	2	EN	Undecorated and formless sherds
3869	3			3 small crumbs.
3905	Crumbs			Small undiagnostic crumbs.
3906	2+	3	P	Very friable sherds decorated with whipped cord maggots apparently in herringbone arrangement. May be EBA.
4512	18	2	P/M	Sherds from 1, possibly 2, Peterborough vessels in a very abraded, pink to light brown fabric with black core. Quartz grains break the surface and reach up to 5mm across. The rim sherd has had an internal diameter of around 160mm. It has a rounded moulding giving to a concave neck. The moulding is decorated with a herringbone arrangement of oval birdbone or fingernail impressions. One of the body sherds has faint birdbone impressions visible. All the decoration is very abraded.
Villa	1	2		Small abraded Neo/EBA sherd

Fabric group 2 is by far the most commonly represented and the majority of the earlier Neolithic sherds belong to this group. There is, however, considerable variation in the amount of quartz visible, the degree to which it has been crushed, and the degree to which it erupts through the surfaces of the sherds.

Fabric group 3 is also recognised on a single vessel, possibly belonging to the Mortlake substyle in the Peterborough Ware tradition. This sherd is, however, small, unwashed and extremely friable and the identification is necessarily tenuous.

Fabric group 4 may, indeed, be a variation of 2. It occurs within the earlier Neolithic assemblage and is recognised by its speckled appearance.

Surface Treatments

The quality of the fabric and, in particular, the surfaces of the earlier Neolithic pottery from contexts 3852 and 3854 are extremely variable. Some vessels contain such large quantities of opening materials, approaching 50% of the mass, that the fabric is extremely crumbly and the surfaces flaked. In other circumstances, the inclusions are of such dimensions that they break through the surfaces of the pot giving the sherds an uneven appearance.

In other cases, however, the surfaces are extremely smooth and well finished. Some sherds exhibit burnishing facets while others are slightly polished and/or slipped. Colour also varies considerably, as is to be expected in vessels fired in a poorly controlled firing environment such as a bonfire or pit.

The rims of two vessels (1 from 3854 and 1 from 3852) have faint but deliberate radial fluting on top of the rim. This is lightly executed to resemble burnishing and is frequently found in Grimston-Lyles Hill assemblages and related wares.

The Fengate vessel from 3819 is decorated with broad and well-defined grooves or incision arranged in a chevron motif typical of the substyle. The other Peterborough Ware vessels, from contexts 4512 and 3906 are decorated with birdbone impressions and fine whipped cord maggots. Such decoration is typical, though not restricted to, the Mortlake substyle.

Technology

The vessels have been ring or coil built and bonfire-fired. The latter can be deduced from the variable surface coloration already discussed above and the black carbon-rich cores visible in many sherds indicate that the firing has been quite short. Evidence for coil building can be detected in the body of the fabric that may occasionally exhibit traces of join voids and/or coil breaks. Such coil breaks are, however, comparatively rare and suggest a high degree of competence on the part of the potters.

In two instances from context 3854, shoulder sherds indicate that the carinations of these vessels have been applied. The sherds may be from the same vessel since, the subtle variations in shape noted on the two sherds, are not reliable characteristics when trying to distinguish different vessels of this chronological and technological tradition.

Slipped and/or polished or burnished surfaces have been discussed under surface treatments above.

Form

The earlier Neolithic bowls appear to be divided into two main forms: carinated vessels with either sharp or rounded shoulders, and more sinuous 'S'-profiled bowls. Both forms are open bowl forms and there appear to be no instances of closed bowls and/or hemispherical cups.

The rim forms are all rounded but rolled rims, thickened rims and forms with slight external beading are also present. These rim forms are typical of open bowl assemblages in the western Neolithic tradition.

The middle Neolithic Peterborough Ware vessels are also typical of their tradition. The Mortlake vessel has a rounded and decorated rim moulding whilst the Fengate sherd has a deep collar decorated with bold incised opposed filled chevrons.

Traditions and numbers

The assemblage is predominantly earlier Neolithic in date, with the majority of the ceramic finds coming from two contexts (3854 and 3852). These vessels are open and carinated bowls, occasionally with fluted rims, typical of the bowl traditions of the 4th millennium BC and widespread over Britain, Ireland and continental Europe.

Numbers of vessels are difficult to estimate in an assessment but, judging from the rims and shoulders, as many as 28 vessels appear to be represented. This may, indeed, prove conservative assuming that some vessels are doubtless only represented by body sherds. Given that many new breaks have been identified in the assessment, more detailed analysis will doubtless refine this estimate.

Three vessels represent the middle Neolithic in the form of impressed wares (contexts 3189, 4512 and 3906). It is unlikely that more will be discovered during the final analysis. Present radiocarbon evidence suggests that these vessels are datable to the few centuries either side of 3000 Cal BC.

Use

The Early Neolithic ceramics have been curated in a manner suited for residue analysis and have potentially important data (relating to their use) stored within the fabric. Because of their stylistically early date these vessels provide an excellent potential source of earlier prehistoric ceramic residues, samples from which period are generally rare.

The importance of such analyses has recently been highlighted for Neolithic and prehistoric ceramics (Bradley 1998, 65; Legge, Payne and Rowley-Conway 1998, 91). The identification of organic residues allows inferences to be drawn on the use/function of vessels and dietary habits of former populations (for instance by the presence of animal fat residues) and these cannot be derived from ceramic form analysis, context or other data sources present.

3.5.3 The flint (by Peter Bellamy: Terrain Archaeology)

The entire flaked stone assemblage from the various phases of fieldwork at Wellington Quarry (1986-96) was submitted to the writer for assessment in December 1999. This material was counted and weighed by context and classified into a series of broad general categories commonly employed in flint analysis. A number of technological and other attributes were noted but not quantified.

The flaked stone assemblage comprises a total of 749 pieces (1380 g) plus a large number of (unquantified) spalls derived from sieved samples. About 65% of the total assemblage (by number) came from stratified contexts, mainly from a series of pits which produced pottery of early to middle Neolithic date (Table 1).

The assemblage, in general, is in good condition, with the well-stratified material being sharp with little edge-damage. A proportion of the assemblage was patinated, mainly fairly lightly, but a small number were heavily patinated. About 17% of the assemblage was burnt.

Raw material

The raw material used was almost exclusively flint. This was of good quality and varied in colour from dark grey or grey brown mottled to pale grey or white. Grey cherty inclusions were present in a number of pieces. The cortex, where present, was thick, smooth, white or buff in colour or very thin, pitted pale brown. A small proportion of the assemblage was patinated, generally fairly light but a number were very heavily patinated.

Good quality flint does not occur in the locality and much of the material must have been imported. The nearest sources of high quality flint are the Berkshire Downs and the Chiltern Hills to the south and south-east. A small proportion of gravel flint (*c.* 1.8%) was recognised within the assemblage, but it is possible that the true proportion is much higher: recent work elsewhere has shown that it is not always easy to identify the gravel flint within an assemblage (Bellamy 1999). The source of the gravel flint is not certain. One flake from a polished flint axe was recovered (context 181; unstratified) indicating that these may have also been used as a source of raw material, presumably after breakage.

In addition, one flake from a polished stone axe (context 3852; pit 3853) and two small chips of a dark grey, almost black, chert (from context 181; unstratified) were recognised. The chert chips may be accidental removals.

Characterisation of the assemblage by period

The assemblage is not homogeneous, the range of tool types (Table 1) indicates that there are artefacts dating from the Early Neolithic through to the Early Bronze Age. Using the chronologically diagnostic tool types, together with the dating evidence from the pottery, the flint assemblage has been split into broad chronological groups.

Mesolithic

There is no material present in the assemblage which can be confidently ascribed a Mesolithic date. A number of the blades, bladelets and soft-hammer flakes may belong to the Mesolithic but may equally belong to the early Neolithic. The presence of early Neolithic features at the quarry makes it more likely that these artefacts are of Neolithic date.

Early Neolithic

A total of 443 pieces were recovered from a series of pits, some of which have been dated to the Early Neolithic by ceramic associations (contexts 3852, 3854, 3861). The character of the flints from all of these pits was similar, comprising mainly small hard-hammer struck flakes with a smaller proportion (*c.* 20%) of narrow blades and blade-like flakes present. A number of soft-hammer struck flakes were also recognised. The flakes were mainly core trimming flakes, with very few core preparation flakes present. This may indicate that the flint was brought to the site in the form of prepared cores. cursory examination revealed no obvious refits.

Only one core (a small single-platformed flake core) and one core fragment were recovered from stratified contexts, though an unstratified small opposed-platform blade core may also belong to this industry.

Chips are well represented in the assemblage, mainly micro-flakes and broken and burnt fragments though a number of possible retouch spalls are also present. A large quantity of small spalls was recovered from sieving residues. These have not been examined as part of this assessment but will be considered during analysis.

The retouched forms are diverse and include a number of tools of diagnostic Early Neolithic types including leaf arrowheads, a serrated flake, scrapers and flake knives as well as less formal retouched and utilised pieces.

The assemblage is characteristic of deposits found in Early Neolithic pits in Britain. It has a domestic component, witnessed by the number of burnt items and the non-specialised nature of the majority of the pieces, which suggest a range of activities being carried out including flint knapping, hunting, the preparation of foodstuffs and the working of other materials.

Since much of the flint is in good condition and derives from secure contexts, usewear analysis is recommended (following consultation with Randolph Donahue). This will provide evidence of the character and range of activities this material was used for and which cannot be derived from typological analysis or other sources of data (for instance the working of hides and wood). This will therefore support understanding of the overall range of economic activities represented at the site.

Middle Neolithic

There is only one piece of flint derived from pits which have produced Middle Neolithic Peterborough Ware. This was a small blade (from context 4512).

Late Neolithic/Early Bronze Age

A number of flint artefacts were recovered from a Beaker grave (context 4505). These have already been published (Harrison *et al.* 1999). In addition to these pieces there are two thumbnail scrapers and one other scraper, together with one Barbed and Tanged Arrowhead of Sutton a type (Green 1980), all from unstratified contexts, which are likely to belong to this period.

Bronze Age

No Middle/Late Bronze Age flintworking could be confidently identified within the assemblage.

3.5.4 Statement of potential: earlier prehistoric activity

The deposits (Robin Jackson)

Typically for sites of this period domestic buildings are not defined in the record, rather the remains are restricted to those associated with burial practices (Beaker burial) or in the case of the Early Neolithic pit group with one or more short-lived periods of activity.

The Early Neolithic pit group provides the first example of these characteristic features to have been excavated in Herefordshire. Assessment of the finds indicates that there is a strong domestic component, however, ceremonial or ritual practice is also implied since the material within the pits appears to have been carefully selected. The distribution, form and fill characteristics of the pits provide a depositional context for the consideration of the significant artefactual and environmental data which derive from these well defined and sealed features. Examination of the character and sequence of fills in relation to the patterns of deposition and evidence for use of artefacts and other remains both within and between the pits of the earlier Neolithic phase will be important. This has the potential to provide important evidence relating use and function of both the pits and associated remains as well as related economic and social practices reflected by the material and patterns of deposition. The presence of material suitable for radiocarbon dating (charred plant remains and animal bone) further enhances the importance of these features. Perhaps most importantly, the possibility has been raised that pottery production might have taken place at the site. Potential tempering material and burnishers (Section 3.10.5) were found alongside charred debris and large quantities of pottery in one of the pits. No evident pottery production sites of this date have been identified and this is therefore of considerable potential national significance.

The Middle-Later Neolithic/Early Bronze Age posthole and scatter of possibly contemporary features recorded during SR VIII were associated with impressed wares and a small quantity of charred plant remains. Although these represent only limited evidence of activity of this

period, they are important as both indicators of activity continuing into this period and also in their own right due to the rarity of sites of this date to have been investigated regionally.

The regional and national significance of the Beaker burial as a particularly wealthy example with an important early metalwork association has already been recognised through publication (Harrison, Jackson and Napthan 1999).

The two possible ring-ditches are also significant in terms of regional research since relatively few features of this date have been excavated locally, although they are well known from cropmark evidence, including three examples from less than 1km to the north-west. However, their value is restricted since no burials were identified and only very limited artefactual material was recovered. In addition some doubt remains about their identification and dating.

A range of currently undated small features and linears as well as early prehistoric finds recovered from alluvial deposits have been recorded scattered across the site. Assessment indicates that following analysis some of these may be allocated to the early prehistoric period (or even more specific phases within that period) and associated with the dated deposits described above. Consequently these have the potential to support understanding of the extents and character of activity in this regionally poorly researched period.

Although clearly on a smaller scale, the location and good preservation of such a range of earlier prehistoric features on this floodplain site bear comparison with nationally significant sites such as at Yarnton in the Upper Thames Valley. Here ongoing work has revealed that floodplains far from being little utilised resources in the Neolithic and Bronze Age in fact provide a focus for a considerable intensity of activity (Hey 1997).

Although the remains of this period at Wellington Quarry have a scattered distribution and broad date range, in the light of the rarity of deposits of such date even fragmentary evidence is of considerable regional importance. The fact that well stratified and comparatively extensive assemblages of pottery, flint and environmental remains were associated with certain of these deposits, in particular the Early Neolithic pit group, elevates these deposits to national significance.

The following research questions can therefore be addresses through analysis (Tasks 2.1 to 2.6) of the structural data:

- What is the character and distribution of features and deposits of early prehistoric date?
- How do the varying depositional contexts relate to the artefactual and ecofactual record?
- Does the character and distribution of deposits vary across the site and between the early, middle and later Neolithic/early Bronze Age?
- Does the character of the deposits support the evidence for the changing environment and landuse at the site?

The pottery (Alex Gibson)

Neolithic ceramic assemblages from the West Midlands are few and this assemblage is clearly of great regional importance and thus warrants detailed analysis (Tasks 6.1 to 6.6). The contextual data available at this site, the size of the assemblage, its associations and the general rarity of large earlier Neolithic assemblages elevate the present material to national importance.

Research questions pertaining to this material are:

- How many vessels are represented?
- What are the precise forms of the vessels represented?
- To what extent can the macroscopically identified fabric groups be supported microscopically?
- Are the pots locally made or imported?
- What were the vessels used for prior to their deposition? Are there various uses? To what extent can form and fabric be linked to use?
- What is the precise date-range of the assemblage?
- How does the assemblage fit into regional and national traditions?

The flint (Peter Bellamy)

It is recommended that only the stratified material from the Neolithic pits be examined in detail (Tasks 11.1 to 11.5). The proposed work is recommended to include usewear analysis to establish patterns of use of the flint and thereby support reconstruction of economic activities at the site.

This assemblage is of great regional importance as stratified earlier Neolithic flint assemblages are extremely rare in the West Midlands. The stratigraphic data and the associations with other artefactual and environmental material make this an extremely important assemblage with a high potential to illuminate economic activities during the earlier prehistoric period. The stratified Beaker material has already been published.

There are a number of research questions regarding the stratified Neolithic material:

- Where are the raw materials coming from?
- What is the character and technology of the flint industry? What range of forms is being produced?
- What activities does the flint represent? What does this inform us of the site economy and function?
- What is the date range of the assemblage?
- How does the assemblage fit into regional and national traditions?

Overall potential (Robin Jackson)

Due to the rarity of sites where a comparable range of secure contextual, artefactual and environmental data has been recorded, analysis will significantly add to the understanding of this period on a regional basis and also contribute to the wider national framework.

In particular the Early Neolithic pit group, assemblages and associated palaeoenvironmental evidence provide a valuable opportunity to examine the nature and pattern of the periodic occupation and resource utilisation at this period in both western England and beyond. Pit groups and associated assemblages represent an important class of site with a high potential to contribute understanding of the function and role of such features and material culture in Neolithic society and of regional patterns of use and practice. Current interpretations suggest

that they are liable to have been associated with transient settlements, but, were unsuitable for storage and rarely contain deposits which can be interpreted as straightforward domestic refuse (Thomas 1999, 64-74). Wellington will provide an important site type this region and has particular potential for comparison with the Middle and Later Neolithic pit groups investigated only 30km away in the Walton Basin (Gibson 1999).

For the later Neolithic and early Bronze Age period, the archaeological evidence is fragmentary. However, the site provides an important opportunity to examine deposits dated to a poorly understood period in this region.

In conclusion, these early prehistoric remains represent the most extensive excavated deposits of this character and date to have been recorded in Herefordshire. Assessment indicates that as a group they are regionally significant and that the early Neolithic pit group will contribute to the development of a wider understanding of the character and variability of Neolithic activity in southern Britain.

3.6 Iron Age activity

3.6.1 The deposits (Rachel Edwards)

Deposits of Iron Age date were recorded during the initial evaluation (Trenches 14 and 15; Clarke et al 1988). Contexts 146 and 147 were interpreted as occupation layers, and in Trench 15 there was an undefined cut feature. Iron Age pottery was present in later contexts in Trench 7. A total of 62 sherds of Iron Age pottery were recovered from the evaluation.

