EXTRACT

THE ALSF ANNUAL REPORT

Year 2, Round 2...

Illustrations from projects which took place during 2005-06: (*Main picture*) Mike Young (Tarmac Ltd), Clive Waddington (ARS Ltd), Sarah Rushton (Northumberland County Council) and Sarah Cole (EH) at the Woodbridge (Cheviot) Quarry, *(bottom, left to right)* Northumberland open day; Sampling bone for radiocarbon dating by Accelerator Mass Spectrometry; Surveying at Blake's Wood - as part of the Scowles Survey in the Forest of Dean, Gloucestershire; Quarrymen and plant at Girton during severe flooding of the Trent, 1977 - studied during the Aggregates Industry in the Trent Valley: A History and Archaeology project.

ENGLISH HERITAGE

defra
Department for Environment Food and Rural Affairs

AGGREGATES LEVY SUSTAINABILITY FUND
ANNUAL REPORT
2005-2006

FOREWORD

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The Aggregate Levy Sustainability Fund (ALSF) was introduced in April 2002 to provide funds to help address the environmental costs of aggregate extraction. English Heritage is a major distributor of the fund on behalf of the Department for Environment, Food and Rural Affairs (Defra), and supports projects which seek to reduce the impact of aggregate extraction on the historic environment, both terrestrial and marine. Projects are commissioned against ALSF criteria which will deliver against the national priorities set out in English Heritage's Strategy for 2005-2010, and are targeted towards developing understanding, care and enjoyment of the historic environment.

The first two years (2004-2006) of Round 2 of the ALSF have seen English Heritage distribute over £7.5 million in grants to more than 100 projects. These projects aim to advance baseline understanding of the historic environment in aggregate producing areas and provide curators, contractors and industry with better and more cost-effective tools, techniques and methods which will help promote sustainable development that is acceptable to all stakeholders. A very considerable number of people have been involved in the initiation, management and completion of these projects, so once again it is our great pleasure to acknowledge the efforts and enthusiasm of everyone involved in the delivery of the ALSF.

The funding criteria for the third year of the scheme will remain the same although because budgets are already fully committed there is little opportunity in 2006-07 to commission brand new projects. Therefore, in this issue of *Extract* rather than including an introduction which outlines funding criteria and the general achievements of the scheme, we have chosen to highlight the achievements of two of the great pioneers of Palaeolithic archaeology which is particularly closely linked with aggregate extraction as the remains from this period are actually contained within these geological deposits. Without the great opportunities provided by aggregate extraction and the personal contributions of John Wymer and David Keen our understanding of this very early period in our history would be considerably poorer.

Adrian Olivier
Director of Strategy
English Heritage

A full list of projects can be found at the end of this report. Details of the current English Heritage ALSF programme, application procedures, guidance and all projects can be found on the English Heritage website (www.english-heritage.org.uk/ALSF). Project details can also be found on the Defra database (http://alsf.defra.gov.uk).

CONTENTS

AN APPRECIATION:
John Wymer and David Keen

John Wymer, one of Britain's best known prehistorians, died in February 2006 at the age of 77. His life was dedicated to the pursuit of the earliest traces of people in Britain (and beyond) and nobody has done more than he to combine the evidence of archaeology and Quaternary geology and so help us to understand this distant period. Much of the evidence he enthusiastically sought came from the gravel deposits and finer sediments of river valleys and former lake beds, and more recently from the eroding and submerged coast.

This passion for the discovery of ancient stone implements, the bones of long-extinct mammals, and the types of deposits which bore them began after the Second World War but continued undiminished for sixty years. Immediately, he grasped the opportunities presented by the commercial quarrying of gravel and brickearth as it was within such sediments that much of the evidence for Lower Palaeolithic people was to be found. Working with the pit owners and keen-eyed workmen, he forged valuable and productive partnerships. Every discovery he made was logged so that the humanly-made objects could be related to the complex layering of the deposits with excavations conducted at a number of key sites so as to ensure a greater precision in this recording. The multi-disciplinary analysis which was an integral part of this work called upon specialists in sediments, dating, micro-fauna and flora, and set the highest possible standards for Palaeolithic archaeology. The combined results did much to lay the foundations of our current understanding of the presence of people on the northern margins of Europe throughout a period of more than half a million years - John's subsequent publications were timely and prolific.

Above all, it was John's convivial nature and his ability to explain simply the scientific basis for the interpretation of the evidence that encouraged professional colleagues and a wide public audience alike into an appreciation of Palaeolithic archaeology.

Professor David Keen, a leading Quaternary scientist, died of cancer in April 2006 at the age of 59. His research focused on the reconstruction and interpretation of the changing climates and environments of the Pleistocene (Ice Age) and the warm Holocene interglacial we enjoy today. Although a true polymath, his specialism was the study of fossil molluscs, which are sensitive indicators of past environments. Along with like-minded scholars such as John Wymer, he was dedicated to a multidisciplinary approach to the past, combining the evidence of Quaternary science and archaeology to create an integrated picture of past environments and their inhabitants, and a detailed understanding of climate change and the response of plants and animals – including early humans – to it.

In Britain, much of the evidence relating to the Pleistocene is deeply buried, and is often only uncovered during commercial quarrying. For three decades David Keen worked closely not only with teams of scientists and archaeologists, but also in collaboration with quarry managers and quarry workers to extract this evidence.

Professor Keen was the director of two ALSF projects, the *Shotton Project* (2003-4), which explored the Pleistocene record revealed in aggregate quarries in the West Midlands, and up to his death its more ambitious successor, the on-going *National Ice Age Network* which aims to promote and de-mystify Ice Age research for a broad audience and to provide a systematic assessment of the Pleistocene research potential of aggregate quarries. These are challenging aims for both the research community and the aggregates industry, and in the debate that has followed all now miss the authoritative but always reasonable contribution of a man of great charm and good humour.

Andrew Lawson
Archaeological Consultant

Simon Buteux
Director
Birmingham Archaeology

John Wymer (right) at Lynford Quarry, Norfolk

David Keen (left) at Waverly Wood

DEVELOPING THE CAPACITY TO MANAGE AGGREGATE EXTRACTION LANDSCAPES IN THE FUTURE

Discovering, studying and defining historic assets in order to improve the management of aggregate areas.

Establishing evidence-based policies for managing the impact of aggregate extraction on the historic environment requires the gathering, synthesis and understanding of data deriving from aerial reconnaissance and past archaeological research and investigation. This information enables mineral planners and archaeological curators, in collaboration with industry, to make informed decisions on future aggregate apportionment and manage the extraction process, and minimise its impact on the historic environment in a sustainable manner.

Building on the success of the **Gloucestershire Assessment of Archaeological Resources in Aggregate Areas** project reported in the last issue of *Extract*, English Heritage has funded a number of similar projects across the country. In some areas, where these resource assessments have indicated further work is required, it has also been possible to fund more detailed investigation.

Resource Assessment projects are now being carried out in County Durham, Hampshire, Lincolnshire, Somerset, Suffolk, Warwickshire, and Worcestershire. The basic aims of these projects are the identification and mapping of past, present and future aggregate producing areas (using data supplied by the British Geological Survey and the local Mineral Planners), an assessment of the archaeological and historical knowledge of these areas (from the existing data held by the local Historic Environment Records (HER) office and other sources) and the plotting of aerial photography information to the current standards adopted by English Heritage's National Mapping Programme (NMP).

Although the intended use of this data varies between counties, depending to a large extent on the level of existing baseline evidence, all are using the information to draft research frameworks. These highlight gaps and inconsistencies in knowledge and thus provide planners and industry with valuable tools which can be used in advance of extraction to inform the development of mitigation strategies and direct resources towards answering the most important academic questions.

In County Durham, Archaeological Research Services Ltd together with the County Council's Archaeology Section are incorporating the data from the assessment areas (those most affected by aggregate extraction) into a Geographical Information System (GIS) which will include the location of all known aggregate deposits, the geographical information for all HER entries, and the aerial photography plots. A bonus of this project has been the training of two new staff in aerial photography transcription, thus building a resource which has a use beyond the life of the current project.

Both Warwickshire and Worcestershire County Councils whilst undertaking their assessment projects have taken advantage of the opportunities afforded by Objective 3 funding to run parallel outreach projects which promote understanding and appreciation of the historic environment within the communities most affected by aggregate extraction. These projects, **Aggregate Extraction in Warwickshire** and **Unlocking the Past** in Worcestershire, aim to present the aggregate producing landscapes to local community groups, schools, colleges and the general public through open days and participatory activities and a range of different media including online resources, teaching packs aimed at both primary and secondary school pupils, and touring exhibitions.

Hartshill Quarry, studied as part of the Warwickshire Resource Assessment

© Atkinson Archive/GCC

© Mike Glyde

Left: Frampton on Severn under excavation 1948

Right: Evaluation of a proposed extension at Clifton Quarry, Worcestershire; the fieldwork strategy is being appraised as part of the Worcestershire Aggregates Resource Assessment in order to inform future management of aggregate extraction landscapes

As noted above all these projects used the Gloucestershire project as a template and modified it to allow for different geographical areas and levels of previous work. In addition to their immediate aim of providing stakeholders with baseline information based on current knowledge, these projects have also been used to identify areas which could benefit from an increased depth of study of the archaeology in relation to aggregate extraction.

The Archaeological Landscape of Frampton on Severn project, being undertaken by Gloucestershire County Council itself, involves the examination and assessment of the museum and excavation archives of four areas of Gloucestershire which were excavated during the process of gravel extraction (prior to PPG16), but not analysed or widely published. Results so far demonstrate publication of the final report will particularly increase our knowledge of prehistoric burial practice in the area.

Also in Gloucestershire, English Heritage, the County Council and the Forestry Commission, are joint funding a full lidar survey of the heavily wooded aggregate producing areas of the **Forest of Dean**, which will allow the project team to map the micro-topography of the ground surface. This will result in the production of digital surface models both pre and post tree removal. Thus it is possible to 'see' the archaeological features under an area of woodland land without the need for extensive and expensive field survey. Not only has this project enhanced the knowledge of the area under study thus informing future conservation and management decisions, but it has also advanced our understanding of the use of lidar as an archaeological survey tool.

