The Sizewell C Project

6.14 Environmental Statement Addendum

Volume 3: Environmental Statement Addendum Appendices

Chapter 2 Main Development Site

Appendices 2.11.A - Overarching Archaeological Written Scheme of Investigation

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Revision: 2.0

Applicable Regulation: Regulation 5(2)(a)

PINS Reference Number: EN010012

June 2021

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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HISTORIC ENVIRONMENT – OVERARCHING ARCHAEOLOGICAL WRITTEN SCHEME OF INVESTIGATION (WSI)

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ANNEXES

1 INTRODUCTION

1.1 Scope

1.1.1 This document sets out the archaeological response to the disturbance of remains resulting from work carried out at the Sizewell C main development site, and associated development sites. This will be collectively referenced as the Sizewell C Project.

1.1.2 It is intended to provide an introduction to the overall scheme, archaeological background, and regional research agenda, as well as setting out the overarching procedures and standards for archaeological works.

1.1.3 Individual written schemes of archaeological investigation (WSIs) will be produced for each site on the basis of geophysical survey and evaluation trial trenching completed. Where required, for example where it has not been practicable to complete surveys in advance of the Development Consent Order (DCO), additional site-specific W SIs will be provided setting out proposals for evaluation survey. All site specific WSIs will be supplemented by the contractor's method statements.

1.1.4 Any preserved peats within the Sizewell C Project area are the subject of a Peat Strategy, provided in **Appendix 16G** of **Volume 2** of the **Environmental Statement**, and are not discussed further in this document.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Chronological summary

2.1.1 The historical and archaeological background of sites incorporated within the proposed Sizewell C development have been documented in previous Historic Environment Desk-Based Assessment (DBAs). Many sites have also been subject to geophysical surveys and archaeological evaluations, a summary of which with relevant points are set out within this section. As other fieldwork evaluation reports are finalised, these will be referenced in the site-specific WSIs.

2.1.2 It is important to note, in terms of providing a chronological summary, that there has been very little systematic archaeological investigation in the area before the Sizewell C Project. This means that the Suffolk Historic Environment Record (HER) data almost certainly underrepresents the true nature and extent of the archaeology present. This is supported by the archaeological evaluations conducted at the sites listed below, which have

identified remains beyond what might have been initially indicated by pre-existing HER data.

2.1.3 For a more detailed summary of individual sites, refer to the completed DBAs:

- Main Site (Ref. 1.1);
- Rail Route Options (Ref. 1.2);
- Wickham Market (Ref. 1.3);
- Darsham (Ref. 1.4);
- Two Village Bypass (Ref. 1.5);
- A12/B1122 Yoxford Roundabout (Ref. 1.6);
- Sizewell Link Road and Theberton Bypass (Ref. 1.7); and
- Freight Management Facility (Ref. 1.8).

2.1.4 Also refer to the archaeological evaluation reports:

- Main Development Site (interim) (Ref. 1.9 and 1.13);
- Pillbox Field (Ref. 1.10);
- Land to the East of Eastlands Trading Estate (Ref. 1.11);
- Darsham (Ref. 1.12); and
- Wickham Market (Ref. 1.14).

a) Prehistoric

2.1.5 Within the proposed Sizewell C Project there is a potential for prehistoric remains to be present. These mainly relate to Iron Age occupation and reflect scattered remains of possible agricultural activity.

2.1.6 Previously observed evidence of prehistoric activity has been concentrated to the east and south-east of these sites, on the well-drained Sandlings soils, and the wetland margins of the coastal marshes of the main development site. It is not clear whether this evidence suggests a genuinely reduced archaeological potential, or the relative absence of past fieldwork, and the reduced visibility of some prehistoric remains in clay soils.

2.1.7 To date, there are no records of archaeological material dating from the Palaeolithic or Mesolithic period, within the proposed Sizewell C development, though Mesolithic peats have been identified in the infilled former river channel, which runs to the west and north of the existing Sizewell A and B sites.

2.1.8 A Neolithic axe head has been found in the well-drained Sandlings soil within the main development site, and another on Sizewell beach. Neolithic peats have been identified in the infilled former river channel which runs to the west and north of the existing Sizewell A and B sites. No stratified or settlement remains dating from this period have yet been observed.

2.1.9 At the Sizewell C main development site, Bronze Age activity is also scarce. HER for the main development site is restricted to two cinerary urns from Leiston, and a possible round barrow recorded at the southern end of the parkland around Theberton House.

2.1.10 Potential (and known sites) for occupation and agricultural activity of Iron Age date is indicated by data recorded on the Suffolk HER and evaluations undertaken so far. Trial trenching at the main development site (Ref. 1.13), revealed Iron Age ditches and pits in several fields, representing a low-density spread of enclosures and settlement across the landscape.

2.1.11 Trial trenching at Wickham Market (Ref. 1.14) revealed cremations dating to the Iron Age, as well as a pre-Romano-British field system. These findings correlate with earlier excavations in the 1970s, which found evidence of a Late Iron Age settlement pre-dating the Romano-British activity at Lower Hacheston (Ref. 1.15).

2.1.12 The contextual evidence suggests that there is the potential for Iron Age agricultural settlement at elevated sites within the main development sites and along the flank of the ridge above the river valley at Link Road. The nature and location of other prehistoric activity remains difficult to predict with any confidence.

b) Romano-British

2.1.13 The Romano-British finds recorded within the main development site are largely chance finds, and very few definitive stratified features dating to this period are known within the site boundary. However, an area of Romano-British settlement activity was identified during evaluation trenching in East Lawn in 2019. The recovery of ceramic building material and wall plaster suggests proximity to a substantial domestic structure, although no *in situ* remains or structures were identified.

2.1.14 The associated development sites at Yoxford and Wickham Market are close to settlements thought to have originated in the Romano-British period.

2.1.15 It is conjectured that the Romano-British settlement at *Sitomagus* was located near Yoxford: the A1120, which enters the village of Yoxford from the north west, runs, in part, along stretches of Romano-British road. It is possible that Yoxford may have been located at the junction of several Romano-British roads, close to the fording of the River Yox. These inferences are by no means secure and no evidence for activity of this date was observed in evaluation trenching at Yoxford.

2.1.16 Elements of a Romano-British settlement were partially excavated in 1973-4 in advance of the construction of the A12 Wickham Market bypass (Ref.1.15). Cropmarks visible on aerial photography and subsequent geophysical survey suggest that further remains of this settlement, comprising enclosures and building plots, are in the fields immediately to the south-western part of the Wickham Market park and ride site.

2.1.17 Settlements dating to the Romano-British period are usually readily apparent on geophysical survey and aerial photography, and are frequently evidenced by discernible surface scatters of artefactual material in arable land. However, localised sand deposits overlying the buried cultural layers masked the East Lawn structural remains in the geophysical survey. There is therefore a clear potential for further remains dating to the Romano-British period to be present at the Site.

c) Early-medieval

2.1.18 Sites of this period are difficult to identify owing to the relative lack of artefactual material, and the characterisation of rural settlement with dispersion and mobility. Significantly, sites related to the earlier part of this period have limited correlation with their Romano-British predecessors, or later medieval successors, and are often situated some distance from the known historic village centres.

2.1.19 At LEEIE, two sunken-featured buildings were identified in the north of the site, along with several post-holes that may have been the remains of further post-built structures. This early-medieval activity was focused on either side of a palaeochannel, still visible as a depression in the landscape.

2.1.20 Apart from the concentration of material and features discovered at LEEIE, there is no observed early medieval activity within the proposed Sizewell C development.

2.1.21 The villages of Leiston, Wickham Market, Yoxford and Theberton are all recorded in the Domesday survey of 1086. The settled manorial geography, which formed the basis for the medieval settlement pattern of the area, appears to have been established in part during the early-medieval period, and it is anticipated that sites relating to the later part of this period would be located in close proximity to the later settlement centres.

d) Medieval

2.1.22 In contrast with prehistoric, Roman and early-medieval contexts, a large amount of archaeological evidence relating to the medieval period has been observed in the vicinity of several sites within the proposed Sizewell C Project, and there is a relatively clear understanding of land use and settlement geography in this period. This is principally focused on five specific locations; the two sites of Leiston Abbey and the medieval villages of Sizewell, Leiston and Theberton.

2.1.23 Leiston Abbey was originally founded in 1182, approximately 1km north of the main development site. Due to coastal erosion, and following unsuccessful attempts at land reclamation, the Abbey was relocated in 1363 from its original site on the shore of the estuary to a more favourable location inland, approximately 200m west of the main development site.

2.1.24 Although the monastic sites would have comprised relatively small and tightly grouped complexes that did not extend onto the proposed development sites, these areas would have included elements of the wider monastic landholdings. Similarly, although the nearby villages of Leiston and Theberton would not have extended onto the proposed development sites, elements of agricultural landscapes primarily in the form of grazing land associated with these villages may be present.

2.1.25 The village of Sizewell was substantially larger in this period than at present, and the full extent of the village and its associated agricultural landscape has been reconstructed through detailed documentary survey. Pillbox Field appears to encompass fields associated with the former medieval village (Ref. 1.10).

2.1.26 An excavation undertaken in advance of the Greater Gabbard onshore works, to the south and west of Pillbox Field in the main development site, recorded a medieval site including ovens and associated structures (granaries), and possible fishing equipment, representing the periphery either of an ‘industrial suburb’ or the medieval centre of Sizewell. A trackway associated with this settlement was observed in Pillbox Field, which forms part of the land within the Sizewell B Relocated Facilities application.

2.1.27 Sub-rectangular enclosures were found in several discrete areas during the recent evaluation at the main development site. Near the enclosures were further large pits and possibly clay-built ovens/kilns. A series of possible medieval droveway tracks were also found at Long Walk, likely re-cut over several phases, linking two clear deposits of burnt clay containing medieval pottery.

2.1.28 At associated development sites, the study area of the two village bypass includes the medieval settlements at Farnham and Stratford St Andrew, as well as a medieval square moat filled with water, recorded in the HER at the south edge of the bypass site.

2.1.29 At Theberton, several records of artefact scatters and chance finds dating to the medieval period are known within the study area around the proposed bypass.

2.1.30 The archaeological evidence illustrates that medieval settlement remained relatively dispersed in the area. Recent evaluation results at the main development site suggest scattered agricultural and industrial activity, rather than discrete settlements which were focused on settlement cores that persist as modern villages. It is likely, therefore, that outlying medieval farmsteads or activity areas, associated with the hinterland of the two Abbeys and nearby villages, may be present in other areas of the proposed Sizewell C development.

e) Post-medieval

2.1.31 The basic settlement geography of the proposed Sizewell C Project, established in the medieval period, remained relatively consistent during the post-medieval period. Many of the post-medieval historic records for the Sizewell C Project reflect the agricultural nature of the area at the time.

2.1.32 For instance, in 1831, in the villages of Farnham and Stratford St Andrew, over half the population were employed in agriculture, with the population falling in number over the next couple of centuries. The only principal change in this period was in terms of the use and demarcation of land, with the steady enclosure and 'improvement' of lands within the Sandlings and marshland to provide more productive land.

2.1.33 Heritage assets within the main development site dating from this period primarily comprise agricultural features and buildings, including those associated with the drainage and improvement of the marshes. These include features such as marl pits and enclosure period field boundaries. Assets also include extant farmsteads and evidence of quarrying.

2.1.34 Mapping evidence does not suggest the presence of any significant post- medieval sites within the Sizewell C Project, other than a series of

farmsteads, which are largely still extant. It is not anticipated that there would be significant post-medieval remains present within the sites included in the Sizewell C Project, although elements of dispersed farmsteads or industrial sites may be present.

f) Modern

2.1.35 During the modern period, several sites encompassed by the proposed Sizewell C Project experienced continuity of settlement and agricultural land use.

2.1.36 There are extensive records of the defensive works and activities undertaken within the main development site, as part of the defence of the east coast of England during the Second World War (WWII). A complex of WWII emplacements is known to the north of Sizewell B, comprising a variety of earthworks and structures, and which formed part of the wider coastal anti-invasion defences.

2.1.37 Key sites of this type and period can be confidently located, as they either survive as visible features, or are recorded on aerial photographs or in documentary records. Many of these sites have been demolished, leaving fragmentary sub-surface remains, while others (particularly entrenchments), may include more extensive below-ground remains.

2.1.38 It is likely that the elements of the coastal 'crust' (the heavily fortified defensive line along the coast), are present within the eastern part of the main development site, but that the area inland was never fortified to the same extent as the coastal strip. There may be military features associated with RAF Leiston within the green rail route and Sizewell link road site boundaries, although this seems unlikely given the distance between these sites and the former airfield.

3 RESEARCH CONTEXT

3.1.1 As mitigation by investigation and recording primarily mitigates loss of archaeological significance, it is important to set the results of any archaeological fieldwork into a wider framework for archaeological research and investigation, in order to advance understanding of the historic environment and the lives of human communities in the past.

3.1.2 Overarching research agendas for the East of England set out key themes that archaeological investigation can inform. The publication of 'Research and Archaeology Revisited' (Ref. 1.16) augments the regional research framework for the East of England, originally published as a Research Agenda and Strategy in 2000 (Ref. 1.17). The regional research framework for the eastern counties is continuously under review, and several chapters from the latest draft research agenda (Ref. 1.18)

have also been included to provide an updated reference. **Table 3.1** maps the archaeological remains anticipated to be present within the site against these identified research agendas.

3.1.3 Individual site-specific WSIs provide further detail and set out how the research potential of individual sites will be realised against the East of England research agendas.

Table 3.1: Archaeological research agenda

Anticipated Remains	Mapping To East Of England (2011)	Mapping To DRAFT East Of England (2018)
Artefactual material associated with the Mesolithic and Palaeolithic.	Develop predictive model for identifying potentially important Mesolithic sites, such as the collation of existing regional data.	Recognising that important in situ Upper Palaeolithic and Mesolithic scatters continue to be recovered beneath colluvial deposits, and within sub-soil layers, highlighting need for affective modelling and sampling of deposits encountered during evaluation phases. Intensive sampling and sieving through excavation of ploughzone sites, where Palaeolithic and Mesolithic lithic material often exists as a component of multi-period assemblages.
Features associated with Neolithic occupation.	Applying methods which enable the testing of the plough soil in this region, given the plough damage to Neolithic sites. Further analysis of the human impact on the natural landscape, including changing patterns of alluviation, woodland management and clearance. Strengthening palaeoenvironmental sampling strategies in Neolithic deposits; such as 100% floatation of well-sealed pits to maximise the chance of recovering macrobotanical evidence.	Understanding the variability between Neolithic pit sites, enclosures and other monuments, and surface spreads and ploughzone scatters, to ensure a more focused approach. Examining landscape change, especially the extent of both the Early Neolithic woodland clearance and Later Neolithic woodland regeneration.

Features associated with Later Prehistoric occupation.	Analysing Bronze Age artefacts and monuments to determine the extent and reasons for the marked divide between northern and southern parts of the region during the second millennium BC; regionalisation of settlement patterns and field systems requires further study. Examining the Bronze Age – Iron Age transition, in relation to the abandonment of many late Bronze Age field systems and contraction in settlements and populations in the region. Utilising great potential for investigating relationship between Iron Age field systems and long-distance trackways, with settlements and enclosures.	Analysing the shifting contexts of monumentality, from Early Bronze Age emphasis on circular monuments, to creation of landscape-scale structures in Middle/Late Bronze Age. Examining the connection between adjacent Iron Age sites thought to be contemporary; how did they relate physically, socially and economically? Further study of how Late Bronze Age and Early Iron Age agrarian regimes on clayland sites complement or contrast with those situated on other geologies.
Features associated with Later Prehistoric ritual, funerary activity.	Developing our understanding of Bronze Age burial practices, including the relationship between settlement and burial sites. Analysing the chronology, distribution and range of Iron Age burial types. Are cremation burials and the pyre goods an indication of social hierarchies?	Looking at to what extent different burial traditions can be identified, and if they vary over space and time across this region. Examining Late Bronze Age cremations to see if changes in practice can be recognised over time.
Features associated with Romano-British settlement and agriculture.	Analysing the form of Roman buildings in the region to see if functions can be attributed to them. Assessing whether there are chronological, regional or landscape variations in Roman settlement location, density or type. Can we identify continuity as well as new settlement structures?	Recognising that some landscapes were packed with Roman farmsteads, assessing to what degree the land was 'managed', and their practices sustainable? Recognising that insufficient attention has been paid to what processes and stock facilities occurred in the Roman fields in the region.

	Examining the economic and social impact of the early Roman military on the region.	
Features associated with early-medieval settlement and burial activity.	Utilising aerial photography of known Anglo-Saxon sites as a template for identifying settlement patterns. Further investigation applied to Anglo-Saxon fieldscapes; to what extent are Roman field systems used? What is the evidence for open field systems in the region during the Anglo- Saxon period? Establishing detailed environmental sampling strategies in understanding the role of water management – i.e. reclamation of coastal marshes and the creation of water meadows.	Utilising Geographical Information Systems as a core landscaping studies tool to understand the transition between the dispersed, transitory settlements of the Early Anglo-Saxon period, and the more settled, nucleated and increasingly regularly laid out settlements of the Middle and Later Anglo- Saxon periods. Focusing on the excavation and analysis of good animal bone assemblages, and charred cereal deposits in ascertaining different Anglo-Saxon agricultural practices, crops grown, animals reared, and products obtained.
Features associated with medieval agriculture and settlement.	Investigating further the role of water management and land reclamation during this period. Recognising that much of the region has a primarily dispersed settlement pattern during the Medieval period; obtaining more data will add to our understanding of the way settlements appear, grow, shift and disappear. Seeing that more work is required to establish what form Medieval farms and field systems took.	Establishing the need to study Medieval settlement change, evolution and abandonment, especially with reference to greens and green-side settlements. Recognising that more research is required to establish more conclusive evidence for the origins and development of the church and church-and-hall complexes. Further exploration is needed into the origins of the dispersed settlement patterns, and its implications for social organisation and landscape development.

Features associated with post-medieval agriculture and settlement.	Further study of the growth and impact of settlements on the post-medieval landscape, including effects on agricultural production. Improved research into the role of water management and land reclamation, which is a dominant theme of the post- medieval landscape in this region.	Any study of farm buildings should consider how they have been used and their relationship to the farmstead and the wider landholding. Acknowledge that well-preserved 18th and 19th Century structures are rare in this region, and the opportunity to investigate them should be taken, especially if artefact assemblages are also present.
Features associated with WWII coastal defences.	Develop a good model for understanding how fixed defences operated within the landscape. More opportunities should be sought to broaden an appreciation of recent military heritage through collaborations with artists and oral testimony projects. The effect on the historic environment and communities of the decline, or abandonment of military sites should be considered.	N/A

4 DEVELOPMENT IMPACTS AND ARCHAEOLOGICAL RESPONSE

4.1.1 Any works that disturb the ground, such as groundworks associated with construction of the new nuclear power station and associated developments, ecological mitigation measures etc. have potential to damage or destroy archaeological features, structures and deposits that may be present. Archaeology is a non-renewable resource. Where impacts cannot be avoided through exclusion from the project area or design modification, a programme of archaeological works (appropriate to the significance of the archaeological remains) is required to mitigate impact through thorough investigation and recording of the archaeology that will be damaged or destroyed.

4.1.2 Desk-Based studies have established that the land affected by Sizewell C project has archaeological potential, indicated by data held on the County Historic Environment Record, and information from Historic Mapping and Aerial photography.

4.1.3 For each area of land affected by the development, evaluation of the archaeological potential will be undertaken, to establish the presence/absence, character and significance of archaeological remains.

4.1.4 The principal investigation methods to undertake this evaluation phase are:

- Geophysical Survey
- Evaluation Trenching
- Rapid Identification Earthwork Survey

4.1.5 For much of the land affected by the Sizewell C project, this phase of fieldwork has been completed. However, there are areas of land for which these works are still outstanding and will need to be undertaken post determination of the DCO.

4.1.6 The results of the archaeological evaluations will inform a programme of archaeological mitigation. The purpose of which is to construct a detailed record of the archaeological remains that will be lost or damaged as a result of the Sizewell C project. The principal investigation methods to undertake this Mitigation phase are:

- Set Piece Excavation

- Strip, Map and Sample Excavation
- Archaeological Monitoring

4.1.7 The mitigation method used for each area of archaeological interest will reflect the archaeological potential identified at evaluation and the level of impact. The type of investigation initiated may change if significant archaeological remains, not indicated at evaluation, are identified during the mitigation works, e.g. Archaeological Monitoring may be upgraded to Set Piece Excavation, if important sites or features are identified.

4.1.8 The detail of evaluation and mitigation proposals, including the most appropriate methodology, and the exact extent of any intervention will be agreed with the Suffolk County Council Archaeological Service (SCCAS) archaeologist, and will be set out within the site specific WSIs. All site specific WSIs will be supplemented by the contractor's method statements.

5 ARCHAEOLOGICAL RESPONSE

5.1 General principles

5.1.1 Archaeological work is intended to:

- mitigate loss of archaeological interest of at-risk heritage assets; and
- inform planning of non-archaeological (i.e. avoidance and design) mitigation.

5.1.2 All archaeological mitigation will be proportionate to the significance and extent of the potential effects on archaeological remains, and will be designed to address the specific research agenda set out at **section 3**.

5.1.3 The following professional standards apply:

- Chartered Institute for Archaeologists 2014 Standard and Guidance for Archaeological Excavation (Ref. 1.19);
- Chartered Institute for Archaeologists 2014 Guidelines for the Collection, Documentation, Conservation and Research of Archaeological Materials (Ref.1.20);
- Chartered Institute for Archaeologists 2014 Code of Conduct (Ref.1.21);

- Standards for Field Archaeology in the East of England provided in **Annex 1**;
- SCCAS Fieldwork Guidance Documents provided in **Annex 2a-d**; and
- Historic England 2019 Piling and Archaeology (Ref.1.33)

5.1.4 The above are current guidance and standards documents, and should updated guidance and standards be issued during the course of the project, that will also be followed.

