Chartered Institute for Archaeologists

EVALUATION STRATEGIES (EVALS 1): UNDERSTANDING CURRENT PRACTICE AND ENCOURAGING SECTOR ENGAGEMENT

Report and Recommendations

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EXECUTIVE SUMMARY

The EVALS project was designed to develop and implement strategic improvements in the practice of intrusive archaeological evaluation in England. This report covers the first stage, EVALS1, which was undertaken by WSP on behalf of the Chartered Institute for Archaeologists (CIfA) working in partnership with the Federation of Archaeological Managers and Employers (FAME) and with funding from Historic England.

The first stage, EVALS1, was envisaged as an exercise in preparing up-to-date guidance on sample sizes by collecting reliable, peer-reviewed data through engagement with identified stakeholders: planning professionals, construction and development professionals (in particular the minerals extraction, housebuilding and infrastructure sectors), archaeologists and society at large. This was achieved through a series of on-line workshops, collection of case-study data, interviews and individual correspondence.

Over the course of the project, and in response to the input of participants, the project aims evolved. Limited data on sample sizes prevented statistically valid conclusions and it became clear that communication issues and process challenges were potential blockers to change.

Nineteen case studies were received. These had a geographic and sectoral spread but were biased towards projects that had been undertaken for the minerals sector. No statistically valid conclusions could be made due to the sample size; however, they provided a snapshot of current approaches, and useful narrative information on the decision-making process and perception of that process.

Within the workshops and correspondence there was considerable consistency in opinion, with consensus that change is required, and a willingness to achieve a better, more easily understood, and transparent process. The greatest concerns related to inter- and cross-sector communication, clarity of methods and early understanding of the scope of works, with a degree of tension between the need for standardisation in decision-making approaches and flexibility in the strategies implemented.

This report concludes with recommendations for actions that could help to ensure that evaluation strategies are consistently sufficient, effective and proportionate. These are summarised as:

- Communication - agreeing terminology and definitions, particularly with regards to proportionality, updating a range of guidance documents
- Research – specifically into understanding construction impacts
- Sharing knowledge - feedback mechanisms for learning from successes, training and support for new starters; and
- Frameworks for decision making – through a risk matrix model for guiding and explaining the decision-making process and its constraints and through cross-sectoral discussions

The list of specific actions to achieve these is presented for discussion and to provide the outline scope for EVALS2.

1 INTRODUCTION

1.1.1. The EVALS project was designed with the aim of developing and implementing strategic improvements in the practice of archaeological field evaluation in England, to present evaluation, not just as a means for establishing the significance and extent of archaeological deposits and features, but to unlock public benefit, in line with the National Planning Policy Framework (MHCLG 2021).

1.1.2. The project proposal builds upon actions raised in the 21st Century Challenges for Archaeology project (7521), the Southport Report (2011) and the work of the Minerals and Historic Environment Forum (MHEF) to prepare guidance on Minerals Extraction and Archaeology (Historic England 2020). It was originally envisaged as an exercise in preparing up-to-date and nuanced guidance on sample sizes, by collecting reliable, peer-reviewed data to ensure that evaluation is sufficient, cost-effective and proportionate, and to enable greater consistency and reliability in conservation (planning) decisions.

1.1.3. This report presents the results of the first stage of that project. EVALS1 has been designed to enable a review of current practices for archaeological evaluation, with the aim of achieving consensus on what, if any, strategic improvements are needed. EVALS1 set out to determine which factors are most important in selecting appropriate and proportionate strategies for intrusive archaeological field evaluation.

1.1.4. The project has been undertaken simultaneously with project 7798, doctoral research supported by Historic England and the EPSRC Centre for Doctoral Training in Science and Engineering in Arts, Heritage and Archaeology (SEAHA), entitled 'Evaluating Evaluation Trenching in Archaeological Projects', and due for completion toward the end of 2022. The doctoral research, undertaken by Richard Higham at the University of Brighton, uses spatial data and GIS analysis to examine trench percentages and arrays and create predictive modelling on the most effective approaches. Richard Higham's doctoral research builds directly on the pilot project carried out by Hey and Lacey (2001).

1.2 PROJECT SCOPE

1.2.1. Field evaluation is defined by CIfA (2015) as:

> "a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts and their research potential, within a specified area or site on land, in an inter-tidal zone or underwater. If such archaeological remains are present, field evaluation defines their character, extent, quality and preservation, reports on them and enables an assessment of their significance in a local, regional, national or international context as appropriate."

1.2.2. For the purposes of this project, intrusive evaluation was defined as geomorphological deposit modelling and borehole surveys, trenching and test-pitting. Such evaluation takes place across a range of chronologies, locations and types of scheme, and this project focuses specifically on minerals extraction, house-building and linear infrastructure development. Discussion focussed on trial trenching and as such this is the method which is discussed in greatest detail in this report.

1.2.3. Non-intrusive evaluation techniques such as geophysical survey, remote sensing, geochemical survey, earthwork survey or fieldwalking are beyond the scope of this report. Notwithstanding this, it is clearly understood that intrusive field evaluation is part of a continuum of techniques and

processes that inform decision making for both planning purposes and archaeological research, and that intrusive techniques do not stand in isolation. This is reflected in the recommendations at the end of this report.

1.3 STAKEHOLDERS

1.3.1. The stakeholders for the project were defined as:

- Planning professionals in local and regional authorities, including historic environment officers, national agencies, the Association of Location Government Archaeological Officers (ALGAO) and Historic England
- Construction and development professionals in particular minerals extraction, housebuilding and infrastructure sectors
- Archaeologists, including commercial archaeology practices and academia
- Society at large

1.4 AIMS AND OBJECTIVES

1.4.1. The aims for EVALS1 were:

- Aim 1. To determine which factors are most important in influencing the choice of archaeological evaluation strategy
- Aim 2. To encourage recognition within the construction, development and aggregates industries of the value of archaeological evaluation as a pivotal process in sustainable development that benefits the public in line with the National Planning Policy Framework.
- Aim 3. To strengthen the existing evidence base and provide a platform for sector-wide, strategic improvement and implementation of good practice in archaeological field evaluation in England.

1.4.2. To achieve these aims, the objectives were to:

- Engage with archaeology sector and construction, development and aggregates industry stakeholders to build cross-sectoral relationships, working together to develop and map a shared understanding of current archaeological evaluation practice in England.
- Draw on a representative range of case study evidence to inform and validate the mapped decision-making process, and compare what was forecast in evaluation with what was found in subsequent investigation in order to evaluate effectiveness
- Add mutual project value through an interface with project 7798 PhD research project.
- Provide a report on this work

1.5 THE PROJECT TEAM

1.5.1. The project has been undertaken by Project Manager, Kate Geary (Head of Professional Development and Practice, CIfA) and Lead Consultant, Natasha Powers (WSP), author of this report.

1.5.2. The Project was overseen by a Project Executive Board (PEB) who were responsible for key decision making and for managing delivery of the project in line with Historic England's Public Value Framework (Historic England 2019)

- Kate Geary (Head of Professional Development and Practice, CIfA) – Chair
- Peter Hinton (Chief Executive, CIfA)
- Kenneth Aitchison (Chief Executive, FAME)

- Guy Robinson (Policy Advisor, Historic England)
- Magnus Alexander (Senior Investigator, Historic England)

1.5.3. In addition, the project has been guided by a Project Advisory Group (PAG), who provided professional, sectoral insights and acted as a conduit for communication with the sectors that they represent. At project inception the PAG members were as follows:

- Kate Geary (Head of Professional Development and Practice, CIfA) – Chair
- Peter Hinton (Chief Executive, CIfA)
- Kenneth Aitchison (Chief Executive, FAME)
- Guy Robinson (Historic England lead)
- Magnus Alexander (Historic England archaeology lead)
- Richard Higham (UCL/University of Brighton)
- Natasha Powers (Associate Director, WSP)
- Fiona MacDonald (Berkshire Archaeology, ALGAO)
- Jenni Butterworth (project Assurance officer on behalf of Historic England)
- Mark North (Mineral Products Association)
- James Stevens (House Builders Federation)

1.6 ACKNOWLEDGEMENTS

1.6.1. The author wishes to thank all those who attended the workshops and engaged on-line and via email. Particular thanks go to the Project Board and Project Advisory Group, and to Jen Parker-Wooding for assisting with the workshops and project communication.

1.6.2. Thanks are also extended to the following people who contributed thoughts, opinions and/or case studies to inform the research: P Andrew (Hills Quarry Products Ltd), the British Aggregates Association, Nick Boldrini (Durham County Council); Matthew Cuthbert (Aggregates Industries); Gareth Davies (York Archaeological Trust); Kasia Gdaniec (Cambridgeshire County Council); (John Halstead (HS2); Paul Hamnett (National Grid); Kirsten Hannaford-Hill (Aggregates Industries); Duncan Hawkins (RPS), Adrian Havercroft (The Guildhouse Consultancy); Tony Howe (Surrey County Council); Andrew Josephs (Tarmac/AJA); Peter Larwood (Imerys Minerals); Lucy Lawrence (Buckinghamshire Council); Andy Margetts (Archaeology South East), Sinead Marshall; David Mason (Durham County Council), Anna Stocks (Warwickshire County Council), Roger Thomas, Jan Wills; and Adam Withers (JBM Solar).

2 METHODS

2.1 STAKEHOLDER ENGAGEMENT

COMMUNICATIONS PLAN

2.1.1. A Project Communications Plan was produced at the start of the project (Powers 2021b). The plan outlined the aims, objectives and milestones of the project, roles and responsibilities and the planned series of workshops (see below). A statement of ethics and issues log were also created.

WORKSHOPS

2.1.2. The key component of the project was stakeholder engagement through a series of on-line workshops. This engagement enabled collation of information on the current approach to evaluation.

2.1.3. The workshops were publicised as widely as possible. Flyers were sent to all CIfA Registered Postholders, ALGAO England and the PAG were asked to contribute to a list of key invitees. The minerals, residential and infrastructure representatives on the PAG were directly contacted to discuss participation. Announcements for the workshops went out on individual, Historic England and CIfA social media channels (LinkedIn, Facebook and Twitter) and news bulletins, and via the British Aggregates Association newsletter.

- Workshops 1 and 3 were designed to capture opinion from CIfA Registered Organisations (RO); members of the Federation of Archaeological Managers and Employers (FAME) and the Association of Local Government Archaeological Officers (ALGAO); local planning authority and county authority development control/planning archaeologists, and heritage consultants
- Workshop 2 was intended to gather opinion from the minerals extraction industry
- Workshop 4 engaged with the residential and infrastructure sectors

2.1.4. Each workshop took place on Zoom and consisted of an introduction to the project followed by discussion of a series of questions. For each question there was a 15-minute discussion session in a randomly selected ‘breakout room’ group, followed by feedback to the main group. Cameras were left on in the breakout rooms and the main group discussions were recorded and transcribed. The smaller group present in Workshop 4 led to a more organic discussion of the issues covered by the four questions.

2.1.5. Attendees considered the following four questions:

- What are the most important factors to consider when selecting trial trench strategies (eg geology, period, type of scheme)?
- What are the top three issues or limitations in the way in which intrusive evaluation is implemented at present?
- How can we best deliver value to client (considering timing in project cycle, risk, cost etc)?
- What are the three most important things that we can do to improve processes going forward?

KNOWLEDGE HUB

2.1.6. A project group was established on Historic England’s digital collaboration space, hosted on its Knowledge Hub platform, as a repository for project documentation and to facilitate further discussions. A poll was posted to canvas opinion on current trial trenching strategies.

CASE STUDIES

2.1.7. A call for case studies was circulated via social media channels (LinkedIn, Facebook and Twitter), direct contact via email and at the end of each workshop. In addition, the professional organisations involved in the PAG directly solicited case studies from their membership.

2.1.8. An Excel template file was provided with prompts and drop-down lists to ensure consistency of responses and enable comparison of datasets. In the event many case studies were returned with fields omitted and this, and the number received, prevented statistical comparisons as had been originally envisaged in the Project Design. However, they provided useful narrative information on the decision-making process and on the perception of that process.

2.1.9. Information on county, percentage trenched by area, numbers of trenches and proportional cost of the evaluation as the total project cost were collected and interrogated. Narrative details are presented in Appendix A. Location, organisation and project name details have been removed to enable the narrative to be examined objectively by the reader. The format of the case study template employed here, was designed to have consistency in the questions asked by Hey and Lacey (2001).

INTERVIEWS

2.1.10. To further augment sectoral engagement and ensure a range of perspectives, interviews were held with representatives working in local government, highways, planning and infrastructure development. These were less formally structured than the workshops, with opportunity for the interviewees to share their opinions and experiences. Those who participated have been given the opportunity to comment on and agree the text presented here.

2.2 PREVIOUS RESEARCH ON THE EFFECTIVENESS OF EVALUATION

2.2.1. To ensure the approach was as objective as possible, a review of the existing literature was not carried out until after analysis of the workshop and case study results. The following documents were considered during compilation of this report, to provide context for the study and the consultation responses.

2.2.2. These reports show that although there has, to date, been discussion on a regional and (limited) national level of the effectiveness of intrusive evaluation using trial trenching, many were intended as pilot studies only and the conclusions drawn from existing data have not been statistically tested. This is discussed further in Section 4.

EVALUATION OF ARCHAEOLOGICAL DECISION-MAKING PROCESSES AND SAMPLING STRATEGIES (HEY AND LACEY 2001)

2.2.3. Considered by many to be the seminal work on archaeological evaluation strategies, the authors report on pilot study, undertaken by the Oxford Archaeological Unit for Kent County Council, and funded by Historic England (then English Heritage) and the European Regional Development Fund. The study compared actual and potential sampling strategies on 12 infrastructure projects carried out in south-east England in the previous decade. It included computer simulation of a variety of trenching strategies, to investigate the affect that different types of array and sample sizes would have had on what was encountered. Five geophysical surveys were also investigated.

2.2.4. The authors concluded that intrusive evaluation was the only reliable way of characterising archaeological deposits and features. Eleven sites had been evaluated by trial trenching, with

percentages of between 0.8% and 5.6%. It was concluded that the proportion of the site seen was too small to enable confidence in prediction of the archaeological deposits and features present. Different types of site and densities of features were stated to require different proportions of trenching: a range of 3–5% by area was given for substantial and clustered features, but that "scattered and ephemeral" remains (predominantly those from the early prehistoric and early medieval periods), could be missed. As such, the methods reinforced biases in favour of more 'visible' periods. As trench placement was shown to give a change in quantity of deposits and features encountered of 1.5% in either direction, the authors stated that 2% evaluation was "a high-risk strategy".

