



West Winch Housing Access Road

Environmental Statement Appendix 7.2: WSI for Archaeological Works

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Foreword

WSP has been commissioned by Norfolk County Council (NCC) to produce a Written Scheme of Investigation (WSI) for a programme of archaeological works, in advance of the proposed West Winch Housing Access Road (WWHAR) scheme, near Kings Lynn, Norfolk. The scheme comprises the construction of a new 3.5km access road. As well as, the installation of roundabout junctions, access junctions and new over bridges for cyclists/ pedestrians on Rectory Lane and Chequers Lane. The A47 will be dualled between the WWHAR and Hardwick Interchange Junction which will be modified and reorientated.

The WSI sets out the scope and methodology for the archaeological works, including the fieldwork method, approach to sampling, progress reporting, post-excavation reporting, archiving and dissemination. It has been preparing in consultation with the archaeological advisor to the local planning authority (LPA). The aim of the archaeological works is to clarify the presence, nature, date, extent and significance of any archaeological remains that might be present in the areas of proposed impact. As pre-construction activity, the archaeological works is not subject to Construction (Design and Management) regulations (CDM 2015).

The WSI has been informed by a geophysical survey, carried out in 2023 (SUMO, 2023). This identified a partial rectilinear feature along with other ditch-type anomalies in the centre of the site. Other curvilinear, linear and discrete responses of uncertain origin have been detected within the survey area. These features likely dated to the post-medieval period and comprised field boundaries, former ridge and furrow, modern ploughing and possible land drains.

The initial phase of archaeological works will comprise of 261 no. 30.0m long by 1.8m wide trial trenches as well as 2 no. 20.0m long by 1.8m wide trial trenches. These are targeted to possible archaeological features identified as anomalies in the geophysical survey. Some trenches are located in 'blank' areas where no anomalies were identified to confirm that no remains are present. Trenches have also been located in areas where the red line boundary has been extended beyond the extent of the preceding geophysical survey.



The results of the initial phase of works (in the form of trial trenching) will allow the LPA Archaeological Advisor to determine an appropriate mitigation strategy for any significant archaeological remains revealed. This might comprise a second stage of investigation, as mitigation, in the form of targeted archaeological open area excavation and recording in advance of construction, and/or Monitoring of Works under Archaeological Supervision and Control (also known as a “Watching Brief”) during topsoil removal (‘strip, map and sample’) for remains of lesser significance. In the unlikely event that remains of very high significance are revealed, there may be a requirement for preservation in situ (e.g., through avoidance/design adjustments). It is possible that the trial trenching reveals no significant remains, in which no further work would be required.

At all stages of the archaeological works the ‘*Standards for Development-led Archaeological Projects in Norfolk*’, 2018, Robertson et al., will be adhered to.

The trial trenching will be undertaken in response to a condition of planning consent as per communications with Norfolk County Council.



1 Introduction

1.1 Project background

- 1.1.1 WSP has been commissioned by Norfolk County Council (NCC) to produce a Written Scheme of Investigation (WSI) for a programme of archaeological works in advance of development at West Winch Housing Access Road (WWHAR) near Kings Lynn, Norfolk (National Grid Reference/NGR 63553 18013: Figure 1 in **Appendix C**).
- 1.1.2 The scheme comprises the construction of a 3.5km access road as well as roundabout junctions, access junctions and new over bridges for pedestrians/cyclists.
- 1.1.3 The WSI sets out the scope and methodology for the archaeological works, including the fieldwork method, approach to sampling, progress reporting, post-excavation reporting, archiving and dissemination. The aim of the archaeological works is to clarify the presence, nature, date, extent and significance of any archaeological remains that might be present in the areas of proposed impact. The trial trenching will be undertaken post-determination of the granting of planning consent.
- 1.1.4 The work will be carried out pre-construction and is not therefore subject to Construction (Design and Management) regulations (CDM 2015) as outlined by the Federation of Archaeological Managers and Employers (FAME 2020). The archaeological fieldwork contractor would be the main contractor, responsible for on-site security, health and safety, plant and welfare.
- 1.1.5 At all stages of the archaeological works the '*Standards for Development-led Archaeological Projects in Norfolk*', 2018, Robertson et al., will be adhered to.
- 1.1.6 The WSI has been informed by a geophysical survey undertaken by SUMO in March 2023 (SUMO, 2023). SUMO conducted the survey over a 31ha area representing, 35% of the total area within the redline boundary, following changes to the site boundary following completion of the geophysical survey.



A small number of anomalies were identified including a partial rectilinear enclosure as well as linear, curvilinear and discrete anomalies. Former field boundaries, land drains, ridge and furrow, modern ploughing and a former marsh were also identified.

- 1.1.7 The results of the initial phase of archaeological works (in the form of trial trenching) will allow the LPA Archaeological Advisor to determine an appropriate mitigation strategy for any significant archaeological remains revealed. Any archaeological mitigation work that may be necessary would require a separate intervention-specific Method Statement/Design Statement appended to this approved WSI outlining the scope and method for that work. Any Method Statements would need to be approved by the LPA Archaeological Advisor.
- 1.1.8 Section 2 of this WSI provides a summary of the archaeological and historical background. Sections 3–7 deal with the archaeological works, and outline the aims, objectives, and methodology. References are provided in **Appendix B**.

1.2 Consultation

- 1.2.1 WSP contacted the LPA Archaeological Advisor (Steve Hickling, Historic Environment Officer at NCC) on 29th March 2022 to discuss the scope of the investigation, and the agreed approach is presented in this WSI. Previous consultation on 28th February 2022 had detailed the recommendation for a geophysical survey, the results of which should be submitted with the planning application, while any consequent trial trenching could be conditioned at the post-determination stage. It has been agreed with Norfolk County Council (pers. comm. on 26th April 2023) that the conditioned trial trenching will consist of a 3.5% sample within areas of the site that have been subjected to geophysical survey and a 5% sample for the areas that were not surveyed.



1.3 Site inspection

1.3.1 A site visit was undertaken on 23 May 2023 in order to identify suitable site access for plant, along with potential non-archaeological constraints visible on the ground, for the purposes of informing the placement of the proposed trial trenches. The observations have been incorporated into this report.

1.4 Project roles

1.4.1 The '*WSP Cultural Heritage and Archaeology Team*' is responsible for managing the scope and for monitoring and assuring the work on behalf of the client. The team will liaise directly with the LPA Archaeological Advisor.

Section 7.1 sets out the role and responsibilities in detail.

1.4.2 The '*LPA Archaeological Advisor*' provides the development control and planning advice to the LPA and has the final decision on the scope of work and signs off the archaeological works when it is complete, in consultation with the WSP Cultural Heritage and Archaeology Team.

1.4.3 The '*archaeological fieldwork subcontractor*' is responsible for carrying out the fieldwork, post-excavation reporting, deposition of the archive and dissemination. All reporting by the archaeological fieldwork subcontractor will be via the WSP Cultural Heritage and Archaeology Team.

1.4.4 The '*Main Contractor*' is the contractor in control of the site and responsible for all Health and Safety and site security. Unless noted otherwise, the Main Contractor is the archaeological fieldwork subcontractor.

1.4.5 The '*plant attendance contractor*' refers to the operative of the plant, hired by the archaeological fieldwork subcontractor and under their direction.

1.4.6 '*The client*' is the developer. This may or may not be the current landowner.

1.4.7 The '*project archive repository*' is the organisation, for example the county or local museum, responsible for the long-term curation of the project archive, including the field notes, plans, photographs and archived finds. The archaeological fieldwork subcontractor will establish the project archive



repository prior to starting the work and will be assigned a unique project reference number ('site code').

- 1.4.8 The 'UXO contractor' is the specialist personnel responsible for monitoring the ground investigations for the presence of unexploded ordnance.

1.5 Statement of liability

1.5.1 This document is for the exclusive benefit of the Client (Norfolk County Council). It may not be assigned to or relied upon by a third party without the agreement of WSP UK Limited ('WSP') in writing. WSP retains all copyright and other intellectual property rights in the document and its contents unless transferred by written agreement between WSP and the Client.

1.5.2 The findings and opinions expressed are based on the conditions encountered and/or the information reasonably available at the date of issue of this document (or other date e.g. date of inspection) and shall be applicable only to the circumstances envisaged herein.

1.5.3 No person except the Client shall have the benefit of this document by virtue of the *Contracts (Rights of Third Parties) Act 1999*.

2 Historic environment baseline summary

2.1 Site location

2.1.1 The site is located near West Winch, King's Lynn (NGR TF 63553 18013: **Figure 1**). The site is 60.9Ha in size and is bounded by the A10 and West Winch village to the west; agricultural fields to the south; North Runcton and agricultural fields to the east; the A47 to the north; and Hardwick Interchange to the north-west.

2.2 Topography

2.2.1 Topography can provide an indication of suitability for settlement, and ground levels can indicate whether the ground has been built up or truncated, which can have implications for archaeological survival.



2.2.2 The site is relatively flat with a slight incline from the north to the south of the site. The majority of the site including the Hardwick Interchange and the A47 lies at 10m above Ordnance Datum (aOD). Two small sections in the northern area of the scheme, immediately south of the A47, and an area east of the site on Rectory Lane increase to 20m aOD.

2.3 Geology

2.3.1 Geology can provide an indication of suitability for early settlement, and potential depth of remains.

2.3.2 According to British Geological Survey (BGS) data the majority of the site is situated on Mintlyn Member, a sand bedrock. However, there are also small deposits of Kimmeridge Clay Formation and Roxham Member (mudstone and clay bedrocks) in the north-west and south-west of the site. The superficial deposits consist primarily of Diamicton and are located in the centre of the site. The small deposits of mudstone bedrock are overlain by Tidal Flat deposits, Head, Tottenham Gravel Member and Raised Beach deposits all consisting of clay, silt and gravel.

