

The Chiltern Railways (Bicester to Oxford Improvements) Order 2012



Written Scheme of Investigation
for Archaeological Excavation and
Preservation In Situ Monitoring at
Langford Lane Diversion and Overbridge,
Wendlebury, Oxfordshire



August 2014

Client: Network Rail and Chiltern Railways

NGR: Between SP 56349 20076 to SP 57852 20327



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1 INTRODUCTION

1.1 Project details

- 1.1.1 In October 2012, the Secretary of State made the Chiltern Railways (Bicester to Oxford Improvements) Order 2012 (the Order). This Transport and Works Act (TWA) Order authorises the construction and operation of an improved railway between Bicester and Oxford. The Order is being implemented by Network Rail (NR) and the Chiltern Railway Company Ltd. (CR).
- 1.1.2 The Order is accompanied by a planning direction (or 'deemed planning permission') granted by the Secretary of State, which is subject to a number of conditions. Certain of the planning conditions require that detailed designs or other information are submitted to, and approved by, the relevant local planning authority, which may be either Cherwell District Council or Oxford City Council, or both.
- 1.1.3 Condition 9 of the deemed planning permission requires that the '*development shall not commence in respect of any Individual Section until a Written Scheme of Investigation (WSI) of archaeological potential within that Section has been submitted to and approved in writing by the local planning authority and such elements of that WSI as the local planning authority considers necessary before commencement of development have been implemented*'. A scheme-wide WSI covering all sites other than the Langford Lane diversion and overbridge has previously been submitted by Oxford Archaeology (OA) to and approved by the Cherwell District Planning Archaeologist and the Oxford City Planning Archaeologist.
- 1.1.4 Condition 9 further requires that '*construction of the replacement road from Wendlebury Road to Langford Lane and the bridge over the railway (being Work No 11) shall not commence until details of the measures to avoid (including minor realignment of the road within the Order limits), protect (including raising the road where necessary to protect remains) and record archaeological remains have been submitted to and approved in writing by the local planning authority, in consultation with English Heritage, the Oxfordshire County Council Archaeologist and the Environment Agency, and the approved field evaluation has been completed.*'

1.2 Written Schemes of Investigation

- 1.2.1 A scheme-wide WSI, excluding the Langford Lane Diversion and Overbridge, was submitted in May 2013 to and approved by the Planning Archaeologist for the Cherwell District at Oxfordshire County Council (Richard Oram) and the Oxford City Archaeologist (David Radford) prior to the start of the project construction programme.
- 1.2.2 This Written Scheme of Investigation has been prepared by OA on behalf of CR and NR. This document describes at a detailed level how OA and NR/CR will undertake mitigation measures to fulfil the archaeological requirements of the planning condition specific to the '*construction of the replacement road from Wendlebury Road to Langford Lane and the bridge over the railway*' as outlined above.
- 1.2.3 The Langford Lane diversion and overbridge works were separated from the scheme-wide WSI due to the important remains present in association with Alchester Scheduled Monument and the ongoing discussions with regard to the construction design which have only recently finalised. Detailed design and construction information is essential to inform this WSI and the scope of investigation required with regard to excavation or the preservation *in situ* possibilities.



- 1.2.4 This WSI provides proposals for mitigation methods to be applied to the Langford Lane Overbridge works which are within the Cherwell District and the content of this document has been discussed and agreed with Richard Oram prior to issue. This includes the preservation and protection of archaeological remains *in situ*, along with detailed excavation and recording where preservation is not feasible or requested by the Cherwell District Planning Archaeologist. All following references to the Planning Archaeologist relate to the Cherwell District unless otherwise specified.
- 1.2.5 This WSI is a detailed replacement for a document issued and approved by the Planning Archaeologist 1st July (OA 2014). The initial WSI was produced to cover in less detail the excavation of areas 31a and 31b which lacked the detailed information now available with regard to the preservation *in situ* methods and extent of the enabling works. This WSI covers the full length of the diversion and overbridge. It contains a range of measures for the different parts of the site with the scope for variation should certain results in the field necessitate it and with the agreement of the Planning Archaeologist.
- 1.2.6 All work will be undertaken in accordance with the National Planning Policy Framework (NPPF), specifically Planning Condition 9 attached to the development, and relevant Institute for Archaeologists guidelines.

1.3 Location, geology and topography

- 1.3.1 The improvements to the rail line as a whole will be undertaken between the Oxford Station terminal at platform 3 and Bicester with a new connection added linking the improvements to the London line to the east of Bicester North Station and Launton Road. The Langford Lane Diversion and Overbridge works are approximately 2km to the south-west of Bicester (Fig. 1).
- 1.3.2 The surface topography within the majority of the TWA Order limits at Langford Lane is generally flat at c 61 m to 63 m above Ordnance Datum (aOD) across a low lying floodplain. The underlying solid geology is predominantly Peterborough Member Mudstone of the Oxford Clay formation with sand and gravel and localised areas of alluvium present across the floodplain.
- 1.3.3 The Langford Lane Diversion and Overbridge route runs between the existing Langford Lane at the eastern end of the new route and Wendlebury Road at the western end crossing the rail line to the south of Alchester Roman town Scheduled Monument. The Bicester to Oxford rail line is raised and bordered by drainage ditches/ponds. The land to the east of the rail line is entirely on the floodplain and is characterised by pasture fields and paddocks divided by hedge lines and drainage ditches/streams. The land to the west of the railway includes the western side of the floodplain at 61 m aOD before gently rising to the north-west along the diversion route to a maximum of 68 m aOD at its highest point before sloping down to 63 m aOD at the western limit of the site where it meets the existing Wendlebury Road north of Wendlebury. This land is characterised by arable fields divided by hedge lines and ditch boundaries.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND AND POTENTIAL

2.1 Archaeological and historical background

- 2.1.1 A detailed study of the known cultural and archaeological heritage resource within a 1km boundary to either side of the whole scheme was completed by OA and reported in the Environmental Impact Assessment (EIA) and Environmental Statement (ES) undertaken in 2009 (ERM 2009a and 2009b). Reference should be made to the ES for



background information and the findings from previous desk-based studies (ERM 2009b).

- 2.1.2 At Langford Lane an archaeological evaluation was also undertaken in support of the Transport and Works Act Order application in order to assess the likely impacts of the construction upon remains associated with, although not within, Alchester Roman Town (Scheduled Monument SM OX18). This evaluation, comprising both geophysical survey and intrusive trial trenching, was undertaken in 2010 and the results have been presented as a separate report to which reference should be made for further information (OA 2011). The evaluation provided details of some of the elements discussed below, such as the presence of an early road to the east of the town and the date origin of the settlement development and road that extends to the south of the town. The following is a repeat of the background information presented within the evaluation report.
- 2.1.3 It is not the intention nor within the scope of this document to provide a detailed history of all that is known about Alchester as this is both varied and extensive. However, a short account of key points is given to provide a general background. Information on the most recent fieldwork by Sauer should be viewed in the numerous interim publications (1999a and b, 2001 a and b, 2002, 2003, 2004 and 2005a and b) and a good overview of the site is also provided in *Roman Oxfordshire* (Henig and Booth 2000) from which much of the following is summarised. The Solent-Thames Research Framework for the Historic Environment (STRF) identifies Alchester as one of six major urban centres of the Roman period within the Solent-Thames region, ranked below the *civitas* capitals of Winchester and Silchester as one of four typical walled 'small towns' (Hey and Hind 2014). The STRF recognises that, "nationally, the character and function of the 'small', walled towns is very poorly understood, not least why certain settlements merited defence in comparison with others located along the principal roads of the province(s)". With two well preserved greenfield examples, one of which is Alchester, the region has the potential to begin to address these fundamental questions.
- 2.1.4 The site of the Roman settlement of Alchester was first recorded in 1724 by Stukeley who noted its defences and a major north-south road and various earthworks to the north-east of the town which he interpreted correctly as associated extra-mural settlement. Stukeley also recorded that the town defences were protected with four towers.
- 2.1.5 The town lies c 300 m to the south of a junction of two major Roman roads; an east-west road (Akeman Street) running between Cirencester and Verulamium, and a north-south road running between Dorchester and Towcester. This latter road also served as the central axis through the town although the date of origin of this part of the alignment as it extended south and directly through Otmoor is a topic of debate. The present Langford Lane is partly aligned upon the eastern entrance to the town and was part of the main east-west road through the settlement. The defences of the town enclose an area of approximately 10.5 hectares, making Alchester the largest Roman town in Oxfordshire. and this contained at least six *insulae*, as recognised from aerial photographs, as well as extensive extra-mural settlement recorded to the north and south of the town. Consideration of the extramural occupation suggests that settlement may have extended to as much as 45 hectares.
- 2.1.6 As a preserved greenfield site Alchester has not been extensively excavated. Limited research excavations have identified important evidence for a base of the Second Augustan Legion at Alchester in the period immediately following the Roman conquest in AD 43 (Sauer 2000).



- 2.1.7 The early military activity, deduced mainly from aerial photographs and subsequent limited excavation have recorded a possible vexillation fortress annexe, west of the town and apparently attached to its defences. Dendrochronological dating of a preserved timber gatepost from a gatehouse entrance structure on the western side has provided a date in AD 44 for establishment of this fort (Sauer 2001 and 2004). This phase appears to have been short-lived and any associated military remains in the surrounding area may be relatively ephemeral and not necessarily artefact-rich. Further discoveries of preserved timbers suitable for dendrochronological dating, always a possibility in a floodplain context, would be exceptionally important discoveries. The lack of a defended eastern side strongly suggests that an earlier fort or fortress lies beneath the later Roman town.
- 2.1.8 To the south-east of the town aerial photography recorded a large rectangular enclosure with rounded corners that can be reliably interpreted as a temporary camp. This was succeeded by a parade ground with a trackway access defined by ditches and an internal raised gravel surface (PRN 15986). The most recent intrusive investigations that targeted these features are summarised by Sauer (1999b). The town defences were substantial and date from no earlier than the 2nd century AD, based on analysis of material recovered from the rampart. A later re-cut of the defensive ditch contained material of the 4th century AD. The defences comprised a 6m wide rampart made of sand and gravel with a possible timber revetment to the rear. The rampart was fronted with a limestone wall c 2.5 m wide. In front of the wall was c 7m wide ditch. Evidence for civilian life within the town includes substantial stone structures focused around the core axial road alignments. A bath house that survives in the modern landscape as a large mound and which lies to the west of the town was partially excavated in the 18th century and robbed for stone in the early 19th century (PRN 1585). This is located to the north of the western road out of the town with temple structures opposite this on the southern side of the road (see Sauer 2003, fig. 23). Extensive cropmarks of the extramural settlement to the south of the town have been recorded, consisting of large enclosures (PRN 12751).
- 2.1.9 A total of 28 burials were recorded to the south-east of the town in 1848. The burials were all aligned east-west, with no burial goods, which might suggest that they are late Roman in date, although they have not been positively dated. A Romano-British cremation and urn was recorded to the south of the town (PRN 3166). Further inhumations were recorded to the north of the town during the widening of the A41 along with domestic settlement evidence (PRN 16214) (Booth *et al.* 2001). Other important funerary finds from Alchester include an almost complete inscription from the tombstone of a veteran of the Second Augustan Legion, one of only a handful of Roman inscriptions in stone known from Oxfordshire, and among the most complete. This very important single find has shed new light on historical and archaeological accounts of the Roman conquest of southern Britain (Sauer 2005).

