Norwich Western Link

Environmental Statement

Chapter 8: Cultural Heritage

Appendix 8.4: Written Scheme of Investigation for Archaeological Mitigation Works

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Executive Summary

WSP has been commissioned by Norfolk County Council (NCC) to produce a Written Scheme of Investigation (WSI) for a programme of archaeological mitigation in support of the forthcoming environmental impact assessment (EIA) for the proposed Norwich Western Link in Norfolk. This is a draft document to be finalised in accordance with the requirements of any archaeological planning conditions. The Proposed Scheme comprises the construction of a 4 miles -long dual-carriageway road connecting the A1067 Fakenham Road and the A47 with a duelled section of A1067 to the existing A1270 roundabout. The Proposed Scheme crosses a rural landscape of open fields, woodland and gentle rolling hills crossed by shallow river valleys and includes a new viaduct to carry the new duel carriageway link over the floodplain of the River Wensum.

The Proposed Scheme lies within a landscape of known high archaeological potential where archaeological works have demonstrated the widespread presence of prehistoric and Romano-British activity. Ground disturbance for the proposed development, including temporary construction compounds, temporary access, and ecological mitigation, would have an impact upon archaeological remains identified in an historic environment desk-based assessment, subsequent geophysical survey (Magnitude Surveys, 2020–1) **Appendix 8.2** (Document Reference 3.08.02) and trial trench evaluation **Appendix 8.3** (Document Reference 3.08.03), and in areas not previously evaluated for ecological reasons.

This WSI sets out the project design for a programme of archaeological mitigation, to be carried out under the terms of an archaeological planning condition, should consent be granted for the proposed development. The mitigation strategy is designed to preserve significant archaeological remains ‘by record’ (i.e. archaeological excavation and recording). The WSI sets out the fieldwork scope and methodology, reporting and archival processes, and clarifies responsibilities in terms of site management and health and safety. It also provides an evaluation strategy for those areas not previously investigated, to be carried out prior to EIA submission, which will inform appropriate mitigation once the results are known. The WSI has

been produced in consultation with the County Planning Authority's Archaeological Advisor. The proposed archaeological mitigation comprises:

- **Archaeological Strip, Map and Sample**. Archaeological excavation and recording in advance of construction, in areas where previous work has identified significant remains. Nine areas have been defined at various locations along the route, with evidence of prehistoric, Roman, and medieval settlement.
- **Archaeological Watching Brief**. This investigation will involve the monitoring of the ground works within the floodplain areas, where channel and bank reprofiling is proposed. Preliminary intrusive evaluation is not feasible or warranted in such areas.
- **Archaeological trial trench evaluation** in areas previously inaccessible due to land constraints, and revised Site and Red Line Boundaries, and areas to be utilised for Essential Ecological Mitigation to clarify the presence, nature, date, extent, and significance of any archaeological remains that might be present.
- **Geoarchaeological deposit model**. Buried palaeoenvironmental/archaeological remains in the Wensum channel will be modelled using existing borehole data to produce a risk map. A deposit model is a practicable way of evaluating the impact of the road viaduct piles in the river valley. This may lead to mitigation e.g. an updated model and possibly geoarchaeological fieldwork.

The results of the archaeological mitigation will be set out in a Post-excavation Assessment report (PXA). This will outline any recommendations for further analysis and dissemination at a level appropriate to the significance of the remains recorded. This might be as a summary note or an article in a local or period-based archaeological journal.

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 mitigation in advance of the development at the Norwich Western Link in Norfolk (National Grid Reference/NGR 612000, 314600). The Proposed Scheme comprises the construction of a new 6km-long dual carriageway road between the A1067 road at the north-eastern end and the A47 road at the south-western end and includes Essential Ecological Mitigation zones. The Proposed Scheme crosses a rural landscape of open fields and woodland and includes a viaduct at its north-eastern end where it crosses the River Wensum.