The information gathered during this suite of Resource Assessments will provide the basis for future management decisions and will thus help reduce the environmental impact of aggregate extraction on the historic environment for many years to come.

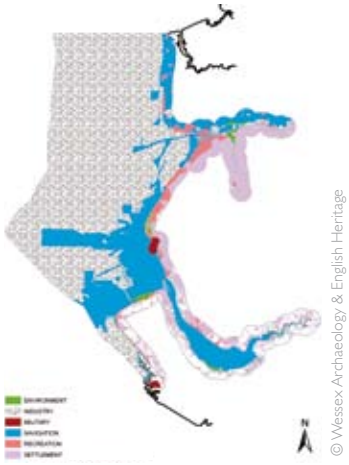
Lidar (**Li**ght **D**etection **A**nd **R**anging) can show many archaeological features previously undetectable though aerial reconnaissance by using an aircraft mounted laser to scan the terrain below. The laser scans produce rapid pulses of energy which are reflected back to the aircraft where the time taken for the reflection to be detected is recorded. As light travels at a known and constant speed, combining these reflection times with GPS and mapping software produces a three-dimensional pattern of the surface below which can then be manipulated within the computer to give a two-dimensional picture. Lidar has the potential to 'see through' woodland because while some of the energy is reflected by the tree canopy the rest of it travels through the vegetation and shows the true ground surface.

Finds processing session for adults with learning difficulties. The session involved working with a previously unprocessed artefact collection from a site within one of the most intensively quarried areas of Worcestershire

© Worcestershire County Council

DISCOVERING, STUDYING AND DEFINING THE SIGNIFICANCE OF THE MARINE HISTORIC ENVIRONMENT

Analysing poorly understood landscapes, areas and monuments.



© Wessex Archaeology & English Heritage

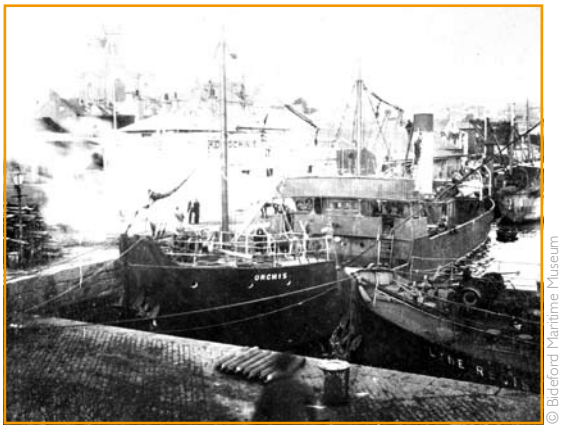
Broad character as shown on the Liverpool Bay Seascapes GIS

The effective management of aggregate dredging in relation to the marine historic environment depends on reliable baseline knowledge of the location, distribution and significance of the cultural resource.

The **Mapping Navigational Hazards as Areas of Maritime Archaeological Potential** project being undertaken by Bournemouth University is using data sources such as the UK hydrographical archives and modern seabed geology maps to identify and map areas which have high potential for both shipwrecks and their preservation. The first stage of the project developed a method for tracing historically significant hazards and presenting the information in a mapped Geographical Information System (GIS) format. The second stage of work is developing an approach which categorises seabed sediment types by their preservation qualities in order to identify areas where the two coincide. This information will feed into the decision making process and assist industry, regulators and curators to manage the possible impact of extraction in the areas of highest potential.

Research has demonstrated that there may be as many as a quarter of a million wrecks in British waters. Areas suitable for marine aggregate extraction are very likely to contain shipwrecks within their boundaries, and wrecks are considered as part of the Environmental Assessments that accompany applications to dredge marine aggregate. A wide variety of existing datasets, secondary sources and geophysical surveys can be used to estimate their likely presence, extent, character and period. However, these sources in isolation cannot establish the relative or absolute importance of known or potential wrecks because the 'importance' of a wreck arises from a context that is wider than the aggregate area under consideration.

SS Orchis, small British coastal steamer sunk in 1936, one of the shipwrecks considered during the Shipwreck Importance project



© Bideford Maritime Museum

Enhancing Shipwreck Importance by Bournemouth University builds on the framework developed during the earlier Importance of Shipwrecks project, reported in the last issue of *Extract*. Shipwreck Importance is testing this framework by applying it to wrecks within the National Monuments Record (NMR) using historical sources to identifying archaeologically important sites, particularly within aggregate extraction areas, from amongst the wealth of wreck sites that exist within English Territorial waters. This enhanced understanding of the significance of the shipwreck resource will allow regulators, advisors and industry to make informed decisions about how to best manage and mitigate for any impact on sites that lie within aggregate extraction areas.

The second year of the Round 2 marine ALSF scheme also saw the development of four further **England's Historic Seascapes** pilot studies which build on the initial work undertaken by Wessex Archaeology in Liverpool Bay. The Seascapes programme is developing a methodology which is extending the programme of historic landscape characterisation (HLC), now completed for most of England's land area, through the coast to the marine zone. This will offer benefits to those involved in the future management of the marine environment as the area-based approach accords with the changes to development controls which will involve a system of marine spatial planning.

The pilot study areas, **The Solent and Waters off the Isle of Wight** being undertaken by partnership between Bournemouth and Southampton Universities and Hampshire & Wight Trust for Maritime Archaeology, **Southwold to Clacton** by Oxford Archaeology, **Withernsea to Skegness** by Museum of London Archaeology Service, and **Scarborough to Hartlepool** by Cornwall Historic Environment Service, have been selected specifically to inform management responses to mineral aggregate extraction now and in the future.

ENGAGING WITH STAKEHOLDERS

Promoting the work of the Aggregates Levy Sustainability Fund.

English Heritage is committed to promoting access to the historic environment and encouraging the understanding and enjoyment of our cultural heritage by a broad spectrum of society. Key audiences and stakeholders for the ALSF scheme have included the aggregate industry, the wider archaeological community including scientists and specialists, amateur groups, and local communities in aggregate producing areas. The ALSF programme has enabled us to address this wide and diverse audience through a series of work in progress meetings, stakeholder events, conferences, and industry and community based projects. It is through this ongoing outreach work we aim to increase the value that is placed on the historic environment and ensure its long term future, engage with and meet the needs of both internal and external groups, and teach new skills which will be sustained beyond the life of the funded projects.

One of the major contributors to this aim has been the series of *Work in Progress Meetings* that have been undertaken this year tackling issues of Outreach; the Palaeolithic and Pleistocene periods; and Marine Archaeology. Aimed at professionals in the various fields including industry and staff from other ALSF Distributing Bodies, those currently involved in projects, and those considering applying for funding through the ALSF, these meetings aimed to give an overview of the work being undertaken and provide an opportunity to consider how it related to, and was helping the development of, strategic agendas. The meetings were also an important opportunity to discuss working practices and approaches to the subjects, allowing participants to reflect on their experiences and end users to feed back on whether their needs were being met. All meetings encouraged discussion and interaction between groups across the country and have resulted in a series of complimentary initiatives including the establishments of links with organisations working outside the heritage sector.

All projects funded through the ALSF scheme are encouraged, where possible, to present work to appropriate stakeholder audiences. Thus a large number of projects have presented at both national and international conferences disseminating information about specific research programmes, promoting the scheme in general, and demonstrating the lead role England is playing in tacking environmental issues associated with aggregate extraction.

A significant number of individual ALSF projects have been engaged in the development of diverse audiences, many of which are reported on later in this edition of *Extract*. One project which has taken on this mantle on a truly national level is the **National Ice Age Network's** (NIAN) which includes a comprehensive outreach programme. Along with providing support and assistance to other ALSF research projects, NIAN's website www.iceage.org.uk provides a comprehensive introduction to the project and has an extensive resources section including links to useful sites about the ice age, a glossary of terms, frequently asked questions and downloadable documents and pocket guides for everyone from school groups to quarry workers covering Stone Tools, Ice Age Sediments, Animal Remains, and Environmental Evidence. The project has also actively encouraged public engagement through a series of events throughout the country including a "Life in the Ice Age" day and "Stone Artefact Identification" days.

The **Palaeolithic Rivers of South West Britain** project by Exeter and Reading Universities also incorporated numerous outreach and engagement events which included a series of school activity days which looked at field sections, lithic artefacts and animal bones. Palaeolithic Geoarchaeology walks were also organised for A-level students and local interest groups and societies as well as local and national Government Agency representatives.

Pupil from Robert Blake School (Bridgwater) getting to grips with a mammoth femur (leg bone) on Doniford Beach, Palaeolithic Rivers of South-West Britain project

Pupils from Robert Blake School (Bridgwater) using an experimental flume to observe sediment processes (washing gravel around...) on Doniford Beach, as part of the Palaeolithic Rivers of South-West Britain project

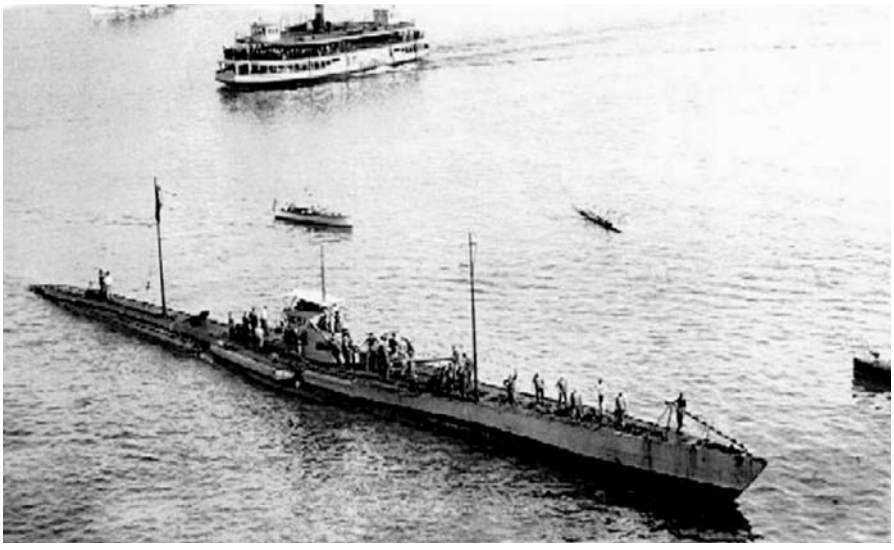
MARINE HISTORIC ENVIRONMENT PROTECTION

New research into marine evaluation and mitigation techniques.