2.2 Potential

- 2.2.1 The works at Langford Lane Overbridge skirt around the southern and eastern edges of the Roman urban area and Scheduled Monument boundary of Alchester. The evaluation geophysical survey and trenching results combined with the cropmark evidence define the principal zones of archaeological potential along the diversion route. These comprise a large area of Roman fields/paddocks/enclosures focused upon the Alchester - Dorchester Roman road south of the walled town and centred upon the overbridge part of the route (Areas 31a and 31b), the ditched trackway access to the parade ground along with a cremation burial in a track side location to the south-east of



the walled town (Area 31c), and an area of dense settlement/activity and an early Roman road alignment located to the east of the walled town (Area 31d). These areas along with other zones of low potential or no construction impact are shown on figure 2.

- 2.2.2 The zone covered by Areas 31a and 31b has significant potential to include structures and settlement adjacent to the Alchester - Dorchester road alignment along with burials, cemeteries and shrines, all of which are recurring themes in such roadside locations approaching major Roman settlements. Cemeteries and individual burials have the potential to inform on the contemporary population as these are a rich source of archaeological data on demographics, disease, social and religious customs, as well as reflecting the fortunes of the associated settlement. In addition, the road is a significant topic of investigation for understanding the early development of the settlement following the military activity. At this location the road coincides with an existing field boundary with flowing water. It is very likely that this is an extant Roman boundary as part of the water management and drainage of the floodplain. If so, the point at which the road and ditch/watercourse cross each other has the potential to produce waterlogged material that may include suitable samples for dendrochronological analysis and dating. The field ditch boundaries that extend off the road alignment were also clearly part of the landscape water management as indicated by the evaluation results (OA 2011). These ditches contain localised waterlogged material such as the deposit recovered from the base of a ditch in Trench 41 (OA 2011). Excellent palaeoenvironmental remains were recovered in the form of snails and waterlogged plant and insect remains from selected ditches within this zone during the evaluation. Combined such remains will allow for the reconstruction and interpretation of the habitats present both chronologically and spatially during the occupation and utilisation of this part of the landscape.
- 2.2.3 Site 31c has comparatively limited potential based upon the evaluation data although the presence of possible quarry pits adjacent to the track and a single cremation deposit does suggest that features alongside the trackway may be more extensive than previously envisaged. The potential remains here for the presence of a localised cemetery or inhumations/cremations that may have a military origin early in the settlement history.
- 2.2.4 Site 31d has the potential to address the history of road layouts and development for the settlement as the evaluation identified an early sequence of metalled surfaces at this location. This ties into the potential noted for Sites 31a and b with regard to the date origin of the north - south Alchester - Dorchester road alignment. However, this location will be preserved *in situ* and will not be investigated beyond the data provided by the evaluation results.
- 2.2.5 Much more limited areas of potential are also present such as the zone between Sites 31b and 31c. The cropmark evidence and evaluation results are negative for this zone albeit in close proximity to the Scheduled Monument boundary and close to the activities extending to the south of the town.
- 2.2.6 The section of the Langford Lane Diversion between Wendlebury Road and the new overbridge that lies on the clay geology of the shallow valley side also offers little potential. The evaluation along this part of the route only produced negative results. The area between Elm Tree Farm and the new road as it approaches the overbridge was not subject to any evaluation although the similar topographical location and absence of field finds and cropmarks suggests that this also offers a similar level of low or nil potential.



3 PROJECT AIMS

3.1 Project aims outline

- 3.1.1 The scheme-wide WSI for the Bicester to Oxford Improvements includes a list of aims and objectives as a guide for the archaeological project as a whole. With regard to excavation locations, these are principally based upon a Strip, Map and Sample (SMS) method where relatively sparse data exists prior to the excavations. Such sites would then be supplemented by more detailed excavation aims should the need arise following SMS facilitated by on site discussion and agreement with the Planning Archaeologist. In these cases the requirement for a written statement of detailed aims may not be required due to the relatively limited scope/extent of the sites. However, at the Langford Lane Diversion significant data exists and the areas are appropriately sized to allow the proposal of detailed excavation aims prior to the start of the site works. The section below outlines the general aims of the SMS approach as these remain relevant for the recovery of baseline data from the excavation. Following this is a more detailed list of aims based upon the Roman Period Research Agenda (Chapter 12) from the Solent-Thames Research Framework for the Historic Environment (Hey and Hind 2014). This includes the topics and specific potential themes outlined in Section 2.2.
- 3.1.2 Following the excavation aims a list is also presented for all areas that will be subject to preservation *in situ* through design or through the absence of temporary or permanent impacts.

3.2 General aims

Strip, Map and Sample (SMS) recording

- 3.2.1 It is the aim of the SMS investigations to:
- (i) establish the presence/absence, extent, date, nature, function, and phasing of the archaeological remains present within the identified locations and to preserve these by detailed archaeological records,
 - (ii) characterise the overall nature of any archaeological remains encountered and to understand the process of their formation,
 - (iii) identify priorities within any areas of exposed archaeological remains that may warrant more detailed investigation,
 - (iv) establish the relative archaeological value of any remains encountered and implementing an appropriate archaeological recording response to these through agreement with the relevant Planning Archaeologist,
 - (v) recover evidence for the ecofactual and environmental potential of any archaeological deposits and features where this is considered appropriate to investigate,
 - (vi) make available the results of the investigation through appropriate publication, and
 - (vii) contribute information to key research objectives identified within the Regional Research Agenda for the Solent-Thames region relevant to the remains encountered (see below).

3.3 Specific aims and the potential to address the Regional Research Agenda

- 3.3.1 Although the excavations along the route are limited to small parts of the otherwise large settlement of Alchester and its immediate environs, the areas to be investigated



will provide valuable data to add to information from previous targeted excavations. Based upon the evaluation data it is also possible to identify specific aims for the excavation areas. The following section identifies several key questions in relation to the specific areas and the surrounding landscape. However, the application of research led investigation will also remain fluid to allow provision for the likely discovery of previously unknown remains and features that may raise new questions. The STRF (Hey and Hind 2014) will be used as a guide in the formulation of specific aims although not exclusively. The excavation aims will be reviewed during the course of all works and modified as needed in the field and at assessment stage according to the results. The modification of project aims will be achieved through consultation between the OA site staff, the OA Senior Project Manager, OA specialist staff, the Planning Archaeologist and other specialist advisers where relevant. The research agendas will also be available to all staff for reference on site during the fieldwork to aid their primary assessment of the archaeological remains.

- (viii) Environmental evidence (STRF section 12.3). As noted above, the features encountered, particularly within Areas 31a and 31b, contain frequent and well preserved snail remains. Some locations also include waterlogged material. The recovery of dated samples from these sequences is a primary aim of the excavation and these will investigate the contemporary environment both chronologically and spatially. This will principally address the identification of how the fields and land plots aligned off the Alchester - Dorchester road functioned.
- (ix) Landscape and land use (STRF section 12.4). This overlaps with the environmental evidence aims outlined above and the recovery of good environmental sequences will also provide evidence about the wider landscape. Other, more detailed research areas are identified within this section of the STRF however, the current evaluation data does appear to directly relate to these although individual features may be encountered such as cess pits where good environmental deposits are present. If encountered, these will similarly be targeted to provide evidence for diet in the local population.
- (x) Social organisation (STRF section 12.5). This is a very broad research category and may not be well addressed by the excavations at Langford Lane. However, the excavation focused upon Sites 31a and 31b will seek to identify, firstly, if occupation is actually present at this roadside location or if this part of the settlement was reserved for other practices such as arable/pasture. If this was actively occupied, how did this fit within the social organisation of the greater settlement? The excavation will seek to define the character of settlement here and compare this to the data available for contemporary settlement elsewhere either inside or outside of the walled town.
- (xi) Settlement (STRF section 12.6). The characterisation of the settlement and economy is identified as a specific topic in the STRF. This is essentially a baseline aim identified above. Patterns of development and abandonment is also identified as a research topic under this heading. The recovery of dated stratigraphic sequences is also a baseline aim of the excavation and this will help address issues of expansion and decline/abandonment within the excavation areas.
- (xii) Civitas capitals and other towns (STRF section 12.7). Alchester falls firmly in the other towns category of this title and, as such, offers some potential to address elements of this research category. It should be recognised that the excavations of this project are rather limited, although these will be considered in light of the evidence from previous excavations where published data allows. This has



significant overlap with the settlement topic and aims as the recovery of well dated sequences will allow a better understanding of how the urban centre at Alchester developed and expanded particularly to the south of the walled town.

- (xiii) Ceremony, ritual and religion (STRF section 12.8). This topic identifies temples, shrines and cemeteries as important features for furthering our understanding of ritual activity. This is a particularly complex subject and shrines or shrine related activity can be easily overlooked during fieldwork. The roadside and trackside locations of Areas 31a, 31b and 31c all offer the potential to identify such features and deposits which are often encountered at roadside locations approaching major Roman settlements or in association with boundary plot divisions between settlement and fields. OA's excavations will aim to review all unusual finds assemblages and features to ensure such activity can be identified and suitably investigated.
- (xiv) Warfare, defences and military installations (STRF section 12.9). None of the current excavations are directly within the known zones of primary military occupation although Site 31c will investigate the trackway ditches approaching the parade ground where an associated track side cremation deposit was encountered during the evaluation stage. Throughout the excavations the finds will be monitored to identify possible military artefacts to establish what presence the military had, if any, within the settlement area south of the walled town following the primary military occupation.
- (xv) Crafts, trade and industries (STRF section 12.11). This topic is wide ranging but the principal theme identified in the STRF research agenda relevant to this project is the pottery industry. The industry located in Oxford lies on the Alchester - Dorchester road only 13-16km south of Alchester. There seems little scope to directly explore the settlement context and landscape of the pottery industry although it may be possible to view the arrival of the earliest products at Alchester.
- (xvi) Communications and trade (STRF section 12.12). The STRF focuses on coastal and river means of transport. However, the presence of the Alchester - Dorchester road and a limited part of possible roadside settlement may provide the means to investigate transport links and movement of goods on the road network in association with river and sea links. The excavation will aim to identify foreign imports (e.g. amphorae) or goods from further afield within Roman Britain to assess how important the road network was to this site for the distribution of such goods. As also outlined in Section 2.2.4 there is the potential of the excavations to further inform how this road network developed at Alchester. The excavation of Site 31b will target the construction sequence of the Alchester - Dorchester road and aim to provide an accurate date for its construction. This is critical for understanding the origin for the activity or settlement south of Alchester and the development of the early and late 1st century road network. Currently there is mounting evidence that the earliest route south of Alchester was actually directed out of the eastern side of the fort/town before turning south and skirting the eastern edge of Otmoor. Late in the 1st century it appears that the road directly south out of Alchester was built and aligned through the sodden centre of Otmoor replacing the less direct route.



3.4 Preservation in situ

3.4.1 The aims of the preservation *in situ* strategy are to:

- (xvii) design and construct specified areas of the scheme in such a way that any archaeological features present would survive undisturbed and be available for future investigation,
- (xviii) ensure that areas to be preserved are clearly mapped and agreed in advance with the Planning Archaeologist,
- (xix) ensure that the method for preservation is clearly defined, conveyed to the site construction team, and carried out under archaeological supervision,
- (xx) ensure that areas preserved *in situ* under temporary works (compounds and storage areas) are reinstated in a manner that will not affect buried remains.