5.1.5 In all cases, the archaeological contractor will develop a detailed method statement for approval by SCCAS, setting out how the standards set out below will be applied to meet the research agenda set out in the relevant site-specific WSI and addressing any site-specific archaeological issues.

5.2 Proposed methodology and application

a) Rapid Identification Survey

5.2.1 Rapid Identification Survey will be undertaken where reasonably practicable in areas which could not be evaluated pre-determination due to the presence of tree cover after felling of trees, and clearance of undergrowth but in advance of any grubbing, or grinding out of stumps.

b) Geophysical Survey

5.2.2 Geophysical survey will be carried out where reasonably practicable in areas where no prior archaeological survey or investigation has been undertaken, unless otherwise set out in a site-specific WSI or agreed with the SCCAS archaeologist.

5.2.3 Geophysical survey will comprise the archaeological magnetometry survey of identified areas in order to identify geomagnetic anomalies of potential archaeological origin. This survey would aim to cover the developable extent of these areas, but would exclude any confirmed safeguarded areas, areas of demonstrable past disturbance (e.g. hardstandings and modern building footprints), and any areas where safe access cannot be confirmed.

5.2.4 Geophysical work and reporting will be carried out in line with the standards set out at **sections 5.3** and **5.5**; the SCCAS and regional standards at **Annex 1 & 4** of this appendix**;** the EAC Guidelines for the Use of Geophysics in Archaeology (Ref. 1.22) and the Chartered

Institute for Archaeologists Standard and Guidance for archaeological geophysical survey (Ref. 1.23).

c) Evaluation trenching

5.2.5 This will be carried out in areas where evaluation has not been practicable in advance of the DCO being granted, and provision will be made in the site-specific WSI for further trenching as appropriate.

5.2.6 Evaluation trenching will comprise the excavation of up to a 5% area sample, agreed on a site by site basis, using 30m by 2m trenches unless otherwise agreed with SCCAS. Any sampling strategy will have regard to the results of geophysical survey or walkover and to the extent of prior disturbance.

5.2.7 The area sample to be investigated in formerly wooded areas subject to Rapid Identification Survey will be agreed with SCCAS, and will have regard to the visibility of archaeological remains, the extent of prior disturbance, including that observed in other woodland areas on-site, and the results of archaeological evaluation in adjacent fields.

5.2.8 The purpose of the evaluation is to identify and characterise the nature, extent and significance of specific archaeological foci, within an extensive area. This information will be used to allow more detailed proposals for mitigation to be developed.

5.2.9 Archaeological evaluation trenching and recording will be carried out to the standards set out at **sections 5.3** and **5.5**, and in accordance with the SCCAS and regional standards at **Annex 1 & 2** of this appendix.

d) Archaeological monitoring (watching brief)

5.2.10 Archaeological monitoring (watching brief) will be used to:

- provide opportunities for archaeological investigation, and recording in circumstances where investigation would otherwise be impracticable;
- where archaeological remains of limited value or extent are suspected within a working area; and
- it will comprise an archaeologist being present, either continuously or on an agreed schedule of inspection-based visits, during intrusive groundworks so that the presence, or absence, of archaeological remains could be confirmed, and any such remains be appropriately recorded.

5.2.11 The risk that archaeological remains might be present will be well-established on the basis of previous stages of evaluation, and/or mitigation works, and the areas identified within the individual site WSIs. Any site- specific requirements will be set out within the individual site WSIs

5.2.12 The need to monitor construction works will be predictable, and appropriate arrangements for SCCAS inspection visits will be acceptable in most instances.

5.2.13 Where archaeological deposits are encountered, sufficient excavation will take place to allow appropriate records to be compiled, as might be reasonably achieved. Provision will be allowed for access in keeping with health and safety considerations.

5.2.14 Should extensive and/or important/well preserved remains be found, which cannot be addressed within the scope of a watching brief, the requirements for any further excavation will be discussed with the client and the SCCAS archaeologist.

5.2.15 Archaeological monitoring and recording will be carried out to the standards set out at **sections 5.3** and **5.5** and in accordance with the SCCAS and regional standards at **Annex 1 - 5** of this appendix.

e) Strip, map and sample

5.2.16 Strip, map and sample mitigation will be undertaken to identify specific archaeological foci within an extensive area of potential, or to expose the spatial characteristics of extensive archaeological landscape elements, such as field systems, prior to selecting locations for targeted sample excavation. This work is to be undertaken within a framework of evidence-based research objectives.

5.2.17 Following initial machine overburden strip (which will be directed and monitored by the archaeological contractor), the area should be examined, and a plan of identified and potential archaeological features and deposits prepared at an appropriate scale. This will inform proposals for sample excavation, to be agreed with the SCCAS archaeologist.

5.2.18 Where necessary to allow construction works to continue, the release of a part of an area may be agreed with the SCCAS archaeologist once an appropriate agreed level of investigation has been completed. In this situation, areas which have not been released will be clearly demarcated.

5.2.19 Key stages in strip-map-and-sample are:

- careful overburden strip of topsoil and subsoil, using a back-acting excavator, to the archaeological horizon;
- immediate planning (mapping) of the area while the uncovered surface is fresh. The area should be subsequently checked to see if weathering reveals further features and the plan updated as appropriate; and
- sampling, concentrating on established a relative chronology through feature intersections investigations, and by attempting to establish a more precise chronology.

5.2.20 Areas for strip, map, and sample will be identified following geophysical survey, and/or evaluation trenching, and will be agreed with SCCAS. Individual areas and the justification for their selection will be set out within the individual site WSIs.

5.2.21 Following the planning stage, an appropriate sample of identified features will be investigated. Key areas and nodes will be investigated in sufficient detail to understand them both in respect of themselves and also in relation to their surroundings. This work will be focused on adding to the spatial, chronological, functional and environmental context of the investigated area drawing on the standards set out in **section 5.3**, and in accordance with the SCCAS and regional guidance provided in **Annex 1 & 3** of this appendix. Any site-specific variations will be set out within the individual site WSIs, and/or agreed with the SCCAS archaeologist.

5.2.22 This requirement to sample and record identified features will be continually monitored during the course of fieldwork, and amended according to its effectiveness in meeting research objectives. In particular, consideration of strip, map, and sample operations will be discussed with the SCCAS archaeologist, with a view to extending these operations where significant archaeological remains have been observed, or scaling back operations where the potential presence of archaeological features is demonstrably low, based on:

- identified prior truncation/disturbance;
- absence of observed features; or
- confirmation of prior survey results which suggest poor survival of archaeological features.

5.2.23 Any decision to scale back the scope of strip, map, and sample mitigation will only be undertaken after agreement of the SCCAS archaeologist has been confirmed.

5.2.24 Following completion of archaeological investigation to the satisfaction of the SCCAS archaeologist, the relevant area, or agreed parts thereof, will be released to the main contractor so that construction works may proceed.

f) Set-piece excavation

5.2.25 Set-piece excavation will be undertaken where evaluation has identified the extent, and character of significant archaeological remains, allowing for a definitive investigation area, sampling and finds recovery policy to be defined.

5.2.26 The individual defined areas identified for set-piece excavation will be set out in the relevant individual site WSI. This will include provision to extend areas if important archaeology continues beyond the defined extent.

5.2.27 Set-piece excavation and recording will be undertaken to the standards set out at **section 5.3**, and in accordance with the SCCAS and regional excavation standards set out at **Annex 1 & 3** of this appendix**.** Any site-specific sampling requirements will be set out within the individual site WSIs.

g) Archaeological buildings recording

5.2.28 Where historic buildings within the site are to be retained, it is proposed that recording to Level 2 as set out in Historic England 2016 Understanding Historic Buildings (Ref. 1.24) will be carried out to ensure that the appearance of the structures in their present setting can be recorded.

5.2.29 Where historic buildings are to be demolished or altered, it is proposed that recording to level 3 or 4 as set out in Historic England 2016 Understanding Historic Buildings will be undertaken. The level or recording will be at a level in appropriate to their significance, and determined in consultation with SCCAS, the East Suffolk conservation officer and, or Historic England.

5.3 Standards for archaeological work

5.3.1 The standards set out below draw upon, and should be used in conjunction with, the SCCAS fieldwork requirement documents, and the

national and regional excavation standards provided in **Annex 1 - 5** of this appendix.

5.3.2 A parish code number will be obtained from the County HER in advance of each phase of the works, and a unique site code will be assigned as agreed with SCCAS. All parts of Site Archive, including finds, samples, plans, photographs, and excavation paperwork will be marked with this number. It will be printed on the cover of all reports and used as the accession number for deposition of the archive.

a) Rapid Investigation Survey

5.3.3 Areas will be walked systematically on regular transects, typically at 25m intervals with the aim of identifying and recording any surviving earthwork features, or structural remains. Each feature or observation will be given a unique record number, and will be recorded in plan and by photography. A record will also be made of any artefactual material observed, although modern material would not normally be retained.

b) Geophysical Survey

5.3.4 It is anticipated that the survey will be carried out using a Bartington Grad601-2, or equivalent instrument. Readings will be taken every 0.25m along lines 1m apart.

5.3.5 The survey will be carried out using a grid system accurately tied in with the Ordnance Survey (OS) National Grid. Any variations to the survey area set out within the individual WSIs caused by crop growth, or ground conditions will be agreed with SCCAS.

5.3.6 A record will be made of surface conditions, and of possible sources of modern geophysical interference that may have a bearing on subsequent interpretation of field data. Any areas where it is considered unsafe to work will be excluded from the survey.

5.3.7 If any problems are encountered during the geophysical survey these will be reported to the client.

c) Machine overburden strip

5.3.8 For all areas identified as requiring intrusive archaeological work in the individual site WSIs, removal of topsoil, overburden, to the first significant archaeological horizon will be undertaken by a back-acting excavator fitted with a wide (1.8m) toothless ditching bucket, under the continuous supervision of the archaeology contractor with the authority to halt and direct machine excavation.

5.3.9 Spoil will be temporarily stockpiled on-site at an identified location, at a safe distance from the stripped areas, and other constraints, to the satisfaction of the main contractor. Topsoil, subsoil, and archaeological deposits should be kept separate during excavation, to allow for sequential backfilling of excavation. Topsoil should be examined for archaeological material.

5.3.10 Areas stripped for, or under, archaeological investigation must be clearly marked and identified to construction contractors, so that the area is not tracked over, or otherwise disturbed, until the area is clear of archaeological remains, the supervising site archaeologist will confirm to the contractors when an area has been released from archaeological control, and vehicles can track over the specified area.

5.3.11 The first significant archaeological horizon, and all subsequent archaeological deposits will be cleaned by hand. Excavation of any archaeological deposits identified will proceed by hand, to the standards set out below, unless specifically agreed with the SCCAS archaeologist, or to any site-specific requirements set out in the individual site WSIs. If colluvial or alluvial deposits are identified sealing earlier archaeological horizons, the potential for machine stripping of these deposits will be discussed with the SCCAS archaeologist, once any archaeological features cutting them have been fully excavated and recorded, and it has been established that these deposits are otherwise archaeologically sterile.

5.3.12 Following completion of archaeological investigation to the satisfaction of the SCCAS archaeologist, and the main contractor, each trench, or excavation area, will be backfilled with the spoil and compacted by machine to level fill, unless otherwise instructed by the main contractor.

d) Hand excavation

5.3.13 There is the presumption that excavation of all archaeological deposits will be done by hand unless it can be shown there will not be a loss of evidence by using a machine.

5.3.14 Archaeological features will be hand cleaned prior to excavation, to provide accurate definitions. For linear features, such hand cleaning will be targeted at sample excavation points. Deposits interpreted as natural subsoil should be tested by hand, or machine excavation to determine the validity of this interpretation. Where features are interpreted as natural (e.g. tree throws), a percentage of these features, agreed with SCCAS archaeologist, will be hand excavated to establish the accuracy of the interpretation.

e) Evaluation trenching

5.3.15 In evaluation trenching, there is the presumption of the need to cause minimal disturbance to the site; and that significant archaeological features (e.g. building slots or postholes) should be preserved intact even if fills are sampled.

- For linear features, 1.00m wide slots (min.) should be excavated across their width.
- For discrete features (e.g. pits), 50% of their fills should be sampled.
- Any natural subsoil surface revealed should be hand cleaned, and examined for archaeological deposits and artefacts. Sample excavation of any archaeological features revealed may be necessary in order to gauge their date and character.
- Where extensive occupation deposits or layers are identified, these will be sampled through the use of test pits, as agreed with the SCCAS archaeologist, to determine their date and character, and to determine whether earlier features are sealed by these deposits.

5.3.16 Metal detecting will be conducting during evaluation trenching by a named and experienced detectorist, before trenches are opened, during the excavation of features within the trenches, and of the spoil.

f) Excavation

5.3.17 Features will be excavated according the following sampling strategy:

- Features which are, or could be, interpreted as structural must be fully excavated.
- Post holes and pits must be examined in section. Full excavation may be appropriate for specific problem-solving, complex depositional sequences and finds recovery. Full excavation may also be appropriate if pits or postholes are small.
- Fabricated surfaces (e.g. yards and floors) must be fully exposed and cleaned, and representative sections excavated, to determine their construction and whether they seal earlier deposits. Where earlier features are suspected of underlying surfaces, the surface will be hand-lifted once it has been fully recorded. The collection of spatially distinct samples will be considered in order to investigate the use/function of an area and if different activity zones can be identified.

- All burial deposits and associated remains will be subject to 100% excavation and recorded in accordance with an agreed methodology. Spatially distinct samples from the head, torso and feet will be taken in accordance with guidance (Ref 1.25).

- Other features must be sufficiently examined to establish, where possible, their date function. In general 50% of the representative non-structural linear cut features; 10% of the fills of substantial linear features (e.g. ditches) in order to establish the feature's character, date and morphology and to provide information on activities taking place in close proximity to the feature. These samples may be varied with the agreement of SCCAS to reflect specific site conditions observed during excavation.

- Any stratified layers should be subject to hand excavation in 2.5m or 1.0m systematic, and gridded squares on the basis of the complexity and extent of the layers. The details of which will be agreed with SCCAS and set out within site-specific WSIs where required.

- Where complex sequences are observed during the excavation, an amended excavation strategy will be agreed with SCCAS.

5.3.18 The sampling excavation strategy will be reviewed continuously throughout the course of fieldwork and, if necessary, amended in order to take account of changing circumstances and understanding. Any changes or amendments will be agreed in advance of implementation with the SCCAS archaeologist and confirmed in writing. For any complex remains, a sampling strategy will be discussed and agreed with SCCAS.

5.3.19 Where insufficient dating material or information has been retrieved from a partially sectioned feature, further sampling may be undertaken, subject to consideration of residuality, or other factors that might limit the integrity of archaeological data, with reference to the research objectives, and in consultation and agreement with the SCCAS archaeologist. This may include bulk or column sampling for scientific dating, and/or environmental analysis (e.g. grain or faunal species) which may provide broad dates.

5.3.20 Guidelines for developing site-specific sampling strategies will be set out in the individual site WSIs. The sampling strategy will be kept under review during the excavation work, and will consider the following:

- a robust spatial framework of excavation to provide an understanding of the distribution of past activities across the investigation area, including any ‘special’ deposits and any patterning in artefact

distribution. Such a framework will consider the inter-relationship of major features;

- the investigation of the intersections of features of archaeological date to obtain a phasing of the site; and
- structural remains and other areas of significant and specific activity (domestic, industrial, religious, hearths, 'special'/ patterned deposits etc.) will be excavated, and recorded to a degree whereby their extent, date form, function and relationship to other features and deposits can be established.

5.3.21 Metal detector searches must take place during excavation, including the scanning of areas before they are stripped. Detecting must be undertaken by named, experienced metal detector users, with the site specific WSI including reference to their relevant experience. Detecting equipment should be high specification.

g) Survey

5.3.22 Surveying will be done using a survey-grade GPS (e.g. Leica CS20/GS08 or Leica 1200).

5.3.23 The site grid will be accurately tied into the OS National Grid, and located on the 1:2500 or 1:1250 map of the area. Elevations will be levelled to the Ordnance Datum.

h) Recording

5.3.24 A full and proper record (written, graphic and photographic, as appropriate) will be made for all work in line with the standards set out in the SCCAS and regional guidance provided in **Annex 1 - 5**.

5.3.25 A register of all trenches, features, photographs, survey levels, small finds and human remains will be kept.

5.3.26 Unique context numbers will be issued for all features, layers and deposits. Each will be individually documented on a context sheet and drawn in section and plan.

- Plans of any archaeological features on-site are to be drawn at 1:20, or 1:50 depending on the complexity of the feature being recorded.
- Sections should be drawn at 1:10, or 1:20 depending on the complexity of the feature being recorded.

- All levels should relate to Ordnance Datum.
- A photographic record of the work will consist of digital images (minimum file size of 6MP) taken on a high-resolution digital camera.
- Photographs will include general site shots and photographs of specific features. Photographs will include a scale, north arrow, site code and feature number (where relevant), and will be listed on the photograph register.

i) Environmental sampling

5.3.27 The on-site sampling policy will be inclusive, as the significance of individual features may not be fully understood, until wider patterns of spatial distribution and phasing are understood. As set out in the general methods above, arrangements for the processing of bulk samples taken for the recovery of environmental materials should be confirmed. The minimum bulk sample size will normally be 40 litres or 100% of the deposit if the deposit does not amount to 40l, though the final sampling and discard policy for individual sites will be agreed in consultation with the Sizewell C Project environmental specialist, the SCCAS archaeologist, and the Regional Scientific Advisor, and set out within the site-specific WSI. Processing of samples should be undertaken while evaluation excavations are being undertaken in order that information can be fed back and inform the ongoing strategy.

5.3.28 Archaeological deposits will be sampled systematically in bulk samples. All samples will be collected from the fills of cut features, and from any other securely stratified deposits that have the potential to provide environmental or economic information, such as occupation layers or material accumulating on use surfaces. Particular emphasis will be placed on contexts that may supply material suitable for scientific dating of potential early medieval and prehistoric features. Decisions on sampling must also take account of stratigraphic factors, and consider the opportunity to employ chronological, and spatial controls, in the recovery of samples in order to generate environmental information of sufficient quality to meet the research objectives.

5.3.29 Provision will be made for column and other appropriate samples to be taken for geoarchaeological assessment, and analysis as appropriate and in line with technical guidance including Historic England guidance (Ref.1.25). Due consideration will be given to the collection of samples suitable for microfossil analysis, and other specialised analysis from suitable deposit sequences, that might inform the pattern of changing environmental conditions over time. Waterlogged

and cess deposits will be specifically sampled for microfaunal and invertebrate analysis. Bulk samples will also be taken from any waterlogged deposits present for assessment of organic remains. Any organic artefacts that are retrieved during the excavation will be stored in appropriate conditions, and assessed by a qualified archaeological conservator.

5.3.30 Industrial residues and waste from craft, and manufacturing processes will also be routinely sampled in line with guidance provided by Historic England (e.g. Ref. 1.26).

5.3.31 If required, a detailed site-specific sampling policy in line with the SCCAS regional, and national guidance will be set out in the individual site-specific WSI in consultation with the Historic England Regional Advisor for Archaeological Science (East of England). This will detail specific categories of material that are of interest for the individual sites, and identify a programme of work to support the research objectives. Revised as appropriate throughout the excavation and post-excavation phases.

j) Artefact recovery and conservation

5.3.32 The recovery of material that can adequately date major archaeological phases is a key requirement. It is recognised that the incidence of artefacts may limit the quality of datable assemblages, and measures for scientific dating are also set out below. However, artefacts remain a key source of dating information.

5.3.33 All finds will be collected and processed, unless variations are agreed with the SCCAS archaeologist during the course of excavation.

5.3.34 Ceramic finds should be processed, and initial assessment undertaken for dating and significance, concurrently with the excavation, to allow immediate assessment and input into decision-making.

5.3.35 Bulk finds such as pottery and animal bone will normally be collected by context. Where it is appropriate and following additional instruction, enhanced recovery techniques and sampling strategies for the recovery, and recording of waterlogged wood and timber, will be set out in respect of specific sites in the individual site WSIs as appropriate.

5.3.36 Finds will be temporarily stored on-site and removed from site to a secure location as required. Waterlogged organic finds, such as wood and leather, should be removed from site on the day that they are excavated and transferred to a suitable location with facilities to maintain them without degradation of the material.

5.3.37 Finds and samples will be exposed, lifted, cleaned (with the exception of organic remains, which will be considered on a case-by-case basis), conserved, marked, bagged, boxed and stored in line with the standards in:

- Watkinson & Neal (1988) First Aid for Finds (Ref. 1.27);
- Chartered Institute for archaeologists (2014) Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Ref. 1.28);
- English Heritage (1995) A Strategy for the Care and Investigation of Finds (Ref. 1.29);
- Historic England (2017) Organic Residue Analysis and Archaeology:
- Guidance for Good Practice (Ref. 1.30); and
- The requirements of the recipient museum (the receiving museum will be identified in the relevant site-specific WSI).

5.3.38 A discard policy acceptable to the SCCAS Archive will only be implemented following quantification, assessment, and recommendation from artefactual and environmental specialists. Certain classes of material, such as post-medieval pottery and building material, may be discarded after recording if a representative sample is kept, but no finds will be discarded without the prior approval of the SCCAS archaeologist and the SCCAS Archive.

5.3.39 Where finds require conservation, this will be done in accordance with the guidelines of the Institute for Conservation.

k) Scientific dating

5.3.40 Achieving coherent intra and inter-site chronologies across all phases of activity is a key objective, as this may help resolve problems in the identification of cultural activity during period when ceramics were not generally available to communities, or where features do not contain readily datable artefacts. A strategy for the selection of samples for scientific dating will be set out for each site in the relevant site-specific WSI, taking into consideration statistical procedures designed to enhance the accuracy of site chronologies.

5.3.41 Samples of material suitable for scientific dating techniques including AMS C14 dating, archaeomagnetism (for example, charred seeds or in situ burnt clay from appropriate contexts), or thermoluminescence will be

collected where available in accordance with individual site WSIs. Where a specialist may be required to visit the site and collect samples this will be identified at the earliest opportunity.