2.2.5. The key factor identified in the success of trenching strategies was the date of remains. Success was not considered to be affected by geology, topography, land-use or evaluation technique, though a grid pattern of trenches was considered most effective. The study recommended that greater consideration should be given to strip, map and sample (SMS) as a method of evaluation, particularly for earlier prehistoric sites.

2.2.6. This study heavily influenced the perception (and application) of a percentage-based approach to evaluation trenching. It is important to consider that this study was intended as a pilot and was carried out with a limited dataset that could not be confirmed statistically. It was also regionally specific – nine of the 11 sites that had been subject to trial trenching were located within Kent.

MINERAL EXTRACTION AND ARCHAEOLOGY, HISTORIC ENGLAND ADVICE NOTE 13 (HE 2020)

2.2.7. Developed through consultation by the Minerals and Historic Environment Forum (MHEF), this document is intended to provide a practice guide for archaeological decision making during mineral development in England. It outlines the approach and legislative considerations for all stages of the project cycle. With respect to evaluation, it details the need to "take a question-led approach to evaluation work, focused on the information needed to make a planning decision in accordance with the NPPF (in particular paragraph 189)" (HE 2020, 23).

2.2.8. Evaluation trenching is shown as the last point in a sequence of evaluation work that starts with Desk-Based Assessment, followed by appropriate use of borehole survey, geophysical survey, fieldwalking and test-pitting. The advice note outlines that intrusive evaluation can be achieved through interventions that are not standard trench shape, by borehole survey (for deep deposits) and through fieldwalking. In common with Hey and Lacey (2001) (and presumably drawing directly upon its conclusions), it states that trenching is less effective for finding "dispersed remains, irregularly laid-out sites, small and/or clustered features such as post-built buildings, pits, isolated burials and lithic scatters".

2.2.9. No recommendations or guidance for the type, array or proportion of trenching are made, with an emphasis on the importance of informed decision making at all stages.

WHAT VALUE? ARCHAEOLOGICAL EVALUATION AND MITIGATION IN WORCESTERSHIRE 1990–2014 (NASH ET AL 2017)

2.2.10. Funded by Historic England, this project reviewed evaluation and mitigation[1] work undertaken in Worcestershire from 1990 to 2014 to assess how effective the development advice of Worcestershire County Council and Worcester City Council had been. Its aims were in part to understand how changing national and local planning frameworks had an effect at a local level, but it also examined how effective different strategies were across different landscapes and for different periods.

2.2.11. For the wider county, data relating to 281 evaluations was examined and 47 (17%) that had been subject to further mitigation were examined to determine how successful the evaluation had been at predicting the archaeological deposits and features that were subsequently found. For Worcester City, 43 sites were examined.

2.2.12. The project identified that a difference in intensity of development and in archaeological understanding resulted in a location bias: well-understood areas lent themselves to targeted (and successful) evaluation, which "perpetuated the cycle" that resulted in local concentrations of evaluation (and mitigation). A total of 51% of all evaluations were undertaken pre-determination and in 80% of cases in Worcestershire, and 91% in Worcester City trenching was the only technique used.

2.2.13. The average (mean) sample size by area for Worcestershire was 3.3% and for Worcester City, 5%.

2.2.14. Of the 47 evaluations assessed for Worcestershire, 38 (80%) were deemed successful. The results showed that increasing percentages increased the effectiveness of evaluation but identified that there was a potential circularity in this argument as areas where further work was undertaken were frequently only those in which features had been identified during trenching. This is an important consideration when examining measures of 'success'.

2.2.15. The conclusions on results by period were considered tentative, largely due to small datasets.

2.2.16. Within the City of Worcester, differences in trenching percentages were seen within the different zones of archaeological potential and ranged from 1.9% to 4.4%, whilst overall the percentage by area subject to trenching varied from less than 1% to over 23%.

2.2.17. The authors concluded that "the results of this project align with the OAU study and indicate that for all site types and periods 4% should be a minimum, with any trenching contingency added to this." but acknowledged that "the data did not represent the 'robust evidence base' that had been hoped

[1] The term mitigation, as pertaining to a variety of excavation and recording techniques also commonly referred to as "preservation by record", is not universally accepted. However, it is derived from Environmental Impact Assessment (EIA) terminology and as such is widely understood by those outside the heritage sector. As such it is used throughout this report. It is outside the scope of this project to discuss these issues in detail, though problematic terminology is discussed in the recommendations. For further discussion of the application of the term mitigation see:
Thomas, R, 2019, It's Not Mitigation! Policy and Practice in Development-Led Archaeology in England, Hist Env: Policy and Practice, Vol.10, No. 3-4, 328-344

for" (ibid, 92). The authors also concluded that it was not clear that a larger sample size would have produced more accurate results in some cases, recommending that further simulation studies were carried out.

2.2.18. This study included an element of stakeholder consultation, and this identified concerns relating to the quality of desk-based research and the use of geophysical survey. The place of research frameworks within evaluation (and mitigation) was discussed and the study concluded that bespoke, research led briefs that are refined and added to as work progresses were the best approach. These were to be created collaboratively between the Planning Archaeologist, contractor and consultant.

2.2.19. The authors concluded:

- There was a need for better sectoral understanding of the operational frameworks of other stakeholders
- Common national guidelines were needed that could be supplemented with local standards
- Evaluation often addressed potential but not significance
- Evaluation reports needed to be clearer on the limitations of the work
- Geophysical survey needed to be used appropriately and thoughtfully, and evaluation trenching should be used to 'test' blank areas
- Recent reports had moved away from synthetic interpretation
- Timely and effective desk-based research was of key importance
- Evaluation was of limited use for periods that are largely aceramic (and therefore features do not provide dating evidence)
- Regular consideration of other techniques such as fieldwalking and metal detector survey should be made, and topsoil sieving should be regularly applied
- Natural deposits at the base of evaluation trenches should be 'tested' by machine excavation
- Trenches should be left open to 'weather' to ensure features were identified

2.2.20. A series of recommendations were made. Those which could be applied on a national basis included: regular meetings between consultants, planners and contractors to be facilitated by ALGAO; CPD to clarify the roles and responsibilities of those within the sector; national guidelines for Planning Archaeologists; guidance on how evaluation should be specified in order to meet the requirements of NPPF (MHCLG 2021); updating of research frameworks on a local, regional and national level; training for Planning Archaeologists in the basics of geophysical survey and greater collaboration between stakeholders during project design (WSI) to agree research questions.

ARCHAEOLOGICAL EVALUATION, LAND USE AND DEVELOPMENT: AN APPLICATION OF DECISION ANALYSIS TO CURRENT PRACTICES WITHIN THE LOCAL GOVERNMENT DEVELOPMENT CONTROL PROCESSES IN ENGLAND (WALLER 2008)

2.2.21. This extensive doctoral study was prompted by Waller's experiences during 16 years as a Curatorial Archaeologist, where a number of significant, unexpected discoveries reflected a "lack of quantifiable effectiveness measures" for evaluation (Waller 2008, 10). Previous studies had focussed on the ability of evaluation techniques to quantify archaeological deposits and features, but not significance, which was identified as key to enabling curatorial decision-making.

2.2.22. A sample of 100 rural evaluations that subsequently went onto excavation was examined. The sites were located in the south of England: Bedfordshire, Berkshire, Buckinghamshire, Cornwall, Dorset,

Essex, Hampshire, Hertfordshire, Kent, Oxfordshire, Somerset, Suffolk, Surrey, West Sussex, Wiltshire, Milton Keynes, Peterborough, Plymouth, Southampton and Winchester. The research tested four propositions set by Hey and Lacey (2001):

- No non-intrusive techniques were successful at identifying the range of archaeological remains
- Only trial trenching was effective at predicting character
- That a 3-5% sample size is required for a moderately good assessment of linear features, substantial and clustered remains, but scattered remains need a greater sample size
- That the size of the gaps between trenches was the most important element in trench design.

2.2.23. The results indicated that field-walking or geophysical survey could not be used to identify the type and date of archaeological features and that trial trenching identified all periods present in 25% of cases (27/106). It was most successful at correctly identifying evidence of activity from the Bronze Age, Iron Age, Roman, Saxon and later medieval periods and less so for the Mesolithic and Neolithic periods (it is worth noting that the study also concluded that no other single intrusive or non-intrusive technique or combination studied was able to identify the presence of Mesolithic activity on rural sites). Fieldwalking was considered to be the most effective technique for identifying Neolithic activity.

2.2.24. Eighty of the sites were examined to investigate the percentage area covered, which ranged from 0.006% to 19.8%. The study concluded that to be certain that trenching would identify all of the periods present on a site the sample size would need to increase to between 21% and 30% of the total area. To identify 66% of the periods present would require a minimum of 6%. A 10% sample size enabled 40% to be identified of the archaeology by type. Trench length had little effect on identification levels, but trench spacing did: the size of gaps between trenches needed to consider the expected patterns of land use anticipated for different periods.

2.2.25. Standard grid arrays were determined to be most successful at identifying archaeological deposits and features of most periods and a series of 'optimum' percentage coverage were suggested (Table 2-1).

Table 2-1 – Optimum sample sizes to identify feature types by period (Waller 2008)

Period	No. case studies	Sample size	Feature types identified
Bronze Age	56	7%	60%
Iron Age	60	2.5%	38%
Roman	56	10%	66%*
Saxon	24	17.5%	66%
Medieval	30	28%	66%

* a 13% sample size was optimum for Roman remains, 22% for Saxon, and 35% for medieval remains but that 66% represented a 'good' score (Waller 2008)

2.2.26. Waller concluded that “an untested industry standard set around a 2%...is flawed and unsustainable…Trial Trenching has now been shown by this research to require at least a 6% sample to identify 66% of periods present on a site and a Sample Percentage size of 10% is even more preferable [to] allow Archaeological Curators to be confident that the results of Field Evaluation will provide enough information to accurately predict the Date and Type of any archaeological remains present on a potential development site.” (Waller 2008, 209).

3 RESULTS

3.1.1. The views articulated within this report reflect the opinions of heritage professionals, clients and other stakeholders. They are not a criticism of any particular group or individual, and should not be read as such, but constitute a summary of the challenges encountered currently. The data is presented here as it was received, with no one group having a louder voice than another. Where opinions differed between sectors or individuals, the range of views is presented wherever possible.

3.2 WORKSHOPS

3.2.1. Four workshops were held, with an additional heritage sector workshop added to meet the unexpectedly high demand. In total 86 people attended.

- Workshop 1: 23rd March – Heritage Sector (6 breakout groups; 37 attendees)
- Workshop 2: 26th March – Minerals Sector (2 breakout groups; 17 attendees)
- Workshop 3: 31st March – Heritage Sector (3 breakout groups; 24 attendees)
- Workshop 4: 10th June – Residential and infrastructure (1 group; 8 attendees)

3.2.2. The principal affiliation of attendees is shown below. The author recognises that individuals may hold more than one role and may act within those roles as designer and implementor. In total there were 32 LPA archaeological advisors, 19 archaeological contractors, 18 consultants, 10 clients (developers), three representatives from professional bodies (such as Historic England), and four individuals for whom affiliation was unknown.

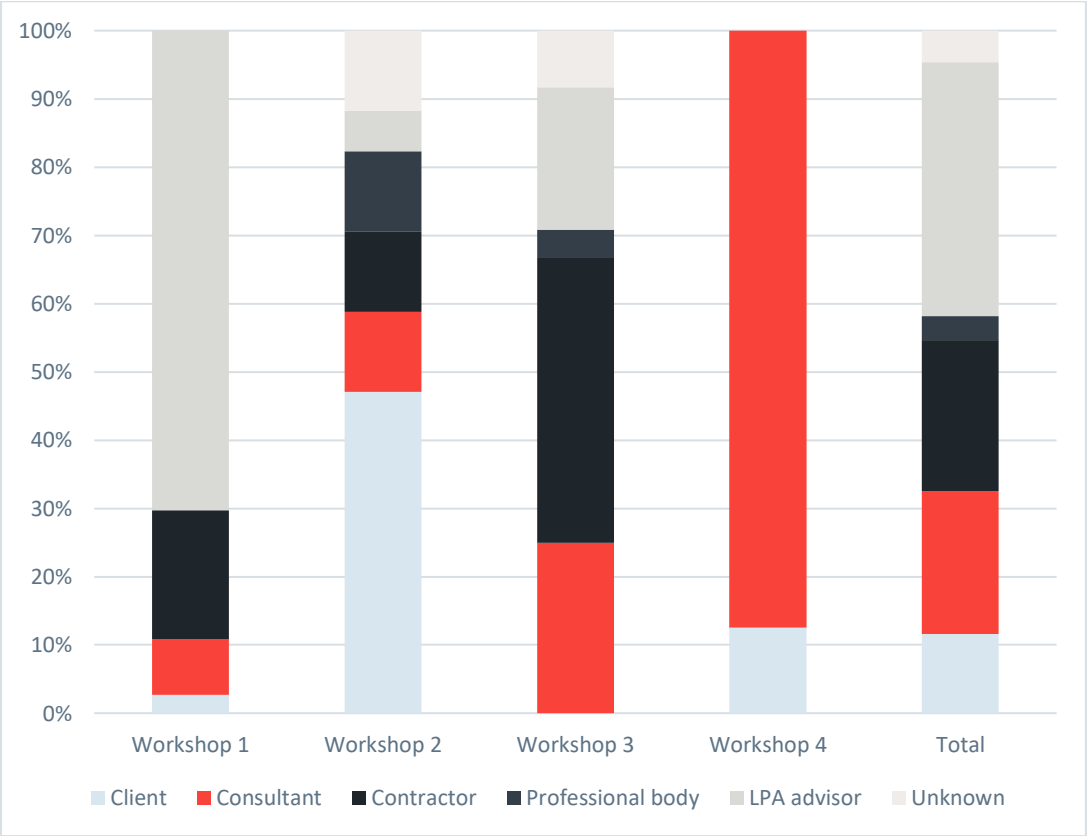


Figure 3-1 - Affiliation of workshop attendees

3.2.3. The questions and opinions raised in the workshops are discussed thematically in the following sections and summarised in Table 3-1 to Table 3-4. In each table the discussions have been grouped by row to show where similar (or identical) topics were raised by more than one workshop, and also readily identify where a subject was not addressed by all the groups.

QUESTION 1: WHAT ARE THE MOST IMPORTANT FACTORS TO CONSIDER WHEN SELECTING TRIAL TRENCH STRATEGIES?