4 PROJECT SPECIFIC EXCAVATION AND RECORDING METHODOLOGY

4.1 Scope of works and range of development impacts

4.1.1 Figure 2 shows the overall TWA Order boundary in the location of the Langford Lane Diversion and Overbridge and the Site locations within it. Within these a range of permanent and temporary construction works will be undertaken. Based upon consideration of the construction design, the permanent or temporary impacts, and the archaeological potential along the whole route, a range of mitigation measures and proposals have been discussed and agreed with the Planning Archaeologist. The following scope is based upon these discussions.

4.1.2 The route between Wendlebury Road and Langford Lane is identified as OA Site 31. Within this four key locations have been designated as requiring archaeological mitigation (labelled Areas 31a – d, Fig 2). A variety of methods are to be adopted, depending on the informed permanent and temporary construction impacts, and the significance and sensitivity of the archaeology present. These combine no intervention where it is clear there is no or very limited archaeological potential, preservation *in situ* to varying specifications according to the known potential, and excavation to Strip, Map and Sample and detailed standards. The scope for each zone is described below followed by the methods to be employed.

4.1.3 The following table summarises the type of works at each location.

Location/Area	Type of work	Details
Wendlebury Road to Site 31a	No works	n/a
Elm Tree Farm to Site 31a	Preservation in situ	Spoil storage over existing ploughsoil, OA monitoring
Site 31a	Excavation	Drainage ditches, cable trenches, approach road to earthwork embankment, ground improvement zone
Site 31a	Preservation in situ	Earthwork embankment with the ground built up with a buffer layer of topsoil remaining under
Site 31a	Preservation in situ	Compound and haul road access with all hard standing surfaces build up from existing ploughsoil levels
Site 31b	Excavation	Full construction footprint up to the limits of the roadside drainage



Location/Area	Type of work	Details
Site 31b	Watching brief	Drainage ditch/water course. Observations during culvert construction if suitable recording is not possible during the excavation phase
Site 31b	Preservation in situ	The small area between the bridge embankment construction and drainage and the field boundary to the immediate north does not have any temporary or permanent works planned
Area between Site 31b and 31c	Excavation	2m wide trench to be excavated along the centre line of the road. Excavation areas will be expanded should any archaeological features be encountered
Area between Site 31b and 31c	Preservation in situ	The area between the road construction and the Scheduled Monument boundary does not have any temporary or permanent works planned
Site 31c	Excavation	Full construction footprint
Water course/ditch between Site 31c and 31d	Watching brief	Drainage ditch/water course. Observations during culvert construction if suitable recording is not possible during the excavation phase of Site 31c
Site 31d	Preservation in situ	Road and drainage design modifications to minimise construction impacts. Road construction to be built up with minimal (50mm) impact upon existing topsoil levels.
Area between Site 31d and Langford Lane	No works	n/a

Wendlebury Road to Site 31a including Elm Tree Farm access

- 4.1.4 The route of the Langford Lane Diversion leading from the existing Wendlebury Road to the new overbridge embankment and structure will not be investigated beyond the negative results of the evaluation. The arching sweep of land within the TWA Order limits between this road and Elm Tree Farm has not been subjected to any archaeological evaluation technique although the potential here has been assessed as very low based upon the shared topographical characteristics with this part of the Langford Lane Diversion road. However, due to the absence of data this area will be treated as preservation *in situ* for the temporary store areas and a watching brief during the stripping works for the new farm access road.

Site 31a

- 4.1.5 Site 31a covers a large area of permanent and temporary works. OA has informed the construction design at an early stage and provided advice on the level of archaeological recording that will be required and where suitable provision for preservation *in situ* may be accommodated subject to the design of both the permanent and temporary works. At this location the approach road leads onto the overbridge embankment as it rises to cross the rail line. Several unavoidable construction impacts are identified in association with this construction: the accompanying side drainage ditches, the ground improvement piling area backing the bridge abutment at the rail line, the underground



cable trench routes of the current overhead cables and the ground reduction area required to build a suitable foundation for the approach road to the embankment. All of these areas will be the subject detailed archaeological excavation ahead of the associated construction work. These are defined as limits of excavation on figure 2.

- 4.1.6 Areas beyond the limits of the excavations outlined above but within the footprint of the earthwork embankment will be preserved *in situ*. Here only limited archaeological potential largely confined to boundary ditches either between the land parcels aligned off the Alchester - Dorchester road or to the rear of these have been defined by the evaluation stage. However, should the excavations reveal any archaeological deposits or features of significance that extend into the preservation area, an enlarged area will be stripped around this to reveal its full plan and relation to the surrounding ditches.
- 4.1.7 The area to the south of the embankment is included within the TWA Order limits to provide space for temporary works. These include a haul road, a compound area and storage areas. This zone, excluding the cable trenches where the existing overhead power lines will be buried, will be entirely preserved *in situ* and no impacts will be permitted below the current ground surface level. OA will advise during the design process prior to the construction of these temporary works and monitor the implementation of the method.
- 4.1.8 In addition a small area to the north of the TWA Order limits will be excavated to facilitate the replacement of the existing overhead power lines with buried cables. This requires the installation of two pairs of posts within the Scheduled Monument boundary. These works are being undertaken by SSE and do not form part of this WSI. A Scheduled Monument Consent application will be completed by SSE with an accompanying WSI produced by OA.

Site 31b

- 4.1.9 Site 31b covers the greatest area of archaeological potential where construction impact cannot be avoided. The potential to preserve some remains *in situ* under the bridge embankment is avoided at this location. This is due to the increasing density and importance of archaeological features and deposits present within the immediate vicinity to either side of the Alchester - Dorchester road. The full area as outlined on figure 2 will be the subject of a detailed excavation. This will be focused on the expected density of remains nearer the Roman road with a suitable level of investigation applied to the boundary ditches known to be present nearer the rail line. The limits of the excavation will be defined by the outer limit of the side drainage ditches. Some elements of the design such as the size and location of the accompanying drainage and the road embankment width have not been finalised although the excavation limits will follow those of the final design. Where possible all detailed excavation will be undertaken in a continuous attendance although return visits may be required where additional drainage is required and added following completion of the excavation.
- 4.1.10 A small area of land is present between the limit of excavation and the TWA Order limits. This will not be investigated and further construction impacts are not expected. OA will advise the construction contractors and monitor the construction phase to ensure that these areas are not destroyed.
- 4.1.11 Site 31b also includes an active drainage channel that has flowing water within it at the point where the Alchester - Dorchester road crosses the site. It is currently unclear how this part of the site will be investigated in detail although this will form some part of the excavation. It may be that this is undertaken as a watching brief phase once suitable



isolation and alternative drainage is installed during construction. OA will agree an appropriate method and scope of investigation with the Planning Archaeologist during the course of the excavation work to either side of the drainage channel.

The area between Site 31b and 31c

- 4.1.12 The existing detailed cropmark evidence and the evaluation data suggests that the zone between Sites 31b and 31c is clear of archaeological features and deposits. Nevertheless their proximity to the Alchester Scheduled Monument boundary, which is along the northern side of the TWA Order limits here, means that a precautionary approach is required by the Planning Archaeologist to ensure that isolated and unexpected remains are not encountered and destroyed as part of the construction. To resolve this likelihood a single 2m wide trench will be excavated along the centre line of the road. If no archaeological features or deposits are encountered no further investigation will be required within the footprint of the road and drainage corridor. If localised archaeological remains are encountered the area around the feature or deposit within the road corridor will be appropriately investigated.
- 4.1.13 Beyond the road and drainage corridor an area of approximately 2ha is enclosed by the northern side of the TWA Order limits and road corridor boundary. Currently there are no temporary or permanent works proposed for this area and this should remain as meadow during the construction phase although it is possible that this may also be used for storage of light materials. OA will maintain monitoring of this area and advise the construction contractor to keep this clear to avoid potential impacts. This will ensure the preservation *in situ* of any remains that may be present.

Site 31c

- 4.1.14 The site is defined entirely as excavation due to the presence of the access track and ditches leading to the parade ground and the levels of road construction and associated drainage that will unavoidably impact upon the archaeological horizon. Features interpreted as quarry pits were also encountered beyond the track limits and a single cremation deposits was also recorded. The excavation area is approximately 60m by 17m covering the full footprint of the road embankment and accompanying side drainage. The north-eastern limit of the excavation will be defined by the existing field boundary and water/drainage course between Sites 31c and 31d. See below for investigations relating to this ditch.
- 4.1.15 An area of approximately 1.5-2.5m lies between the boundary of the Site 31c excavation and the TWA Order limits. Should the exposed archaeological remains prove to be of significant importance, the excavation boundary may be extended to the full width of the TWA Order limits through agreement with NR and the Planning Archaeologist. Similarly, should significant archaeological deposits/features be encountered extending beyond the south-western limit of the excavation, the boundary may be extended in this direction until a suitable point where no further significant archaeological remains are present. This will only be undertaken with the agreement of NR and the Planning Archaeologist and on the identification of significant archaeological remains/features/deposits. It is recognised at this stage that numerous natural features and treeholes are present in this area and further detailed investigation of these is not required.

The water channel between Sites 31c and 31d

- 4.1.16 Dense archaeological remains are present to the immediate north of this drainage ditch/channel within Site 31d. Within this channel/ditch there is some potential to encounter waterlogged material in association with the Roman activity that may



otherwise be destroyed during the construction of a culvert and crossing point. The excavation of Site 31c will be up to the edge of the ditch which may inform the potential for other remains or deposits to be present. During the construction phase a watching brief will be undertaken upon the clearance of the ditch.

Site 31d

- 4.1.17 No intrusive investigations are planned for Site 31d. This whole zone is defined as preservation *in situ* and the scope of OA's work is to provide continuing design advice for the road construction and the monitoring of the construction phase to ensure that the archaeological remains are preserved.

The area between Site 31d and Langford Lane

- 4.1.18 Following the negative results of the evaluation for this area no archaeological works or considerations are required for this part of the route which appears to be largely occupied by the infilled former meandering channel of the adjacent straightened water course.

4.2 Mitigation methods

Preservation in situ methods

- 4.2.1 The following descriptions outline the various methods that will be employed to ensure that suitable preservation *in situ* is maintained where specified. This is presented west to east in relation to the diversion and overbridge route and follows the site area convention as above.
- 4.2.2 During the construction phase the zone between Elm Tree Farm and the western part of the Langford Lane Diversion will be used for soil storage. Spoil will only be transported to this location in wide wheeled dumpers during suitable dry ground conditions. Should the ground be wet and start to become rutted OA will advise the ground works to cease until a point where the ground is dry enough to continue the vehicle movements without penetrating the existing ploughsoil cover. The spoil heaps will be made directly over the existing ploughsoil. The current ploughsoil is between 250mm and 350mm thick which should provide a reasonable buffer between the works and the temporary storage. A geotextile will be laid down where it is desirable to maintain separation between soils. A bulldozer will also be available to periodically level out the access route to the spoil heaps to ensure that deep ruts that may penetrate the underlying geological surface and potential archaeological horizon do not form. OA staff and specifically the Senior Project Manager will regularly monitor the conditions at this location and advise the site foreman and the construction contractor's earthworks managers directly. OA will continue this process through to the reinstatement phase.
- 4.2.3 With regard to Area 31a a range of methods and design solutions will be implemented to ensure the preservation *in situ* of buried remains beyond the limits of excavation. The basic principle for preservation *in situ* to be applied is that no temporary or permanent impacts must affect buried archaeological remains either proven or potential. At Site 31a within the footprint of the bridge embankment this will be achieved by maintaining a buffer zone of the existing ploughsoil/buried soil horizons between the archaeological horizon and the basal construction level. Here the existing soil cover is between 350-450mm. The construction will start with the limited removal of the existing crop vegetation and a maximum of 100mm of the ploughsoil surface leaving an approximate buffer zone of 250-350mm. This will be completed under the supervision of OA staff and using a tracked bulldozer. No wheeled vehicles will be permitted to access the area during the removal of the vegetation and exposure of the soft ploughsoil. The tracked



bulldozer will have the added benefit of levelling and lightly compacting the ploughsoil surface without the possibility of exposing or sinking into the underlying deposits.

