



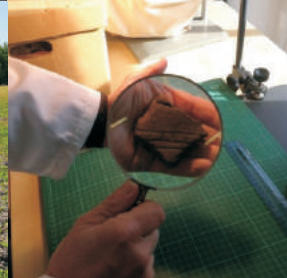
ARCHAEOLOGICAL  
RESEARCH SERVICES LTD  
*Digging with Purpose*

## Our range of key specialist services includes:

(Click on the various services for more information)

- ◆ Palaeoenvironmental Analysis
- ◆ Geoarchaeology
- ◆ Geochemical Analysis
- ◆ Geophysical Survey
- ◆ Osteoarchaeological Analysis
- ◆ Small Finds Analysis
- ◆ Remote Sensing Mapping
- ◆ High-Level and Drone Photography

☎ Call us on 01629 814540 and ask to speak to our Specialist Services Manager or email [Robin@archaeologicalresearchservices.com](mailto:Robin@archaeologicalresearchservices.com)



Providing a complete, end-to-end service

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[✉ enquiries@archaeologicalresearchservices.com](mailto:enquiries@archaeologicalresearchservices.com)

[www.archaeologicalresearchservices.com](http://www.archaeologicalresearchservices.com)



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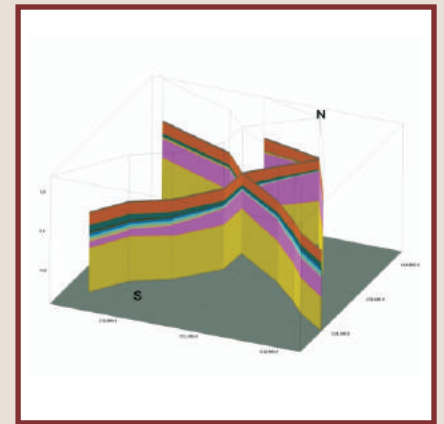
# Palaeoenvironmental and Geoarchaeological Services

We offer a comprehensive suite of palaeoenvironmental services. These include the provision of advice and consultancy for a wide range of palaeoenvironmental requirements as well as assessment and full analysis of charcoal, wood, other types of plant macrofossils, pollen and beetles to inform on the condition, range and potential of material. We can also help you to submit macrofossils and other residues for radiocarbon dating. In addition, we are highly experienced in the integration of various palaeoenvironmental data and radiocarbon dating information to produce reconstructions of past landscapes, land use and climate.



## Palaeoenvironmental services

- ◆ Comprehensive sampling and processing services using our state-of-the-art processing facility
- ◆ Sediment coring and trenching
- ◆ Pollen identification
- ◆ Palaeobotanical macrofossil identification
- ◆ Wood/charcoal identification
- ◆ Coleoptera (beetle) identification
- ◆ Scientific dating recommendations



## Geoarchaeology services



- ◆ Devising strategies and methodologies for driving archaeological evaluation and mitigation approaches, and underpinning negotiations with Local Planning Authorities
- ◆ All types of field survey and sampling, using manual and mechanical corers
- ◆ Borehole monitoring
- ◆ Detailed logging and interpretation of sediment stratigraphy
- ◆ Integration of geoarchaeological and palaeoenvironmental data
- ◆ Development of strategic and sedimentary deposit models using 'Rockworks'

For more information contact Luke Parker on 01629 814540 or [Luke@archaeologicalresearchservices.com](mailto:Luke@archaeologicalresearchservices.com)



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## Geochemical Analysis

Geochemistry, and more generally chemical analysis, can be employed at all points in the archaeological process, from pre-application evaluation, post-determination mitigation to post-excavation analysis. Geochemical survey offers a rapid and cost effective method that can detect and define areas of past archaeological activity and significance. Like geophysics it is low impact and can be undertaken as either a non-destructive or minimally invasive technique. It is effective in understanding the spatial distribution of past human activities when used in the topsoil and/or at depth through coring or during archaeological excavation.

The rapid production of high resolution geochemical results means that the significance of heritage assets can be more fully evaluated and decisions concerning archaeological interventions can be made swiftly with enhanced spatial data. When used in combination with geophysical survey it offers an alternative methodology for evaluation either without or prior to the use of targeted evaluation trenching. Archaeological Research Services Ltd are currently the only providers offering this integrated service. Geochemical analysis can also be undertaken on artefacts to assess their chemical composition and this can be particularly useful when analysing ancient metalwork.

