Research Design and Management Plan:

A discussion document

INTRODUCTION

One major aim of the Where Rivers Meet project has been to produce an archaeological research design and management plan for the Study Area as a whole. As envisaged in the Project Design, development of this will require the input and collaboration of a wide range of organisations and individuals, and is dependent on the outcomes of the data-gathering stages of the project and the presentation of these results. Due to practicalities in the timetabling of the project, these results are only becoming available at the conclusion of the main phase of the project, and their full integration has not yet been achieved. Only at that stage will it be possible for full development of the Research Design and Management Plan. It is proposed that this process is initiated at a seminar in which the project results are presented and debated.

Nevertheless, at this interim stage much is already apparent and it is possible to outline the direction which an integrated research design and management plan for the Study Area might take. The points made in this discussion document run counter to the way in which archaeological resource management has been handled in the Study Area up until now, and are intended to provoke debate.

The Where Rivers Meet project has involved analysis at a broad landscape level. It is argued that, given the nature of the archaeological resource, only analysis at this level can produce results that fully realise the potential of that resource. Hitherto, the approach to the archaeology of the Study Area has been necessarily driven by the requirements of cultural resource management in an essentially development-led (mainly quarrying) context. This has led – equally necessarily – to a fragmented approach to the archaeological landscape, with the investigation of discrete 'packages' of the landscape driven by the scale and nature of the proposed development rather than any broader research agenda. Typically, for each plot of land potentially or actually affected by development, a desk-based assessment has preceded an evaluation (usually a combination of fieldwalking, geophysical survey and trial trenching), followed by targeted area excavation and a watching brief. This is, of course, standard archaeological practice which has evolved nationally through the 80s and 90s, principally under the influence of PPG 16. Whether this represents an effective approach to 'dealing with' the archaeology of the Study Area from a methodological point of view is a matter dealt with below. Here the point is that this fragmented approach to the landscape has led to equally fragmented results – a ring ditch sampled here, part of a Romano-British (or, just as likely, undated) field system there. Only a small proportion of this work is published, and while the reports are lodged in the SMR only limited integration of these results into the SMR is possible, and the results remain fragmented.

To use the hackneyed metaphor beloved of archaeologists, each bit of evidence may be 'another piece in the jigsaw' but unfortunately nobody other than wished-for 'future

researchers' is actually attempting to assemble the jigsaw. The pieces are filed away rather than assembled to search for a pattern and meaningful interpretation. Perhaps that is an inevitable consequence of the structure of development-led archaeology, but the aim must be to attempt to surmount this difficulty. The framework provided by the Where Rivers Meet project is an attempt to take a step in that direction.

To push the old metaphor further, we know that whatever approach is adopted we are only going to recover a tiny proportion of the whole jigsaw. We therefore want to collect the pieces that will maximise the chances of discerning the overall pattern, rather than just collecting pieces essentially at random. This approach demands turning the process as it now exists on its head. Instead of collecting the pieces on a small scale and then hoping that they will somehow assemble themselves into a 'bigger picture', we need to start with the bigger picture and collect the pieces in accordance with our research aims (albeit largely opportunistically).

The 'bigger picture' is an archaeological overview of the Study Area, based on the Where Rivers Meet project GIS (available across the web using ARC IMS) and containing the basic data – geology, topography, cropmarks, archaeological interventions and interpretations. This 'bigger picture', or landscape-level of analysis as it is better termed, is of course fuzzy, incomplete and almost certainly inaccurate. It poses more questions than answers. But the posing of questions is precisely the point – these questions will guide the aims and methods of archaeological fieldwork as and when the need or opportunity to undertake such fieldwork arises.

In short, a landscape that comprises mainly landscape features – boundaries, routeways, field systems and monuments that are an integral part of that landscape – has to be investigated primarily at the landscape-level of analysis and to do this a framework – such as that provided by a GIS – is needed.

PART 1: PROBLEMS AND CHALLENGES

The threat to the landscape

The archaeological landscape encompassed by the Where Rivers Meet Study Area suffers from a double threat. The first of these threats is destruction in the course of development. This mainly takes the form of sand and gravel quarrying – as pointed out in the Project Design it is one of the most intensively quarried landscapes in the country – but also industrial and business development (for example the Barton Business Park in the north of the Study Area). A study of the hydrogeology within the Study Area (Bunch 2004) has also examined the indirect effects of dewatering.

The second threat is from intensive agriculture, which is destroying the archaeological landscape at a slower but nevertheless steady rate. Statutory 'protection', in the form of the scheduling of monuments, of course provides no effective protection against this form of destruction. It is a matter of some irony that the aerial photography which brought the

archaeological landscape of the Study Area to light in the post-war period coincided with the onset of the intensive post-war agriculture that is progressively degrading and destroying that landscape. Both the pilot assessment of monuments undertaken as part of the project (Barratt 2004) and the intensive, multiple-technique geophysical survey in the Focus Area (Watters 2004) highlight the effects of deep-ploughing and other agricultural practices on the monuments. Much of the evaluation and excavation undertaken within the Study Area has also graphically illustrated these effects. There are numerous examples, but the fate of a D-shaped enclosure at Newbold Quarry, well-defined on aerial photographs and a scheduled ancient monument (PRN 206; SAM 221) will suffice. Following partially successful geophysical survey in 1991 (Gaffney and Ovenden 1991), this monument was evaluated by means of 13 trial trenches in 1992 (Hughes 1992) but no trace of the enclosure was found. In 2002 the whole area of the enclosure was stripped and a watching brief undertaken (Bain and Richmond 2002), but again no trace of the monument was found. While it always remains possible that the aerial photographs were misinterpreted, the more obvious conclusion – that of destruction by agriculture – is by far the more likely. While the destructive effects of modern agriculture on archaeological monuments is well know and has been documented in several influential reports since the 1960s (e.g. RCHM 1960 *A Matter of Time*), this knowledge does not diminish its practical effects.

The dual threats of total destruction by quarrying and gradual attrition (leading in some cases to eventual total destruction) by agriculture must be a key factor in determining the management approach to this landscape. In short, as far as possible the management approach to the Where Rivers Meet landscape must be proactive and research-led – and literally forward looking - rather than an *ad hoc* response to the most obvious threats.