- 4.2.4 Following the removal of the crop and upper horizon of the ploughsoil a geotextile membrane will be rolled out across the exposed surface. This will be immediately overlain by a plastic mesh to support a 300mm overlying layer of graded stone. The stone will be back loaded by dumpers from hard standing and the stone will be spread over the base ground stabilisation layers by a bulldozer blade. Once the layer has reached 300mm in thickness this will be compacted using a vibrating roller. Over this level a thin layer of finer bonding material will be laid and compacted with another layer of geotextile laid over. Further graded stone is built up by another 200-300mm. This horizon forms the base for the piling works and subsequently the made ground construction. Once this level of construction has been completed no further observations by OA staff beyond occasional reviews to ensure that the approach has not changed will be required.
- 4.2.5 Beyond the limits of the embankment earthwork and archaeological excavations this same method will be employed to create the compound and store area. However, this will vary slightly in that the existing crop will only be flattened by a bulldozer prior to the laying of the primary geotextile layer and no ploughsoil will be removed.
- 4.2.6 A temporary haul road to access the compound and store area will also be constructed under preservation measures. This will be aligned alongside the earthwork embankment and similar measures as outlined above will be applied. Here the crop will be flattened by a bulldozer and a primary layer of geotextile will be rolled out along the haul road route. Over this a 400-500mm layer of graded material will be spread out by a bulldozer with a vibrating roller compacting this at different horizons. The top of the haul road will be capped with finer graded material and rolled to provide a firm access route. An additional store area will also be created in the same manner between the embankment and haul road effectively providing a complete hard standing cover of the Site 31a area with the exception of a small 'green' zone between the haul road and the TWA Order boundary. Photographs showing the various material layers *in situ* under the compound/store area are included as figure 3. These measures will be put in place as part of the enabling works ahead of the construction phase for the Overbridge. The reinstatement of the compound and storage areas following the completion of the construction programme will similarly be completed under the observation and guidance of OA staff. Materials will be removed in a manner to ensure that wheeled vehicles do not cause rutting to the underlying soft soils. It is likely that the final reinstatement will comprise ploughing of the area to return this to farmland.
- 4.2.7 Within Site 31b the only effective preservation zones will be the margins of the site between the excavation boundaries and the TWA Order limits. Here there are no larger areas for storage or transport movement. The contractors will be made aware that these small areas are to remain outside of the construction area and associated impacts and this will be monitored throughout the works by the OA Senior Project Manager.
- 4.2.8 Between Sites 31b and 31c there will be remain a relatively large area (c 2ha) of meadow that will not be impacted by any permanent construction. This lies between the Scheduled Monument boundary and the new road alignment. Currently there are no plans for temporary works in this area that may impact below the current ground level. The OA Senior Project Manager will maintain discussions with the contractors to review this situation throughout the course of the project construction timetable. Should this be



required for temporary storage, the same method building up from the current ground level will be applied.

- 4.2.9 Site 31d represents a different set of circumstances to those above as this includes the only identified remains where the Planning Archaeologist has requested the preservation *in situ* of buried remains as part of the planning condition. Within this area a well preserved Roman road sequence was identified with the latest uppermost remnants of metalled surfacing present at only 200mm below the existing turf horizon. The OA Senior Project Manager has advised the design team on the road alignment at this location and the limitations in terms of groundwater and construction impacts to ensure that the buried Roman road is not affected by the construction. As a result the road and accompanying drainage design has been modified to ensure that there are no below ground impacts over a zone identified as 'NO DIG' on the construction plans. To avoid this the design solutions include the omission of ditched roadside drainage in favour of kerb drainage for surface water. This leads leading into shallow roadside ditches to the north-east and south-west beyond the defined 'NO DIG' zone. These ditches are limited to 200mm depth below the current ground levels coinciding with where the evaluation results record alluvial layers sealing the buried archaeological deposits to depths of 500mm and greater. This ensures a separation of 300mm or greater between the greatest construction depth impact permitted and the archaeological remains. For the road construction itself the removal of the turf to a nominal 50mm will be permitted over the 'NO DIG' zone under strict archaeological control. Beyond this boundary the turf layer may be removed to a strict level maximum of 150mm by bulldozer before the ground is built up. Again, no wheeled vehicles will be permitted to cross any soft surface layer that may rut. The exact details for the building up of the base layers has not been confirmed although it is anticipated to be the same as the compound area outlined above with geotextile, mesh, stone, fine stone, geotextile and further layers of graded stone. Similarly the fine details of the road design and surface levels have not been issued as final design drawings. However, the aspects that potentially affect the buried remains (drainage) will not change. These details will all be supplied in final form and discussed with the Planning Archaeologist prior to the start of construction works within Site 31d.
- 4.2.10 The OA Senior Project Manager will maintain discussions with the construction contractor's earthwork managers to ensure that all of the archaeological limitations at this location are understood and implemented. OA staff will attend and observe and advise the works. A watching brief will be undertaken upon all limited soil removal to ensure that the strict level limitations are applied. No archaeological excavation is expected at this location as all remains should be well below the impact depths.

Archaeological excavation methods

- 4.2.11 This section describes the archaeological fieldwork methods that will be applied to complete the excavations and recording of the works. At present the majority of the archaeological recording will comprise detailed excavation principally at Sites 31a, 31b, and 31c with more limited excavation within the zone between 31b and 31c.
- 4.2.12 'Watching brief' will only apply to the monitoring of groundworks for the preservation *in situ* locations and the construction of culvert crossings within drainage ditches/water courses. The 'Watching Brief' and monitoring exercises for the preservation *in situ* areas will be to ensure that this process is effective and strictly applied.
- 4.2.13 A summary of OA's general approach to excavation and recording can be found in Appendix A. Standard methodologies for Geomatics and Survey, Environmental



evidence, Artefactual evidence and Burials can also be found below in Appendices B, C, D and E respectively.

- 4.2.14 Sites 31a, 31b and 31c have been identified through cropmark, geophysical survey and trial trench evaluation data as areas with specific potential. This is outlined above in Section 2.2 and a series of research aims have been identified relevant to the expected remains in Section 3.3.
- 4.2.15 Prior to the start of intrusive excavation the limits of the construction impact zones relevant to Site 31a and the outer boundary of the drainage for Site 31b will be laid out by the project surveyor to the design details. For the area between Sites 31b and 31c the surveyor will layout the centre line of the road which will be the route of the 2m wide continuous trench that will be excavated to confirm the potential in this area.
- 4.2.16 All stripping will be completed under close archaeological supervision using a mechanical excavator(s) fitted with a toothless bucket (or similar) for the removal of the topsoil. Each machine stripping topsoil and underlying deposits will be supervised by an individual archaeologist where appropriate (i.e. where archaeological features are at such a density, or that the individual machines are operating at too great a distance from each other, or that the skill level of the machine operators and the site conditions are not conducive to acceptable clean surface results). Machine excavation will cease upon exposing archaeologically significant deposits or the surface level of undisturbed geology (drift or solid) depending upon which is encountered first.
- 4.2.17 Plant movement during the stripping phase will be arranged through on site agreement to avoid potential disturbance to archaeological deposits (i.e. deep wheel ruts or tracking over stripped areas). Where areas are demonstrated to be devoid of archaeological remains or where all archaeological remains have been excavated to fulfil the aims specified above, these will be defined on a plan that will be supplied to the Planning Archaeologist to facilitate a sign off for these areas to allow unrestricted plant access when required for construction or enabling works. OA site staff may also authorise limited access across areas which are devoid of archaeology, if required by the contractors and if these are operating on site at the same time as the archaeological works.
- 4.2.18 If, during the removal of the topsoil, it is identified that the stripping method employed is not conducive to exposing archaeological features or deposits, stripping will cease subject to a site review with the Planning Archaeologist and OA's Senior Project Manager and/or senior site staff to agree an alternative approach.
- 4.2.19 The machine stripping will aim to achieve a clean surface that does not require substantial hand cleaning to fulfil the aims outlined above. However, where archaeological deposits are encountered these will be hand cleaned as necessary to define the extent of the feature/deposit and allow initial sample investigation.
- 4.2.20 Where appropriate within the excavation areas, the recording methodology will follow a two-stage approach with the initial sample investigation being limited to characterisation of features and deposits and a plan of the archaeology exposed. This information will inform a second phase of more detailed excavation where resources will be focused upon the areas and features that offer the best evidence to fulfil the aims. These phases will operate in a rolling manner as the excavation areas advance. Detailed excavation will be appropriate and proportionate to the potential significance of the exposed archaeology and will be developed by OA in agreement with the Planning Archaeologist through on site discussions. Should this result in a variation to the scope of work, this will be agreed with the client and confirmed with the Planning



Archaeologist in writing. If no, or relatively sparse remains, or those of limited research value are encountered, then characterisation of the archaeology may be deemed an appropriate form of mitigation. All such approaches will be reviewed on a continuing basis and agreed with the Planning Archaeologist before proceeding.

- 4.2.21 Where the archaeological works are being undertaken alongside the construction programme, the various works will be suitably separated by a high visibility physical barrier barring plant from tracking across the site area. Any vehicle routes or equipment storage will be kept at an appropriate distance to ensure safe working conditions for the archaeological team.
- 4.2.22 The final site sample level of archaeological deposits and features will be agreed on site with the Planning Archaeologist according to the nature of the remains. Where this varies considerably to what is expected, this will be confirmed in writing with the Planning Archaeologist. The following provides a guideline for standard excavation requirements:
- The complete (100%) excavation of any grave or cremation.
 - Any structures will be excavated to the extent that they are sufficiently characterised and understood, this shall involve excavating a representative range of structural elements such as post-holes, construction trenches, etc. Some sufficiently important structures e.g. hearths, kilns, midden deposits etc may require 100% samples.
 - Any positive feature, archaeological feature or deposit likely to obscure earlier features will be completely removed in the most appropriate fashion, after being recorded.
 - Linear features shall be excavated to the extent that they are characterised and understood. This will include ditch terminals and intersections and sufficient interventions to provide evidence of dating and formation.
 - An appropriate range of discrete/isolated features (pits, postholes etc) and non-linear negative features shall be investigated. In most cases such features will be half-sectioned, but where either no dating/functional evidence has been obtained, or where artefacts have been recovered of such a nature that the recovery of additional material of a similar nature is thought to be worthwhile, then further sampling will be undertaken. Where clusters of like features occur, it may prove sufficient to investigate a representative sample.

4.3 Programme

- 4.3.1 The works at Langford Lane Overbridge are expected to take place in conjunction with construction enabling works and earthworks in the period May to October 2014 (including watching brief attendances on preservation works).
- 4.3.2 The Planning Archaeologist will be informed of fieldwork at each location ahead of any site attendances. All archaeological excavation will be timetabled to commence ahead of the intrusive ground works allowing for detailed recording as necessary.