The historic environment is fragile, finite and non-renewable, therefore the intrusive nature of quarrying and dredging activities will inevitably have a lasting impact on areas of archaeological potential. One way of reducing this impact on the historic environment is by developing our capacity to manage the extraction process. One project which is doing this is **3D Seismics for Mitigation Mapping of the Southern North Sea** by the University of Birmingham. The exploitation of the Southern North Sea for energy and mineral resources remains a strategic goal for the UK and without adequate data this unique 'seascape' is under threat. Hence, this project seeks to introduce aggregate companies to the potential of extensive 3D seismic technologies as a source of data; to promote the use of this data to map the environmental and archaeological potential of the Southern North Sea; and to provide a model of survival potential for these deposits that can be used by the aggregate industry and curatorial groups for management purposes.

The use of 3D seismic data provides an efficient way of generating a regional model for the Late Quaternary and Holocene eras, and an excellent framework for the further integration of shallow borehole, environmental and shallow (high resolution) geophysical data for purposes of geological and archaeological interpretation. This data can also be used, in conjunction with ecological and archaeological data, to identify deposits with high preservation potential. This project therefore offers a unique opportunity to provide detailed deposit mapping which can be used to explore the impact of aggregate extraction over large areas. The data can also be used by the aggregate industry to design alternative extraction strategies which minimise destruction of areas with high preservation potential and promote responsible mineral extraction.

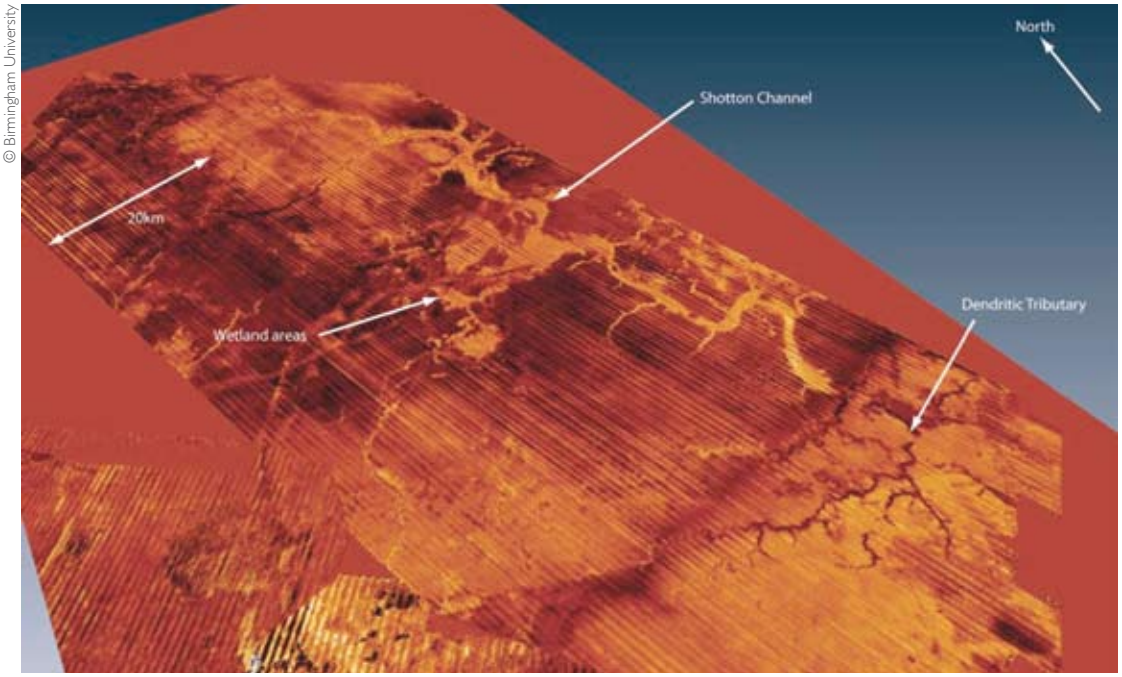
Starboard side view of the UC-97, circa 1919, location unknown. Seabed in Prehistory project



The **Seabed in Prehistory** project by Wessex Archaeology will inform best practice for the assessment and evaluation of prehistoric deposits on or beneath the seabed in the course of the aggregate dredging licence application process. It will also provide baseline data on the prehistoric archaeological potential of dredging areas around the coast of England.

Two fieldwork elements were undertaken: geophysical survey, involving a single beam echosounder, sub-bottom profiler and sidescan sonar data off Great Yarmouth, and extensive grab sampling in the Paleo-Arun, off Sussex. These two areas were selected because they represent dredging areas with different geological settings, and thus different archaeological potential. The grab sampling in the Paleo-Arun recovered large quantities of peat suggesting that deposits are exposed on the seabed with paleoenvironmental analysis of samples from vibrocores indicating the environment was terrestrial from the last Glaciation until the early Mesolithic (c8,500BC – 4,500BC). This project complements the MIRO funded Seabed Prehistory Round 2: Archaeology and Marine Aggregate in the North Sea and English Channel project.

The lack of detailed data is a major problem for both the archaeologist and the aggregate industry. **The Innovative Approaches to Rapid Archaeological Site Surveying and Evaluation** by St Andrews University is exploring

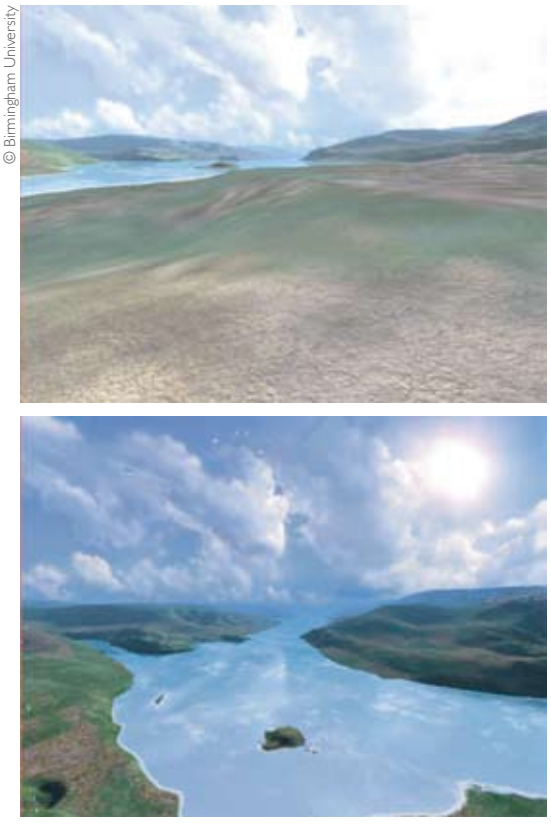


Detail of extensive river system stretching more than 30km and provisionally named the "Shotton River" (after the famous Birmingham geologist Fred Shotton). 3D Seismic Mapping project

the potential of geophysical remote survey equipment for rapid, detailed investigation of submerged archaeological sites and their surroundings in order to gain an enhanced understanding of their environmental setting. Through the use of rapid mapping techniques, it is proposed that quantifiable environmental changes over time can be cost-effectively monitored on sites in order to assess more accurately the potential impact of anthropogenic activity such as aggregate extraction and natural cycles of change. This project also aims to build and test a new deployment method for a multibeam sonar head to enable higher resolution recording of submerged archaeological sites. The development of this new towable multibeam platform should greatly increase our ability to use vessels of opportunity in submerged archaeological surveys especially where the surveying of sites is a requirement prior to marine aggregate dredging; thus its development is particularly cost-effective.

A second project which looked at these issues was the **High Resolution Sonar for the Archaeological Investigation of Marine Aggregate Deposits** project by Southampton University which tested and optimised new acoustic techniques expressly designed to identify objects and structures within acoustically complex environments. This was achieved through the optimisation of new Chirp sources specifically for the penetration of coarse grained materials. These sources were deployed in both 2D and 3D modes. The project produced the first 3D survey of the *Invincible* Designated Wreck site off the Solent, and provided centimetric to decimetric resolution imagery of completely buried elements of this eighteenth-century wreck. Furthermore, through the combination of modelling, laboratory experiment and *in situ* data collection it established: a) the acoustic characteristics of peat horizons buried in marine sediments; b) a reconstruction of the paleogeography of the offshore Solent region showing both the Paleo-Solent River and the variable nature of the Holocene transgressive fill deposits; and c) the resolution capabilities of state-of-the-art Chirp II acoustic sweeps.

English Heritage's marine ALSF projects continue to make significant contributions providing practical management and mitigation tools for the marine aggregate industry and beyond.



Virtual Reality model for part of the study area reconstructed from seismic terrain data and seeded with contempory vegetation using an artificial life engine (Eugene Ch'ng). 3D Seismics Mapping project

CARING FOR OUR PREHISTORIC HERITAGE

Defining, characterising and analysing the historic resources contained within extraction deposits.

In the last *Extract* we highlighted the close connection between extraction work in quarries and our knowledge of the Palaeolithic period. These key sites for understanding early humans in Britain would not have been recognised without the experience and dedication of a select group of experts, such as the late John Wymer (see p3).

One legacy of this work is a strong tradition of academic research, currently exemplified by the Leverhulme-funded Ancient Human Occupation of Britain project. This is addressing many of the key research questions for the Palaeolithic, such as establishing when people first came to Britain and understanding how they adapted to a relatively cold climate.

Sampling terrace deposits on the River Axe during the Palaeolithic Rivers of South-West Britain Project

The Palaeolithic and Pleistocene projects funded by the ALSF complement this kind of research admirably. They will establish the potential of different areas and deposits, and inform the development of new approaches to management. One important aspect of this is the assessment and synthesis of existing geological and archaeological data using Geographical Information Systems (GIS), as in the **Middle Thames Northern Tributaries** project run by Essex County Council.