2.3.3 There are various BGS historic boreholes spanning the Hardwick Interchange and the A47, located in the north-west and northern area of the site however these could potentially pre-date the construction of these roads, with the stratigraphy recorded no longer present due to depths of made ground associated with the road construction. One of the boreholes located 140m to the north-west of the site (BGS ref: TF61NW266) notes a topsoil of 0.4m overlying the natural Kimmeridge Clay Formation.

2.4 Archaeological potential

2.4.1 SUMO conducted a geophysical survey on behalf of WSP in March 2023 (SUMO, 2023). A magnetometry survey was carried out over 15 areas within the site (an area of approximately 31 hectares (ha)) which had experienced no previous archaeological investigation. The majority of the site was surveyed apart from the northern and north-western areas which were unable



to be surveyed due to dense woodland and vegetation. As such, 7ha of the proposed site survey area were not surveyed.

- 2.4.2 A partial rectilinear feature with various small positive anomalies and linear trends were identified within Section 11, located in the centre of the site (SUMO, 2023, Fig 18). A linear ditch-like anomaly of possible archaeological origin was identified within Section 13 in the southern section of the site (SUMO, 2023, Fig 20). Weak linear, curvilinear and discrete anomalies were identified in Section 2, in the northern section of the site (SUMO, 2023, Fig 7). These anomalies are located within an area where an undated D-shaped enclosure, linear feature and pits (NHER No. 27954) were located suggesting the weak anomalies could also be archaeological features. Further discrete anomalies have been found elsewhere in the site. Two partial sub-circular anomalies with potential pits were identified in Section 10 (SUMO, 2023, Fig 15). Linear anomalies were found in Sections 6 and 9 and could indicate former settlement activity of unknown origin (SUMO, 2023, Figs 10 and 15). Former field boundaries, drainage ditches, post-medieval ridge and furrow, other ploughing activity and a marsh land were identified within the site (SUMO, 2023, Fig 4).
- 2.4.3 Archaeological Solutions Ltd conducted archaeological trial trench evaluation between August and October 2014 in advance of the south-eastern urban extension of King's Lynn (Archaeological Solutions Ltd, 2015, NHER No. ENF134928). Seven of the trenches were located within the footprint of the northern section of the site (see **Figures 4 and 5**), five of the trenches (trenches 34-35 and 81-83) contained ditches dating to the post-medieval period or were undated. Two of the trenches (trench 24 and 84) did not contain any archaeological finds/feature.
- 2.4.4 A watching brief was carried out by Archaeological Solutions Ltd during improvements to A47 Hardwick Roundabout, located in the northern section of the site, between December 2002 and March 2003. No archaeological finds or features were discovered during the watching brief (Archaeological Solutions Ltd, 2003, NHER No. ENF94289).



- 2.4.5 HER data has been purchased from Norfolk County Council to inform the baseline conditions for the scheme (HER Enquiry 23_04_19; ENF153616).
- 2.4.6 Nine previous archaeological investigations have taken place within 500m of the site. These investigations comprised one watching brief, one geophysical survey, five trial trench excavations and two site excavations. Archaeological finds and features record in these investigations comprise sherds of medieval pottery and tile dating between the 12th and 14th century, two pieces of flint fragments and post-medieval ditches. Current understanding of the extent of past human activity is limited, in particular for the prehistoric, Roman and the early Saxon period, for which there is no documentary record.
- 2.4.7 *The site has uncertain potential for palaeoenvironmental remains in the northern to north-eastern areas of the site.* During an evaluation near the Hardwick Junction, 450m north-west of the site, Middle Bronze Age to Roman peat deposits were identified (NHER No. 58502). Pollen samples indicated that areas of wetland were inhabited by fen carr woodland while dry areas contained mixed deciduous woodland. Both areas decreased at the same rate possibly due to human clearance for farming or settlement, however archaeological activity supporting this has not been found. The geophysical survey conducted on the site by SUMO identified an area of former marsh within Section 14, in the south of the site (SUMO, 2023). If found, such remains have evidential value for the past environment in which prehistoric and later people lived.
- 2.4.8 *The site has moderate potential to contain prehistoric remains.* In the north-west area of the scheme boundary, on the Hardwick Interchange, the site of a prehistoric burnt mound (NHER No. 3360) was discovered as well as a large undated prehistoric potboiler along with a burnt flint scraper.
- 2.4.9 *The site has moderate potential to contain Roman remains.* A possible Roman settlement and industrial site (NHER No. 3364) is partially situated within the north-west of the site boundary and adjacent to the A47. The associated archaeological trial trenching identified extensive archaeological



remains including a scatter of primarily 3rd century pottery and iron slag associated with Roman iron working (Archaeological Solutions Ltd, 2015, NHER No. ENF134928). Additionally, the geophysical survey conducted on the site by SUMO identified a possible enclosure as it was rectilinear (SUMO, 2023). The enclosure is located 300m east of a scatter of Roman pottery sherds (NHER No. 17305).

2.4.10 *The site has moderate potential to contain early medieval (Saxon) remains.*

The main focus of the early medieval settlement was possibly in Hardwick and West Winch and located to the north-west of the site. The early medieval remains within the scheme boundary are restricted to finds of pottery and comprise a late Saxon or early late medieval handle sherd (NHER No. 21300) found in a garden along the A10 located within the southern extent of the scheme boundary. Additionally, an earthwork known as the Green Dyke (NHER No. 21806) of possible late Saxon origin runs through the north-west section of the scheme boundary (the area known as the Hardwick Interchange) and extends south past West Winch. Remains in the study area are restricted to earthworks and pottery however, the remains of a settlement cannot be ruled out.

2.4.11 *The site has moderate potential to contain later medieval remains.* Later medieval settlement was likely focused in Hardwick, immediately west of the site. There is also a probable medieval moated enclosure known as Fincham Manor (NHER No. 3373) located 500m west of the site boundary indicating the presence of a defended settlement. In the north-west section of the scheme boundary, analysis of aerial photography has recorded a possible medieval enclosure as well as linear ditches and possible extraction pits (NHER No. 38258 and NHER No. 3360).

2.4.12 *The site has high potential to contain post-medieval remains.* Ordnance Surveys indicates that the site has comprised of agricultural fields throughout the post-medieval period with small areas of road development located in the north, centre and south-west of the site. Possible modern pits (NHER No. 61935) were recorded in the northern extent of the site near the A47, and a



18th century milestone (NHER No. 56739) has been recorded in the south-west of the site. The geophysical survey conducted on the site by SUMO identified various ridge and furrow and other ploughing activities dating to the post-medieval period (SUMO, 2023).

2.4.13 Archaeological survival is anticipated to be high across the majority of the site as it has remained in agricultural use throughout its history. Survival is anticipated to be lower within the footprint of modern development i.e. the A47 and Hardwick Roundabout in the northern section of the site.

3 Archaeological trial trenching

3.1 Aims

3.1.1 The aim of the trial trenching is to clarify the presence, nature, date and extent of any archaeological remains that might be present within the areas of impact, where archaeological survival is expected to be high. This is for the purposes of informing an appropriate mitigation strategy for any significant archaeological remains. If the trial trenching reveals little of archaeological significance, then no further work may be necessary.

3.2 Objectives

3.2.1 The objective of the trial trenching as defined by the Chartered Institute for Archaeologists (CIfA) is to 'determine and report on, as far as is reasonably possible, the nature of the archaeological resource within a specified area using appropriate methods and practices' (CIfA 2020a). The results of the trial trenching will inform an appropriate mitigation strategy for any archaeological remains, if required.

3.2.2 This is further explained as 'a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts, and their research potential, within a specified area or site.... If such archaeological remains are present field evaluation defines their character, extent, quality



and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate.'

3.2.3 In respect of the archaeological research objective specific to the site, based on the archaeological potential as identified in the geophysical survey (SUMO. 2023) and the East of England Archaeological Research Agenda (2011) these are as follows:

- Is the partial rectilinear enclosure, identified in the geophysical survey, archaeological in nature?
- How can we increase our understanding of post-medieval farms and farmsteads?
- How should we approach the excavation of post-medieval deposits?
- Are the linear anomalies identified in the geophysical survey archaeological in nature?
- Do any of the archaeological features/finds that have been identified in previous intrusive investigations within and adjacent to the site extend into the site?
- What are the nature and levels of natural deposits, and has there been any modern disturbance?

3.3 Methodology

Introduction

3.3.1 The trial trenching methodology will conform to best professional practice as summarised in *Standard and guidance for archaeological field evaluation* (CIfA 2020a) and the *Standards for Development-Led Archaeological Project in Norfolk* (Norfolk County Council 2018).

3.3.2 The relevant project archive repository for the project archive (Norfolk Museum Service) will be confirmed by the archaeological fieldwork



subcontractor and a unique project number - a 'site code' and museum accession number obtained prior to the start of the project.

- 3.3.3 In terms of the area of potential archaeological impact considered in the WSI, this is assumed to be localised to the rural fields in the northern, central and southern section of the site. It is assumed that topsoil would be removed across these sections as part of the preliminary site works, to take into account not just the area of proposed development but also temporary construction compounds, temporary access and any topsoil storage areas, the exact location of which is not currently known but presumed to be located within the site boundary. Removal of topsoil is a potential impact as (in addition to the loss of any residual evidence it contains) it exposes any archaeological remains that may be present immediately beneath the topsoil. These may then be affected by movement of vehicles and plant involved in construction activities, for example through rutting and compaction.