4.4 Fieldwork management structure

- 4.4.1 All fieldwork will be completed by a team of archaeologists working under a Supervisor or Project Officer. These works will be completed under the management of Steve Lawrence BA MIFA, Senior Project Manager. All fieldwork undertaken by OA South (Oxford Office) is overseen by the Head of Fieldwork, Dan Poore MIFA.

5 PROJECT SPECIFIC REPORTING AND ARCHIVE METHODOLOGY

5.1 Content

- 5.1.1 It is anticipated that the excavations will generate a reasonable amount of material and data from the Site 31 locations. Therefore, an assessment report followed by analysis and publication is most likely.
- 5.1.2 The content of reports will be as defined in Appendix F.

5.2 Specialist input

- 5.2.1 OA has a large pool of internal specialists, as well as a network of external specialists with whom OA has well established working relationships. A list of these specialists is presented in Appendix G. In the event that additional specialist input is required, an updated list of specialists will be supplied if requested.

5.3 Programme

- 5.3.1 Detailed final reporting requirements have not been defined at this stage due to the unknown quality, quantity and extent of remains that may be encountered. The range of final reports for the scheme as a whole may take the form of a client report in the instance of low quality or negative results through to published monographs in the instance of high quality and important remains. It is likely that the scheme will be published in some form in Oxoniensia. With regard to Site 31, as a minimum it is likely that this will be published as a detailed site report either in Oxoniensia or within a project specific OA monograph that will include the other excavations along the route. This may be the most appropriate form as the only other sizeable excavations have been at Holts Farm (Site 26) and Water Eaton (Site 11), which have produced late Iron Age and Roman remains of comparable date. In the first instance an assessment of the field results will be undertaken. It is currently anticipated that this will be completed within 12-18 months of the completion of the fieldwork.
- 5.3.2 The full scope, location and a timetable for reporting will be agreed with the Planning Archaeologists on completion of the fieldwork.

5.4 Archive

- 5.4.1 The site archive will be deposited with the Oxfordshire County Museum following completion of the project.
- 5.4.2 A summary of OA's general approach to documentary archiving can be found in Appendix H.

6 HEALTH AND SAFETY

6.1 Roles and responsibilities

- 6.1.1 For each fieldwork attendance and site location within this project, the OA Senior Project Manager has responsibility for ensuring that safe systems of work are adhered



to. He will delegate elements of this responsibility to the senior member of the site team at each location who will implement these on a day to day basis.

- 6.1.2 The Director with responsibility for Health and Safety at OA is Robert Williams (Chief Operations Officer). He is advised by the OA Group Health and Safety Coordinator, Dan Poore (NEBOSH Level 3).

6.2 Method statement and risk assessment

- 6.2.1 A summary of OA's general approach to health and safety can be found in Appendix I. The fieldwork is being undertaken within the health and safety standards of the principal contractor, Carillion Buckingham Joint Venture (CBJV), and operated according to NR standards and policies. To accommodate this a Work Phase Plan for the archaeological works along the scheme and site specific Task Briefing Sheets will be produced relevant to the tasks and locations along with regularly issued Permits to Break Ground. These will be produced and issued by the OA Senior Project Manager and approved by CBJV prior to attendance and relevant works at each identified location. All site specific safety documents will be kept on site, along with OA's standard health and safety file, which will contain all relevant health and safety documentation.
- 6.2.2 The Health and Safety file will be available to view at any time by all staff.

7 MONITORING OF WORKS

- 7.1.1 The programme for the archaeological works at each location for Site 31 will be provided to the Planning Archaeologist in advance of these commencing. The Planning Archaeologist will be kept up to date and informed of progress and archaeological discoveries at regular intervals during the project by email, phone and through site visits where required/requested.
- 7.1.2 The Planning Archaeologist will have free access to the sites during fieldwork (subject to Health and Safety considerations) and all records to ensure the works are being carried out in accordance with this WSI and all other relevant standards.

8 REFERENCES

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OA STANDARD FIELDWORK METHODOLOGY APPENDICES

The following methods and terms will apply, where appropriate, to all OA fieldwork unless varied by the accompanying detailed Written Scheme of Investigation.

Copies of all OA internal standards and guidelines referred to below are available on request.

APPENDIX A. GENERAL EXCAVATION AND RECORDING METHODOLOGY

A.1 Standard methodology – summary

Mechanical excavation

- A.1.1 An appropriate mechanical excavator will be used for machine excavation. This will normally be a JCB or 360° tracked excavator with a 1.5 m to 2 m wide toothless ditching bucket. For work with restricted access or working room a mini excavator will be used.
- A.1.2 All mechanical excavation will be undertaken under direct archaeological supervision.
- A.1.3 All undifferentiated topsoil or overburden of recent origin will be removed down to the first significant archaeological horizon, in successive, level spits.
- A.1.4 Following mechanical excavation, all areas that require examination or recording will be cleaned using appropriate hand tools.
- A.1.5 Spoil heaps will be monitored in order to recover artefacts to assist in the analysis of the spatial distribution of artefacts. Modern artefacts will be noted but not retained.
- A.1.6 After recording, evaluation trenches and test pits will usually be backfilled with excavated material in reverse order of excavation, and compacted as far as is practicable with the mechanical excavator. Area excavations will not normally be backfilled.

Hand excavation

- A.1.7 All investigation of archaeological levels will usually be by hand, with cleaning, examination and recording both in plan and section.
- A.1.8 Within significant archaeological levels the minimum number and proportion of features required to meet the aims of the excavation will be hand excavated. Pits and postholes will usually be subject to a 50% sample by volume. Linear features will be sectioned as appropriate. More complex features such as those associated with funerary activity will usually be subject to 100% hand excavation.
- A.1.9 In the case of evaluations, it is not necessarily the intention that all trial trenches will be fully excavated to natural stratigraphy, but the depth of archaeological deposits across the site will be assessed. The stratigraphy of a representative sample of the evaluation trenches will be recorded even where no archaeological deposits have been identified. Any excavation, both by machine and by hand, will be undertaken with a view to avoiding damage to any archaeological features or deposits, which appear to be worthy of preservation in situ.

Recording

- A.1.10 Written descriptions will be recorded on proforma sheets comprising factual data and interpretative elements.



- A.1.11 Where stratified deposits are encountered a Harris matrix will be compiled during the course of the excavation.
- A.1.12 Plans will normally drawn at 1:100, but on urban or deeply stratified sites a scale of 1:50 or 1:20 will be used. Detailed plans will be at an appropriate scale. Burials will be drawn at scale 1:10 or recorded using geo-referenced digital photography.
- A.1.13 The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area.
- A.1.14 A register of plans will be kept.
- A.1.15 Long sections of showing layers will be drawn at 1:50. Sections of features or short lengths of trenches will be drawn at 1:20.
- A.1.16 A register of sections will be kept.
- A.1.17 Generally all sections will be tied in to Ordnance Datum.
- A.1.18 A full black and white photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include colour (digital) working shots to illustrate more generally the nature of the archaeological work.
- A.1.19 Photographs will be recorded on OA Photographic Record Sheets.

A.2 Relevant industry standards and guidelines

- A.2.1 The Institute for Archaeologists' Standard and Guidance notes relevant to fieldwork are:
- Standard and Guidance for Field Evaluation
 - Standard and Guidance for Excavation
 - Standard and Guidance for an Archaeological Watching Brief.
- A.2.2 These will be adhered to at all times.

A.3 Relevant OA manual and other supporting documentation

- A.3.1 All fieldwork will be undertaken in accordance with the requirements of the OA Field Manual (ed. D Wilkinson 1992), and the revised OA fieldwork manual (publication forthcoming).
- A.3.2 Further guidance is provided to all excavators in the form of the OA 'Fieldwork Crib Sheets - a companion guide to the Fieldwork Manual'. These have been issued ahead of formal publication of the revised Fieldwork Manual.



APPENDIX B. GEOMATICS AND SURVEY

B.1 Standard methodology – summary

- B.1.1 The aim of OA methodology is to provide comprehensive survey cover of all investigation areas. Additionally, it is designed to provide coverage for any areas, beyond the original scope of the project, which arise as a result of further work. It provides digital plans of all required elements of the project and locates them within an overall grid.
- B.1.2 It also maintains all necessary survey data and ensures that the relevant information is copied into the primary record, in order to ensure the integrity of the project archive. Furthermore, it ensures that all core data is securely stored and backed up. It establishes accurate project reference systems utilising a series of control stations and permanent base lines.
- B.1.3 The survey will be conducted using a combination of Total Station Theodolite (TST) survey utilising Reflectless Electronic Distance Measurement (REDM) where appropriate, hand-measured elements and GPS (Global Positioning System).
- B.1.4 Before the main work commences, a network of control stations will be laid out encompassing the area. Control stations will be tied in to known points or existing features using rigorous metric observation. The control network will be set in using a TST to complete a traverse or using techniques as appropriate to ensure sufficient accuracy. A GPS, or other appropriate method, will be used to orientate the control network to National Grid or other recognised coordinate system.
- B.1.5 All control stations will be checked by closed traverse and/or GPS, as appropriate. The accuracy of these control stations will be accessed on a regular basis and re-established accordingly. All stations will be recorded on Survey Control Station sheets.
- B.1.6 Each control station will be marked with a PGM (Permanent Ground Marker). Witness diagrams will include the full 3-D co-ordinates generated, a sketch diagram and measurements to at least three fixed details, written description of the mark and a photograph of the control point in its environs.
- B.1.7 Prior to entry into the field all equipment will be checked, and all pre-survey information will be logged onto the field computer and uploaded onto survey equipment as appropriate. The software in the field computer will be verified and all cabling between the GPS and/or TST and computer will be checked. Prior to conducting the survey the site will be reconnoitred for locations for a viable control network and check the line of sight and any possible hindrance to survey. Daily record sheets will be kept to record daily tasks and conditions.
- B.1.8 All spatial data will be periodically downloaded onto a field computer, and backed up onto CD, or DVD. It will be cleaned, validated and inspected.
- B.1.9 All survey data will be documented on daily survey record sheets. Information entered on these sheets includes key set up information (Instrument height etc.) as well as daily variables and errors/comments. All survey data will be digitally recorded in a raw format and translated during the download process this shall allow for any errors to be cross referenced with the daily survey record and corrected accordingly.
- B.1.10 A weekly summary of survey work will be produced to access development and highlight problems. This information also will be recorded on the weekly survey journal. Technical support for the survey equipment and download software shall be available at



all times. In those instances where sites are remotely operated, all digital data will be backed up regularly and a copy returned to Oxford on a weekly basis.

- B.1.11 A site plan will initially be created by a rapid survey of relevant archaeological features by mapping their extent using a combination of TST and GPS. This will form the basis for deciding excavation strategy and will be updated as the excavation clarifies the extent of, and relationships between, archaeological features.
- B.1.12 Excavated archaeological interventions and areas of complex stratigraphy will be hand drawn. At least two Drawing Points (DPs) will be set in as a baseline and measurements taken off this by tape and offset. The hand drawn plans will be referenced to the digitally captured pre-site plan by measuring in the DPs with a TST or GPS. These hand drawn elements will then be scanned in, geo-referenced using the DPs as reference points and digitised following OA's digitising protocols. For further details on hand planning procedure please refer to the fieldwork guidelines.
- B.1.13 Where appropriate rectified photography may be used to record standing structures or burials. This will be carried out in line with Standard OA procedures for rectified photography.
- B.1.14 Survey data recorded in the field will be downloaded using appropriate downloading software, and saved as an AutoCAD Map DWG file, or an ESRI Shapefile. These files will be regularly updated and backed up with originals being stored on an OA server in Oxford.
- B.1.15 All drawings will be composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols. Once created, additional GIS/CAD work will normally be carried out at the local OA central office or at on-site remote locations when appropriate. Support for all GIS/CAD work will be available from OA's Oxford Office during normal office hours. The aim of the GIS/CAD work is to produce workable draft plans, which can be produced as stand-alone products, or can be readily converted to GIS format. Any hand-drawn plans will be scanned and digitised on site in the first instance. Subsequent plans will be added to the main drawing as it develops.
- B.1.16 All plan scans will be numbered according to their plan site number. Digital plans will be given a standard new plan number taken out from the site plan index.
- B.1.17 All digital data will be backed up incrementally on CD or DVD. On each Friday the entire data directory will be backed up and returned to Oxford where it will be copied onto the OA projects server. Each CAD drawing will contain an information layout which will include all the relevant details appertaining to that drawing. Information (metadata) on all other digital files will be created and stored as appropriate. At the end of the survey all raw measurements will be made available as hard copy for archiving purposes.