South of this was the area of geophysical survey undertaken as part of the Herefordshire Valleys Survey (Gater and Gaffney 1989). Although the results were difficult to interpret due to the depth of overlying alluvium, a sub-rectangular enclosure was reasonably well defined. This was morphologically of the type defined in the Welsh Marches from aerial photographs as regular quadrilateral single-ditched enclosures (Whimster 1989, 40). The small proportion of these enclosures (*c* 3%) which have been investigated have been shown to represent later Iron Age and/or Romano-British occupation.

The area covered by geophysical survey was also examined through magnetic susceptibility and phosphate analysis of auger samples, also as part of the Herefordshire Valleys Survey (Dinn and Moran 1996). The results from the two techniques correlated well.

Iron Age pottery was recovered during SR IX, and although it was derived from contexts also containing Roman pottery, its presence implies nearby Iron Age occupation (Napthan *et al* 1997). Forty-five sherds of Iron Age pottery were recovered; more than in any other phase of investigation except the evaluation. No Iron Age features were recorded.

A human skull was retrieved by contractors during SR III. This was an undated find, and is possibly of Iron Age date, although it may be earlier. It appeared to be an isolated find, not part of a skeleton, and for that reason may be an example of ritual deposition. Iron Age burials and human remains are generally poorly represented in the archaeological record, while Late Neolithic skull deposition has been recorded in London, the Midlands and south-west of England, although examples are not known from the West Midlands. A second undated skull has recently been recovered from one of the quarry extensions at Wellington and will be analysed during 2002/3.

A double inhumation was excavated during SR III. This was undated, and extremely difficult to excavate, with the grave cut and fill almost completely indistinguishable from the surrounding alluvial deposits. Both skeletons were incomplete; one was crouched, and the

other supine but with the right femur bent up against the torso. The nature of the alluvial deposits into which the grave was cut indicated that these were pre-Roman and an Iron Age date is postulated, although as for the skull an earlier date should not be excluded.

3.6.2 The pottery (Laura Griffin)

The Iron Age pottery forms a small group in comparison to the earlier prehistoric and Roman assemblages (Table 2). Nine sherds came from unstratified deposits. The majority of sherds from stratified contexts are residual within layers of Roman date. Forty-eight sherds were recovered from feature fills, of a putative ring-ditch (context 3322), an enclosure ditch (context 5500) and an indeterminate feature (context 158). An occupation layer (context 147) and a fill (context 158) are the only contexts with a firm Iron Age TPQ on the basis of the pottery recovered.

The pottery displays little variety of fabric types amongst the group, with 13% identified as Malvernian ware, 4% as a grog-tempered fabric and 73% as limestone tempered sherds. A further 10 sherds are thought to have been produced in Herefordshire due to the micaceous content of the fabric. All fabrics appear to have had local sources of production.

The assemblage contained six strongly diagnostic sherds. A large jar was identified on the basis of three rim sherds (from context 147). The thickness and fabric of these sherds is almost identical to those from another context (146) and it is possible that these sherds may be from the base of the aforementioned vessel. These are from a well made vessel(s) with smoothed surfaces masking any trace of coil marks. A single Malvernian vessel of tubby cooking pot form was identified (context 5500) on the basis of two adjoining rim sherds. A further rim fragment from a finer walled vessel was also found (context 147), but no form type could be identified. No sherds display any decoration.

3.6.3 Statement of potential: Iron Age activity

Deposits (Rachel Edwards)

Iron Age evidence is patchy across the quarry as a whole, however, includes limited areas where well preserved occupation deposits and small associated material assemblages have been identified. These are supported by the enclosure revealed by the geophysical survey, the morphology of which is indicative of an Iron Age or Romano-British settlement. The preservation of deposits to the north and south of the area indicates that the deposits revealed by geophysical survey may also be well-preserved. This area has not been quarried, so it has good potential for future work. Together these remains indicate the presence of an enclosed farmstead, areas of associated activity and elements of surrounding field systems.

There is potential for further analysis of existing data, not just from the geophysical survey, but also from the results of phosphate and magnetic susceptibility analysis of auger samples across the same area which provide evidence of the extent of intense human activity in this part of the quarry.

The human skull is undated but evidence indicated it was pre-Roman. It is currently believed to be in Worcestershire County Museum. Due to its potential Iron Age date, the recent discovery of a second example at the quarry, and the rarity of such potential ritual skull depositions, this find is of considerable potential interest and requires radiocarbon dating.

The two inhumations were also pre-Roman in date. The comparison of alluvial deposits across the whole quarry may now allow better dating than was possible at the time, however, radiocarbon dating of the skeletons would not only date these burials but could also contribute to the understanding of the alluvial sequence. As with the skull, if these inhumations were of Iron Age date they would be of some considerable importance due to the national paucity of

evidence for Iron Age burial practice. Alternatively, if they were of earlier prehistoric date they would also be of considerable interest extending the evidence for earlier funerary practice. The first stage here should be to consider the relationship of the inhumations to the alluvial sequence, together with any information from macroscopic analysis of the remains. However, radiocarbon dating is likely to be required.

The following research questions can therefore be addressed through analysis (Tasks 2.1 to 2.6) of the Iron Age deposits:

- What is the character and distribution of Iron Age activity across the quarry?
- Does the record include evidence of Iron Age burial/ritual practice and if so what can this tell us about such practice?
- How do the activities represented relate to the artefactual, ecofactual and palaeoenvironmental record?
- How does the character and distribution of deposits compare with earlier/ later activity?

Pottery (Laura Griffin)

Due to the small number of sherds and in particular, diagnostic forms, the potential of the Iron Age assemblage is limited. However, their presence does indicate continuity of occupation of the landscape throughout this period and the fabrics present indicate the supply links to the area at this time. The presence of eight sherds in unknown fabrics may represent a previously unidentified local source of pottery manufacture.

The main comparative material for this period comes from excavations at Sutton Walls between 1948-1951 (Kenyon 1953). This site has a comprehensive form and fabric series to which the material from Wellington Quarry should be compared.

The following questions can be addressed through analysis (Tasks 7.1 to 7.4) of the pottery:

- What forms and fabrics are present within the assemblage?
- What is the date range of Iron Age deposits and activity indicated by the ceramic assemblage and how do these support the dating of the site sequence?
- What economic links can be deduced from the ceramic assemblage?
- What is the evidence for the function, use and pattern of discard of the assemblage and what do they tell us about site character and local practices?
- How does the assemblage relate to other Iron Age settlements in the area?

Overall potential (Rachel Edwards)

This represents a rare example of a lowland Iron Age settlement to have been investigated in Herefordshire where previous archaeological investigation has focussed upon hillforts. The evidence will therefore provide a chance to develop understanding of the character and economy of lowland settlements in Herefordshire and also for comparison with sites such as the nearby hillfort at Sutton Walls. Despite the limitations of the artefactual material, analysis of this and the environmental data (Section 3.11) will be important for their contribution to understanding the status, economic basis and links of the settlement in both the Iron Age and Romano-British periods (see for instance Evans 2001).

In the light of the general paucity of data relating to Iron Age burial practice, dating and examination of the skull and double inhumations of potential Iron Age date have the potential to provide important information relating to this period. Lastly the continuity and development of the settlement from the Iron Age to the Roman period is of some considerable interest, particularly in a region which has been the subject of little previous research (English Heritage 1997; PC4).

3.7 Romano-British activity

3.7.1 The deposits (Rachel Edwards)

Roman deposits or finds were recorded from the evaluation, and from all but one phase of salvage recording.

A rectilinear stone walled building was recorded and has been preserved *in situ* beneath processing plant and storage areas. This was a well preserved structure and was associated with Romano-British finds, including romanised material, such as Samian pottery, and box flue tile fragments indicative of a hypocaust system. This has therefore been interpreted as a high status Roman building, probably a villa. Preservation of artefacts was also good, and these included an iron knife with a turned bone handle.

To the south of the villa, Roman deposits were identified in two of the three evaluation trenches while the nearby sub-rectangular enclosure revealed by geophysical survey is likely to be Iron Age to Roman in date, as discussed above. This area has only been sampled by two evaluation trenches and is currently not scheduled for quarrying.

Further to the south, SR I revealed extensive Roman deposits, but these did not include any direct evidence of buildings. Stone lined features were recorded and have been interpreted as water channels indicative of water management, perhaps for industrial use associated with an agricultural settlement. A buried soil of Roman date was identified over an extensive area, and included evidence for iron smithing. The area of SR I was provisionally interpreted as an 'infield' area of the Romano-British settlement, with what appeared to be small fields divided up by ditches. However, a number of pits, including two large features containing burnt daub and other demolition debris (indicative of a possible domestic fire) suggest that this may have been an area of occupation.

South of this area, SR III recorded further ditches, some probable water channels, and the continuation of the buried soil horizon. Romano-British activity in this area was less intensive than that recorded to the north and probably relates to field systems and drainage.

To the west of the villa, Roman deposits appeared to fade out almost immediately. In the area of SR II only a very small amount of Roman pottery was recovered, and although two ditches were interpreted at the time as of Roman date, it appears more likely that these represent post-medieval field boundaries. Further west, SR V produced an urned cremation burial, a deposit associated with cremated bone (which may reflect a second cremation burial or associated mortuary practice), two pits and five lengths of ditch. Some of these features were intercutting. Roman features appeared to concentrate in the north-eastern third of the area observed.

In the north-west corner of the quarry, SR IV produced a few Roman finds, but these were generally small and abraded. A sub-rectangular pit was interpreted as of Roman date, but associations suggest that this was a later feature.

The density of Roman features in the areas of SR VI, SR VII and SR VIII was very low, but at the south-western extent of the quarry area, SR IX recorded two Roman ditches, and rather

more Roman pottery than had been found in the adjacent areas. Residual Iron Age finds in the same features indicated nearby occupation, and it is possible that another Roman settlement lay nearby, perhaps outside the boundary of the quarry.

3.7.2 The pottery (Laura Griffin)

Roman pottery forms the largest single assemblage from the site with sherds retrieved from 75 stratified contexts (Table 2). A further 20% of all sherds came from unstratified layers. Of the stratified sherds, only 43% of contexts could be dated by form typology. Those contexts that were datable fell mainly into a 2nd-4th century date range. The majority of stratified sherds come from alluvial layers and the fills of features, predominantly pits and ditches. There is very low residuality of sherds dating to the Roman period.

The Roman assemblage consists of a fairly standard range of forms, the predominant types being jars, bowl/dishes and tankards. The assemblage displays little variation in range of fabrics with the two major groups being locally produced oxidised ware, Malvernian ware and Black-burnished ware from Dorset. Much of the oxidised ware appears to be of the large Severn Valley industry. However, it appears that there is variation of fabrics with the possibility of some sherds having been produced by a local industry.

There is a small amount of fineware within the assemblage consisting of 22 sherds of samian, 12 sherds of Oxfordshire colour-coated ware and a single sherd from a Rhenish ware beaker, a type rarely seen in this region. The forms fall into the two categories of beakers and dishes, forming a standard range of tableware.

Mortaria sherds form 0.8% of the assemblage, amounting to just 14 sherds, a surprisingly small number for an assemblage of this size and nature. Two oxidised colander sherds recovered represent other specialised vessels.

A single sherd of oxidised Roman pottery appears to have been reused as a spindle whorl with a hole through the centre. This find was unstratified.

There is very little evidence of decoration on oxidised vessels, however, much of the pottery was highly abraded with little or none of the original surfaces surviving. However, both Black-burnished and grey wares were far better preserved and still display areas of burnishing and incised patterning.

3.7.3 Statement of potential: Romano-British activity

Deposits (Rachel Edwards)

The distribution of Romano-British activity across the quarry has potential for examination. There is a clear focus of Romanised occupation in the east and north parts of the area investigated. To the west, the density of finds and deposits fades out quickly, however, what appears to have been a small cremation cemetery was recorded. To the south, activity fades out more slowly, and is probably indicative of agricultural activity. In addition to the villa and probable occupation area to the south, there is a low-level concentration of finds in the area of SR IX, but this does not demonstrate the same range of well-preserved sherds and Romanised material. The pottery was much more abraded and few diagnostic sherds were present.

The nature of the Romano-British activity also has potential for study and reconsideration. The artefacts from the villa site and surrounding area indicate that this was a domestic settlement. There is evidence of smithing, indicating some level of industrial activity, probably in support of agricultural activity. To the west, the urned cremation burial and nearby deposit of cremated bone indicate that this area was associated with burial and mortuary rites. Further afield, evidence from field ditches and environmental remains (animal bone, charred plant remains

and palaeoenvironmental record) has the potential to provide information on the agricultural economy of the settlement and wider landuse in the river valley.

The following research questions can be addressed through analysis (Tasks 2.1 to 2.6):

- What was the character and distribution of Romano-British activity across the quarry?
- How does this relate to the artefactual, ecofactual and palaeoenvironmental record?
- How does the character and distribution of deposits compare with both earlier and later activity across the quarry?
- What was the status of the site in relation to other Roman settlements in the area?
- What was the nature of the settlement/local economy and to what extent was the settlement integrated into the provincial economy?
- To what extent was there continuity (or change) from the Iron Age settlement and landuse to that of the Roman period?

Pottery (Laura Griffin)

The assemblage is one of few to have been excavated from a Roman rural settlement in Herefordshire. In an area from which material assemblages are generally limited, the size of assemblage, variety of material and wide date range present, indicate that this is an important group. Analysis will therefore provide an opportunity to investigate the range of forms and fabrics in use on rural settlements in the area. The number of rim sherds present is sufficient to carry out a functional analysis of the composition of the assemblage.

This will provide an important of reference for future work carried out in the vicinity and will build on the information already gained from sites such as Kenchester (Wilmott *et al* 1985) and the Service's English Heritage funded project studying *Ariconium*. In addition this provides a rare opportunity in this area to compare a rural assemblage with 'urban' ones and consider the relationship between urban and rural communities in this area.

The presence of a large number of closely datable forms used in conjunction with spatial distribution will aid phasing of the site, understanding of its chronological development and highlight any post-depositional patterns or discreet clusters of particular forms and fabric. This process will also identify contexts with high levels of residuality which may not warrant detailed analysis (for instance of animal bone assemblages; Section 3.11).

The presence of two Severn Valley ware fabrics differing from those commonly found to the east, in Worcestershire and Gloucestershire, should provide refinement of the fabric series within the region, as recommended in the Roman Pottery Study Group research framework for the region (Booth and Willis 1997). It has long been suspected that Herefordshire was supplied this ware type by different production sites to those serving Worcestershire and thin-sectioning of these new fabrics alongside a sample of kiln material from the Malvern region will further investigate hypothesis.

The following research questions may be addressed through analysis (Tasks 8.1 to 8.7) of this material:

- What forms and fabrics are present within the assemblage?
- What is the date of Romano-British deposits and activity?

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- What was the function, use and pattern of discard of the assemblage and what was the function and character of the site?
 - What were the differences between Wellington and other Romano-British settlements in Herefordshire?
 - What economic links can be deduced from the ceramic assemblage?

Overall potential (Rachel Edwards)

The site represents a rare example of lowland Roman rural settlement to have been investigated in Herefordshire where previous archaeological investigation has focussed upon urban areas. The Roman period settlement was of high status, possibly representing a villa, and thus should not be regarded as a typical rural site. However, evidence relating to this is important in relation to developing an understanding of this type of site in Herefordshire where few high status Roman settlements have been identified or investigated. It will also provide a useful comparison for any low or middle rank rural settlements to be investigated in the future.

Analysis of the artefactual and environmental data will be especially important for their contribution to understanding the status, economic basis and links of the settlement in both the Iron Age and Romano-British periods (see for instance Evans 2001).

Lastly, as stated previously, the continuity and development of the settlement from the Iron Age to the Roman period is of some considerable interest, particularly in a region which has been the subject of little previous research (English Heritage 1997; PC4).

3.8 Medieval activity

3.8.1 The deposits (Rachel Edwards and Robin Jackson)

Small quantities of medieval pottery were recovered from the evaluation, and from SR V and VI. There were no indications that these finds indicated occupation and they are most likely to represent manuring scatters.

Substantial medieval features were, however, recorded in the area of SR IV. This revealed three medieval ovens and associated features including ditches and a pit, dated to the 11th to 15th centuries. The ovens were associated with significant assemblages of charred crop remains (Section 3.11) and appear to have been bread ovens. There were possible indications that they represented successive, rather than contemporary features.

No domestic buildings or other contemporary structures were identified. The presence of ovens might be taken to suggest that there was a rural settlement in this area, however, it is possible that such structures might occur away from settlement and interpretation of the context of these ovens is liable to be based upon comparative evidence.

Some areas of ridge and furrow have been recorded and provide evidence for medieval arable cultivation. Other post-Roman features identified were a series of post-Roman ditches. These were filled with reddish alluvial deposits. No dating evidence was found for these features. Some of them appeared to reflect the lines of later field boundaries, but others did not. It is unclear whether these were medieval or earlier features. In the light of the discovery of the 8th century mill in the southern extension (see Section 2.5), the identification of any further elements of early medieval activity is especially important in understanding the context of this nationally significant find.