Trial trench placement

- 3.3.4 A total of 261 no. 30.0m long by 1.8m wide trial trenches are proposed across the site as well as 2 no. 20.0m long by 1.8m wide trial trenches in narrow areas of the site (see **Figure 8** for the location of the 20.0m long by 1.8m wide trial trenches). The trial trenching sample comprises a 3.5% sample for those areas covered by the geophysical survey works (SUMO 2023), and a 5% sample of areas without geophysical survey coverage. The trenches are focused on the footprint of the scheme Areas subject to previous intrusive archaeological investigation and those occupied by existing highways infrastructure, are not included within the trenching sample. The trench locations, are shown on **Figure 2** (as well as **Figures 4 – 10**) in **Appendix C**.
- 3.3.5 These are targeted to possible archaeological features identified as anomalies in the geophysical survey, with some trenches are located in 'blank' areas where no anomalies were identified, to confirm that no remains are indeed present. The rationale for these targeted trenches is presented in **Table 3.1** below:



Table 3.1 – Targeted trench rationale

Trench	Dimensions (L x W)	Rationale
41	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
42	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
43	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
44	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
45	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
46	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
49	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
50	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
51	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
111	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
126	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
167	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
168	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
172	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
176	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.



Trench	Dimensions (L x W)	Rationale
177	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
184	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
185	30.0m x 1.8 m	Located to investigate an anomaly of unknown but possible archaeological origin
183	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
204	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
207	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
208	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
209	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
210	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
211	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
213	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
214	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
215	30.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
216	20.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
217	20.0m x 1.8 m	Located to investigate an anomaly of possible archaeological origin
221	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.



Trench	Dimensions (L x W)	Rationale
224	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
230	30.0m x 1.8 m	Located to investigate an area of marsh containing possible palaeoenvironmental remains
231	30.0m x 1.8 m	Located to investigate an area of marsh containing possible palaeoenvironmental remains
240	30.0m x 1.8 m	Located to investigate if there are any finds/features associated with the post-medieval ridge and furrow
241	30.0m x 1.8 m	Located to investigate a linear anomaly of possible archaeological origin.
242	30.0m x 1.8 m	Located to investigate if there are any finds/features associated with the post-medieval ridge and furrow
243	30.0m x 1.8 m	Located to investigate if there are any finds/features associated with the post-medieval ridge and furrow
244	30.0m x 1.8 m	Located to investigate if there are any finds/features associated with the post-medieval ridge and furrow
245	30.0m x 1.8 m	Located to investigate if there are any finds/features associated with the post-medieval ridge and furrow

3.3.6 The remaining trenches are distributed across the Proposed Development and include 'blank areas'.

3.3.7 Trench placement has considered non-archaeological constraints such as the presence of existing services, vegetation and access. A utilities survey found utilities within the site and as such, the trench placement has been adjusted accordingly (Cornerstone Projects Ltd, 2023). No trenches are located within the northern area of the site as they are located along road networks. All



trenches will be scanned with a Cable Avoidance Tool (CAT) prior to any excavation by an appropriately qualified individual to confirm that no previously unidentified electrical cables are present. Proof of qualification will be given to WSP's Cultural Heritage and Archaeology team prior to the start of the works.

3.3.8 The trenches will be located and marked out by the archaeological fieldwork subcontractor's surveyor and tied to the Ordnance Survey National Grid.

3.3.9 Based on the predicted depth of deposits (and information taken from the 2015 Archaeological Solutions trenching works within the northern extents of the scheme (NHER No. ENF134928), it is assumed that the trenches will be around 0.5m deep and no more than 1.2m deep. This is sufficiently deep to reach the underlying geology and any archaeological features cut into it. Shoring or stepping the sides is not therefore likely to be required.

Archaeological investigation

3.3.10 All trenches will be opened initially by a mechanical excavator equipped with a toothless grading bucket, under supervision of the archaeological fieldwork subcontractor (Site Supervisor), who will decide when remains of archaeological significance requiring recording are revealed.

3.3.11 Following initial exposure of archaeological horizons, investigation by the archaeological fieldwork subcontractor will be by hand, including cleaning, examination, sampling and recording (see below) in the appropriate manner. Archaeological hand dug investigation and recording will proceed only until significant archaeological levels have been reached and will be sufficient to allow the nature, extent, survival and significance of archaeological remains to be identified.

3.3.12 It may be appropriate to resort to supervised machine excavation, a technique that is only appropriate for the removal of homogeneous and 'low-grade' layers where it can reasonably be argued that more detailed attention would not produce information of value, and where their removal may give a 'window' onto underlying levels.



3.3.13 The levels at which all sampling excavation and/or mechanised excavation will cease will be determined by consultations between WSP Cultural Heritage and Archaeology Team and the LPA Archaeological Advisor. This will typically entail a site visit.

3.3.14 In addition to the trial trenching of archaeological (i.e. man-made) deposits, in accordance with an identified research objective, an assessment of natural deposits may be necessary, especially when these are organically preserved and laid down within archaeological timescales; for example, alluvial or peat deposits, which can hold palaeoenvironmental potential.

3.3.15 In the unlikely event that remains of very high significance warranting preservation *in situ* are identified, the archaeological fieldwork subcontractor will inform the WSP Cultural Heritage and Archaeology Team immediately, who will then consult with the LPA Archaeological Advisor. Appropriate measures will be taken to protect such remains from any damage or deterioration. This might involve for instance protective boxing, wrapping deposits or features in a geo-textile such as terram, sealing with sand or other suitable soft materials, or other means as deemed suitable/appropriate in consultation with the LPA Archaeological Advisor and relevant specialists, where required.

3.3.16 Topsoil and subsoil will be stored separately adjacent to each trench to enable backfilling.

Sampling strategy

3.3.17 In order to obtain sufficient information on the likely nature, date, extent, survival and significance of any potential archaeological features and deposits identified, these will be sample excavated by hand. It is not the objective of the trial trenching to archaeologically excavated features in their entirety as this would form part of a future mitigation strategy for preservation by record.

3.3.18 The following sampling strategy set out by Norfolk County Council will be carried out (NCC, 2018):



- Slots through each linear feature. Relationships with other features and deposits will normally be investigated. Slots will also be excavated away from relationships to retrieve dating evidence.
- Unless falling into the category below, discrete/non-linear features (pits and post-holes for example) will normally be 50% excavated (half-sectioned). All relationships with other features and deposits will be investigated.
- Discrete features of high potential (palaeoenvironmental and artefactual potential, for example) may need to be fully excavated. Datable finds from the sampled areas will be recovered to allow features and deposits to be dated.

3.3.19 Where palaeoenvironmental potential has been identified, bulk samples, 20L (litres) for wet and 40L–60L for dry contexts will be taken from appropriate contexts for the recovery and assessment of palaeoenvironmental data. Provision will be made for column and other appropriate samples to be taken. Sampling methods will follow Historic England (HE) guidelines (2015a & 2015b).

3.3.20 Where necessary, a supplementary strategy for sampling of environmental deposits may be developed by WSP Cultural Heritage and Archaeology Team in accordance with HE (2015b) and ClfA (2020b) guidelines. Advice will be sought from the LPA Archaeological Advisor and the Historic England Regional Archaeological Science Advisor throughout the project, as appropriate. Subsequent off-site work and analysis of the processed samples and remains will be undertaken by archaeological specialists.

Archaeological recording

3.3.21 A 'site location plan', indicating site north shall be prepared at 1:1250. A plan at 1:200 (or 1:100) shall be prepared showing the location of archaeology investigated in relation to the investigation area. The location of site plans will be identified in relation to Ordnance Survey National Grid.



- 3.3.22 All archaeological recording will adhere to Norfolk County Council standards. As such, all archaeological deposits, features and artefacts exposed, examined or excavated must be fully recorded using written records (NCC, 2018).
- 3.3.23 Standard archaeological recording methods will comprise a written record (both description and interpretation with annotated sketches where appropriate), scaled drawings both in plan and in section, photographic record, and retrieval and annotation of archaeological finds and samples.
- 3.3.24 Written records will be produced using either pro-forma context or trench record sheets and where complex stratigraphy is encountered, by the single context planning method, and will be compatible with those published by the Museum of London Archaeology Service (MoLAS 1994). Each discrete archaeological layer, fill, cut, etc., that is sampled will be individually numbered and described in terms of soil composition, stratigraphic position, dimensions, artefact content, samples, with professional interpretation as to the likely nature and date of the feature. The context system will be able to be cross-referenced to all records and will be compatible with digitisation.
- 3.3.25 A record of the full sequence of all archaeological remains as revealed in the trial trenching will be made. Plans and sections of features will be drawn at an appropriate scale of 1:10 or 1:20, with sections drawn at 1:10 and tied to the Ordnance Survey National Grid. All plans and sections will include the Ordnance Datum (OD) height of strata and all principal features.
- 3.3.26 A 'Harris matrix' stratification diagram shall be employed to record stratigraphic relationships (Harris *et al.* 1993), where appropriate. This record shall be compiled and checked during the course of the fieldwork with spot dating, where appropriate, incorporated onto this diagram.
- 3.3.27 A full photographic record will be made using Digital Single Lens Reflex (SLR) cameras equipped with an image sensor of not less than 10 megapixels in high resolution TIFF (uncompressed) format. This will record both the detail and the general context of the principal features and the site as a whole.



Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Photographs will also be taken of all areas, including access routes, to provide a record of conditions prior to and on completion of the fieldwork.

3.3.28 Registers will be kept of all photographs, levels, plans, sections, finds and samples taken in the field.

Archaeological finds

3.3.29 All recovery, retention and treatment of finds and samples will be carried out mindful of the overall purpose of the exercise, i.e. to evaluate for further decision making, as expressed in ClfA (2020a) para 3.2.12. and 3.3.8. To this end, all artefactual and ecofactual material will be reviewed on site for its capability to inform the trial trenching report.

3.3.30 Identified archaeological finds and artefacts will be carefully recovered by hand and bagged or boxed according to the type of artefact (i.e. pottery, ceramic building material/CBM, bone, worked flint, metal) archaeological context from which they came, with a label indicating the site code, find type and context reference number). Particularly notable artefacts will be recorded as a 'registered' find and recorded three dimensionally with Ordnance Datum levels. This will include *in situ* prehistoric worked flint.