B.2 Relevant industry standards and guidelines

- B.2.1 English Heritage (2009), Metric Survey Specifications for Cultural Heritage
- B.2.2 English Heritage (2006), Understanding Historic Buildings A Guide to Good Practise
- B.2.3 English Heritage, (2007) Understanding the Archaeology of Landscapes A Guide to Good Recording practise

B.3 Relevant OA manual and other supporting documentation

- B.3.1 OA South Metric Survey, Data Capture and Download Procedures
- B.3.2 OA South Digitising Protocols



B.3.3 OA South GIS Protocols

B.3.4 These will be superseded by the OA South Geomatics Manual (in progress).



APPENDIX C. ENVIRONMENTAL EVIDENCE

C.1 Summary of standard methodology

- C.1.1 Different environmental and geoarchaeological sampling strategies may be employed according to established research targets and the perceived importance of the strata under investigation. Where possible an environmental specialist(s) will visit the site to advise on sampling strategies. Sampling methods will follow guidelines produced by English Heritage and Oxford Archaeology. A register of samples will be kept. Specialists will be consulted where non-standard sampling is required (eg. TL, OSL or archaeomagnetic dating) and if appropriate will be invited to visit the site and take the samples.
- C.1.2 Geoarchaeological sampling methods are site specific, and methodologies will be designed in consultation with the geoarchaeological manager on a site by site basis.
- C.1.3 Bulk soil samples, where possible of 40 litres or 100% of a deposit if less is available, will be taken from potentially datable features and layers for flotation for charred plant remains and for the recovery of small bones and artefacts. Larger soil samples (up to 100L) may be taken for the complete recovery of animal bones, marine shell and small artefacts from appropriate contexts. Smaller bulk samples (general biological samples) of 10-20 litres will be taken from any waterlogged deposits present for the recovery of macroscopic plant remains and insects. Series of incremental 2L samples may be taken through buried soils and deep feature fills for the recovery of snails and/or waterlogged plant remains, depending on the nature of the stratigraphy and of the soils and sediments. Columns will be taken from buried soils, peats and waterlogged feature fills for pollen and/or phytoliths, diatoms, ostracods and foraminifera if appropriate. Soil samples will be taken for soil investigations (particle size, organic matter, bulk chemistry, soil micromorphology etc.) and possibly for metallurgical analysis in consultation with the appropriate specialists.
- C.1.4 Bulk samples from dry deposits will be processed by standard water flotation using a modified Siraf-style machine and meshes of 0.25mm (flot) and 0.5 or 1mm depending (residue). Heavy residues will be wet sieved, air dried and sorted. Samples taken exclusively for the recovery of bones, marine shell or artefacts will be wet sieved to 2mm. Waterlogged samples (1L sub-sample) and snail samples (2L) will be processed by hand flotation with flots and residues collected to 0.25mm (waterlogged plants) and 0.5mm (snails) respectively; these flots and residues will be sorted by the specialist. Samples specifically taken for insects, pollen, other microflora and microfauna, metallurgy and soil analysis will be submitted as whole earth to the appropriate specialists or processed following their instructions.

C.2 Relevant industry standards and guidelines

- C.2.1 English Heritage 2010. Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood.
- C.2.2 English Heritage 2001. Archaeometallurgy. Centre for Archaeology Guidelines 2001.01.
- C.2.3 English Heritage 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post excavation, (2nd ed)
- C.2.4 English Heritage 2004. Dendrochronology: Guidelines on Producing and Interpreting Dendrochronological Dates.



- C.2.5 English Heritage 2006. Archaeomagnetic Dating. Guidelines for Producing and Interpreting Archaeomagnetic Dates.
- C.2.6 English Heritage 2007. Geoarchaeology. Using Earth Sciences to Understand the Archaeological Record.
- C.2.7 English Heritage 2008. Luminescence Dating. Guidelines on Using Luminescence Dating in Archaeology.
- C.2.8 English Heritage 2008. Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains.

C.3 Relevant OA manual and other supporting documentation

- C.3.1 Oxford Archaeology 2005. Environmental Sampling Guidelines, 2nd ed.



APPENDIX D. ARTEFACTUAL EVIDENCE

D.1 Summary of standard methodology

- D.1.1 Before a site begins arrangements concerning the finds will be discussed with the Head of Finds. Information will be provided by the project manager about the nature of the site, the expected size and make-up of the finds assemblage and any site specific finds retrieval strategies. On-site requirements will be discussed and a conservator appointed who can be called on to make site visits if required. Special requirements regarding particular categories of material will be raised at this early stage for instance the likelihood of recovering assemblages of waterlogged material, large timbers, quantities of structural stone or ceramic building material. Specialists may be required to visit sites to discuss retrieval strategies.
- D.1.2 The project manager will supply the Head of Finds with contact details of the landowner of the site so that consent to deposit any finds resulting from the investigation can be sought.
- D.1.3 The on-site retrieval, lifting and short term packaging of bulk and small finds will follow the detailed guidelines set out in the OA Finds Manual (sections 2 and 3), First Aid for Finds and the UKIC conservation guidelines No.2.
- D.1.4 All finds recovered from site will be transported to an OA regional office for processing; local sites will return finds at the end of each day, away based sites at the end of each week. Special arrangements can be discussed for certain sites with the department manager before the start of a project. Larger long running sites may in some instances set up on-site processing units to deal with the material from a particular site.
- D.1.5 All finds qualifying as Treasure will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act (1996), and the Treasure (Designation) Order 2002. Where removal can not be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.
- D.1.6 Each box of finds will be accompanied by a finds context checklist itemising the finds within each box. The number of bags of finds from each context and individual small find from each context will be recorded. A member of the processing team will check the list when it arrives in the department. There are separate forms for finds recovered from fieldwalking.
- D.1.7 The processing programme is reviewed on a weekly basis and priorities are worked out after discussions with the Head of Fieldwork and the Head of Post-excavation. Project managers will keep the Head of Finds informed of any pressing deadlines that they are aware of. All finds from evaluations are dealt with as a matter of priority.
- D.1.8 All bulk finds are washed (where appropriate), marked, bagged and boxed by the processing team according to the guidelines set out in section 4 and 5 of the OA Finds Manual, First-aid for finds and the UKIC guidelines No.2. They must also take into account the requirements of the receiving museum. Primary data recording count and weight of fragments by material from each context is recorded on the site database.
- D.1.9 Unstable and sensitive objects are recorded onto the database and then packaged and stored in controlled environments according to their individual requirements. The advice of a conservator will be sought for sensitive objects in need of urgent conservation. All metalwork will be x-rayed prior to assessment (and to meet the requirements of most receiving museums).



- D.1.10 Finds recovered from the environmental sample processing will be incorporated into the main assemblage and added to the database.
- D.1.11 On completion of the processing and data entry a finds file for each archaeological investigation will be produced, a summary of which is available for the project manager. The assemblage is allocated an OA number for storage purposes. Bulk finds are stored on a roller racking system, metals in a secure controlled storage and organic finds are refrigerated where possible.
- D.1.12 The movement of finds in and out of the department storage areas is strictly monitored and recorded. Carbon copy transit forms exist to record this information. Finds will not be removed from storage without the prior knowledge of the Head of Finds.
- D.1.13 Finds information summarised in the finds compendium is used to assess the finds requirements for the post excavation stages of the project. The Finds department holds a list of all specialists used by OA (see below) both internal and external.
- D.1.14 On completion of the post excavation stage of the project the department prepares the finds assemblage for deposition with the receiving museum. Discussions will be held with the museum, the excavator and the head of finds to finalise any selection, retention or discard policy. Most museums issue strict guidelines for the preparation of archives for deposition with their individual labelling, packaging and recording requirements.

D.2 Relevant industry standards and guidelines

- D.2.1 UKIC, 1983, Packaging and Storage of Freshly-Excavated Artefacts from Archaeological Sites. Conservation Guidelines No.2. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.2 UKIC, 1988, Excavated Artefacts and Conservation: UK sites Revised Edition. Conservation Guidelines No.1. Archaeology Section, United Kingdom Institute for Conservation.
- D.2.3 Society of Museum Archaeologists, 1993, Selection, retention and dispersal of Archaeological Collections. Download available via <http://www.socmusarch.org.uk/publica.htm>
- D.2.4 Watkinson, D E & Neal, V, 1998, First Aid for Finds (3rd edition). RESCUE & UKIC

D.3 Relevant OA manual and other supporting documentation

- D.3.1 Allen, L, and Cropper, C (internal publication only) Oxford Archaeology Finds Manual.



APPENDIX E. BURIALS

E.1 Summary of standard methodology

- E.1.1 Human remains will not be excavated without a relevant licence/faculty and, where applicable (for example, a post medieval cemetery), a risk assessment from the local environmental officer.
- E.1.2 All human remains will be treated with due care and regard to the sensitivities involved, and will be screened from the public throughout the course of the works.
- E.1.3 Excavation will be undertaken in accordance with IFA (Roberts and McKinley 1993) and English Heritage and The Church of England guidelines (Mays 2005). For crypts and post-medieval burials the recommendations set out by the IFA (Cox 2001) in *Crypt Archaeology: an approach*, are also relevant.
- E.1.4 In accordance with recommendations set out in the English Heritage and Church of England (2005) document *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England*, skeletons will not be excavated beyond the limits of the trench, unless they are deemed osteologically or archaeologically important.
- E.1.5 Where any soft tissue survives and/or materials (for example, inner coffins, mattresses and other paddings) soaked in body liquor, no excavation or handling of the remains will take place until an appropriate risk assessment has been undertaken. Relevant protocols (i.e. Cox 2001) for their excavation, recording and removal will be adhered to.
- E.1.6 OA does not excavate or remove modern burials (post-1907) and does not remove or open sealed lead coffins. Appropriate PPE (e.g. chemical suit, latex gloves) will be worn by all staff when working with lead coffins.
- E.1.7 Graves and their contents will be hand excavated in plan. Each component (for example, skeleton, grave cut, coffin (or remains of), grave fill) will be assigned a unique context number from a running sequence. A group number will also be assigned to all of these, and small finds numbers to features such as coffin nails, hobnails and other grave goods (as appropriate).
- E.1.8 Soil samples will be taken during the excavation of inhumations, usually from the region of the skull, chest, right hand, left hand, abdomen and pelvis, right foot and left foot. Infants (circa. less than 5 years) will normally be recovered as bulk samples. Soil samples will also be taken from graves that appear to contain no human bone.
- E.1.9 Burials (including the skeleton, cremation, coffin fittings, coffin, urn, grave goods / other) will be recorded by photographic and written record using specialised pro forma context sheets, although these records may only include schematic representations of the location and position of the skeletons, depending on the nature and circumstances of the burial.
- E.1.10 Where necessary, hand drawn plans (usually at 1:10, sometimes 1:5) will be made, especially of contexts where required details cannot be adequately seen using digital rectified photography (for example, urned cremations; undisturbed hob nails).
- E.1.11 Levels will be taken. For inhumations this will be on the skull, pelvis and feet as a minimum.
- E.1.12 Human remains that are exhumed will be bagged and labelled according to skeletal region and carefully packed into suitable containers (for example, acid free cardboard



boxes) and transported to a suitable storage location. Any associated coffins and coffin fittings will be contained with the human remains wherever possible.