Documentary evidence includes both fieldnames and cartographic sources. These have been considered previously (Brown 1992; Shepherd nd) and support the evidence from buried remains. These are suggestive of a landscape dominated by meadows and pasture but also including open fields. These are supported by cropmark and earthwork evidence for areas of ridge and furrow and former boundaries.

3.8.2 The pottery (Laura Griffin)

The majority (80%) of the medieval assemblage comes from a single context (3629), the construction fill of an oven dated to the 12th-13th century on the basis of this material. Of the remaining sherds, seven come from the fills of features including two ditches and a pit, the rest from unstratified layers. No medieval sherds were identified as residual.

The assemblage consists mainly of sherds of cooking pot fabric and forms. The large group (from context 3629) is made up exclusively of cooking pot sherds. Only two sherds display evidence of glaze, one of typical Malvernian style, the other traces of decayed green lead glaze.

3.8.3 Statement of potential: medieval activity

Deposits (Rachel Edwards)

The area of SR IV has considerable potential for analysis of the three ovens and the associated features. It would be useful to clarify the dating of the three ovens (see below: pottery), to determine whether or not they were contemporary. The associated plant remains are of particular regional importance (Section 3.11) while the pottery also has potential for increasing understanding of these features.

The nature of the other features recorded may be revealing as well. The ovens appear to have existed in isolation and associated settlement or structural remains may have been recorded but not identified. Alternatively, the ovens may have existed away from any building focus, perhaps reflecting the risk of fire. Comparative evidence may support understanding and interpretation of the context of these features.

Documentary sources and evidence for areas of ridge and furrow will support our understanding of the wider medieval landscape, allowing reconstruction of elements of the field systems and patterns of landuse in the area.

The phase of ditches filled with reddish alluvium has potential for clarification and further investigation in relation to the alluvial sequence and the development of boundaries. It may now be possible to date the alluvial sequence more closely, which would provide a context for these features.

Three areas of interest can be addressed through analysis (Tasks 2.1 to 2.6) of these deposits:

- What is the date, character and extent of medieval activity?
- What was the function of the ovens and how does their location relate to any evidence of local settlement?
- (In conjunction with environmental analysis) What was the nature of the local economy?

Pottery (Laura Griffin)

Medieval assemblages are well represented and researched within Herefordshire. However, recent work has shown that expected patterns of fabric distribution do not always occur. In Leominster, for example, fabrics identified from excavations at The Buttercross (Ratkai 1996) were more typical of an assemblage from Worcestershire than Herefordshire and this has led to

new questions regarding supply. Therefore classification by fabric and form and the dating of diagnostic sherds should be carried out to add to existing knowledge. This will also refine dating for the important oven and associated charred crop remains. The largest group of sherds from the oven context should also be examined for evidence of use such as sooting.

This assemblage provides dating for this phase of activity and therefore evidence for the continuance of occupation at the quarry. Once more the plotting of datable sherds will aid phasing, identify any distinct groupings and highlight residuality. Much of the scatter of medieval material is liable to relate to manuring of open fields and distributions may support understanding of the use of the wider landscape.

Three areas of interest can be identified through analysis (Tasks 9.1 to 9.5) of this material:

- What forms and fabrics are present within the assemblage?
- What is the date range for the medieval deposits and activity?
- What economic links can be deduced from the ceramic assemblage?

Overall potential (Robin Jackson and Rachel Edwards)

The site has a high potential to examine medieval crop use and processing in the area in the 12th /13th century. The Society for Medieval Archaeology has recommended that a high priority should be given to environmental material relating to the agricultural industry and particularly those with evidence, which might show regional specialisation. In the light of the general paucity of comparably high quality assemblages on a regional and national basis, these remains, the associated ovens and other deposits and information relating to their context within the medieval landscape are considered to warrant analysis.

3.9 Post-medieval activity

3.9.1 The deposits (Rachel Edwards)

Relatively small quantities of post-medieval pottery and other finds were recovered. This is probably because modern topsoil had been removed prior to salvage recording. Some of the boundary ditches recorded may also be of post-medieval date and relate to field systems.

Substantial remains dated to the post-medieval period were recorded during SR IV. An L-shaped stone structure was located close to the Wellington Brook. There was no obvious interpretation for this, and details of its construction were unclear. It is possible that it was part of a former building. The location close to the brook might suggest that it was a mill. At Withington, south of Wellington, on the Little Lugg, the remains of a stone building was discovered buried within alluvial deposits (Hurst and Pearson 1995) This was of medieval date, 12th-14th century, and artefacts indicated a domestic function.

Documentary evidence is similar as that for the medieval period and has the potential to support and provide a broader context for the evidence from buried remains. Cropmark and earthwork evidence indicates that watermeadow systems were present in the vicinity and some of the post-medieval features may potentially relate to such land management practice.

3.9.2 The pottery (Laura Griffin)

A small assemblage of post-medieval pottery was retrieved predominantly from unstratified layers and topsoil with a single sherd coming from ditch 3601. The sherds display a standard utilitarian range of vessel types commonly found within this region. There is only one diagnostic rim from a pancheon. All can be dated to between the 18th-20th century.

3.9.3 Statement of potential

The stone structure from SR IV has potential for further investigation. Clarification of the deposits in which it lay may provide further information on its date and function (Tasks 2.1 to 2.6). Elements of the post-medieval landscape can also be reconstructed from cropmark and documentary evidence supported by recorded features in the quarry area (Tasks 2.1 to 2.6).

The post-medieval assemblage is too small to be of any real significance. However, classification by fabric, form and allocation of date ranges should be undertaken as a minimum standard (Tasks 10.1 to 10.3).

3.10 Other finds (by Laura Griffin)

A range of other finds has also been recovered (Table 3). These have been assessed and are described below by artefact class.

3.10.1 Tile

The assemblage

A substantial assemblage of tile amounting to 541 pieces with an average weight of 238g was retrieved. Of this total, 48% came from unstratified contexts and just 7% from the fills of excavated features with the remaining 242 pieces from various layers.

The group consists primarily of undiagnostic tile with a total of 440 recorded for which at most fabric type can be recorded. All pieces are in poor condition being highly abraded with little evidence of the original surfaces surviving. On the basis of fabric the majority appear to be of Romano-British date, however, it has only been possible to classify 19% of the total assemblage by type.

Importantly a number of Romano-British tiles were found to be of an unusually coarse fabric with large inclusions and previously unidentified within the service fabric series. It is thought that these tiles may have been produced either on or within close vicinity of the site and a sample of local clay shall be taken for comparison.

The largest identifiable type group amounts to 89 pieces of Romano-British combed box-flue tile. The presence of these tiles strongly indicates the presence of a hypocaust in at least one building and it is possible that a number of the undiagnostic fragments are pillae associated with this. These strongly support the interpretation of the Romano-British settlement, as being a villa and the most likely location for a structure associated with these box-flue tiles would have been a bathhouse.

Romano-British roof tile is represented by a single flanged tegulae and nine imbrex fragments. Although it is probable that further tiles of these types are present within the undiagnostic fragments recovered, it seems likely that following demolition of Romano-British buildings, the majority of tegulae and imbrex from the site were either re-used or discarded elsewhere.

Only two signature marks were identified, an unusually small number for an assemblage of this size. However, due to the level of abrasion displayed, it may be that a larger number were originally present. No cutaways were observed within the group.

Statement of potential

The Romano-British tile amounts to a substantial assemblage in an area where only limited material assemblages have been studied. This material therefore provides a rare opportunity to expand and refine the regional fabric series for tile (Tasks 12.1). Few tile production sites have been identified within the region and therefore, the presence of the unusual new fabric type should be looked at more closely. Thin-sectioning of one such tile and comparison with a

sample of local clay may identify an industry operating in close vicinity to the site (Tasks 12.3).

In addition, classification by type, diagnostic features, dimensions and markings will also help to expand knowledge of Roman tile within the general region, an area of little research previously (Tasks 12.2 and 12.4 to 12.5).

3.10.2 Brick

The assemblage

A total of nine pieces of brick weighing 604g were recovered. Of these, only four pieces came from a stratified context, layer 3709. These can be identified as Roman in date but were residual within a post-medieval context. Of the remaining pieces, one was identified as modern, the remaining four as Roman.

Statement of potential

Due to the small size of this assemblage, very little further analysis can be undertaken. However, classification by fabric, measuring of dimensions and identification of any unusual markings should be carried out as a minimum standard (Task 13.1 to 13.2).

3.10.3 Plaster

A total of four pieces of plaster weighing 138g were recovered. These all came from an unstratified context. Further fragments adhered to pieces of tile and sandstone were also noted. Although potentially Romano-British in date, no further work is recommended for this material.

3.10.4 Fired ceramic

The assemblage

A total of 79 pieces of fired ceramic were retrieved, 72% from stratified contexts. The majority of the assemblage is of small undiagnostic fragments. However, a number of pieces have impressions of straw indicating possible use as daub.

Eleven fragments were also burnt suggesting direct contact with high heat, possibly as a result of lining a hearth or oven. The most interesting piece from this group has slag adhered to the surface and was retrieved (from context 3063) alongside 10 pieces of smithing slag. It can be suggested that this vitrified clay came from the lining of a smithing hearth or furnace.

Stratified and fired ceramic came from a variety of contexts ranging from earlier prehistoric to medieval in date, including material from the fills of the Early Neolithic pits (contexts 3852, 3854 and 4512).

Statement of potential

The pieces of fired ceramic from the Early Neolithic contexts have the potential to further understanding of the character of activity around these important features. Any evidence of ovens, kilns, pit linings or of burnt daub from other structures would be of particular importance since such evidence is rarely encountered in Neolithic contexts. Consequently analysis of this material should be completed (Task 14.1 and 14.2).

Material from later contexts would add to the other evidence in contributing to the development of an understanding of the character and range of economic activities across the site including ironworking.

3.10.5 Stone

The assemblage

A total of 311 pieces of stone weighing 21366g were retrieved.

A total of 0.75kg of this material comprised burnt quartz pebbles derived from two pits which have been dated to the Early Neolithic through pottery and flint. Some of this material was highly fragmented as a result of heat shattering and/or crushing. The use of this material is uncertain, however, two possibilities arise both of which may be linked to the associated ceramic assemblage. The first possibility is use as pot boilers while the second, raised in an interim report by Derek Hurst on the material assemblage from these pits (in Fagan *et al* 1993), is that they may be pottery temper since the associated ceramics were quartz tempered.

One of these Early Neolithic pits also contained three worked stone objects alongside a large assemblage of earlier prehistoric pottery and worked flint. The shape and context of these stones may suggest use for the burnishing of such pottery which, along with the possible tempering material discussed above, raises the potential that pottery production may have been occurring at this location.

Apart from this material, the large majority were undiagnostic pieces of red sandstone, much of it showing evidence of burning. Of the remaining red sandstone, 84 pieces can be identified as flat tile, likely to have been used structurally in addition to ceramic building material. This is supported by the presence of mortar adhered to a number of pieces. Sandstone was commonly used in the construction of walled structures during the Roman period and is likely that these 'tiles' were used in the stringcourse or for flooring material within a building. Two pieces of roof slate were also recovered.

Apart from the stone tiles, a total of seven worked stones were identified within the assemblage. The three items from an earlier Neolithic context have been discussed above while two further pieces were retrieved from Iron Age context 147 and the remaining piece from a Roman context (75). The latter can be identified as a whetstone, the remaining two are of uncertain function.

A small rounded stone with a central hole was retrieved from within a wall (context 163). This hole does not appear to have been deliberately but it is conceivable that the stone was utilised either as a spindle whorl or small weight. This is the only find from this context and therefore no date can be allocated.

Statement of potential

The worked stone should be analysed and its geological origin sourced if possible. Although only a small assemblage this will complete the archive and will highlight links between the population using this site and the sources identified (Task 15.1).

The location of the utilised objects and burnt quartz pebbles should be looked at in conjunction with evidence from other classes of finds such as pottery and environmental material to see whether any areas of specific activity can be identified.

Of particular importance is the possibility raised that the quartz pebbles and possible burnishing stones from the Early Neolithic pits might relate to pottery manufacture. The identification of a pottery production area would be national significance since no certain sites of early Neolithic pottery production have been identified in this country. A key factor in this analysis will be the question of whether the petrology of the quartz pebbles matches that used to temper the pottery and if so the question of sourcing of the pebbles. In turn this raises the potential for exchange over distance of this specific temper which would be a highly significant discovery in terms of Neolithic ceramic research (Task 15.2).

3.10.6 Iron artefacts

The assemblage

Iron artefacts amounting to 537 pieces were recovered. The finds came from 10 unstratified and 32 stratified contexts. All of the stratified contexts have been allocated a Roman *terminus post quem* on the basis of accompanying finds, with the exception of one from a medieval context (31) and one from a prehistoric context (3801).

A total of 446 of these objects could be identified during quantification. Of these, 295 were found to be hobnails, 269 of which were retrieved from a sample from a cremation (context 3832; sample 14). The presence of these nails supports the Romano-British dating of this cremation which is provided by pottery of late 1st- mid 2nd century date. A total of 143 larger nails were also retrieved, all of which derived from Roman contexts with the exception of that found alongside a medieval horseshoe (context 31). The general condition of these larger nails is very poor in comparison to that of the hobnails, with the majority spalling into numerous fragments.

The largest and most interesting iron object is a knife with a finely worked bone handle which appears to have been turned on a lathe (from context 136). The handle has a circular section with the iron tang running along the length. This tang is slightly longer than the handle itself and protrudes from the end. A substantial proportion of the blade survives and is curved in shape with two grooves along its upper edge. This context has been given a date range of 2nd-4th century on the basis of the large assemblage of Roman pottery retrieved.

The majority of the remaining objects are small and not identifiable by eye due to severe corrosion. They are generally in poor condition with the majority spalling into numerous small fragments. A few larger objects are present including horseshoes and large fittings. Some of these were recovered from modern topsoil deposits and during machining, however, a number of unidentified objects are present in Roman and potentially Iron Age deposits.

Statement of potential

The knife is of particular importance with both the blade and handle being well preserved in comparison to the majority found on sites of this period. The blade in particular is in good condition with little build up of corrosion and the surface grooves still in evidence. No direct parallels have so far been identified. The object was conserved shortly after excavation, however, subsequent deterioration has occurred, particularly of the handle which has cracked along its length. It is unlikely that the process of expansion of the iron tang can be addressed by further conservation (Vanessa Fell pers comm) and since the handle has split along its length this is deemed unnecessary.

The majority of the remaining assemblage comprised nails (438 items). In the light of the substantial numbers of these that are typically found on Roman sites, allied to the poor preservation and condition of the assemblage, these are considered to require no further work.

Due to corrosion, many of the remaining pieces of ironwork could not be identified by eye (*c* 90 small objects). Although some of these are from modern contexts or were recovered as unstratified material, it is possible that some of the objects from Iron Age and Roman contexts may be found to be of interest by the process of x-ray. Consequently x-radiography should be undertaken and any items of interest revealed described and if appropriate illustrated (Tasks 16.1 to 16.3). It is considered unlikely that any items warranting conservation will be identified given the general character, poor condition and state of preservation of the assemblage.

3.10.7 Copper alloy artefacts

Just three copper alloy objects were retrieved and only one was stratified. This came from the Beaker burial (context 4505) and consists of fragments of a blade (which were unfortunately not conservable). This object has previously been fully analysed, described and published along with the other finds from this burial (Harrison *et al* 1999).

The unstratified finds consist of a buckle pin and a stud head for which no further work is required.

3.10.8 Lead

A single amorphous piece of lead sheet was recovered from an unstratified layer for which no further work is recommended.

3.10.9 Coins

The assemblage

A total of five copper alloy coins were recovered, three unstratified and two stratified (contexts 75 and 76).

Provisional identification of type was made for the three coins with visible surfaces but all can be dated to the Roman period. Of these, two are thought to date to the reign of Constantine in the 4th century, both are from unstratified contexts. The remaining coin is a possible Antoninus Pius dating to 138-161AD. A further small corroded disc, possibly a coin, came from an unstratified context.

Statement of potential

The two coins that can be dated are stratified and therefore of important in dating of individual contexts and phasing of the site. Further examination by a specialist shall be necessary to confirm the above (Task 17). The others are unstratified and require no further work.

3.10.10 Slag

The assemblage

A total of 69 pieces of slag weighing 1433g were recovered. Of these, 15 pieces were unstratified, 15 pieces were retrieved from fills of features and the remainder from layers. The slag fell broadly into three different types including smithing and fuel ash waste. The third group is more unusual and appears to include pieces with a greenish vitrified ceramic. It is possible that these pieces are actually vitrified crucible fragments but this will need further investigation (Derek Hurst pers comm).

In the case of smithing waste, environmental samples taken from corresponding contexts did not show any evidence of hammerscale and therefore, whether this slag results from the working of iron on site is unclear.