1.1.2 This WSI sets out the project design for a programme of archaeological mitigation, to be carried out under the terms of an archaeological planning condition, should consent be granted for the proposed development. The mitigation strategy is designed to preserve significant archaeological remains 'by record' (i.e. archaeological excavation and recording). The WSI sets out the fieldwork scope and methodology, reporting and archival processes. The mitigation comprises archaeological Strip, Map and Sample, archaeological Watching Brief and a geoarchaeological deposit model. The WSI also provides an evaluation strategy for those areas not previously investigated, to be carried out prior to EIA submission, which will inform appropriate mitigation once the results are known. The WSI has been produced in consultation with the County Planning Authority's Archaeological Advisor.

1.1.3 Pre-construction work, comprising the evaluation and potentially the Strip Map and Sample (SMS) (depending on the Principal Contractor's programme), will be carried out prior to construction activities and is therefore not subject to Construction (Design and Management) Regulations (CDM 2015). The watching brief, and potentially the SMS (depending on the Principal

Contractor's programme), will be subject to CDM regulations as this is carried out during construction phase.

1.1.4 Regardless of phasing, the Applicant has appointed a Principal Contractor to oversee all stages of work. During the evaluation and SMS stages of the works, where these are carried out prior to construction phase, the Principial Contractor has the responsibility to ensure that the necessary Health & Safety, welfare, site security and fencing are in place, but not to provide them. The Principal Contractor will take overall responsibility for health and safety on site during the Watching Brief stages of the works as this will be undertaken during construction phase, and also potentially the SMS if this is also carried out during construction phase, as required by CDM Regulations.

1.1.5 The results of the mitigation will be set out in a preliminary report (Post-excavation Assessment report) following the completion the fieldwork. This will outline any recommendations for further analysis and dissemination at a level appropriate to the significance of the remains recorded. This might be as a summary note or an article in a local or period-based archaeological journal. The site archive (finds and project plans etc) will be deposited with an appropriate repository within 12 months of issuing the report.

1.1.6 The mitigation strategy has been informed by the results of the trial trench evaluation **Appendix 8.3** (Document Reference 3.08.03), an Historic Environment Desk-based Assessment (HEDBA) **Appendix 8.1** (Document Reference 3.08.01) and discussions between the WSP Cultural Heritage and Archaeology Team and the County Planning Authority's Archaeological Advisor (per comm 22/11/2022), who provides Development Control advice in respect of the historic environment to Norfolk County Council. The previous investigative work that has been carried out on the Site Boundary to date is reported in the following documents:

- NPA, 2009, Norwich Northern Distributor Route, Geophysical Survey
- WYAS, 2013-15, Norwich Northern Distributor Route, Geophysical Survey

- NAU Archaeology, 2006-7, Norwich Northern Distributor Route, Geophysical Survey
- NAU Archaeology, 2009-10, Norwich Northern Distributor Route, Evaluation
- Oxford Archaeology, 2015, Norwich Northern Distributor Road, Evaluation
- WSP, 2020 (updated 2023), Norwich Western Link, Historic Environment Desk-based Assessment (HEDBA)
- Magnitude Surveys, 2021, Norwich Western Link, Geophysical Survey
- Oxford Archaeology, 2023, Norwich Western Link, Archaeological Evaluation Report

1.1.7 This WSI sets out the methodologies which will be followed during the fieldwork and during the post-excavation stages. These will follow the Standards and Code of Practice set out by the Chartered Institute for Archaeologists (CIfA 2020a-d), Historic England archaeological guidance (HE 2015a), and *Standards for Development-Led Archaeological Projects in Norfolk* (Norfolk County Council 2018), where appropriate.

1.1.8 All archaeological works within the Red Line Boundary will be undertaken by competent archaeologists recognised by the CIfA and approved by the WSP Cultural Heritage and Archaeology Team. All fieldwork operations will take into account personal safety and will follow national regulations and Health and Safety legislation.

1.2 Consultation

1.2.1 WSP contacted the County Planning Authority's Archaeological Advisor (John Percival, Historic Environment Senior Officer, Norfolk County Council) to discuss the scope of the investigation, and the agreed approach will be presented in this WSI.