Methods of investigation

The methods of archaeological investigation within the Study Area have followed a pattern which has become standard practice nationwide in the past couple of decades. The focus of each investigation has been limited to the specific area 'under threat' from development (leading to the problems of 'fragmentation' described above). These areas may vary in size from the 'footprint' of a new footbridge to a major quarry concession. Typically, for the larger areas, the archaeological response to proposed or actual development has followed a four-stage approach. First a desk-top assessment has been undertaken, usually relying heavily on the available SMR data. The desk-top assessment will often include specialist plotting and interpretation of the oblique aerial photography cropmark evidence. The desk-top assessment is then followed by an archaeological evaluation, often combining the elements of fieldwalking ('surface artefact collection'), geophysical survey (usually limited in scope to a small sub-set of the total area and usually mainly confined to gradiometry) and trial trenching. The trial trenching usually involves machine bucket-width mechanically excavated linear trial trenches, both targeted on cropmarks and 'blank' areas, with occasional small 'area' investigations. Following the assessment and evaluation stages of the archaeological response, the third stage of the investigation – 'preservation by record' - involves sample area excavation. The sample areas typically represent a small subset of the overall area destined for

development, and are usually selected on the basis of cropmark plots and trial trenching results (in practice, within the Study Area, geophysical survey has had little influence on trench locations at either the evaluation or excavation stage). A fourth stage often comprises a 'watching brief' during topsoil stripping prior to quarrying or development.

Although the four-stage procedure described above is standard practice in the context of development-led archaeology throughout the country, the questions which must be faced head on are, 'is the procedure effective from an archaeological point-of-view?' and 'does it represent value for money?'.

The overall aim of the four-stage procedure is laudable. Each stage of the process narrows the focus of investigation, so that the archaeological effort is closely targeted where it is needed to achieve the best possible results within the context of a reasonable outlay of resources and expenditure by the developer funding the work. That is the theory, but how does it work in practice?

The data gathering and analytical work carried out by the Where Rivers Meet project suggests that the 'four-stage procedure' can be criticised at every stage.

Stage 1 Desk-based assessment

Dozens of desk-based assessments have been carried out within the Study Area. With the exception of the plotting and interpretation of aerial photographs, which has been invaluable, these assessments tend to be very repetitive and 'overlapping'. The same information is reworked time and again. While such assessments are generally a requirement of the 'procedure' as it stands, there is clearly scope for streamlining these assessments and tying them in to the overall landscape-level of analysis provided by the Where Rivers Meet GIS in a 'top down' approach.

Stage 2 Evaluation As this is a discussion document, it will be useful to be blunt here.

A characteristic of the Study Area is a generally low level of material culture. This, together with the necessity of working in less than ideal conditions dictated by the practicalities of development programmes, has rendered fieldwalking ('systematic surface collection of artefacts') very unrewarding. It is difficult to point to any useful results that have emerged from fieldwalking within the whole of the Study Area, with the exception of the intensive fieldwalking undertaken around the Anglo-Saxon settlement at Cathomle (Losco-Bradley and Kinsley 2002).

The second typical component of evaluations, geophysical survey, has usually been equally unrewarding. Due to resource constraints, most surveys have been gradiometer surveys of sample blocks within the area to be investigated. There has been limited resistivity and very limited radar work. On the whole, the surveys have been spectacularly unsuccessful in locating archaeology and guiding either subsequent trial trenching or area excavations. As part of the Where Rivers Meet project, intensive research survey using multiple techniques and varied sample intervals, etc, has been

carried out on the monuments in the project's Focus Area (Watters 2004). This allows a considered assessment of the applicability of various techniques, but emphatically underlines the limitations of the approaches employed up to now. A reasonable conclusion is that geophysics has a research role to play within the Study Area, but that as a prospection technique to be applied on a routine basis it has a very limited role.

Trial trenching has been a component of virtually all evaluations carried out within the Study Area, and very extensive trial trenching has now been undertaken across large swathes of the Study Area, notably at Whitemoor Haye Quarry and at Catholme and Fatholme to the north. Literally hundreds of linear trial trenches have been excavated and in many cases these have been followed up by area excavations and watching briefs, allowing an assessment of effectiveness to be made. Reviewing this data as a whole, the results have been disappointing and sometimes misleading. The trenching does generally confirm or otherwise the survival of linear crop mark features, but only rarely adds a finer grain of detail, and levels of artefact recovery are generally very low leaving most elements of the landscape undated. In short, on reading many of the evaluation reports available for the Study Area one often does not end up much the wiser (although technically the reports are almost always to an adequate standard).

The general effectiveness and appropriateness of archaeological evaluation techniques is of course an area of active research, to which the work of the Where Rivers Meet project is making a contribution (notably the detailed work in the project 'Focus Area' at Catholme), but nevertheless the problems encountered in the Study Area are of a nature that would appear to preclude solutions based on 'tweaking' the techniques, sample intervals, placement of trenches and so forth. A more radical approach to investigating and recording the archaeological resource of the Study Area may be called for.

Stage 3 Area Excavation

Perhaps not surprisingly (aerial photography aside), area excavations have been the most effective means of investigating and understanding the archaeological landscape in the Study Area. Area excavations targeted on significant or apparently significant cropmarks have produced the most important results, usually revealing (again not surprisingly) levels of feature presence, density and complexity well exceeding that immediately apparent from the aerial photographs. It is noteworthy, for the reasons outlined above, that evaluation by means of trial trenching and geophysics has rarely contributed significantly to the strategy employed in the placement of areas or the results arising from area excavation.

In short, most understanding of the archaeology of the Study Area has arisen from a combination of air photo interpretation combined with extensive area excavation, the more extensive the better. This does not mean that area excavation merely confirms, extends, dates and provides fine-level interpretation of the pattern revealed by aerial photography, fundamental though this is to getting a grasp on the landscape (see the 'Catholme case study' below)

Stage 4: Watching Brief

The effectiveness of this mode of archaeological investigation has been variable. The variability is largely due to the conditions in which the watching brief has taken place. If by 'watching brief' is meant a 'strip and record' exercise, where surfaces have been stripped to an acceptable 'archaeological standard' and provision has been made for salvage recording, then this has proved on several occasions to be an effective approach. This is well illustrated at Whitemoor Haye, where, particularly in the north of the quarry concession, many elements of the 'ritual landscape' of the Late Neolithic/Early Bronze have been uncovered in what effectively amounted to a 'strip and record' exercise (see, e.g., Neilson 2001; Martin 2001).