Statement of potential

Due to only a small quantity of slag being retrieved, it is not possible to confirm whether metalworking was taking place. However, the presence of the highly vitrified pieces highlighted above should be investigated further (Task 18).

3.10.11 Glass

A total of 17 pieces of glass were recovered, 88% of which are of post-medieval date. The two remaining fragments vessel glass identified as Roman and both are unstratified. Since the Roman fragments are too small to identify vessel form or date no further work is required.

3.10.12 Clay Pipe

Clay pipe within this assemblage is represented by five stem fragments and one bowl. None have any markings and all are unstratified. No further work is required.

3.11 Ecofactual evidence (by Elizabeth Pearson)

3.11.1 Introduction

This assessment is based on previous work by Clare de Rouffignac (1989 to 1993), James Greig (1994) and, more recently, by Liz Pearson (1996). The environmental evidence consists of pollen remains from a deep organic deposit sealed under alluvial deposits, plant macrofossil remains recovered from environmental samples, and hand-collected animal bone collected from archaeological deposits. The assessment has been undertaken by Elizabeth Pearson with advice on the animal bone assemblage from Ian Baxter and from Jacqueline McKinley on the human bone. The pollen remains and alluvial deposits have been discussed previously (Sections 3.3 and 3.4).

3.11.2 Sampling strategy

A total of 64 samples were taken for environmental monitoring for plant macrofossils, of which assessment has shown 36 to contain plant remains (both charred and waterlogged). A summary of remains and sample volumes is presented in Table 4.

Apart from the samples taken for pollen analysis described above (Section 3.4), no other samples (for instance bulk samples for insect remains) were taken.

Two samples (2 litres in size) were taken for plant macrofossils during salvage recording in 1989 and 1990. Following the recovery of well preserved Romano-British charred plant remains in the single sample taken during 1990, a more detailed environmental sampling programme was undertaken from 1992 onwards. Samples of 5 litres (or 100% if features were too small for recovery of 5 litres) were routinely taken from deposits considered to be of potential for recovery of environmental remains. During 1993 a number of early prehistoric contexts were subject to a 100% sampling policy. Samples taken in 1996 followed a revised environmental sampling policy (that now defined in the County Archaeological Service Recording System, 1995 as amended), under which samples of up to 50 litres were taken depending on volume of material available. This level of sampling has maintained for all subsequent work in the quarry.

Large animal bone was routinely hand-collected during salvage recording from 1986 to 1996 (Table 5) and has been recovered from sorting of sample residues. Human bone from the inhumations was hand collected while the cremated bone was largely recovered from sorting of sample residues.

3.11.3 Processing and analysis

The assessment of hand-collected animal bone includes quantitative information on fragment count and weight of bone for each context. A qualitative assessment was also made of the general condition of the bone, the proportion identifiable to species and potential for recovery of data on stature, age, sex and butchery.

For the human bone, fragment count and weight has been recorded. An inventory and statement of condition in the archive (the author is unknown) has been used for assessment. The cremated bone has been weighed and the degree of fragmentation assessed.

The environmental samples were processed by flotation followed by wet-sieving using a Siraf tank. All samples have been processed (*c* 1000 litres). Flots (totalling 1789 ml) were collected on a 500µm or 300µm sieve and the residue (totalling 80435 ml) retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds. All samples have been fully sieved.

The majority (*c* 80%) of the residues were fully sorted by eye and the abundance of each category of environmental remains estimated. Selected flots (or proportions of flots) have been sorted (totalling 565 ml). The majority of the remaining flots (1224 ml) have been scanned using a low-power EMT light microscope and the abundance of each category of remains estimated. In excess of 90% of the samples have had either a fraction sorted or been scanned. Identifications were made using modern reference specimens housed at the Service.

3.11.4 Hand-collected animal bone

A total of 10.6 kg of animal bone was hand-collected, the quantity and condition of the bone from different periods being very variable (Table 5). However, waterlogging appears to have aided survival. Cattle or large ungulate bone are dominant in the larger assemblages.

Prehistoric

A total of 2.9 kg of bone was collected from six contexts, most of which was recovered from a buried soil or occupation layer provisionally dated to the late Iron Age (context 146). This bone was well preserved, showing some signs of waterlogging. Whole limb bones or large fragments of butchered limb bones from cattle or large ungulate size domestic animals were present. Only limited quantities of Iron Age animal bone have been recorded in Herefordshire previously and consequently, if dating of this material is confirmed, analysis is recommended.

The remaining bone (in variable states of preservation) was mostly found in small quantities from pre-Roman alluvium or in Early Neolithic pits. In the latter case, the bone was largely burnt and highly fragmented, although cattle, pig and sheep/goat tooth fragments were recognised. Because of the scarcity of bone data from contexts of this date from the region, these remains are considered to be important. In conjunction with ceramic residue analysis, analysis of this small bone assemblage has the potential to add to a growing body of data on animal husbandry and diet during this period. It will also contribute to the overall understanding of the character and function of these pits and the period of Neolithic activity they reflect.

Roman

The majority of the bone (8.3kg) recovered was collected from contexts dated to this period. Although not a large assemblage, a proportion of the bone appears to be suitable for providing measurement, ageing, and butchery data (particularly from a buried soil or alluvial layer – context 136).

Post-Roman

Only a small quantity (0.76kg) of bone was recovered from contexts considered to be post-Roman in date, and these come exclusively from alluvial and topsoil deposits. The fragment size is generally small, although measurable vertebrae and a scapula were noted in one context (135).

Medieval

A total of 1.4 kg of bone was collected, mostly from context 3633, in which whole cattle jaw, larger cattle jaw fragments and limb bone were noted. Other contexts contain small quantities of fragmented bone, and in context 3606 the bone was partly charred.

Post-medieval

Very little bone was recovered from post-medieval contexts. This included only small bone fragments, with the exception of two large limb bone fragments (showing signs of waterlogging) from topsoil (context 3701).

3.11.5 Human bone

Two inhumations (contexts 3530 and 3531) of provisional Iron Age or earlier date were recovered from a poorly differentiated cut feature. An isolated skull (3532) of possible prehistoric date has also been recovered.

Two Roman cremated bone deposits were also recovered (contexts 3832 and 3842). Small quantities of highly fragmented and calcined bone in a number of other contexts may represent further cremated human bone deposits or alternatively highly burnt animal bone (contexts 3833, 3840, 3852, 3854, 3859 and 3867).

The two inhumations were incomplete and were not particularly well preserved. The bones are fragmented and abraded, however, both compact and spongy bone survives and some articular surfaces are present. One of the inhumations (3530) was supine and lacked its left side limbs, right leg from the knee downwards and lower right arm and hand (an estimated 60% survives). The other (3531) appeared to have been crouched but lacked its skull, most of its torso, left arm (but not its hand) and both feet (an estimated 25% survives). Both inhumations are adult and one may be male. The isolated skull is better preserved with evidence of a dental abscess, periodontal disease and some possible pathology in the nasal cavity. It may be possible to determine the sex and age range of these remains through detailed examination.

One of the two cremated bone deposits (3832) was well preserved and associated with large conjoining sherds of a Severn Valley Ware tankard and numerous hobnails. This can be interpreted as an urned cremation burial. A total of 723g of calcined bone was recovered approximately 25% of which consisted of fragments of 10mm sq upwards. The second cremated bone deposit (3842) produced only a small quantity of bone (26g) was present. The fragments were mostly 5-10mm sq in size. This deposit appeared to have been disturbed and may represent a second cremation burial or a cremation related deposit. In both cases bone was mostly white (oxidised) in colour.

The remaining cremated material should be checked to determine whether it is human or animal bone.

3.11.6 Wet-sieved samples*Early Neolithic*

These samples were taken from a group of pits and a ditch during SRV. Environmental remains were generally found in small quantities, although abundant charred hazelnut fragments were present in one of the pits (fill 3852). Further hazelnut shells were present in two other pits (contexts 3854 and 3859) in this group, while a small number of charred cereal grains were also recovered from two of the pits (contexts 3852 and 3861). Some of the latter were identifiable as emmer wheat type (*Triticum dicocum* type). Matted organic matter surviving in a couple of samples may be contemporary with the deposits.

Middle Neolithic

Samples were taken from several pits recorded in 1996 (SRVIII). Only occasional charred grass grains, unidentifiable cereal grains and weed seeds survived (contexts 4513, 4514 and 4515). One possible uncharred hazelnut fragment was found (context 4512). In other contexts, a small number of uncharred weed seeds may be intrusive from later deposits.

Beaker burial

Only occasional grass and cereal grains (one identifiable as wheat *Triticum* sp) were present.

Roman

A rich assemblage of charred cereal crop remains was recovered from the fill of a ditch (context 3443). This comprised well preserved spelt wheat grains and chaff, in association with a range of weed seeds and molluscs. Small quantities of unidentified cereal grains and weed seeds were also present in other Roman contexts.

Pyre debris is probably represented in the charred plant remains from the fill associated with an urned cremation (3832) and from a nearby deposit of cremated bone (3842).

Medieval

Samples from medieval deposits produced the richest charred assemblages. The most important assemblage was recovered from an oven (context 3606), while seven other contexts (3629, 3630, 3632, 3633, 3610 and 3614) from ovens, pits and ditches were also notably rich. Not only was there an abundance of cereal grain (mostly free-threshing wheat), but in several samples, chaff remains were also plentiful. The chaff remains, in association with weed seeds, will allow detailed interpretation of crop processing activities associated with the ovens, and more accurate identification of the types of crop in cultivation. Moreover, chaff from free-threshing cereals survives charring poorly and is a rare find on sites in this county.

Post-medieval

Two samples from a ditch (context 3600) and a charcoal spread (context 3709) were rich in charred cereal chaff and weed seeds, representing waste from crop processing activities. Like the medieval assemblages above, these samples demonstrate good survival of remains that are rarely found in deposits of this date in Herefordshire. The weed seeds, which would have been harvested with cereal crop, are more numerous in these samples than in the medieval deposits discussed above.

Detailed analysis of these remains may provide information on the conditions under which the crops were grown.

3.11.7 Statement of potential: ecofactual evidence

The potential of the pollen and alluvial sequence has been considered previously and analysis will provide a model for environmental change and human impact in the landscape (Sections 3.3 and 3.4). This model will provide a context for the understanding of other environmental and associated archaeological evidence from the quarry, and has the potential to support and refine our understanding of economic practices and processes of change represented.

Early prehistoric activities were not well represented by macrofossil environmental remains from archaeological features. However, a paucity of environmental remains from prehistoric deposits (particularly charred cereal remains) is not unexpected as they tend to be found in low concentrations on most sites of this date. Animal bone is likely to be under-represented because of the slightly acidic soil conditions which do not provide good conditions for bone preservation, whereas waste from cereal crop processing may be under-represented because processing may have been undertaken on a small scale, and not necessarily involving parching or charring. Nevertheless, recording of these remains is important in the characterisation of the early prehistoric deposits, because so little data on human activity is available both regionally and nationally. This is especially the case for the Early Neolithic period.

The importance of these remains is enhanced by the potential for comparison with the local pollen sequence which may reveal episodes of localised woodland clearance and limited cereal cultivation at this time. Consequently even small quantities of information will contribute to

the overall understanding of the relationship between gathered and hunted foods with those derived from cultivation and domestication (English Heritage 1997, 47 – P6).

The burials and cremated bone deposits of prehistoric and Roman date are of some interest since few human remains of this date have been recorded in the region. However, since only two inhumations, an isolated skull, an urned cremation and cremated bone deposit were recorded, and since preservation of the inhumations was not good, the evidence from the osteological analysis of the bones will be necessarily limited. The potential of these remains consequently lies largely in the associated information relating to local mortuary practices.

For the Iron Age, Roman, medieval and post-medieval deposits, the samples rich in charred plant remains are particularly important, because little environmental data is available from rural sites in the region. More data is needed to provide information on the arable agricultural regime at these periods and thus inform understanding of changing local economic practice. The charred material associated with the cremated bone deposits is also of interest since it is likely to represent pyre debris and can thus potentially support interpretation of mortuary practice.

For the Iron Age and Roman material, this site offers a valuable opportunity to examine crop processing and possibly production from a rural settlement in Herefordshire for which there is currently very limited data. For the medieval material, rich assemblages found *in situ* within oven contexts are rare. In particular, the presence of significant quantities of chaff contrasts with the usual lack of chaff surviving from free-threshing crops. This evidence offers a rare opportunity to study information relevant to the disposal of crop processing waste. In addition the presence of chaff will enable more accurate identification of the types of crop in cultivation. The large weed component in one of the ovens may provide information on aspects of the cultivation regime in operation.

As with the early prehistoric period, comparison with data from the pollen sequence will be important for the Iron Age and Roman periods. The latter provides evidence for widespread clearance and a corresponding increase in evidence for grassland and cereal cultivation. Although undated at present, this change has probably occurred by the Iron Age and Roman periods and reflects landuse around the site.

The animal bone assemblages from Iron Age and Romano-British contexts are limited. However, the paucity of data from rural sites of this date in the area means that, if the dating of the larger components of the assemblage is confirmed, that these have the potential to provide useful information relating to local agricultural and economic practice.

A number of research questions regarding this material can therefore be addressed through analysis (Tasks 19.1 to 19.4):

- To what extent did the early Neolithic and other earlier prehistoric populations utilise cultivated plants and how important were these in relation to collected wild resources?
- What was the pattern of use and disposal of plant remains both in their own right and in relation to other material at the site? and; Do these reflect local/ regional social practice?
- What information on mortuary practices can be inferred from the potential pyre debris, inhumation, urned cremation and cremated bone?
- What range of crops was cultivated during each period of activity? What can we infer about crop processing activities and disposal of crop waste? Under what conditions were the crops grown (what environmental conditions and agricultural regime)?

- What range of animal species were farmed or hunted during each period, and relatively how important may they have been in the local economy? What animal husbandry and butchery techniques can be identified?
- How do the results correlate with those from other sources of evidence for landuse and resource utilisation, such as that from the pollen sequence and alluvial analysis?
- How do the results from Wellington compare to regional and national frameworks?

In summary, Wellington provides the first example of a sequence of environmental evidence in the region spanning such a long period of time. Association of the pollen and alluvial sequences with evidence for episodes of human activity, which include plant macrofossil and faunal remains, enhances the potential of these remains. Correlation and comparison of these various sources of data therefore has considerable potential to illuminate our understanding of local and regional economic and social strategies, as well as the wider processes of environmental change and human impact in the landscape. Consequently, although sample size and preservation of plant macrofossils and animal bones are limited for some areas of the record, a range of analyses are proposed to ensure the maximum retrieval of data from the environmental record.

3.12 Scientific dating

As a result of the assessments and statements of potential identified above, radiocarbon dating is proposed for a number of samples (Task 5). Several samples have previously been dated and the samples selected will supplement these and focus on areas or site phases where dating has not previously been undertaken or where dating is currently considered inadequate.

The following recommendations are made:

- Dating of Early Neolithic pit group. Four dates are proposed, two each from the two pits (contexts 3854 and 3852) which produced rich and significant assemblages of pottery, flint other material and ecofactual remains. Dating of the associated artefactual assemblages on the basis of fabric and form is likely to be poorly defined and in the light of the importance of these deposits and associated assemblages radiocarbon dating is recommended. Both of these features produced charred hazelnut shells suitable for AMS dating and which represent an integral part of the assemblages derived from these well sealed, single filled features;
- Dating of Middle Neolithic activity. Dating by other methods is likely to be problematic for the same reasons as outlined for the earlier Neolithic material and in the light of the importance of these deposits radiocarbon dating is considered appropriate. Unfortunately suitable material is not believed to be available, although sorting and analysis of environmental material from one context (4512) may produce suitable material to provide a date. In such an event two dates are proposed from this feature;
- Dating of pollen diagram. Two dates are already available for this regionally important sequence and further dating is recommended to refine understanding of the periods of environmental change represented. Selection of dates will follow analysis and the number of dates required may vary according to results, however, at least four further dates are recommended for this material;
- Dating of human skull and double inhumation. In the light of the potential Iron Age or earlier date of these remains and their consequent importance to understanding significant phases of human activity at the site, radiocarbon dating of these human remains is proposed following osteological analysis.

Samples will be selected in consultation with Alex Bayliss (English Heritage) during the course of analysis. A three month programme has been estimated by Alex Bayliss.

3.13 Evidence for continuity and change

The assessments show the high potential of the results to contribute to a wide range of areas of research and understanding of periods of human activity. They will also provide important information relating to the physical environment occupied and used by former populations within the local landscape at any one time.

In addition, there is a range of information with the potential to reveal patterns of continuity and change, both in terms of the physical and cultural landscape. Assessment has shown that the character of each successive period of human activity varies, for instance from the probable seasonal occupation of the site during the Early Neolithic to its use as a burial site during the later Neolithic to Early Bronze Age period. Although seasonal occupation might accompany the later burial evidence, there is a strong impression of a change in use or at least expanded use. This may of course reflect limitations in the data recovered. More certain evidence for processes of change will be revealed by analysis of pollen and other sources of evidence (such as the alluvial record) for the environment utilised by these populations from the Mesolithic onwards. This may include evidence of the first impact human populations on their environment in this area which archaeological data suggests can be dated to the Early Neolithic, but which pollen analysis may reveal to originate in the Mesolithic.