5.3.42 Scientific dating will be a significant consideration during the post-excavation assessment and will inform the updated project design provided in section 5.5.13. The assessment of the chronology within a Bayesian framework should be considered if significant remains or sequences are identified.

5.3.43 Scientific dating, undertaken concurrent with the excavation fieldwork, may be required to inform levels of sampling of certain features or structures, such as wooden trackways. If there is the potential for significant waterlogged wooden remains to be found, a wood specialist may be required on site to records and sample remains and dendrochronology specialists be used to support the dating of remains where necessary.

5.4 Procedures in respect of statutorily designated remains

a) Human remains

5.4.1 In the event of archaeological human remains being encountered they will be left in situ, covered and protected and the Coroner, and the Suffolk County archaeologist will be informed. Human remains will be left in situ during evaluation work, unless considered at risk or there is value in lifting the human remains to guide future mitigation. During the mitigation phase of works, it is expected that all human remains will be fully excavated, and that this will be done at the earliest opportunity following their discovery.

5.4.2 The Archaeological Contractor will arrange receipt of the appropriate documentation and License from the Department of Justice, to enable the legal removal of any human remains encountered in the works. The Archaeological Contractor is to comply with the conditions of any issued License.

5.4.3 If removal is agreed, all subsequent work will comply with relevant regulations (including local authority environmental health regulations) and technical guidance (e.g. Ref. 1.31) .

5.4.4 The Archaeological Contractor will have available within the team, or on call, an appropriately qualified and experienced osteo-archaeologist, to supervise the excavation and removal of human remains from the site. The Archaeological Contractor will use an appropriately qualified and experienced archaeological conservator to assist where appropriate in the lifting of human remains, and grave goods/cremation vessels.

b) Protected military remains

5.4.5 The Protection of Military Remains Act 1986 applies to any aircraft which have crashed while in military service, and to certain wrecks of vessels which were wrecked while in military service. Protection of Military Remains Act 1986 makes it an offence to disturb, move, or unearth military remains which have been designated.

5.4.6 There are no designated protected areas or controlled sites within the site boundary, and there are no records of military vessels or aircraft having been lost within the site boundary.

5.4.7 Where remains are observed during archaeological investigation or construction work, intrusive work should cease, and the site be secured while consultation with the Ministry of Defence is undertaken.

c) Treasure

5.4.8 Any items which are recovered which could be deemed as treasure will be subject to the provisions of the Treasure Act 1996, and the Treasure (Designation) Order 2002. Such material shall normally be removed from site to a secure location, to be stored in appropriate conditions, at the end of the working day on which it is found. In addition to the statutory authorities, the relevant Portable Antiquities Officer should be informed.

5.5 Finds Processing

5.5.1 All finds processing, conservation work and storage of finds must be carried out in compliance with the Chartered Institute for Archaeologists Guidelines for the collection, documentation, conservation and research of archaeological materials (Ref. 1.27). Samples should be processed in a timely manner and finds should not be left unprocessed on site during the completion of the fieldwork.

5.5.2 The deposition and disposal of artefacts must be agreed with the legal owner and the SCCAS Archive prior to the work taking place.

5.5.3 All retained artefacts must be cleaned and packaged in accordance with the requirements of the recipient museum. Further guidance is set out at Section 5.3.36.

5.6 Post-excavation work, reporting and dissemination

a) Site Archive

5.6.1 Before the commencement of fieldwork, contact should be made with the landowners and Suffolk County Council Archaeological Services (SCCAS) Archive to make the relevant arrangements. Details of land ownership should be provided by the developer.

5.6.2 The archaeological contractor will specify the SCCAS Archive, and confirm that arrangements for receipt of archaeological material, and site archives, have been agreed before the commencement of fieldwork.

5.6.3 The archive and the finds must be deposited in the SCCAS Archive within six months of completion of the post-excavation work and report (Ref. 1.32).

5.6.4 The SCCAS archaeologist will require confirmation that the archive has been submitted in a satisfactory form.

b) Reporting

5.6.5 Reports will be produced for all archaeological survey and fieldwork undertaken. The type of report produced will reflect the nature of the investigations, as detailed below. Reports must also be produced for all archaeological investigations undertaken.

i. Rapid Identification Survey

5.6.6 The reporting of the Rapid Identification Survey will comprise a plan of the survey areas noting any archaeological features, areas of disturbance, or findspots observed during the survey.

5.6.7 This plan will be supported by summary text describing each observation noted on the survey plan, and setting out any additional evidence that has supported interpretation of these observations, before setting out a summary of the anticipated presence of archaeological remains within the survey area, and recommendations for further archaeological works. Site photographs will be used to illustrate each identified feature or observation as appropriate.

5.6.8 Appropriate supporting evidence would typically include, but is not limited to Light Detection and Ranging digital terrain models, results of archaeological trenching or geophysical survey in adjacent fields and historic mapping.

5.6.9 Any further archaeological works would be carried out under the standards set out within this overarching WSI.

ii. Geophysical Survey

5.6.10 The interpretation of the survey data will be undertaken by an experienced archaeological geophysicist. This individual will also be knowledgeable of the prevailing ground conditions within the survey area that could affect the interpretation.

5.6.11 The draft report on the results of the geophysical survey, including results (to include full description, assessment of condition, quality and significance of results identified); general and detailed plans showing the location of the surveyed area accurately positioned on an OS map base (to a known scale); colour/grey scale plots; an interpretative plot; and an assessment of potential will be made available to the SCCAS archaeologist within 2 weeks of the completion of Geophysical surveys. This is to allow for trench plans for archaeological trial trenching to be developed and agreed with SCCAS.

5.6.12 A single hard copy and a digital version of the revised report will be submitted within one week of the receipt of comments on the draft report.

5.6.13 A project CD will be submitted containing image files in JPEG or TIFF format, digital text files in Microsoft Word format, and illustrations in an up to date AutoCAD format. A fully collated version of the report will be included in PDF format.

5.6.14 A hard copy of the report will be lodged with the SCCAS, upon completion.

5.6.15 The contractor will submit a digital version of the report with Online Access to the Index of Archaeological Investigations at http://www.oasis.ac.uk/. A copy of the full summary sheet shall be included as an appendix to the report.

5.6.16 The archiving of data associated with geophysical survey will follow the advice provided in Geophysical Data in Archaeology: A Guide to Good Practice (Ref 1.22).

5.6.17 The archive will consist of the report, within which documentary and raw and processed digital data records generated during the fieldwork, will be presented. This will include a georeferenced .dxf or GIS shapefile copy of the interpretation of the results for the Suffolk Historic Environment Register.

5.6.18 This report will be part of the larger project archive

iii. Trial Trenching

5.6.19 Where trial trenching is undertaken, an initial assessment of the results of the works will be undertaken, and an interim report will be made available the SCCAS archaeologist within two weeks of completion of trenching.

5.6.20 The purposes of the interim report are to:

- confirm the completion of fieldwork;
- provide an indicative timetable for detailed post-excavation assessment and reporting; and
- signpost any project findings to inform research and development management pending the production of the full report.

5.6.21 This interim summary reporting will incorporate the following:

- mapping of the results of the works undertaken;
- key findings set out as bullet points highlighting any key observations and implications for the agreed Research Agenda;
- an updated project design with indicative timetable compiled and agreed for post-excavation assessment and full reporting; and
- indicative scope of Post Excavation Assessment.

5.6.22 It is intended that the interim report presents only a very brief synthesis of the results of the fieldwork to allow for early dissemination of summary results and project planning. Tables or bullet points should be used to provide a concise but intelligible summary. Detailed plans and maps or analysis of stratigraphic, artefactual or ecofactual material should not be included.

5.6.23 Full and detailed reporting of the results of the trial trenching should be produced within six weeks of the completion of fieldwork, except where agreed otherwise by the SCCAS archaeologist (e.g. where further works are carried out immediately and reporting of trial trenching is more logically deferred to the production of the final reporting of archaeological fieldwork).

5.6.24 A draft of the full illustrated report will be compiled on the results of the fieldwork and assessment of the artefacts, palaeoenvironmental samples etc. The report will include: a non-technical summary; an introduction to the project; an archaeological and historical background; an objective text account of the archaeological results, supported by tabulated data that enables appropriate re-assessment of the results by other parties without recourse to the project archive; a quantification and assessment of the finds and environmental materials; and an interpretative conclusion regarding the archaeological content of the site. The report will include appropriate illustrations of the site, its context and individual trenches, features and contexts where appropriate.

5.6.25 A single hard copy, and a digital version of the revised report will be submitted upon receipt of comments on the draft report.

5.6.26 A project CD will be submitted containing image files in JPEG or TIFF format, digital text files in Microsoft Word format, and illustrations in an up-to-date AutoCAD format. A fully collated version of the report will be included in PDF format.

5.6.27 A hard copy of the report will be lodged with the SCCAS upon completion.

5.6.28 The contractor will submit a digital version of the report with Online Access to the Index of Archaeological Investigations at http://www.oasis.ac.uk/. A copy of the full summary sheet shall be included as an appendix to the report.

5.6.29 The archive will consist of the report, within which documentary and raw and processed digital data records generated during the fieldwork, will be presented. This will include a georeferenced .dxf or GIS shapefile copy of the interpretation of the results for the Suffolk Historic Environment Register.

5.6.30 This report will be part of the larger project archive.

c) Post-excavation assessment

i. Purpose

5.6.31 The intention of carrying out a Post Excavation Assessment is to provide a summary of the results of the fieldwork and material recovered during the excavation, to consider the archaeological potential of an area and its ability to address specific archaeological questions, and to allow costed recommendations to be made for further investigation of artefacts and environmental material recovered during excavation and the final

reporting, which will be carried out following the completion of all of the archaeological fieldwork.

5.6.32 The Post Excavation Assessment is intended to be a summary document rather than a detailed record. However, the level of reporting will provide sufficient detail to allow recommendations to be made, fully costed and justified.

5.6.33 Where works are carried out by multiple archaeological contractors, arrangements for coordination of separate Post Excavation Assessments, or production of a single collated Post Excavation Assessment must be agreed with the SCCAS archaeologist in advance of fieldwork commencing.

5.6.34 Excavation plans for each Site will be supplied to SCCAS in a georeferenced GIS compatible format, e.g. shapefiles.

5.6.35 Drafts of the PXA will be provided for review by SCCAS, followed by a single hard master-copy, and a digital version of the final report, which will be submitted after the receipt of comments on the draft reports. The PXA will also include a completed OASIS form appended.

5.6.36 The PXA will be provided to SCCAS for review no later than three years from the completion of all archaeological fieldwork unless otherwise agreed with SCCAS.

ii. Form

5.6.37 The Post Excavation Assessment will comprise:

- introduction:
  - scope of the Sizewell C Project;
  - circumstances and dates of fieldwork and previous work; and
  - comments on the organisation of the report.
- original research aims;
- summary of the documented history of the site(s);
- interim statement on the results of fieldwork;
- summary of the site archive and work carried out for assessment:

- site records: quantity, work done on records during post-excavation assessment;
- finds: factual summary of material and records, quantity, range, variety, preservation, work done during post-excavation assessment. All artefacts must be fully quantified by context, material type and date, and presented in a tabular format;
- environmental material (recovered by hand): factual summary of quantity, range, variety, preservation, work done on the material during the Post Excavation Assessment , including quantification by context and material type in tabular format, of human and animal bone, shell, wood etc.
- environmental material (recovered through sampling): factual summary of quantity, range, variety, preservation, work done on the material during the Post Excavation Assessment , including quantification by context, sample number, and type of sample (e.g. bulk, dendrochronological, monolith) in tabular format. The percentage of each sample that has been a) processed and b) analysed must be described; and
- documentary records: list of relevant sources discovered, quantity, variety, intensity of study of sources during post-excavation assessment.

- potential of the Data:
  - an appraisal of the extent to which the site archive might enable the data to meet the research aims of the Sizewell C Project, sub-divided according to the research aims of the Sizewell C Project rather than the form of the data;
  - a statement of the potential of the data in developing new research aims, to contribute to other projects and to advance methodologies; and
  - summary statement of the significance of the data.
- additional information will normally include:
  - supporting illustrations at appropriate scales;
  - sufficient supporting data, tabulated or in appendices, and/or details of the contents of the Sizewell C Project archive, to permit the interrogation of the stated conclusions; and
  - index, references and disclaimers.

d) Updated Project Design (UPD)

i. Purpose

5.6.38 An Updated Project Design for the whole Sizewell C archaeological project will be prepared on completion of the Post-Excavation Assessments, providing a scope and programme for the analysis, reporting, publication and dissemination of the findings. It will bring together the results of all stages of the archaeological project, and provide a framework for further investigation of the material recovered and results.

5.6.39 A draft of the UPD will be provided for review by SCCAS, followed by a single hard master-copy, and a digital version of the final report, which will be submitted after the receipt of comments on the draft report. The UPD will also include a completed OASIS form appended.

ii. Form

5.6.40 The UPD will include:

- Proposals for the further recording, analysis or other work required on the stratigraphic data, artefacts and ecofacts;
- Sufficient supporting data, tabulated or in appendices, and/or details of the contents of the Sizewell C Project archive, to permit the interrogation of the stated conclusions; and
- Proposed discard strategy;
- Proposals for scientific dating (potentially an initial suite of dates and a second after provisional results from the artefact and ecofact analysis are received);
- Proposals for a Bayesian analysis to refine chronologies, with regard to the selection of contexts and samples for scientific dating.
- Proposals for comparative analysis of the geophysical survey and excavation results, particularly correlations of results by: size/type of features; archaeological period; and underlying geology and soil types;
- Proposals for further research;
- Proposals for final reporting and publication, including format/medium and a synopsis of the content;

- Proposals for any further work required on the project archive, such as consolidation or conservation;
- Task lists, programme, costings and timescale for the proposed further work, to include publication (both academic and popular) and archive deposition;
- Details of the proposed project team;
- Proposals for continuing liaison and communication with SCCAS during the remaining post-excavation process.

e) Online Access to the Index of Archaeological Investigations

5.6.41 The overall aim of the Online Access to the Index of Archaeological Investigations project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork.

5.6.42 The archaeological consultant or contractor must therefore complete the Online Access to the Index of Archaeological Investigations form (available at http://ads.ahds.ac.uk/project/oasis/).in respect of the scope of works set out in each site-specific WSI.

5.6.43 Once a report has become a public document by submission to or incorporation into the Suffolk HER, Suffolk HER will validate the Online Access to the Index of Archaeological Investigations form thus placing the information into the public domain on the Online Access to the Index of Archaeological Investigations website. The archaeological contractor must indicate that they agree to this procedure within the method statement submitted to SCCAS.

f) Publication

5.6.44 Formal publication of the results of some or all of the fieldwork is likely to be required. The results of the works will be reviewed and decisions taken on the scope and level of any publication(s) following the submission of the Post Excavation Assessment reports and review. This will consider the most appropriate route for dissemination, and the scope of any dissemination, including consideration of whether thematically or chronologically related sites should be reported together. Details of publication will be addressed in the UPD.

5.6.45 The PXA and UPD shall make recommendations for an appropriate level of reporting for all excavated remains to ensure that aspects of a site

which are not deemed appropriate for publication are fully reported as grey literature.

5.6.46 Provision will also be made to contribute to the annual summaries in the Proceedings of the Suffolk Institute of Archaeology and History (PSIAH).

6 HEALTH, SAFETY, SECURITY AND ENVIRONMENT

6.1.1 Health and Safety will take priority over all other requirements. A conditional aspect of all archaeological work is both safe access to the area of work, and a safe working environment. All relevant health and safety legislation, regulations, and codes of practice should be respected and adhered to. Site-specific risk assessments will be carried out in respect of each element of the mitigation fieldwork prior to commencement of the fieldwork, and copies sent to the representatives of the client for approval.

6.1.2 Where conflict between Health and Safety and progressing the archaeological project is identified, every effort will be made by the client, in discussion with the archaeological contractors and SCCAS, to identify a safe way of completing the archaeological investigations to appropriate standards.

6.1.3 The Sizewell C Project will be carried out in accordance with safe working practices and under the defined Health, Safety and Environmental Policy.

6.1.4 Copies of the successful contractor's insurance policies will be required in advance by the client or their nominated representative.

6.1.5 The appointed contractor/s will take responsibility for securing the excavation areas (e.g. by fencing), provision of welfare, backfilling and reinstatement of the excavation areas and the removal of materials brought onto the site during the excavation.

6.1.6 Service plans will be supplied by the appointed principal contractor. Any archaeological intervention must respect all requirements for safe stand-off distances, and working practices in regard of these features.

6.1.7 Any specific site security requirements will be set out within the individual site WSIs, and these will be discussed and agreed with the client and main works contractors.

7 MONITORING

7.1.1 The SCCAS archaeologist must be informed of the start date and timetable in advance of any work commencing.

7.1.2 Reasonable access to the site must be afforded to the SCCAS archaeologist, or their nominee at all times, for the purposes of monitoring the archaeological excavations.

7.1.3 Regular communication between the archaeological contractor, the SCCAS archaeologist, client and other interested parties must be maintained to ensure the Sizewell C Project aims and objectives are achieved.

8 PUBLIC OUTREACH

8.1.1 It is recognized that the archaeological works will generate significant public interest. In response to this a programme of public outreach will be instigated.

8.1.2 A detailed scope for outreach will be agreed with SCCAS in advance of the commencement of the archaeological mitigation works, and may include some or all of the following, as appropriate:

- A regularly updated social media presence reporting the important discoveries and promoting specific engagement events (e.g. talks, open days etc.) at an appropriate stage;
- Press releases to local media where particularly significant remains are identified or where specific events are to be promoted and can appropriately be communicated. These would be coordinated and issued through the wider Sizewell C Project communications programme.
- A series of publicly accessible talks, provided by the archaeological fieldwork contractor(s) to local interest groups, such as schools, Parish groups/councils, discussing the excavations, as they progress;
- An invitation to specialist broadcast media production(s), for example BBC *Digging for Britain* to cover key findings or major set piece excavations in order to reach a national audience;
- A publicly accessible conference to be held at a suitable local venue, following the completion of fieldwork and post-excavation

assessment, to bring together the most significant results of the archaeological project for a general audience;

- Where reasonably practicable in a safe manner, open days. This would be most relevant to the larger set-piece excavations; and
- Production of popular publications (additional to the formal publication of results) describing the significant discoveries for a general audience. Any popular publications will be linked to school curriculum at KS2, KS3, KS4.

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ANNEX 2.11.A.1: Standards for Field Archaeology in the East of England

Standards for Field Archaeology in the East of England

by [redacted]

with contributions by

[redacted]

East Anglian Archaeology
Occasional Paper No.14, 2003

Association of Local Government Archaeological Officers
East of England Region

EAST ANGLIAN ARCHAEOLOGY
OCCASIONAL PAPER NO.14

Published by
ALGAO (East of England region)
Algao.cji@ntlworld.com

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Gressenhall
Dereham
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Set in Times Roman by Jenny Glazebrook using Corel Ventura™
Printed by Witley Press Ltd., Hunstanton, Norfolk

ISBN 0 9510695 5 1

For details of *East Anglian Archaeology Occasional Papers*, see back cover

The *Regional Standards* have been published with funding from English Heritage, and the counties of the East of England region: Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk

Cover picture:
The Ordnance Survey benchmark on the Union Workhouse, Gressenhall
Photo: David Gurney

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Acronyms

ALGAOEE Association of Local Government Archaeological Officers for the East of England
EIA Environmental Impact Assessment
HER Historic Environment Record
IFA Institute of Field Archaeologists
LGAO Local Government Archaeological Officer
LPA Local Planning Authority
MAP2 English Heritage 1991, *Management of Archaeological Projects*, 2nd edition
PPG15 Planning Policy Guidance Note 15
PPG16 Planning Policy Guidance Note 16
RPG Regional Planning Guidance
SMR Sites and Monuments Record

Acknowledgements

Thanks are due to the contributors to this document, and to the members of the Association of Local Government Archaeological Officers in the East of England (including English Heritage) who, together with their archaeological development control officers, provided a great deal of useful help and advice during its preparation. In particular, [redacted] (Essex County Council) devoted much effort to the document and its application in the development control/planning context. Thanks are also due to the archaeological contractors and consultants currently working in the region for their many helpful comments on the consultation draft, and colleagues within the Norfolk Museums and Archaeology Service for their support and encouragement, especially [redacted] County Archaeologist for Norfolk. The cartoons which illuminate the text have been drawn by [redacted]

Preface

Following extensive consultation, this document was formally adopted by the Committee of the Association of Local Government Archaeological Officers for the East of England at Bury St Edmunds on 12 September 2002. It was also agreed that it would be fully reviewed after 2–3 years, and that the Committee would receive regular reports on its implementation and comments received. These can be sent to the author at Norfolk Landscape Archaeology, Union House, Gressenhall, Dereham, Norfolk NR20 4DR or by email to david.gurney@norfolk.gov.uk.

A copy of this document is also available as a PDF file, on the web at www.eaareports.org.uk.

Foreword

by [redacted]

The Committee of the Association of Local Government Archaeological Officers for the East of England has produced this document. It aims to fulfill the following key objectives:

- to provide a quick reference guide on standards applicable to archaeological fieldwork and subsequent activities, including development-led projects, research projects and amateur (non-vocational) activities. This has been organised thematically for ease of reference in the widest possible range of contexts, and with a bibliography of the main sources. The document is to be kept under review and revised and updated as necessary.
- to provide a statement of the philosophy of the Committee regarding field archaeology, especially the importance of standards and research frameworks.
- to implement Planning Policy Guidance in the region, with particular regard to securing the evaluation of archaeological sites prior to determination of planning applications in line with PPG16.
- to improve the standard of archaeological fieldwork and the quality of research in the East of England by stating the principles that underpin decisions made by archaeological advisors to Local Planning Authorities.
- to provide details of methodological fieldwork requirements in key areas, and a benchmark against which archaeological projects can be monitored and assessed.
  However, the document is not intended as a comprehensive guide to standards or as the minimum requirement for standards and as such should not be used by itself as guidance for the preparation of Project Designs or Written Schemes of Investigation. These documents should always be based upon the specific and detailed requirements of Briefs produced for individual projects, supported by and with reference to (where appropriate) these generic regional standards and Institute of Field Archaeologists standards and guidance.
- to move towards a greater clarity and consistency of approach across the region in terms of fieldwork methodology, fieldwork standards and the decision-making process for development-related archaeological projects, at the same time recognising that the variable nature of the landscape, the development context and the archaeological record will necessarily always result in some differences of approach.