A notable omission in current provision for watching brief work is that there is no requirement to maintain a watching brief during gravel extraction itself. As the discovery of the Whitemoor Haye woolly rhino, and the associated mammalian fauna and rich environmental deposits, demonstrated dramatically, the Study Area has a high potential for both environmental and archaeological remains which are of great importance for understanding the Ice Age landscape, and are of national significance. These deposits are found within or below the sands and gravels, rather than on the surface. This omission needs to be addressed.

The Catholme Anglo-Saxon settlement: a case study.

The case of the Catholme Anglo-Saxon settlement is informative. This settlement is arguably the most important monument (or, rather, former monument, although some elements may yet survive) within the Study Area (Losco-Bradley and Kinsley 2002). Investigation here, commencing in 1973, was prompted by the threat posed to a cropmarked site by quarrying to be undertaken by the Amey Roadstone Company. The cropmarks themselves were relatively unprepossessing, comprising 'two opposing sides of an apparent enclosure, about 50m square, with a short detached linear feature at its northwest corner, fragmentary features including a pit immediately to the south, and a ring-ditch beyond' (Losco-Bradley and Kinsley 2002, 1). The south side of the enclosure and the pit were selected for evaluation. A preliminary resistivity survey failed to detect the features and mainly showed broad linear anomalies, which subsequently proved to be the remnants of medieval furrows (a typical enough result in the Study Area as a whole). The description provided in the final project report of how the excavation strategy proceeded from this point is worth quoting at length:

> 'Nevertheless a small area of approximately 900 square metres was mechanically stripped of topsoil, revealing that the pit was a two-phase Anglo-Saxon *Grubenhaus*, and confirming the presence of a large enclosure, which proved also to be of Anglo-Saxon date. In addition, postholes and trenches of another three structures were located and it became clear that part of an Anglo-Saxon settlement had been discovered.
>
> Given the rarity of extensively-excavated Anglo-Saxon settlements, the principal aim of the project was to investigate as much of the site as possible within the

> threatened area. Since neither air-photography nor resistivity-survey had located the buildings demonstrated by excavation, and as inspection of the field surface north of the evaluation area produced only a single loom weight, it became clear that the limit of the settlement could only be determined by means of excavation.' (Losco-Bradley and Kinsley 2002, 3)

In the end, a total area of about 3.4 ha was totally excavated in a series of intermittent seasons between 1973 and 1980 revealing (in addition to earlier remains) an Anglo-Saxon settlement comprising of sixty-five buildings, together with trackways, fenced enclosures and various types of pit.

The lessons of this episode would seem to be straightforward. The evidence of aerial photography, while of fundamental importance, is incomplete and potentially misleading. Surface artefact collection does not provide a useful guide to below-ground archaeology. Conventional geophysics is ineffective, especially where shallow and relatively ephemeral features are concerned. These three lessons have been borne out repeatedly in the work that has taken place in the wider Study Area since the Catholme excavations, as has been noted above. With regard to geophysics (either resistivity or magnetometry, and despite the enormous technical improvements since the 1970s), in this landscape – and this lesson can emphatically not be applied to other landscapes and contexts – subsequent work has shown that as a pretty consistent rule conventional geophysics either a) does not reveal the anomalies revealed by aerial photography or b) reveals these anomalies but adds no further detail. To be blunt, and a now with a large number of surveys undertaken (see gazetteer) to back up the argument, conventional geophysics in this context has proved to be largely a waste of time.

The lesson to be drawn from the Catholme Anglo-Saxon settlement concerning the effectiveness of evaluation trenching is somewhat more subtle. It will be noted that at this site, evaluation comprised the excavation of 'a small **area** of approximately 900 square metres' (Losco-Bradley and Kinsley 2002; my emphasis). The area under consideration covered about 3.4ha, so this evaluation represents about a 2.6% sample, which, as it happens, accords well with today's unwritten 'industry standard'. However, the procedure which has been adopted in almost all evaluations carried out in the Study Area in recent years, including a recent major evaluation of land adjacent to the settlement site (Webster and Hindmarch 2000), has been to excavate a series of linear trenches, typically between about 20m and 100m in length and of 'machine bucket width' (nominally 2m but sometimes as little as 1.6m). If this strategy had been applied to the 1973 site, the 900 square metres would have equated to, say, nine 50 metre trenches. The question to be posed is whether this alternative strategy would have succeeded in characterising the archaeology of the site. This is a hypothetical question which cannot be answered, but a suspicion must be that the trenching approach may have failed. But certainly, there is no *a priori* good reason for the uniform adoption of the trenching approach which has been applied within the Study Area in recent years.

Post excavation analysis, interpretation, dissemination and publication

In reviewing the strategies which has been applied to the investigation of the Study Area since archaeological work began in earnest in 1968, with Henrietta Miles excavation of a cropmark site threatened by gravel quarrying at Fisherwick (Miles 1969), it is also important to take account of the approach which has been adopted to analysis, interpretation and publication.

Essentially, it has been what might be described as a 'discrete project-based approach'. That is, a particular threat – usually quarrying but sometimes industrial or business development – is identified relating to a particular 'site' (e.g. a cropmark cluster) or parcel of land. This has instigated an 'archaeological response' usually running through all or most of the 'four stages' of investigation outlined above. The work is funded as a particular commission or series of commissions, and an expected outcome is a report or reports of some sort. For the larger excavations, this has involved monograph-style excavation reports, e.g. at Fisherwick (Smith 1979), Catholme (Losco-Bradley and Kinsley 2002) and Whitemoor Haye (Coates 2002). Smaller-scale investigations have sometimes been published in regional journals (e.g. Miles 1969), but the vast majority of the work has ended up as 'grey literature' lodged in the SMR (see WRM gazetteer and bibliography).