3.3.31 Initial conservation and storage will be in a proper manner and to standards set out follow *First Aid for Finds* (Leigh *et al* 1998) and the *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2020b). If necessary, an appropriately qualified and experienced archaeological conservator will be appointed to advise and assist in the lifting of fragile finds of significance and or value and to arrange for the X-raying and investigative conservation of objects as may be necessary.

3.3.32 Certain classes of bulk material, i.e. post-medieval pottery and building material may be discarded if there is a considerable quantity (more than a



single standard archive box of c. 0.016m²), after recording with a representative sample.

- 3.3.33 All pottery, bone and worked flint will be washed and then marked in accordance with the project archive repository guidelines. Most building material and burnt flint (not including significant diagnostic material) will be identified, counted, weighed and discarded. Samples will be retained as appropriate. The finds identification and specialist work will be undertaken by the relevant finds specialists agreed with the LPA Archaeological Advisor to assess the date range of the assemblage with particular reference to pottery use relevant county or region-specific type series for identification and dating, where available. This evidence will be used to characterise the site, and to establish the potential for all categories of finds should further archaeological work be necessary. Records of artefact assemblages will clearly state how they were recovered, sub-sampled and processed. Consideration will be given for donation of appropriate artefacts to type series reference collections.

Treasure

- 3.3.34 All finds of gold and silver, or other objects definable as 'treasure' under the *Treasure Act 1996*, will be removed to a safe place and reported to the local Coroner according to the procedures of the *Treasure Act 1996* and the *Treasure (Designation) Order 2002*. Where removal cannot be affected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft.

Human remains

- 3.3.35 If human remains are encountered the WSP Cultural Heritage and Archaeology Team, the Archaeological Advisor and the local Coroner will be informed immediately. Human remains should be left in situ and only removed if absolutely necessary. Where excavation of human remains is unavoidable, it will be undertaken following the provision of a Burial Licence issued by the Ministry of Justice (Coroner's Division) in accordance with Section 25 of the *Burial Act 1857*. It is essential that the post-excavation assessment of



excavated human remains contains an analysis of the material and a statement for the final deposition of the assemblage. The qualified statement must address future research potential, where applicable, and the options for reburial.

3.3.36 If human remains are uncovered, which require excavation, they will be excavated with due reverence and in accordance with recognised professional guidelines (HE 2018). The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view. If human remains are not to be removed their physical security will be ensured, by backfilling as soon as possible after recording.

4 Monitoring of works under archaeological supervision and control methodology

4.1 Introduction

4.1.1 The Monitoring of Works under Archaeological Supervision and Control (also known as a "Watching Brief") may be required on site during preliminary groundworks during the construction phase to mitigate the impact on archaeological remains to achieve preservation 'by record'. The Watching Brief may also be necessary in areas (like Hardwick Roundabout in the northernmost area of the site) where trial trenching is not viable.

4.1.2 Separate Method Statements/Design Statements (as an addendum to the WSI) for Monitoring of Works under Archaeological Supervision and Control will be produced following the Trial Trench Evaluation report.

4.1.3 The fieldwork methodology will conform to best professional practice as summarised in the appropriate ClfA Standard and guidance for an archaeological watching brief (ClfA 2020) and within local guidance (Norfolk County Council 2018). The relevant project archive repository for the project archive (Norfolk Museum Service) will be confirmed by the archaeological fieldwork subcontractor and a unique project number - a 'site code' and museum accession number obtained prior to the start of the project of the



Monitoring of Works under Archaeological Supervision and Control. The digital archive (consisting of born-digital and digital copies of relevant written and drawn data produced during fieldwork) will be transferred into the care of a Trusted Digital Repository, namely Archaeological Data Service.

- 4.1.4 As final mitigation, the Monitoring of Works under Archaeological Supervision and Control will be undertaken under the terms of a standard archaeological planning condition, following the granting of consent.

4.2 Aims and objectives

- 4.2.1 The aim of the Monitoring of Works under Archaeological Supervision and Control defined by the Chartered Institute for Archaeologists (CIfA), is ‘a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons’ (CIfA 2020). The objective is ‘is to establish and make available information about the archaeological resource existing on a site’.
- 4.2.2 The guidelines further state that the purpose of a Monitoring of Works under Archaeological Supervision and Control is *‘to allow... ..the preservation by record of archaeological deposits, the presence and nature of which could not be established... ..in advance of development or other potentially disruptive works’ and ‘to provide an opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard’.*
- 4.2.3 Norfolk County Council states that ‘the monitoring of groundworks under archaeological supervision and control (WUASC) tends to be employed as mitigation (post-determination) technique’ (NCC, 2018)
- 4.2.4 Norfolk County Council guidance (2018) further states that monitoring works requires professional archaeologists to be present at certain phases of the development of throughout its duration. As such, the archaeological contractor



must be in control of machining activity and should be in control of plant movement if appropriate. They are responsible for recovering any archaeological remains or ecofacts and these must be recorded. They are also responsible for recording all areas of below-ground disturbance as well as any above ground remains impacted by the development. Metal detecting will be carried out on any archaeological features, deposits and spoil – any archaeological remains must be recorded, labelled and bagged. If negative results have been produced during the monitoring of major elements of the development, the contractor does not have to proceed with the monitoring of minor elements (this requires agreement with NCCES). The grey literature report must contain fully illustrated plans showing the areas monitored. All archaeological monitoring works must be undertaken in accordance to relevant ClfA standards and guidance (NCC, 2018).

4.3 Archaeological monitoring

- 4.3.1 The aim of the Monitoring of Works under Archaeological Supervision and Control is to ensure any remains of archaeological interest located within areas of the site unsuitable for trial trenching are not removed without record, and to minimise disturbance to the assets. Groundworks will comprise mechanical excavation using a toothless grading bucket, under supervision of the archaeological fieldwork subcontractor (Site Supervisor), who will decide when remains of archaeological significance requiring recording are revealed.
- 4.3.2 Following initial exposure of archaeological horizons, the archaeological fieldwork subcontractor will clean, examine, sample and record by hand (see below) as appropriate. Archaeological hand dug investigation and recording will proceed only until significant archaeological levels have been reached and will be sufficient to allow the nature, extent, survival and significance of archaeological remains to be identified.
- 4.3.3 It may be appropriate to resort to supervised machine excavation, a technique that is only appropriate for the removal of homogeneous and 'low-grade' layers where it can reasonably be argued that more detailed attention would



not produce information of value, and where their removal may give a 'window' onto underlying levels.

- 4.3.4 The levels at which all sampling excavation and/or mechanised excavation will cease will be agreed in consultation with the WSP Cultural Heritage and Archaeology Team. This will typically entail a site visit. Where the fieldwork has revealed no significant archaeological remains digital photographs may be sufficient.
- 4.3.5 In addition to the recording of archaeological (i.e. man-made) deposits, in accordance with an identified research objective, an assessment of natural deposits may be necessary, especially when these are organically preserved and laid down within archaeological timescales; for example, alluvial or peat deposits, which can hold palaeoenvironmental potential.
- 4.3.6 In the unlikely event that remains of very high significance are identified, the archaeological fieldwork subcontractor will inform the WSP Cultural Heritage and Archaeology Team immediately, who will then consult with the LPA Archaeological Advisor. The identification of such remains may require further fieldwork, such as targeted excavation, with the deployment of additional archaeological staff. Appropriate measures will be taken to protect such remains from any damage or deterioration. This might involve for instance protective boxing, wrapping deposits or features in a geo-textile such as terram, sealing with sand or other suitable soft materials, or other means as deemed suitable/appropriate in consultation with the LPA Archaeological Advisor and relevant specialists, where required.
- 4.3.7 Alternatively, if it is apparent from initial monitoring that no archaeological remains are present, the need for subsequent monitoring could be reduced in scope, following consultation between the WSP Cultural Heritage and Archaeology Team, acting on behalf of the client, and the LPA Archaeological Advisor.



Archaeological recording

- 4.3.8 Standard archaeological recording methods comprise a written record (both description and interpretation with annotated sketches where appropriate), scaled drawings both in plan and in section, photographic record, and retrieval and annotation of archaeological finds and samples.
- 4.3.9 Written records will be produced using either pro-forma context record sheets and by the single context planning method and will be compatible with those published by the Museum of London (MoLAS 1994).
- 4.3.10 A record of the full sequence of all archaeological remains as revealed during the Monitoring of Works under Archaeological Supervision and Control will be made. Plans and sections of features will be drawn at an appropriate scale of 1:10 or 1:20, with sections drawn at 1:10.
- 4.3.11 A full photographic record will be maintained and indexed using digital Single Lens Reflex (SLR) cameras to produce digital RAW (uncompressed) images.

Archaeological finds

- 4.3.12 All recovery, retention and treatment of finds and samples will be carried out mindful of the overall purpose of the exercise, i.e., to evaluate for further decision making, as expressed in ClfA (2020) para 3.2.12.and 3.3.8. To this end, all artefactual and ecofactual material will be reviewed on site for its capability to inform the Monitoring of Works under Archaeological Supervision and Control report.
- 4.3.13 Identified archaeological finds and artefacts will be carefully recovered by hand and bagged or boxed according to the type of artefact (i.e., pottery, ceramic building material/CBM, bone, worked flint, metal) archaeological context from which they came, with a label indicating the site code, find type and context reference number). Particularly notable artefacts will be recorded as a 'registered' find and recorded three dimensionally with Ordnance Datum levels. This will include *in situ* prehistoric worked flint.