The key benefits of *in-situ* geochemical survey are:

- ◆ Enhanced interpretation of archaeological deposits and artefacts
- ◆ Rapid production of results and ability to inform evaluation/excavation strategy and assist with planning and consultancy requirements
- ◆ Highly cost-effective
- ◆ Short notice for deployment
- ◆ Low impact/non-intrusive method
- ◆ State-of-the-art XRF equipment for accurate, fast, field-portable analysis
- ◆ Time efficient data capture process (can mirror geophysics)
- ◆ Effective technique for characterising large areas of landscape or honing in, in detail, on a specific structure or feature
- ◆ Multivariate dataset extends interpretative value
- ◆ Spatial output in GIS format for easy incorporation into client data systems



For more information contact Roger Doonan on 01629 814540 or [Roger@archaeologicalresearchservices.com](mailto:Roger@archaeologicalresearchservices.com)





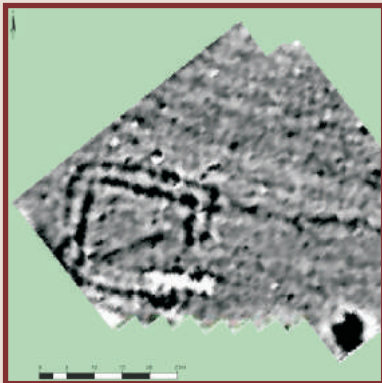
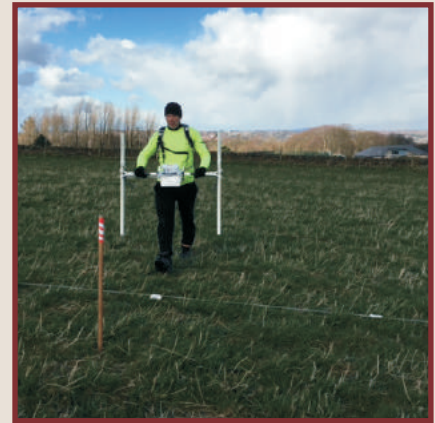
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## Geophysical Survey

Our well-established Geophysical Survey service provides a cost-effective non-intrusive method of archaeological prospection, equally useful for evaluating large developments of hundreds of hectares as well as smaller, more constrained, sites. We regularly deploy this specialist technique in support of planning applications, typically as part of pre-determination evaluation works, as an important aid in the detection of sub-surface archaeological remains which allows any potential risks and impacts to be quickly assessed. We can cover large areas rapidly having developed a highly efficient data collection methodology.

Geophysical survey can work with varying degrees of success depending on the type of geology and soil-moisture conditions present. We therefore use this technique in a targeted way, and often in combination with other techniques, such as fieldwalking, geochemical survey and evaluation trenching to understand what archaeological or other remains might be present below the ground surface. unexpected surprises once groundworks begin.



- ◆ Rapid technique and rapid production of results
- ◆ Cost-effective, low impact and non-intrusive
- ◆ Short notice for deployment
- ◆ Efficient data capture process
- ◆ Full range of geophysical capabilities (magnetometry, resistivity, GPR)
- ◆ Effective technique for characterising large areas of landscape
- ◆ Spatial output in GIS in .dxf formats for easy incorporation into client data systems



Our team has a wealth of experience working across different geologies throughout the UK. Having our geophysical service in-house means that we can deploy a team promptly and the results are rapidly processed and used to inform any subsequent surveys or evaluation trenching as part of planning applications. This efficient information exchange not only saves time and money, but also immediately informs clients, consultants and our project managers of results which can assist in on-going planning negotiations.



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## Osteoarchaeological Analysis

Osteoarchaeology is the study of human and animal skeletal remains found in archaeological contexts. Buried and cremated human bone can provide insights into diet, health, occupation, social status and migration of past societies as well as the environment, economy, mortuary practices and belief systems. Studying a human skeleton can provide information on the individual's sex, age at death, cause of death, disease or 'pathologies' suffered during life, stress on the bones, trauma from breaks or combat, burial type and burial traditions and beliefs. Analysis of a group of skeletons can be used to assess the skeletal 'population' as a whole in order to enhance our knowledge of what life was like in the past. Similarly the study of animal bones has the ability to inform on subsistence, economy and farming practices of past populations. Bones are ideal material for radiocarbon dating and they can also be analysed for ancient DNA and stable isotopes which provide information on genetic relationships as well as where people were born, brought up and died.



### We provide a complete osteological service:

- ◆ Advice on the excavation procedures of skeletons, the potential of further study and the treatment, storage and/or reburial of skeletons, including laboratory excavation if the deposit is fragile
- ◆ Field-based excavation and recording of human and animal skeletons and cremation deposits
- ◆ Assessment and full analysis of human and animal bone including all types of inhumation or cremation
- ◆ Production of publication standard osteological reports and accompanying photography
- ◆ Presentations for the public
- ◆ Facilitation, management and interpretation of stable isotope analysis, ancient DNA and radiocarbon dating of faunal remains



For more information contact Rupert Lotherington on 0191 4775111 or [Rupert@archaeologicalresearchservices.com](mailto:Rupert@archaeologicalresearchservices.com)



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## Small Finds Analysis

Once archaeological finds are discovered they are usually sent to appropriate specialists in order that they can be properly identified, classified, analysed and dated so that their functional, social and any symbolic meaning can be ascertained. We maintain close contacts with museum curators as our analyses require familiarity and expert knowledge of regional collections. We welcome enquiries from commercial clients, archaeological contractors, universities, museums or other heritage organisations for provision of specialist assessments and analysis. Our highly regarded in-house specialists can directly control the timetable for completing evaluation and excavation projects as we do not have to rely on sub-contractors' timetables, and this means we can offer very rapid turnaround for our clients, as well as allowing us to keep specialist costs to a minimum. Our specialists have published finds reports on a wide range of finds together with a text book on the analysis of stone tools.