There are two good, practical reasons for the 'discrete project-based approach'. First, it allows the funding body (whether the Ministry of Works or Department of the Environment in the early years of investigations, or the quarry company or prospective developer in more recent years) to set limits on what they are paying for. The quarrying or development threatens a particular area and the quarry company or developer is liable to pay for appropriate archaeological 'mitigation' up to and including publication of the results. The process is logical, transparent, finite and justifiable.

The second good reason for this approach is really the other side of the coin, viewing the same matter from the point of view of the archaeological consultant or contractor, or the archaeological curator charged with monitoring the work. With a discrete project you 'know where you are' and what your responsibilities are. Each separate project is a finite enterprise with easily definable goals and outputs.

There is, however, a very severe 'down side' to this approach, and this fundamental weakness becomes most apparent at the level of post-excavations analysis, interpretation, dissemination and publication. The 'discrete project-based approach' involves carving up a continuous landscape into arbitrary chunks or 'sites'. (The procedure which has been adopted towards the scheduling of sites within the Study Area reinforces this impression, with – basically – lines being drawn round the most impressive cropmarks, casting them into splendid statutory isolation from the landscape around them.) The publication of these 'sites', or the reporting on them, is a 'one off' procedure – once the report has been completed (and, hopefully, the archive archived) the job is done. Time to move onto the next project or site. Synthesis of the results of multiple investigations in

the same landscape is somebody else's problem (or, to be more cynical, nobody's problem).

The paragraph above restates in different terms the 'jigsaw puzzle problem' outlined in the introduction. Responsibility is assigned for recovering the pieces of the jigsaw puzzle but no responsibility is assigned for assembling the puzzle. Hence, except by luck, no 'big picture' emerges. This is not to say that individual publications do not attempt to set the work described in its wider context as understood at the time. For example, Christopher Smith's publication on Fisherwick (Smith 1979) or Gary Coates' on Whitemoor Haye (Coates 2002) both include much comparative material and attempt to place the excavations in their wider setting. However, Coates' volume, published in 2002, describes work at Whitemoor Haye between 1997 and 1998, but already by the time of publication four further seasons of fieldwork had taken place. This later work will form the basis for another publication – it is viewed, quite arbitrarily, as another essentially 'discrete project'. This future publication will, in its turn, soon be superseded. Those wanting to 'get to grips' with the archaeology of Whitemoor Haye will face a frustrating process of wading through successive reports. And those wanting to get to grips with the archaeology of the Study Area as a whole will face a mountain of 'grey literature'. Surely there must be a better way?

The problems outlined above are, of course, by no means unique to Whitemoor Haye or the Where Rivers Meet Study Area – they are endemic to the current procedures for the publication of archaeological fieldwork as whole (see, e.g., the recent survey *From the Ground Up* [Jones *et al* 2003]). For the purposes of discussion, it may be useful to describe four levels of synthesis:

1. *Grand synthesis*. This entails synthesis of archaeological data at a national or international scale. A typical example might be the successive editions of Barry Cunliffe's *Iron Age Communities in Britain*. Such syntheses are universally – it is imagined – believed to be beyond the responsibility of developer funding.
2. *Regional synthesis*. Such syntheses are, again, outwith the scope of developer funding. They are represented by several publication series, e.g. the Leicester University Press *Studies in the Early History of Britain* series. English Heritage has also initiated several initiatives at synthesis at this level, notably the *Regional Research Frameworks*, and the *Regional Reviews* for environmental archaeology. Another aspect of regional synthesis is represented by the ALSF project *Trent Valley 2002: Advancing the Agenda in Archaeology and Alluvium.*
3. *Landscape synthesis.* This is the level of analysis of the Where Rivers Meet Project. It is a crucial level of analysis which links 'site synthesis' (below) to the higher levels of synthesis (above). However, although much good work takes place at this level of analysis (two examples amongst many are the *Stonehenge Environs Project* and the *Wroxeter Hinterland Project*) it is not considered in current funding structures to be a **necessary** level of analysis. This, it will be argued, is a mistake.
4. *Site synthesis*. This is the level of analysis where the data from an individual 'site' or 'discrete project' is interpreted and synthesised in the form of a report

(Level III report in the Frere terminology) and an archive. Synthesis at this level is considered to be an obligation.

The challenge to be faced is interpreting the archaeological record is to achieve appropriate synthesis at all four levels, and to achieve a smooth progression between them. In the second part of this discussion paper, a management plan for the Study Area is proposed which attempts to meet this challenge.

PART 2: A NEW APPROACH TO MANAGING THE ARCHAEOLOGICAL LANDSCAPE

In this part of the discussion document, a management strategy is proposed that takes the total landscape of the Study Area as the point of departure and attempts to systematically address the problems and challenges raised above.

Central to this strategy is the Where Rivers Meet project GIS, which provides the principal 'management tool' for dealing with the archaeology of the landscape. At a county level, the principal 'tool' for archaeological management is considered to be the SMR (or HER as many SMRs are becoming). In several respects, as a repository of data, the county SMR corresponds to the second level of synthesis identified above. The WRM GIS incorporates this data, together with a range of new data, to provide both a management tool and – critically – an analytical tool at the landscape level.

Threats and opportunities

The fact that the historic landscape of the Study Area is under a dual threat from quarrying/development, on the one hand, and intensive agriculture, on the other hand, was stressed above. Three tasks of the Where Rivers Meet project were aimed at getting a better handle on these threats. The first has been the hydrogeological study, which has looked at the effects of dewatering caused by gravel extraction on the archaeological landscape (Bunch 2004). The second has been the intensive geophysics in the Focus Area, which has provided important data (particularly the GPR surveys) on the depth and survival of archaeological remains and the impact of agriculture on these (although full realisation of this must await the groundtruthing) (Watters 2004). The third has been the pilot assessment of the state of preservation of monuments within the study area, making particular use of the available LiDAR data (Barratt 2004).