3.2.4. Consensus was that there are key variables to consider when selecting a strategy. Factors identified in each workshop have been ordered by type and are shown in Table 3-1. Workshop 2 - Minerals did not specifically address this question as it was aimed at technical heritage specialists.

3.2.5. In **Workshop 1 – Heritage**, alternative techniques to trial trenching were discussed and a more flexible approach was advocated. This included the use of Strip, Map and Sample[2] for urban, industrial sites; increased use of borehole survey and deposit modelling as predictive tools; fieldwalking, and test pits for characterising prehistoric sites. A good evidence base was considered essential to support decision-making, as was an understanding of what the evaluation is trying to achieve. Trial trenching was seen as part of a continuum of data gathering, with the opportunity to ensure that as information is updated it can feed into the strategy for mitigation.

3.2.6. Factors identified in **Workshop 3 – Heritage** showed consistency with those chosen by **Workshop 1 - Heritage**, with the need to understand both archaeological and commercial risk identified as key. One respondent felt that desk-based assessment tends to repeat what is already known and therefore geophysical survey was preferred approach for designing further work. The groups discussed that pre-determination evaluation is still resisted by many developers and that better communication is needed around importance of evaluating before scheme boundaries and design details are fixed. It was expressed that to enable LPA archaeologists to approve effective strategies, the evidence base needs to be set out effectively and clearly.

3.2.7. Within this group there was a perception that standard approaches are common, especially on greenfield housing sites. The general view held was that question-led and development specific approaches should be followed and there was also a perception that an industry minimum based on a specific percentage was necessary as a back up to this.

3.2.8. **Workshop 4 – Residential and Infrastructure** considered that whilst different cost profiles were a challenge, evaluation had to be led by the archaeological considerations. They raised the concern that approaches to evaluation were currently very formulaic and that there is a need to review what we were trying to achieve. The question of whether consistency (or not) in methods led to the same results was also raised and whether evaluation was simply increasing the volume of data without really adding to knowledge. Big sites do not automatically mean big discoveries and that this needs to be considered when addressing proportionality.

[2] This technique involves the (machine) stripping of a defined area, planning of the features encountered, and partial excavation of those features.

3.2.9. In further discussion after the workshop, access to land was mentioned as a particular issue preventing early evaluation on linear infrastructure schemes.

QUESTION 2: WHAT ARE THE TOP THREE ISSUES OR LIMITATIONS IN THE WAY IN WHICH INTRUSIVE EVALUATION IS IMPLEMENTED?

3.2.10. **Workshop 1 – Heritage** discussed the problems resulting from evaluation trenching as a 'blunt tool' which could result in false negatives and was biased towards finding only certain kinds of archaeological feature and features from certain periods. Ground conditions and non-archaeological constraints were also raised as limiting factors in designing evaluation strategies. Poor quality desk-based assessment was raised as a serious constraint. Financial and programme constraints were also discussed, with some expressing the opinion that not all developers want to pay for intrusive evaluation work and others emphasising that intrusive evaluation was not necessarily the most expensive option for establishing significance, and that it could save overall project costs. Changes to design during the evaluation stage were also raised as a challenge.

3.2.11. A lack of standardisation in the decision-making approach was raised, as was a lack in flexibility in terms of the use of more 'bespoke' solutions to particular question (eg using techniques in combination, flexibility in trench shape). The challenge of locating trenches using the results of geophysical survey was also mentioned with a concern raised that this could lead to over-targeting of linear features during trial trenching, at the expense of more ephemeral features. More than one of the discussion groups identified that the pressure on LPA resources could result in applying blanket approaches to evaluation strategy, whilst the fact that higher percentage coverage by area does not automatically mean more information is recovered was also raised.

3.2.12. Strategies based on percentage cover by area were a more contentious issue for **Workshop 2 – Minerals** than for the other groups. Some felt that trenching should be targeted on research questions, whilst others felt that a fixed proportion but with a lower threshold level was needed. The necessity of trenching when it is known that a site is to be fully stripped (and recorded) was queried. Some attendees felt that there was a dogmatic approach by the LPA in some areas, and a lack of mechanisms for addressing differences of professional opinion.

3.2.13. In **Workshop 3 – Heritage**, the issue of quality of evaluation fieldwork and continual training of site staff was raised. In the experience of one LPA archaeologist, evaluation trenching rarely changed scheme boundaries, as the opportunity to significantly influence design had passed by the time the site reached this stage of works. It was suggested that further industry guidance was needed on how to engage with clients early in the process.

3.2.14. One consultant suggested that in a rural greenfield context geophysics and 2% trenching should be a minimum requirement, rising to 4% (ideally 5% with the additional 1% targeting specific areas of interest) where no geophysical survey was undertaken. In an urban context, trenches needed to reflect both the scale of development and the depth of stratigraphy.

3.2.15. **Workshop 4 – Residential and Infrastructure** included considerable discussion of the application of the percentage-based approach. It was suggested that an 'unwritten standard' of 4% trenching was leading to bias in results. Variations between 10% in the home counties and 2% in Yorkshire were stated, and there was some disquiet resulting from a perception that Hey and Lacey (2001) had made a recommendation of 2% but that this was not being applied. It was also felt that there was greater clarity needed to explain to all stakeholders that percentage trenched does not equate to percentage of archaeological deposits and features found and characterised.

3.2.16. There was confusion on terms and in the applicability of stages of work. Strip Map and Sample (SMS) was used as an alternative to evaluation trenching in some regions. The question was raised of whether geophysical survey results were ever used to reduce the amount of trenching required. If a blanket percentage was being applied, and/or 'blank' areas still required trenching, it was difficult for clients to see what value it provided to add in a stage of geophysical survey. The other main topics raised also feed into discussion of value (Question 3).

3.2.17. In one consultant's perspective, expressed via separate correspondence, test pits were not considered to be effective, due to the way in which they are applied. For early prehistoric deposits an alternative method that utilised large, deep trenches was suggested, coupled with large areas of investigation to understand context, where this was proportionate to the impact of the proposed development. The experience of the staff involved, and the quality of the work carried out were considered to be the key factor for success.

QUESTION 3: HOW CAN WE BEST DELIVER VALUE TO CLIENT?

3.2.18. **Workshop 1 – Heritage** considered that value to client was heavily influenced by the type and scale of the project in question. The importance of understanding the project context was identified. For example, an applicant seeking outline planning permission might only want to undertake the minimum work required to obtain that, whilst a one seeking detailed permission needs to remove all risk. It was suggested that for smaller projects, where archaeological deposits or features are identified, trenching could move straight into excavation/mitigation, in order to compress timescales, as programme was often a key consideration. Logistical difficulties were identified in the updating of a Written Scheme of Investigation (WSI) to cover the works and in the pressure this approach would place on the contractor. Similarly reporting timescales were discussed with the possibility of whether interim reports could aid with the speed of discharging the condition requiring evaluation. Ensuring that there were local curators on the ground was considered key to providing value, and it was suggested that not only should the sector educate clients on why this helped, but that it should also look to learn from other industries.

3.2.19. A specific issue was raised in **Workshop 2 - Minerals** regarding the increasing numbers of LPAs charging for review of planning documentation such as WSIs. Clients wanted to understand clearly what the advantages are to them in paying this service in terms of programme, risk and cost.

3.2.20. Capacity issues in LPAs were raised as a potential difficulty to providing value by **Workshop 3 – Heritage**, as was the current process, which it was suggested means that decisions are often made by consultants, and local contractors have limited input into advice or design. Some contractors cited increased time pressures from shorter deployment timescales. It was noted that clients could be willing to pay for LPA advice if it is consistent and of high quality. The importance of good communication at all stages and between all parties was emphasised, particularly the communication of risk, cost, certainty and value for money. It was acknowledged that proportionality can be interpreted differently depending on perspective, and that determination relies on professional judgement and experience. One attendee raised that the sector should recognise that the public may also be a client, and value to them is provided through engagement. There was also discussion of where influence lies within a project, and that contractors may not be able to influence clients, particularly where they are acting through a third party.

3.2.21. **Workshop 4 – Residential and Infrastructure** felt that it was hard to justify the costs of de-risking through trenching of blank areas. There was a suggestion that the sector needs to work to change

the narrative, place archaeology firmly within the understanding of the environment and as forward thinking. One member of the group also suggested that a version of the matrix of clear criteria and methods used to assess significance for an Environmental Impact Assessment, could be used to explain the decision-making process for evaluation and mitigation.

QUESTION 4: WHAT ARE THE MOST IMPORTANT THINGS THAT WE CAN DO TO IMPROVE PROCESSES GOING FORWARD?

3.2.22. In **Workshop 1 – Heritage** it was felt that good local knowledge leads to greater consideration and finesse in design.

3.2.23. Pressure on LPA was discussed at some length within **Workshop 2 – Minerals**, as a lack of resources was seen to mean they have less time to think about individual projects variables. A lack of experience amongst some staff was also recognised as a sectoral concern. Conversely, there was a suspicion expressed by some that reports are scrutinised more than necessary, because they are paid for by the developer. Confusion was expressed as to why a report produced by a qualified specialist, and to CIfA standards, would not be passed without question.

3.2.24. Specific outcomes suggested were as outlined in Table 3-4.

Table 3-1 – Question 1: What are the most important factors to consider when selecting trial trench strategies (eg geology, period, type of scheme)? Summary of responses

Workshop 1	Workshop 3	Workshop 4
Existing knowledge (desk-based assessment, remote sensing data, geophysical survey)	Existing knowledge and good supporting information (desk-based assessment, remote sensing data, geophysical survey, prediction of masking deposits using a landscape approach)	Existing knowledge (desk-based assessment)
Research objectives	-	Clear focus on (research) aims
Period and type of archaeological deposits and features	Period and type of archaeological deposits and features	Period and type of archaeological deposits and features
Site location (region) and type (urban vs rural)	Site location (urban/rural/wetland)	-
Levels of past disturbance	Previous/current land use	-
Effective site coverage	Clarity of specific aims (eg random vs trenching targeted on geophysical anomalies)	-
Geoarchaeological/paleoenvironmental potential	-	-
Geology	Geology	Topography
Constraints and requirements of other disciplines		
The type of development	Scale and nature of development	Size and scale of project

Workshop 1	Workshop 3	Workshop 4
-	Cost	Cost
-	Risk - frontloading costs with greater levels of evaluation can reduce future risk for client	
-	-	Community benefit
-	-	Consistency in the approach to answering key questions

Table 3-2 – Question 2: What are the top three issues or limitations in the way in which intrusive evaluation is implemented at present? Summary of responses

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Stretched LPA resources compromising decision-making timescales	-	Timescales – WSI often sent for approval with very short notice, which means there is not enough time to really think about strategies	-
-	-	Lack of knowledge within and guidance for LPAs on the decision-making process	
Lack of standardisation in approach	Regional differences in approach	Regional variation in application of percentages and the use of blanket approaches, rather than responsive ones	Consistency of approach - lack of landscape-based approach and variety across county boundaries

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Lack of flexibility of approach and reliance on percentages	Lack of debate over percentage of trenching	Lack of flexibility in methods eg considering stepped test pits and sieving for prehistoric deposits, borehole survey and deposit modelling	Reliance on percentages
-	-	Lack of clarity in the decision-making process	Lack of clarity in the decision-making process
Poor quality desk-based research	-	Variability in quality of DBA and geophysical survey results eg lack of scrutiny of areas that appear blank from the HER data	-
-	-	Access and land ownership issues that can hinder early evaluation	-
Methods biased towards finding certain types of features	-	Methods biased towards finding certain types of features	-
-	-	Forgetting the purpose of the evaluation ie to characterise the archaeological deposits and features	-
Money	Lack of certainty in programme and costs	-	-
Programme	Lack of certainty in programme and costs	-	-

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Changes to design (during evaluation)	-	-	-
-	Timing – the cost comes upfront and so can make a planning application too expensive. How and where to spend in the process to ensure value	Timing in the planning process - ideally want it done early so it can inform design, but clients often want it to be when they have security of getting their planning application, as this helps with costs management	-
-	Disagreement between the advice of the contractor/ consultant and LPA archaeologist	Stakeholder conflict	Consistency in advice
-	-	Our expectations - evaluation will not answer everything, and it is important to understand the design of the proposal	-
-	-	Ground conditions eg heavy clay soils, trenches flooding leading to backfilling very quickly and no time to weather features. Sites still in use.	-
-	-	Client appetite for risk	-

Table 3-3 – Question 3: How can we best deliver value to client (considering timing in project cycle, risk, cost etc)? Summary of responses

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Good consultancy - to act as a translator between curator and client	-	-	Effective stakeholder engagement leading to realistic outcomes for mitigation requirements
-	More flexibility at scoping of EIA	-	
-	-	Proportionality	Proportionality
Early engagement to inform design rather than mitigate impact	-	Early engagement with client and early engagement with stakeholders to save time and money later	Early engagement
Understanding the purpose of the work	Ensuring balance and proportionality	A tailored and considered approach	Clear objectives
-	-	Understanding cost profile and accounting for this in evaluation design	
-	Effective DBA – not just a repeat of the HER	-	
Risk management	Risk management	Risk management	
Appreciation of programme	Minimizing cost/time	Timely delivery and reducing delays to programme	

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Positive engagement with the public	Positive engagement with the public	-	Community involvement
Providing certainty	-	Providing certainty	
Consistency and clarity of advice and expectations	Consistency in approach	Clear and consistent advice	
-	Better publication outcomes	High quality work on site and in reporting	Creative incorporation of the results into development and research outputs
-	-	Good communication	Good communication
-	-	Transparency and consistency in tenders	Transparency of process

Table 3-4 – Question 4: What are the three most important things that we can do to improve processes going forward? Summary of responses

Workshop 1	Workshop 2	Workshop 3	Workshop 4
Promote the benefits of early engagement	Promote the benefits of early engagement (ie before scoping)	-	
-	Be flexible	-	
Review the DBA process so that evaluation techniques other than trial trenching are considered and their potential properly understood	-	-	Better CIfA guidance for DBA and evaluation
-	Ensure better interpretation of geophysics, DBA etc	Take a landscape-based approach	
			Improve the quality of WSI and ensure site specific aims with DBA and historical background in WSI as standard
Update the regional research frameworks to support local knowledge, learning and targeted approaches	Update the regional research frameworks so that decisions are research led	Take a research themed approach	Better research frameworks and using them to influence fieldwork more – link to Local Plans?
Provide guidance for LPAs to enable consistency	Provide training for LPAs and consultants to understand client requirements better	Support curatorial advice and staff and create a network for sharing best practice LPA advice nationally with training for new starters	Strengthen curatorial response/support

Workshop 1	Workshop 2	Workshop 3	Workshop 4
-	Ensure greater consistency	Give strong, clear, consistent advice	Consistency of methods by type /period
-	Provide better justification of proportionality for different types of development	-	Predictive modelling across county boundaries to set expectations on what is proportionate
			Effective use of spatial and visual data, web-based outputs and upfront web mapping for decision making
			Better understanding of the influence of topography
Move away from percentages as the main driver in decision-making	Ensure decision-making process is transparent	-	Move away from percentage driven approach to question driven approach
-	-	-	Target methods to the type of assets sought (eg the issues of mesoliths in topsoil being removed by machining)
Develop better industry relationships	-	Provide a framework structure for changes in approach and communication	Unified approach by all stakeholders
-	Disseminate information to the public in a more accessible way	-	-

Workshop 1	Workshop 2	Workshop 3	Workshop 4
-	-	Create national forums for information sharing so we can learn from successes and failures	Better feedback – including sharing knowledge from large infrastructure schemes.
			National level data collection for HER
			National landscape modelling (free and iterative)
			Express significance better (with reference to EIA)
			Devise a system of grading for risk/potential

3.3 KNOWLEDGE HUB AND OTHER CORRESPONDENCE

3.3.1. During the course of the project, correspondence was received from several people who were unable to attend the workshops. The issues raised by them have been integrated into the discussion and conclusions of this report where appropriate.