- ◆ Chipped stone tools
- ◆ Prehistoric rock art
- ◆ Pottery
- ◆ Ancient metalwork
- ◆ Clay pipe and post-medieval material

- ◆ Our small finds service allows for rapid assessment analysis of finds geared to project timetables
- ◆ Competitive rates
- ◆ Pot reconstruction and/or photographs
- ◆ Genuine experts including nationally renowned specialists
- ◆ Analysis and reports aligned to national standards and best practice
- ◆ Large pool of sub-specialists and museum and conservation expertise to call on for unusual finds
- ◆ Full photographic and illustrative service, including 3D photographic modelling
- ◆ All artefacts cleaned, conserved and stored according to national standards by our museum-trained archivist



For more information contact Robin Holgate on 01629 814540 or [Robin@archaeologicalresearchservices.com](mailto:Robin@archaeologicalresearchservices.com)





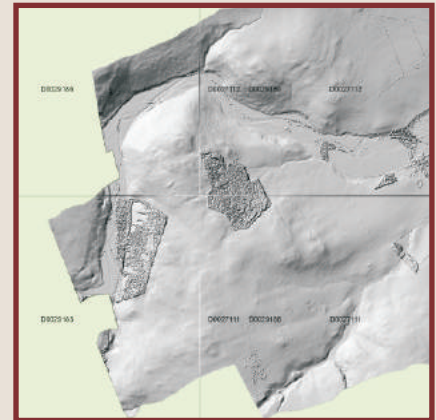
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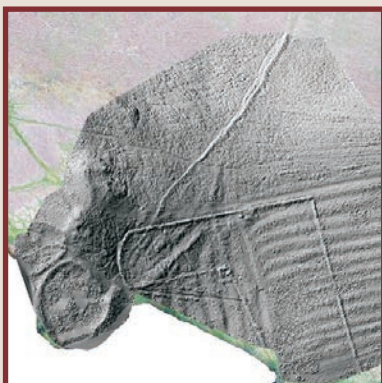
## Remote Sensing Mapping

Aerial survey is a cost-effective technique that allows for rapid reconnaissance and detection of archaeological sites over large areas of the landscape. It enables the discovery of new sites and evaluation of the archaeological potential of a given area where sites are already known. Aerial survey has been the single-most effective technique for discerning new archaeological sites.

Using information from existing aerial photograph archives, satellite imagery and Lidar, the presence of archaeological sites and features can be identified in advance, resulting in archaeological mitigation strategies that are more informed and targeted, particularly in relation to large-scale development.



- ◆ Highly experienced specialist staff, of whom there are few in the UK, and who are trained and work to Historic England's Aerial Investigation and Mapping standards
- ◆ Production of GIS-ready data for easy incorporation into client data systems
- ◆ Highly cost-effective technique for surveying large land parcels. We routinely undertake surveys of hundreds of square kilometres
- ◆ Prospective tool that can be undertaken as a desk-based exercise using free or low-cost data already accessible
- ◆ Rapid technique that informs clients, consultants and project managers of potential approaches and risk of a given site at an early stage in pre-application planning



ARS Ltd are at the forefront of utilising remote-sensing technology within the archaeology and heritage sector. Recent projects include our work with the international, multi-University TerrACE research project which has pioneered 3-D modelling and mapping of archaeologically significant landscapes using drones.







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# High-Level Photography and Photogrammetry

## High-Level Photography

We can produce striking high level photographs using our in-house, specially-made, 10m high telescopic mast, remote shooting software and digital camera equipment. These images can be used to enhance the recording and documentation of archaeological sites and historic buildings and can also prove very useful for promoting and marketing sites and providing clients with high-quality visual images to publicise and explain the findings on their development and underscore their sustainable credentials to a wide audience.



## Drone Photography



We have fully licensed commercial drone operators which allows us to take both photographs and videos of historic buildings, sites and excavations. We can use this data to map sites and create detailed topographic images of features, sites and entire landscapes. This provides a rapid and cost-effective method for mapping large areas as it significantly reduces time in the field for surveyors and produces a more accurate result. Where use of a drone is not possible, we can produce striking high level photographs using our pneumatic telescopic mast with attached digital camera.

## Photogrammetry

Photogrammetry is an accurate and well-established method for creating 3-Dimensional records of buildings and landscapes at relatively low-cost when compared with other means of 3-D data acquisition. 2-Dimensional photogrammetric recording of building elevations, archaeological structures or artefacts can also provide a more accurate and less expensive method for producing a drawn record than a traditional field drawing. Structure from Motion (SfM) photogrammetry can also be used to accurately survey and visualise landscape-scale data.



## Digital Reconstructions

These can be used to interpret sites as well as to convey what sites may have looked like to various audiences. Our specialists also produce digital reconstructions of what sites once looked like 'grown' out of the accurate archaeological plans and sections.

For more information contact Robin Holgate on 01629 814540 or [Robin@archaeologicalresearchservices.com](mailto:Robin@archaeologicalresearchservices.com)