While quarrying (say) is an obvious threat to the archaeological landscape it is also, of course, an opportunity. It is without a doubt true that quarrying has been indirectly and directly responsible for most of our understanding of the archaeological landscape, and almost all significant archaeological excavations and discoveries have been undertaken or made in the context of quarrying. These include the major campaigns of excavation at Fisherwick, Whitemoor Haye and Catholme, and the discovery of the Whitemoor Haye woolly rhino. And since the 90s, the aggregates industry has paid for nearly all this archaeological investigation. Furthermore, it is arguable that, by prompting excavation in advance of total destruction, quarrying has 'rescued' sites that would otherwise have

faced a slower, but nevertheless inevitable, degradation or even total destruction through intensive agriculture.

The challenge is a simple one: to minimise the threats and maximise the opportunities. Hitherto, the archaeological response to the threat from quarrying and development has been essentially 'site based', with a standard procedure of desk-based assessment, evaluation (geophysics and trial trenching), sample excavation, watching brief and report being followed for each 'site' (see above). hat is proposed here is that instead of this 'site based' approach (and the arbitrary nature of many of these 'sites' has been stressed) we should follow a landscape-based approach. Using the project GIS as a starting point, we should:

1. Zone the landscape in terms of the perceived 'threats', their nature and their timescale. The threats will include quarrying (including its indirect effects), development and agriculture, and the timescale will measure how far ahead, and over what duration, the 'threat' is likely to operate. Perhaps alarmingly, most of the landscape is under a threat of one form or another, with the Local Minerals Plan providing guidance on the likely extent and duration of future quarrying.

2. Integrate the excavation data and air photographic data to break down the palimpsest of cropmarks and other features into
   - i) Those of known date on excavation grounds (i.e. those directly dated by archaeological intervention).
   - ii) Those of suspected date on excavation grounds (i.e. those features, e.g. field systems, that can be dated by extrapolation from excavation data)
   - iii) Those of suspected date on morphological grounds (e.g. ring ditches, hengiform monuments, cursus monuments, etc)
   - iv) Those which are undated (which will of course be the majority)

   The effect here will be essentially to attempt a 'phase plan' of the total landscape.

3. Use the data from (2), together with other data collected by the project (e.g. palaeofluvial, LiDAR), to characterise and zone the landscape in terms of research potential and ability to answer specific research questions (below).

4. Combining the insights from (1)-(3) to derive a strategy for archaeological intervention (or protection) that will take account of the threats, research potential and specific research questions for each zone (below).

5. Implement this strategy on a 'project-by-project' basis. Such projects will be normal archaeological commissions, developer funded or otherwise, with project designs, budgets and specified outcomes in the normal manner. Especially where projects are to be developer funded, there will be full scope for competitive tendering between archaeological contractors in the normal manner, and for the engagement of archaeological consultants in the preparing of project designs and the monitoring of work on behalf of the client.

The overall aim of this approach is to transform what is essentially a ‘reactive’ process into a ‘proactive’ process, fully research and problem orientated, and to transform threats into opportunities.

Methods of investigation

In Part 1 the methods of investigation generally employed within the Study Area were reviewed and, particularly, the effectiveness of evaluation by means of fieldwalking, conventional geophysics and trial trenching was questioned (based on a now very substantial number of examples). It was argued that the need for detailed desk-based assessments was largely obviated by the work of the Where Rivers Meet project.

On the other hand, it was argued that large-scale area excavation produced the best return in terms of ‘information out’ for ‘effort in’. Furthermore, geophysical survey and trial trenching (including reporting) is costly, and these resources could be more effectively used in more extensive area excavation. It is a question of using resources most effectively.

It is therefore proposed that the standard approach to be adopted in future interventions should be area excavation on the maximum scale possible. There will be little or no prior evaluation fieldwork. The criteria for deciding which areas should be excavated, how extensive excavation areas should be and overall methodology will be provided by the analytical steps described in the preceding section. These will also provide the justification for undertaking archaeological intervention. A key strength of this approach is that it will maximise the chances of detecting and investigating the types of features which escape aerial photography, conventional geophysics and (except with a good dose of luck) trial trenching. Such features include both ephemeral Neolithic and Early Bronze Age occupation and ritual features, especially those that are unenclosed, and equally ephemeral features relating to Anglo-Saxon settlement and activity: these are two of the most important aspects of the Where Rivers Meet landscape (see research outline, below).

Given that most of the proposed large-scale area excavations will be to a considerable degree speculative, it is suggested that a variant of the ‘strip and record’ approach is adopted, which might be termed ‘strip-assess-excavate’. First, the maximum area realistic or reasonable of any threatened area is mechanically topsoil stripped and cleaned sufficiently to allow definition of archaeological features. Next, based on the results of the strip and clean, an assessment is made of the archaeological remains and an appropriate excavation strategy agreed (percentage of features to be excavated, methodology, etc). The parties involved in this assessment would normally be the archaeological curator(s), consultant and contractor. Finally this strategy is implemented. In developer-funded work, several approaches may be taken to ensure both financial control for the client and a ‘level playing field’ for archaeological contractors. Either final budgets for the archaeological work can be agreed at the assessment stage, or prices

can be agreed before the ‘strip’ phase based on minimum and maximum sampling percentages.

By and large, in the case of archaeological remains at the interface of the topsoil/sub-soil (gravel or alluvial deposits), the ‘strip-assess-excavate’ approach should obviate the need for watching briefs. Watching briefs will be required in the normal manner, however, when the area covered by the ‘strip-assess-excavate’ exercise is for one reason or another smaller than the final area of topsoil strip prior to quarrying or development.

During quarrying, monitoring of the quarry face and floor exposures for potential Pleistocene finds and deposits is essential. This monitoring should be carried out by qualified personnel, and provision should be made for follow up investigations in the event of significant deposits being uncovered.

Post excavation analysis, interpretation, dissemination and publication

Here, given the problems identified in Part 1 above, a radical departure from current practice is proposed. The aim is to achieve analysis and publication at the ‘landscape-level’ from the outset and overcome the problems ‘fragmentation’ and lack of contextualisation that occur from adopting only a ‘site-level’ approach to analysis and publication.