- E.1.13 Unurned cremations will not usually be half sectioned or excavated in spits, but recovered as a bulk sample.
- E.1.14 Wherever possible, urned cremations will be carefully bandaged, recovered whole and will be excavated in spits in the laboratory, as per the recommendations of McKinley (2004).
- E.1.15 Unless deemed osteologically or archaeologically important disarticulated bone / charnel will be collected and reserved for re-burial if immediate re-internment as close to its original position is not practicable. In some instances, a rapid scan of this material may be undertaken by a qualified osteologist, if deemed relevant.
- E.1.16 If undisturbed, pyre sites will normally be excavated in quadrants, at the very least in 0.5 m blocks of 0.5 m spits.
- E.1.17 Pyre debris dumps will be half sectioned or quadrant and will be subject to 100% sampling.
- E.1.18 Wooden and lead coffins and any associated fittings, including fixing nails will be recorded on a pro forma coffin recording sheet. All surviving coffin fittings will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue that is being compiled by OA. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Biographical details obtained from legible departum plate inscriptions will be recorded and further documentary research will be made.
- E.1.19 Funerary structures, such as brick shaft graves and/or vaults will be hand-drawn at a scale of 1:10 or 1:20, as appropriate. Location, dimensions and method of construction will be noted, and the structure added to the overall trench plan.
- E.1.20 Memorials, including headstones, revealed within the areas of development will be recorded irrespective of whether they are believed to be in situ.
- E.1.21 Where required, memorials will be accorded an individual context number and will also be included as part of the grave group, if the association with a burial is clear.
- E.1.22 Memorials will be recorded on pro-forma context sheets, based on and following the guidelines set out by Mytum (2002), and will include details of:
- Shape
 - Dimensions
 - Type of stone used
 - Iconography (an illustration may best describe these features)
 - Inscription (verbatim record of inscription; font of the lettering)
 - Stylistic type

E.2 Relevant industry standards and guidelines

- E.2.1 Cox, M, 2001 Crypt archaeology. An approach. IFA Paper No. 3
- E.2.2 Mays, S, 2005 Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England. Church of England and English Heritage.



- E.2.3 McKinley, J, and Roberts, C, 1993 Excavation and post-excavation treatment of cremated and inhumed human remains, IFA Technical Paper No. 13
- E.2.4 McKinley, J, 2004 Compiling a skeletal inventory: cremated human bone. In Brickley, M, and McKinley, J (eds) Guidelines to the Standards for Recording Human Remains, IFA Technical Paper No. 7. 9-13.
- E.2.5 Mytum, H, 2000 Recording and Analysing Graveyards. CBA Handbook No. 15.
- E.2.6 Reeve, J, and Adams, M, 1993 The Spitalfields Project. Volume I – The Archaeology Across the Styx. CBA Research Report No. 85
- E.2.7 The Human Tissue Act 2004

E.3 Relevant OA manual and other supporting documentation

- E.3.1 Loe, L, 2008 The Treatment of Human Remains in the Care of Oxford Archaeology. Oxford Archaeology internal policy document.
- E.3.2 Excavating and recording human remains. Oxford Archaeology internal guidelines document.



APPENDIX F. REPORTING

F.1 Summary of standard methodology

F.1.1 For Watching Briefs and Evaluations, the style and format of the report will be determined by OA, but will include as a minimum the following:

- A location plan of trenches and/or other fieldwork in relation to the proposed development.
- Plans and sections of features located at an appropriate scale.
- A section drawing showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A summary statement of the results.
- A table summarising the features, classes and numbers of artefacts contained within, spot dating of significant finds and an interpretation.
- A reconsideration of the methodology used, and a confidence rating for the results.
- An interpretation of the archaeological findings both within the site and within their wider landscape/townscape setting.

F.1.2 For Excavations, a Post-Excavation Assessment and Project Design will generally be prepared, as prescribed by English Heritage Management of Research Projects in the Historic Environment (MoRPHE) 2006, Section 2.3. This will include a Project Description containing:

- A summary description and background of the project.
- A summary of the quantities and assessment of potential for analysis of the information recovered for each category of site, finds, dating and environmental data. Detailed assessment reports will be contained within appendices.
- An explicit statement of the scope of the project design and how the project relates to any other projects or work preceding, concurrent with or following on from it.
- A statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled.
- A list of the project aims as revised in the light of the results of fieldwork and the current post-excavation assessment process.

F.1.3 A section on Resources and Programming will also be produced, containing:

- A list of the personnel involved indicating their qualifications for the tasks undertaken, along with an explanation of how the project team will communicate, both internally and externally.
- A list of the methods which will be used to achieve the revised research aims.
- A list of all the tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, indicating the personnel and time in days involved in each task. Allowance should be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time.



- A cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project. Due allowance will be made for leave and public holidays. Time will also be allowed for the report to be read by a named academic referee as agreed with the County Archaeological Officer, and by the County Archaeological Officer.
 - A report synopsis indicating publisher and report format, broken down into chapters, section headings and subheadings, with approximate word lengths and numbers and titles of illustrations per chapter. The structure of the report synopsis should explicitly reflect the research aims of the project.
- F.1.4 The Project Design will be submitted to the County Archaeological Officer or equivalent for agreement.
- F.1.5 Under certain circumstances (eg with very small mitigations), and as agreed with the County Archaeological Officer or equivalent, a formal Assessment and Project Design may not be required and either the project will continue straight to full analysis, or a simple Project Proposal (MoRPHE 2006 Section 2.1) will be produced prior to full analysis. This proposal may include:
- A summary of the background to the project
 - Research aims and objectives
 - Methods statement outlining how the aims and objectives will be achieved
 - An outline of the stages, products and tasks
 - Proposed project team
 - Estimated overall timetable and budget if appropriate.
- F.1.6 Once the post-excavation Project Design or Project Proposal has been accepted, the County Archaeological Officer or his appointed deputy will monitor the progress of the post-excavation project at agreed points. Any significant variation in the project design will be agreed with the County Archaeological Officer.
- F.1.7 The results of the project will be published in an appropriate archaeological journal or monograph. The appropriate level of publication will be dependent on the significance of the fieldwork results and will be agreed with the County Archaeological Officer. An OASIS (Online Access to the Index of Archaeological Investigations) form will be completed for each project as per English Heritage guidelines.

F.2 Relevant industry standards and guidelines

- F.2.1 Oxford Archaeology (OA) adheres to the national standards in post-excavation procedure as outlined in English Heritage's Management of Research Projects in the Historic Environment (MoRPHE; EH 2006). Furthermore, all post-excavation projects take into account the appropriate regional research frameworks as well as national research agendas such as the Framework for Historic Environment Activities & Programmes in English Heritage (SHAPE; EH 2008).



APPENDIX G. LIST OF SPECIALISTS REGULARLY USED BY OA

G.1.1 Below are two tables, one containing 'in-house' OA specialists, and the other containing a list of specialists who are regularly used by OA.

Internal archaeological specialists used by OA

Specialist	Specialism	Qualifications
Lisa Brown	Early Prehistoric pottery	BA, PGDip, Mlitt, MifA
Paul Booth	Iron Age and Roman pottery	BA, FSA, MifA
John Cotter	Medieval and Post Medieval pottery, Clay Pipe and CBM	BA (Hon.), MifA
Cynthia Poole	CBM and Fired Clay	BA (Hon.), MSc
Edward Biddulph	Roman Pottery	BA (Hon.), MA, MifA
Ian Scott	Metalwork and Glass	BA (Hon.)
Leigh Allen	Metalwork and worked bone	BA (Hon.), PGDip
Dr Ruth Shaffrey	Worked stone artefacts	BA, PhD
Julian Munby	Architectural Stone	BA, FSA
Dr Rebecca Nicholson	Fish and Bird Bone	BA (Hon.), MA, D.Phil, MifA, FSA Scot
Elizabeth Huckerby	Pollen and waterlogged plant remains	BA, MSc, MifA
Lena Strid	Animal bone	MA
Andrew Bates	Animal Bone	BA, MA
Dr Denise Druce Pollen	Charred plant remains and charcoal	BA, PhD, MifA
Liz Stafford	Geoarchaeology and land snails	BA, Msc
Nicola Scott	Archaeological archive deposition	BA
Mike Donnelly	Flint	Bsc, MifA

External archaeological specialists regularly used by OA

Specialist	Specialism	Qualifications
Lynne Keys	Slag	BA (Hon.)
Quita Mould	Leather	BA, MA
Penelope Walton Rogers	Identification of Medieval Textiles	FSA, Dip.Acc
Dana Goodburn Brown	Conservation	BSc (Hon.), BA, MSc
Steve Allen	Conservation	BA, MA, MAAIS



Specialist	Specialism	Qualifications
Dr Richard McPhail	Soils, especially Micromorphology	BA (Hon.), MSc, PhD
Dana Challinor	Charcoal	MA (Hon.), MSc
Dr Nigel Cameron	Diatoms	BSc, MSc, PhD
Dr David Smith	Insects	BA (Hon.), MA, PhD
Professor Adrian Parker	Phytoliths and pollen	Bsc (Hons.), D.Phil
Dr David Starley	Slag	BSc, PhD
Dr Sylvia Peglar	Pollen	PhD
Dr John Whittaker	Ostracods and Foraminifera	BA (Hons), PhD
Dr John Crowther	Soil Chemistry	MA, PhD
Dr Martin Bates	Geoarchaeology	Bsc, PhD
Professor Mark Robinson	Insects, molluscs, waterlogged plant remains	MA, PhD
Dr Dan Miles	Dendrochronology	D.Phil, FSA
Dr Jean-luc Schwenninger	Optically Stimulated Luminescence Dating	PhD
Dr David Higgins	Clay Pipe	BA, PhD, MifA
Dr Hugo Lamdin Wymark	Flint	BSc, PhD, FSA Scot, MifA



APPENDIX H. DOCUMENTARY ARCHIVING

H.1 Standard methodology

- H.1.1 The documentary archive constitutes all the written, drawn, photographic and digital records relating to the set up, fieldwork and post-excavation phases of the project. This documentary archive, together with the artefactual and environmental ecofact archive collectively forms the record of the site. The report is part of the documentary archive, and the archive must provide the evidence that supports the conclusions of the report, but the archive may also include data which exceeds the limitations of research parameters set down for the report and which could be of significant value to future researchers.
- H.1.2 At the outset of the project OA Archive department will contact the relevant local receiving museum or archive repository to notify them of the imminent start of a new fieldwork project in their collecting area. Relevant local archiving guidelines will be observed and site codes, which integrate with the receiving repository, will be agreed for labelling of archives and finds.
- H.1.3 During the course of the project the Archive department will assist the Project Manager in the management of the archive including the cataloguing and development technique suitable for photographic archive requirements.
- H.1.4 The site archive will be security copied either by microfilming and the master sent to English Heritage as part of the National Archaeological Record or it will be digitally scanned and stored in a dedicated archive section of the OA computer network. A copy of the work as microfiche diazo or .pdf/a on disk will be sent to the receiving museums with the hard copy. This will act as a safeguard against the accidental loss and the long-term degeneration of paper records and photographs.
- H.1.5 Born digital data where suitable will be printed to hard copy for the receiving museum but if the format is such that it needs maintaining in digital form a copy will be sent to the receiving museum by CD. Back-up copies will be stored on the OA digital network and or posted to the ADS in accordance with AAF & ADS guidelines. In most cases a digital copy of the report will be included in the OASIS project library hosted by ADS.
- H.1.6 Prior to deposition the Archive department will contact the museum regarding the size and content of the archive and discuss any retention and dispersal policies which may be applicable in line with local and SMA Guidelines ' Selection, Retention & Dispersal of Archaeological Collections' 1993
- H.1.7 The site archive will then be deposited with the relevant receiving museum or repository at the earliest opportunity unless further archaeological work on the site is expected. The documentary archive will include correspondence detailing landowner consent to deposit the artefacts and any copyright licences in accordance with the receiving museum guidelines.
- H.1.8 Oxford Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide a licence to the client in all matters directly relating to the project as described in the Written Scheme of Investigation.
- H.1.9 OA will advise the client of any such materials supplied in the course of projects which are not OA's copyright.