Subsequent to the earlier prehistoric occupation, the evidence for Iron Age and Romano-British activity reflects permanent settlement and farming of the surrounding landscape. Once again there is evidence for a changing environment (especially from the pollen and alluvial data) with evidence for widespread clearance, cereal crops and grassland. The relatively high status of the Roman settlement is also a matter of some interest apparently contrasting with that of the Iron Age settlement. The pollen record might show changing patterns of landuse at this period perhaps reflecting intensification or new cropping regimes associated with the villa.

An apparent break in occupation from the end of the Roman occupation to the medieval period is present in the record from deposits and finds. However, the pollen record may not reflect a break in use of, and impact on, the landscape during this period and may potentially raise further questions about the nature of post-Roman activity. The identification of an early 8th century watermill in the post-1996 extraction area suggests that in some way high status activity continued in the locality, probably associated with the Mercian royal estate at Sutton immediately to the south of the quarry.

Lastly medieval arable farming is represented by the formation of ridge and furrow and cereal cultivation reflected by the charred plant remains recovered from medieval ovens. These will again have influenced the character of the landscape.

The evidence therefore indicates that there were shifts in the location and intensity of human activity, as well as of the character of this activity. These are liable to have been influenced, or at least in some way referenced, each other through continuity or discontinuity, use or disuse, conscious reworking or avoidance of earlier activities, etc. The changing patterns of use and economic practice may also have influenced or been influenced by local environment (both physical and vegetation). Although the data from the quarry has many limitations, the potential exists for analysis of such continuity and change.

The presence of such a range of evidence for changing patterns of human activity, landuse and environment over a long period of time is rare. This represents the most comprehensive dataset of its type to have been recovered in Herefordshire and one of the first in the region as a whole and consequently warrants analysis (Task 20.1) to:

- Investigate the changing patterns of human activity and resource utilisation within the landscape;
- Investigate the changing patterns of local environment;
- Investigate the changing patterns of the physical landscape;
- Study the relationship between the changes observed, with particular emphasis on continuity (or discontinuity) of human activity, the relationship between different periods of activity and the impact on the environment of these activities.

4. Aims and objectives

4.1 Research aims

Assessment has shown that the archive resulting from the salvage recording and associated works undertaken between 1986 and 1996 has the potential to contribute to a number of areas of research.

Statements of potential and recommendations have been made above for the structural, alluvial, artefactual and ecofactual evidence. Together these will enable the project to contribute to the following research aims:

- RA1 How effective were the approaches used in identifying, recording and sampling deposits across the site? The research framework for the Lugg Valley is poorly established and although the Herefordshire Valleys addressed issues regarding methodologies for the evaluation and investigation of this alluviated landscape, fieldwork was limited in scope and covered only small areas of any one site or sequence. The work undertaken between 1986-96 has clearly illustrated the archaeological potential of the area as well as allowing more extensive testing of a range of techniques for investigation and recording such deeply alluviated landscapes. Critical appraisal of these techniques (and those developed from them and currently in use at the quarry) will contribute towards effective management and fieldwork methodologies in the Lugg Valley and other similar alluviated landscapes, which present a widely recognised problem (English Heritage 1997; MTD1, 2, 3 and 11).
- RA2 What was the environmental history and nature of landuse on the Lugg Valley floor since the end of the last glaciation? To what extent does this reflect human activity? There are no other comparable results from the region apart from some pollen diagrams from the Severn valley (Barber and Twigger 1987). There is a particular absence of well dated sequences especially those with the potential for correlation with an alluvial sequence and direct evidence for human activity. On a national basis, any evidence relating to the impact of the early Neolithic population on the local environment and of subsequent changes throughout this period can be considered to of particular significance (English Heritage 1997; PC1 and PC2). Similarly evidence of the subsequent change (and date of change) to the settlement dominated landscape and agricultural intensification of the later prehistoric and Roman periods would be of considerable interest (English Heritage 1997; PC3, PC4 and P6).
- RA3 What were the patterns of landuse and change? How has the development of alluvium and associated palaeochannels influenced patterns of occupation and deposit survival? Understanding of site formation processes and the physical context for human activity will be important in interpreting patterns of human activity, the way in which the landscape was perceived and the wider landuse evidence in the pollen record, thus supporting other research aims identified. It will also inform critical appraisal of the methodology used (as an effective tool for recording alluvial sequences) and development of a stronger research framework for this important landscape.
- RA4 What was the character of the Early Neolithic activity, cultural material, depositional practice, economy and resource utilisation? Evidence for early Neolithic activity has rarely been recorded in Herefordshire or the Midlands as a whole. At a national level, opportunities for the study of sites of this type with combinations of good quality assemblages for analysis of resource utilisation and cultural practice in combination

with well preserved palaeoenvironmental evidence are rare. The digging of pits such as these, the deposition of material assemblages within them and the evidence for use of the assemblages (artefact biographies) allied to the palaeoenvironmental record reflect the adoption and use of Neolithic practices and cultural 'package'. Activity of this date may also have had an impact on the local environment (for instance through localised clearance or the introduction of cereals), an area of research which has been identified as having a high priority (English Heritage 1997; PC1 and P6). The potential for identification of pottery production is of particular importance since the character of Neolithic pottery manufacture is very poorly understood.

RA5 What was the character of Beaker and Early Bronze Age funerary/mortuary practice and occupation? How do these relate to patterns of landuse and earlier activity? Although the evidence for these is not extensive, the site provides an important opportunity to examine deposits dated to a period that is poorly understood across much of the West Midlands. In conjunction with the palaeoenvironmental record, these deposits provide evidence relating to the consistent use of the valley floor landscape throughout much of the Neolithic and into the early Bronze Age. This use appears to have changed from one of transient occupation in the Earlier Neolithic to one involving periodic activity and funerary monuments in the later period. Such evidence for changing utilisation of a landscape, along with that for use of, and impact on, local resources is highly important in developing an understanding of the apparent increasing complexity of Neolithic cultural practice and society (Thomas 1999, 222-3; English Heritage 1997; PC2 and P6).

RA6 What was the character of and impact of Iron Age and Romano-British settlement, landuse and economy and to what extent can they be viewed as typical in the region? Do these relate or reference earlier use of the site in any way? The site represents a rare example of a lowland Iron Age and Romano-British settlement to have been investigated in Herefordshire where previous archaeological investigation has focussed upon hillforts and urban areas. The evidence will therefore provide a chance to develop understanding of the character and economy of such settlements in Herefordshire. In particular, aspects of continuity and development of settlement and economy from the Iron Age to the Roman period is of some considerable interest, particularly in a region which has been the subject of little previous research (English Heritage 1997; PC4).

What was the nature of burial practice during the Iron Age. In the light of the general paucity of data relating to Iron Age burial practice, dating and examination of the skull and double inhumations of potential Iron Age date have the potential to provide important information relating to funerary/mortuary practice in this period.

RA7 What was the nature and extent of medieval and post medieval activity and what was the character of the rural agricultural economy during this time? In particular, the Society for Medieval Archaeology has recommended that a high priority should be given to environmental material relating to the agricultural industry and particularly those with evidence that might show regional specialisation. In the light of the general paucity of comparably high quality assemblages on a regional and national basis, the rich charred cereal remains and the associated ovens and other deposits are therefore of considerable importance.

RA8 What was the nature of transition, continuity and change at the site and how does each phase of activity reflect and reference earlier phases or influence later ones? The site has a high potential to develop an understanding of the changing character of activity at the site and its relationship to local landuse and environment from the Neolithic

onwards. This is important for its contribution towards understanding the historic landuse and development of the Lugg Valley. This will in turn support development of a regional research framework (English Heritage 1997: C1).

4.2 Objectives

In order to enable the potential of the fieldwork archive to be fulfilled and to meet the research aims of the project (Section 4.1), the following objectives are identified:

- PO1 Completion of the fieldwork archive and updating of project databases will allow the potential of the information to be realised and allow research aims and objectives to be fulfilled (see Appendix 1). It will also ensure that the project archive is accessible for future research.
- PO2 Digital mapping of archaeological and alluvial deposits and associated assemblages will enable plotting of the distribution of deposits, artefacts and ecofacts across the quarry and thus support analysis of patterns of activity and change.
- PO3 Phasing of archaeological and alluvial deposits will allow the dating of deposits to be established and thereby support analysis and understanding of the changing physical character of the site and context of other sources of data. This will be achieved through a combination of stratigraphic, photographic and artefactual data in combination with a targeted programme of radiocarbon dating. Spatial analysis may also support phasing of deposits through association with dated deposits and areas of activity.
- PO4 Analysis of the alluvial sequence and associated palaeochannels will provide evidence for the character and depositional context of both the local and wider valley floor environment. This environment provided the physical landscape which human populations exploited and impacted on. Such analysis is therefore important if the occupation and palaeoenvironmental evidence is to be properly comprehended.
- PO5 Updating and maintenance of databases of structural, artefactual, environmental and alluvial information and relating them to the digital site mapping will allow interrogation of the site database and mapbase, thus supporting analysis and interpretation of changing patterns of use and activity across the site through time.
- PO6 Pollen analysis will provide a model for environmental change from the late Mesolithic to the post-Roman period. This will be supported by other evidence for flora and fauna from deposits at the site (plant macrofossils, etc).
- PO7 Characterisation of the nature and distribution of archaeological deposits, areas of activity and alluvial deposits will support interpretation of former activities represented and provide a context for the artefactual and ecofactual assemblages.
- PO8 Characterisation of the type, nature, utilisation and distribution of the artefactual assemblages will provide evidence for dating, resource utilisation, patterns of deposition, social practice and economic activities and impact, as well as supporting interpretation of the overall range of activities represented.
- PO9 Characterisation of the type, nature, utilisation and distribution of the ecofactual assemblages will provide evidence for economic and social activities, mortuary practice, local environment and resource utilisation and impact, as well as supporting interpretation of the overall range of activities represented.

- PO10 Consideration of combinations of data from analysis of the depositional, artefactual and ecofactual data will provide evidence of the full range of activities undertaken at the site, economic and social practice represented, and processes of change and adaptation present.
- PO11 Discussion of the results in relation to other sites in the region and beyond will place them within both a regional and national research framework and enable their full importance and research potential to be fulfilled;
- PO12 Analysis and discussion will help the development of an archaeological research framework for the Lugg Valley (and others in Herefordshire) and place it within a wider framework. Analysis of the deposits from Wellington will establish the high archaeological potential of deeply alluviated sites in the Lugg Valley and Herefordshire. Analysis of the alluvial sequence will support understanding of the context of such remains and circumstances of their survival.
- PO13 Critical appraisal of the techniques used (both in the field and during analysis) will support the development of techniques for the evaluation, recording and understanding of such sites which is a widely recognised problem (English Heritage 1997; MTD1, 2, 3 and 11). This will inform ongoing work and future curatorial decisions within the Lugg Valley, currently the focus for two ongoing quarries (at Wellington and Lugg Bridge), a major new development at Moreton-on-Lugg and a further quarry with extant permission (St Donats).
- PO14 Dissemination of the results of the proposed analytical programme will make them available to the archaeological community and wider local community (Section 4.3; English Heritage 1997: D2, D3 and D7).
- PO15 Ordering and deposition of the project archive will provide a resource for future research.

4.3 Dissemination

The fulfilment of the aims of the project will lead to the production of a site narrative with associated specialist reports, illustrations and graphic material. Discussion of the results will be considered within both a regional and national context. The resultant draft text will be submitted to English Heritage for refereeing. The draft will be accompanied by a proposal for wider academic dissemination as a monograph (CBA or similar).

4.3.1 Report synopsis

It is anticipated that the report structure may be as follows:

Summary

Introduction

Reason for fieldwork, location, topography, geology, planning history, archaeological and historical background, fieldwork history, methodology, report structure

Site formation and landscape history

Depositional history

Landscape and environmental change

Radiocarbon dating

Structural analysis

Neolithic/Early Bronze Age activity
 The Early Neolithic pit group
 The ring-ditches
 Beaker burial and activity
 Other activity
Iron Age activity
Roman activity
Medieval activity
Post-medieval activity

The artefacts

Neolithic/early Bronze Age
 Pottery
 Flint
 Other finds
Iron Age
 Pottery
Roman
 Pottery
 Brick and tile
 Other finds
Medieval
 Pottery
 Other finds
Post-medieval
 Pottery
 Other finds

Scientific analysis of artefacts

Usewear analysis of flint
Neolithic pottery residues
Thin section analysis

Environmental evidence

Neolithic/early Bronze Age
 Plant macrofossils
 Animal bone
Iron Age
 Plant macrofossils
 Animal bone
 Human bone
Roman
 Plant macrofossils
 Animal bone
 Cremated bone
Post-Roman/medieval
 Plant macrofossils
 Animal bone

Discussion

Neolithic/Early Bronze Age
Iron Age and Roman
Post-Roman

Medieval
Post-medieval
Landscape/use history and change
Methods and future management

4.4 Outreach

In line with current good practice (English Heritage 1997: D2, 3 and 7; Aggregates Levy Sustainability Fund, English Heritage Guidelines, Criteria 3A and 5), the project will include an outreach element to allow the results to be disseminated to the wider population, especially the local community.

At the outset, information about the project will be posted upon the Service's website (www.worcestershire.gov.uk/archaeology) with a link to that of Herefordshire Archaeology. This will be updated (on at least two occasions) during the course of the project.

Proposals will be presented for a broader outreach initiative following analysis and will accompany the publication proposal. These proposals will be developed in consultation with the local museum service (Judy Stephenson, Herefordshire Heritage Services), the Curator (Dr Keith Ray, Herefordshire County Archaeologist) and the Client (Andrew Hodgson, Communication Manager for Lafarge Redland Aggregates Limited). The advice of English Heritage's Education Service will also be sought. The current intention is to provide presentations to local societies, articles in parish magazines and a number (2-3) of interpretation panels (reconstructed images and text) on footpaths through restored areas of the quarry. An information leaflet (A4 sized) will be produced to accompany the interpretation panels and hopefully can be made available through the quarry site office. This information leaflet and the images from the interpretation panels will also be made available as downloadable files on the Services' website and possibly that of Herefordshire Archaeology, thus making it available to the local community and schools in the area. A budget estimate has been provided for this work.

4.5 Archiving

Upon completion the project archive will be deposited with the Herefordshire Heritage Service (Herefordshire Museum and Art Gallery, Broad Street, Hereford HR4 9AU). This will comprise all finds (c 25 boxes), the paper and drawn archive (c 15 x A4 lever arch files and 2 x A3 lever arch files), and copies of the digital archive and report. Archiving will be undertaken in consultation with Judy Stevenson and according to the *Standards for the deposition of archaeological archives with Herefordshire Heritage Services: conditions and guidelines* (2nd Edn, May 1999).

A research level digital archive (as defined by the Arts and Humanities Data Service - AHDS) is considered appropriate for this project. It is proposed that this is placed with the ADS (Archaeology Data Service, Department of Archaeology University of York, King's Manor, York, YO1 7EP), who will be consulted during preparation of the archive and whose guidelines will be followed (ed J Richards and D Robinson, *Digital archives from excavation and fieldwork: Guide to good practice*, 2nd Edn).

Three copies of the report will be also deposited with the Herefordshire Sites and Monuments Record.

4.6 Artefact discard policy

On site collection determined that in principal all finds, of whatever date, were recorded and retained. In practice, following the advice of the Find Officer and due to the time constraints, some on site sampling was undertaken in relation to:

- Stone building material associated with the Romano-British villa of which the majority was left *in situ* and reburied. Where deposits were excavated, only a representative sample was retained from each context;
- Fire cracked pebbles associated with phases of prehistoric occupation was also sampled to retrieve a representative sample from each context.

In the light of the paucity of assemblages from early prehistoric sites and from Iron Age and Romano-British rural sites in Herefordshire, it is proposed that the majority of the artefactual and ecofactual assemblages be retained. This will provide a resource for future research initiatives in what remains a poorly understood region. Discard is only considered appropriate for elements of three categories of bulk finds:

- Stone – It is proposed that only worked, diagnostic stone is retained along with the sample of burnt quartz pebbles recovered from the early Neolithic pits;
- Tile – The majority of the tile recovered was undiagnostic and in a poor condition. It is proposed that only a representative sample of forms and fabrics are retained.
- Brick – It is proposed that unstratified and modern brick is discarded.

5. Methods statement

The following methods will be used to enable the potential of the project archive to be realised and the research aims to be fulfilled. Where appropriate reference is made in brackets to the relevant Project Objective (PO1, PO2, etc) or Research Aim/s (RA1, RA2, etc). A tabulated task list is also appended to this document and shows the relationship between the tasks and the project objectives and research aims as well as the resources allocated to each task.