- 4.3.14 Initial conservation and storage will be in a proper manner and to standards set out follow *First Aid for Finds* (Leigh *et al* 1998) and the ClfA 'Standard and Guidance for the collection, documentation, conservation and research of archaeological materials' (ClfA 2014a). If necessary, an appropriately qualified and experienced archaeological conservator will be appointed to advise and assist in the lifting of fragile finds of significance and or value and to arrange for the X-raying and investigative conservation of objects as may be necessary.
- 4.3.15 Certain classes of bulk material, i.e., post-medieval pottery and building material may be discarded if there is a considerable quantity (more than a single standard archive box of c. 0.016m²), after recording with a representative sample.
- 4.3.16 All pottery, bone and worked flint will be washed and then marked in accordance with the project archive repository guidelines. Most building material and burnt flint (not including significant diagnostic material) will be identified, counted, weighed and discarded. Samples will be retained as appropriate. The finds identification and specialist work will be undertaken by the relevant finds specialists agreed with the LPA Archaeological Advisor to assess the date range of the assemblage with particular reference to pottery use relevant county or region-specific type series for identification and dating, where available. This evidence will be used to characterise the site, and to establish the potential for all categories of finds should further archaeological work be necessary. Records of artefact assemblages will clearly state how they were recovered, sub-sampled and processed. Consideration will be given for donation of appropriate artefacts to type series reference collections.
- 4.3.17 All finds of gold and silver, or other objects definable as 'treasure' under the *Treasure Act 1996*, will be removed to a safe place and reported to the local Coroner according to the procedures of the *Treasure Act 1996* and the *Treasure (Designation) Order 2002*. Where removal cannot be affected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft.



Human Remains

4.3.18 Human remains are not expected. If any finds of human remains are exposed their removal can only take place with a Burial Licence as issued by the Ministry of Justice (Coroner's Division). It will be necessary to ensure that adequate security is provided.

5 Open area excavation methodology

5.1 Preliminary topsoil removal

- 5.1.1 If areas of archaeological interest are identified within the initial phase of trial trenching works, machine stripping of the proposed archaeological excavation areas will be carried out under archaeological direction by a 360° tracked excavator fitted with an appropriate toothless ditching bucket. Undifferentiated topsoil overburden of recent origin will be removed to the upper-most level of any identified archaeological features, or the natural geology, whichever is encountered first.
- 5.1.2 Machining will take care not to disturb archaeological remains buried at shallow depths. No machinery (or vehicles) will cross stripped areas until they have been given the 'all-clear' by the on-site archaeologist, especially in wet weather conditions, as rutting and compaction by plant and vehicles may damage archaeological remains. All earthmoving and other vehicles will avoid travelling on the freshly stripped subsoil and areas of archaeological investigation. Care should be taken not to damage archaeological deposits through excessive use of mechanical excavation. The use of terram may be considered.
- 5.1.3 The topsoil will be stored separately to subsoil and if required the removed turf will be stored separately under suitable conditions. All spoil heaps will be metal detected by an experienced operative on a regular basis, for the purpose of retrieving any metal artefacts missed during the monitoring and hand excavation.



- 5.1.4 A digital pre-excavation site-plan of any archaeological features will be prepared at an appropriate scale. All archaeological features will be surveyed and located to an accuracy of 0.1m or greater using a Global Navigation Satellite System (GNSS) equipment.
- 5.1.5 The archaeological team will undertake monitoring of machine stripping, hand-cleaning and planning in close succession (on the same or consecutive days) in order to ensure the pre-excavation site plan captures all archaeological features. If vulnerable features are revealed (such as graves and/or cremations) special consideration shall be taken, and materials such as terram may be used to protect remains until recording and/or removal can take place.
- 5.1.6 Areas containing particularly significant archaeological remains will be protected and not left open to the weather or exposed to vandalism overnight. All reasonable measures will be taken to protect or preserve features 'in situ' overnight and to store any archaeological materials (such as artefacts and records), both on and off site. Artefacts of particular significance may have to be taken offsite and stored at a secure location.

Archaeological Sample Excavation and Recording

- 5.1.7 Following monitoring of the preliminary stripping, archaeological excavation and recording within the area can commence. As Norfolk County Council guidance states 'The purpose of an archaeological excavation is to recover as much information as possible on the origins, date, development, phasing, spatial organisation, character, function, status, significance and the nature of social, economic and industrial activities of a selected site or area' (NCC, 2018). As such, all excavation work will be supervised and monitored by a fully qualified Archaeological Project Officer/Supervisor and will be carried out in accordance with the relevant ClfA standards and guidance.
- 5.1.8 Norfolk County Council guidance states that archaeological excavations should 'examine, excavate and replace by record all archaeological features, deposits and structures within a defined area' (NCC, 2018). A Post-excavation



Assessment Report and Updated Project Design will be produced and will be transferred (along with the artefacts) to an appropriate repository.

- 5.1.9 Separate Method Statements/Design Statements (as an addendum to the WSI) for open area excavation will be produced following the Trial Trench Evaluation report. Norfolk County Council guidance advises that areas identified for excavation in the WSI should be excavated to the undisturbed geological layer which will enable preservation of the assets via a record of the complete archaeological sequence. However, this should not be carried out if assets (structures, deposits, features and finds) require preservation *in situ* (NCC,2018).
- 5.1.10 The agreed strategy and scope of work will be directed and managed solely by the WSP Cultural Heritage and Archaeology Team on behalf of the client in consultation with the LPA Archaeological Advisor. There will be no direct liaison without permission between the archaeological fieldwork subcontractor and the LPA Archaeological Advisor.
- 5.1.11 Where archaeological horizons are encountered, subsequent archaeological excavation will be undertaken by hand.
- All exposed archaeological deposits and features will be recorded using a pro forma recording system.
 - Each discrete archaeological layer, fill, cut, etc., will be individually numbered and described in terms of soil composition, stratigraphic position, dimensions, artefact content, samples, with professional interpretation as to the likely nature and date of the feature. The context system will be able to be cross-referenced to all records and will be compatible with digitisation.
 - Registers will be kept of all photographs, levels, plans, sections, finds and samples taken in the field.
 - A complete drawn record of excavated archaeological features and deposits will be made. Plans and sections will be drawn at a scale



deemed appropriate, i.e., generally 1:20 or 1:50 for plans, 1:10 for sections) and tied to the Ordnance Survey National Grid.

- All plans and sections will include the Ordnance Datum (OD) height of strata and all principal features (as defined by OSGM15 and OSTN15).
- A 'site location plan', indicating site north shall be prepared at 1:1250. A plan at 1:200 (or 1:100) shall be prepared showing the location of archaeology investigated in relation to the investigation area. The location of site plans will be identified using OSGB co-ordinates.
- Single context planning (MoLAS 1994) shall be used where complex stratigraphy is encountered.
- A 'Harris matrix' stratification diagram shall be employed to record stratigraphic relationships (Harris et al. 1993), where appropriate. This record shall be compiled and checked during the course of the fieldwork with spot dating, where appropriate, incorporated onto this diagram.
- A full photographic record will be made using Digital Single Lens Reflex (SLR) cameras equipped with an image sensor of not less than 10 megapixels in high resolution TIFF (uncompressed) format. This will record both the detail and the general context of the principal features and the site as a whole. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Photographs will also be taken of all areas, including access routes, to provide a record of conditions prior to and on completion of the fieldwork.
- All hand drawn information shall be digitised (or preferably generated digitally in the first instance).



5.1.12 Where modern features are seen to truncate the archaeological remains, these will be removed, where practicable, in a manner that does not damage the surrounding deposits.

5.1.13 The following sampling strategy is proposed. The sampling excavation strategy set out in Table 2 will be reviewed continuously onsite and amended in order to take account of changing circumstances. Any changes or amendments will be agreed between the WSP Archaeology and Heritage Team and the LPA Archaeological Advisor.

5.1.14 Norfolk County Council (NCC, 2018) states that the following requirements for excavation should be considered:

- At least a 10% sample of each linear feature will be excavated in segments, with professional judgement and discussions during site monitoring visits informing strategies. Relationships with other features and deposits will be investigated and sections showing the relationships drawn. Isolated sections away from intersections should also be excavated to retrieve dating evidence.
- Unless falling into the categories below, discrete/non-linear features (pits and post-holes for example) will normally be 50% excavated (half-sectioned) and the section drawn. Relationships will be investigated and sections showing relationships drawn.
- Graves (inhumations and cremations) will be 100% excavated and detailed plans and sections drawn (once relevant licences have been secured).
- Industrial features (kilns, ovens etc) will be 100% excavated, planned in detail and sections drawn. Full sampling will take place to recover evidence of purpose, fuel etc.
- Discrete features with high palaeoenvironmental potential will be 100% excavated. Strategies for excavating infilled ponds and palaeochannels



will be based on professional judgement and discussions during site monitoring visits.

- Features containing artefacts of high significance (hoards, structured deposits or whole or near whole pottery vessels, for example) will be 100% excavated.
- All buried soils will be appropriately sampled. Excavation/investigation strategies should be informed by a geoarchaeologist and agreed with NCCES and, where relevant, Historic England’s Regional Science Adviser. Buried soils must not be excavated by machine without prior agreement of NCCES.

Table 5.1 – Proposed sampling strategy

Feature Type	Minimum percentage of each example
Stake-hole	100%
Post-hole or pit (less than 1.5m)	50%
Pit (greater than 1.5m)	50%
Linear feature	10%; all termini and intersections will be 100% excavated
Deposits relating to funerary activity (e.g., burials, cremation deposits)	100% (subject to agreement with curator)
Deposits relating to domestic/industrial activity (postholes, hearths, floor surfaces/floor makeup deposits)	100%
Discrete features with high palaeoenvironmental potential	100%

5.1.15 Bulk horizontal deposits will as a minimum be 10% by area hand excavated, after which a decision may be taken (in conjunction with the LPA Archaeological Advisor) to remove the remainder with machinery, under direct archaeological supervision.



5.1.16 Archaeological features, deposits and spoil will be metal detected before and during manual excavation. Artefacts will be recovered, spatially-recorded, labelled, bagged, and retained.