Introduction

The Development of Regional Standards for Field Archaeology in the East of England

Across the East of England region, archaeologists working within Local Government are responsible for providing archaeological advice to Local Planning Authorities (LPAs), developers (and their archaeological consultants) and a wide range of other bodies whose actions may have an impact on the historic environment.

The Association of Local Government Archaeological Officers for the East of England (ALGAOEE) seeks to safeguard the historic environment by providing advice to LPAs on the archaeological implications of development proposals, and by ensuring that archaeological work within the region is conducted to the highest possible standard during fieldwork, analysis and publication of results. Their committee has prepared a Regional Action Plan, one objective of which is to *develop consistent approaches in the region to the preservation and management of the historic environment within the planning framework* (Association of Local Government Officers East of England Regional Committee 2000, 22–23).

The national Association of Local Government Archaeological Officers has also published a *Strategy 2001–2006* (2001), and its aims with reference to Field Archaeology are:

- to support the development of good professional practice in the monitoring of archaeological fieldwork, ensuring that work is carried out to appropriate briefs and specifications;
- to promote the framing of all projects within the context of national and local research agendas;
- to work in partnership with the Institute of Field Archaeologists (IFA) to ensure that professional standards are maintained throughout the archaeological contracting sector.

Within these national and regional contexts, the primary aim of this document is *to promote best practice in archaeological work in the region, and to assist professional archaeologists, developers and their appointed professional archaeological consultants and contractors with the provision of high standards of data collection and report preparation*. Although principally targeted at, and of use with reference to, archaeological fieldwork generated by the planning/development control process, its contents are broadly applicable to all field archaeology projects undertaken by professional or amateur (non-vocational) archaeologists and for this reason it has been arranged thematically.

The standards and practices that are documented here are based upon well-established techniques and procedures developed in the region since the early 1970s, and the first county standards document produced within the region (Norfolk Landscape Archaeology 1998). Expressed as a set of statements provided separately from Project Briefs, these *Regional Standards* now define required policy for work within the East of England region to which archaeological contractors and consultants (and others) are expected to adhere. They also provide a manual of procedures that should reflect common practice familiar to competent professional and amateur archaeologists.

It is certainly not the intention that the production of *Regional Standards* should stifle debate or discourage innovation, and it is hoped that archaeological contractors and consultants will continue to introduce new and alternative approaches and techniques in order to meet the wider objectives of Project Designs (also known as Method Statements or Written Schemes of Investigations) or Project Specifications.

It is expected that all Project Designs prepared by archaeological contractors or consultants will state that all works will be carried out in full accordance with the Brief provided by the LGAO and, where required by the Brief, these *Regional Standards*. Where alternative approaches or techniques are proposed, these should not be employed without the prior written approval of the relevant LGAO.

Archaeological contractors and consultants should note that these *Regional Standards* stipulate basic *methodological* standards. It is considered axiomatic that all will strive to achieve the highest possible *qualitative* standards and apply the most advanced and appropriate techniques possible within a context of continuous improvement. A primary aim will be to maximise the recovery of archaeological data and thereby contribute to the development of a greater understanding of the historic environment. Monitoring officers will therefore seek and expect clear evidence of commitment to the historic resource of the East of England, with Project Designs being drawn up within a context of added value.

Thus the *Regional Standards* are intended to complement the regional *Research Frameworks*, which are vitally important in setting the broad parameters for individual projects and ensuring their relevance to wider archaeological endeavour.

They also provide an explicit framework within which the quality of archaeological project work may be assessed. Obviously some aspects of the archaeological resource vary considerably across the region, and so local requirements as expressed in Briefs and Specifications will always take precedence. Nevertheless, developers, contractors and consultants working in the region have a right to expect some basic consistency in curatorial approaches across administrative boundaries.

Adherence to defined standards alone, of course, does not guarantee the success of archaeological projects. Archaeological work is concerned with discovery and demands that investigative approaches are examined critically, and modified if necessary, in response to circumstances that unfold in the field. Recognition of exceptional evidence, anomalous evidence, or comparative evidence and the adoption of correct techniques for its treatment, is dependent upon good national, regional, and local contextual knowledge. Agreed standards, however, at least provide a vital part of a common dialogue within

which consensus regarding approaches to particular archaeological tasks may be reached.

Archaeological advisors within local government seek to create a framework of knowledge and co-operation within which successful development-led and other archaeological projects can occur, and it is in this spirit that the *Regional Standards* have been adopted.

Professional Values in Development-Led Archaeological Work

by [redacted]

ALGAOEE considers that all development-led investigative archaeological work should make a contribution to archaeological research and to the understanding of the past.

ALGAOEE considers that all investigative archaeological work should be undertaken to achieve maximum value within project resources. The value of a project will be determined by the informational outcome — the comprehensiveness of the record created, contribution to the archaeological knowledge base, and contribution to public promotional/educational output.

ALGAOEE acknowledges the value of a thorough understanding (by archaeological contractors, consultants and curatorial staff) of the local and regional archaeological environment.

ALGAOEE welcomes new approaches to archaeological investigation and the generation of new research questions by all those with an interest in the region's archaeology, where these have been formulated through a thorough consideration of the region's archaeological resources.

ALGAOEE encourages the participation of all those with an interest in the region's archaeology in promotional effort, public events and exhibitions, research seminars, and educational initiatives.

ALGAOEE encourages the dissemination of information regarding the region's archaeology within local, regional and national publications.

ALGAOEE acknowledges the value of programmes for the professional development of staff within curatorial sections, contracting organisations and archaeological consultancies. The presence of such programmes and their demonstrable efficacy in regard to approaches to regional archaeology are an essential part of organisational development.

ALGAOEE welcomes beneficial initiatives and partnership between the region's voluntary and professional archaeological communities.

ALGAOEE expects all members of project teams to display an awareness of the local and regional archaeological context for their work. This awareness will be commensurate with their responsibilities within the project team.

ALGAOEE members recognise their responsibility to ensure that staff taking on development control advisory duties and a monitoring role for contractual work, are informed of the wider national, regional, and local archaeological context of their advice. It is their responsibility to ensure that advisory staff maintain awareness of national, regional and local research priorities.

ALGAOEE members have a responsibility to ensure the validity and integrity of development control advice and powers exercised within a monitoring role.

ALGAOEE members will encourage their staff with advisory and monitoring roles to participate fully in local and regional research effort or technical development.

ALGAOEE members will encourage the flow of archaeological information between LGAOs, Sites and Monuments Records, Historic Environment Records, Urban Archaeological Databases and archaeological consultants and contractors. They should ensure that archaeological knowledge and information is disseminated equitably to all organisations and individuals with a legitimate interest in the region's past.

Planning Guidance and the Historic Environment

Archaeology and Planning (PPG16)

In November 1990, the Department of the Environment published *Planning Policy Guidance 16 Archaeology and Planning* (PPG16), which sets out the Secretary of State's policy on archaeological remains on land and how they should be preserved or recorded. It describes how archaeological remains are a finite and non-renewable resource, highly vulnerable to damage and destruction, and gives advice on the handling of archaeological remains and discoveries under the development plan and control system, including the weight to be given to them in planning decisions and the use of planning conditions. Where nationally important remains and their settings are affected by proposed development, there should be a presumption in favour of their physical preservation.

PPG16 also firmly establishes that archaeology is a material consideration in the assessment by a Local Planning Authority (LPA) of a planning application, and that 'it is reasonable for the Planning Authority to request the prospective developer to arrange for an archaeological field evaluation to be carried out before any decision on the planning application is taken' (PPG 16, para 21). On this basis, the impact of the proposed development on the historic environment can be assessed and an informed and reasonable planning decision can then be taken.

On sites where the physical preservation *in situ* of archaeological remains is not justified, LPAs will satisfy themselves before granting planning permission that the developer has made appropriate and satisfactory provision for the excavation and recording of the remains. This is normally secured by the imposition of an appropriate planning condition (a negative or 'Grampian' condition) in line with *The Use of Conditions in Planning Permissions* (Department of the Environment/Welsh Office Circular 11/95, Appendix A, paras 53–55), or an agreement under Section 106 of the *Town and County Planning Act 1990*. In these cases, a mitigation strategy will be devised to safeguard the archaeological remains by means of engineering solutions, by redesign to preserve any remains *in situ*, or by the excavation of any remains and their replacement 'by record'.

Environmental Impact Assessment (EIA) Directives and Regulations are also highly relevant to management of the historic environment, as these require EIAs to be carried out, before development consent is granted, for certain types of projects which are judged likely to have significant environmental effects (see Directives 85/337/EEC and 97/11/EC, *Note on Environmental Impact Assessment Directive for Local Planning Authorities (1999 EIA Regulations)* (Office of the Deputy Prime Minister 2002) and *Environmental Impact Assessment* (DETR Circular 02/99)).

Terrestrial and marine archaeological remains provide a seamless physical and intellectual continuum. The management of archaeological remains under water (including inland waters, estuaries and ports, intertidal areas and the territorial sea) will generally require specialist advice and non-standard procedures. Government advice on coastal planning for local authorities is given in *Planning Policy Guidance Note 20, Coastal Planning* (Department of the Environment/Welsh Office 1992), and English Heritage and the Royal Commission on the Historical Monuments of England have published a useful statement (1996).

There are also various codes of practice for particular forms of development, such as mineral sites (Confederation of British Industry 1991) or seabed developments (Joint Nautical Archaeology Policy Committee 1995).

Works affecting Scheduled Ancient Monuments or their settings will require Scheduled Monument Consent, and in these cases English Heritage must be contacted.

The Built Environment (PPG15)

In September 1994, The Department of the Environment and the Department of National Heritage also produced *Planning Policy Guidance Note 15, Planning and the Historic Environment* (PPG15). This provides a full statement of Government policies for the identification and protection of historic buildings, conservation area and other elements of the historic environment. It complements the guidance on archaeology given in PPG16 and makes provision for the appropriate assessment of the archaeological implications and for programmes of recording of historic buildings.

Some standing structures are Scheduled Ancient Monuments (SAMs) and/or Listed Buildings. The overwhelming majority of the built environment, however, is not covered by such designations. Despite this, many do retain an archaeological significance. It is important that this is identified at the earliest opportunity and that appropriate decisions are taken by the LPA on the advice of the LGAO and/or other specialist advisers when a standing structure is faced with a development proposal, demolition or, in the case of listed structures, repairs.

Standing structures are as much a part of the historic environment as 'traditional' below-ground archaeology. Hence the planning guidance and philosophies applied to subsurface deposits and features should be applied in the same manner. As a result, a similar process of appraisal, evaluation, and mitigation (where necessary) should be applied to 'above-ground archaeology' when faced with a development or demolition proposal. This will include buildings and other structures (see, for example, English Heritage 1998 on twentieth-century defences).

PPG15 is complementary to PPG16 in that it concurs with the presumption of preservation *in situ* and the philosophy of replacement 'by record' when preservation *in situ* is not feasible or deemed not to be reasonable. The PPG notes that early consultation with the LPA (and the LGAO) is desirable and that LPAs should expect developers to assess the likely impact of their proposals on the special interest (archaeological significance) of the site or structure in question. Developers should also provide

such information or drawings as may be required to understand the significance of a site or structure *before* an application is determined.

When an LGAO's appraisal of an application concludes that a development or demolition proposal has not yet been proved to have no impact on an archaeologically significant standing structure, further information should be requested in advance of determination to inform the decision-making process. This should take the form of a Standing Structure Impact Assessment (as part of an Historic Environment Impact Assessment, when appropriate). Once the relevant information has been presented, an informed decision can be made on the application, with the LGAO (and/or others) advising the LPA on this accordingly. Further mitigation if necessary can be secured through a Section 106 agreement or a negative condition on any planning permission in the usual manner.

Regional and Local Planning Policy

As well as the guidance on archaeology and the historic environment in the two PPGs, archaeological and built environment interests are also safeguarded through the development of relevant policies within Regional Planning Policy Guidance documents and, by LPAs, through Structure Plans and Local Plans.

Regional Planning Policy for the East of England is currently divided between two documents:

- *Regional Planning Guidance Note 6: Regional Planning Guidance for East Anglia to 2016 (RPG6)* (November 2000) covering Cambridgeshire, Peterborough, Norfolk and Suffolk
- *Regional Planning Guidance Note 9: Regional Planning Guidance for the South East (RPG9)* (March 2001) including Bedfordshire, Essex, Hertfordshire, Luton, Southend-on-Sea and Thurrock.

From April 2001, the boundaries for RPG have been brought into line with those for the Government Office for the East of England. In due course *Regional Planning Guidance (RPG14) for the East of England to 2021* will replace RPGs 6 and 9. This is due to be published mid-2004.

In the meantime, the two current RPGs for the region set out strategic aims and objectives for land use and development within a sustainable framework, and provide the regional context for other strategies and programmes, complementing national planning policy guidance.

Objectives within the RPGs include the maintenance and enhancement of the quality of the built environment, including historic settlements, buildings, parks and gardens, open space, conservation areas and archaeological sites. Policies within the RPGs refer to the general management principles for conserving and enhancing the natural, built and historic environment, and the conservation of the region's built and historic environment respectively.

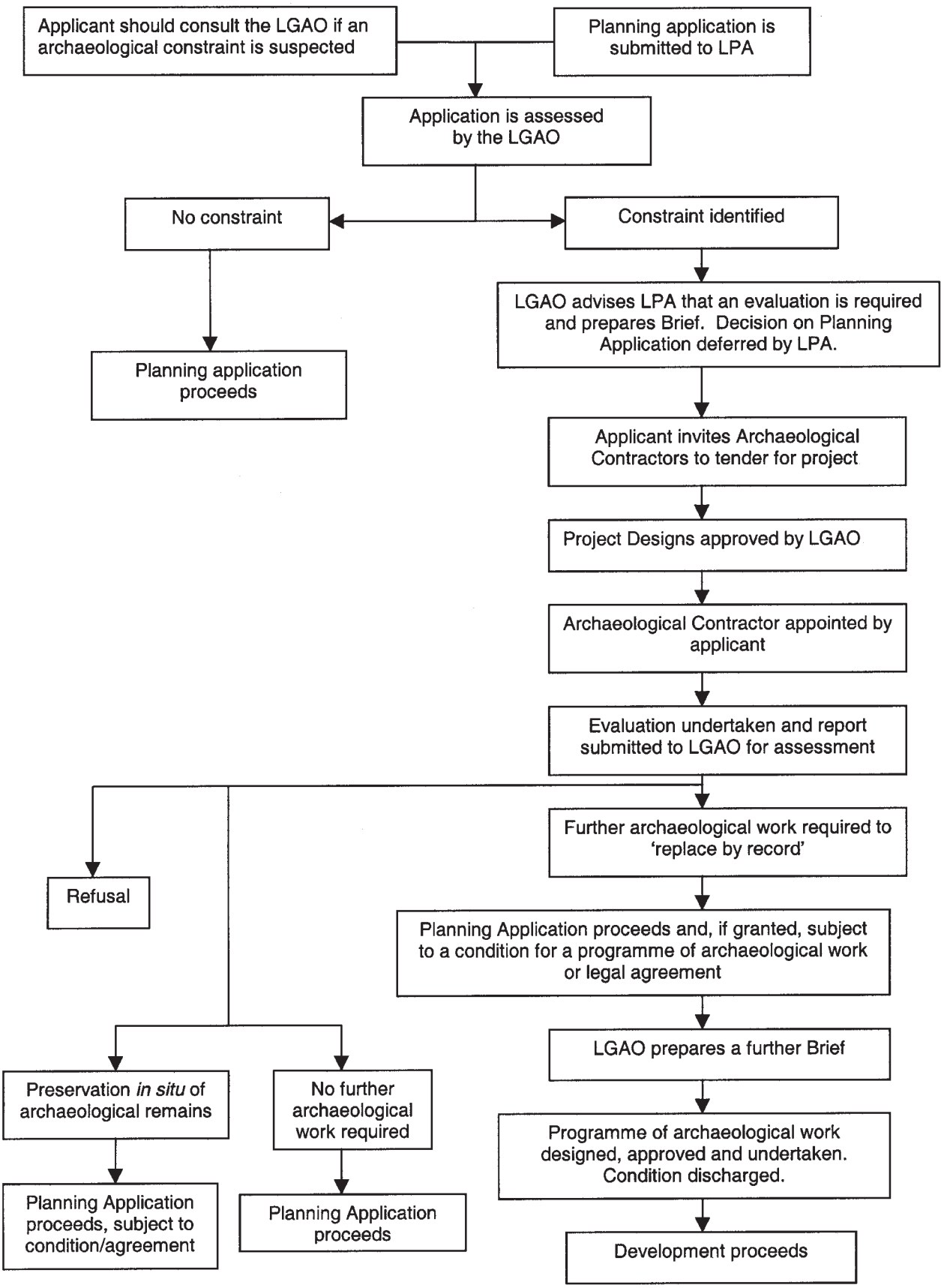
Further information and advice about archaeology and development within the East of England may be obtained from the ALGAOEE contacts listed in Appendix 1.

Future Developments: Planning Policy Statement 15

During 2003 it is anticipated that the Office of the Deputy Prime Minister will be issuing a consultation document on a review of PPGs 15 and 16, leading to the replacement of the PPGs by *Planning Policy Statement 15: Planning for the Historic Environment.*

Planning Policy Statements set out the Government's core policies and principles on different aspects of planning. They should be taken into account by regional planning bodies, strategic and local planning authorities in preparing regional planning guidance, structure plans, unitary plans and local development plans (and subsequently regional spatial strategies and local development frameworks) and will be material to decisions on individual planning applications. Where these policies are not reflected adequately in development plans, or taken into account in relevant development control decisions, the Secretary of State may use his powers of direction to seek changes to the plan and may intervene in planning applications.

PPS15 will in due course replace PPG15 *Planning and the Historic Environment* published in 1994 and PPG16 *Archaeology and Planning* published in 1990. It will be for use by local planning authorities, other public bodies, property owners, developers, amenity bodies and all members of the public with an interest in the conservation of the historic environment.



Flow chart illustrating a typical development-led scenario where a planning application is deferred for an archaeological evaluation (right column)

Planning Procedures

The principles of archaeological appraisal, pre-determination evaluation, and mitigation are well integrated into the local planning/development control process, and have been accepted by a wide variety of developers (such as the amenity companies, ecclesiastical authorities, transport and environmental agencies) who work outside the planning system. Developers are increasingly aware of their responsibilities towards the historic environment, and are happy to accommodate best archaeological practice in preserving or recording archaeological remains.

At each stage of the advice process, judgements are made about the value of the archaeological remains in question. The primary intention of this is to secure the preservation of archaeological remains and, where this is not possible, to achieve the creation of a meaningful record that will contribute to knowledge about the past.

Failure to meet the terms and conditions of planning obligations and agreements is a matter of formal enforcement within the Local Planning process. Outside this there are mechanisms for complaint and audit that seek to address shortcomings. These measures, however, cannot usually undo the effects of poor archaeological practice. Disputes occur at the cost of good working relationships between all interested parties, and seldom create a framework for efficient and productive archaeological work.

The LGAO's Appraisal of Planning Applications or Consultations

Archaeological development control advice is based upon a thorough knowledge of the historic environment within the various administrative areas (either Counties, Districts, or Unitary Authorities). The region's Sites and Monuments Records (SMRs), Historic Environment Records (HERs), Urban Archaeological Databases and the National Monuments Record are the principal indices and the primary tools for the initial appraisal of potential development impacts.

Developers and LPAs consult the LGAO on the archaeological implications of development proposals. Developers, their agents and consultants are encouraged to consult the LGAO as soon as possible so that any archaeological interest is identified at an early stage, rather than when a site has been acquired and a planning application submitted.

Consultation with the LGAO prior to the submission of a planning application is the most effective way of protecting the historic environment and managing risks.

The LGAO acts as a specialist adviser to the LPA, but the LPA is responsible for the imposition of conditions, for discharging conditions and, where necessary, for enforcement.

The LGAO's Recommendations to the LPA

The Appraisal by the LGAO will provide information on the archaeological implications of the development and a recommendation to the LPA. This will usually result in one of the following planning decisions:

- refusal of the application
- deferral pending an archaeological evaluation or the assessment of a building
- the imposition of a condition to secure the preservation of archaeological remains *in situ*
- the imposition of a condition to secure the implementation of a programme of archaeological work or building recording
- no archaeological recommendation

If a development site is known to or might possibly include archaeological remains, an Evaluation will be required before the LPA determines the application. This might involve an Archaeological Desk-Based Assessment, field survey, geophysical survey, trial trenching or any combination of these. If important remains are then found to be present and these cannot be preserved *in situ*, the application might be refused or granted subject to a condition for the excavation and recording of the remains.

On other sites of archaeological interest or potential, planning permissions may be granted subject to conditions for programmes of archaeological work. Development control advice provided by archaeologists often culminates in formal planning agreements or conditions, the fulfilment of which requires developing agents to employ archaeological consultants and contractors.

Any programme of work will naturally be informed by the results of any pre-determination evaluation, but if this has not been required the initial works will also be of an investigative nature and may therefore include desk-based work, surveys and/or trial trenching.

Following on from pre-determination evaluation, a further phase (or phases) of archaeological work may be required to complete a programme of archaeological work (and thus discharge the planning condition). This further work might involve, for example, the excavation and recording of defined areas, building recording, or archaeological monitoring and recording (a watching brief).

The fieldwork phase of any project is usually followed by what is generally referred to as Post-Excavation, involving assessment, analysis, report/publication and the preparation and deposition of the project archive. Although these activities take place off-site (and thus the development may have been initiated and possibly even completed while post-excavation work is in progress), they are an integral part of the Programme of Archaeological Work. Any archaeological condition on a planning permission will not be fully discharged until the *full* programme has been completed to the satisfaction of the LGAO and the LPA.