Except where stated the project will use standard Microsoft software packages for wordprocessing, spreadsheets and databases (Word, Access and Excel). File structure, numbering and naming will be maintained according to Service practice under a project name and unique numbering system. This uses a standard file naming convention (including the 3 - letter file extension code and version numbering) and directory structure. Accompanying documentation relating to this will be maintained by the Project Officer and deposited with the archive.

Files will be stored on the Archaeological Services' network drive which is backed-up on a daily basis on tape and monthly on the County Council's main server. During the course of the project, proprietary file formats will be used (see above). At the completion of the project, files will be converted to the open data formats recommended by the ADS for long term preservation.

Project management

Task 1

The Project Managers will co-ordinate with Service staff and external specialists, liaise with English Heritage and Herefordshire Archaeology and maintain project tracking (against the project Gantt chart and using Microsoft Project and weekly time sheets completed by Service staff recording at quarter day increments). They will also co-ordinate periodic meetings (both with internal and external staff and advisors to the project) and undertake background research (to ensure familiarity with current and ongoing research and archaeological practice).

Structural analysis

Task 2.1 (PO1)

Features and deposits only recorded through site drawings and day record sheets will be numbered (Appendix 1) thus ensuring that the research archive is complete and has the maximum potential for analysis. Information on location will enable completion of Task 2.2 while other information will be transposed to the structural database to support Tasks 2.3 and 2.4.

Task 2.2 (PO2)

All features and findspots will be digitised onto an OS derived map base (using AutoCAD Map2000) in order to enable plotting of the distribution of features and deposits. This map base will be linked to the other project databases to facilitate interrogation of data across the site and thereby support analysis of patterns of activity across the landscape.

Task 2.3 (PO3, PO5 and PO7; RA4-8)

Analysis of archaeological deposits will be undertaken using original site records, the site structural database and digitised information. All contexts will be analysed and characterised at a basic interpretative level (pit, alluvium, posthole, etc). This will provide information relating to use and function and establish the context for artefactual and environmental data.

Where possible a higher level of functional interpretation and grouping will also be undertaken at this stage (pit group, domestic building, settlement enclosure, field boundary, etc). This will draw on information derived from the artefactual and environmental analyses as well as analysis of spatial distributions of material and activities.

The structural database will be updated with this information and, in conjunction with the digital map data, artefactual and environmental data, interrogation of this will support analysis to characterise and (in conjunction with stratigraphic information) phase structural remains and establish patterns of activity and landuse.

Task 2.4 (PO3; RA4-8)

Analysis will be undertaken of the stratigraphic relationship of deposits associated with phases of human activity with the alluvial sequence. This will draw on sectional evidence and field descriptions. In conjunction with the results of the specialist analysis of the alluvial deposits (Task 3.4) this will lead to refinement of phasing, thus establishing a chronological framework for examining patterns of activity, continuity and change within the landscape.

Task 2.5 (PO7 and PO14)

Illustration of the phases of activity, significant features and deposits will be undertaken and support dissemination of results. Illustration will be undertaken using both traditional methods (ink) and digital formats (AutoCAD Map 2000 and Adobe Illustrator).

Task 2.6 (PO10-12 and PO14; RA4-8)

The completion of structural analysis will form (in conjunction with specialist reports) the basis of a phased description and discussion of structural remains both individually or in localised groups. This will support dissemination of results

No further analysis is recommended for the Beaker burial although the results will be considered within the overall analysis and discussion.

The alluvial sequence (David Jordan)

Task 3.1 (PO1; RA3 and RA8)

All photographs and records will be reviewed and those most likely to provide information on alluvial deposits will be extracted and located on an overall digital mapbase. This will facilitate analysis of the distribution and character of alluvial deposits across the site. Together with Task 3.2 and 3.3, this will support the development of an understanding of the character and development of the physical landscape.

Task 3.2 (PO2 and PO4)

The photographs, drawings and records will be analysed, deposit information recorded in a computer archive and plotted on the digital mapbase.

Task 3.3 (PO3, PO4 and PO5)

The resultant sedimentary and soil information will be correlated between profiles, and patterns of sediment deposition will be identified, where possible.

Task 3.4 (PO3, PO4 and PO5; RA3 and RA8)

The relationship between the archaeological remains and alluvial deposits will be analysed (see also 2.4). The alluvial phases are placed within dating brackets and the archaeological remains given an environmental context description where this is possible. This will support analysis of the changing physical and cultural landscape through time and provide a context for interpretation of the palaeoenvironmental evidence.

Task 3.5 (PO2, PO3 and PO4)

The mapbase will be updated with the archaeological/sedimentary correlation data to produce alluvial phasing.

Task 3.6 (PO3, PO4 and PO13; RA1)

The phased alluvial description will be compared with those produced by earlier work. The records will be integrated where agreement is found and any disagreements will be analysed to show what further information will be needed to resolve them. This will inform critical analysis of interpretation, techniques and approaches to date and inform development of effective future management of the resource.

Task 3.7 (PO12 and PO14; RA3 and RA8)

The integrated results of this exercise will be prepared as a paper and computer-format report with accompanying diagrams and records.

Pollen and associated analyses (James Greig)*Task 4.1 (PO6, PO9-12 and PO14; RA2, RA3 and RA8)*

Analysis of the pollen sequence will be undertaken, using small interval sampling where necessary at critical points in the sequence (for example the beginning of woodland clearance and earliest evidence of farming).

To date, 13 samples have been prepared and counted for an outline pollen diagram, and another 3 have been prepared, but not counted. Further counting of these 16 samples is required to bring the results up to report (as opposed to assessment) level. This would take 8 days, as the pollen is only present in moderate amounts.

Twenty-two further samples have been collected, covering the profile at an interval of 4 cm, and it is proposed to take three further sub-samples from the stored monoliths. Analysis of these is estimated to take 25 days (@1 day per sample).

The work would best concentrate on the samples at 100-175cm where there is evidence of human activity going back to the horizon dated to roughly 5000 bp. The lower samples (at 175-250cm) probably cover the Mesolithic part of the sequence, in which less detail is necessary.

It is proposed to analyse the samples at a closer interval in the upper part of the profile to obtain maximum detail on phases of human activity, locations to be chosen as the work progresses. The original monoliths are still in storage in case samples at a closer interval than 4cm are needed.

Suitable organic remains will be selected to provide an estimated 4 dates to support the two which already exist for the sequence. Samples will be selected in consultation with Alex Bayliss (English Heritage) during the course of analysis (see Section 2.5 and below).

This will establish a dated sequence for environmental change from the Mesolithic through to the post-Roman period.

Task 4.2 (PO6, PO9-11 and PO 12; RA2 and RA8)

There are 6 macrofossil samples accompanying the pollen samples, which should provide plant remains, and possibly also insect remains (although they are rather dry after 12 years in storage and quantities will be small). These will support the evidence for environmental change provided by pollen analysis.

Task 4.3 (PO6)

Loss on ignition on 19 samples (an interval of 8 cm) will be undertaken to establish levels of humic content.

Task 4.4 (PO11, PO12 and PO14)

Compilation of a publishable report researching national parallels and placing the assemblage within its regional and national context.

Scientific dating*Task 5 (PO3; RA2-5)*

Selection of radiocarbon samples (estimate 13 determinations). Following preliminary analysis, phasing and additional input from specialists, selection of suitable radiocarbon samples will be made in consultation with EH (Alex Bayliss).

Dating will focus on key phases of site activity where other dating evidence is not available or is poorly understood as well as on key stages of environmental change identified in the pollen record.

The Neolithic pottery*Task 6.1 (PO3 and PO8; RA4 and RA8)*

Detailed analysis of the ceramics will be undertaken to determine actual vessel numbers and forms. Partial reconstruction of the vessels will be undertaken. Form, fabric and surface treatment can be used to allocate sherd groups to individual vessels. The identification of fresh breaks from amongst the sherds clearly indicates the potential for refitting and reconstruction.

Task 6.2 (PO8; RA4 and RA8)

Refinement of the fabric groups. These have been identified macroscopically, but use of a handlens will allow the better identification of inclusions and their relative density and thereby refine the assessment.

Task 6.3 (PO8; RA4 and RA8)

Thin section analysis of the assemblage will check the validity of the macroscopically identified fabric groups. Identification of the naturally occurring non-clay inclusions and a comparison with local geologies will determine the local/imported nature of the material. Estimated 10 thin sections.

Task 6.4 (PO14)

Illustration of the assemblage will be undertaken. Estimated 30 vessels.

Task 6.5 (PO8, PO10-12 and PO14; RA4 and RA8)

Absorbed residue analysis will be undertaken to determine the former uses of the ceramics. The ceramics have been curated in a manner suited for residue analysis and clearly, because of their stylistically early date, have potentially important data stored within the fabric.

It has been recommended by Richard Evershed of Bristol University that an appropriate level of sampling (based upon a typical 50% success rate) will be thirty samples taken from various vessels from each of the two pits from which significant assemblages were recovered (20 samples from context 3852; 10 samples from context 3854).

This analysis will support the work already undertaken within EH/Bristol University's *History of Dairying* project and will provide an excellent source of earlier prehistoric ceramics, samples from which period are generally rare.

Task 6.6 (PO11, PO12 and PO14; RA4 and RA8)

Compilation of a publishable report researching national parallels and placing the assemblage within its regional and national context.

Iron Age pottery*Task 7.1 (PO3, PO8 and PO10; RA6)*

Fabric and form identification will be undertaken for the whole assemblage. Fabrics will be related to the reference series maintained by the Service (Hurst 1994). Where new fabrics are identified this will be updated. A *terminus post quem* will be produced for each stratified context and will support site phasing.

Fabric and form identification will support analysis of function of features, activities and the economic basis of the settlement. Functional analysis will support interpretation of range of activities at the site.

Information will be used to update the project's ceramic database and support overall analysis.

Task 7.2 (PO3 and PO8; RA3)

Plotting of datable sherds will aid phasing and identification of any post-depositional patterns, discrete clusters or residuality. This is particularly aimed at supporting phasing of the alluvial sequence and helping to date depositional and post-depositional events.

Task 7.3 (PO14)

Illustration of the assemblage (estimated 5 vessels).

Task 7.4 (PO11, PO12 and PO14; RA6 and RA8)

Compilation of a publishable report placing the assemblage within its regional context.

Roman pottery*Task 8.1 (PO3 and PO8; RA6)*

Fabric and form identification will be undertaken for the whole assemblage. Fabrics will be related to the reference series maintained by the Service (Hurst 1994) which will be updated where necessary. A *terminus post quem* will be produced for each stratified context and will support site phasing. Fabric and form identification will support analysis of function of features, activities and the economic basis of the settlement.

Information will be used to update the ceramic database and support overall analysis.

Task 8.2 (PO8 and PO10; RA6)

Functional analysis of assemblage will be undertaken based on rim sherds present. This will support understanding of the range of activities represented and also potentially support interpretation of features which have only been observed in section or partially investigated.

Task 8.3 (PO8 and PO10; RA6)

Identification of evidence for use or repair will support interpretations of function and economic activity.

Task 8.4 (PO3 and PO8; RA6)

Plotting of datable sherds will aid phasing and identification of any post-depositional patterns, discrete clusters or residuality. This is particularly aimed at supporting phasing of the alluvial sequence and helping to date depositional and post-depositional events.

Task 8.5 (PO8 and PO10; RA6)

Thin-section analysis of Severn Valley ware sherds will be undertaken to refine fabrics within this broad group classification. Three thin-sections to be undertaken by David Williams.

Task 8.6 (PO14)

Illustration of the assemblage (estimated 30 vessels).

Task 8.7 (PO11, PO12 and PO14; RA6 and RA8)

Compilation of a publishable report placing the assemblage within its regional context.

Medieval pottery*Task 9.1 (PO3 and PO8; RA7)*

Fabric and form identification will be undertaken for the whole assemblage. Fabrics will be related to the reference series maintained by the Service (Hurst 1994) which will be updated where necessary. A *terminus post quem* will be produced for each stratified context and will support site phasing.

Information will be used to update the ceramic database and support overall analysis.

Task 9.2 (PO8 and PO10; RA7)

Functional analysis of assemblage based on rim sherds present.

Task 9.3 (PO3 and PO8; RA3)

Plotting of datable sherds to aid phasing and identification of any post-depositional patterns, discreet clusters or residuality. This is particularly aimed at supporting phasing of the alluvial sequence and helping to date depositional and post-depositional events.

Task 9.4 (PO14)

Illustration of the assemblage (5 vessels).

Task 9.5 (PO11, PO12 and PO14; RA7 and RA8)

Compilation of a publishable report placing the assemblage within its regional context.

Post-medieval pottery*Task 10.1 (PO3 and PO8; RA7)*

Fabric and form identification. Fabrics will be related to the reference series maintained by the Service (Hurst 1994) which will be updated where necessary. A *terminus post quem* will be produced for each stratified context and will support site phasing.

Information will be used to update the ceramic database and support site analysis.

Task 10.2 (PO3 and PO8; RA3)

Plotting of datable sherds to aid phasing and identification of any post-depositional patterns, discreet clusters or residuality. This is particularly aimed at supporting phasing of the alluvial sequence and helping to date depositional and post-depositional events.

Task 10.3 (PO14; RA7 and RA8)

Compilation of a publishable report placing the assemblage within its regional context.

The flint*Task 11.1 (PO8; RA4)*

Assessment of the range of different flint types present. Rapid survey of the locality to identify any potential gravel flint sources.

Task 11.2 (PO3, PO8 and PO10; RA4)

Attribute and metrical analysis of the stratified pit assemblage to enable the technology to be characterised and identify what elements of the reduction sequence are present.

Task 11.3 (PO8 and PO10; RA4 and RA8)

Microwear analysis to determine usewear patterns. This will allow reconstruction of economic activities of the site which are otherwise unlikely to be identified by other means. Following consultation with Randolph Donahue it has been estimated that 100 pieces should be submitted for analysis (comprising pre-cleaning examination, recording, cleaning, microwear analysis, data recording and report).

Task 11.4 (PO14)

Illustration of the assemblage (estimated 15 items)

Task 11.5 (PO11, PO12 and PO14; RA4 and RA8)

Compilation of a publishable report researching national parallels and placing the assemblage within its regional and national context.

Tile*Task 12.1 (PO8 and PO10; RA6)*

Definition of fabric and form types (including dimensions) will be undertaken using the Service's fabric and form series.

Task 12.2 (PO8 and PO10; RA6)

Identification of signature marks and keying patterns on box flue tiles.

Task 12.3 (PO8 and PO10; RA6)

Thin-sections (David Williams): two samples of coarse fabric will be selected for comparison with sample of local clay to determine whether they are from a local production source.

Task 12.4 (PO14)

Illustration of diagnostic features, signature marks and examples of box-flue keying patterns (estimated 5 examples).

Task 12.5 (PO10, PO11 and PO14; RA6)

Compilation of a publishable report placing the assemblage within its regional context.

Brick*Task 13.1 (PO8; RA6)*

Definition of fabric and form types (including dimensions) will be undertaken using the Service's fabric and form series.

Task 13.2 (PO14 and PO6)

Compilation of a publishable report.

Fired ceramic*Task 14.1 (PO8 and PO10; RA4 and RA6)*

Examination of fired ceramic in relation to context and any possible buildings or structures to which it may be related. Particular consideration will be paid to the material from earlier prehistoric pits and which potentially relate to pottery production.

Task 14.2 (PO14; RA4 and RA6)

Compilation of a publishable report.

Stone*Task 15.1 (PO8 and PO14; RA4, RA6 and RA7)*

Worked stone will be examined macroscopically and with the aid of a hand lens. Analysis will be undertaken and a publishable report will be compiled (Fiona Roe).

Task 15.2 (PO8, PO10 and PO14; RA4 and RA8)

Identification of mineral component and source of pebbles potentially used as pottery temper and recovered from Neolithic pits and comparison with information from pottery thin sections (Task 6.3).

Iron*Task 16.1 (PO8; RA6 and RA7)*

Selection of objects to be sent for x-radiography (estimated 90 small objects). X-radiography (estimated 4 plates) will be undertaken by the Conservation Centre, Wyndham House, 65 The Close, Salisbury, Wiltshire SP1 2EN.

Task 16.2 (PO8; RA6 and RA7)

Identification of objects following x-ray and selection for illustration.

Task 16.3 (PO14)

Illustration (estimated 5 items).

Task 16.4 (PO14; RA6 and RA7)

Compilation of a publishable report.

Coins*Task 17 (PO8 and PO14; RA6)*

Coins will be identified and a publishable report produced (2 coins) – Cathy King.

Slag*Task 18 (PO8, PO10, PO11 and PO14; RA6)*

Identification and analysis of the slag residues will be undertaken following Service practice, using comparative material (Derek Hurst). Compilation of a publishable report placing the assemblage within its regional context.