5.1.17 Should the excavation strategy outlined above not yield sufficient information to allow the form, function and dating of certain archaeological features/deposits to be determined, then further excavation of any such features/deposits may be required. It may also be necessary to excavate a greater percentage linear feature (e.g., ditches) for the purposes of artefact retrieval.

5.1.18 If significant remains are found to extend beyond the boundary of the excavation area, the excavation area should be extended if possible, within the scheme boundary (NCC, 2018).

5.1.19 The archaeological contractors must provide a secure and separate area for site records as well as a separate area for finds processing and finds storage if these activities are carried out on site (NCC, 2018).

5.1.20 If the excavation takes place in a series of phases, there may be a requirement for an interim grey literature report shortly after the completion of each phase of excavation and any relevant results from the previous phase of trial trenching will be incorporated into the grey literature report for the excavation (NCC, 2018).

Palaeoenvironmental Sampling

5.1.21 If deposits of environmental potential are revealed (such as a highly organic channel or waterhole), column or 'monolith' samples may be taken to capture the sediment sequence in section, in conjunction with bulk sediment samples. Bulk samples will be taken using 10 litre plastic buckets or strong double bagged polythene bags. For non-waterlogged deposits a 40–60 litre bulk sample will be taken (or 100% of the context where contexts have a volume of less than this). Each bulk sample will only contain sediment derived from a single context. In the unlikely event that waterlogged deposits are



encountered, samples sizes will be in the range of 10–20 litres, which is suitable for the recovery of palaeoenvironmental information.

5.1.22 Processing of selected bulk sediment samples should be completed ideally at the time of fieldwork will allow the sampling strategy to be updated and refined where necessary. The preservation state, density and significance of material retrieved shall be assessed by an appropriate specialist. Samples shall be protected from temperatures below 5°C and above 25°C, and from wetting and drying out.

Finds

5.1.23 All finds relating to the archaeological record of the site will be collected with reference to context and location. All archaeological finds from excavated contexts will be retained, although those from features of 19th century or later may be recorded on site and not retained, with the agreement of the LPA Archaeological Advisor. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds (Leigh et al. 1998).

5.1.24 Initial conservation and storage will be in a proper manner and to standards set out follow First Aid for Finds (Leigh et al 1998) and the *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (ClfA 2020d). If necessary, an appropriately qualified and experienced archaeological conservator will be appointed to advise and assist in the lifting of fragile finds of significance and or value and to arrange for the X-raying and investigative conservation of objects as may be necessary.

5.1.25 Certain classes of bulk material, i.e., post-medieval pottery and building material may be discarded if there is a considerable quantity (more than a single standard archive box of c. 0.016m²), after recording with a representative sample.

5.1.26 All pottery, bone and worked flint will be washed and then marked in accordance with the project archive repository guidelines. Most building



material and burnt flint (not including significant diagnostic material) will be identified, counted, weighed and discarded. Samples will be retained as appropriate. The finds identification and specialist work will be undertaken by the relevant finds specialists agreed with the LPA Archaeological Advisor to assess the date range of the assemblage with particular reference to pottery use relevant county or region-specific type series for identification and dating, where available. This evidence will be used to characterise the site, and to establish the potential for all categories of finds should further archaeological work be necessary. Records of artefact assemblages will clearly state how they were recovered, sub-sampled and processed. Consideration will be given for donation of appropriate artefacts to type series reference collections.

Treasure

5.1.27 Any artefacts that fall under the statutory definition of Treasure as defined by the *Treasure Act 1996*, and the *Treasure (Designation) Order 2002*, summarised in DCMS (2002) will be reported immediately to the WSP Cultural Heritage and Archaeology Team, the Archaeological Advisor, the relevant Coroner's Office, the Finds Liaison Officer and the landowner. A Treasure receipt must be completed, and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. Failure to report within 14 days is a criminal offence.

Ownership

5.1.28 Whereas ownership of any finds on the site lies with the landowner, it will be necessary that the landowner gives necessary legal approvals, licences and permissions to donate the finds to Norfolk Museum Service, to enable that body to carry out its obligations to curate the finds after discovery, in perpetuity, as part of the archaeological archive from this site.

5.1.29 These approvals, licences and permissions shall be either confirmed in the Agreement and Contract regulating the archaeological works and/or confirmed by the completion of the relevant Deed of Transfer form (draft appended).



5.1.30 In such case, the client (or their agent) will make arrangements for the signing of the Deed of Transfer Form by the client or, if the landowner is different to the client, by the landowner.

5.1.31 Notwithstanding the above, subsequent arrangements may be made if required between the landowner and/or the client and Norfolk Museum Service for the conservation, display, provision of access to or loan of selected finds in or near their original location.

Human Remains

5.1.32 In the event that human burials are discovered, a Home Office Licence will be required (in accordance with Section 25 of the *Burial Act 1857*) for both inhumation and cremated remains before the remains can be lifted. The WSP Cultural Heritage and Archaeology Team, the Archaeological Advisor and the local Coroner will be informed immediately. Application for a Licence will be made by the archaeological fieldwork subcontractor. Any disturbed burials should be dealt with swiftly and sympathetically by a specialist in accordance with recognised guidelines (EH 2018).

5.1.33 WSP Archaeology and Heritage Team may consult Historic England (HE) and other stakeholders for input to the exhumation and sampling strategy.

5.1.34 Human remains, once recognised will be metal detected immediately to determine whether any metallic grave goods are present. If possible grave goods and other obvious artefact shall be recorded and lifted on the day of discovery to avoid the risk of vandalism and theft.

5.1.35 Where appropriate, the Principal Contractor shall ensure that adequate site security is provided. As a minimum, this will require a 24-hour comprehensive security regime until sensitive remains have been recorded and lifted.

5.1.36 If human remains are uncovered, they will be excavated with due reverence and in accordance with recognised professional guidelines (HE 2018). The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view. If human remains are not to be



removed their physical security will be ensured, by backfilling as soon as possible after recording.

Unforeseen Remains of National Importance

5.1.37 On the discovery of unforeseen nationally or internationally significant archaeological remains a site meeting will be called immediately with the WSP Archaeology and Heritage Team, LPA Archaeological Advisor, the client, the archaeological fieldwork subcontractor and where appropriate the Historic England Inspector of Ancient Monuments, where a forward strategy for preservation in situ or full archaeological excavation will be discussed and agreed. If required, the WSI will be updated, and funding negotiations will be commenced to achieve the agreed strategy.

5.1.38 Where appropriate, the Principal Contractor shall ensure that adequate site security is provided. As a minimum, this will require a 24-hour comprehensive security regime until sensitive remains have been recorded and lifted.

Interim Storage and Processing Facilities

5.1.39 Prior to final deposition of the archive, the storage and processing facilities shall be the responsibility of the archaeological fieldwork subcontractor.

5.1.40 All samples will be taken to address a specific question. The purpose of the sample, and the question it has been taken to address will be recorded on the archaeological fieldwork subcontractor sample record sheet.

6 Reporting, dissemination and archiving

6.1 Reporting

Trial trenching reporting

6.1.1 A fully illustrated archaeological trial trenching report will be made available to the client and the LPA Archaeological Advisor within 6 weeks of the completion of fieldwork. In accordance with the ClfA standards and guidance (2020a) and Norfolk County Council standards (NCC, 2018) This will include as a minimum, the following:



- A title page or cover sheet giving key project details.
- *Non-technical summary*. One-page summary outlining project background and circumstance, the principal reason for the work and when it was undertaken and by whom, its objectives, main results, and where appropriate, recommendations.
- *Acknowledgments*
- *Introduction*. This will set out the circumstances of the project such as planning background and the reason for the work and will include the aims and specific research objectives reflected or reiterated in this WSI.
- *Archaeological and historical background*. A brief summary with the site description (including size, geology, soils and topography, location) and background. In most cases this will be derived from the desk-based assessment. This will also include any documentary and cartographic evidence.
- *Fieldwork methodology*. The methods used for recording and surveying. This will include the detail of any variation to the agreed WSI and the reasons for such.
- *Results*. This will present a series of summary objective statements, organised clearly in relation to the methods used, and describing both structural data and associated finds and/or environmental data recovered. Descriptive material will be clearly separated from interpretative statements. Technical terminology (including dating or period references) will be explained.
- *Conclusions*. Summary and interpretation the results and their likely significance. Other elements might include a confidence rating on the results and limitations (e.g. weather or problems of access). Recommendations on further work may also be included.



- *References and bibliography* A list of all sources used. The final destination of the archive (records and finds) will be noted in the report along with the site code assigned by the relevant project archive repository.
- *Appendices*. Essential technical and supporting detail, including for example lists of artefacts and contexts or details of measurements, gazetteers etc. Pottery reports will be expected to refer to the appropriate type series for Roman, medieval and post-medieval pottery. This will also include specialist reports and archaeological science reports if needed. It will include copies of the WSI when required.
- *Illustrations and Photographs*. Site Location plan with site boundary (indicating north and based on current OS data), plans and sections at appropriate scales showing location and position of trenches dug and features located and selective photography. Section drawing will include heights Ordnance Datum (OD); plans should include OD spot heights for all principal strata and features.

6.1.2 Within the report the following details will also be included: site details, including location, NHER event number and Norfolk County Council Environment Service (NCCES) consultation number, OASIS reference, grid reference, place of deposition of the archive, museum accession number, full dates of work and any relevant details of the project's history (NCC, 2018).

6.1.3 The report will also incorporate a site narrative which will provide a detailed description, analysis and interpretation of the site (NCC, 2018).

6.1.4 The report will also include an appendix listing all the recorded contexts with detailed descriptions, locations (including trench numbers or excavation areas), dimensions and final spot dates or phasing.