3.4 INTERVIEWS

3.4.1. To supplement the information gathered from the workshops and case studies, a series of individual interviews were conducted with volunteers from the linear infrastructure, LPA advisory and planning sectors. The discussions from these interviews are summarised below in alphabetical order. The opinions expressed are individual and do not necessarily reflect those of their member organisations.

PAUL HAMNETT, NATIONAL GRID, 8 DECEMBER 2021

3.4.2. Good working relationships between all parties are the key to success as are scope control and effective project management. At National Grid, any opportunity to advance archaeological work to earlier within the construction programme is considered advantageous as greater upfront gives certainty where programme overrun could result in significant cost increases. Pre-determination evaluation is preferred. A greater understanding of the likely costs of post-excavation work from the earliest stages, and of the likely output of a project are of benefit to the client and, as a rule, worst case scenario planning is preferred to avoid significant cost increases.

3.4.3. Better forecasting allows the project team to focus on the positives that can be gained from archaeological work. Good local feedback is of value for infrastructure projects and archaeology provides an ideal opportunity for engagement. There are significant advantages in getting the client team more involved with discoveries as they are made on site.

JIM HUNTER, NATIONAL HIGHWAYS, 15 MARCH 2022

3.4.4. One of the key issues for determining feasible strategies for highways schemes is land access, given the large scale and likelihood of multiple landowners. Whilst there are powers that can enforce access, enacting this is time-consuming and expensive. The cost of intrusive evaluation can also be seen an issue by some project managers – it is particularly important to justify the expense when it is public money being spent.

3.4.5. The preferred approach is therefore to ensure that non-intrusive techniques have been exhausted first to reduce the area needed for trial trenching: geophysics, archaeochemical examination, drone survey, examination of Lidar data, aerial photos and so forth. It is easier to obtain access for non-intrusive investigations and generally also cheaper.

3.4.6. This then enables resources to be targeted on areas that are suspected to include significant archaeological features, and to locations that can answer research framework questions. However, some resistance has been encountered from curators to reducing the sample trenching despite extensive non-intrusive evidence. Similarly, questions have been raised on the representativeness of the intrusive evaluation results. This poses the question of what the purpose of the evaluation is if it does not result in a reduction in the maximum possible extent of mitigation with, for example, large areas of SMR being requested.

3.4.7. Lack of consistency (or perceived consistency) has been noted between curators. Whilst some differences are archaeologically related and understandable, sometimes they are not. This can be a particular problem where road schemes pass through several administrative areas as it can lead to different requirements and methods being implemented along the same route. Where such issues arise, they end up being taken to the Planning Inspectorate (PINS) for a decision and there may be a place for having a central organisation within the historic environment sector to arbitrate before this stage. Meeting unresolvable issues leads to a break down in relationships that can then cause further issues.

3.4.8. Are we providing good value to the public? Not at the moment – we should be thinking more about what is relevant to the general public and not focussed on a fairly small academic audience, with tailored and user-friendly outputs and the potential for a radical approach targeting very specific questions. HS2 may set the bar for this, but there may be resistance from archaeologists to this approach. How can we establish an unbiased view of what is interesting about a site? We probably cannot, so regional research frameworks are needed to frame this.

3.4.9. In terms of the application of evaluation techniques, methods are generally targeted to very simple questions rather than taking it a step further to examine what might be interesting about what is there. The preferred approach would be to see the results of evaluation being used to produce a scheme specific research framework that in turn is used to create the mitigation strategy. More digital outputs and better end products aligned to engagement strategies would be advantageous. Whilst this does not change how you approach evaluation, it does change how you approach its results.

3.4.10. Percentages only work if you know what is there already [type and period] and if you know that you do not need to do evaluation. In order to work out an optimal percentage you need to know what the dimensions of the features you are looking for are likely to be (assuming no geophysics). There is a misunderstanding of what sampling achieves, what the question is actually asking is for a representative overview and you would have to excavate 100% to be sure that you did not miss anything important. We should not pretend that we ever find or excavate everything – we are always looking for what interest us most. The question always needs to be what sample size you are prepared to make a [mitigation] judgement on, using the basis of what is typical. Strategies need to be based on the understanding of the dimensions of what you are looking for. Landscape-based studies that examine levels of prediction based on topographic characteristics and so forth would therefore be useful.

3.4.11. Ideally the results of this report will provide robust and useable recommendations that can feed into future government guidance, and EIA guidance documents, rather than separate “rival” guidance sectoral documents as too many sources can cause difficulties when feeding into planning documentation. Planning departments and PINS will also be less conscious of sector specific guidance.

BARRY JAMES, JAMES PLANNING & DEVELOPMENT SERVICES, 25 MARCH 2022

3.4.12. Criteria for planning evaluation strategies are assumed to be based on the scale and type of development. Professional judgement automatically creates variety, and a framework can only ever provide balance. The ideal would be to have a national framework with local requirements below that. Other areas of planning have many of the same communication issues regarding explaining variation in professional judgement and a clearly articulated decision matrix/process would be a

good recommendation. Perhaps there is value in the creation of a monitoring role, enabling consistency and facilitating communication between counties and the local community? A sliding scale for interventions might help explain the process to clients.

3.4.13. Nationally significant projects crossing county boundaries need a consistent approach. Inconsistency issues are encountered and there feels to be a lack of learning between projects, but this is not just an issue for archaeology and is common in other disciplines too. Clearly communicating expectations and reasoning within each planning authority area would be useful. There may be advantages in trying to get better wording within planning conditions with more specific itemisation of the archaeological input required. This requires communication directly with the planners.

3.4.14. In terms of problems for intrusive evaluation, the level of risk and cash flow issues feed into client's willingness to do work up-front. Clients may structure budgets by site and will not invest without some degree of certainty. Cross-disciplinary communication and clarity from the start of the process are fundamental.

3.4.15. Feeding into RTP training sessions for planning and archaeology is one possibility to encourage positive change, as are contributions to the RTPI newsletters. It would be good to use pre-existing local forums, for example local development officer meetings, for increased engagement and/or to set up specific local events dealing with archaeology and planning. The use of percentages is easy to understand, and simplicity works. However local guidance on a central database that is perhaps hosted by a central organisation such as ALGAO or Historic England would be potentially useful. Any tool that sets up expectations by county will be helpful and perhaps could be something that is equivalent to DEFRA's database as a central hub to store this information, with a link to each of the county planning portals that allows you to see the individual variations by region.

ANNA STOCKS, WARWICKSHIRE COUNTY COUNCIL, 26 NOVEMBER 2021

3.4.16. The current process within Warwickshire was discussed, with reference to the workshop questions. Pre-determination evaluation is preferred. There is a good regional grasp on the distribution of medieval and later evidence, although a great deal of variation in settlement patterns is seen. Evaluation for earlier activity had historically been targeted based on cropmarks, known sites, topography and so forth. This approach has been re-thought and the evidence is now showing activity in areas that would not traditionally have been thought of as inhabited. Methods that focus on known sites and 'traditional' models therefore need re-examination.

3.4.17. Issues raised included the problem of evaluating where there is a lack of (datable) finds, pattern interpretation was problematic and insufficient baseline data in the county to enable predictive modelling. Saxon settlement evidence is rarely found during evaluation.

3.4.18. The decision-making process outlined is to require evaluation where little is known about the archaeological potential of a site, considering the level of disturbance and any previous work. Decisions are based on experience and only as much is asked for as enables an informed planning decision to be made and is reasonable and proportionate. Despite approaching each project on its merits, the approach to evaluation is often similar due to consistencies in question and site type. There is not a county "standard" percentage although 4% trenching is considered to establish presence but not always to fully characterise the nature of the deposits and features. Extendable buffers are being used during mitigation increasingly because of this, presenting a cost risk to developers, and an increase in trenching was suggested to give more confidence in the results and

enable better mitigation strategies. Percentages can give a false impression of likely success, with the spread and distribution of trenches important to consider. For smaller sites where space is limited, trenching is often defined by number of interventions rather than percentage of area. Where good geophysical survey results are obtained, trench location is often more question led and spatially considered. 'Blank' areas are still sampled to identify if features not readily detected by geophysical survey are present, even in locations where conditions for geophysical survey are good.

3.4.19. In terms of potential improvements, better use of contingency trenches with a two-phase approach to evaluation (adding trenches to define extent or date) were suggested. The requirement to revisit geophysical survey results after intrusive work could advance strategies, as could regular synthesis and revaluation of data, ideally on a national level. More certainly in mitigation requires greater up-front investment, the probability that mitigation will be required is not always identified early enough in the process, and good communication on site is the key to this. Across project teams, capacity issues can affect the availability to carry out site visits and to respond to changes in design/WSI, whilst staff movement on the developer's teams can lead to discussions being lost without the chance to learn from them. This could be addressed by better capturing mechanisms.

3.4.20. Networks of support within the curatorial sector are considered important as is sharing knowledge, especially on sites that span, or are near to, county boundaries. However, the experience of other counties is not always useful as regional circumstances vary. "Rules" can be useful as part of the decision-making process but might prevent flexibility.

3.5 CASE STUDIES

3.5.1. Nineteen case studies were received. One was presented in confidence and, whilst the implications of it have been considered in the report recommendations, no further details of that case study are included here. Examples were received from a variety of sources, but there was a bias towards projects that had been undertaken for the minerals sector and no case studies were received from the north of England.

Table 3-5 – Summary of case studies by county, sector and viewpoint

County	Sector	Viewpoint
Berkshire	Minerals	Consultant
Buckinghamshire	Infrastructure	Consultant
Buckinghamshire	Minerals	Consultant
Buckinghamshire	Residential	Curator
Buckinghamshire	Residential	Curator
Cambridgeshire	Minerals	Client
Cambridgeshire	Minerals	Client
Cambridgeshire	Minerals	Client
Cambridgeshire	Residential	Contractor
Dorset	Minerals	Client

County	Sector	Viewpoint
Dorset	Minerals	Client
Essex	Minerals	Client
Gloucestershire	Minerals	Client
Greater London	Infrastructure	Consultant
Kent	Minerals	Consultant
Kent	Residential	Contractor
Nottinghamshire	Residential	Contractor
Somerset	Minerals	Client

3.5.2. The case studies have been assessed by area and site type for evidence of patterns of approach. Due to the small sample size, none of the information presented should be considered statistically significant, and it is outlined as a basis for further discussion only. Examination of the spatial layout of trenches was originally envisaged to lie within the scope of the project but was not undertaken due to the size of the dataset. Full narratives are presented in Appendix A.

3.5.3. The problem of interpreting evaluation data and of inherent methodological biases were addressed by several case studies. In one instance, evaluation identified features that were not picked up by a preceding geophysical survey. In another, no archaeological features were identified by geophysical survey, and it was only after trenches had "weathered" for some time that features could be seen. A further case study noted the difficulties of identifying ephemeral features (including a significant timber circle) through both geophysics and trenching. One study focussed in on the issue of communicating effectively between stakeholders and of communicating the reasons behind decisions.

3.5.4. Many of the case studies emphasise the variety of different techniques and approaches currently in use and the success of these as predictive tools. Case Studies 10 and 12 were both described as successful projects, success was defined (by client and contractor respectively) by the fact that the evaluation enabled a targeted approach to mitigation, focussing (client) resources on the areas perceived as of greatest potential and significance and answering key archaeological questions.

PROPORTIONAL COSTS

3.5.5. Costs were presented for five projects, four from the minerals sector and one residential scheme. The proportion of total project budget allocated to archaeological evaluation ranged from 0.5% (residential) to 46.8% (minerals extraction), with a mean of 14.9%. The range for minerals extraction schemes was 3.5–46.8%. This data is included in the report by way of illustration; as noted 3.5.2 above, the small sample size means that comparative conclusions cannot be drawn.

PERCENTAGE AREA TRENCHED

3.5.6. Data on the percentage of the development area subject to trenching, and the number of trenches excavated, was available for 16 projects. The percentages given ranged from 0.35% to 5%, with an average (mean) of 2.4% and most frequent response (mode) of 2%. The number of trenches

excavated ranged from 9 (a 5% sample for a residential scheme), to 307 (a 2% sample for a minerals extraction scheme).

3.5.7. For those counties where the percentage trenched was available for more than one site, the four responses for Cambridgeshire ranged from 0.35–5%, whilst two responses for Dorset were at 2.1% and two for Kent at 2%.