Briefs and Written Schemes of Investigation/ Specifications

When a development proposal raises archaeological issues that require investigation, the LGAO provides a Brief or Specification, an outline of what needs to be done or a more detailed schedule of works respectively. The LGAO should provide this within a reasonable period of time (this will vary according to the complexity of the case).

The LGAO will also be able to advise developers about the appointment of an appropriate Archaeological Consultant or Contractor (for ALGAO best practice in the compilation of lists of contractors, see Campling 1999).

An Archaeological Consultant or Contractor can prepare a Project Design in response to the Brief or Specification. It is advisable for this to be sent to the LGAO for approval before costed proposals are submitted to the client, considering the possible implications of its subsequent rejection by the LGAO. The LGAO should respond in writing to any documents submitted within a reasonable period of time, with comments or approval.

It is expected that all projects will adhere to the project management procedures of *Management of Archaeological Projects* (English Heritage 1991) and that this will be reflected in the structure and content of the Project Design.

The LGAO does not see project costings, nor does he/she give advice on the costs of archaeological projects. This is between a developer and their archaeological contractor(s). A developer may wish to obtain a number of quotations or to employ the services of an archaeological consultant to oversee this process.

The Tendering Process

If a developer (or an archaeological consultant acting on his/her behalf) intends to seek competitive tenders from a number of archaeological contractors then it is best practice for the following procedures to apply:

- the developer should inform all the contractors that they are in a competitive tendering situation and the deadline(s) for submission of Project Designs and costs should be specified;
- contractors should forward their Project Designs to the LGAO for approval as required;
- a developer should only appoint a contractor from those whose Project Designs have been approved by the LGAO;
- a developer should seek to appoint a contractor who will provide a high-quality service, not just the lowest price.

It is very important to note that the resources required for the post-excavation phase of any project cannot be predicted with certainty in advance, although indicative costs for assessment, analysis, report, publication and the deposition of the archive for an small evaluation project or watching brief may reasonably be estimated at the same time as the costs of fieldwork.

For excavation projects, archaeological contractors and consultants should advise their potential clients that the costs of post-excavation work can only be determined after the excavation has been completed and its results assessed.

The LGAO may be able to provide information (usually a list) about archaeological contractors and consultants working in the region.

The Institute of Field Archaeologists (IFA) publishes a directory of its members and Registered Archaeological Organisations (RAOs). Archaeological contractors and consultants may employ staff who are Members (MIFA), Associates (AIFA) or Practitioners (PIFA) of the IFA and who, as individuals, carry out archaeological work in accordance with the Institute's *Code of Conduct*. Work by RAOs is only carried out by, or under the responsibility of, a suitably experienced corporate member (MIFA) with appropriate Areas of Competence. The RAO scheme does not itself define detailed standards for best practice, but it seeks to provide a general control against which adherence to professional standards can be judged.

The Standing Conference of Archaeological Unit Managers has published guidance on competitive tendering in archaeology (1996).

The Institute of Field Archaeologists has published a code of practice for the regulation of contractual arrangements in field archaeology (1997b) and draft principles of conduct for archaeologists involved in commercial archaeological work (1998).

Regional Standards

The *Regional Standards* have been ordered thematically, primarily because many of the topics addressed are applicable to more than one form of archaeological fieldwork, including development-led projects, research projects and amateur (non-vocational) activities. Where appropriate, project documents (development-led or not) may usefully refer to the relevant sections of the *Standards*. For example, an archaeological evaluation in a rural context prior to the determination of a planning application might find some or all of the following sections especially relevant:

General Requirements (1.1 to 1.16)

Desk-Based Research (2.1 to 2.5)

Fieldwalking (3.1 to 3.7)

Metal-detecting (3.8 to 3.15)

Geophysical surveys (3.20 to 3.21)

Intrusive Methodologies (4.1 to 4.13)

Evaluation (4.14 to 4.18)

Finds and conservation (7.1 to 7.5)

Archaeological Science (8)

Reports (9.1 to 9.18, 9.25 to 9.32)

Publication (10)

Archives (11)

Project Monitoring (12)

and reference to these sections of the *Standards* may be included, where appropriate, in the project Brief or Project Design.

1. General Requirements

1.1 It is advisable for Project Designs/Method Statements/Written Schemes prepared by archaeological contractors/consultants to be submitted to the LGAO (as adviser to the LPA) and approved in writing by the LGAO *before* proposals or estimates of costs or quotations are provided to the potential client. This is best practice in line with the Institute of Field Archaeologists' guidance (1997b), although it is recognised that practice across the region varies. The requirements of the LGAO's Brief regarding submission of documents must be adhered to.

1.2 Project Designs will be rejected if it is determined that they:

- are insufficiently documented
- do not meet the requirements specified in the Brief or Specification
- fail to demonstrate the Archaeological Contractor's competence and ability to undertake the project in accordance with this *Regional Standards* document.

In the event of a Project Design being rejected by the LGAO the archaeological contractor or consultant will be informed of the reason(s).

1.3 The LGAO may refer to appropriate research objectives in the Brief or Specification, or the archaeological contractor or consultant will be expected to consider what these might be. Either way, the Project Design must provide a clear statement of the project's aims and objectives within the context of national and regional research frameworks, especially Glazebrook 1997 and Brown and Glazebrook 2000.

1.4 All projects must be undertaken in accordance with relevant professional standards. IFA Membership and adherence to IFA's Codes of Conduct (IFA 1997a, 1997b) and formally adopted by-laws, guidelines and other relevant codes, standards and guidance documents are regarded as baseline standards and yardsticks of competence and good operating practice. Archaeologists working on a project should not attempt tasks outside their Areas of Competence.

1.5 Archaeological contractors/consultants are advised, as a matter of course during the preparation of Project Designs, to inspect the site in question and undertake sufficient background research to familiarise themselves with the archaeology of the site and its environs.

1.6 Where required by the LGAO in the Brief or Specification, archaeological projects will be managed following the guidance in English Heritage's *Management of Archaeological Projects* (1991) (often referred to as MAP2 and *cf* English Heritage n.d.).

1.7 Project Designs must provide details of:

- the qualifications and relevant experience of the Project Manager, project team, key personnel, subcontractors and specialists
- a timetable of work
- the arrangements to provide the LGAO with the required advance notice of the start of work and opportunities for monitoring. No fieldwork should be carried out with the required prior notification of the LGAO.

1.8 The Project Manager and any other supervisory staff will ensure that all members of the archaeological team are appropriately informed as to the projects' methodologies and objectives.

1.9 Professional archaeologists in the employ of the archaeological contractor must undertake all work being undertaken to meet the requirements of the Brief or Specification. Any *additional* work being undertaken by students or volunteer staff must be specified.

1.10 All archaeological work will pay due regard to Health and Safety considerations. Guidance on Health and Safety may be found in Standing Conference of Archaeological Unit Managers 1997. Contractors must carry out Risk

Assessments for all activities, including arrangements for Project Monitoring by the LGAO.

1.11 It is the responsibility of the archaeological contractor/consultant to ensure that adequate resources have been made available by the client to complete the programme of archaeological work set out in the Project Design and to fulfill the Brief or Specification.

1.12 Any subsequent variations by an archaeological contractor/consultant from an approved Project Design must be agreed with the LGAO prior to implementation.

1.13 Briefs or Specifications issued by an LGAO are usually valid for a specified period from the date of issue. After that time, they may need to be revised to take account of new discoveries, changes in policy or the introduction of new working practices or techniques.

1.14 Project Designs where required will include a provisional programme for the Assessment and Analysis phases of the project (where appropriate), following MAP2. The Analysis and Publication Programme will be reviewed at the Assessment stage.

1.15 For any project, all numbering and coding must be compatible with the relevant Sites and Monuments Record or Historic Environment Record. The relevant SMR/HER Officer upon request usually issues site numbers and, where appropriate, parish codes and starting context numbers. It is essential that archaeological contractors/ consultants should obtain advice *before* numbers and codes are allocated on site.

1.16 All project records must be clearly marked with the relevant County Number, civil parish name or code, site name and date (following local requirements).

2. Desk-Based Research

Desk-based research is undertaken to determine, as far as is reasonably possible from existing records, the nature of the archaeological resource within a specified area.

2.1 Archaeological Desk-Based Assessments (ADBA) must be prepared following the *Standard and Guidance for Archaeological Desk-Based Assessments* (Institute of Field Archaeologists 1999a). It is advisable to consult the LGAO to define requirements and, if necessary, submit a Project Design.

2.2 An ADBA will also make full and effective use of existing information to establish the archaeological significance and potential of the defined area, drawing upon some or all of the following sources:

- a report of a site visit (compulsory)
- the Sites and Monuments Record or Historic Environment Record (compulsory)
- available historic maps (compulsory)
- geological maps
- Ordnance Survey maps of the site and its environs
- tithe apportionment, enclosure and parish maps
- estate maps
- documentary and cartographic collections held by the relevant record office

desk-based research

- Local Studies libraries
- historical documents held in other record offices, local museums, libraries or other archives
- enrolled deeds
- archaeological and historical books and journals
- unpublished research reports and archives held by relevant museums, local societies and archaeological contractors and consultants
- all sources of aerial photography, including the National Monuments Record and the Cambridge University Collection of Aerial Photographs (see below)
- borehole and trial pit data
- geophysical and/or geotechnical data.

2.3 Where an ADBA is required, staff with experience in the preparation of such reports will be used. This must identify and plot:

- all areas of known and potential archaeological significance within the defined area;
- all areas where activities may have destroyed or truncated archaeological remains;
- any areas of known or potential ground contamination;
- the scale and nature of the development proposal if known;
- relevant constraints (*e.g.* Scheduled Ancient Monuments, Conservation Areas and Listed Buildings). Where non-archaeological constraints are identified (*e.g.* Sites of Special Scientific Interest, sites of wildlife interest, protected species, Tree Preservation Orders, Countryside Stewardship Schemes, Environmentally Sensitive Areas), it is helpful if these are included;
- geology, soils, drainage, anticipated preservation conditions and variables affecting preservation of biological remains and organic artefacts;
- any previous investigations in Archaeological Science at the site or immediately adjacent to it (*cf* 8. below).

2.4 Where an accurate plot of cropmarks is required, this will usually be prepared at a scale of 1:2500, or 1:10,000 for larger relatively uncomplicated areas. In some parts of

the region, English Heritage's *National Mapping Programme* (NMP) has been completed and in other areas it is in progress. Where NMP data is available, this must be consulted.

2.5 All sources consulted must be listed.

3. Non-Intrusive Surveys

Field surveys of various kinds provide non-intrusive, non-destructive and cost-effective ways of collecting archaeological data. Fieldwalking and metal-detecting can recover information from artefacts on the surface of or within the ploughsoil or topsoil, whilst geophysical surveys can locate buried archaeological structures and features.

The first two sub-sections below (3.1 to 3.15) refer to extensive surveys undertaken in order to acquire a representative sample of artefact type and size classes present, to investigate locations and areas of occupation, to assess the effects of tillage on artefact distributions and to define areas for possible further archaeological investigation.

Where, for other reasons, intensive transects or gridded surface collection is required, this will be dealt with in the Project Brief or Specification.

On large or complex sites, a phased programme of evaluation or excavation may be adopted. Where field survey or geophysical survey needs to be followed by trial trenching or excavation, the trenching or excavation strategy will be determined once the survey results have been assessed.

Fieldwalking

3.1 Fieldwalking may only be carried out in suitable weather and light conditions, after appropriate cultivation, weathering and washing of the field surface. The surface conditions at the time of survey must be fully documented in the report, along with other variables (*e.g.* weather, light, obstructions, topography, collector *etc*), and the impact of these variables on the recovery of data should be assessed.

3.2 Staff who fieldwalk must have experience of artefact recognition.

3.3 The survey grid will be established by measured survey technique. In all cases work must be related to fixed points, plotted and fully documented so that, if necessary, the precise locations of those surveys can be accurately re-established. It may be a requirement for fieldwork transects to be tied in to and aligned on the national grid. In other cases, grids may be aligned on appropriate landscape features.

3.4 Transects for fieldwalking should be at 20 metre intervals, unless otherwise specified. Search/collection units of specified length will be employed to locate concentrations of artefacts.

3.5 The fieldwalkers will generally observe a 2 metre wide strip along each transect, thereby examining a minimum 10% sample of the field surface.

3.6 Finds from each collection unit must be individually bagged, numbered, labelled and marked by context, and recorded on appropriate pro forma Fieldwalking Recording Sheets.

3.7 Where large amounts of *e.g.* post-medieval brick or tile fragments or burnt flints are not collected, the presence of this material must be recorded.

Metal-detecting

Systematic metal-detecting recovers a range of archaeological objects that is complementary to those classes of artefacts usually found by fieldwalking, *i.e.* flints, pottery and building materials. A metal-detector survey may retrieve metal artefacts from the Bronze Age onwards and coins from the Iron Age onwards. Some sites such as dispersed hoards of metalwork or coins and Anglo-Saxon inhumation cemeteries are more likely to be located by metal-detecting than by any other technique.

3.8 The recovery of archaeological objects located by metal-detector is an activity which, for the purposes of field survey, is to be restricted to the ploughsoil. In the event that an object or group of objects is located below ploughsoil depth, these must initially be left *in situ* while arrangements are made for their recovery under controlled excavation conditions.

3.9 Metal-detecting must be undertaken in appropriate conditions. Low stubble is often ideal.

3.10 Experienced and competent operators in the employ of the archaeological contractor, using reliable and well-maintained equipment, may only carry out metal-detecting as a separate activity from fieldwalking.

3.11 The strategy for metal-detecting (transects, collection units *etc*) is broadly the same as that used for fieldwalking. The transects may be parallel to the fieldwalking transects if units are being searched by fieldwalkers and metal-detectorists simultaneously.

3.12 It is generally acceptable to discriminate against iron objects.

3.13 It is generally acceptable to discard items of no archaeological significance. However, when the date and function of an object is unknown or uncertain it must be retained for examination by finds staff and/or relevant specialists.

3.14 A pro forma recording sheet will include details of conditions, the equipment used, discriminator level, operator *etc*, and a general comment about any discarded material.

3.15 All Treasure and finds of potential Treasure must be dealt with in accordance with the *Treasure Act* 1996 and its Code of Practice.

Earthwork surveys

For defined levels of recording for archaeological surveys, see Royal Commission on the Historical Monuments of England 1999.

3.16 Staff with appropriate survey and interpretative experience must be used in order to ensure uniformity of results.

3.17 Survey may be undertaken using instrumental and/or graphic methods, depending on the topography and the experience of staff. Whichever is employed, the survey methodology and the format of the interpretative drawings must be agreed with the LGAO before commencement.

3.18 The preferred method will be specified in the Brief, but it may include:

- digital data, where required, in a format to be agreed with the LGAO
- drawings on a film base at a scale of 1:1000, or 1:500 if greater detail is required
- at least two National Grid intersections
- earthwork features depicted by hachures
- sufficient detail of the adjacent topography so that the survey can be easily related to present-day landscape features
- profiles across any earthworks
- an analytical report presented as an integral part of the survey, with description and interpretation referenced by letters or numbers to the plan.

Aerial photographic surveys
Aerial photographic survey can be an important component of archaeological survey and may provide a level of detail that cannot be achieved by other means. Where ground conditions are favourable, aerial survey can record evidence of geological disturbances, the periglacial landscape, soil erosion and accumulation, and cut or embanked features.

3.19 All survey must be undertaken in accordance with the Institute of Field Archaeologists' Technical Paper 12, *Uses of Aerial Photography in Archaeological Evaluations* (Palmer and Cox 1993) and the Council for British Archaeology's *Aerial Archaeology Guidance Note* (1995).

Geophysical surveys
Non-intrusive geophysical surveys may provide a great deal of information about the extent and nature of below-ground structures and subsoil features. They are often therefore ideal (and cost-effective) techniques for site evaluation. The three main techniques are magnetometry (fluxgate gradiometer), magnetic susceptibility and resistivity. Careful consideration must be given to obtaining specialist advice, the appointment of an appropriate contractor, and the selection of the most suitable and effective technique taking into account the individual circumstances of each site. The results from test-pits or boreholes, if available, may assist with this. See also 8.3-8.6 below.

3.20 All survey must be undertaken in accordance with *The Use of Geophysical Techniques in Archaeological Evaluation* (Gaffney, Gater and Ovenden 2002) and *Geophysical survey in Archaeological Field Evaluation* (David 1995).

3.21 For best practice in the creation and use of digital geophysical data, see Schmidt 2001.

4. Intrusive Methodologies

General requirements

4.1 Project Designs must include details of:

- the proposed locations and extent of trial trenches or excavation areas (with scale plans)
- the excavation and recording strategy
- the arrangements for palaeoenvironmental assessment and analysis (*cf* 8.16-8.19 below)
- the arrangements to provide the LGAO with the required advance notice of the start of work and opportunities for monitoring
- the levels of intervention proposed in the excavation by hand of various types of contexts that may be encountered. In the case of Evaluations, where the objective is to define remains rather than totally remove them, investigation should not be at the expense of any structures, deposits, features or finds which might reasonably be considered to merit preservation *in situ*. It is important, however, that sufficient work is done to allow the resolution of the principal aims and objectives of the project
- provision for the identification of artefacts
- site security with particular reference to finds and records
- conservation facilities and expertise, both for on-site 'first aid' for finds and as part of the post-excavation process
- specialists who might be required to advise or report on archaeological science or other aspects of the investigation
- report strategy
- archive strategy.

4.2 A mechanical excavator working under close and constant archaeological supervision may usually remove all undifferentiated topsoil or overburden of recent origin in spits down to the first significant archaeological horizon. A mechanical excavator with a wide ditching bucket with teeth removed will usually be used for this. In some instances, topsoil layers may themselves require excavation, in which case this will be specified in the Brief. Any machine excavation of archaeological deposits (*e.g.* bulk deposits of little archaeological or environmental potential) may only be undertaken with the prior agreement of the LGAO.

4.3 Provision must be made for the cleaning by hand of the faces of trenches and, where appropriate, the machined surface.

4.4 Unless specified otherwise in the Brief, the areas indicated on the scale plans accompanying a Project Design will be excavated to natural, thereby recovering a complete sequence of ground plans of any archaeological deposits or features within those areas. However, investigation should not be at the expense of any structures, deposits, features or finds which might reasonably be considered to merit preservation *in situ* (*cf* 4.1).

4.5 Buried soils and/or specific contexts will be sampled and sieved or bulk-sieved in order to maximise the retrieval of artefacts and environmental evidence from significant deposits (*cf* 8.12 below).

4.6 Provision will be made, where appropriate, for scientific dating and analysis, including C14, dendrochronological and archaeomagnetic dating (*cf* 8.7-8.10 below).

4.7 Where deposits are encountered with the potential for providing scientific dating evidence, palaeoenvironmental evidence or other information related to archaeological science (see section 8 below), the advice of the LGAO and English Heritage's Regional Advisor for Archaeological Science must be obtained. An appropriate excavation and sampling strategy will be agreed and included in the Project Design.

4.8 Trenches or excavation areas must not be backfilled without the prior approval of the LGAO unless this is necessary for safety reasons.

4.9 Where obstructions are encountered unexpectedly, minor variations to trench/area layout may usually be made without consulting the LGAO. However, any substantive changes to the agreed strategy must be agreed with the LGAO before implementation.

4.10 Any human remains that are encountered unexpectedly must initially be left *in situ*, covered and protected (*cf* 8.20-8.25 below). If removal is necessary, this must comply with the relevant Home Office regulations, Section 25 of the Burial Act 1857, the Disused Burial Grounds (Amendment) Act 1981 (where appropriate) and the relevant environmental health regulations.

4.11 Archaeological contractors will employ standardised and documented recording methods, generally utilising pro forma recording sheets. Copies of these must be sent to the LGAO for approval.

4.12 All archaeological contexts and artefacts exposed or examined must be adequately surveyed, sampled, cleaned, planned, excavated and *replaced by record* on appropriate pro forma context, finds and sample sheets, by the production of plans, sections and elevations at appropriate scales and by black and white and colour photographic record.

4.13 An on-site index of plans and sections and other on-site records must be maintained, and eventually included in the project archive.

Evaluation

This is an intrusive methodology **which may be** required prior to the determination of a planning application, with the aim of informing the decision-making process on the best course of action for an archaeological deposit sequence to be affected by a proposed development programme.

4.14 Project Designs must confirm that the aim of the work is to create a full characterisation of the archaeological sequence and a model of the deposit history. The methodology to be used must be articulated and the sources to be consulted listed.

4.15 Evaluation trial-trenching will recover as much information as possible on the extent, date, phasing, character, function, status and significance of the site. The states of preservation of archaeological features or deposits within the area indicated must be determined.

4.16 Evaluation trial-trenching will normally examine an appropriate sample (often expressed as a % of the area of the proposed development site) as required by the Brief or Specification (*cf* Hey and Lacey 2001). The area of the *base* of a battered or stepped trench will usually be the figure used to determine if the sample has been achieved. In urban areas, smaller samples may sometimes be specified taking into account the particular circumstances on a site-by-site basis. Where the sample size is not stipulated in the Brief, a rationale for the sampling method must be provided based on knowledge and understanding of the surrounding archaeological resource.

4.17 Exceptionally, and only with the prior approval of the LGAO, the mechanical removal of archaeological deposits may be permitted.

4.18 An archive and client report must be produced. In some instances, publication of the evaluation results may be required if no further work is undertaken and if the results of the evaluation warrant dissemination of a synthesis of the results in an appropriate journal.

Excavation

An Excavation may be required where it has been decided that any archaeological remains do not warrant physical preservation *in situ*, and that an acceptable mitigation strategy is for these to be excavated archaeologically, replaced by record, assessed, analysed, archived and a synthesis of the results disseminated. For standards and guidance see also Institute of Field Archaeologists 1999d.

4.19 Excavation Projects will recover as much information as possible on the origins, date, development, phasing, spatial organisation, character, function, status, significance and the nature of social, economic and industrial activities on the site.