6.1.5 All final versions of grey literature reports must include a copy of relevant OASIS data collection form.



Post-excavation Reporting

- 6.1.6 The nature of the post-excavation reporting for any excavation works required subsequent to the programme of trial trenching, and the way in which it is disseminated (e.g. grey literature report, journal article or monograph) will depend on the significance of what was discovered during the excavation fieldwork.
- 6.1.7 Following, and where possible during, the mitigation fieldwork, the findings will be assessed by the WSP Archaeology and Heritage Team in consultation with the LPA Archaeological Advisor, against the stated research aims and objectives as set out in this WSI. This will determine the extent to which the aims have been met and may lead to the identification of any new research questions. It will also enable a decision regarding the next step, which is likely to comprise at least one of the following:
- Post-Excavation Assessment (PXA) and Updated Project Design. The site archive and material finds are clearly significant but require further consideration as to further analyses and what form of publication and dissemination would be most appropriate.
 - Following completion of the fieldwork a post-excavation assessment and updated project design will be undertaken and submitted for approval to the LPA Archaeological Advisor.
 - The approved post-excavation assessment and updated project design will determine the extent of any further post-excavation analysis required to enable completion of a final grey literature excavation report for the programme of archaeological mitigation, which will be submitted for approval to the LPA Archaeological Advisor, and, depending upon the significance of the archaeological results may be complemented by publication, either as a journal article, monograph or as an online article.



Post-Excavation Assessment (PXA) and Updated Project Design

6.1.8 A Post-Excavation Assessment has three principal aims:

- Provide an audit of all archaeological evidence recovered during the fieldwork.
- Provide a statement of significance of the quantity and perceived quality of the data as contained within the site archive and its potential to contribute to archaeological knowledge, in particular the stated research aims and objectives as set out in this WSI. It might identify additional research questions.
- Define scope, resource requirements and programme for the completion of analyses through to final completion of a final grey literature excavation report (including editing stages) and publication (as a journal article, monograph or online article as appropriate) and display (where appropriate). This will consider costs, specialist staff, a retention/discard strategy along with storage and curation requirements. The strategy will be proportionate to the significance of the findings.

6.1.9 A Post-Excavation Assessment report will normally contain the following information (CIFA 2020a):

- Introduction;
- scope of the project (e.g. sites involved);
- circumstances and dates of fieldwork and previous work;
- comments on the organisation of the report;
- original research aims;
- summary of the documented history of the site(s);
- interim statement on the results of fieldwork;
- summary of the site archive and work carried out for assessment;



- site records: quantity, work done on records during post-excavation assessment;
- finds: factual summary of material and records, quantity, range, variety, preservation, work done during post-excavation assessment;
- environmental material: factual summary of human and animal bone, shell and each type of sample (e.g. bulk organic, dendrochronological, monolith), quantity, range, variety, preservation, work done on the material during post-excavation assessment;
- documentary records: list of relevant sources discovered, quantity, variety, intensity of study of sources during post-excavation assessment;
- potential of the data;
- a discursive appraisal of the extent to which the site archive might enable the data to meet the research aims of the project. Different classes of data should be discussed in an integrated fashion, subdivided according to the research aims of the project;
- a statement of the potential of the data in developing new research aims, to contribute to other projects and to advance methodologies;
- a summary of the potential of the data in terms of local, regional, national and international importance; and
- additional information could include: supporting illustrations at appropriate scales, sufficient supporting data, tabulated or in appendices, and/or details of the contents of the project archive, to permit the interrogation of the stated conclusions; and index, references and disclaimers;

6.1.10 An Updated Project Design will also be produced, as a separate section within the PXA or a stand-alone document. This will set out the updated research



objectives for further analysis and this may include amendments or additions to the original research aims.

6.1.11 In addition to the PXA, an interim report giving an overall view of the project and its results in non-technical language may be prepared and issued to the client and other relevant parties on or before the completion of the PXA.

6.1.12 The WSP Archaeology and Heritage Team will review and technically assure all documents before they are issued. The reports will form part of the project archive.

Straight to publication

6.1.13 In some cases, the significance of the information and material finds is apparent and does not require further work as outlined in the PXA stage above to determine which level of analysis and publication would be most appropriate. The WSP Archaeology and Heritage Team would need to agree this approach with the LPA Archaeological Advisor.

Post-Excavation Statement

6.1.14 As set out under the 2015 guidance of the Association of Local Government Archaeological Officers (ALGAO 2015), where archaeological evidence is uncomplicated and limited in scale and significance, a 'Post-Excavation Statement' will be prepared which will present the results of the fieldwork in a fully illustrated grey literature report. It will include tabulated data to support a summary site narrative and relevant site plan(s). There may be a requirement to obtain absolute dates or other evidence either to support or expand upon the site narrative.

6.2 Publication and dissemination

6.2.1 In order to fulfil the planning condition, the results of all the phases of the complete programme of archaeological mitigatory works will need to be published and disseminated at a level that is appropriate to the significance of the remains recorded.



- 6.2.2 A draft copy of the grey literature report for the complete programme of archaeological mitigatory works should be submitted to Norfolk County Council Environment Service (NCCES) for comment and approval within 40 working days of the completing of the fieldwork.
- 6.2.3 The report will be approved by NCCES if it provides sufficient information to support the planning process and has been compiled in full accordance with the approved WSI and the *Standards for development-led archaeological projects in Norfolk* (NCC, 2018). If the report is rejected, the subcontractor must amend and resubmit.
- 6.2.4 Final hard copies of the approved PXA and Grey Literature reports are required to be deposited with the HER in both unbound paper form and as a .pdf on CD should be deposited with the Historic Environment Record (HER) to NCCES and the Regional Science Advisor (Historic England), on the understanding that it will be made available as a public document after an appropriate period (not exceeding 6 months from the completion of fieldwork). A further hard copy to be sent to the client.
- 6.2.5 Formal publication is required for projects with results of local and higher significance. The level of publication should reflect the significance of the data collected and must be agreed with NCCES. Archaeological contractors are expected to submit single paragraph summaries to NCCES by 20 January each year.
- 6.2.6 In all cases a short summary of the results of the work will be submitted to the HER, and National Record for the Historic Environment (NHRE), as maintained by Historic England, via a standard OASIS archaeological report for which should be uploaded within 40 days of the approval of the grey literature report.

6.3 Archiving

- 6.3.1 The site archive will contain all the data collected during the fieldwork, including records and finds, and all reports. It will consist of all records created



during the project and will include both hard copy and digital records. The archaeological fieldwork subcontractor will ensure that the archive is quantified, ordered, indexed and internally consistent, and adequate resources will be provided to ensure that all records are checked. Archive consolidation will be undertaken immediately following the conclusion of fieldwork and a museum accession number will be acquired prior to commencement of post-excavation work.

- 6.3.2 A museum accession number and a unique site code for the project will be designated to this project prior to the start of the post-excavation works and will be used as the site identifier for all records produced.
- 6.3.3 Any finds of archaeological interest should be appropriately conserved and deposited in an appropriate institution (usually Norfolk Museums Service): any finds which cannot be so deposited should be fully analysed and published.
- 6.3.4 Finds and records will be assembled and curated by a single organisation, and be available for public consultation in a project archive repository compatible with other archaeological archives in the county, and adhering to guidelines and standards set out in the following:
- Archaeological Archive Forum (2011), *Archaeological Archives: a guide to best practice in creation, compilation transfer and curation*;
 - Chartered Institute for Archaeologists (2020c), *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives*;
 - Museums and Galleries Commission (1992) *Standards in the Museum Care of Archaeological Collections*;
 - Society of Museum Archaeologists (1995) *Towards an Accessible Archive. The Transfer of Archaeological Archives to Museums: Guidelines for Use in England, Northern Ireland, Scotland and Wales*;
 - United Kingdom Institute for Conservation (1990) *Guidelines for the preparation of excavation archives for long term storage*;



- Norfolk County Council (2018) Standards for Development-Led Archaeological Projects In Norfolk;

6.3.5 Copyright of the written archive will be vested in the project archive repository, which will be clearly identified in the trial trenching report. The site archive will be deposited within 140 working days of issuing the trial trenching report.

6.4 Ownership of finds

6.4.1 Whereas ownership of any finds on the site lies with the landowner, it is necessary that the landowner gives the necessary approvals, licences and permissions to donate any finds recovered from the site to the project archive repository, to enable that body to carry out its obligations to curate the finds, in perpetuity, as part of the archaeological archive from this site.

6.4.2 These approvals, licences and permissions shall be either confirmed in the Agreement and Contract regulating the archaeological works and/or confirmed by the completion of the relevant Deed of Transfer form (see **Appendix A** for draft form).

6.4.3 The client (or their agent) will make arrangements for the signing of a Deed of Transfer Form by the client or, if the landowner is different to the client, by the landowner.

6.4.4 Notwithstanding the above, subsequent arrangements may be made if required between the landowner, the client and the project archive repository for the conservation, display, provision of access to or loan of selected finds in or near their original location.

7 Programme, staffing and attendance

7.1 Initial timetable and staffing

7.1.1 The archaeological trial trenching programme is to be determined.



- 7.1.2 The archaeological fieldwork subcontractor will provide a programme for the archaeological monitoring to WSP, which will include detailing of staffing requirements.
- 7.1.3 The exact details of time, areas and numbers of staff involved would be agreed in discussions between WSP, the client, and the LPA Archaeological Advisor.
- 7.1.4 If significant archaeological remains are revealed which cannot be satisfactorily sampled in the period initially defined, there should be sufficient flexibility within the programme and resources to enable the remains in question to be investigated to the satisfaction of WSP in consultation with the LPA Archaeological Advisor.