4 DISCUSSION

4.1 CHANGES TO METHODOLOGY

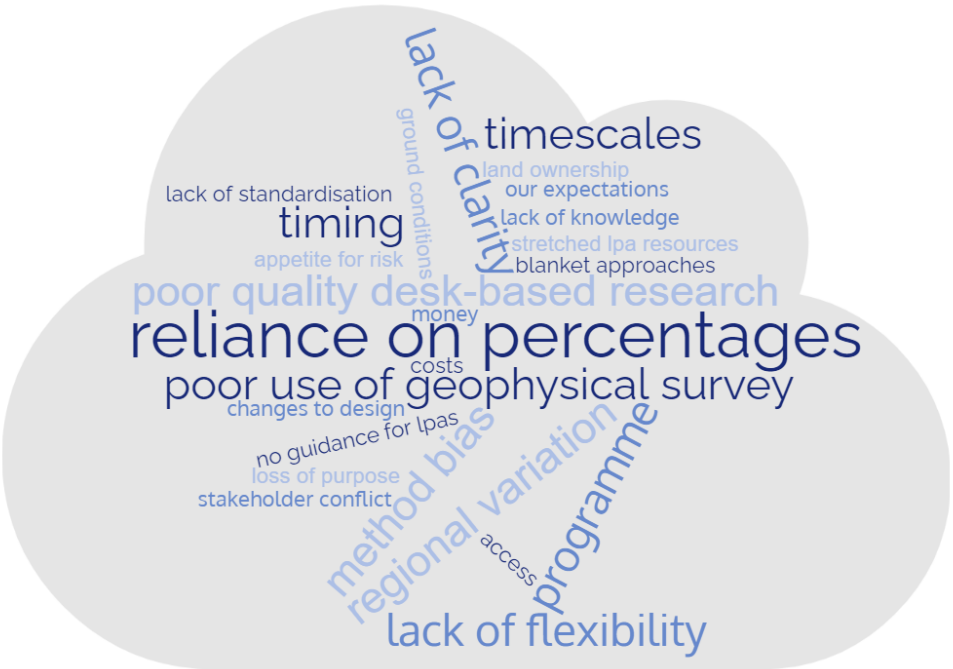
4.1.1. It was anticipated that one workshop would be held for each of the 'sectors' identified within the project design and considerable efforts were made to encourage engagement. However, it proved difficult to create dialogue with clients from the residential and, to a lesser extent, infrastructure sectors. Tentatively this seems to reflect the fact that these sectors preferred consultants and contractors to represent them. It may also reflect the perceived current importance of, or satisfaction with, archaeological evaluation to these different sectors.

4.1.2. On the basis of the responses received at the workshops, further scrutiny of the case studies was stopped in favour of a more detailed examination of the philosophy behind decision making.

4.2 KEY ISSUES IDENTIFIED

4.2.1. Notwithstanding this there was a, perhaps surprising, degree of consistency in the issues and potential solutions raised across all groups and sectoral representatives. There is consensus that change is required and a willingness to achieve a better, more easily understood and transparent process for decision-making for archaeological evaluation. Percentage approaches, whilst contentious, are recognised as an imperfect solution, and one which should be informed by archaeologically led and research question guided decisions. Client representatives were keen to emphasise that value does not just mean value for money to them, or low cost. Certainty, clarity and good communication, and presenting the potential benefits of archaeological discoveries all bring the client value. The key issues raised in the workshop feedback are summarised in Figure 4-1, a word cloud generate using the notes taken during the workshops and generated from the recorded transcripts.

Figure 4-1 - Key issues articulted in the workshops



4.3 THE PROBLEM OF PERCENTAGES

4.3.1. Although the need for clarity in communication and process were the principal outcomes of the workshops. The use of areas percentages remains a matter of some contention. It was clear that different parties had drawn different conclusions from previous studies and that some felt that optimum trenching coverage had already been proven. With this in mind, the key studies were revisited.

4.3.2. Previous studies have focussed on a percentage-based approach, and the premise that finding more intrinsically enables better decisions. It is important to note that all previous studies identified have been limited to a region (and all in central or southern England), and most have used the correlation between what was found at full excavation and what was indicated by evaluation to measure perceived success. This prevents the difficulty that sites that do not proceed to mitigation, because nothing significant is identified at evaluation, will not form part of the dataset, resulting in a circular logical argument.

4.3.3. Hey and Lacey (2001) found a mean area coverage of 2.4% (range of 0.8–5.6%) in the 11 sites they examined, from within three local authorities. The anecdotal and case study evidence collected here presents a similar range and average. The modal value of 2%, falls within the 'high risk' category identified by Hey and Lacey (ibid.). However, the range indicates that percentage responses are tailored to sites and circumstances, and this was supported by the discussion during the workshops. Percentages implemented may hint that "rules of thumb" are applied by county, but also show that flexibility is used in decision-making, perhaps in contrast to some current perceptions.

4.3.4. Nash et al (2017) found that the average sample sizes in Worcestershire had increased slightly over time, from around 2% in the 1990s, to a current average of 4%. A concern was expressed that this increase was not sufficient against the conclusions made by Hey and Lacey (2001). However, although the authors concluded that a greater percentage resulted in greater effectiveness, 80% (38/47) of all the evaluations assessed for Worcestershire were determined to have been 'effective' (Nash et al. 2017, 41), which suggests that this concern may be unfounded. Hey and Lacey also concluded that "The most expensive and time-consuming excavations are those for which evaluation is comparatively successful. Conscientious evaluation should locate most Roman, Iron Age and medieval remains, even at moderate percentages" (2001, 62).

4.3.5. Both of the studies above provide valuable data, but perhaps just as importantly they both identify the problem of determining 'success' when the data available for this in imperfect: unless a site goes to full open area excavation, it is not possible to know how much was identified by the method used and, since one purpose of evaluation is to target further work, in many instances the evaluation should preclude the need for wholesale excavation (or at the least will substantially bias the future results). This shows the importance of the 'reverse' approach of modelling a theoretical evaluation from excavation data if the percentage approach is to be robustly interrogated. Even then, sites which were not excavated cannot be included in the dataset.

4.3.6. The results of the studies that have been conducted to date indicate that the optimum percentage coverage and trench distribution will differ by a range of important variables (region, type of site, period etc). As many of these will be unknown before evaluation, knowledge of an 'optimum' percentage is not necessarily always going to help make a proportionate curatorial decision remembering that the purpose of evaluation is to characterise and assess the significance of any archaeological deposits and features present.

4.3.7. Further, as features will not be excavated in their entirety, the footprint of the evaluation is just one (two dimensional) measure of the proportion investigated – the percentage of an area trenched is not the same as the percentage that is excavated and this additional variable needs to be considered carefully.

4.3.8. The use of a percentage as key has also become an issue of dispute with clients, who see the different numbers applied on different sites as a lack of consistency. This supports the conclusion that we need to improve communication of the reasoning behind design decisions (A. Withers pers. comm.).

4.3.9. As an example, the solar farm industry has asked the Department for Business, Energy & Industrial Strategy that trial trenching is only requested as a pre-commencement condition, that Above-Ground Foundations and watching briefs are recognised as effective mitigation strategies in sensitive areas and that consistency is given to percentage of trenching requested in non-sensitive areas.

4.3.10. Waller's (2008) conclusions represent a significant increase in proposed percentages (shown in Table 2-1), They do not consider proportionality which would need to be considered on a case-by-case basis.

4.3.11. It is also important to consider whether increasing the coverage of evaluation trenching may result in reducing the significance of the archaeological deposits and features on a site, degrading it through partial excavation.

4.3.12. Evidence from the workshops and interviews is that the issues which are of greatest concern are those which relate to clarity of methods and early understanding of the scope of works. The diversity of approaches seen across the country, are perceived by some as not always justified by local conditions and based on personal preference of the LPA archaeologist rather than evidenced archaeological reasoning. Whether true or not, this emphasises the need for transparency in the decision-making process.

4.3.13. We therefore need to return to the communication of this process as the key to improving evaluation strategies and outcomes.

4.4 THE PURPOSE OF EVALUATION

4.4.1. CIfA standards and guidance define the purpose of field evaluation as:

> "to gain information about the archaeological resource within a given area or site (including its presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit in the appropriate context, leading to one or more of the following:
>
> a. the formulation of a strategy to ensure the recording, preservation or management of the resource
>
> b. the formulation of a strategy to mitigate a threat to the archaeological resource
>
> c. the formulation of a proposal for further archaeological investigation within a programme of research"

4.4.2. NPPF requires that applicants must provide the local planning authority (LPA) with a description of the **significance** of heritage assets to be affected by the proposals, **with a level of detail proportionate to that significance** (MHCLG 2021). The purpose of this is to "**understand the**

potential impact of the proposal on their significance" (para 194). On sites of potential archaeological interest this is defined as "an appropriate desk-based assessment and, where necessary, a field evaluation". Significance is the key factor in determining an application. The significance of designated sites can be considered to have already been established and therefore archaeological evaluation is a primary decision-making tool for undesignated sites only.

PROPORTIONALITY

4.4.3. Paragraph 203 outlines that "a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset", whilst 206 details that "Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner **proportionate to their importance and the impact**…However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted".

4.4.4. There is currently no agreed definition of what is proportionate, nor an agreed process to establish this as there is for establishing significance in EIA terms for example. The argument raised by some in the solar farm and minerals sectors is that the impact of their proposals is not being factored in sufficiently to the decision that an evaluation is required, for one because the below ground impact may be minimal and for the other because complete recording within the footprint of the extraction area is frequently required as a condition. At present there is little synthesised academic data on the impact that different types of development have been shown to have, with only plough damage having been studied in detail.

DEFINING SUCCESS

4.4.5. The purpose of evaluation within the planning process is to characterise the archaeological deposits and features within a site sufficiently to enable a decision on likely **significance** to be made, and to consider how the development will **impact** upon this. (From a client perspective, evaluation should also establish how much the mitigation may cost and how long the work will take). The likely outcomes of establishing this can be crudely simplified to answering the following questions:

- Are the archaeological deposits and features so significant they should be left in situ?
- If not, is further mitigation needed? (including design changes)
- What mitigation is proportionate, where will it be located and what method(s) should be used?

4.4.6. In evaluating the success of evaluation, we should therefore establish whether current techniques enable these questions to be answered successfully. Are unexpected discoveries after evaluation a measure of failure or an inevitable consequence of the gaps in our knowledge and of past people's ability to surprise? How should we measure failure – is it through the destruction of sensitive archaeological features by a development, spiralling costs to client due to finding more (or more significant) discoveries than predicted, or an evaluation which proceeds to mitigation and where nothing more is found?

4.5 DECISION MAKING

4.5.1. From the opinion collated during this study, the consensus appears to be that at present a variety of strategies are applied across England based on a combination of some or all of the following: local conditions, previous precedent, habit, research questions/frameworks, type of development, type of archaeological deposits and features expected, proportionality, and perceived previous success.

4.5.2. There is no magic formula for decision-making, but improvements can be achieved through a clear articulation and understanding of the purpose of evaluation, good communication and early engagement between all stakeholders.

4.5.3. The case studies indicate there is great variety in the proportion of a project cost that evaluation accounts for, and whilst this is influenced by project type, there is not a linear relationship, with projects in the same sector having a wide range of proportion of spend. How can it be determined that spend is reflecting a proportionate response to the impact on the historic environment, and how can decisions on strategies be explained to the client better when there may be so much variation between projects?

4.5.4. The conclusions of Worcestershire study included a reported perception from developers “that a blank desk-based assessment and/or geophysical survey negates the need for further work” (Nash et al. 2017). One LPA archaeological advisor noted that where geophysical survey could be appropriately applied, trial trenching was used to confirm the interpretation of that survey, characterise the remains identified, and test for the remains of period/types that geophysical survey was known to be less successful in finding. Therefore, knowing the sampling strategies that would fill such gaps with confidence is vital.

4.5.5. Surrey County Council has implemented a (flexible) policy of desk-based assessment, and further evaluation where appropriate, of any development over 0.4ha. This has resulted in the discovery of several significant sites. The policy fills in gaps where there is little or nothing known, and the results have challenged assumptions on the areas that were occupied in the past (T.Howe pers.comm.).

4.5.6. In the workshops, issues were raised over the understanding and timing of stages of work with a perception that work was requested where it was unnecessary (or where a site will contain only locally important discoveries), or where an alternative approach to trenching was more appropriate. The workshops also identified that (real or perceived) disagreement between the advice of the contractor/consultant and the LPA archaeologist was considered a problem.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1.1. The EVALS1 project has established that there is cross-sectoral agreement of the key factors to consider, the current issues with evaluation strategies and the potential solutions. The overriding desire is to see a more easily understood and transparent process for decision-making, guided by research questions on a site and/or regional level. Value for money is not automatically achieved by reducing the scope of work and making things cheaper, but through lowering risk through an understanding of significance and impact. Up-front spending may have significant cost advantages over the lifetime of a project.

5.1.2. A review of the framework for and the philosophy behind current evaluation strategies is needed: to improve the outcomes of evaluation for all stakeholders, it is necessary to question the premise that more is automatically better and examine the purpose of evaluation within the planning process. Establishing agreement on how proportionality can be effectively assessed, would also be of benefit. The present situation leaves the heritage sector at risk of encountering challenge which it cannot effectively counter using current tools and guidance.

5.1.3. The Planning Policy Guidance that supports NPPF simply states that "Decision-making regarding such assets requires a proportionate response by local planning authorities...it is estimated that following the initial assessment of archaeological interest only a small proportion – around 3% – of all planning applications justify a requirement for detailed assessment" (Paragraph: 041 Reference ID: 18a-041-20190723).

5.1.4. At the other end of the process, introducing feedback mechanisms will increase the evidence base for a range of techniques, and allow clients to understand commercial implications. Clients expressed the desire for worst-case scenario planning for cost/programme and clarity in where the process of evaluation may lead, from the earliest stages of discussion. Such mechanisms already exist and are often applied for Due Diligence reports and during screening for Environmental Impact Assessments (EIA) – greater sectoral sharing of the approaches taken here, could benefit all projects and the sector needs to be generous in sharing knowledge and good practice.

5.2 RECOMMENDATIONS

COMMUNICATION

5.2.1. Improvements could be achieved through ensuring widespread understanding of NPPF and communicating this effectively to clients and other stakeholders so that the purpose of evaluation is better understood. The multi-staged approach is unique to archaeology, with other disciplines carrying out surveys that move straight to informed mitigation. Therefore, our process takes longer than other environmental specialisms such as ecology. Desk-based assessment guidance needs to consider this, and revised guidance could include the requirement for predictions of the likely programme of further work, the use of new technology for prediction and ensuring older technology such as map regression, is include as standard.

5.2.2. Ensuring a greater understanding of process and terminology within the heritage sector itself would also be advantageous. One mechanism for ensuring engagement with the planning process and an understanding of the aims and requirements archaeological evaluation may be to provide guidance on language and process through the CIfA early career Special Interest Group.