4.20 Excavation Projects will examine, excavate and replace by record all archaeological features, deposits and structures within the area indicated and to the agreed depth, assess their potential for analysis, undertake an agreed programme of analysis, produce a report (9 below), archive (11 below), and publication (10 below).

4.21 Archaeological contractors must provide sufficient, secure and separate accommodation for site records, and for finds processing and finds storage if these activities take place on site.

4.22 Provision of access is an important tenet of archaeological excavation, and a Brief may include encouragement to bring the circumstances, results, analysis and interpretation of archaeological work before the general public (open days, viewing platforms, site tours, on-site provision of information and publicity (where allowed) in the local and national media). Opportunities should also be provided, where practicable, for local amateur archaeological groups to participate. This, it must be stressed, should in no way replace any aspect of the formal costed works to meet the requirements of the Brief or Specification.

Archaeological Monitoring (or Watching Brief)
Archaeological Monitoring and Recording (or a Watching Brief) means that an archaeologist must be present throughout or during certain specified phases of the development to record any features exposed or any archaeological finds.

In the event of the discovery of unanticipated remains of national importance, discussions will take place (which might include the developer, the LGAO, the LPA and English Heritage) on how these might be preserved *in situ* or recorded.

For standards and guidance see also Institute of Field Archaeologists 1999c.

4.23 During Archaeological Monitoring and Recording, provision must be made for an archaeologist(s) to be present during specified times and/or activities including, where required:

- all areas of below-ground disturbance, including excavations, foundation trenches, service trenches, drains and soakaways
- above-ground remains when the development affects a building of historic importance
- pipelines and cable trenches.

4.24 Monitoring will be undertaken at the level or intensity indicated in the Brief or Specification. This may involve intensive monitoring (*i.e.* continuous presence during activities), regular monitoring visits or occasional monitoring (a programme of planned visits to coincide with relevant activities).

4.25 The archaeological contractor must be in full control of machining activity on the site.

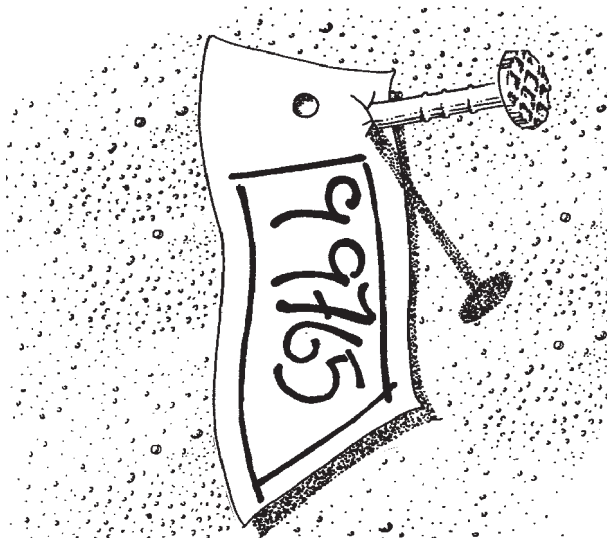
4.26 Where required, all topsoil or spoil must be scanned carefully by eye and surveyed by metal-detector during its removal.

4.27 Monitoring and Recording of a standing structure is a particularly useful approach for small-scale, focussed developments and repair proposals involving minimal opening up of discrete areas of a structure. It will generally include, as a minimum:

- monitoring of fabric intervention to structure
- recording by photography and scale drawing of fabric revealed, altered or removed.

5. Urban Archaeology
by Andy Hutcheson

The defining difference between an urban and any other sort of archaeological site is, of course, the past intensity of use. A less interpretatively-loaded description of such a situation could be 'intensively stratified archaeological areas'. Regardless of the nuances of various definitions, the reality is that these stratified archaeological situations require a specific set of approaches and skills. A Project Design for a stratified site must therefore articulate a methodology appropriate to the nature of the archaeological deposits to be investigated and the environment in which the work will take place.



intensive stratification

There is a useful body of literature on methodological approaches to the archaeology of towns, notably Harris' work on understanding stratigraphy (1975, 1979, 1984 and 1993), Carver (1987; 1990), the Museum of London's archaeological site manuals (Spence 1990; 1994), the proceedings of the *Interpreting Stratigraphy* conferences (Steane 1992, Barber 1993, Shepherd 1995, Roskams 1998; 2000); Chadwick 1997, Thorpe 1998 and Roskams 2001.

Recording (evaluation and excavation)
Recording of the contextual situation and the relationships between deposits is of primary importance in any archaeological investigation. The major difference in an urban environment is that the deposit sequence will usually be more complex. There are a number of methodological tools that can be applied to the recording of this complexity. Most important of these is the record made of the relative position of a defined context in relation to the rest of the sequence through the use of a stratigraphic matrix. The construction and subsequent analysis of a matrix, both on site and in post-excavation, will greatly enhance the interpretative value of the investigation and will allow any future researcher to approach the primary site record more easily.

Also of great value to both understanding the sequence on site and creating an interpretable archive is a single context planning methodology. Linking of these two recording methods, along with the text record, results in a powerful interpretative tool for analysis of any archaeological deposit sequence. In many cases it may be appropriate to carry this further and utilise information technology to assist in the process of understanding.

Evaluation sampling
Given the nature of the urban environment and the potential necessity for deep trenches, evaluation will be a relatively more costly exercise in towns. The object of evaluation is to characterise the archaeological sequence and its present and future research value. In order to accomplish this the entire sequence present within a proposed development area will need to be modelled. This may require a significant sample of the site and a detailed synthesis of the results of evaluation with other information held on the location in archaeological databases, documents and maps.

Preservation *in situ*

The aim of much evaluation in the urban context is to decide on the best course of action for an archaeological deposit sequence affected by a proposed development programme. A range of possible solutions can be formulated to meet the challenge of reconciling the survival of a particular archaeological resource with the need for development. Very often the choice of solution will rest on whether the development scheme can be built on top of the archaeological remains. Piling and minimally intrusive foundation designs will be chosen for situations where it can be demonstrated that the remains can be effectively preserved through such an approach. In cases where there are anaerobic conditions resulting in organic preservation, evaluation must attempt to answer difficult questions such as:

- will the local environment be affected?
- how can the environment be monitored throughout the life of the building?
- what will be the affect of this development on the surrounding archaeological resource?

Approaches to evaluation that attempt to minimise on-site costs through stepping of the trenches can defeat the purpose of preservation. Destruction of part of the sequence without record is not an acceptable methodology, given the logic of the evaluation exercise. Shoring of deeply stratified evaluation trenches is usually the most effective way of characterising the resource whilst minimising its destruction.

There is presently a small but growing body of literature relating to the preservation of archaeological sites *in situ* (see Corfield *et al.* 1996).

5.1 All archaeological investigations of stratified deposit sequences will construct an ongoing matrix of the relationships between the contexts defined within the trench.

5.2 A single context planning methodology will normally be used to ensure both a greater understanding of the site sequence by the archaeologists carrying out the investigation but also so that sequential interpretations can be reproduced.

5.3 Project Designs must confirm that the aim of the work is to create a full characterisation of the archaeological sequence and a model of the deposit history. The methodology to be used must be articulated and the sources to be consulted discussed. Where the sample size is not stipulated in the Brief, a rationale for the sampling method must be provided based on knowledge and understanding of the surrounding archaeological resource.

5.4 Project Designs must confirm that where a sequence in excess of 1.2m in depth is expected, provision for the required methodology (normally trench shoring) has been made.

5.5 Project Designs must articulate the range of preservation considerations to be investigated and reported on during the evaluation. In cases where organic preservation in anaerobic conditions is likely, an appropriate range of scientific measurements and environmental tests should be built into the Project Design and analysed for the report (*e.g.* pH and redox) as well as an assessment of organic preservation.

5.6 Excavation areas will generally be stipulated in the brief. The stipulated area does not include steps for edge protection and a methodology for providing safe excavation sides must be articulated in the Project Design.

6. Standing Structures

by Jonathan Smith

There is a variety of practice across the region with regard to the assessment and recording of standing structures. In some authorities, the LGAO may only advise on non-listed structures, while in others the LPA's Conservation Officers may deal with above-ground buildings archaeology.

6.1 Work must be undertaken in accordance with the guidance contained in the following documents:

- *Recording Historic Buildings; A Descriptive Specification* (3rd edition) (Royal Commission on the Historical Monuments of England 1996)
- *Analysis and recording for the conservation and control of works to historic buildings* (Association of County Archaeological Officers 1997)
- *Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures* (Institute of Field Archaeologists 1999e).

6.2 An archaeological contractor who is a suitably qualified buildings archaeologist, conservation architect, or art historian will carry out all assessments and fieldwork. The LGAO will be able to advise on the appointment of an appropriate contractor.

6.3 Where a Standing Structure Impact Assessment is required, this will usually include, as a minimum, an Archaeological Desk-Based Assessment, an outline photographic survey, measured plans, elevations, or other surveys representing the existing structure, drawings in plan and elevation indicating the proposed development, and a complete planning history of the site. This may be required before an application is determined, in cases where the information has not already been included with an application. In the case of demolition proposals, the LGAO may wish to request a fuller level of recording at this stage when the structure has potential for archaeological significance.

6.4 The aims and objectives of a programme of work involving building recording will generally be to:

- compile a comprehensive and high quality record of the structures subject to the development/demolition proposal
- provide a comprehensive review of the local and regional historical context of the structures recorded by the project in the resultant analytical report. This must be adequately detailed to place the findings of the recording in their context and to be able to inform conservation decisions and the subsequent management of the structures

- produce a high quality, fully integrated archive suitable for long-term deposition in order to replace by record the structures in their form prior to conversion, alteration, demolition or repair.

6.5 The contractor must complete the required surveys and submit the report *prior to the commencement of development or demolition* of the structures subject to the application. Further recording may be required of interventions into the fabric of the original structure in the case of alteration, conversion, and/or repair of the structure in question. This, if justified (particularly so with Listed Buildings and Scheduled Ancient Monuments), will complete the archive and facilitate its use as a future conservation and management tool for the structure.

7. Finds and Conservation

see also 8.26-8.35 below

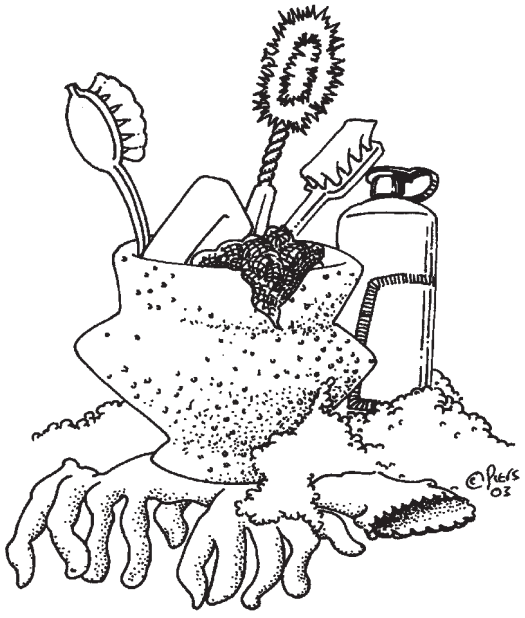
7.1 All finds work must be to accepted professional standards, and the *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (Institute of Field Archaeologists 2001) adhered to.

7.2 Finds must be processed as soon as possible after recovery so that staff in the field can receive feedback and spot-dating of archaeological deposits being excavated.

7.3 During the assessment of metal finds, the advice of a professional conservator must be sought on conservation and x-ray requirements. All metal objects (except those of lead) must be x-rayed, and the x-rays included in the site archive as an integral component of the finds records (*cf* 8.29 below).

7.4 No sampling or disposal of cultural material from an evaluation or excavation may take place without prior approval by the LGAO and the intended place of deposition of the project archive.

7.5 All Treasure and finds of potential Treasure must be dealt with in accordance with the *Treasure Act* 1996 and its Code of Practice.



`have you washed those pots yet?'

8. Archaeological Science

by [redacted]

To separate 'Archaeological Science' from 'Field Archaeology' is of course artificial (for there are wide areas of overlap) but, for practical reasons and to avoid duplication, it is necessary in this document. Archaeological Science is here taken to include:

- geophysics
- scientific dating
- geoarchaeology and soil science
- analysis of botanical and faunal remains
- analysis of human remains
- artefact conservation and investigative analysis
- analysis of technological residues, ceramics, glass and stone.

This section applies equally to both evaluations and excavations, ranging from pre-determination evaluations through to evaluations and excavations secured by conditions. Evaluations differ widely in scope, scale and objectives. Small-scale initial pre-determination evaluations are usually intended to establish whether any archaeology is present at all and in this case Archaeological Science will often not be applicable. For all subsequent fieldwork it certainly is.

Procedures for desk-based studies, evaluation and excavation at coastal managed realignment schemes are to be found in Trow and Murphy (forthcoming). Most of these procedures are also applicable at other types of site where deep sediment sequences occur.

Specialists

Except in the field of artefact conservation, there are currently no professional accreditation schemes. Elsewhere, an objective criterion of competence is the ability of specialists to demonstrate that they have access to adequate laboratory facilities, including reference collections where needed. The phrase 'recognised specialist' is used below as a neutral, non-prescriptive term.

8.1 Specialists in archaeological science will be named in Project Designs and their competence to undertake investigations must be demonstrated. It is reasonable to expect a qualification, record of publication or training/mentoring by an experienced specialist.

8.2 There must be agreement in writing between the archaeological contractor/consultant and specialists on timetables and deadlines for all stages of work.

Geophysical prospection

8.3 The standards presented in *Geophysical Survey in Archaeological Field Evaluations* (David 1995) represent best practice.

8.4 Where a programme of geophysical survey is required, a recognised specialist in the techniques involved must be employed.

8.5 For most substrates, magnetometer survey is often the preferred technique in the first instance, using a fluxgate gradiometer with digital data storage and transfer facility.

8.6 If other techniques are to be employed, the geophysicist must provide a statement explaining the reasons for their use. The choice and deployment of techniques must be agreed with the LGAO in the light of this and after initial assessment of site conditions.

Scientific dating

As a guide to the potential usage of scientific dating, it has already been applied during evaluation in the East of England in the following circumstances:

- radiocarbon dating of wooden structures which were not dated artefactually or stratigraphically
- radiocarbon dating of organic sediment sequences believed to be contemporary with adjacent archaeological sites
- OSL (Optically Stimulated Luminescence) dating of colluvial sediments overlying cut archaeological features, undertaken to help define the appropriate depth of machining during subsequent excavation.

8.7 During field evaluation, samples will be taken for scientific dating in defined and specific circumstances, subject to time constraints. This applies where dating by artefacts is insecure or absent and where dating is necessary for development of the Project Design or Specification for subsequent work.

8.8 Samples for dating must be submitted to the laboratory promptly, following both evaluation and excavation. Prior agreement will be made with the laboratory on turn-around time and report production, so as to ensure that results are available to aid development of specifications for subsequent mitigation strategies, or for excavation report production.

8.9 During excavation projects, samples must be collected for radiocarbon, dendrochronology, luminescence, archaeomagnetism (and/or other techniques as appropriate) following the outline strategy presented in the Project Design/Specification. A detailed and cost-effective strategy for scientific dating will be prepared in consultation with appropriate specialists.

8.10 Sampling for dendrochronology must follow procedures presented in *Dendrochonology: guidelines on producing and interpreting dendrochronological dates* (Hillam 1998).

Geoarchaeology

8.11 Procedures and techniques presented in *Guidelines for carrying out Assessments in Geoarchaeology* (Canti 1996) should be followed.

8.12 Buried soils and sediment sequences must be inspected and recorded on site at both the evaluation and excavation stage by a recognised geoarchaeologist. Field inspection can provide sufficient data for understanding site formation processes, thereby avoiding the collection and processing of redundant samples.

bulk sieving

8.13 Samples for laboratory assessment and analysis will be collected where appropriate, following discussion with the LGAO.

8.14 Samples will be processed as deemed necessary by the specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment must be undertaken. Where preservation *in situ* is a viable option, consideration should be given to the possible effects of compression on the physical integrity of the site and to any hydrological impacts of development.

8.15 During excavation, samples will be collected for analysis of chemistry, magnetic susceptibility, particle size, micromorphology and/or other techniques as appropriate, following the outline strategy presented in the Project Design/Specification, and in consultation with the geoarchaeologist.

Botanical and faunal remains

8.16 During evaluation, deposits will be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological remains. The sampling strategy must include a reasoned justification for selection of deposits for sampling, and will be developed in collaboration with a recognised bioarchaeologist.

8.17 Sampling methods for macrofossils (e.g. shells, seeds) and microfossils (*e.g.* pollen, foraminiferans) must follow the document *Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage 2002).

8.18 Bulk samples and samples taken for coarse-mesh sieving from dry deposits must be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies if necessary, but also because processing a backlog of samples at a later stage can cause delays. Sampling strategies for wooden structures must follow the methodologies presented in Brunning 1996.

8.19 Biological samples from both evaluations and excavations must be assessed by recognised bioarchaeologists for evidence of site formation and taphonomy. Processing of all soil samples collected for biological assessment, or sub-samples of them, should be completed, except where deposits prove to be undatable. The preservation, state, density and significance of material retrieved must be assessed. Special consideration should be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples must be stored in conditions specified by the appropriate specialists. Animal bone assemblages, or sub-samples of them, must be assessed by a recognised specialist. Following assessment, appropriate samples of biological materials must be analysed.

Human remains

8.20 At the evaluation stage, lifting of human skeletal remains must be kept to the minimum that is compatible with an adequate evaluation.

8.21 At sites known in advance to be cemeteries, provision must be made for site inspection by a recognised specialist.

8.22 Excavators must be aware of, and comply with, the relevant legislation and any Home Office and local environmental health concerns. Further guidance is provided in *Church Archaeology: its care and management* (Council for the Care of Churches 1999).

8.23 Assessment of human remains will be based partly on *in situ* observation, but where skeletal remains have been lifted, a recognised specialist must undertake assessment.

8.24 During excavation, burials must be recorded *in situ* and subsequently lifted, washed in water (without any additives), marked and packed to standards compatible with *Excavation and post-excavation treatment of cremated and inhumed human remains* (McKinley and Roberts 1993). Site inspection by a recognised specialist is desirable in the case of isolated non-complex burials, and necessary for cemeteries.

8.25 Proposals for the final placing of human remains following study and analysis will be required in the Project Design/Specification. Further guidance is provided in *Church Archaeology: its care and management* (Council for the Care of Churches 1999).

Artefact conservation and investigative analysis

8.26 All finds visible or located by other means (such as metal-detecting) during evaluation and excavation must be collected and processed, unless variations in this principle are agreed with the LGAO.

8.27 Provision must be made, where appropriate, for the regular transfer of finds from a site to the conservation laboratory.

8.28 Finds must be appropriately packaged and stored under optimum conditions, as detailed in *First Aid for Finds* (Watkinson and Neal 1998).

8.29 Assessment must include x-radiography of all metal objects (after initial screening to exclude obviously recent debris) except those of lead (*cf* 7.3 above). A rapid scan of all excavated material must be undertaken by conservators and finds researchers in collaboration. Material considered vulnerable will be selected for stabilisation after specialist recording. Where intervention is necessary, consideration should be given to possible investigative procedures (*e.g.* glass composition studies, residues in or on pottery, ceramic thin sections, and mineral-preserved organic material).

8.30 Once assessed, all material must be packed and stored in optimum conditions, as described in *First Aid for Finds* (Watkinson and Neal 1998). Waterlogged organic materials must be dealt with following *Guidelines for the care of waterlogged archaeological leather* (English Heritage/Archaeological Leather Group 1995) and *Waterlogged wood: guidelines on the recording, sampling, conservation and curation of structural wood* (Brunning 1996).

8.31 Investigative conservation will be undertaken on those objects selected during the assessment phase, with the aim of maximising information whilst minimising intervention. Where necessary, active stabilisation/ consolidation will be carried out, to ensure long-term survival of the material, but with due consideration to possible future investigations. Proposals for ultimate storage must follow *Guidelines for the Preparation of Excavation Archives for Long-Term Storage* (Walker 1990).

Analysis of technological residues, ceramics, glass and stone

8.32 Where there is evidence for industrial activity, macroscopic technological residues (or a sample of them) must be collected by hand.

8.33 Where appropriate, separate samples (*c*. 0.2 litres) must be collected for micro-slags (hammer-scale and spherical droplets).

8.34 Reference should be made to *Archaeometallurgy* (English Heritage 2001)(*cf* English Heritage 1995) and *Hammerscale* (Starley 1995).

8.35 Assessment of any technological residues will include x-radiography of a sample of industrial debris relating to metallurgy.

9. Reports

Every archaeological project will produce a report that is submitted to the LGAO and made available through the SMR/HER. These are known as 'client reports' or 'grey literature' and must contain the basic information detailed below. Some archaeological work will justify publication and this should be in a format and at a level of detail *commensurate with the results*.

This section largely refers to unpublished reports — client reports and 'grey literature'. For published reports, see 10 below.

9.1 Archaeological contractors will produce a report of *every* project undertaken for submission to the LGAO. All reports must include the results of the background research undertaken to place the evidence presented within its local and, where appropriate, its regional and/or national

context, by consulting relevant Sites and Monuments Record (or equivalent) data, documents, maps and aerial photographs. All sources examined must be listed.

9.2 Reports will be rejected if it is demonstrated that they do not provide sufficient information or if they have not been compiled in accordance with the relevant sections of the Brief or this document. The reasons for rejecting any report will be stated, and contractors will be expected to revise the report and to resubmit it.

9.3 Excavation and evaluation reports submitted to the LGAO and LPA (and deposited with the project archive to the agreed place of deposition) will include, where appropriate:

- a brief non-technical executive summary of the work undertaken and the results obtained
- acknowledgements
- site details, including location, SMR/HER number, grid reference, geology, place of deposition of the archive and any relevant details of the project's history
- archaeological background, including aims and objectives
- methodology
- site narrative, comprising the detailed description, analysis and interpretation of the site or structure;
- artefactual evidence, including results of specialist reports
- environmental evidence, including results of specialist reports
- archaeological science reports, including results specialist reports
- documentary and cartographic evidence
- discussion/conclusions
- recommendations as a separate section, if included (*nb* some LGAOs will not accept a report which includes recommendations for further work)(*cf* 9.17)
- bibliography
- illustrative material including maps, plans, elevation drawings, sections, appropriate detail drawings and a key to any conventions used
- photographs, where appropriate
- lists of contexts and finds, as appendices
- specialist reports in full, as appendices
- copies of the Brief and Project Design, where required, as appendices.