The environmental remains*Task 19.1 (PO9 and PO10; RA1, RA2-8)*

Analysis will be undertaken of all plant remains from prehistoric features (15 samples). For these residues will be fully sorted by eye and quantification and recording will be undertaken

of each category of environmental material. Flots will be fully sorted using a low-power EMT light microscope and remains identified using modern reference specimens housed at the Service.

Analysis will also be undertaken of selected deposits rich in charred plant remains from Roman, medieval and post-medieval periods, especially those from the medieval ovens (estimated maximum 15 samples). For these residues will be fully sorted by eye and the abundance of each category of environmental remains will be estimated except for those from the medieval ovens and pits for which quantification and recording will be undertaken of each category of environmental material (8 samples). Flots will be fully sorted using a low-power EMT light microscope and remains identified using modern reference specimens housed at the Service.

Task 19.2 (P11 and PO14; RA2-8)

Compilation of a publishable report researching national parallels and placing the assemblage within its regional and national context.

Task 19.3 (PO9, PO10, PO11 and PO14; RA5, RA6 and RA8)

Analysis will be undertaken of the skull, two inhumations and cremated bone (Jacqueline McKinley).

Age and sex of the inhumations will be assessed and any pathological lesions and morphological variations/non-metric traits will be recorded, and diagnoses suggested where appropriate. Recording will use Skeletal Record Sheets and Dental/metric Data Sheets. For the cremated bone, the bone will be sorted into identifiable bone types (skull, axial, upper limbs and lower limbs or longbones). Weight, details of colour, fragment size and percentage fragmentation will be recorded for each type and where possible information relating to age and/or sex will be recorded.

A publishable report will be compiled placing the material within its regional context.

Task 19.4 (PO9, PO10, PO11 and PO14; RA4-6 and RA8)

It is recommended that analysis of hand-collected animal bone should be undertaken for all Neolithic, Iron Age and Romano-British material from securely dated contexts (Ian Baxter).

Identification, measurement, recording of ageing and butchery data will be undertaken and recorded on an Access database.

A basic species list and quantification will be undertaken for the remaining material to complete the archive.

A publishable report will be completed (including text and accompanying tables) placing the assemblage within its regional context.

Analysis and discussion

Task 20.1 (PO11, PO12 and PO14; RA2-8)

A synthetic discussion will be produced for each of the main periods of activity as well as the evidence for landscape use, history and change. This will draw on all analysed data and discuss the results within their regional and national context.

Comparison between the character and distribution of these phases of activity will form the basis for discussion and analysis of the nature of the changing pattern of human activity and the potential relationships between each phase of activity. In conjunction with the

palaeoenvironmental and geoarchaeological evidence, consideration will also be made of the impact and relationship of these phases of activity to the physical landscape and environment.

Task 20.2 (PO12 and PO13; RAI)

Critical appraisal of the effectiveness of fieldwork techniques will be undertaken, in their own right and in comparison with the techniques now being utilised. Discussion will cover the strengths and weaknesses of techniques used with particular attention to the effectiveness of palaeoenvironmental sampling strategies and techniques for recording alluvial sequences.

In the light of this discussion, recommendations will be made for future programmes fieldwork in alluviated landscapes with the aim of providing advice on the most appropriate techniques for recording and sampling both archaeological and geoarchaeological deposits.

Publication

Task 21.1 (PO14)

Produce introduction, background and methodology text.

Task 21.2 (PO14)

Produce supporting illustrations (location, soils/geology/site in context/etc).

Task 21.3 (PO14)

Check texts, ensure consistency and collate narratives and specialist reports.

Task 21.4 (PO14)

Paste illustrations.

Task 21.5 (PO14)

Internal editing.

Task 21.6 (P14)

Submission of report and production of application for publication grant.

Outreach

Task 22.1 (PO14)

At the outset of the project a page will be established on the Service website. This will summarise the results of the fieldwork and the aims of the analysis. Recognition will be made of how the aggregates industry worked with archaeologists at the site and how the ALSF is contributing to the project.

The web page will be updated on at least two occasions during the course of the project (at the completion of specialist analysis and at the completion of overall analysis and discussion).

Task 22.2 (PO14)

During the course of the analysis and following consultation, design of the outreach programme will be finalised, for which a fully costed proposal will be presented along with the completed report and publication proposals (Task 21.6).

To ensure completion within the ALSF two year pilot, a period of 5 months has been allowed within the project programme.

Archiving*Task 23.1 (PO15)*

Throughout the project documentation relating to digital data will be maintained. File and directory structure will be recorded along with any codes and abbreviations used.

Task 23.2 (PO15)

Upon completion of the project the non-digital archive will be ordered, compiled and copied prior to deposition. All digital files and accompanying documentation will be submitted to the ADHS in appropriate formats.

6. Resources and programming

6.1 Personnel

The project will be undertaken under the direction of the Principal Field Archaeologist.

The Project will be led by Robin Jackson (Project Manager - Earlier Prehistoric deposits) with the assistance of Rachel Edwards (Project Manager - Iron Age, Roman, post-Roman, medieval and post-medieval deposits).

Transfer of information from site records to database will be completed by one of the Service's Field Officers. Mapbase, digitising and database links will be undertaken and maintained by Simon Griffin (Project Officer).

Artefactual analysis (except where external specialists are identified below) will be co-ordinated and undertaken by Laura Griffin (Finds Officer) and Derek Hurst (Project Manager). Environmental analysis (except where external specialists are identified below) will be co-ordinated undertaken by Elizabeth Pearson (Environmental Archaeologist).

Illustration and design (including web page) will be undertaken by the Service Illustration Team led by Laura Templeton (Senior Illustrator) with the assistance of Carolyn Hunt and Steve Rigby (Illustrators).

All staff will be appropriately qualified and with an established record of expertise.

The following external specialists will undertake relevant areas of analysis:

Ian Baxter (Freelance)	Animal bone
Peter Bellamy (Terrain Archaeology)	Flint
Randolph Donahue (Bradford)	Microwear analysis
Richard Evershed (Bristol)	Absorbed residue analysis
Alex Gibson (University of Bradford)	Neolithic pottery
Catherine Hardman (ADS, York)	Digital archiving
David Jordan (Terra Nova)	Geoarchaeology
Cathy King (Ashmolean)	Coin identification
Jacqueline McKinley (Wessex Archaeology)	Human bone
Fiona Roe (Freelance)	Worked stone
Helen Wilmott (Conservation Centre, Salisbury)	X-radiography

The following English Heritage and EH retained specialist staff will be used:

Kathy Perrin	Project monitoring
Alex Bayliss	Radiocarbon dating
James Greig	Pollen
David Williams	Petrology

The following will also be consulted during the course of the project:

Andy Hodgson (Communications Manager, Lafarge)	Outreach liaison
Keith Ray (Herefordshire County Archaeologist)	Input on regional research frameworks and resource management

Rebecca Roseff (Herefordshire SMRO)

SMR advice and geoarchaeology

Judy Stephenson (Herefordshire Heritage Services)

Archiving liaison and outreach

6.2 Programme

The project will commence on approval from English Heritage. The Service would be able to commence the project during the Autumn/Winter of the financial year 2002/2003

The project is anticipated to take a period of 56 weeks to complete to submission of report (see attached Gantt chart). A start date of 30 September 2002 is requested.

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Appendix 1

Appendix 1.1 Evaluation and watching brief (1987/8)

Context numbers: Up to 1620

Record type	Sheet code	Number
Context record	AS1	110
Fieldwork progress record	AS2	26
Photographic record	AS3	9
Context number catalogue	AS5	4
Matrix record	AS7	8
Context finds records	AS8	59
Recorded finds record	AS13	1
Drawing sheets - field drawings		30
Colour transparencies		111
Monochrome negatives/prints		55
Boxes of artefacts		10

This is a well recorded and cross-referenced archive covering an area of the site within which Roman activity was focused. No further work is required on this data to enable the results of this phase of recording to be used within the proposed programme of analysis.

Appendix 1.2 Salvage recording I (Summer 1989)

Context numbers: 3001-3123 and 3201-3206

Record type	Sheet code	Number
Context record	AS1	130
Fieldwork progress record	AS2	11
Photographic record	AS3	7
Drawing number catalogue	AS4	1
Context number catalogue	AS5	4
Context finds records	AS8	35
Recorded finds record	AS13	1
Drawing sheets - field drawings		9
Colour transparencies		177
Monochrome negatives/prints		68
Boxes of artefacts		5

This is a well recorded archive covering an area of the site with extensive Roman activity extending to the south of the 'core area'. The archive is fairly well cross-referenced, however, important data relating to alluvial sequences and to some features (mainly Roman ditches) is only recorded through scale drawings or measured sketches. A small amount of information recorded during a brief period of work following the main phase of recording has never been analysed. This information has a high potential to contribute to the development of an understanding of the Roman settlement pattern and overall alluvial sequence (see below). In the light of the potential value of the data to contribute to these areas of research, it is recommended that information from the scale drawings and sketches is transferred to context records and cross-referenced with the rest of the archive (Task 2.1: 3.5 days).

Appendix 1.3 Salvage recording II (Winter 1989)

Context numbers: 3301-3350

Record type	Sheet code	Number
Context record	AS1	92
Fieldwork progress record	AS2	15
Photographic record	AS3	2
Drawing number catalogue	AS4	1
Context number catalogue	AS5	2
Context finds records	AS8	10
Auger record	AS26	11
Drawing sheets – field drawings		6
Colour transparencies		42
Boxes of artefacts		2

This is a moderately well recorded and cross-referenced archive covering an area of the site within which prehistoric remains (possible ring-ditches) and further Roman activity were identified. Some elements of information related to these remains is only recorded on field drawings and measured sketches. Two auger traverses (11 augerholes) through the alluvium have not been analysed or drawn up as profiles. The information from these elements of the fieldwork record will support and enhance the information recorded in this area and contribute to the overall research archive. As result it is recommended that the information from the drawn record is transferred to context records and cross-referenced with the archive for this area and that the auger information is analysed and profiles created (Task 2.1: 2 days).

Appendix 1.4 Salvage recording III (Summer 1990)

Context numbers: 3401-3532

Record type	Sheet code	Number
Context record	AS1	132
Fieldwork progress record	AS2	20
Photographic record	AS3	3
Drawing number catalogue	AS4	1
Context number catalogue	AS5	5
Context finds records	AS8	22
Drawing sheets – field drawings		3
Colour transparencies		113
Boxes of artefacts		4

This is a well recorded and cross-referenced archive covering an area of the site within which mainly Roman activity was recorded. Field boundaries, burials, pits, postholes and watercourses were identified extending south of the 'core area'. Alluvial sequences and palaeoenvironmental remains were also recorded. Although this information is all considered in the interim report (Edwards 1990), some contexts were only recorded on scale drawings and measured sketches.

It is recommended that the information from these is transferred to context records and that currently unlocated features are plotted to enable this information to be integrated into the overall research archive. Some re-assessment of the dating of features may also be necessary (Task 2.1: 2 days).

Appendix 1.5 Salvage recording IV (1992)

Context numbers: 3600-3644 and 3700-3715

Record type	Sheet code	Number
Context record	AS1	71
Fieldwork progress record	AS2	17
Photographic record	AS3	4
Context finds records	AS8	23
Drawing sheets - field drawings		5
Colour transparencies		71
Monochrome negatives/prints		54
Boxes of artefacts		3

This is a moderately well recorded and cross-referenced archive covering an area of the site within which further significant prehistoric and Roman activity was recorded along with significant medieval deposits (11th to 15th century). Records for this area are largely complete, however, elements of the alluvial sequence were recorded on annotated section drawings but were not numbered or transferred to context records.

Completion of this limited outstanding work is recommended to enable this data to be integrated into the overall research archive and contribute to the understanding of the alluvial sequence at the site (Task 2.1: 1 day).

Appendix 1.6 Salvage recording V (August 1993)

Context numbers: 3800-3883

Record type	Sheet code	Number
Context record	AS1	83
Fieldwork progress record	AS2	24
Photographic record	AS3	11
Drawing number catalogue	AS4	4
Context number catalogue	AS5	3
Context finds records	AS8	24
Sample record	AS17	37
Sample number catalogue	AS18	3
Drawing sheets - field drawings		39
Colour transparencies		355
Monochrome negatives/prints		247
Boxes of artefacts		3

This is a well recorded and cross-referenced archive covering an area of the site within which significant Neolithic and Bronze Age activity was focused along with a small amount of Roman and later activity.

A small amount of further work is required on this data in relation to the alluvial sequences recorded, to enable the results of this phase of recording to be used within the proposed programme of analysis (Task 2.1: 1 day).

Appendix 1.7 Salvage recording VI (1994)

Context numbers: 3900-3930

Record type	Sheet code	Number
Fieldwork progress record	AS2	7
Photographic record	AS3	2
Context finds records	AS8	3
Drawing sheets - field drawings		3
Colour transparencies		76
Monochrome negatives/prints		83
Boxes of artefacts		1

The records from this phase of recording are poor due to time constraints and other conditions on site. A potentially significant feature was identified in the form of a timber and stone structure, possibly a causeway, however, this remains undated. Only limited contextual information was recorded and remains are poorly located within the stripped area. Elements of information relating to this structure and the associated alluvial sequence have not been transcribed from field drawings, plotted or analysed. Despite the paucity of the record, these remains are of some considerable potential importance, possibly representing a major prehistoric or Roman structure.

It is recommended that the record for this phase is completed to enable the results to be integrated into the project research archive (Task 2.1: 2.5 days).

Appendix 1.8 Salvage recording VII (1995)

Context numbers: 4000-4005

Record type	Sheet code	Number
Fieldwork progress record	AS2	6
Photographic record	AS3	2
Context finds records	AS8	1
Drawing sheets - field drawings		3
Colour transparencies		10
Boxes of artefacts		1

Opportunities for recording in this area were limited due to the stripping method used and time constraints. However, this is a well recorded and cross-referenced archive for an area within which limited Roman activity was located. All data is currently recorded on scale drawings and measured sketches.

It is recommended that to enable this data to contribute to overall research archive that the drawing data is transcribed to context records and cross-referenced to the remainder of the archive (Task 2.1: 2 days).

Appendix 1.9 Salvage recording VIII (March 1996)

Context numbers: 4500-4520

Record type	Sheet code	Number
Context record	AS1	17
Fieldwork progress record	AS2	10
Context number catalogue	AS5	1
Context finds records	AS8	5
Sample record	AS17	8
Drawing sheets - field drawings		10
Colour transparencies		173
Monochrome negatives/prints		76
Boxes of artefacts		2

This is a well recorded and cross-referenced archive covering an area of the site within which significant Neolithic and Beaker period deposits were recorded.

No further work is required on this data to enable the results of this phase of recording to be used within the proposed programme of analysis.

Appendix 1.10 Salvage recording IX (November 1996)

Context numbers: 5500-5526

Record type	Sheet code	Number
Context record	AS1	25
Fieldwork progress record	AS2	9
Context number catalogue	AS5	1
Context finds records	AS8	6
Drawing sheets - field drawings		2
Colour transparencies		15
Monochrome negatives/prints		13
Boxes of artefacts		1

This is a well recorded and cross-referenced archive covering an area of the site within which limited Roman activity was located.

No further work is required on this data to enable the results of this phase of recording to be used within the proposed programme of analysis.