Many other ALSF projects also include original research, such as reassessments of museum collections, sampling of deposits in the field and scientific analyses. Some of the projects described in last year's *Extract* are now providing important results. Samples taken by the **Medway Valley Palaeolithic** project by Southampton University, for instance, will allow the dating of Pleistocene deposits by optically stimulated luminescence (OSL) and the reconstruction of climate and environment through analysis of molluscs, ostracods and pollen. A key result of the **Trent Valley Palaeolithic** project undertaken by Durham University is the recognition of the importance of quartzite as a raw material for stone tools in this region, and the need for more research to understand its properties. In an area where the period remains poorly understood, the desk-based stage of the **Palaeolithic Rivers of South-West Britain** project by Reading and Exeter Universities has increased the number of known findspots by almost 50%, while fieldwork is now beginning to recognise and date relevant terrace deposits of the rivers Axe, Otter and Exe.

In contrast the potential of the area around Boxgrove in Sussex, perhaps our most important Lower Palaeolithic site, is far better known although that does not mean the archaeology and geology of the region are completely understood. The significance of Boxgrove lies in the way geological processes have preserved an ancient land surface on a raised beach beneath a former cliff. That deposit includes remains of stone-tool making and animal butchery as well as, almost uniquely for Britain, the bones of early hominids.

© University of Wales, Lampeter

Terrier drilling at low tide at Lepe, Hampshire undertaken as part of the Sussex/Hampshire Coastal Corridor project. Sampling here has, for the first time, revealed the presance of early interglacial deposits beneath the well known estuarine sequences

Two ALSF projects are now helping to put Boxgrove in a wider context. The series of raised beaches between Southampton and Brighton collectively contain a wealth of Lower and Middle Palaeolithic remains and the **Palaeolithic Archaeology of the Sussex/Hampshire Coastal Corridor** project by The University of Wales (Lampeter) and Southampton University, now in its third phase, aims to refine our understanding of the regional geology. It has already demonstrated that the sequence, distribution and dating of deposits are more complex than previously realised, while the results also emphasise the potential of the coastal zone, demonstrating the need to link terrestrial ALSF projects with those investigating the submerged resource.

Some 6km to the east of Boxgrove, assessment work at **Valdoe Quarry** being undertaken by the University of Central London includes a programme of test-pitting to augment previous topographical survey and predictive modelling of the deposits, which are virtually identical to those at Boxgrove. Though much was quarried without record in the past, Valdoe now represents a good example of archaeologists and industry working together to investigate a site potentially of international significance.

Building such co-operation is one of the keys to caring for our prehistoric heritage in the future. Enabling access for the recording of deposits and artefacts uncovered in the course of extraction and developing predictive models to ensure future research is targeted on the areas of highest potential will benefit quarry companies and archaeologists alike. The **National Ice Age Network** led by Birmingham Archaeology continues to undertake and co-ordinate a range of activities with these goals in mind. It also has an important focus on outreach and education work, undertaking a variety of initiatives, such as 'Life in the Ice Age' events, to help people appreciate the diversity and significance of the Pleistocene and Palaeolithic remains found in quarries.

This section is derived from the papers presented at the ALSF-funded Work in Progress seminar held at Peterborough Museum in March 2006.

© The Boxgrove Project

Neil Brundel (Dudmans Ltd) and Matthew Pope (UCL) celebrate the discovery of the Boxgrove palaeo-landsurface at Valdoe Quarry, West Sussex

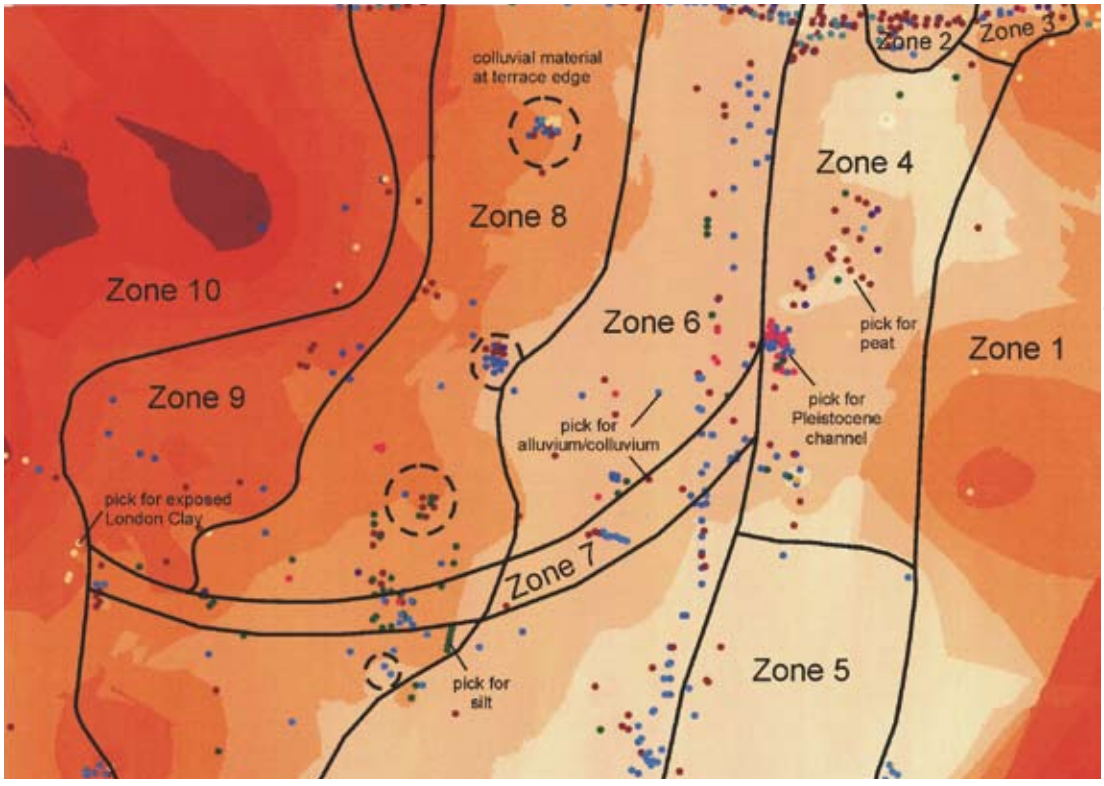
DEVELOPING NEW APPROACHES TO IMPROVE THE MANAGEMENT OF THE HISTORIC ENVIRONMENT

Sharpening the tools

With advances in science and technology comes the opportunity to improve the tools and advance the mechanisms we adopt in order to characterise and manage the historic environment. Geophysical and geochemical tools include geophysical mapping, stratigraphy and dating, and palaeoenvironmental and geochemical analysis all of which help characterise the resource and assist in the development of evaluation frameworks. Other tools include information transfer and Geographical Information Systems (GIS) which can contribute to predictive modelling strategies and the dissemination of existing data to a wider audience.

The English Heritage ALSF scheme provides an opportunity to explore the effectiveness of some of these tools in areas impacted by aggregate extraction, contributing directly to English Heritage's ALSF objectives for effective future management, and English Heritage's overall corporate objectives of increasing knowledge transfer and technical capability in new scientific techniques for analysis and predictive modelling, set out in our current research framework *Exploring our Past* (EoP98).

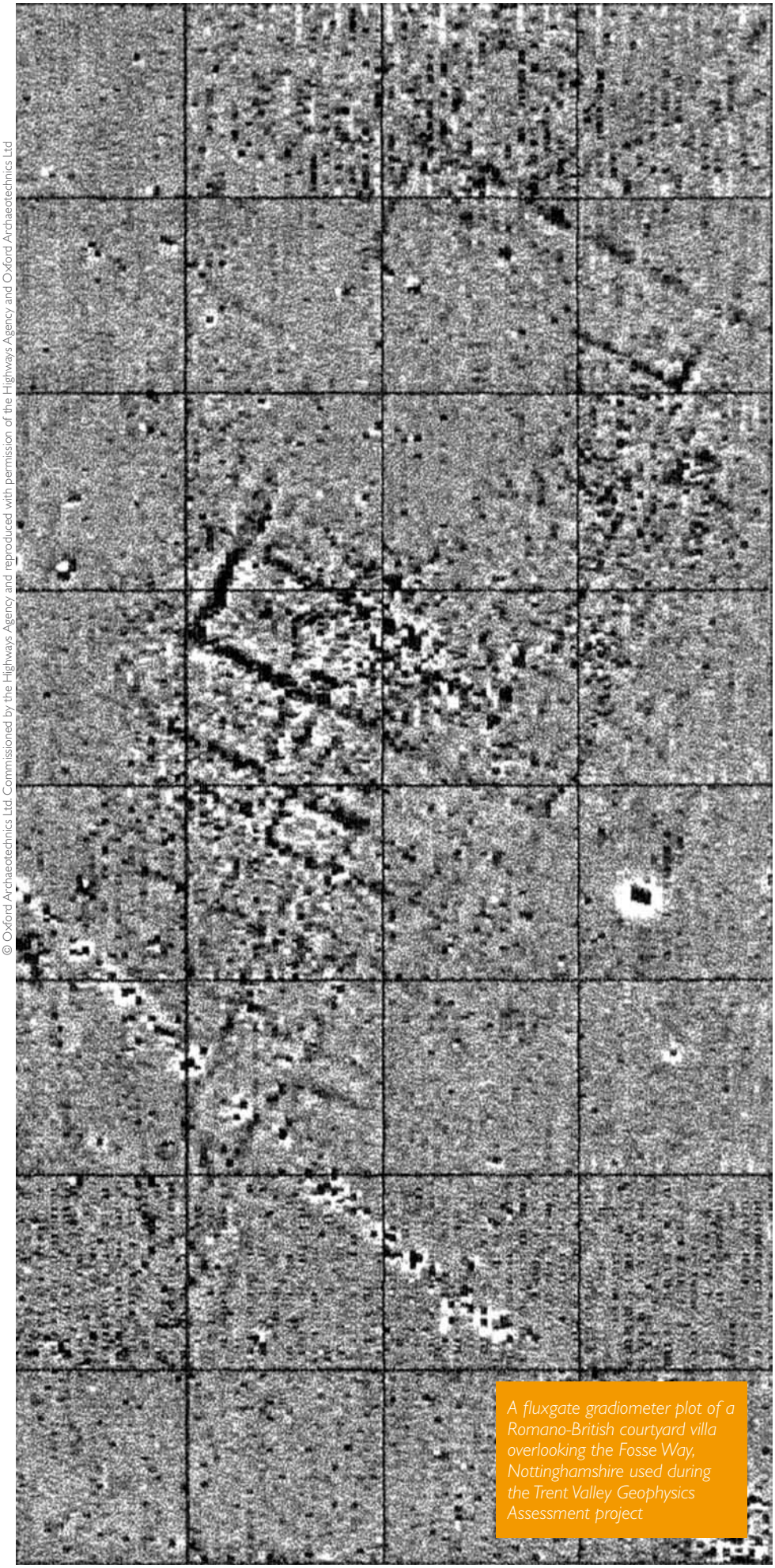
A project which explores the use of digital databases is the Lea Valley project **Mapping the sub-surface drift geology of Greater London gravel extraction areas (Lea Valley)** being undertaken by the Museum of London Archaeology Service which developed from an earlier Round 1 project. Developments in GIS/web-based applications have allowed the production of an on-line GIS module based on geotechnical borehole data and known archaeological sites in the Greater London area. The output, which as a web-based product will be available to a wide audience, will help stakeholders understand the evolving landscape of the area and predict areas of archaeological potential.