Each archaeological intervention, large or small, is likely to produce evidence relevant to one or more of the following relatively coherent periods of activity:

- Neolithic and earlier Bronze Age
- Later Bronze Age and Iron Age
- Roman
- Anglo-Saxon
- Later Medieval

(This periodisation does not preclude the possibility of remains of the Palaeolithic, Mesolithic or Post-Medieval periods, but significant remains of these periods do not occur on the generality of excavations within the Study Area.)

For each of the periods represented it will be incumbent upon the archaeological contractor to produce a **self-contained narrative**, together with preliminary assessment of artefacts and environmental data and ‘spot dates’ from ceramics. While the narrative for each period should be free-standing, it may of course be necessary in **each period narrative** to discuss the interrelationships between activity of different periods. Each narrative will, of course, be supported by scale drawings, preferably in digital format.

The period narratives arising from each such intervention (effectively interim reports) will be lodged in the SMR in the usual manner. These narratives and the accompanying plans will be used to update the WRM project GIS. Finds and archives will be retained for full analysis, together with an agreed sum for full analysis and publication.

Full analysis and publication will not, however, be an immediate and automatic outcome of each investigation. Rather, full analysis and publication will be largely period based and thematic, combining and cross-cutting discrete investigations. Thus, for example, one might assemble the material from several discrete investigations producing data relevant to the Neolithic and Early Bronze Age landscape to produce a single, coherent and integrated publication which will be accessible and useful to a period specialist. Ceramic and lithic finds will be analysed and discussed as a whole, usually by a single specialist. The decision on when sufficient material has been gathered to undertake an integrated publication of this nature will largely be a matter for the curatorial authority or authorities, working in consultation with the relevant archaeological contractors/ consultants.

Not all publications will be period based. Some will explore other themes, cross-cutting the period divisions, such as the evolution of the environment. Again, this integrated, co-ordinated approach to the analysis of palaeoenvironmental data will prevent the unhelpful 'fragmentation' which often occurs and acts as a barrier to understanding the development of the landscape at a landscape level.

PART 3: AN OUTLINE OF RESEARCH THEMES

An overview of the archaeology of the Study Area allows the following key research themes to be defined. The outline will begin with period-based themes.

The Pleistocene environment

The discovery in Whitemoor Haye Quarry of well-preserved palaeoenvironmental remains in river palaeochannels cut into the Mercia Mudstone bedrock and overlain by Devensian sands and gravels has established the high potential of the Study Area for research into Pleistocene palaeoenvironments. The remains, probably dating to the latter part of MIS 3 (Marine Isotope Stage 3), c.50ka to 25ka, included an important mammalian assemblage of mammoth, bison, horse, reindeer and wolf, and a partial skeleton of woolly rhinoceros. Also well preserved were substantial assemblages of insect and floral remains (macrofossils and pollen), key to the reconstruction of the palaeoenvironment.

Geological research undertaken at the time of the discovery of the Whitemoor Haye rhino indicated a potential for deposits of a similar nature and significance to those at Whitemoor Haye widespread through the Study Area. This assessment of potential is reinforced by mapping of Pleistocene palaeochannels and analysis of river development at the Catholme 'Focus Area' undertaken for the Where Rivers Meet project (Davies 2004), and also by assessment of the quarries in the Study Area as part of the ALSF 'Shotton Project' (Buteux, Keen and Lang 2004).

The potential for Pleistocene faunal and floral remains is of very considerable scientific importance in itself. However, although nothing has come to light to date, there is also a

potential for archaeological remains of this period. Such remains would be of great archaeological importance, and would fall into the period of a) Britain's recolonisation by human populations following a period of apparent abandonment lasting in excess of 100,000 years and b) the crucial transition from Neanderthal to Modern human populations.

Achieving the potential of this research theme will require active monitoring of quarry exposures.

Mesolithic and earlier Neolithic

There is very little evidence at present for Mesolithic activity in the Study Area. This is restricted to a few flint tools potentially of this period, found either as surface finds or as secondarily deposited finds during excavations. The greatest potential for finds of this period would appear to be along the banks and islands of the evolving Holocene rivers, where surviving remains are likely to be buried under silt deposits.

The best opportunity for elucidating patterns of Mesolithic activity in the Study Area will be in the course of targeted excavations aimed at recovering palaeoenvironmental data from palaeochannels (see below).

Likewise, there is very little evidence other than a few flints for earlier Neolithic activity in the Study Area. However, a probable causewayed enclosure – an impressive monument – has been identified by aerial photography just outside the Study Area at Alrewas, and within the Study Area radiocarbon dating of wood charcoal of oak, hazel and pine suggests an association with woodland clearance in the Early Neolithic.

Other than the ritual or funerary monuments, remains of the earlier Neolithic in southern Britain tend to be ephemeral (clusters of pits containing pottery and flintwork, for example). Nevertheless, such ephemeral remains are the key to understanding of the colonisation of the river valleys, woodland clearance and the process of establishing what was later to become a rich cultural landscape.

Given the dearth of evidence for the earlier Neolithic in the Study Area at presence, any remains of this period are of research importance. The ephemeral nature of earlier Neolithic 'settlement' evidence means that features are largely unsusceptible to prospection techniques (air photography, geophysics, trial trenching, etc). The best opportunity to uncover evidence of this period will be the large-scale 'strip-assess-excavate' exercises of the type described above.

Later Neolithic and Early Bronze Age

For this period the aerial photographic evidence comes into its own, with numerous cropmarks of ritual and burial monuments such as 'hengiform' structures, cursus monuments and, especially, ring ditches, both simple and complex.

A number of ring ditches in the Study Area have now been excavated to a greater or lesser degree, but no invasive work has been undertaken on the other monument types (most of which are scheduled but suffering greatly from intensive agriculture).

The recognisable cropmark monuments form, however, only the 'tip of the iceberg' of the later Neolithic and Early Bronze Age landscape. Excavations at Fisherwick, Whitemoor Haye and Catholme have revealed unenclosed settlement and/or ritual activity, both in 'isolation' and underlying later ritual monuments.