9.4 Within the time specified by the LGAO a timetable for post-excavation work will be produced, following consultation, (including team meetings for larger-scale sites) with all specialists involved in the project. Timetables should be agreed in writing with external sub-contracted specialists.

9.5 Specialist reports should include details of methodology, results, interpretation and non-technical summaries.

9.6 The timetable should allow for adequate provision by the excavator of contextual information, provisional dating and stratigraphic relationships of contexts.

Project summaries

9.7 Many county journals in the region publish annual summaries of excavations and surveys, and the archaeological contractor must provide an appropriate summary/synthesis if asked to do so. The summary should contain an *irreducible minimum* of information, as defined in MAP2 Appendix 7.

Reports on Evaluations by survey and/or trial trenching

9.8 The archaeological contractor may determine the general style and format of evaluation reports.

9.9 However, the report must include an introduction with background information about the site, an outline of the development, the date of fieldwork, the personnel involved and the methodology employed. Copies of the Project Brief or Specification and Project Design must be appended, where required.

9.10 Plans at appropriate scales must be included, showing the site location, trench layout or excavation areas, finds distributions and features (by phase). Section and sample locations will be indicated. An overall site plan showing all features (hachured) must always be included.

9.11 An evaluation report must include comprehensive details of features and finds in each trench or area, their states of preservation and interpretation. Tables will summarise the recovery of finds from features within each trench or area.

9.12 An evaluation report must also include a quantification and assessment of the finds, and present an overview of the quality and potential of the finds assemblage. This should include illustrations and/or photographs of significant finds. Where appropriate, local reference collections, especially of ceramics, will be referred to for descriptive and analytical purposes in order to ensure that analysis and terminology is consistent. Relevant standards produced by national finds groups must be adhered to.

9.13 An evaluation report must include an assessment of the environmental potential of the site where this is appropriate.

9.14 Any results from assessment investigations involving archaeological science must be included in the evaluation report.

9.15 Archaeological science reports must include sufficient detail to permit the assessment of potential for analysis. They will include tabulations of data in relation to site phasing and contexts and non-technical summaries. The objective presentation of data must be clearly separated from interpretation. Any recommendations for further investigations involving archaeological science (both on samples already collected and further samples to be collected at future excavations) must be clearly separated from the results and interpretation (*cf* 9.3).

9.16 An evaluation report must include an assessment of the preservation potential of the site so that appropriate decisions can be taken about mitigation strategies.

9.17 An evaluation report will comment on the perceived effectiveness of the fieldwork in relation to the project's stated aims and objectives. It will not express an opinion on preservation or further work.

9.18 Evaluation reports must be submitted by the time specified in the Brief. This is usually on the understanding that they will become public documents after an appropriate period of time.

Reports on Area Excavations

9.19 At the Assessment stage of an excavation project an Updated Project Design must be prepared with proposals for analysis, report and publication, and agreed with the LGAO.

9.20 An excavation report must be completed and the required number of copies supplied to the relevant Sites and Monuments Record (or equivalent) within the timetable agreed with the LGAO. Programmes may be negotiated for particular projects at the Assessment stage when the analysis, report and publication timetable will be agreed with the LGAO. Where a project is phased, interim reports will be prepared and submitted on each sub-phase to an agreed timetable.

9.21 An excavation report for publication will generally include as appropriate, the following:

- title page
- list of contents, plates, figures, tables, microfiche, contributors
- acknowledgements, preface, summary
- a description of the site
- excavation methodology
- summary of phasing
- excavated features
- finds
- specialist reports
- discussion and conclusions
- appendices
- bibliography
- index
- additional material (electronic release/microfiche)

9.21 If it is intended that an excavation report will be published, refer to section 10 below.

Reports on Archaeological Monitoring and Recording (Watching Briefs)

9.22 A report on an Archaeological Monitoring and Recording Project (or Watching Brief) should be commensurate with the results.

9.23 As a minimum, it must include a one-page summary of the archaeological project, with a description of the work and any field observations, and a location plan at an appropriate scale.

*… at a level of detail **commensurate** with the results*

Report illustrations

9.24 Where conventions are used, as is normally the case, an explanatory figure or key must be included.

9.25 All report illustrations must be fully captioned and refer to the scale of the published drawing.

9.26 Plans must be based on and indicate the National Grid, showing at least two intersections.

9.27 North must be indicated on all plans.

9.28 A bar scale must be included on all plans and sections.

9.29 Sections must indicate the alignment of the section, and the height OD of the section datum.

9.30 Plan and section illustrations must include the context numbers of all cuts, fills, layers and structures represented. The locations of significant finds and/or of samples taken will also be shown, where appropriate.

9.31 The positions of all section lines must be indicated and annotated on the appropriate plan(s).

10. Publication

by [redacted]

The principle of replacement by record

There is extensive literature dealing with archaeological project management, in which principles and standards for field archaeology have gradually been refined (Frere 1975; Cunliffe 1982; English Heritage 1991(MAP 2); Carver *et al.* 1992). Through these documents, a management framework has been developed which emphasises selectivity and archaeological value right through to publication, and is intended to work alongside academic priorities such as those embodied in the regional research framework.

Traditionally, archaeological publication was based on the idea of *preservation by record*, but this concept is now understood as *replacement by record*, implying a process of transformation into knowledge rather than one of passive data storage. The management framework accepts *replacement by record* as one of the basic principles of

archaeological excavation — the record being an *archive plus publication*. Because of this, the sponsor of an archaeological excavation must also pay for its replacement by record *satisfactory to the academic needs of the discipline* (Cunliffe 1990, 668).

In theory archives are publicly accessible, but in practice access — even to 'grey literature' — is often difficult or impossible and the published account forms the only easily obtainable record. It is important, therefore, that the account is published in a format likely to be acceptable to libraries and taken by as many libraries as possible.

Publication commensurate with results

Archaeological works will not always justify publication or publication at the same level of detail. Guidelines produced by the *East Anglian Archaeology* editorial committee indicate the range of outlets available and the criteria by which an appropriate level of dissemination can be judged (East Anglian Archaeology 2002).

In all cases a report is produced to guide the planning process and is made available through the SMR/HER (*cf* 9.1 above). Some work may endorse current knowledge rather than offer the potential to develop any new understanding, and this should be apparent to the archaeological contractor/consultant and LGAO at the Fieldwork phase or at latest the Assessment phase, following MAP2. An appropriate record will then comprise an archive deposited with the relevant body as defined below (section 11) and in MAP2 (5.4 and Appendix 3), plus a summary report in a local or period journal (*cf* 9.7 above).

Analysis takes place when material from the site *has the potential to contribute to the pursuit of local, regional or national research priorities* (MAP2, 6.16). Indeed, MAP2 (7.5) assumes that if a project proceeds to analysis it is with a planned publication in mind.

At this point the scope of the publication should be defined by the archaeological contractor/consultant, who should consider whether a full site report is intended, or a synthetic article on some aspect of the work, or detailed publication of material that is of *intrinsic archaeological value outside the context of the site report* — such as artefactual or environmental evidence (MAP2, 6.16).

10.1 The publication of archaeological work should reflect the significance of the data collected.

10.2 Some projects may involve more than one dissemination method, and this may not be known until the second assessment of results is carried out after analysis.

10.3 To ensure that relevant information is published in a clear, structured and user-friendly manner, site reports and articles must be subject to an *independent editorial process*. Suitable outlets provide academic vetting, copyediting, professional indexing and circulation to journals for review.

10.4 A *provisional publication synopsis* will be submitted by the archaeological contractor/consultant to an appropriate outlet(s) and to the LGAO at Updated Project Design stage (MAP2, Phase 4), when the resources needed for analysis, synthesising the research archive and publishing a report are also established.

10.5 Site reports must be compiled according to the report-writing criteria and the production standards laid out in MAP2. Suitable outlets will comply with these production standards, as their *Notes for Authors* will demonstrate, thus guaranteeing production quality.

10.6 Reports, including those for submission to county journals, must be drafted to conform to the requirements of the intended outlet. Contractors/consultants must establish contact with the journal or series editor at an early stage to obtain *Notes for Authors*, advice on the submission of synopses, and an estimate of the costs and timescale involved.

10.7 Until analysis has been completed, the exact content of the publication cannot be finalised. Any major alterations to report content should be subject to editorial approval, and a *final synopsis* should be sent to the outlet confirming the scope of the report and the intended delivery date of the draft text.

10.8 Publication costs can be more accurately established once the final text of the report has been agreed. Usually, these will include:

- copyediting
- typesetting
- origination of page layouts to camera-ready copy
- indexing
- printing
- distribution (including review copies)
- marketing.

10.9 Project Designs must confirm that the resources for editorial and reprographic work have been adequately built into the project.

Publication to an acceptable academic standard

As the amount of archaeological activity and the volume of available data rapidly increases, selectivity and a clear focus on defined issues are essential in publication, if uncritical reproduction of the archive is to be avoided.

10.10 When the report has been drafted, it should be subject to peer review by an independent academic referee.

the published report — always a cause for celebration!

The role of the independent referee, appointed by the editorial board of the outlet or the sponsor, is to ascertain:

- how far the publication reflects the stated aims of the project design
- whether the publication meets the general academic standards and priorities
- whether the proposed publication meets the requirements of the publishing body
- whether publication of the report is warranted and whether it meets professional standards.

By doing so, the referee addresses the needs of the archaeological community, the interests of the publisher and the sponsor.

The integration of published reports and project archives

As published reports become more selective and synthetic, the more they need to provide a gateway into the archive.

10.11 The published report will clearly state the location of the archive, its accession number, and details of the body responsible for its curation.

10.12 The published report will provide an index of the archive contents, method of reference between published report and archive information, and cite any material that is electronically accessible.

the ultimate deposit

11. Archives

11.1 The place of deposition of the Project Archive may have an Archaeological Collecting Policy to which all material to be deposited will have to conform. The archaeological contractor/consultant should seek advice and guidance on this at an early stage, and arrangements made before on-site works commence.

11.2 Where finds records have been computerised, the archaeological contractor/consultant will be expected to provide an electronic database to accompany the archive. This may need to be compatible with MODES and include defined units of information for each item or significant group of items. Where records have been computerised the data must also be present as hard copy in the site archive.

11.3 Minimum standards for site archives should be followed, as defined in MAP2, para. 5.4 and Appendix 3.

11.4 The following should also be adhered to: *Guidelines for the Preparation of Excavation Archives for Long-Term Storage* (Walker 1990) and *Selection, Retention and Dispersal of Archaeological Collections* (Society of Museum Archaeologists 1993, *Archaeological documentary archives* (Ferguson and Murray 1997) and *Microfilming archaeological archives* (Handley 1999).

11.5 Account must also be taken of the requirements of the place of deposition regarding the conservation, ordering, organisation, labelling, marking and storage of excavated material and the archive.

11.6 Owners of finds and records should be encouraged to donate these to the appropriate place of deposition as a matter of best practice in the public interest.

11.7 Where finds are retained by the owner and are not to be deposited with the project archive, a comprehensive record including detailed drawings, photographs and descriptions of individual finds must be included in the archive *in lieu* of the objects. The repository of any finds not included in the project archive must be indicated.

11.8 The finds and archive must be deposited within the specified time of the completion of the publication or, in certain circumstances, to an agreed timetable of a longer duration.

11.9 The integrity of the site archive must be maintained at all times.

11.10 For all projects, provision must be made for inclusion of the results in the relevant SMR/HER to meet local requirements. This will refer to the location of the archive and the relevant place of deposition accession number.

11.11 Digital archives must be prepared according to local requirements, and following the guidance in Bewley *et al.* 1998 and Richards and Robinson (eds) 2000.

11.12 It is normal practice for both the copyright and ownership of the paper and any digital archive resulting from an archaeological project to rest with the originating body (usually the archaeological contractor). The originating body will deposit the archive in a museum or other appropriate repository on the completion of the project, and normally transfers title and/or licences the use of the archive at this stage. It is advisable to document these arrangements in a written contract or agreement.

12. Project Monitoring

Archaeological advisors such as LGAOs undertake the important role of monitoring the quality of archaeological work. In this they are assisted by the broad frameworks provided by nationally agreed standards (for example, IFA Standard and Guidance for various types of archaeological work), by regional standards (this document) and by the detailed requirements within Briefs, Specifications and Project Designs for specific archaeological tasks.

12.1 The LGAO or his or her representative will be responsible for monitoring progress and standards throughout the project on behalf of the Local Planning Authority.

12.2 Regular monitoring by the LGAO of a project is seen as a necessary, constructive and desirable process, to ensure that satisfactory progress is being made and standards adhered to.

12.3 When the project is underway, the LGAO (acting on behalf of the relevant LPA) will review progress to ensure that:

- the development itself conforms to the submitted plans and drawings on which the archaeological Brief (and any requirement for archaeological investigation) was based
- the archaeological requirements of the Brief or Specification are being met
- the Project Design is being adhered to.

12.4 Monitoring intervals will vary according to the nature of the site and the scale of the project. The timing and frequency of monitoring points should be agreed with the LGAO. They may include the following stages:

- topsoil stripping
- during evaluation/excavation (frequency to be agreed)
- completion of evaluation/excavation
- completion of assessment
- during analysis
- completion of analysis
- submission of report and archive.

12.5 Archaeological contractors/consultants should give the LGAO not less than one week's written notice of the commencement of the work and its duration, so that arrangements for monitoring can be made. Failure to give due notice may result in trenches having to be left open until the LGAO is able to visit, and the archaeological contractor/consultant should advise any client hoping to accelerate the programme that this may be necessary.

12.6 Access to the site should be granted to the LGAO as the representative of the Local Planning Authority, to monitor the archaeological works at agreed points in the programme or at random, to ensure that these are being undertaken to professional standards and in accordance with any planning conditions or legal agreements.

12.7 The LGAO has responsibility for his/her own welfare, and will provide his/her own personal protective equipment for use during monitoring, and will inform themselves of the basic procedures for entering a site safely.

12.8 Once the fieldwork is completed, the LGAO should be closely involved with the assessment phase of the project and the preparation by the archaeological contractor/consultant of the Updated Project Design and, later still, the post-excavation stages of analysis, report and publication (if appropriate). The preparation and deposition of the project archive will also be subject to review by the LGAO and/or by the intended place of deposition.

Appendix 1. ALGAOEE Contacts

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THURROCK

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Appendix 2. Definitions

Appraisal. A rapid examination of existing records to identify whether a development proposal has a potential archaeological dimension requiring further clarification. This is undertaken by the LGAO.

Archaeological Consultant. An archaeologist or archaeological organisation usually acting on behalf of the client (in the planning process), and who may themselves draw up a Project Design or Specification for approval by the LGAO, scrutinise and advise on the costs of an archaeological project, and monitor work for the client.

Archaeological Contractor. An archaeological organisation (unit, trust etc) usually able to provide a wide range of services, including desk-based assessments, surveys, evaluations, excavations, building recording, assessments of potential for analysis, analysis, conservation, report preparation, dissemination and the organisation and deposition of a project archive.

Archaeological Desk-Based Assessment. A programme of assessment of the known or potential archaeological resource within a specified area on land, inter-tidal zone, or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context, as appropriate (IFA 1999a).

Archaeological Monitoring and Recording (sometimes referred to as an Archaeological Watching Brief) may be defined as a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in a report and ordered archive (IFA 1999c).

Brief. An outline or framework of the planning and archaeological situation that has to be addressed, together with an indication of the scope of works that will be required. This is provided by the LGAO and is the document required by archaeological contractors to prepare a Project Design. For model briefs, see Association of County Archaeological Officers 1993.

Evaluation. Evaluation techniques are employed prior to the determination of planning applications to clarify understanding of the character, extent, and importance of archaeological remains, usually comprising a programme of non-intrusive and/or intrusive fieldwork required prior to the determination of a planning application. It will be designed to supplement and improve existing information to a level of confidence at which the archaeological potential of a site can be assessed, and so that informed and reasonable planning recommendations and decisions can then be made.

An evaluation is intended to determine the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts, within a specified area on land, inter-tidal zone or underwater. If such archaeological remains are present, field evaluation defines their character, extent, quality and state of preservation, and enables an assessment of their worth in a local, regional, national or international context, as appropriate (IFA 1999b).

Evaluation techniques may include fieldwalking, metal-detecting, geophysical survey, earthwork survey, trial trenching or environmental sampling.

Excavation. An Excavation may be required where it has been decided, usually following evaluation, that any archaeological remains do not warrant physical preservation *in situ,* and that an acceptable mitigation strategy is for these to be excavated archaeologically, replaced by record, assessed, analysed, archived and a synthesis of the results disseminated.

An excavation may be defined as a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studies, and the results of that study published in detail appropriate to the Project Design (IFA 1999d).

Historic Environment Record (HER). An Historic Environment Record provides access to a comprehensive and dynamic information resource about the historic environment of its local area for public benefit and use. The historic environment includes all aspects of our surroundings that have been built, formed or influenced by human activities from earliest to most recent times.

An Historic Environment Record makes information widely accessible to specialists and to the public, managing its services and data in accordance with agreed national and international standards and guidance on best practice.

The purpose of an Historic Environment Record is to:

- advance research and new understanding about the historic environment
- inform care of the historic environment through conservation and environmental enhancement programmes and projects, state of the environment reports, and by raising public awareness about conservation needs
- inform policies and decision-making in land-use planning, development control, statutory undertakings, agri-environment and forestry schemes
- contribute to educational programmes and projects about the historic environment
- encourage public and community participation in the appreciation and enjoyment of the historic environment.

Local Government Archaeological Officer (LGAO). The Local Government Officer at County, District or Unitary Authority level who is appropriately qualified and experienced (IFA Membership and adherence to IFA's Codes of Conduct (IFA 1997a, 1997b) and formally adopted by-laws, guidelines and other relevant codes, standards and guidance documents, are regarded as

baseline standards and yardsticks of competence and good operating practice).

The LGAO is responsible for the provision of archaeological services, usually including a Sites and Monuments Record or Historic Environment Record, planning policy, advice to developers, landowners, Local Planning Authorities and other agencies on the archaeological implications of planning applications and other development and land-use proposals, management of the archaeological resource, advice, education and promotion. Throughout these *Standards*, the term is taken to include other officers working under his or her authority.

The IFA is currently developing *Standards and Guidance for Curatorial Practice*, and it is naturally assumed that these will be regarded as further indicators of good operating practice that LGAOs and other curatorial archaeologists will adhere to.

Mitigation Strategy. Once the results of an evaluation are available and if a planning permission is granted, a mitigation strategy will seek to safeguard the archaeological remains. This might be achieved by the sympathetic design of foundations in order to preserve remains *in situ* or the exclusion of defined areas from further disturbance. Where this is not possible a further option is the implementation of a programme of archaeological work to excavate and 'replace by record'.

Post-excavation. A term often used to refer to the office- or laboratory-based activities of an Archaeological Contractor (and others, *e.g.* specialists) that take place after the fieldwork phase of a project. Post-excavation will usually include the assessment of potential for analysis, analysis, conservation, report preparation, dissemination and the organisation and deposition of a project archive.

Project Design (which may also be called a Method Statement or Written Scheme of Investigations). This is the document prepared by the Archaeological Contractor in response to the Brief or Specification prepared by the LGAO.

Sites and Monuments Record (SMR). An SMR is defined as: *a definitive permanent general record of the local historic environment in its national context, publicly and professionally maintained, whose data is accessible and retrievable for a wide range of purposes*. The SMR for a particular authority (county or district) is generally maintained by the LGAO or in some cases a local museum. The SMR will contain the data upon which the known archaeology (or the archaeological potential of an area) is assessed by the LGAO, and the SMR will also receive the results of archaeological fieldwork at the conclusion of a project. SMRs are increasingly collecting and holding a wider range of data on the historic environment, and developing into Historic Environment Records (HERs).

Specification. A schedule of works in sufficient detail to be quantifiable, implemented and monitored. Where a Specification is necessary or desirable this is provided by the LGAO and, like a Brief, is used by the Archaeological Contractor to prepare a Project Design.

For model specifications, see Association of County Archaeological Officers 1993.

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ANNEX 2.11.A.2: Requirements for a Trenched Archaeological Evaluation

Suffolk County Council

The Archaeological Service

Resource Management
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IP32 7AY

Requirements for a Trenched Archaeological Evaluation

(updated March 2017)

An outline specification, which defines certain minimum criteria, is set out below. These requirements accompany, and should be used in conjunction with, the project brief.

Fieldwork Requirements

1.1 If excavation is mechanised a toothless 'ditching bucket' 1.80m wide minimum must be used.

1.2 The topsoil may be mechanically removed using an appropriate machine with a backacting arm and fitted with a toothless bucket, down to the interface layer between topsoil and subsoil or other visible archaeological surface. All machine excavation is to be under the direct control and supervision of an archaeologist. The topsoil should be examined for archaeological material.

1.3 The top of the first archaeological deposit may be cleared by machine, but must then be cleaned off by hand. There is a presumption that excavation of all archaeological deposits will be done by hand unless it can be shown there will not be a loss of evidence by using a machine. The decision as to the proper method of excavation will be made by the senior project archaeologist with regard to the nature of the deposit.

1.4 In all evaluation excavation there is a presumption of the need to cause the minimum disturbance to the site consistent with adequate evaluation; that significant archaeological features, e.g. solid or bonded structural remains, building slots or postholes, should be preserved intact even if fills are sampled. For guidance:

For linear features, 1.00m wide slots (min.) should be excavated across their width;

For discrete features, such as pits, 50% of their fills should be sampled (in some instances 100% may be requested).

1.5 There must be sufficient excavation to give clear evidence for the period, depth and nature of any archaeological deposit. The depth and nature of colluvial or other masking deposits must be established across the site.