Defined landscape zones over remodelled early Holocene surface displaying with dots representing deposits and landscape characteristics produced during the Mapping the sub-surface of the Greater London Gravel Extraction Areas project

A key issue in the extraction planning process is the selection of the most appropriate method for locating buried remains before quarrying. Two projects which explore the effectiveness of geophysical survey techniques in assessing the archaeological resource are the **Trent Valley Gravels Geophysics Assessment** by Nottingham University and the **Predictive Modelling in North West England** project by Terra Nova Ltd. Both projects review the success or otherwise of geophysical surveys from areas of past and present aggregate extraction over given terrains. The North-West is unusual because it produces a high proportion of crushed-rock aggregate in an area where the density and character of known archaeological remains are more difficult to detect than in much of lowland England. The aim of both the above projects is to enhance and improve the effectiveness of geophysical methods as evaluation tools for curators, archaeological contracting organisations and developers.

Chronology is important to the dating of aggregate deposits and the archaeological remains found within them. Articulated bones (ie those that haven't been moved by subsequent formation processes) have the potential for providing chronologies of the sediments and gravel terraces in which they occur; unfortunately many are severely degraded. **The Radiocarbon Dating of Bone Samples** by Oxford University aims to develop a cost-effective method for pre-screening and assessment of the viability of bone samples to produce valid radiocarbon dates. With advancements in radiocarbon dating techniques also comes the opportunity to resample and redate previously excavated bone material, such as at **Beckford**, Worcestershire and **Bestwall Quarry**, Dorset; both sites excavated prior to the implementation of PPG16 without appropriate archaeological planning conditions. Both projects also explore the radiocarbon dating of charred food residue found on Iron Age to Roman age pottery. Using the latest Bayesian analysis methods, the bone and pottery dates together will help refine the stratigraphy and multi-period archaeological phasing of each site, which in turn will enrich our understanding of the archaeology itself.



A fluxgate gradiometer plot of a Romano-British courtyard villa overlooking the Fosse Way, Nottinghamshire used during the Trent Valley Geophysics Assessment project

SUPPORTING THE PLANNING SYSTEM

Rescue! The last resort.

A rare example of a 'British' period house dated to the 5th-6th centuries AD found during expansion of the Cheviot sand and gravel quarry Woodbridge (Cheviot Quarry)

Under the provisions of Planning Policy Guidance Note 16 (PPG16) the responsibility for funding work such as evaluation and recording of archaeological, palaeoenvironmental and historic sites which may be physically affected by development lies with those initiating the development.

This often takes the form of a planning requirement for archaeological work such as desk-based assessment, geophysical survey and perhaps trial trenching and excavation prior to extraction. On occasion however, despite totally fulfilling their planning requirements in regard to archaeology, some companies find themselves in the situation of encountering archaeological discoveries which they or their archaeological partners could not previously have anticipated. In cases of national importance it is possible for the English Heritage ALSF to assist in the funding of mitigation works, but only where the following criteria have been met:

- The local planning authority must have applied PPG16 appropriately
- The developer must have done all that could reasonably have been asked within the planning conditions to mitigate the impact of any unexpected discoveries
- The threatened archaeology must be such that it could not have reasonably have been predicted
- The archaeology must be of very strong regional, or national importance

Over the past year there have been a number of important unexpected archaeological discoveries within quarries across England which have benefited from this ALSF PPG16 assistance.

At **Latton Lands Gravel Pit, North Wiltshire** a large scale archaeological excavation was undertaken between 1997 and 2001 by Oxford Archaeology on behalf of Cotswold Aggregate. This fieldwork produced evidence of multi-period occupation dating from the prehistoric to the post-medieval periods, and resulted in an unanticipated density of deposits and quantities of artefacts and ecological material. The Iron Age date of much of this material adjacent to a previously known Bronze Age settlement and the nearby Romano-British site made the finds highly significant in regional terms, thus funding was made available to assist Cotswold Aggregate in financing the excavation, analysis and publication of this unexpected material.

Further north at **Woodbridge/Cheviot Quarry, Northumberland** an equally unexpected and important discovery was to draw much media coverage.

Although Archaeological Research Services Ltd had been contracted by Tarmac to undertake

Below: *Televison crew at the Woodbridge (Cheviot Quarry) open day*

Right: *A Neolithic flint arrowhead found during excavations at Woodbridge (Cheviot Quarry)*

Members of the public attending an open day at North Park Farm, Bletchingley

archaeological work in part of the quarry, an area thought to contain little potential for surviving archaeological material was left without planning requirements. However, during the field work it became obvious that a large amount of potentially important prehistoric material had survived in the area which had once been part of the nearby World War II airfield. Since all possible precautions had been taken by Tarmac to try to identify archaeological remains the extra excavation, recording and analysis was eligible for PPG16 assistance funding. The discovery of at least six buildings, hundreds of pieces of pottery and a human burial pit attracted the attention of a number of local and national television news crews and newspapers.

At **Town Farm Quarry, Burlescombe** in Devon the quarry operators, Hanson, were in a similar position with the unexpected discovery of a number of important finds under a large overburden of colluvial sand and gravel. Here the waterlogged deposits contained remains of an oak plank well thought to date to the middle to late Iron Age, a pit containing planks and stakes, two Bronze Age mounds with troughs and a stake and wattle-lined pit containing a hollowed tree trunk set upright within it. Tool marks on the trunk suggested an early Iron Age date. The discovery of a collection of preserved Iron Age timber artefacts and associated pottery is extremely rare in England, and had excellent potential for dendrochronological (tree-ring) dating and environmental analysis. More important was the discovery inside the tree trunk of a leather shoe, believed to be the earliest example of footwear in the UK; and even rare by European standards.

This Exeter Archaeology led project will conserve and analyse the finds in order to answer questions about the date, function and environmental setting of the features discovered. The leather shoe will be analysed in an attempt to establish the methods and techniques used in its manufacture, and establish how it came to be deposited within the tree trunk. The results will be made available via a report and a museum display.

The discoveries at **North Park Farm, Bletchingley** date back even further to the Mesolithic period. Here an archaeological watching brief during topsoil stripping prior to sand and gravel extraction resulted in the discovery of a number of scattered features and artefacts dating to between 8000BC and around 4300BC.

Given the significance of the material, ALSF funds were made available to assist WBB Minerals Ltd with the evaluation of the buried soil containing the Mesolithic material. The project being run by Surrey County Archaeological Unit involved the excavation of the unique buried soil sequence. It also provided opportunities for training and participation by local volunteers, and a number of study days and exhibitions.

As can be seen from the above cases, the unexpected discovery of nationally or internationally important archaeology during the extraction of aggregate, can be turned to the benefit of all concerned; with archaeologists, local communities and the industry working together huge advances in our present knowledge can be made and fabulous opportunities for good publicity exploited.

Site Director Clive Waddington holding a Neolithic roughout stone ball found at a multi-period settlement at Woodbridge (Cheviot Quarry)

MANAGEMENT AND CONSERVATION PLANS

Helping local communities to care for their historic environment.

The question of how best to manage large and often complex aggregate producing landscapes can best be solved by co-operation between all disciplines and stakeholders. One method of presenting the various strands of information and argument is thorugh a Conservation Plan: a document which accurately describes a site or landscape and all its features, assesses its significance and vulnerability, and sets out policies for future management.

The Thornborough Henges complex in North Yorkshire comprises an alignment of large Neolithic henges and associated monuments unique in Britain. The conservation issues surrounding this site have generated a huge amount of media and web coverage largely because of unfounded fears that the scheduled henges themselves are under threat from gravel extraction.

In order to generate discussion and communication about the site North Yorkshire County Council convened a working group, the Thornborough Henges Consultation and Working Group, to provide a forum for presentations and exchange factual information. Members included representatives from all stakeholder groups including Tarmac Northern Ltd, English Heritage, North Yorkshire County Council, local landowners, parish councils and pressure groups.

It was this group that endorsed the idea that common ground between stakeholders and possible plans for management could be advanced through the Conservation Plan process. Thus the group directed English Heritage through the ALSF, Tarmac Northern Ltd and North Yorkshire County Council to interview, appoint and fund consultants (Atkins UK) to carry out the work on behalf of the Group.

SO WHAT IS A CONSERVATION PLAN?

The Conservation Plan is now a familiar part of the conservation and heritage management tool-kit. From its creation and introduction in Australia in 1996, the Conservation Plan process is widely recognised as the first step in the management of sites and places. Conservation Plans start from a position which accepts that conservation and change are not mutually exclusive, and asserts that before you can manage a site you have to know how it is valued and by whom. Comprising a few simple steps; understanding, stating significance, identification of issues, stating policies to protect or enhance significance and finally adoption, the plan process can be as valuable as the finished document. The Conservation Plan heralds two particular changes to the traditional idea of conservation: 1) consultation and participation are key to the

David MacLeod, © English Heritage. NMR20232/010

success of a Plan, also indicating that heritage professionals should now be seen as 'enablers' rather than 'policeman', and 2) the introduction of the concept of 'cultural significance'. Cultural significance is that which is important to us today and extends beyond ideas of 'fabric' and attribution.