5.2.3. The first communication with a client may be a planning condition and a review of the standard text used so that it is clear from the outset that a WSI is only one part of the work required for discharge would be advantageous. Similarly, making the purpose of a WSI transparent and ensuring that they work as effective project designs as well as fulfilling planning requirements is vital. Some of the case studies indicate that this document is not yet widely understood.

5.2.4. The same is true of the terminology used for different types of evaluation and mitigation work, and indeed the application of those terms themselves. One way of addressing this may be through the provision of an industry 'glossary of terms' with definitions agreed by consensus, coupled with industry guidance on how to engage with clients early in the process, setting expectations for proportionality. Changes in practice can be linked to EIA reforms and existing assessment tools to ensure a joined-up process.

RESEARCH

5.2.5. Previous studies have provided valuable information, but the focus on finding the optimum percentage for each type and period has constrained sectoral thinking and led to conflict between stakeholders. All previous studies also recommended that further data collection and yet overall, the position has not yet advanced.

5.2.6. The evidence suggests that is not possible to achieve a 'perfect' study of percentages as the data changes too often and it is unscientific to approach testing success using the results of an excavation, leaving detailed modelling as the most appropriate option for this type of study. Further, the percentage of an area that is subject to trenching is only one measure of the proportion that will be excavated during evaluation and just one stage in the decision-making process on the optimal method for achieving 'success'. The sector will not reach a consensus on the use of percentages but can agree that a tailored approach is needed and the explanation of that tailoring is key – to "show the workings" and communicate to all those involved in plain terms.

5.2.7. The results of ongoing research of Richard Higham should be disseminated widely to inform further discussion of percentage coverage and trench locations, but beyond this further studies of percentages may provide limited added value. Instead, further research should focus on establishing a better understanding of the below ground impacts of different types of construction scheme to enable effective targeting of evaluation and mitigation work (eg whether the extent of depth of disturbance may be limited or total, or impacts on archaeological deposits or features result primarily from compression or dewatering). Examination of a full range of alternative intrusive techniques and of different approaches to finds recovery would also be of benefit. Similarly, 'big data' modelling to enable prediction on a landscape level would benefit from further discussion.

5.2.8. Further examination of the variety of recent approaches to evaluation data collection on large, linear infrastructure projects (eg HS2, A14) is also recommended. Examples where different approaches to intrusive evaluation have been carried out would be particularly useful, as this could improve understanding of the most effective method to enable characterisation in specific circumstances.

SHARING KNOWLEDGE

5.2.9. Within the LPAs greater data sharing is recommended so that UK-wide knowledge on planning officer support for recommendations on the grounds of proportionality can be better understood and in turn articulated to clients. This could be achieved through an information 'hub' which could also support training for new starters.

5.2.10. Feedback from across the stakeholder groups on strategies used for large infrastructure projects would also be of value as would a mechanism for the regular sharing of examples of good practice.

5.2.11. The positive benefits of archaeological work in terms of community engagement were emphasised by clients from several sectors, and in particular for infrastructure projects, and the heritage sector should make more of this. Clarity on the CIfA requirement or otherwise for public engagement to be incorporated into WSI when client confidentiality issues prevent this, would also be advantageous, as would a review of research frameworks (and updating where needed) to enable them to be utilised more effectively within the decision process.

5.2.12. Mechanisms for feedback of evaluation successes should be put into place through existing professional organisations and networks. This could include engagement with FAME, CIRIA, the CBA and the RTPI. An examination of a definition of success that measures how well an evaluation achieves its aims from planning perspective and for commercial planning would complement the spatial/statistical research being undertaken.

5.2.13. Following completion and acceptance of this report, a short article summarising the outcome of the project will be compiled. This will be submitted for publication in The Archaeologist, and in construction and minerals trade journals identified by the PAG. The aim is to raise awareness of the issues, encourage peer feedback and participation, and inform the scope and design of EVALS2.

DECISION-MAKING FRAMEWORK

5.2.14. The heritage sector should work towards consistency of decision-making rather than of evaluation strategy, as methods need to reflect local conditions, type of development and a myriad of other recognised factors. It is vital that the process provides transparency and enables a lay-person's understanding of the aims of the work, and of why the proposed strategy is considered proportionate. The groups within the sector should work to ensure a clear understanding of their roles and place in the process, so that those differences can be embraced and the advantages to client, planning process and the public, clearly articulated.

5.2.15. To ensure that evaluation strategies are sufficient, consistent, cost-effective and proportionate and can be communicated clearly, consideration of a discipline framework for decision-making is proposed, supported by a risk matrix that can be used to communicate risk to clients. This should outline a hierarchy of factors to be considered and provide a basis within which to show professional judgement is sound and approach proportionate, to enable the iterative process to be clearly shown. Clear articulation of a complex process is not simple, but it is essential. The matrix would provide an additional tool to sit alongside and refer to the objectives outlined in the Local Development Plan and Regional Research Framework.

5.2.16. Evaluation will never completely negate risk as there will remain the possibility of single high value finds or new discoveries that could not be predicted, but the aim of the process is to ensure the risk for each decision is the lowest that is acceptable, within the bounds of proportionality.

5.3 ACTIONS

5.3.1 The following actions are recommended

No.	Rec.	Aim	Achieved by following action(s)	Proposed lead	EVALS2?
1	5.2.1	Robust desk-based research	A review and update CIfA guidance	CIfA	N
2	5.2.2		Training sessions at key conferences	CIfA	N
3	5.2.1	Better communication	Provision of industry guidance on effective, early engagement with stakeholders	CIfA	Y
4	5.2.3 5.2.11		Updated CIfA guidance for WSI production to enable client accessible WSIs	CIfA	Y
5	5.2.1		Simple guide to the purpose of different work stages	CIfA	Y
6	5.2.3		Review of planning condition terminology and the way rationale is communicated	RTPI/CIfA	Y
7	5.2.2 5.2.3 5.2.4		Clear and agreed sector terminology (eg watching brief vs archaeological monitoring)	CIfA, with sector partners	Y
8	5.2.9 5.2.10 5.2.12		Better feedback mechanisms and information sharing through professional forums, knowledge hub, lessons learnt session, client framework forums	CIfA/Historic England/ALGAO	N
9	5.2.1 5.2.15		Risk matrix for communicating with clients	FAME	Y
10	5.2.14	Standardisation in decision-making approach(es)	National guidelines for LPA archaeologists, that can be supplemented with local information – to	ALGAO	N

No.	Rec.	Aim	Achieved by following action(s)	Proposed lead	EVALS2?
			include a move away from percentages (which can focus on quantity rather than quality of information)		
11	5.2.11 5.2.14 5.2.15		Updated CIfA guidance for curatorial decision-making	CIfA	N
12	5.2.2 5.2.4		A sectoral 'glossary' with definitions agreed by consensus	CIfA	Y
13	5.2.14		Flexibility in the methods selected (intrusive and non-intrusive)	ALGAO	N
14	5.2.11		Regular review of research frameworks	Historic England	N
15	5.2.14 5.2.15		Sector discussions on creating an EIA-style matrix for agreeing proportionality	CIfA	Y
16	5.2.1 5.2.14		Free, on-line information for clients on techniques used, benefits and limitations	CIfA/ALGAO/FAME	Y
17	5.2.9 5.2.13		Advocacy and outreach with the Planning Officers Society/RTPI	CIfA	N
18	5.2.5-5.2.8 5.2.12	Better understanding within the heritage sector	Greater understanding within the heritage sector of biases in the deposits and features trial trenching identifies	CIfA/ALGAO/FAME	N
19	5.2.1 5.2.2		Training to ensure the best skills are available – proof of effective training, including an understanding of the planning process, NPPF, and the goals	CIfA/ALGAO/FAME	N

No.	Rec.	Aim	Achieved by following action(s)	Proposed lead	EVALS2?
			for the documents produced built into Registered Organisation application and inspection process		
20	5.2.5–5.2.8		Research into construction impacts to enable better evaluation approaches and improved techniques	CIfA	Y
21	5.2.5–5.2.8 5.2.12		Research into the comparative effectiveness of different approaches to intrusive evaluation for recent large, linear infrastructure projects to enable better evaluation approaches and improved techniques	Historic England	N
22	5.2.13		Sectoral discussion on the potential for enhanced non-intrusive/minimally intrusive evaluation techniques to reduce need for evaluation trenching	CIfA	Y
23	5.2.9	Better outputs	Centralised data sharing tools – updating and drawing on existing information available through tools such as Heritage Gateway, ADS and regional/local authority websites. Spatial data sharing modelled on DEFRA's MAGiC maps	Historic England	Y

No.	Rec.	Aim	Achieved by following action(s)	Proposed lead	EVALS2?
			could also be considered.[3]		
24	5.2.11		Innovation in publication and public engagement built into the process	CIfA/ALGAO	Y?

Table 5-1 – Summary of actions

5.4 AFTERWORD

5.4.1. A draft of this report was circulated or consultation in June 2022 and constructive and informative responses were received from several stakeholders. Amendments have been made to the structure of the report and to content where appropriate. Identifying areas of improvement and encouraging change is inevitably contentious, and discussions have brought sectoral sensitivities to the fore, but positive outcomes are possible, and many of the difficulties expressed within the planning process are not unique to archaeology.

5.4.2. The scope of the project was tightly defined and many of the comments related to consideration of parts of the archaeological or planning process which lie outside the project remit. The intention of this report is to act as a springboard for further review, collaboration and change and it is hoped that the discussions provoked, and suggestions put forwards by those who have contributed will inform the design of EVALS2.

[3] By the end of 2022 the UK Government plans to have unveiled a national strategy for digital innovation. Digital Regulation: Driving growth and unlocking innovation, 13 June 2022 (https://www.gov.uk/government/publications/digital-regulation-driving-growth-and-unlocking-innovation)

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Appendix A

CASE STUDIES

MINERALS

CASE STUDY 1	
Date of works (start/finish)	June 2016
Total Value of Project (ie cost of build)	£400,000
Cost of archaeological evaluation	£13,910
% of total value	3.5
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Roman 43 to 410 (AD)
Principal period 3	Medieval 1066 to 1540
Geology	Sand and Gravel
Topography	3m aOD
Area (ha)	33
% trenched	0
No. trenches	0
Trench size (m)	0
Density of features	Low
Preceded by geophysical survey?	Yes
Weather conditions	Dry
Key issues that evaluation sought to address	
The archaeological officer sought additional information including evaluation by trenching/test pitting to assess the significance/degree of buried features. However, further, to receiving a WSI for strip, map and sample, confirmed that this approach was suitable to be controlled by a condition.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
Geophysical survey was used to guide the WSI	
Resulting mitigation recommendations	
Strip, map and sample	
What would you do differently next time? (if anything)	
This approach worked well as an extension to an existing site with known archaeological interest and anticipated requirements for a full strip map and sample approach to extraction.	

CASE STUDY 2	
Date of works (start/finish)	unknown
Total Value of Project (ie cost of build)	£1,000,000
Cost of archaeological evaluation	£467,949
% of total value	46.7949
Principal period 1	Roman 43 to 410 (AD)
Principal period 2	Early Medieval 410 to 1066
Principal period 3	Iron Age -800 (BC) to 43 (AD)
Geology	Sand and gravel
Area (ha)	153.5
% trenched	2
No. trenches	307
Trench size (m)	2.2 x 50
Duration of archaeological evaluation programme (weeks)	8
Density of features	High
Preceded by geophysical survey?	Yes

Weather conditions	-
Key issues that evaluation sought to address	
More than 40% of the land within the application boundary had been the subject of geophysical survey and trial trenching for a previous application. The primary issue for the LPA was the need to bring the level of investigation across the rest of the site up to a comparable level. As a result of this and extensive archaeological investigations in the surrounding area (ahead of sand and gravel extraction), the Site was known to be within a well-understood and extensive, later prehistoric and Romano British archaeological landscape. A range of non-intrusive surveys including desk-based assessment, detailed aerial imagery reviews and geophysical survey (alongside the results of the previously trial trenched areas) confirmed the very likely presence of prehistoric and Romano-British activity, including a human burial. These surveys also raised the prospect of presence of far less well-understood and rarer medieval activity within the Site. The LPA felt that further corroborative evidence was required to prove the extent, nature and significance of the archaeological resource across the whole site. The impact on the condition (and therefore significance) of the known buried archaeological resource of the use of the land within the Site as an RAF airbase and for arable cultivation, was also to be addressed.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
The archaeological consultant proposed an innovative and targeted strategy. This included targeted trial trench investigations of an area where the likely remains of a medieval moated farmstead had been identified through documentary research and geophysical survey. Further trenching was proposed in selected areas to 'ground truth the geophysics, and in areas where no geophysical survey had been possible. This evaluation strategy was considered alongside proposals for Strip, Map and Record that were proposed to form part of the planning condition. This approach was refused by the LPA and a blanket 2% (+2% contingency) trial trench evaluation was carried out across the site (in areas not previously trenched). The trial trench evaluation followed a standard design in accordance with a WSI that reiterated the research objectives identified in the DBA. It identified features of an expected date and extent across much of the site.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
The only information available at present states "The area had previously been the subject of a geophysical survey, which detected two main areas of activity. The significance of these areas was confirmed by the results of the evaluation, which also identified further features previously undetected". However, overall, there were no 'big surprises' in terms of the scale, nature or date of the archaeological features found and it was much as predicted.	
Resulting mitigation recommendations	
N/A - planning application in prep	
What would you do differently next time? (if anything)	
In-person meetings to explain the reasoning behind the proposals, which were very much designed to deliver the best for the historic environment in accordance with NPPF and included a range of proposals to manage the cultural heritage aspects of the former RAF base. The LPA advisor was resolute that to determine an application without pre-determination trial trenching would be contrary to NPPF para 189, but this is hard to reconcile when the NPPF para refers to fieldwork only being a requirement where necessary. In this instance a detailed and effective geophysical survey had been undertaken, and fieldwork, which combined with all the other information known about the site and its surroundings in the DBA more than adequately described "the significance of any heritage assets affected", as required by para 189.	

CASE STUDY 3	
Date of works (start/finish)	January 2017
Total Value of Project (ie cost of build)	£200,000
Cost of archaeological evaluation	£25,700

% of total value	12.9
Principal period 1	Neolithic -4,000 to -2,200
Principal period 2	Bronze Age -2,600 to -700
Principal period 3	Bronze Age -2,600 to -700
Geology	Sand and Gravel
Topography	1m aOD
Area (ha)	50
% trenched	1.5
No. trenches	75
Trench size (m)	2 x 50
Density of features	Low
Preceded by geophysical survey?	Yes
Weather conditions	Dry
Key issues that evaluation sought to address	
The LPA sought further archaeological evaluation to enable consideration of appropriate methodologies to mitigate the archaeological impact of the development. The company undertook a geophysical survey that identified magnetic anomalies likely to be indicative of a prehistoric settlement.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Further archaeological evaluation was sought to determine significance of surviving archaeological remains and define the scope of mitigation. This would have cost £35k. As the planning authority sought to refuse the application on policy grounds it did not appear appropriate to seek field evaluation.	