7.2 Project team

- 7.2.1 The work will be undertaken by an archaeological fieldwork subcontractor that is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA) and approved by the WSP Cultural Heritage and Archaeology Team.
- 7.2.2 Details of the archaeological fieldwork subcontractor staff including post-excavation specialists will be provided once the archaeological fieldwork subcontractor has been appointed.
- 7.2.3 The WSP Cultural Heritage and Archaeology Team staff will comprise:
- *Orlando Prestidge, BA (Hons), MA, MCIfA*, Principal Consultant. Orlando is an archaeologist with over 10 years commercial experience and a varied CV within the fieldwork and geophysical survey sectors before moving into project management, post-excavation and consultancy work, and is a full member (MCIfA) of the Chartered Institute for Archaeologists. Orlando has managed a significant number of projects (including in the Archaeological Clerk of Works (ACoW) role) for public and private sector clients across the UK, including large-scale infrastructure, utilities, green energy and residential developments. Orlando has authored a significant number of desk-



based assessments and environmental statements, alongside offering planning and archaeological mitigation advice to clients, and working with curatorial archaeologists and other stakeholders to incorporate archaeological constraints and opportunities within development designs.

- *Jon Chandler, BA PGDip MCIfA*, Technical Director. Jon is highly experienced with deep and broad expertise derived from a career that spans 25 years in commercial archaeology, primarily as a heritage consultant. Jon has managed and worked on thousands of public and private sector development schemes, including some of the largest infrastructure projects in the country. This has included airport, rail, road, port, pipeline, energy, business park, urban and greenfield development, and complex deeply stratified archaeological sites in the City of London.

7.2.4 CVs of the key members of staff will be made available upon request.

7.3 Progress reports

7.3.1 The WSP Cultural Heritage and Archaeology Team will provide the client and, if appropriate, the LPA Archaeological Advisor, with a weekly summary progress memo (1–2 pages). This will:

- Summarise the work undertaken during the week and the key findings
- Report on site attendance, where appropriate
- Confirm that the work will be completed to programme and identify any potential issues to programme.
- Identify any health and safety issues (including near miss)

7.4 Post Excavation Programming

7.4.1 The time required to complete the Post-excavation Assessment Report and any further work, will very much depend on the volume of records generated



during the mitigation work. The results of the previous work on the site will be combined in the post-excavation assessment (PXA) programme.

8 Health and safety

8.1 Introduction

- 8.1.1 The work will be carried out pre-construction and is not therefore subject to Construction (Design and Management) regulations (CDM 2015).
- 8.1.2 The Main Contractor on site in charge of site management is the archaeological fieldwork subcontractor.
- 8.1.3 Health and Safety will take priority over all other requirements. A conditional aspect of all archaeological work is both safe access to the area of work and a safe working environment. The project will be carried out in accordance with safe working practices.
- 8.1.4 The following sections outline the health and safety aspects of the site work along with known constraints and maybe subject to change following consultation with the client, landowner, and the archaeological fieldwork subcontractor.

8.2 Risk assessment and methodology statement (RAMS)

- 8.2.1 The archaeological fieldwork subcontractor will produce a site-specific Risk Assessment and Methodology Statement (RAMS) to cover the onsite fieldwork and will supply a copy of the company's Health and Safety Policy. These will be reviewed by the WSP Cultural Heritage and Archaeology Team to ensure that the policy and measures are appropriate.
- 8.2.2 The RAMS will have been read, understood, and signed by all staff attending the site before any fieldwork commences.
- 8.2.3 WSP UK Ltd is one of the largest engineering and environmental consultancies in the UK. Health and Safety is a priority and to this end we will



ensure that our archaeological fieldwork subcontractor RAMS are in line with our cross-disciplinary industry standards:

- Clear, concise, and site-specific. Bespoke to the site, and without generic text for hazards that do not apply or mitigation that is not applicable;
- Tabulation of site-specific hazards, risk grading and mitigation measures;
- Site manager contact details provided, along with a deputy.
- Emergency action plan, with an address and route map to the closest Accident and Emergency.
- Subcontractor RAMS will be reviewed by an appropriately qualified and experienced member of staff (e.g. Project Manager), ideally with final approval by the H&S Manager/Senior Manager prior to review by WSP.

8.3 Personal protective equipment (PPE)

8.3.1 Staff present on site will be required to wear the appropriate Personal Protective Equipment (PPE), as identified in the RAMS. As a minimum this will be protective shoes, high-visibility vest, gloves, protective glasses and safety helmet. The requirement for any additional PPE will be identified in the RAMS.

8.4 Welfare

8.4.1 The archaeological fieldwork subcontractor will be responsible for providing and positioning suitable welfare facilities on site, including toilet and water for washing.

8.5 Site security

8.5.1 As is typical for archaeological trial trenching, the trial trenches may need to be left open overnight if archaeological remains have been revealed and require sampling and inspection. Whilst it is not standard practice to fence off



the trenches where these are on private land, where the trenches within 100m of a public right of way (PRoW) they will be fenced off with HERAS fencing (see **Figure 3** for PRoW). Any fencing required during the trial trenching n will be provided by the client.

8.6 Access

8.6.1 Site access from the relevant landowners will be arranged by client or their representative before site works commence. The WSP Cultural Heritage and Archaeology Team and archaeological fieldwork subcontractor shall be notified if access arrangements change prior to or during the trial trenching programme. Site access is shown on **Figure 3**.

8.6.2 Any areas which are not accessible during the trial trenching, for example due to ground cover, conditions, lack of arranged access, or which are deemed by the archaeological subcontractor staff to be unsafe to access, will not form a part of the trial trenching work. Any such areas will be documented for future reference.

8.7 Non-archaeological constraints

Services above ground and buried

8.7.1 Service plans shall be consulted and trenches moved in order to avoid services. Each trench footprint will be scanned with a CAT before machine excavation to identify the possible presence of any electrical services.

8.7.2 A utilities survey has been undertaken and utilities were found to be present within the site (Cornerstone Projects Ltd, 2023). Appropriate offsets have been considered within the trench plan. A copy of the survey will be provided to the archaeological fieldwork subcontractor in advance of the commencement of site works. Known above ground and buried services are displayed on **Figures 4 – 10** with a relevant exclusion buffer of either 10m (for below ground services) and 15m (for above ground services).



Unexploded ordnance (UXO)

- 8.7.3 A desk-based UXO report is available (ZeticaUXO, n.d.) and was consulted as part of the preparation of the WSI. This concludes that there is low potential for presence of UXOs on the site.
- 8.7.4 On this basis, no provision will be required for the attendance of a UXO contractor.

Ground contamination / asbestos

- 8.7.5 A desk-based ground risk and remediation report is available (WSP, 2023) and was consulted as part of the preparation of the WSI. This concludes that there is a low risk of the presence of ground contaminants. Soil samples were taken across the site and tested for a variety of contaminants including asbestos. The results showed that no exceedances were recorded within the samples.
- 8.7.6 On this basis, no provision has been made for the attendance of a ground risk and remediation contractor.

Possible nesting birds/mammals

- 8.7.7 The Ecological constraints of the site were discussed via email with the WSP Ecology Team who made the following recommendations in relation to nesting birds and terrestrial mammals:

- Nesting birds: Trenches 1 – 17 and 33 – 159 have the potential to contain nesting birds. Vegetation clearance should be undertaken outside the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive (peak period March-August). If this is not possible then any vegetation to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing.
- Terrestrial mammals and amphibians including great crested newts (GCNs): There is high potential for GCNs within the dense woodland in



the northern section of the site (see **Figure 5**). The dense woodland located within and immediately adjacent to the proposed development will be removed prior to archaeological trial trenching however no excavation will take place within 5m of the remaining tree canopy edge, as per Woodland Trust advice (Woodland Trust, 2021). No work will take place within the vicinity of known locations containing GCNs and if they are encountered all works will stop immediately, Any excavations that need to be left overnight should be covered or fitted with mammal ramps to ensure that any animals that enter can safely escape.

- 8.7.8 If any trenches are to be left open overnight, earth ramps will be located at both ends of each trench to ensure that any animals that enter can safely escape.

9 Monitoring and assurance

9.1 On-site fieldwork

9.1.1 The WSP Cultural Heritage and Archaeology Team will monitor and assure all elements of the archaeological fieldwork and will ensure that the work is carried out in accordance with this WSI, professional standards and the requirements of the LPA Archaeological Advisor. Any variance in the scope of work shall be made by the WSP Cultural Heritage and Archaeology Team acting on behalf of the client, in consultation with the LPA Archaeological Advisor.

9.1.2 The WSP Cultural Heritage and Archaeology Team will undertake monitoring visits of the fieldwork where required. This will review the following:

- Compliance by the archaeological contractor with the agreed health and safety arrangements as set out in the RAMS;
- The agreed numbers and levels of fieldwork staff attendance;
- The agree number and type of plant;



- Appropriate provision of welfare;
- Work is being undertaken in accordance with the requirements of this WSI;
- Work is being undertaken to programme; and
- Project risk (cost and programme).

9.1.3 Any non-compliance will be pointed out by the WSP Cultural Heritage and Archaeology Team at the earliest opportunity and steps agreed and put in place to resolve any issues.

9.1.4 Any key decisions (such as excavation strategy or work scope changes) that are made on site shall be noted during the monitoring visits and communicated by the WSP Cultural Heritage and Archaeology Team to relevant parties. Visits by the LPA Archaeological Advisor will be arranged so that they are satisfied that the works are being conducted to proper professional standards.

9.2 Post-Fieldwork deliverables

9.2.1 The WSP Cultural Heritage and Archaeology Team will technically assure the deliverables conform to the format and scope agreed with the LPA Archaeological Advisor, and that the reporting is accurate and clear and with sound conclusions, and that it has been produced to professional standards and the requirements of the LPA Archaeological Advisor. This will be the case whether the agreed deliverables take the form of an archaeological report for the HER or journal article.

9.2.2 The WSP Cultural Heritage and Archaeology Team will liaise with the archaeological fieldwork subcontractor to ensure that the work is carried out to an agreed delivery programme.