AND WHAT DID IT DELIVER AT THORNBOROUGH?

After a series of public open meetings, opportunities for written responses and local presentation sessions by the consultants, the wide range of stakeholders managed to agree a text that has now been circulated to the wider world for comment. These comments have been fed back to the Group and are now ready to be integrated with the text. In general terms the Conservation Plan identified three principal areas of significance: archaeology, flora and fauna and agriculture, although the extent of the Conservation Plan zone is still to be determined. The challenge now is to see how these three significances can be woven into framework for the henges and their landscape in order to deliver a sustainable management regime. In order to do this, the Consultation and Working Group has been replaced by a smaller Steering Group comprising the principal landowners, agencies and parish council representatives who respond to a larger Advisory Group, made up of members of the former Consultation and Working Group with additional representation, such as the Council for British Archaeology. The hope is that the conclusions of the Plan can be applied because the smaller group comprises those who make decisions about the way their land is used.

Heritage management is not easy and disagreements are still likely, but the existence of a set of agreed statements on what is important in the landscape will provide all the participants with greater understanding of other perspectives.

The Thornborough henges viewed from the east with the dark bulk of the Dales rising behind

RAISING AWARENESS OF CONSERVATION ISSUES

Developing and disseminating policies, principles and guidelines.

© Wessex Archaeology

Arco Avon discharging. BMAPA Protocol Awareness Programme

One of the most important roles of the ALSF scheme is to fund projects that raise awareness of conservation issues across the historic environment sector and the aggregate extraction industry as well as the wider community.

The BMAPA/EH Protocol seeks to reduce any adverse effects of marine aggregate dredging on the historic environment by enabling people working in the industry to report their finds in a manner that is both convenient and effective.

In August 2005, British Marine Aggregate Producers Association (BMAPA) and English Heritage published a Protocol for reporting finds of archaeological interest that will apply to all BMAPA members. BMAPA member companies have voluntarily committed to implementing the Protocol across all existing operations. It is anticipated that the Protocol will also be promoted through the Government View procedure.

The **BMAPA/EH Protocol Awareness Programme** being conducted by Wessex Archaeology has been designed to raise awareness of the Protocol initiative amongst aggregate industry staff and encourage its implementation. The project comprises a number of site visits to wharves and vessels to talk to staff and a series of workshops designed to provide key information on identifying, handling and recording finds of archaeological importance. The long term benefit of this collaborative programme will be to improve the quality of information reported through the BAMAP funded Implementation Service and hence increase the value of the contribution from the marine aggregate dredging industry to our understanding of the past.

A BMAPA Finds Protocol Awareness Workshop with wharf staff

© Wessex Archaeology

The **Till Tweed Geoarchaeology** project has been investigating the archaeology and geomorphology of the valleys of the Till and Lower Tweed in Northumberland. This project has used archaeological and geomorphological information to characterise the land-use history of the Till-Tweed catchment, and has produced digital maps which can be used to assist in managing current and future aggregate extraction, thereby reducing its impact on the historic environment. The resulting guidance document provides local authorities, planners, developers, consultants and archaeologists with a tool for managing the archaeological and paleoenvironmental resources in the valleys of the Till and Tweed. It is primarily applicable to large-scale landscape developments that require an Environmental Impact Assessment. This guidance, a product of collaborative work between the School of Geography (University of Newcastle upon Tyne), Archaeological Research Services Ltd, Northumberland County Council and English Heritage, is specific to the Northumberland landscape although the principles behind it are generic.

The **Scowles Survey, Forest of Dean** has collected data on scowles (the ancient name for certain limestone outcrops) and sites of pre-industrial revolution iron smelting within the aggregate resource area in the Forest of Dean. The resulting report made recommendations on management including the maintenance where possible of existing landuse regimes and the mitigation of the effects of specific threats. As a result of the successful collaboration between Gloucestershire County Council Archaeology Service, Gloucestershire Wildlife Trust and Gloucestershire Geoconservation Trust in partnership with English Heritage and English Nature a joint archaeological, ecological and geological information and management leaflet was produced for distribution to landowners and other interested parties.

CONSERVATION OF MONUMENTS DAMAGED BY AGGREGATE EXTRACTION

Reducing the local effects of past aggregate extraction.

The **Chewton Mendip Turnpike Wall Restoration** project funded repairs to a historic wall located on the A39 just south of the village of Chewton Mendip in Somerset. The wall was probably built by the Turnpike Trust during the 19th century. Somerset County Council were lead partners in the project with funding coming from the County Highways Authorities structural budget, the County Council biodiversity budget, the Mendip Hills ANOB, and both the Countryside Agency and English Heritage ALSF funds (facilitated by the Somerset ALSF fund), with 'in kind' help provided by the Waldergrave estate. The project also received the full support of the local community.

English Heritage was able to help fund the works to the west wall because evidence provided by Foster Yeoman Ltd and the Minerals and Waste Technical Adviser from Somerset County Council proved that the road had been a principle route between a number of now dormant quarries and their markets, and that quarry lorries had formed a major part of the traffic on the road. Visual inspection of the wall demonstrated that the majority of the deterioration was due to heavy vehicles damaging both the base of the wall itself and the soft foundation bedrock, especially where the wall was located hard against the road. Because quarry traffic was only ever a portion of the heavy traffic the level of ALSF grant was set to reflect this.

The work required involved the widening of a pinch point in a public foot path to improve public access, tree surgery to improve safety and ecological diversity, and deep pointing and grouting with localised rebuilding of collapsed sections. Natural bedrock damage was repaired through the addition of new stonework at the base of the wall.

As the aim of the work was to conserve rather than rebuild sections of the wall; past repairs in an acceptable condition were left untouched. Although this means the wall currently looks patchy it will blend together quickly as it weathers. The footpath is now much safer, and the Turnpike wall can be enjoyed by future generations.

Detail of Chewton Mendip Turnpike Wall

Chewton Mendip Turnpike Wall: Detail of west wall showing deterioration of the living rock foundation of the wall.

Inset: *Preparing the west wall for repair and grouting*

DISSEMINATION OF IMPORTANT INFORMATION FROM PAST AGGREGATE EXTRACTION

Developing understanding of the most important elements of the historic environment through the analysis of past work.

When we think of archaeology today it is most likely to be within the context of developer-funded fieldwork, following a set procedure that has been negotiated between the local planning authority, the developer of the site containing the archaeological resource, and a professional archaeological body. This planning policy (PPG16) was adopted in order to ensure the protection, preservation and conservation of our archaeological heritage either through preservation *in situ* or by appropriate recording and dissemination of the resulting information to a wide audience from academics, developers and planners, to schools and families.

This was not always the case however, prior to the introduction of PPG16 in November 1990, projects were often under-resourced or part-funded through government grant schemes via English Heritage or prior to this the Department of the Environment. With limited funds, the main focus was often on excavation and recording rather than publication and widespread dissemination. As a result of this ethos the archives of many of these unpublished sites are inaccessible to the public and professionals alike, yet they contain a vast wealth of information that can greatly improve our understanding of past societies, as well as informing on how we can best approach managing the historic environment in a sensitive way through planning and mitigation strategies.

Many of the country's most interesting and exciting archaeological discoveries have been made through the process of aggregate extraction, yet much of this information has still not been made available for public consumption and enjoyment. Through the ALSF English Heritage is addressing this issue in two key ways; through the realisation of the research dividend of these past projects, and through the recognition that the aggregate industry itself is historically significant.

The Western Wood team rescuing part of the discarded archive in a garden

A small but important project being funded this year has been **Weston Wood** in Albury, Surrey. The site was excavated between 1961 and 1968 on behalf of Surrey Archaeological Society (SyAS) in response to an immediate quarrying threat to the sand hill on which it was located. Since that date the quarry has remained active and the site and its environs have been totally removed. Spanning the Mesolithic to Roman periods, the site was important for the evidence of occupation it provided, from structural remains believed to indicate a Mesolithic house and hearth, to Late Bronze Age houses with adjoining fields and a trackway, evidence of cereal growing and possibly pottery manufacture, suggested by a series of hearths and kilns. The current project is consolidating and unlocking the contents of the archive in order to make the information widely available. The project which is being run as a partnership between professional and amateur archaeological organisations is also developing

© York University

Wasperton great square headed brooch

skills and capacity in the sector and thus is helping the local community to care for their historic environment.

The much larger **Piercebridge Roman Site** project run through Durham County Council had a similar remit in that it aimed to disseminate information to both the public and professional archaeological community about one of the largest and most intriguing complexes of Roman installations and settlements in Northern England, much of the evidence for which was derived from excavations carried out in advance of gravel extraction. The rescue excavations were undertaken between 1969 and 1982 and while a limited programme of post excavation analysis took place in the 1980's this was never completed. With further information now available to support and build on the previous analyses, the ALSF funded project will enable a greater understanding of the Piercebridge site as a whole for both management purposes and public enjoyment. The public element is being addressed through a series of lectures, improved signage, and a new guidebook, while further academic study into elements such as the effect of the gravel extraction on the site, the nature of occupation at Piercebridge and a revision of the original reports will benefit future management.

A similar project is also being undertaken by York University who are assessing and analysing the **Wasperton Anglo Saxon Cemetery** in Warwickshire. The excavation was initiated by Martin Carver in 1980 in advance of gravel quarrying and encountered a palimpsest of features dating from the Neolithic to the 7th century, including the extensive cemetery. As a rare example of an entirely excavated cemetery situated at the western fringe of the main sphere of Saxon burial, with a date span taking in Roman to Saxon burial rites, Wasperton clearly demanded further study. As such, ALSF money was used to support a series of assessments which included work on the bone remains, metalwork, and non ferrous objects such as leather, textile and wood, as well as radiocarbon dating of the human remains. The long term aim of the project is to complete final analysis and produce a publication in the form of a research monograph, ensuring the information reaches the public domain.