Field Section

stratigraphic unit	raw material	flakes	broken flakes	burnt flakes	blades	broken blades	burnt blades	cores	broken cores	tools	broken tools	burnt tools	chips	burnt chips	misc debitage	spalls	total	tool type
unstratified	flint	22/86	42/75	30/103	2/2	5/8	36	5/43	1/4	9/65	8/23	2/18	50/19	10/8	25/147		213/604	8 scrapers; 3 broken scrapers; 1 B+T arrowhead; 1 broken arrowhead roughout?; 1 flake from polished axe; 1 flake knife?; 1 broken flake knife; broken utilised flake; broken point; slightly burnt retouched flake
unstratified	chert	1/1											1/0				2/1	
med./ post-med. features	flint	2/14	4/9	1/3									1/0				8/26	
post-Roman alluvium	flint		3/1	1/4		2/1							2/0		2/6		10/12	
Roman ditches etc	flint	2/5	3/8			2/2				1/9			4/1		1/2		11/24	tanged flake tool
Iron Age soils	flint							1/36							1/3		2/39	
ring ditches	flint			1/11		1/1				1/40			1/0		2/6		7/61	flint 'ball'
?Bronze Age pit	flint	7/21	2/6	2/5	1/1	2/2							4/1				18/36	
Beaker grave	flint	3/4								13/83							16/87	4 B + T arrowheads; 3 arrowhead blanks; 3 knives; 2 points
Neolithic pits	flint	53/184	58/99	37/75	17/19	23/26	6/7	1/17	1/4	10/117	8/25	1/8	185/33	31/5	12/37	*	444/657	4 scrapers; 3 broken scrapers (1 burnt); 1 piercer; 3 knives; 1 utilised flake; 1 leaf arrowhead; 1 broken leaf arrowhead; 1 broken leaf arrowhead roughout; 1 serrated flake; 1 broken utilised flake; 2 broken retouched flakes
Neolithic pits	stone	1/4															1/4	
prehistoric alluvium	flint	1/8	2/9		1/4	1/0				1/15			5/2	4/2			15/40	scraper
total	total	92/327	114/207	72/201	21/26	36/40	9/13	7/96	2/8	35/329	16/48	3/26	252/56	45/15	44/202		749/1380	

Table 1: Summary of flint assemblage

Material	Sherd count	Weight (g)
Iron Age pottery	111	948
Roman pottery	1837	23800
Medieval pottery	152	1670
Post-medieval pottery	35	576

Table 2: summary of Iron Age, Roman and later pottery

Material	Total	Weight (g)
Iron Age pottery	111	948
Roman pottery	1837	23800
Medieval pottery	152	1670
Post-medieval pottery	36	584
Clay pipe bowl	1	10
Clay pipe stem	5	12
Tile	541	15711
Brick	9	604
Plaster	4	138
Stone	311	21366
Miscellaneous ceramic	4	2
Daub	12	222
Fired clay	62	470
Furnace lining	1	8
Slate	2	12
Copper alloy coin	5	38
Copper alloy	4	3764
Iron	539	3757
Lead	1	26
Slag	69	1433
Window Glass	4	56
Vessel Glass	13	312
Charcoal	16	12
Coke	3	14
Flint	1206	1649
Shell	18	75
Spindle whorl	1	16

Table 3: Quantification of the assemblage

Field Section

Context	Sample	Vol (l)	Type	Provisional date	large mammal	cremated bone	mollusc	charcoal	charred plant	waterlog plant	Comment
3838	20	5l	pit	Early Neolithic				abt		mod	matted organic material
3852	23	265l	pit	Early Neolithic	mod	occ		occ	abt		abt hazelnut frags, occ cereal
3854	24	230l	pit	Early Neolithic	occ	occ		occ	occ		occ hazelnut frags
3856	25	5l	pit	Early Neolithic				occ			
3859	26	55l	pit	Early Neolithic	occ	rare					
3867	28	50l	ditch	Early Neolithic	occ						burnt bone
3869	29	15l	pit	Early Neolithic				mod	occ?	occ	matted organic matter
3861	30	30l	pit	Early Neolithic				mod	occ		
3863	31	25l	pit	Early Neolithic					occ		unidentified cereal
4512	7	50l	pit	Middle Neolithic						occ	
4513	8	20l	pit	Middle Neolithic?					occ		
4514	9	30l	pit	Middle Neolithic?					occ		
4515	10	30l	pit	Middle Neolithic?					occ		
4504	1	0.05l	grave	Beaker					occ		
4505	3	20l	grave	Beaker					occ		
3639	3639	5l	pit	Prehistoric					occ		
3612	3612	5l	pit	Roman					occ		
3832	14	5l	pit	Roman	mod	abt		mod	occ-mod		
3840	16	5l	ditch	Roman	mod	rare		occ		occ	
3443	3443	2l	ditch	Roman?			mod		abt?	abt?	
3842	18	5l	pit	Roman?		mod		mod			
3875	33	5l	alluvium	Post-Roman?			occ-mod	occ		occ	
3629	3629	5l	oven	Medieval					mod		
3630	3630	5l	oven	Medieval					mod		
3632	3632	5l	pit	Medieval					abt		
3633	3633	5l	ditch	Medieval					abt		
3605	3605	5l	ditch	Medieval?					occ		
3606	3606	2 x 5l	oven	Medieval?					abt		
3608	3608	1.5l	indeterminate	Medieval?					occ		
3610	3610	5l	pit	Medieval?					abt		
3614	3614	5l	oven	Medieval?					abt		
3600	3600	5l	ditch	Post-medieval					abt	occ	
3709	3709	5l	charc spread	Post-medieval					abt	occ	
3115	3115	2l	charcoal lens	N/A			mod		abt	mod	
3626	3626	5l	ditch	N/D					occ		
3813	6	5l	pit	N/D						occ	matted organic material
3826	11	5l	pit	N/D				abt			
3833	13	5l	cremation	N/D		abt		mod			

Table 4: summary of environmental remains from selected samples

(Note: Samples which proved to be sterile upon processing are omitted from this table)

Context	Type 2	Bone (frag)	Bone wt (g)	Sample	Phase	Date (prov)	Comments/description
3852	Fill of 3853	4		Y	Y	Early Neolithic	Large cremation, Res mostly sorted, flot partially sorted
3854	Fill of 3855	11		Y	Y	Early Neolithic	Res mostly sorted, flot partially sorted
3859	Fill of 3860	7		Y		Early Neolithic	Res sorted, flot unsorted
3867	Fill of 3868	1		Y		Early Neolithic	
4505	Fill of 4507		5	Y		Beaker	
3636	Pit		34			Iron Age	
3635	Fill of 3636	4				Iron Age	
146	Buried soil/occupation layer	116	2430			?Iron Age	Surface accumulation - Roman pottery may be intrusive
714	Fill of 714	1	2			?Iron Age	Not "real" - but soil equating to 77
3323	Fill of 3325	57				Prehistoric	
3639	Fill of 3644	15	10	Y		Prehistoric	
3328	Fill of 3331	9				Prehistoric?	Fill of ?ring-ditch - ID = doubtfull - Roman pot
3332	Fill of 3337	3				Prehistoric?	Fill of ?ring-ditch - ID = doubtfull - Roman pot
148	Alluvium?	4	124			Pre-Roman	?Yellow alluvium
3445	Alluvium	3	68			Pre-Roman?	Yellow
32	Indeterminate	8	10			Roman	Surface accumulation
54	Buried soil/occupation layer	17	94			Roman	Surface accumulation
65	Indeterminate	35	300			Roman	Surface accumulation - ? mortar encrustation, oyster shell
66	Buried soil/occupation layer	74	420			Roman	Surface accumulation
73	Buried soil/subsoil	5	4			Roman	
74	Buried soil/occupation layer	53	276			Roman	Surface accumulation
75	Buried soil/occupation layer	6	20			Roman	Surface accumulation
76	Alluvium?	25	160			Roman	
93	Buried soil/occupation layer	21	40			Roman	Surface accumulation
102	Indeterminate	8	118			Roman	
136	Buried soil/alluvium	138	2190			Roman	Surface accumulation, oyster shell
143	Buried soil/alluvium	18	100			Roman	Surface accumulation
144	Buried soil/alluvium	1	54			Roman	bivalve shell
3016	Ditch	27	2673			Roman	Ditch in records but a pit in report
3058	Pit	3				Roman	
3064	Spread/surface?	1?				Roman	
3076	Pit	10				Roman	
3612	Fill of 3613	17	60	Y		Roman	
3805	Fill of 3806	2	20	Y		Roman	
3840	Fill of 3841	18		Y		Roman	
5512	Fill of 5513	11				Roman	
5514	Fill of 5513	13				Roman	
3053	Ditch/Pit	1				Roman?	
3442	Fill of 3516	30	300			Roman?	same as 3443
3443	Fill of 3516	59	760	Y		Roman?	same as 3442
3444	Channel/pond?	4	46			Roman?	High CaCO3 content noted - ?tufa. Roman pot confidently noted
3446	Pit/ditch?	19	190			Roman?	
3448	Ditch	1	28			Roman?	

3449	Ditch	8	300			Roman?	
3622	Fill of 3621	10	70	Y		Roman?	
3809	Fill of 3810	5	16	Y		Roman?	
3441	Fill of 3515	15	68			Roman??	Date very dodgy - could very well be prehistoric
22	Alluvium	1	108			Post-Roman	
51	Alluvium	1	2			Post-Roman	
52	Alluvium	24	100			Post-Roman	
62	Alluvium	1	2			Post-Roman	
63	Alluvium	10	78			Post-Roman	
64	Alluvium?	6	60			Post-Roman	oyster shell
81	Alluvium	4	12			Post-Roman	
91	Alluvium	4	12			Post-Roman	
92	Alluvium	5	18			Post-Roman	
131	Alluvium	12				Post-Roman	
132	Alluvium	2	4			Post-Roman	
135	Buried soil/alluvium	13	304			Post-Roman	
161	Topsoil	2	32			Post-Roman	
1614	Topsoil	1	1			Post-Roman	
3303	Alluvium	1				Post-Roman	Red. seals Roman features
3822	Fill of 3823	3	26			Post-Roman???	Dating very uncertain. Snails and reddish fills
3629	Oven construction cut	16	76	Y		Medieval	
3630	Fill of 3629	2	8	Y		Medieval	
3632	Pit			Y		Medieval	
3633	Fill of 3634	58	1000	Y		Medieval	
3605	Fill of 3604	21	18	Y		Medieval?	
3606	Fill of 3607		40	Y		Medieval?	Dating/ID dodgy. ??a pit. Contains Roman pot. Check env remains
3608	Fill of 3609	8		Y		Medieval?	
3610	Fill of 3611	10	124	Y		Medieval?	
3614	Fill of 3615			Y		Medieval?	
3617	Ditch	2	12			Medieval?	
3619	Ditch	1	4			Medieval?	
3836	Fill of 3837	2	22	Y		Medieval?	Check pot fabric - recorded as Roman originally
3600	Fill of 3601??	4	14	Y		Post-medieval	
3601	Ditch	2	34			Post-medieval	
3701	Topsoil		172			Post-medieval	
3710	Alluvium?	1	8			Post-medieval	
3116	Area reference	116				N/A	
3120	Unstratified finds	40				N/A	Misc. finds
3900	U/S Finds	1				N/A	
3626	Fill of 3625	1		Y		N/D	
3880	Palaeochannel	2	26	Y		??	Dark grey brown band - 80-100m wide

Table 5: Summary of hand-collected animal bone

Wellington Quarry, Herefordshire: Updated Project Design: Task list

Task	Objective	Research aim	Task name	Staff	Days
1.0	N/A	N/A	Project Management	RJ RE LG EP	7 3 3 3
Structural analysis					
2.1	PO1		Extract data and update database	FS	14
2.2	PO2		Digitise site plans	SG	12
2.3	PO3, 5 & 7	RA4-8	Analysis, phasing and characterisation	RJ RE	5 12
2.4	PO3	RA4-8	Correlate structural and alluvial sequences	RJ RE	2 2
2.5 & 2.6	PO7, 10-12 & 14	RA4-8	Phased description, discussion and illustration	RJ RE I	7 18 10
Analysis of alluvial deposits					
3.1 to 3.3	PO1-5		Select, analyse and plot & collate alluvial information	DJ	10
3.4	PO3,4 & 5	RA3 & 8	Correlate structural and alluvial sequences	DJ	4
3.5	PO2-4		Update map base	DJ	6
3.6	PO3, 4 & 13	RA1	Integration with earlier work	DJ	2
3.7	PO12 & 14	RA3 & 8	Production of geoarchaeology report	DJ	5
Pollen analysis					
4.1	PO6 & 9-12	RA2, 3 & 8	Pollen analysis	JG	28
4.2	PO6 & 9-12	RA2 & 8	Plant macrofossils from pollen	JG	5
4.3	PO6		Loss on ignition	JG	3
4.4	PO11, 12 & 14	RA2 & 8	Report production	JG	6
Scientific dating					
5.0	PO3	RA2-5	Scientific dating (estimate 6 month max programme)	AB RJ	N/A 1
Analysis of Neolithic pottery					
6.1 & 6.2	PO8 & 8	RA4 & 8	Analysis, refitting and reconstruction & fabric grouping	AG	6
6.3	PO8	RA4 & 8	Thin sectioning (estimated 10 samples)	DW	3
6.4	PO14		Illustration (estimated 30 vessels)	LT	6
6.5	PO8, 10-12 & 14	RA4 & 8	Absorbed residue analysis (estimated 30 samples, 6 month)	R Ev	N/A
6.6	PO11, 12 & 14	RA4 & 8	Report production	AG	3
Iron Age pottery					
7.1-2 & 7.4	PO3, 8, 10, 12 & 14	RA3, 6 & 8	Form and fabrics, X-joins and distribution, report	LG	2
7.3	PO14		Illustration	I	0.5
Roman pottery					
8.1 to 8.4	PO3, 8 & 10	RA3, 6 & 8	Form/fabric/function/ X-joins/use analysis and distribution	LG	11
8.5	PO8 & 10	RA6	Thin sectioning (3 samples)	DW	1
8.6	PO14		Illustration (estimated 30 vessels)	I	3
8.7	PO11, 12 & 14	RA6 & 8	Report production	LG	5
Medieval pottery					
9.1-3 & 9.5	PO3, 8, 10, 12 & 14	RA3, 7 & 8	Form/fabric/function/use analysis and distribution and repor	LG	2
9.4	PO14		Illustration (estimated 5 vessels)	I	0.5
Post-medieval pottery					
10.1 & 10.2	PO3 & 8	RA3 & 7	Define form/fabrics.	LG	0.5
10.3	PO14	RA7 & 8	Report production	LG	0.5
Analysis of flint					
11.1 & 11.2	PO3, 8 & 10	RA4	ID raw material. Analysis and characterisation of technology	PB	7
11.3	PO8 & 10	RA4 & 8	Microwear analysis (estimated 100 pieces)	RD	N/A
11.4	PO14		Illustration (estimated 15 items)	I	4
11.5	PO11, 12 & 14	RA4 & 8	Report production	PB	5
Tile analysis					
12.1 & 12.2	PO8 & 10	RA6	ID fabric, type, signature marks and keying patterns	LG	3
12.3	PO8 & 10	RA6	Thin sectioning (2 samples)	DW	1
12.4	PO14		Illustration (estimated 5 examples)	I	0.5
12.5	PO10, 11 & 14	RA6	Report production	LG	1
Brick analysis					
13.1 & 13.2	PO8 & 14	RA6	Establish fabrics and types & produce report	LG	0.5
Fired ceramic analysis					
14.1 & 14.2	PO8, 10 & 14	RA4 & 6	Analysis and report production	LG	1
Stone analysis					
15.1	PO8 & 14	RA4, 6 & 7	Analysis and report - worked stone	FR	3
15.2	PO8, 10 & 14	RA4 & 8	Source Neolithic burnt stone/temper	DH	1
Iron objects					
16.1	PO8		Selection and X-radiography of objects (estimate 90 objects, 4 plates)	LG HW	0.5 3hrs
16.2 & 16.4	PO8	RA6 & 7	Identification of objects. Report.	LG	1
16.3	PO14		Illustration (estimated 5 items)	I	0.5
Coins					
17.0	PO8 & 14	RA6	Identification and report (2 coins)	CK	3hrs
Slag					
18.0	PO8, 10, 11 & 14	RA6	Analysis. Report production	DH	1.5
Environmental analysis					
19.1	PO9 & 10	RA2-8	Sort and analyse charred plant remains	EP	28
19.2	PO11 & 14	RA2-8	Charred plant report	EP	5
19.3	PO9-11 & 14	RA5, 6 & 8	Human bone analysis and report	JM	2
19.4	PO9-11 & 14	RA4-6 & 8	Animal bone analysis and report	IB	3
Analysis and discussion					
20.1	PO11, 12 & 14	RA2-8	Synthetic discussion	RJ RE LG EP RJ	6 6 3 3 3
20.2	PO12 & 13	RA1	Critical appraisal of methodology	RJ	3
Reporting					
21.1	PO14		Produce introduction and background text	RJ	2
21.2	PO14		Produce location, soil, geology, site in context illustrations	I	3
21.3	PO14		Check texts and collate report	RJ RE LG EP	2 2 1 1
21.4	PO14		Check and paste illustrations	I	4
21.5	PO14		Internal edit of report	RJ RE LT	2 2 2
21.6	PO14		Application for publication funding and submission of repor	RJ	2
Outreach					
22.1	PO14		Webpage	RJ RE EP LG LT	3 1 1 1 2
22.2	PO14		Design and submission	RJ RE	N/A N/A
Archiving					
23.1	PO15		Document digital archive	SG	2
23.2	PO15		Collate, copy and deposit paper and digital archives	SG FS	2 7

RJ = Robin Jackson (42 days total)
 RE = Rachel Edwards (46 days total)
 EP = Elizabeth Pearson (41 days total)
 LG = Laura Griffin (36 days total)
 DH = Derek Hurst (2.5 days total)
 AG = Alex Gibson (9 days total)
 IB = Ian Baxter (3 days total)
 DW = David Williams (5 days total)
 JM = Jacqueline McKinley (2 days total)
 AB = Alex Bayliss (est'd 3 month programme)
 DJ = David Jordan (27 days total)
 FR = Fiona Roe (3 days total)
 R Ev = Richard Evershed (est'd 6 month programme)

PB = Peter Bellamy (12 days total)
 JG = James Greig (42 days total)
 RD = Randolph Donahue (est'd 3 month programme)
 CK = Cathy King (3 hours total)
 HW = Helen Wilmott (3 hours total)
 SG = Simon Griffin (16 days total)
 LT = Laura Templeton (10 days total)
 FS = Field Supervisor (21 days total)
 I = Illustrator (26 days)