1.6 Archaeological contexts should, where possible, be sampled for palaeoenvironmental remains. The archaeological contractor shall show what provision has been made for environmental assessment of the site and must provide details in the WSI of the sampling strategies for retrieving artefacts, biological remains (for palaeoenvironmental and palaeoeconomic investigations), and samples of sediments and/or soils (for micromorphological and other pedological/sedimentological analyses. Advice

on the appropriateness of the proposed strategies should be sought from the Historic England Regional Advisor for Archaeological Science (East of England). The English Heritage guide (2011), Environmental Archaeology, *A guide to the Theory and Practice of Methods, from Sampling and Recovery to Postexcavation*, provides further guidance to sampling archaeological deposits.

1.7 Any natural subsoil surface revealed should be hand cleaned and examined for archaeological deposits and artefacts. Sample excavation of any archaeological features revealed may be necessary in order to gauge their date and character.

1.8 Metal detector searches must take place at all stages of the evaluation by an experienced metal detector user. Metal detecting of trench locations should be carried out before trenches are cut, with trench bases and spoil scanned once trenches have been opened.

1.9 All finds will be collected and processed (unless variations in this principle are agreed SCCAS during the course of the evaluation).

1.10 Human remains must be left *in situ* except in those cases where damage or desecration are to be expected, or in the event that analysis of the remains is shown to be a requirement of satisfactory evaluation of the site. However, the excavator should be aware of, and comply with, the provisions of Section 25 of the Burial Act 1857.

1.11 Plans of any archaeological features on the site are to be drawn at 1:20 or 1:50, depending on the complexity of the data to be recorded. Sections should be drawn at 1:10 or 1:20 again depending on the complexity to be recorded. All levels should relate to Ordnance Datum. Any variations from this must be agreed with SCCAS.

1.12 A photographic record of the work is to be made, consisting of high resolution digital images.

1.13 Topsoil, subsoil and archaeological deposit to be kept separate during excavation to allow sequential backfilling of excavations.

1.14 Trenches should not be backfilled without the approval of SCCAS. Suitable arrangements should be made with the client to ensure trenches are appropriately backfilled, compacted and consolidated in order to prevent subsequent subsidence.

Reporting and Archival Requirements

2.1 The project manager must consult the Suffolk HER Officer to obtain a parish code for the work before commencement. These numbers will be unique for each project or site and must be clearly marked on all documentation relating to the work.

2.2 An archive of all records and finds is to be prepared, consistent with the principles of *Management of Research Projects in the Historic Environment (MoRPHE)* (English Heritage 2006). It must be adequate to perform the function of a final archive for deposition in the Archaeological Service's Store

or in a suitable museum in Suffolk (see Archaeological Archives Forum: a guide to best practice 2007).

2.3 Finds must be appropriately conserved and stored in accordance with guidelines from *The Institute of Conservation* (ICON).

2.4 Every effort must be made to get the agreement of the landowner to the deposition of the full site archive, and transfer of title, with the Archaeological Service or designated Suffolk museum. The intended depository should be stated in the WSI, for approval. If this is not achievable for all or parts of the finds archive then provision must be made for additional recording (e.g. photography, illustration, scientific analysis) as appropriate.

2.5 The project manager should consult the intended archive depository before the archive is prepared regarding the specific requirements for the archive deposition and curation, and regarding any specific cost implications of deposition. The intended depository must be prepared to accept the entire archive resulting from the project (both finds and written archive) in order to create a complete record of the project. A clear statement of the form, intended content, and standards of the archive is to be submitted for approval as an essential requirement of the WSI.

2.6 For deposition on the County Archaeological Store, the archive should comply with SCCAS Archive Guidelines. If the Archaeological Service's Store is not the intended depository, the project manager should ensure that a duplicate copy of the written archive is deposited with the Suffolk HER.

2.7 The WSI should state proposals for the deposition of the digital archive relating to this project with the Archaeology Data Service (ADS), or similar digital archive repository, and allowance should be made for costs incurred to ensure proper deposition (http://ads.ahds.ac.uk/project/policy.html).

2.8 A report on the fieldwork and archive, consistent with the principles of *MoRPHE*, must be provided. Its conclusions must include a clear statement of the archaeological value of the results, and their significance in the context of the Regional Research Framework (*East Anglian Archaeology*, Occasional Papers 3, 8 and 24, 1997, 2000 and 2011).

2.9 The results should be related to the relevant known archaeological information held in the SHER. It should include examination of all readily available cartographic sources (e.g. those in the County Records Office) to record evidence for historic or archaeological sites and history of previous landuses. Where permitted, photographs, photocopies or traced copies should be presented in the report. It should also incorporate an assessment of the potential for documentary research that would contribute to the archaeological investigation of the site.

2.10 A copy of the WSI should be included as an appendix to the report.

2.11 An unbound hardcopy of the report, clearly marked DRAFT, must be presented to SCCAS for approval within six months of the completion of fieldwork unless other arrangements are negotiated. Following acceptance, a single copy of the report should be presented to the Suffolk HER as well as a digital copy of the approved report.

2.12 Where appropriate, a digital vector trench plan should be included with the report, which must be compatible with MapInfo GIS software, for integration in the Suffolk HER.

2.13 SCCAS supports the OASIS project, to provide an online index to archaeological reports. At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields completed on Details, Location and Creators forms. When the project is completed, all parts of the OASIS online form must be completed and a copy must be included in the final report and also with the site archive. A .pdf version of the entire report should be uploaded to the OASIS website.

2.14 Where positive results are drawn from a project, a summary report must be prepared, in the established format, suitable for inclusion in the annual 'Archaeology in Suffolk' section of the *Proceedings of the Suffolk Institute of Archaeology and History*. It should be included in the project report, or submitted to SCCAS, by the end of the calendar year in which the work takes place, whichever is the sooner.

2.15 Where appropriate, a copy of the approved report should be sent to the local archaeological museum.

ANNEX 2.11.A.3: Requirements for Archaeological Excavation

Suffolk County Council

The Archaeological Service

Resource Management
Bury Resource Centre
Hollow Road
Bury St Edmunds
Suffolk
IP32 7AY

Requirements for Archaeological Excavation

(updated March 2017)

An outline specification, which defines certain minimum criteria, is set out below. These requirements accompany, and should be used in conjunction with the project brief. If in doubt, clarification should be sought from SCCAS.

Fieldwork Requirements

1.1 If excavation is mechanised a toothless 'ditching bucket' 1.80m wide minimum must be used.

1.2 The topsoil may be mechanically removed (unless otherwise agreed) using an appropriate machine with a backacting arm and fitted with a toothless bucket, down to the interface layer between topsoil and subsoil or other visible archaeological surface. All machine excavation is to be under the direct control and supervision of an archaeologist. The topsoil should be examined for archaeological material.

1.3 Topsoil, subsoil and archaeological deposits should be kept separate during removal to allow sequential backfilling of excavations, unless otherwise agreed with the developer.

1.4 If the machine stripping is to be undertaken by the main contractor, all machinery must be kept off the stripped areas until they have been fully excavated and recorded, in accordance with this specification.

1.5 There is a presumption that excavation of all archaeological deposits will be undertaken by hand (including stratified layers; see below) unless it can be shown there will not be a loss of evidence by using a machine. The decision as to the proper method of excavation will be made by the senior project archaeologist with regard to the nature of the deposit.

1.6 Provision should be made for hand excavation of any stratified layers (e.g. dark earth) in 2.50m or 1.00m systematic and gridded squares, to be agreed on the basis of the complexity/extent of such layers with SCCAS. This should be accompanied by an appropriate finds recovery strategy which must include metal detector survey and on-site sieving to recover smaller artefacts/ecofacts.

1.7 All features which are, or could be interpreted as, structural must be fully excavated. Post-holes and pits must be examined in section and then fully excavated. Fabricated surfaces within the excavation area (e.g. yards and floors) must be fully exposed and cleaned. Any variation from this process can only be made by agreement with SCCAS, and must be confirmed in writing.

1.8 All other features must be sufficiently examined to establish, where possible, their date and function. For guidance:

a) A minimum of 50% of the fills of the general features is be excavated. In some instances 100% may be requested, depending on the nature of the feature/deposit.

b) 10% of the fills of substantial linear features (ditches, etc) are to be excavated (min.). The samples must be representative of the available length of the feature and must take into account any variations in the shape or fill of the feature and any concentrations of artefacts. For linear features, 1.00m wide slots (min.) should be excavated across their width.

Any variation from this process can only be made by agreement [if necessary on site] with a member of SCCAS, and must be confirmed in writing.

1.9 Any natural subsoil surface revealed should be hand cleaned and examined for archaeological deposits and artefacts. Sample excavation of any archaeological features revealed may be necessary in order to gauge their date and character.

1.10 Metal detector searches must take place at all stages of the excavation, including the scanning of excavation areas before they are stripped, by an experienced metal detector user.

1.11 All finds will be collected and processed, unless variations in this principle are agreed SCCAS during the course of the excavation. The finds recovery policy should be addressed in the WSI. Sieving of occupation levels and building fills will be expected. All ceramic finds should be processed concurrently with the excavation to allow immediate assessment and input into decision making.

1.12 The WSI must provide details of a comprehensive sampling strategy for flotation, assessment and analysis of biological remains by an appropriate environmental specialist (for palaeoenvironmental and palaeoeconomic investigations and also for absolute dating), and samples of sediments and/or soils (for micromorphological and other pedological/sedimentological analyses. All samples should be retained until their potential has been assessed and until a retention strategy has been agreed. Where necessary, advice on the appropriateness of the proposed strategies should be sought from the Historic England Regional Advisor for Archaeological Science (East of England).

1.13 Human remains are to be treated at all stages with care and respect, and are to be dealt with in accordance with the law. They must be recorded *in situ* and subsequently lifted, packed and marked to standards compatible with those described in the Institute of Field Archaeologists' *Technical Paper 13: Excavation and post-excavation treatment of Cremated and Inhumed Human Remains*, by McKinley & Roberts. Proposals for the final disposition of remains following study and analysis will be required in the WSI.

1.14 Excavation record keeping is to be consistent with the requirements the Suffolk Historic Environment Record (HER) and compatible with its archive. Methods must be specified in the WSI and agreed with SCCAS.

1.15 Plans of any archaeological features on the site are to be drawn at 1:20 or 1:50, depending on the complexity of the data to be recorded. Sections should be drawn at 1:10 or 1:20 again depending on the complexity to be recorded. All levels should relate to Ordnance Datum. Any variations from this must be agreed with SCCAS.

1.16 A photographic record of the work is to be made, consisting of high resolution digital images (the image format and resolution should be specified in the WSI), and documented in a photographic archive.

General Management Requirements

2.1 The project manager must consult the Suffolk HER Officer to obtain a parish code for the work before commencement These numbers will be unique for each project or site and must be clearly marked on all documentation relating to the work.

2.2 A timetable for fieldwork and assessment stages of the project must be presented in the WSI and agreed with SCCAS before the fieldwork commences.

2.3 A detailed risk assessment and management strategy must be presented for this project in the WSI.

2.4 The WSI must state the security measures to protect the site from vandalism and theft, and to secure deep any holes.

2.5 The composition of the project staff must be detailed and agreed (this is to include any subcontractors). For the site director and other staff likely to have a major responsibility for the fieldwork and post-excavation processing of this excavation there must also be a statement of their responsibilities or a CV for post-excavation work on other archaeological sites and publication record. Ceramic specialists, in particular, must have relevant experience from this region, including knowledge of local ceramic sequences.

2.6 Provision should be included in the WSI for public benefit in the form of outreach activities, for example (and where appropriate), open days/guided tours for the general public, local schools, local councillors, local archaeological and historical societies and for local public lectures and/or activities within local schools. Provision should be included for local press releases (newspapers/radio/TV). Where appropriate, information boards should be also provided during the fieldwork stage of investigation. The archaeological contractor should ascertain whether their client will seek to impose restrictions on public access to the site and for what reasons and these should be detailed in the WSI.

2.7 Every effort must be made to get the agreement of the landowner to the deposition of the full site archive, and transfer of title, with SCCAS or designated Suffolk museum. The intended depository should be stated in the WSI, for approval. If this is not achievable for all or parts of the finds archive then provision must be made for additional recording (e.g. photography, illustration, scientific analysis) as appropriate.

2.8 Monitoring of the archaeological work will be undertaken by SCCAS. A decision on the level of monitoring required for the fieldwork will be made by

SCCAS, in consultation with the project manager and once the fieldwork has commenced. Any unexpected discoveries, or on-site complications, should be communicated to, and discussed with, SCCAS.

2.9 The WSI should be approved before costs are agreed with the commissioning client, in line with Institute for Archaeologists' guidance. Failure to do so could result in additional and unanticipated costs. It is the archaeological contractor's responsibility to ensure that adequate resources are available to fulfill the Brief.

2.10 Suitable arrangements should be made with the client, and stated in the WSI, to ensure the site is appropriately closed after the completion of the excavation (and provision for infilling of dangerous holes during fieldwork) to comply with health and safety regulations. The site, and any deep and dangerous holes, should be only backfilled with the prior approval of SCCAS.

2.11 Following satisfactory completion of the fieldwork, SCCAS will advise the LPA that the fieldwork has been completed and that no further on-site work is required. Full construction work must not begin until archaeological excavation has been completed and formally confirmed in writing by the LPA.

Post-Excavation Assessment and Archival Requirements

3.1 Within four weeks of the end of fieldwork a written timetable for post-excavation assessment, updated project design and/or reporting must be produced, which must be approved by SCCAS. Following this, a written statement of progress on post-excavation work – whether assessment, analysis, report writing and publication or archiving – will be required at six monthly intervals.

3.2 A post-excavation assessment report (PXA) on the fieldwork should be prepared in accordance with the principles of *Management of Research Projects in the Historic Environment (MoRPHE)* (English Heritage 2006). The PXA will act as a critically assessed audit of the archaeological evidence from the site; see East Anglian Archaeology *Draft Post Excavation Assessments: Notes on a New Guidance Document* (2012).

3.3 In certain instances a full PXA might be unnecessary. The need for a full PXA or otherwise should be discussed and formally agreed with SCCAS within four weeks of the end of fieldwork.

3.4 The PXA must present a clear and concise assessment of the archaeological value and significance of the results, and identifies the research potential, in the context of the Regional Research Framework (*East Anglian Archaeology*, Occasional Papers 3, 8 and 24, 1997, 2000 and 2011). It must present an Updated Project Design, with a timetable, for analysis, dissemination and archive deposition. The PXA will *provide the basis for measurable standards* for SCCAS to monitor this work.

3.5 An archive of all records and finds is to be prepared, consistent with the principles of *MoRPHE*. It must be adequate to perform the function of a final archive for deposition in the Archaeological Store of SCCAS or in a suitable museum in Suffolk (see Archaeological Archives Forum: a guide to best practice 2007).

3.6 Finds must be appropriately conserved and stored in accordance with guidelines from *The Institute of Conservation* (ICON).

3.7 The project manager should consult the intended archive depository before the archive is prepared regarding the specific requirements for the archive deposition and curation, and regarding any specific cost implications of deposition. The intended depository must be prepared to accept the entire archive resulting from the project (both finds and written archive) in order to create a complete record of the project. A clear statement of the form, intended content, and standards of the archive is to be submitted for approval as an essential requirement of the WSI.

3.8 The PXA should offer a statement of significance for retention, based on specialist advice, and - where it is justified – the UPD should propose a discard strategy. This should be agreed with the intended archive depository.

3.9 For deposition in the SCCAS's Archaeological Store, the archive should comply with SCCAS Archive Guidelines. If this is not the intended depository, the project manager should ensure that a duplicate copy of the written archive is deposited with the Suffolk HER.

3.10 The UPD should state proposals for the deposition of the digital archive relating to this project with the Archaeology Data Service (ADS), or similar digital archive repository, and allowance should be made for costs incurred to ensure proper deposition (http://ads.ahds.ac.uk/project/policy.html).

3.11 An unbound hardcopy of the PXA and UPD, clearly marked DRAFT, must be presented to SCCAS for approval within six months of the completion of fieldwork unless other arrangements are negotiated. Following acceptance, a single hard copy of the report should be presented to the Suffolk HER as well as a digital copy of the approved report.

3.12 On approval of an adequate PXA and UPD, SCCAS will advise the LPA that the scheme of investigation for post-excavation analysis, dissemination and archive deposition has been agreed, and that can be discharged.

3.13 Where appropriate, a copy of the approved PXA should be sent to the local archaeological museum, whether or not it is the intended archive depository. A list of local museum can be obtained from SCCAS.

3.14 SCCAS supports the OASIS project, to provide an online index to archaeological reports. At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields completed on Details, Location and Creators forms. When the project is completed, all parts of the OASIS online form must be completed and a copy must be included in the final report and also with the site archive. A .pdf version of the entire report should be uploaded to the OASIS website.

3.15 Where positive results are drawn from a project, a summary report must be prepared, in the established format, suitable for inclusion in the annual 'Archaeology in Suffolk' section of the *Proceedings of the Suffolk Institute of Archaeology and History*. It should be included in the project report, or

submitted to SCCAS, by the end of the calendar year in which the work takes place, whichever is the sooner.

ANNEX 2.11.A.4: Requirements for a Geophysical Survey

Suffolk County Council

The Archaeological Service

Resource Management
Bury Resource Centre
Hollow Road
Bury St Edmunds
Suffolk
IP32 7AY

Requirements for a Geophysical Survey

(updated March 2017)

An outline specification, which defines certain minimum criteria, is set out below. These requirements accompany, and should be used in conjunction with, the project brief.

General Requirements

1.1 Geophysical surveys must be undertaken in compliance with the standards and guidelines set out by Historic England (2008) and CIfA (2014).

Additional Requirements for Reporting and Archiving

1.1 The project manager must consult the Suffolk HER Officer to obtain a parish code for the work before commencement. These numbers will be unique for each project or site and must be clearly marked on all documentation relating to the work.

1.2 The survey methodology should be set out carefully, and explained as appropriate. It must include a non-technical summary to make the report intelligible to both specialists and non-specialists.

1.3 The report must include details of how the survey was geolocated, the instrument used for the survey, its configuration and the sampling intervals used.

1.4 The report must list the types of process which have been applied to the geophysical survey data and for each operation state relevant parameters (e.g. the cut-off threshold for despike).

1.5 The report must include images of both unprocessed (without smoothing or filtering) and also processed data, as well as interpretative plans (accompanied by a full key).

1.6 Greyscale plots should use an appropriate data range and a scale must be included on plans.

1.7 Digital, geo-referenced copies of the geophysical survey plans should be supplied with the report for inclusion in the Suffolk HER.

1.8 The results of the geophysical survey should be easily related to present-day landscape features and the National Grid.

1.9 The objective account of the evidence must be clearly distinguished from its archaeological interpretation.

1.10 SCCAS supports the OASIS project, to provide an online index to archaeological reports. At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ must be initiated and key fields

completed on Details, Location and Creators forms. When the project is completed, all parts of the OASIS online form must be completed and a copy must be included in the final report and also with the site archive. A .pdf version of the entire report should be uploaded to the OASIS website.

ANNEX 2.11.A.5: Additional Requirements for a Palaeoenvironmental Assessment

Suffolk County Council

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IP32 7AY

Additional Requirements for a Palaeoenvironmental Assessment

(updated March 2017)

An outline specification, which defines certain minimum criteria, is set out below. These requirements accompany, and should be used in conjunction with, the project brief.

1.1 The assessment will establish the potential for the survival and significance of geoarchaeological and palaeoenvironmental evidence with reference to adjacent and regional sequences, and to national frameworks. The project will need to consider the following objectives:

1.1.1 The characterisation of the sequence, and patterns of the accumulation of palaeoenvironmental/ geoarchaeological deposits across the development area, including the depth and lateral extent of major stratigraphic units, and the character of any potential land surfaces/buried soils within or pre-dating these sediments.

1.1.2 Identify significant variations in the deposition sequences indicative of localised features, particularly in relation topographic variation and the presence of features such as palaeochannels.

1.1.3 Identify the location and extent of any waterlogged organic deposits and where appropriate and practical, to retrieve suitable samples in order to assess the potential for the preservation of environmental remains and material for scientific dating.

1.1.4 Clarify the relationship between sediment sequences and other deposit types, including periods of 'soil', peat growth, and archaeological remains.

1.1.5 To provide for the absolute dating of critical contacts.

1.1.6 To focus academically upon the high potential for this site to produce palaeoenvironmental evidence, with the potential to inform on our understanding of past environments, palaeoclimates, sea-level changes and human interaction.

1.1.7 To make the results of the investigation available through suitable reportage.

1.2 Archaeological contexts should be sampled for palaeoenvironmental remains and if suitable deposits are identified a number of cores/column samples should be taken and retained to assess the potential of the site. Best practice should allow for sampling of interpretable and datable archaeological deposits and provision should be made for this. The contractor shall show what provision has been made for specialist environmental assessment of the site and must provide details of the sampling strategies for retrieving artefacts, biological remains (for

palaeoenvironmental and palaeoeconomic investigations), and samples of sediments and/or soils (for micromorphological and other pedological/sedimentological analyses. This will follow the English Heritage guidance Environmental Archaeology, *A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post excavation* (2011). If required, advice on the appropriateness of the proposed strategies should be sought from the Historic England Regional Advisor for Archaeological Science (East of England). It may be necessary to discuss the sampling strategy on site, depending on the deposits.

1.3 The cores/sections should be assessed for pollen and plant macrofossils. In addition, the samples may be assessed for diatoms, foraminifera, insect, and molluscs. Provision should be made for the dating of suitable deposits and requirements for any AMS and OSL dating and samples may be submitted to the contractor's preferred dating laboratory.

1.4 The palaeoenvironmental assessment must be undertaken by an environmental archaeologist of recognised competence, fully experienced in work of this character and formally acknowledged by the SCCAS. Details, including the name, qualifications and experience, of the site director and all other key project personnel (including specialist staff) will be communicated to SCCAS as part of a specification of works that conforms to the guidelines contained in English Heritage's MoRPHE publication.