The concentration of ritual monuments focussing on the confluence of the rivers Trent, Tame and Mease has been termed the 'Catholme Ceremonial Complex' and may be compared to other ritual complexes of the same period such as Aston on Trent, Barford on the Warwickshire Avon, Dorchester-on-Thames (at the confluence of the Thames and Thame) and Maxey in the Welland Valley. However, despite broad similarities, each of these complexes is unique and reflects local and regional responses to, or 'interpretations' of, the cultural and religious forces which shaped Neolithic and Early Bronze Age Britain. The Catholme complex is of particular importance because this period in the Midlands is so poorly understood in comparison to other regions of the country. Furthermore, the extensive exploration of the wider landscape of which the complex forms a part, occasioned by the scale of quarrying activity, provides a rare opportunity to explore the ritual landscape on a large scale.

To maximise this opportunity, where real and effective long-term preservation is not a practical possibility, it is a priority to investigate this landscape from a research-driven perspective (rather than *ad hoc* excavation of monuments as the occasion demands), taking full account of both short- and long-term threats and the integrity of the landscape as a whole.

As with the earlier Neolithic, the best way of uncovering the subtle range of evidence is the 'strip-assess-excavate' procedure described above (rather than focussing solely on those monuments which happen to be readily apparent from aerial photography but can easily be divorced from their wider context). It is noteworthy here that geophysical survey and trial trenching has taken place around the main complex of monuments at Catholme (but avoiding the scheduled areas) in advance of development proposals (Hughes and Coates 1999). This produced very little in the way of a 'result', but it may be suspected that this was a consequence of the methodology employed more than anything else.

The later Bronze Age and Iron Age landscape

As is common elsewhere, the Middle and Late Bronze Age is poorly represented and poorly understood. However, this period represents the transition from the predominantly 'ritual' landscape of earlier prehistory to the predominantly 'agricultural' landscape of later prehistory. At present the only published evidence of Middle Bronze Age activity consists of rather fragmentary evidence of a Middle Bronze Age posthole structure at Fisherwick (Smith 1976). The earliest group of pottery from the extensive Whitemoor Haye excavations up to 1998 (the Neolithic and Early Bronze Age material aside) consisted of a small assemblage assigned to the Late Bronze Age/Early Iron Age from an isolated pit uncovered during a watching brief.

At Fisherwick a sequence was proposed (Smith 1979, 90) that witnessed a progression from a probably unenclosed settlement of ring-groove houses without associated field boundaries (Period 1) to enclosed settlements of ring-ditch houses with the adjoining land 'enclosed by a system of field boundaries that became increasingly complex' (Period 2). Further evidence of unenclosed settlement was found at Catholme, underlying the Anglo-Saxon settlement, and comprised 'perhaps at least eight roundhouses, mainly of post-ring type, but including one of post-in-slot type, and perhaps several four- and six-post structures' (Losco-Bradley and Kinsley 2002, 15; this material has yet to be published in detail). Enclosed Iron Age settlements are also well represented at Whitemoor Haye (Coates 2002).

Into this pattern of a shift from unenclosed settlements generally lacking in evidence for field systems to enclosed settlements with associated field systems must be inserted the evidence for major landscape boundaries. These comprise both pit-alignments, sometimes (notably at Whitemoor Haye) rather elaborate double alignments, and linear ditch features (including, again at Whitemoor Haye, an imposing triple-ditch boundary) which are clearly not simply field boundaries but demark major landscape divisions with territorial or ritual significance. In the latter context it is noteworthy that two of the most apparent of the pit-alignments serve to mark off the major ritual monuments of the Catholme Ceremonial Complex from the surrounding land to the north and south. Here, at least, it is tempting to see these as boundaries between the sacred and the profane.

Boundaries of this type have been investigated at various places within the Study Area, although seldom on a scale sufficient to elucidate their date or nature (ceramic and other finds which might elucidate these matters are evidently sparse). One double pit alignment at Whitemoor Haye, which was extensively sampled, produced large chunks of Iron Age pottery from the cut of one pit and the recut of another, which suggested deliberate 'structured' deposition (Coates 2002). An even greater length of alignment was excavated at Catholme, during the excavations of the Anglo-Saxon settlement here. The alignment bounded the terrace-edge on which both prehistoric and Anglo-Saxon activity was concentrated. The boundary proved to be long-lived and the sequence complex, beginning in the prehistoric period and consisting of 'a pit-alignment, an apparent bank, and a post-line, replaced and redefined by a series of ditches with

approximately the same extent and alignment into the Anglo-Saxon period' (Losco-Bradley and Kinsley 2002, 15).

Understanding the date and nature of these boundaries and their relationship to activity of all periods is essential to understanding the overall development of the landscape in the Study Area. As the Catholme boundary demonstrates, extensive and detailed excavation is the only way to achieve this – small-scale sampling will not do. The Catholme boundary was not visible on aerial photographs over the stretch excavated, but reappears as a linear ditched boundary to the south, and can be seen to probably form part of an extensive system of such boundaries apparently closely associated with the monuments of the Catholme Ceremonial Complex, and thus perhaps of considerable antiquity.

The landscape boundaries represented by pit-alignments may be more symbolic than physical – it is difficult to see how a pit alignment works as a physical boundary – and should be distinguished from the system of field boundaries that emerged later and were inserted into this landscape. At present it appears that this process of enclosure, involving the creation of both enclosed settlements and associated field systems, emerged in the Middle Iron Age and is well represented at both Fisherwick and Whitemoor Haye. Critical to understanding this enclosed landscape is the dating, both relative and absolute, of the various elements of which it is comprised. Again, extensive excavation is the best way of getting a handle on this, particularly given the paucity of dating evidence and the fact that the system includes fence-lines and the like which are not visible on aerial photographs. The combination of elucidating the development of the elements of the enclosed landscape and obtaining palaeoenvironmental data to elucidate its function is the key to understanding the landscape as a whole.

The Romano-British Landscape

The impact of Romanisation on the landscape of the Study Area is another key research theme. The nearest Roman urban centre, Letocetum (Wall) lies just to the southwest of the Study Area. It was occupied during the Claudian period, possibly by the XIVth Legion prior to their move to Wroxeter (Webster 1975). The later settlement's defences, which cover 2.4ha, are not well dated, although Webster (1975, 78) suggested that the settlement was a late 'burgus' under Constantius Chlorus. Although there has been a suggestion that Wall may have been a late Roman civitas capital, there is no evidence that the civilian settlement served as a major market or service centre following its early military occupation (Crickmore 1984, 47). On present evidence the Study Area would appear to fall between the Cornovii and the Corieltavi, with the border possibly following the line of Ryknield Street (Webster 1975; Todd 1991), which runs through the Study Area.