CASE STUDY 4	
Date of works (start/finish)	2000 & 2014
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	n/a
Principal period 1	Bronze Age
Principal period 2	Roman
Geology	river gravels with localised alluvium
Topography	c. 19m AOD
Area (ha)	46.5
% trenched	1
No. trenches	2000 - 35 trenches 2014 - 5 trenches
Trench size (m)	2 x 50
Duration of archaeological evaluation programme (weeks)	2000 – Unknown 2014 - less than 1 week
Density of features	Variable – low to high
Preceded by geophysical survey?	Yes
Key issues that evaluation sought to address	
To determine whether there was evidence of prehistoric activity and a continuation of medieval settlement.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Borehole survey and trial trenching.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	

Geophysical survey results under-represented the scale and density of features: a causewayed enclosure and extensive bronze Age, Roman and medieval fields systems were not identified.
Resulting mitigation recommendations
Strip, map and sample and excavation
How well did the results of mitigation correspond with those of evaluation
Original WSI proposed excavation of two small areas and an intermittent watching brief. In discussion with archaeological advisor this was amended to a strip map and sample exercise with 100% excavation of a Neolithic Causewayed Enclosure.
What would you do differently next time? (if anything)
Increase the trenching percentage

CASE STUDY 5	
Date of works (start/finish)	2016-2021
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	unknown
Principal period 1	Iron Age
Principal period 2	Palaeolithic and Pleistocene
Geology	Sand and gravel terraces. Silts
Topography	Generally level and open; 32m AOD in NE sloping down to 26m AOD in SW
Area (ha)	37
% trenched	n/a
No. trenches	22 test pits in three transects
Trench size (m)	2 x 3
Duration of archaeological evaluation programme (weeks)	1
Density of features	n/a
Preceded by geophysical survey?	Yes
Key issues that evaluation sought to address	
Characterise Pleistocene and Holocene deposits and assess archaeological and paleoenvironmental significance.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
A variety of intrusive methods (test-pits, trenching) and deposit modelling. Included requirements for OSL dating.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
Mitigation indicates to date, good accuracy in the geophysical survey for linear features but not for concentrations of discreet features.	
Resulting mitigation recommendations	
Surface archaeology - Strip, Map and Sample; Geoarchaeology - test pitting/trenching. Preservation in situ for any nationally significant site. One area proceeded without intrusive evaluation and with conditions for SMS, preservation in situ and deposit modelling. Approach gave legally binding post-consent control to the LPA. The restrictive conditions were accepted by the client subject to the demonstration of national significance for preservation in situ and flexibility over any restoration plans.	
What would you do differently next time? (if anything)	

Targeted magnetometry and trial trenching to avoid the restrictive constraints. However, where an applicant is prepared to take the commercial risk of minimal evaluation, this approach provides an important additional safeguard.

CASE STUDY 6	
Date of works (start/finish)	Sept 2019/Oct 2019
Total Value of Project (ie cost of build)	£0
Cost of archaeological evaluation	£8,074
% of total value	0
Principal period 1	Post-Medieval 1540 to 1901
Geology	Sand and clays
Topography	-
Area (ha)	5.1
% trenched	2.1
No. trenches	20
Trench size (m)	30
Duration of archaeological evaluation programme (weeks)	4
Density of features	Low
Preceded by geophysical survey?	No
Weather conditions	moderate
Key issues that evaluation sought to address	
Historic England considered there to be the potential for 1) prehistoric settlement or 2) other prehistoric funerary monuments in the vicinity of the adjacent scheduled round barrow known as Trigon Barrow.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions (300 words)	
The investigation included, desk study, palaeo-environmental assessment by hand augering, and trial trenches. The investigation was undertaken in accordance with agreed scope and provided no evidence for any significant archaeological deposits. The area had previously been under commercial forestry and was largely clear-felled ahead of the investigation. Geophysical survey was not considered a viable option.	
Resulting mitigation recommendations	
No mitigation required in this area, although a management plan and survey of the adjacent scheduled round barrow was required as a separate planning condition.	
What would you do differently next time? (if anything)	
Survey techniques seem wholly appropriate to the site conditions	

CASE STUDY 7	
Date of works (start/finish) - evaluation phase	2008
Total Value of Project (ie cost of build)	£0
Cost of archaeological evaluation	£32,000
% of total value - to be clarified	0
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Roman 43 to 410 (AD)
Principal period 3	Medieval 1066 to 1540
Geology	Sands and Gravel

Topography	-
Area (ha)	15
% trenched	5
No. trenches	99
Trench size (m)	30
Duration of archaeological evaluation programme (weeks)	8
Density of features	Moderate
Preceded by geophysical survey?	Yes
Weather conditions	dry
Key issues that evaluation sought to address	
A proposed quarry extension area was located immediately to the west of a Late Iron Age oppidum, and close to a site that has an extensive history of use throughout the Late Iron Age and Roman periods including a focus of a native tribal centre, an enclosed farmstead connected to the corresponding field systems by a network of droveways and protected by a series of earthwork fortifications or dykes. The outermost of these defensive earthworks was located close to the eastern boundary of the proposed quarry extension. The aim of the evaluation was to establish the location, extent, character, date, condition and importance of any archaeological remains on the site, and to assess the potential for, and significance of, archaeological remains of the Iron Age and Roman periods.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
The evaluation identified key foci and allowed a mitigation scheme to be designed in discussion with the LPA with focussed excavation of an Iron Age site, and SMS of the remainder of the extraction area.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
Very well. Excellent concordance of archaeological anomalies with findings of trenching. Some anomalies proved to be geological on examination.	
Resulting mitigation recommendations	
Targeted excavation and SMS	
How well did the results of mitigation correspond with those of evaluation	
On the whole good correlation. Principal archaeological features were all picked up - predominantly linear features forming field systems and enclosures. Discrete pits were of the order of magnitude predicted.	
What would you do differently next time? (if anything)	
Nothing	

CASE STUDY 8	
Date of works (start/finish) - evaluation phase	2008-09
Total Value of Project (ie cost of build)	£0
Cost of archaeological evaluation	£30,000
% of total value - to be clarified	0
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Roman 43 to 410 (AD)
Principal period 3	Bronze Age -2,600 to -700
Geology	-
Topography	-
Area (ha)	78
% trenched	0.35
No. trenches	34
Trench size (m)	50
Duration of archaeological evaluation programme (weeks)	52

Density of features	High
Preceded by geophysical survey?	Partial
Weather conditions	mixed
Key issues that evaluation sought to address	
Previous excavations in advance of quarrying included evidence for an extensive field system of largely Roman date overlying a ceremonial Neolithic and early Bronze Age landscape which included evidence for cursus, pit circles and a henge. Distinct Iron Age monuments including two possible square barrow and and early Roman occupation also comprised evidence for circular structures and a possible shrine structure. The overall objectives of the evaluation were to provide detailed information regarding the extent, distribution and character of archaeological remains and paleoenvironmental deposits across the site; place the study area in its local, regional and national context; define any potential constraints for further archaeological work such as disturbance and service locations; examine the state of preservation of features and deposits across the site, and in particular to assess the degree of plough truncation; examine the margins of the proposed quarry to better identify the areas worthy of preservation; consider the range, character and density of features in comparison with those recorded in the current quarry and its environs.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
A staged approach to evaluation was agreed. This included aerial photographic assessment that produced an exceptional plot of cropmarks, fieldwalking, targeted geophysical survey (approximately 15% of the Site) and trenching. A low percentage of trenching (0.35%) was agreed to check the accuracy of the AP report and geophysics. A contingency was available, but not used. The evaluation identified significant Iron Age ladder settlements on edges of the site that was excluded from development.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
Very well. The trenching was targeted at cropmarks, concentrations of finds from fieldwalking and the geophysical survey, with some trenches to test blank areas and potential for archaeological features beneath medieval headlands. Excellent correlation of cropmarks and geophysics with findings of trenching. Accuracy of aerial photographical mapping exceptional.	
Resulting mitigation recommendations	
SMS	
How well did the results of mitigation correspond with those of evaluation	
The SMS that has been ongoing since 2014 and results are in line with the evaluation. The Anglo-Saxon period was slightly under-represented in the results of the trenching, but the Bronze Age, Iron Age, Roman and Medieval archaeological remains has been as predicted. Suggests that this combined approach to evaluation on a site that produces exceptional cropmarks (and allowed individual pits to be identified) is more reliable than geophysics and trenching alone.	
What would you do differently next time? (if anything)	
Nothing	

CASE STUDY 9	
Date of works (start/finish) - evaluation phase	2008
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	£30,000
% of total value - to be clarified	unknown
Principal period 1	Bronze Age -2,600 to -700
Principal period 2	Medieval 1066 to 1540
Principal period 3	Post Medieval 1540 to 1901
Geology	Clay, Greensand and Gravel

Topography	
Area (ha)	35
% trenched	2
No. trenches	44
Trench size (m)	18-50
Duration of archaeological evaluation programme (weeks)	10
Density of features	Low
Preceded by geophysical survey?	Yes
Weather conditions	dry
Key issues that evaluation sought to address	
To determine the presence/ absence, extent, condition, character, quality and date of any archaeological or palaeoenvironmental deposits within the area of development. The LPA also considered there to be potential for Palaeolithic archaeological remains. The work was to be carried out in a manner which did not compromise the integrity of archaeological features or deposits which might warrant preservation in situ, or might better be excavated under conditions pertaining to full excavation.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
A staged approach to evaluation was agreed. This included aerial photographic assessment (one possible barrow identified), fieldwalking (a low quantity of prehistoric lithic material) and geophysical survey of the whole Site, followed by 2% trenching (with 0.5% contingency that was not used) and test pitting of geological strata to assess the potential survival of Palaeolithic deposits. The geophysical survey produced a plot, interpreted by the surveyors as dense Bronze Age/Iron Age settlement. This was peer reviewed and the interpretation questioned.	
How well did the evaluation results reflect those of the geophysical survey (if applicable)	
The trenching confirmed that the geophysical survey results had been over-interpreted and that the anomalies identified as prehistoric settlement were of geological origin. The trenching identified probable prehistoric activity in only a handful of trenches and one area of landfill (suggested to be a post-medieval brick kiln by the geophysics). Most of the site was considered to have very low archaeological potential.	
Resulting mitigation recommendations	
Watching Brief/monitoring	
How well did the results of mitigation correspond with those of evaluation	
Very good correlation. Density of archaeological and type of features as suggested by the trenching	
What would you do differently next time? (if anything)	
On this type of geology employ a geophysical survey team with experience/qualifications in geology.	

CASE STUDY 10	
Date of works (start/finish)	Sept 2019/Oct 2019
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	£8,074 ex vat
% of total value	unknown
Principal period 1	Post Medieval 1540 to 1901
Principal period 2	n/a
Geology	Tertiary sand and clays
Topography	Undulating
Area (ha)	5.1
% trenched	2.1

No. trenches	20
Trench size (m)	30
Duration of archaeological evaluation programme (weeks)	4
Density of features	Low
Preceded by geophysical survey?	No
Weather conditions	Moderate
Key issues that evaluation sought to address	
Historic England considered there to be the potential for 1) prehistoric settlement or 2) other prehistoric funerary monuments in the vicinity of an adjacent scheduled round barrow.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
The investigation included, desk study, palaeo-environmental assessment by hand augering, and trial trenches. The investigation was undertaken in accordance with agreed scope and provided no evidence for any significant archaeological deposits. The area had previously been under commercial forestry and was largely clear-felled ahead of the investigation. Geophysical survey was not considered a viable option.	
Resulting mitigation recommendations	
No mitigation required in this area, although a management plan and survey of the adjacent scheduled round barrow has been required as a separate planning condition.	
What would you do differently next time? (if anything)	
Survey techniques seem wholly appropriate to the site conditions	

CASE STUDY 11	
Date of works (start/finish)	March - September 2016
Total Value of Project (ie cost of build)	£205,000
Cost of archaeological evaluation	£19,950
% of total value	10.28
Principal period 1	Palaeolithic -1,000 000 to -10,000 (BC)
Principal period 2	Mesolithic -10,000 to -4,000
Principal period 3	Bronze Age -2,600 to -700
Geology	Limestone
Topography	239m aOD
Area (ha)	11.2
% trenched	2
No. trenches	40
Trench size (m)	Length: 25m Width: 1.8-2.0m
Duration of archaeological evaluation programme (weeks)	1
Density of features	Low
Preceded by geophysical survey?	Yes
Weather conditions	Dry
Key issues that evaluation sought to address	
Determine the presence/absence, extent, condition, character, quality and date of any archaeological or palaeoenvironmental deposits within the area of the development.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	

Consultants liaised with LPA to establish written scheme of investigation. 2% trenching requirement was stipulated. Project design was to excavate and record all archaeological deposits and features and produce relative and absolute dating and phasing for deposits. The character of these would then be established to define functional areas on the site and produce information on the economy and local environment and compare and contrast this with the results of the other excavations in the region.
How well did the evaluation results reflect those of the geophysical survey (if applicable)
Geophysical survey anomalies were interpreted to be geological. These were investigated in the archaeological survey which confirmed this.
Resulting mitigation recommendations
The results of the evaluation was that the site was of low archaeological interest and suitable low levels of mitigation followed this.
What would you do differently next time? (if anything)
Accounting for the expected and actual low archaeological potential perhaps further consideration of the 2% trenching was appropriate.