In contrast, the **Thames through Time** project takes a synthetic view of the archaeology of a wider landscape. The first element of the project (there will eventually be four books) **Thames Through Time Volume III: AD1-1000** will produce a monograph within Oxford

© Mike Arthur

A Trent Gravels mixer supplies concrete to a Nottingham housing estate in the 1950s, studied during the Aggregates Industry in the Trent Valley: A History and Archaeology project

© Tim Cooper, ARCUS

Former gravel workings at Attenborough, now Attenborough Nature Reserve, with its new Visitor Centre and Radcliffe-on-Soar Power Station in the background, 2005, studied during the Aggregates Industry in the Trent Valley: A History and Archaeology project

Archaeology's Thames Valley Landscapes series that synthesises the archaeological evidence from the gravel terraces of the Upper and Middle Thames, for the period AD 1-1000. The monograph will be split into six thematically based chapters looking at the Thames and the changing environments in the river valley, settlement patterns, the people of the Thames Valley, ritual and religion, and production, trade, transport and communication. Through this the project will enable intellectual access for academic and specialist audiences to the important results of extensive excavations in advance of gravel quarrying. These volumes will benefit heritage management and curation, inform professional practice, advance the research agenda, and support the teaching of archaeology. Whilst the volumes are written at a level to be of value within the archaeological profession they are at the same time accessible to the informed non-specialist audience.

Finally we look at the modern period and the University of Sheffield (ARCUS) project **Aggregates Industry in the Trent Valley: A History and Archaeology**. This project is investigating the emergence of the sand and gravel extraction industry itself in the Trent Valley with the aim of producing a popular publication on its history and archaeology. The industry up until now has been underrepresented in the field of research and yet it plays a significant role in shaping much of our past, present and future. By means of nine case studies the project thus aims to construct a social and business history of the aggregate industry, placing it in both a regional and national context. The technological development of quarrying techniques, machinery and transportation have been considered, as has the archaeological legacy (industrially and otherwise) of over seventy years of commercial extraction. The final focus of the project has been an exploration of the often conflicting demands of mineral extraction, agricultural land use, archaeology, nature conservation and recreation, all of which remain hugely relevant to our lives today.

© Tim Cooper, ARCUS

View of interior of gravel washing drum, Shardlow Quarry, 2005, studied during the Aggregates Industry in the Trent Valley: A History and Archaeology project

EDUCATION, OUTREACH, ACCESS AND COMMUNITY

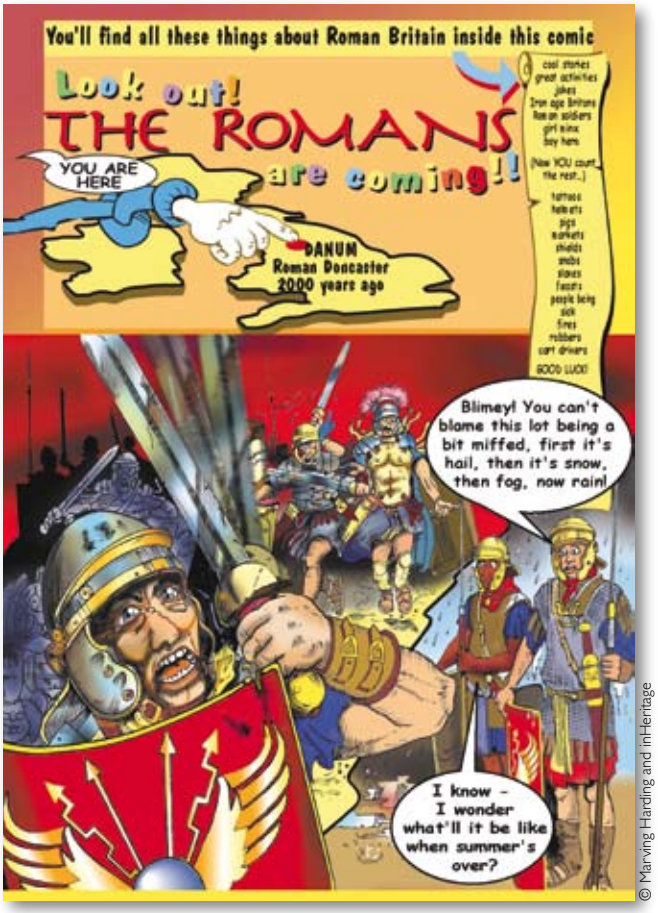
Broadening access to the historic environment.

English Heritage's ALSF programme encourages the inclusion of outreach and education wherever possible; the projects below are just a few examples from the many funded during 2005-2006 which have enabled people to better understand and value their local environment. These schemes and others like them directly involve the local population in the long term care of the historic environment in aggregate producing areas.

The 160 acres of **Goblin Combe** and Cleeve Wood, which contain one of only a small number of unexcavated Iron Age hill forts, were purchased by North Somerset Council in November 2002 with grant assistance from the ALSF funds of English Heritage, the Countryside Agency, and English Nature. Round 2 ALSF funding by English Heritage and the Countryside Agency is being used to encourage active local participation in the management of this former crushed rock quarry site. The Goblin Combe Environment Centre caters for a large number of North Somerset residents of all ages as well as many groups from outside the area: many of whom are from excluded social groups in areas of high deprivation. The project is developing sustainable life long learning and vocational training activities to improve the overall quality of life of the participants. The information gained from the project will be used to develop interpretative material which will have a long term use at the site, and to develop outreach and access strategies.

The **Romans on the Don** project run by South Yorkshire Archaeology Service updates the story of life in the Doncaster region before and after the Romans arrived. Ten sites where archaeological excavations were carried out in advance of aggregate extraction are the focus of this outreach project. Production of a website, due to complete later in 2006, will include a section for teachers of Key Stage 2 History who will be able to download a resource pack of information linked to classroom activities on the Iron Age and Roman periods and how archaeologists have interpreted the past.

Reconstruction drawing of an Iron Age round house as excavated at Brodsworth, Doncaster in 1986 in advance of aggregates quarrying by Tilcon, produced for the Romans on the Don project



The Romans are Coming! The front cover of a colourful comic about life around Doncaster in the Roman period aimed at 7-11 year olds (Key Stage 2), produced for the Romans on the Don project

These resources are designed to aid the teaching of the period itself as well as historical interpretation and enquiry, numeracy, literacy and citizenship. There will also be a downloadable comic of adventures, jokes, puzzles and strange facts for children.

Gloucestershire Wildlife Trust has been granted ALSF funding to develop a programme of interpretation and outreach at the Iron Age hill fort and settlement known as **Salmonsbury Camp**, Gloucestershire. This Scheduled Ancient Monument, which lies within a recently acquired wildlife park, was affected by gravel extraction in the 1950s and 60s. The chance has now been given to improve access to the area, and to increase interpretation and knowledge of the site. An archaeological trail has been developed and, together with an accompanying leaflet and interpretation panels, guided tours and an exhibition, this will increase local involvement in, and enjoyment of the site. This project will sit alongside Countryside Agency and English Nature initiatives and it is hoped that it will lead to further access opportunities.

The project **Aggregate Extraction in Warwickshire** by Warwickshire County Council aims to promote understanding and appreciation of the historic environment within the parts of the county which contain aggregate resources. Both the public and the quarry products industry will be involved. Sustainability is ensured beyond the life of the project itself, as a series of pilot schemes will be undertaken which will inform the content of a strategy for the delivery of an ongoing outreach programme as well as delivering resources which can be used in the future. The pilot projects include: a series of community ventures to investigate the creation of an archaeological research and reporting network linking local communities with the Historic Environment Record (HER); an "E-Gallery" of images which tell the story of extraction; a traditional exhibition which will be designed and implemented, as part of Warwickshire Museum's "On the Road" touring exhibition programme; an HER enhancement project which will see additional finds data integrated into the HER; and the development and delivery of a school resource pack for Key Stage 3.

A very similar project, **Unlocking the Past** being run by Worcestershire County Council, is also engaging with local communities to raise awareness of the important contributions that archaeological discoveries made during aggregate extraction have made to our understanding of the past. One particular aim of the project is to take this initiative to sections of the community that are normally excluded from archaeological activities. As part of this work the project has undertaken workshops with adults with learning difficulties as well as students from the local blind college. Through building links with ongoing community archaeology schemes and providing resources to enhance and support them, the project aims to have an impact long beyond its formal completion date.

Left: *Handling session for adults with learning difficulties using replica Anglo-Saxon grave goods based on finds from quarrying areas in Worcestershire*

Right: *A pottery handling session for students from Worcester Blind College. The session used the tactile properties of changing ceramic forms, finishes and fabrics as the basis of a workshop for visually impaired young people to explore past material culture derived from former quarry sites*

PROJECT LISTING

ALSF Projects 2005.

Project Name	Responsible Organisation	Grant Paid
3D Seismics for Mitigation Mapping of the Southern North Sea	University of Birmingham	£222,826.01
Aggregate Extraction in the Ribble Valley	University of Liverpool	£60,000.00
Aggregate Extraction in Warwickshire	Warwickshire County Council	£14,124.37
Aggregate Extraction Related Archaeology in England: A Survey	University of Exeter	£6,553.00
Aggregates Industry in the Trent Valley: A History and Archaeology	University of Sheffield (ARCUS)	£14,675.00
Airborne LiDAR Backscattered Laser Intensity Prediction of Organic Preservation	University of Birmingham	£52,750.00
Archaeological Cropmark Landscapes on the Magnesian Limestone of South and West Yorkshire	West Yorkshire Archaeology Service	£71,562.04
Archaeological Landscape of Frampton on Severn, Gloucestershire	Gloucestershire County Council	£21,710.00
Assessment of Archaeology within Marine Aggregate Environmental Statements	Hampshire and Wight Trust for Maritime Archaeology	£10,684.00
Beach Replenishment and Derived Archaeological Material	Museum of London Archaeological Service	£20,989.00
Beckford, Worcestershire	AC Archaeology	£26,527.00
BMAPA Protocol for Reporting Finds of Archaeological Interest	Wessex Archaeology	£34,723.00
Burythorpe Quarry, North Yorkshire	Map Archaeological Consultancy	£6,631.41
Characterising, Modelling and Managing the Buried Landscape in the Vale of Pickering	Landscape Research Centre	£3,609.38
Chewton Mendip Historical Turnpike Wall Restoration	Somerset County Council	£35,000.00
Chronology of British Aggregates using Amino Acid Racemization and Degredation	York University	£3,227.00
Cleveland Farm, Ashton Keynes, Wiltshire	Wessex Archaeology	£10,228.00
Coln Gravel, Fairford, Gloucestershire	Oxford Archaeology	£21,000.00
Cossington, Leicestershire	Leicester University	£35,000.00
Developing Predictive Modelling and Survey Techniques for North-West England	Terra Nova Ltd.	£10,000.00
Durham - Assessment of Archaeological Resource in Aggregate Areas	Durham County Council	£82,760.75
England's Historic Seascapes: Scarborough to Hartlepool and Adjacent Marine Zones	Historic Environment Service, Cornwall County Council	£45,000.00
England's Historic Seascapes: Solent and Isle of Wight	Hampshire and Wight Trust for Maritime Archaeology	£40,000.00
England's Historic Seascapes: Southwold to Clacton and Adjacent Marine Zone	Oxford Archaeology	£40,000.00
England's Historic Seascapes: Withernsea to Skegness and Adjacent Marine Zone	Museum of London Archaeological Service	£40,000.00
Enhancing Our Understanding: Navigational Hazards	Bournemouth University	£20,000.00
Enhancing Our Understanding: Shipwreck Importance	Bournemouth University	£57,998.00
Flixton, Suffolk	Suffolk County Council	£6,500.00
Forest of Dean Archaeological Survey: LiDAR Survey	Gloucestershire County Council	£40,749.00
Goblin Combe, North Somerset	Goblin Combe Environment Centre Ltd.	£34,485.00
Greater Thames Survey of Known Mineral Extraction Sites	Essex County Council	£4,362.01