H.1.10 OA undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. OA further undertake to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect OA's general ethical obligations not to suppress significant archaeological data for an unreasonable period.

H.2 Relevant industry standards and guidelines

- H.2.1 At the end of the project the site archive will be ordered, catalogued, labelled and conserved and stored according to the following national guidelines:
- H.2.2 The 2007 AAF guide Archaeological Archives A Guide to best practice in creation, compilation, transfer and curation. Brown D.
- H.2.3 The IFA Standard & Guidance for the creation, compilation, transfer and deposition of archaeological archives
- H.2.4 The UKIC's Guidelines for the preparation of excavation archives for long-term storage
- H.2.5 The MGC's Standards in the museum care of archaeological collections
- H.2.6 Local museum guidelines such as Museum of London Guidelines: (<http://www.museumoflondonarchaeology.org.uk/English/ArchiveResearch/DeposResource>) will be adopted where appropriate to the archive collecting area.
- H.2.7 The site archive will be prepared to at least the minimum acceptable standard defined in Management of Archaeological Projects 2, English Heritage 1991.

H.3 Relevant OA manual and other supporting documentation

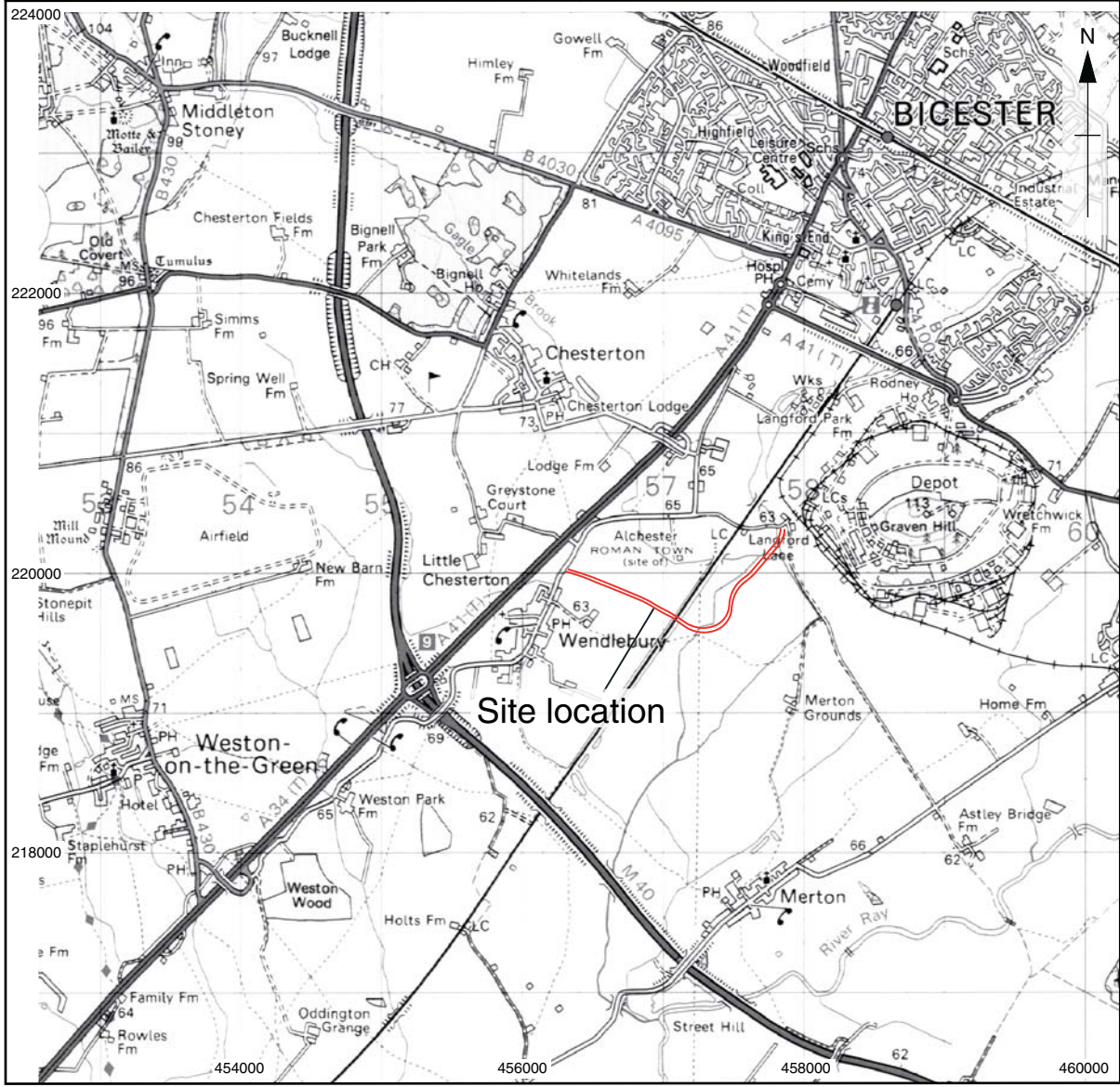
- H.3.1 The OA Archives Policy.



APPENDIX I. HEALTH AND SAFETY

I.1 Summary of standard methodology

- I.1.1 All work will be undertaken in accordance with the OA Health and Safety Policy (Revision 13, August 2009), the OA Site Safety Procedures Manual, a site-specific Risk Assessment and, if required, Safety Plan or Method Statement. Copies of the site-specific documents will be submitted to the client or their representative for approvals prior to mobilisation, and all relevant H and S documentation will be available on site at all times. The Health and Safety documentation will be read in conjunction with the project WSI.
- I.1.2 Where a site is covered by the The Construction (Design and Management) Regulations (2007), all work will be carried out in accordance with the Principal Contractor's Construction Phase Plan.
- I.1.3 All work will be carried out according to the requirements of all relevant legislation and guidance, including, but not exclusively.
- The Health and Safety at Work Act (1974),
 - Management of Health and Safety at Work Regulations (1999),
 - Manual Handling Operations Regulations 1992 (as amended in 2002),
 - The Construction (Design and Management) Regulations (2007), and
 - The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995).



— Langford Lane diversion

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Figure 1: Site location

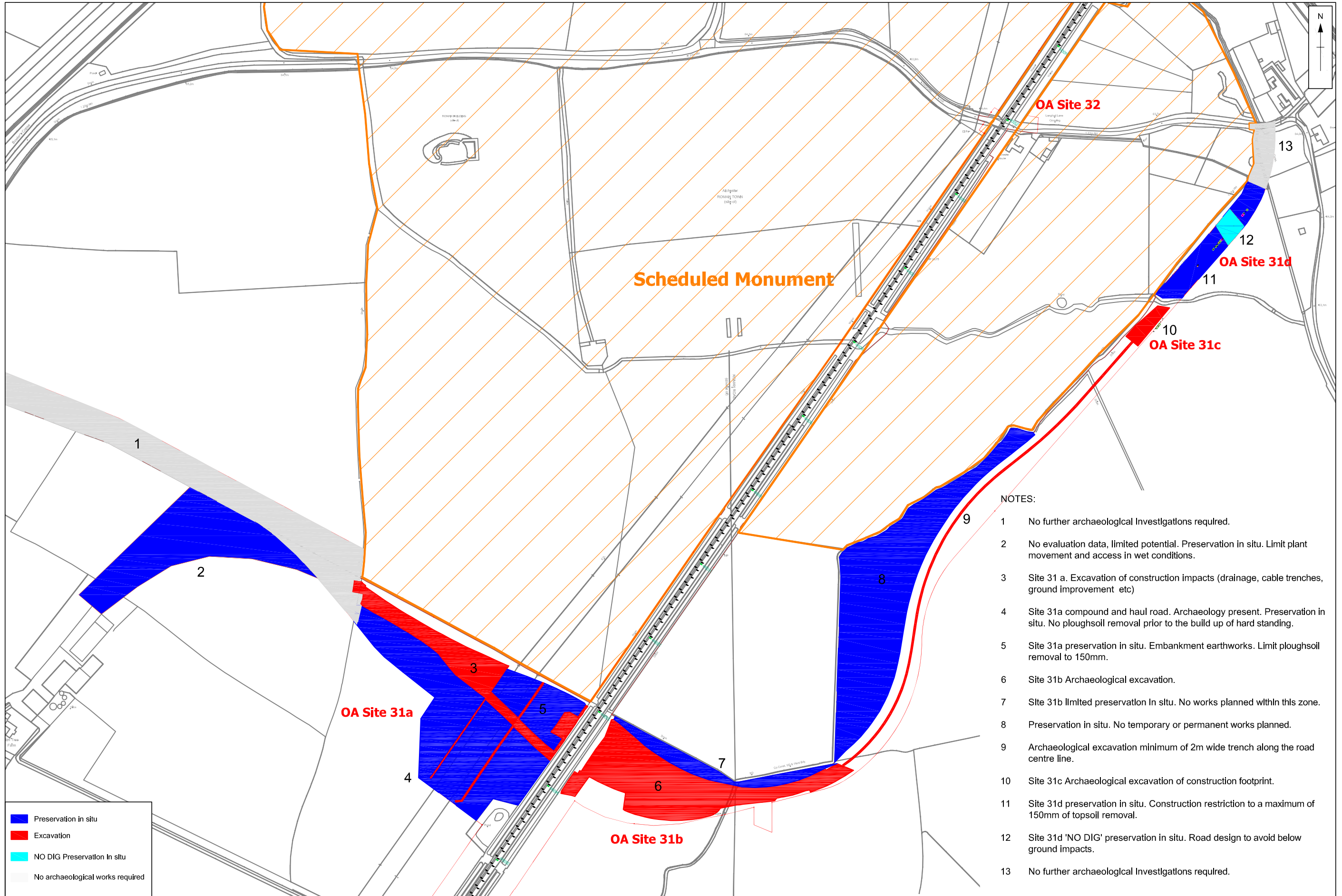


Figure 2 General overview of Site 31
Langford Lane Diversion and Overbridge



Figure 3 Preservation *in situ* method showing a profile of the construction layers overlying ploughsoil at Langford Lane compound and storage area enabling works



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