RESIDENTIAL

CASE STUDY 12	
Date of works (start/finish)	November 2017
Total Value of Project (ie cost of build) - estimated	£2,500,000
Cost of archaeological evaluation	£12,000
% of total value	0.5
Principal period 1	Early Medieval 410 to 1066
Principal period 2	20th Century 1901 to 2000
Geology	Sand and Gravel
Topography	Sloping (SE to NW) towards culverted watercourse
Area (ha)	0.53
% trenched	5
No. trenches	9
Trench size (m)	9 to 28 x 1.8
Duration of archaeological evaluation programme (weeks)	2
Density of features	Low
Preceded by geophysical survey?	No
Weather conditions	Fair
Key issues that evaluation sought to address	
An initial DBA had identified the possibility of Early Medieval (Viking Age) remains. However, integrated map regression and interpretation of photographs demonstrated that 19th century buildings including terraced housing with cellars had likely removed considerable amounts of archaeological potential. This was captured by producing a map of archaeological potential and incorporating the WSI/Project Design into the DBA. Within areas of remaining archaeological potential, the evaluation sought to identify any remaining Early Medieval activity and to assess its preservation and condition. Provision for environmental sampling and radiocarbon dating was also made.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
On the basis of the Map of Archaeological potential, combined with an analysis of areas of deep deposits identified during from earlier ground investigations, it was argued that a 5% evaluation of areas with likely remaining archaeological potential was sufficient. The trenches targeted only those areas with a high or moderate potential. The evaluation was successful in that two isolated Early Medieval parallel ditches	

were identified, dated by radiocarbon and associated artefacts to the 7th to 12th centuries AD. This enabled a smaller area (c. 60m x 40m only) to be targeted for subsequent mitigation.
How well did the evaluation results reflect those of the geophysical survey (if applicable)
N/A
Resulting mitigation recommendations
A targeted archaeological excavation was recommended on a portion of the site that had identified archaeological features of probable early medieval date.
How well did the results of mitigation correspond with those of evaluation
The results of the mitigation corresponded well with the evaluation, in terms of the spatial layout and extent of identified features (two parallel ditches). The mitigation was able to refine the results of the evaluation, particularly in terms of the chronology of identified features suggesting, on the balance of evidence that the features were 10th century in date. This is a significant result demonstrating that fragile pockets of early medieval remains exist beyond the eastern extent of the historic borough, whether this relates to Viking activity or not is unproven.
What would you do differently next time? (if anything)
This was a successful assessment and evaluation of the archaeological potential of a site.

CASE STUDY 13	
Date of works (start/finish)	August 2015
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	n/a
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Bronze Age -2,600 to -700
Geology	Mudstone, no superficial geology
Topography	-
Area (ha)	4.3
% trenched	-
No. trenches	17
Trench size (m)	35
Duration of archaeological evaluation programme (weeks)	1
Density of features	High
Preceded by geophysical survey?	Yes
Key issues that evaluation sought to address	
Pre-application evaluation in advance of submission of planning application. APs showed cropmarks of a pair of curving ditches. Geophysical survey identified anomalies interpreted as three concentric segmented hillfort ditches. Evaluation sought to ground truth these features and inform further recommendations.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Trenching confirmed the presence of hillfort ditches with LBA and IA pottery and animal bone. Possible traces of a ploughed-out bank were also found and ditches and pits suggesting interior features. Site considered to be of high archaeological significance based on trenching results.	
How well did the evaluation results reflect those of the geophysical survey	
Trenching confirmed results of the geophysics	
Resulting mitigation recommendations	
No further mitigation was required as site was preserved in situ and application was not submitted.	

CASE STUDY 14	
Date of works (start/finish)	September 2018
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	unknown
Principal period 1	Palaeolithic - 1,000 000 to -10,000 (BC)
Principal period 2	Neolithic - 4,000 to - 2,200
Principal period 3	Roman 43 to 410 (AD)
Geology	sand, silt and clay
Topography	
Area (ha)	28ha archaeological 33.4ha geoarchaeological
% trenched	2% archaeological 1% geoarchaeological
No. trenches	89 archaeological 30 geoarchaeological
Trench size (m)	80 x 30m and 9 x 20m archaeological trenches
Duration of archaeological evaluation programme (weeks)	
Density of features	High
Preceded by geophysical survey?	Yes
Weather conditions	Average
Key issues that evaluation sought to address	
To determine as far as reasonably possible, the location, extent, date, character, condition, significance and quality of any surviving archaeological remains likely to be threatened by any proposed new development and to assess what options should be considered for mitigation. The fieldwork also sought to address the following site specific research aims: the nature of the 'Head' deposit recorded to be present on site, whether Quaternary sands and gravels were beneath the Head, from which unit the Palaeolithic tools recorded nearby the site derived; whether a Roman roadside development was present and whether medieval remains were present and associated either with settlement to the northeast or a spring to the southeast?	

Outline of project design and outcomes, including any negotiations over scope and resulting decisions
Trenches were targeted, following a geophysical survey of the site over areas of high potential for archaeological features. The evaluation stage comprised both an archaeological and geoarchaeological investigation. It followed a desk-based assessment and geophysical survey, both of which showed that post-medieval brickearth extraction occurred in an area of c. 7ha in the northwest of the site. The quarrying had removed potential for the preservation of post-Palaeolithic archaeological remains in this area. As a result, the area of brickearth extraction was not subject to archaeological evaluation but was subject to geoarchaeological evaluation via test pitting to map the deposits and assess them for their Palaeolithic potential. The evaluation showed a high density of features. These included a rectilinear double ditched enclosure, typical of Roman period roadside settlements known as mansios. The enclosure was adjacent to a watercourse and was close to the line of a Roman road. The geoarchaeological work was established a number of Geoarchaeological Potential Zones. The extensive and iterative evaluation and pre-evaluation stages as well as discussions between contractor, the developer and LPA, allowed informed archaeological and geoarchaeological mitigation.
How well did the evaluation results reflect those of the geophysical survey (if applicable)
A large proportion of excavated trenches revealed archaeological deposits consistent with the geophysical results. The geophysical survey and preceding DBA were key in helping target the evaluation stage.
Resulting mitigation recommendations
Whilst a large strip, map and sample area was implemented to mitigate destruction of dense archaeological remains, a portion including the Roman enclosure, was preserved in situ as it lay outside of the impact of the groundworks. The archaeological mitigation was accompanied by a geoarchaeological investigation of the Pleistocene and Palaeolithic deposits identified by the evaluation.
How well did the results of mitigation correspond with those of evaluation
Despite a lack of Neolithic features identified by the evaluation a significant Early Neolithic oval barrow containing a large worked flint and pottery assemblage was revealed during the mitigation. Though this monument fell between the archaeological trenches it was adequately costed for at the mitigation stage due to the known intensity of surrounding activity. The remainder of the archaeological mitigation accorded well with the high density of archaeological features expected. The geoarchaeological excavation and assessment was largely targeted on the two highest value Geoarchaeological Potential Zones. The work showed significant sequences of Pleistocene deposits concordant with the results of the geoarchaeological evaluation. Palaeoenvironmental remains were few, however macrofaunal evidence points to a previously unknown late glacial lake in the area. Overall, the mitigation stage was well informed by the preceding evaluation.
What would you do differently next time? (if anything)
The evaluation stage, itself informed by preceding desk-based assessment and geophysical survey allowed informed mitigation decisions and development design. This was a successful project and it is unlikely we would approach it differently.

CASE STUDY 15	
Date of works (start/finish)	October 2015
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	unknown
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Roman 43 to 410 (AD)
Principal period 3	Early Medieval 410 to 1066
Geology	-
Topography	-

Area (ha)	2.8
% trenched	5
No. trenches	22
Trench size (m)	30
Duration of archaeological evaluation programme (weeks)	4
Density of features	High
Preceded by geophysical survey?	No
Weather conditions	Average
Key issues that evaluation sought to address	
The initial aims of the evaluation were to determine the location, extent, date, character, condition, and significance of any surviving remains within the site boundaries. In the case of discovery of archaeological remains with potential to contribute to regional research objectives, the evaluation results were to be reviewed in relation to research questions and topics identified in the regional research framework.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Various modifications to the trench layout were undertaken in response to site-specific conditions and constraints. Two trenches were dropped because they were located within an environmentally sensitive area. This was agreed upon consultation with the developer and the LPA as the area was to be a green space within the future development and not affected by intrusive groundworks. Archaeological remains were located in eleven of the evaluation trenches. The highest frequency of features and associated finds were dated to the early Roman period and suggested occupation on the site. No early medieval remains were found, despite a known cemetery nearby. Comparison of the results with those of an earlier evaluation conducted by another contractor, and excavation of a site immediately to the south-east, showed the archaeological activity to be a continuation of the same multi-period landscape as previously investigated. This includes a palimpsest of successive enclosure systems of Bronze Age to Roman date, remains of settlement, agricultural processing, craft production and occasional burial activity.	
Resulting mitigation recommendations	
In the light of the positive results of the trial trench evaluation the curatorial body requested further fieldwork to satisfy the archaeological condition. A Brief for Archaeological Investigation was issued to define the scope. This required the open excavation of a defined area of archaeological significance.	
How well did the results of mitigation correspond with those of evaluation	
The evaluation provided no evidence for Anglo-Saxon activity within the sampled area of the site, and only a low incidence of medieval remains. Despite this part of the site was used as an inhumation cemetery in the Early Anglo-Saxon period, 90 iburials were encountered and the activity is likely to have been part of a known cemetery recorded in the 19th century on the opposite side the road. The features were a surprise as they lay in an area occupied by an extant building and garden prior to the mitigation phase and which was therefore not evaluated.	
What would you do differently next time? (if anything)	
Despite the discrepancy between the evaluation and mitigation phases of the site, work was supported by a responsible developer in both the fieldwork and post-excavation elements of the project; particularly through the extra costs incurred by the presence of the many richly furnished graves. In terms of different approaches, we would ensure stronger caveats are in place at tender stage to try and cover unforeseen discoveries (that itself balanced by the market expectation often in place for a fixed price quote off the back of standard 5% evaluation)	

LINEAR INFRASTRUCTURE

CASE STUDY 16	
Date of works (start/finish)	2020

Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	n/a
Principal period 1	Medieval 1066 to 1540
Principal period 2	Roman 43 to 410 (AD)
Principal period 3	Bronze Age -2,600 to -700
Geology	clay
Area (ha)	7
% trenched	3
No. trenches	33
Trench size (m)	50 x1.8
Duration of archaeological evaluation programme (weeks)	13
Density of features	Moderate
Preceded by geophysical survey?	Yes
Key issues that evaluation sought to address	
The geophysical survey did not identify possible features, however the DBA and previous work in the area suggested that archaeological deposits would likely be present in this river tributary. The evaluation was undertaken to identify the location, extent, preservation and significance of any previously unrecorded heritage assets and the results would contribute towards specific research objectives outlined.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Consultation meetings were held between all parties to agree the mitigation area and methodology	
How well did the evaluation results reflect those of the geophysical survey	
This magnetometry did not identify any probable archaeological features or any direct evidence of any obvious significant features	
Resulting mitigation recommendations	
How well did the results of mitigation correspond with those of evaluation	
The evaluation and finds strongly suggested settlement dating to the medieval period and the emerging mitigation results suggest that the site corresponds well with these evaluation results and also produced additional evidence for several phases of activity from early prehistory, LBA and Romano-British periods.	
What would you do differently next time? (if anything)	
The evaluation of 3% along with the 1% contingency (which was also enacted during the evaluation to understand the area around the kiln site) was adequate in order to understand the scale and significance of the site and was deemed an appropriate level for this landscape and to inform the nature and extent of mitigation works that followed.	

CASE STUDY 17	
Date of works (start/finish)	unknown
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	n/a
Principal period 1	Iron Age -800 (BC) to 43 (AD)
Principal period 2	Bronze Age -2,600 to -700
Principal period 3	Roman 43 to 410 (AD)
Geology	Chalk
Area (ha)	42.34
% trenched	2
No. trenches	148

Trench size (m)	2 x 30
Preceded by geophysical survey?	Yes
Key issues that evaluation sought to address	
Geophysical survey had identified anomalies which were thought to represent late prehistoric or Romano-British settlement features, including enclosures and a droveway. The evaluation was undertaken to investigate these anomalies and to sample those areas deemed blank by the geophysical survey.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Consultation meetings were held between all parties to agree the mitigation area and methodology	
How well did the evaluation results reflect those of the geophysical survey	
The findings broadly correlate with the results of the geophysical survey. A rectangular enclosure with origins in the Late Bronze to Early Iron Age is present in the centre of the site towards the northern edge. This appears to have been extended or utilised in the eastern half during the Roman period	
Resulting mitigation recommendations	
Open-area excavation around the central portion of site, encompassing the enclosures and extending southward to allow a complete picture of the Late Bronze Age to Iron Age occupation on site.	
How well did the results of mitigation correspond with those of evaluation	
The evaluation did not identify the resulting Late Neolithic/ Early Bronze Age timber circle, pennanular ring ditches, possible Bronze Age or Iron Age inhumation burials, a high-status Romano-British burial and animal burials on the site. The significance of the site was higher than the evaluation anticipated, although high status Romano-British remains were known in the vicinity.	
What would you do differently next time? (if anything)	
A 7.5ha area was mitigated based on the evaluation and the identification primarily of ditched enclosures. This revealed a significant site and multiperiod focus of activity. A variation in trench sizes or broader contingency areas may have stood a better chance of identifying the timber circle and more ephemeral features, but that could not have been anticipated at the time of the evaluation based on the geophysical survey and other existing data.	

OTHER

CASE STUDY 18	
Date of works (start/finish)	February-March 2018
Total Value of Project (ie cost of build)	unknown
Cost of archaeological evaluation	unknown
% of total value	n/a
Principal period 1	Roman 43 to 410 (AD)
Principal period 2	Iron Age -800 (BC) to 43 (AD)
Geology	Clay
Area (ha)	c. 18 hectares
% trenched	4
No. trenches	48
Trench size (m)	50 x 2, 100 x 2
Density of features	High
Preceded by geophysical survey?	Yes
Weather conditions	Rain, snow and ice
Key issues that evaluation sought to address	
Identification of features seen on aerial photographs.	
Outline of project design and outcomes, including any negotiations over scope and resulting decisions	
Pattern of trenches across area equally spaced and distributed to maximise potential for locating any archaeological features. Initial assessment of results suggested very little of archaeological interest.	

However, following interruption of the evaluation process caused by poor weather and ground conditions, during which trenches were left open, re-cleaning and sampling identified features of apparent Roman date.
How well did the evaluation results reflect those of the geophysical survey (if applicable)
The geophysical survey failed to reveal any of the features found subsequently during the evaluation.
Resulting mitigation recommendations
Excavation
How well did the results of mitigation correspond with those of evaluation
Very well. It was agreed that excavation be extended, and this eventually revealed an extensive, and rare, settlement of later fourth century date covering an area of at least 4ha, examined during the mitigation phase.
What would you do differently next time? (if anything)
Ideally, insist evaluation does not take place in winter but unlikely to achieve this. On sites with this type of geology with features cut into clay and then in many cases infilled with similar material, have evaluation trenches left open to 'weather'.

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