Project Name	Responsible Organisation	Grant Paid
Gwithian, Cornwall: Excavations 1949-1963	Historic Environment Service, Cornwall County Council	£60,000.00
Hampshire - Assessment of Archaeological Resource in Aggregate Areas	Historic Environment Service, Cornwall County Council	£52,310.00
Happisburgh/Pakefield Exposures	Wessex Archaeology	£20,000.00
High Resolution Sonar for the Archaeological Investigation of Marine Aggregate Deposits	Southampton University	£6,400.00
Hunter Gatherer Communities in Surrey	Surrey County Council	£10,750.00
Impact of Aggregates Extraction on the Historic Environment	University College London	£15,000.00
Isle of Portland Industrial Archaeology Survey	AC Archaeology	£1,097.01
Late Quaternary Landscape History of the Swale-Ure Washlands	University of Durham	£10,000.00
Latton Lands Gravel Pit, North Wiltshire	Oxford Archaeology	£40,240.63
Lincolnshire - Assessment of Archaeological Resource in Aggregate Areas	Lincolnshire County Council	£30,000.00
Lodge Farm, St. Osyth, Essex	Essex County Council	£4,490.00
Lower Lugg Valley, Herefordshire	Herefordshire Council	£30,000.00
Lydd, Romney Marsh, Kent: Medieval Evidence	Oxbow Books	£7,096.15
Mapping the Sub-Surface Drift Geology of Greater London Gravel Extraction Areas (Lea Valley)	Museum of London Archaeological Service	£15,000.00
Medway Valley Palaeolithic Project	Southampton University	£47,680.00
Merrygill Viaduct, Kirkby Stephen, Cumbria	Northern Viaduct Trust	£3,550.76
Middle Thames Northern Tributaries 2002	Essex County Council	£24,000.00
Modelling Exclusion Zones for Marine Aggregate Dredging	Southampton University	£105,000.00
Multi-Spectral Imaging and Thermal-Decay Mapping on Sands and Gravel Bearing Sub-soils	Landscape Research Centre	£39,125.00
National Ice Age Network (Birmingham Archaeology)	University of Birmingham	£41,614.00
National Ice Age Network (Royal Holloway)	Royal Holloway, University of London	£51,182.00
Nene Valley: Archaeological and Environmental Synthesis	Northamptonshire Archaeology - Northamptonshire County Council	£25,000.00
North Park Farm, Bletchingley	Surrey County Council	£80,163.00
On the Importance of Shipwrecks	Wessex Archaeology	£13,503.50
Palaeolithic Rivers of South-West Britain	University of Exeter	£114,472.15
Penlee Quarry, Cornwall	David Jarvis Associates Limited	£33,950.80
Peterborough's First People	Peterborough Museum and Art Gallery	£3,625.00
Piercebridge Roman Site, County Durham	Durham County Council	£80,499.06
Predictive Modelling of Multi-Period Geoarchaeological Resources at a River Confluence	University of Exeter	£160,750.00
Primary Project Evaluation on ALSF Maritime	Environmental Archaeology Consultancy Services	£10,457.65
Quarrying and the Development of Chipping Sodbury, Gloucs, 1750-2000	South Gloucestershire Council	£2,000.00
Radiocarbon Dating Costs Related to ALSF Projects	Oxford Radiocarbon Accelerator Unit; University of Groningen; Scottish Universities Environmental Research Centre	£88,360.00
Rapid Archaeological Site Surveying and Evaluation in the Marine Environment and Transitional Zones	University of St. Andrews	£52,600.00
Re-assessment of the Archaeological Potential of Continental Shelves	Southampton University	£9,000.00
Refining Archaeological Chronologies through C14: ALSF Support	University of Sheffield (ARCUS)	£16,000.00
Romans on the Don	South Yorkshire Archaeology Service	£16,520.60
Rossendale: Valley of Stone	Groundwork Rossendale	£3,210.00
Salmonsbury Camp, Greystones Farm, Glos	Gloucestershire Wildlife Trust	£18,800.00
Scowles Survey, Forest of Dean	Gloucestershire County Council	£2,955.00
Seabed Prehistory R2	Wessex Archaeology	£72,000.00

Project Name	Responsible Organisation	Grant Paid
Seascapes: Marine HLC	Wessex Archaeology	£90,415.00
Severn Estuary: Assessment of Sources for Appraisal of Impact of Maritime Aggregate Extraction	Museum of London Archaeological Service	£5,000.00
Solent Aggregates to Outreach	Hampshire and Wight Trust for Maritime Archaeology	£33,063.44
Somerset - Assessment of Archaeological Resource in Aggregate Areas	Somerset County Council	£22,000.00
Southworth Hall Farm, Southworth, Cheshire	National Museums and Galleries, Liverpool	£840.00
Spratsgate Lane, Somerford Keynes, Gloucestershire	Gloucestershire County Council	£3,000.00
Suffolk - Assessment of Archaeological Resource in Aggregate Areas	Suffolk County Council	£10,000.00
Suffolk River Valleys and Aggregate Extraction	Suffolk County Council	£33,000.00
Testwood Lakes, Hants: Building Bridges Project	Hampshire and Isles of Wight Wildlife Trust Ltd.	£1,566.00
Thames Through Time Vol. I: Up to 1500BC	Oxford Archaeology	£5,000.00
Thames Through Time Vol. II: 1500 - 1BC	Oxford Archaeology	£14,905.00
Thames Through Time Vol. III: AD 1 - 1000	Oxford Archaeology	£15,680.59
The Depositional and Landscape Histories of Dungeness Foreland and the Port of Rye	University of Durham	£10,000.00
The Lower and Middle Palaeolithic Occupation of the Middle and Lower Trent Catchment	Durham University	£31,609.97
Thornborough Moor and Landscape - Conservation Plan	English Heritage (Yorkshire Region)	£14,421.00
Till-Tweed Catchment Aggregates and Archaeology Project	Archaeological Research Services Ltd.	£46,191.98
Titterstones Clee Project, Shropshire	University of Birmingham	£11,000.00
Town Farm Quarry, Burlescombe, Devon	Exeter Archaeology	£50,000.00
Transition Zone Mapping for Marine-Terrestrial Archaeological Continuity	University of St. Andrews	£3,062.80
Trent Valley Geoarchaeology	University of Birmingham	£20,000.00
Trent Valley Gravels Geophysics Assessment	Nottingham University	£45,000.00
Understanding the East London Gravels	Museum of London Archaeological Service	£38,423.00
Understanding Water Table Dynamics in Relation to Aggregate Extraction Sites	Hull University	£25,000.00
Unlocking the Past: Archaeology from Aggregates in Worcestershire - HER	Worcestershire County Council	£16,258.03
Unlocking the Past: Archaeology from Aggregates in Worcestershire - Outreach	Worcestershire County Council	£36,127.70
Valdoe Quarry - Sussex	University College London	£28,723.00
Vale of York: Assessment of Alluviated Landscapes	York Archaeological Trust	£20,000.00
Warwickshire: Assessment of Archaeological Resource in Aggregate Areas	Warwickshire County Council	£62,420.00
Wasperton Anglo-Saxon Cemetery, Warks	York University	£46,994.00
West Stow (Lackford Bridge), Suffolk	Suffolk County Council	£4,000.00
Where Rivers Meet: Landscape, Ritual, Settlement and the Archaeology of River Gravels	University of Birmingham	£32,937.50
Willington, Derbyshire	Leicester University	£14,262.88
Woodbridge/Cheviot Quarry, Northumberland: Excavation and Interpretation	Archaeological Research Services Ltd.	£122,344.55
Woodbridge/Cheviot Quarry, Northumberland: Outreach	Archaeological Research Services Ltd.	£55,000.00
Worcestershire Resource Assessment	Worcestershire County Council	£15,000.00
Wrecks on the Seabed R2	Wessex Archaeology	£220,431.80

Further details of all projects funded through the English Heritage ALSF scheme, and links to project websites, can be found through the ALSF Projects page on the English Heritage website (http://www.english-heritage.org.uk/ALSF).

ACKNOWLEDGEMENTS

English Heritage would like to thank all the organisations and individuals who have provided text and pictures for this report. Copyright rests with the individual contributors.

For further details of the English Heritage ALSF scheme please refer to the English Heritage website (www.english-heritage.org.uk/ALSF) or contact:

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This annual report was brought to you by Buzz Busby, Kath Buxton, Sarah Cole, Sara Cooper, Virginia Dellino-Musgrave, Jonathan Last and Ingrid Ward.

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A mammoth tusk recovered by Purfleet Aggregates Ltd, West Thurrock, Essex photographed for the BMAPA Protocol initiative