The obvious impact of Rome in the Study Area is slight, and essentially comprises Ryknield Street itself and the consumption of Romano-British styles of pottery. Generally speaking the pottery is made up of locally-traded wares such as Derbyshire products, along with regionally-marketed Severn Valley wares and Black-Burnished wares from Dorset. Imports occur at very low levels, mainly comprising fragments of

amphora and samian. There is only one possible villa site in the Study Area, suggested by large quantities of finds including tesserae discovered during fieldwalking (SMR 1710).

Studying the impact of Romanisation therefore involves rather more subtle analyses, examining continuities and discontinuities in the organisation of the landscape and in social and economic practices. This requires a landscape-level approach. At Whitemoor Haye, the dominant feature of the Romano-British landscape is a major droveway, which may however represent the redefinition of an earlier feature, which runs southwest to northeast through across the landscape, broadly parallel to both the River Tame, to the east, and Ryknield Street, to the west (Coates 2002). Several enclosures are associated with this droveway, and similar enclosures have been excavated at Fisherwick, to the south, again in association with a droveway (Miles 1969). These enclosures – and of course the droveways - are plausibly related to stock control.

While the pottery assemblages are testimony to human activity and occupation, structural evidence of buildings is more elusive in the Roman period than in the Iron Age. This is difficult to interpret, and may involve a relocation of permanent settlement, with the pattern amongst the fields perhaps relating to more temporary dwellings, possibly seasonally occupied (Coates 2002). Again, elucidating this pattern, and defining any possible settlement hierarchy and economic changes, will involve taking advantage of opportunities for extensive excavation combined with palaeoenvironmental analysis.

The Anglo-Saxon and Medieval Landscape

If 'Romanisation' is a key issue for the 1st to 4th centuries, so 'Germanisation' is a key issue for the centuries that followed, when, as far as can be discerned, the agricultural landscape which had developed through the Iron Age and Roman periods broke down. As Gelling (1992, 28) has stressed, the Study Area lies at the western limit of early Anglo-Saxon influence.

The research agenda for the Anglo-Saxon period in the Study Area is dominated by the questions raised by the excavation of the 7th-9th century settlement at Catholme (Losco-Bradley and Kinsley 2002). Catholme is one of very few early medieval rural settlements in England to be excavated on a large scale, making it a site of national importance. It is exceptional in several respects, including its long-lived stability, its layout and its organisation around a system of enclosures and trackways. Sixty-five buildings were excavated, which cannot unfortunately be easily divided into well-defined phases, perhaps representing only about half of the settlement, which clearly extended into unexcavated areas to the southwest, west and northwest.

Apart from a handful of chance finds, the only other material in the Study Area which provides some context for the Anglo-Saxon settlement are two cemeteries, both discovered in the 19th century as a consequence of quarrying, and both poorly understood, essentially represented by reported and surviving finds. The Wychnor cemetery (Kinsley 2002, 23-27) lay just 500m southwest of the settlement at Catholme, strongly suggesting

a relationship between the two, even if the finds from the cemetery – brooches, spearheads, shield-bosses and pottery vessels – suggest a date (6th, possibly early 7th, centuries) perhaps slightly earlier than the settlement. This connection is strengthened by the Anglo-Saxon pottery found in fieldwalking to the southwest of the excavated area, thus closing the spatial gap between cemetery and settlement. Further north, at Tucklesholme, several urns containing human bones and associated with metal knives were found when a ballast pit was dug in 1851 (VCH 1968, 204); it has been suggested that these might indicate the existence of an Anglo-Saxon cemetery. Interestingly, a possible cremation burial was excavated nearby in 1991 and dated by radiocarbon to the 5th century AD. It lay just outside a ring-ditch, the primary monument being assumed to be of prehistoric date (Hughes 1991).

As has been stressed above, features and material of Anglo-Saxon date is unlikely to be located or recognised by conventional prospection techniques, and large-scale soil stripping in advance of quarrying or development offers the only real opportunity for elucidating further elements of the Anglo-Saxon landscape. The areas around known or suspected sites, at Catholme and Tucklesholme, deserve to be targeted with particular care.

A key research issue is the way in Anglo-Saxon settlement and landuse relates to the earlier patterns. What are the elements of continuity and discontinuity, which might also have a bearing on the ethnicity of the population? At Catholme itself, a model has been proposed (Losco-Bradley and Kinsley 2002), based largely on the results of fieldwalking, which envisages settlement gradually migrating northwards along the bank of the river through the Roman and into the Saxon period. (This is one of the few occasions in the Study Area where fieldwalking has produced useful results, probably because of its limited coverage and intensive nature in good conditions.) The possibility still exists to test this model by excavation, in an area threatened by quarrying.

Patterns of landscape continuity and discontinuity are also a dominant research theme in the transition from the Mid Saxon through to the Late Saxon and Norman period, and the evolution of the Domesday settlement pattern.

Palaeoenvironmental research: economy and landscape

This research theme cuts across and integrates the period-based research themes outlined above. We may divide the palaeoenvironmental data into two types: a) data derived from the excavation of archaeological features, and having a bearing on both activities/ economy associated with the monuments in question and the wider landscape, and b) data derived from targeted palaeoenvironmental sampling, aimed particularly at deposits associated with river channels and palaeochannels, which provides the broader landscape context.

Both approaches should be employed together, and the palaeoenvironmental analysis should be geared towards integration at the landscape level. Work at Fisherwick and Whitemoor Haye, in particular, has shown the scope for important waterlogged deposits,

and such deposits should be exploited to the full in future work, while the palaeofluvial analysis carried out as part of the Where Rivers Meet project provides a framework for targeted sampling relating to the development of the river systems and the broader environment. There is, in general a very good opportunity to develop a rich understanding of the development of the landscape from the Pleistocene through to the Medieval period, although the generally very poor preservation of bone within the Study Area must be acknowledged.