1.3 Site inspection

1.3.1 A site visit was undertaken on 16 and 17 March 2021 as part of the HEDBA. Surveyors undertook a walkover of the whole of the proposed route. The observations have been incorporated into this report. Multiple site visits were also undertaken during the 2022 evaluation, the observations have been incorporated into this report.

1.4 Project roles

1.4.1 The '*WSP Cultural Heritage and Archaeology Team'* is the consultant responsible for managing the scope and for monitoring and assuring the work on behalf of the client (the Applicant). The team will liaise directly with the County Planning Authority's Archaeological Advisor**. Section 8** sets out the roles and responsibilities in detail.

1.4.2 The '*County Planning Authority's Archaeological Advisor'* provides the development control and planning advice to the County Planning Authority 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 archaeological fieldwork subcontractor will be via the WSP Cultural Heritage and Archaeology Team. For pre-construction activities, the archaeological fieldwork subcontractor will be responsible for providing welfare, plant, site security and fencing under the requirements of the Principal Contractor.

1.4.4 The '*Principal Contractor'* is the contractor in control of the site and taking full responsibility for health and safety. During the pre-construction phases of the works, which will not be under CDM regulation (2015), the *Principial Contractor* will stipulate the site security and health and safety requirements, to be provided by the archaeological fieldwork contractor. During the

construction phase, under CDM Regulations, the Principal Contractor is required to provide this along with welfare and plant.

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 and the Applicant.

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').

2 Historic Environment Baseline Summary

2.1 Site location

2.1.1 The Red Line Boundary covers the 6km route of the proposed road between the A1067 and the A47 (Centre NGR 611900 314500: Figure 1), and the Essential Ecological Mitigation. From the north the proposed route proceeds in a general south-westerly direction. The Red Line Boundary is very irregular in shape, covering the route of the proposed road and areas for construction compounds and attenuation ponds and road junctions. There are two extensions to the north-east for construction compounds and access routes: 250m to the east of Home Farm and along Ringland Land termination at the junction of Ringland Lane and Marl Hill Road. The site is bounded by fields and woodlands. Existing major and minor roads pass through the site. From north-east to south-west these comprise the A1067 (Fakenham Road), Ringland Lane, Weston Road, Breck Road and The Broadway.

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 located in the valleys on the River Wensum and the River Tud and on the ridge between the two valleys. In the north-eastern part of the route by the A1067 the ground level is recorded at 22.2m Ordnance Datum (OD). The ground then falls to the floor of the Wensum Valley at c. 10m OD, before rising to the south-west of the river, to c. 40m OD, 300m north-east of Ringland Lane. The ground then falls to c. 30m OD on Ringland Lane. The ground rises again to c. 50m OD on Breck Road, before falling to c. 40m OD in the Tud valley, 550m to the south of The Broadway. The ground finally rises to c. 50m OD in the south-western part of the site.

2.3 Geology

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

2.3.2 According to British Geological Survey (BGS) digital data the superficial geology of the site is varied. The majority of the route is underlain by the sands and gravels of the Sheringham Cliff Formation. The southern part lies on the glacial tills of the Lowestoft Formation (also called Boulder Clay). There are three areas of alluvium, most notably in the Wensum Valley, and small areas of Head Deposits and River Terrace Gravels.

2.4 Past archaeological investigations

2.4.1 As noted in the Introduction, a number of archaeological investigations have been carried out in the past in relation to the proposed scheme. Those undertaken for earlier iterations are summarised in the HEBDA. Based on the results of the HEDBA a programme of site-based investigation was undertaken to clarify the presence, nature, date, and significance of any archaeological remains present in relation to the present proposals. This comprised a

geophysical survey carried out by Magnitude Surveys in 2021, followed by an extensive programme of trial trenching, undertaken by Oxford Archaeology in 2022. The trial trench placement was informed by the results of the geophysical survey.

Summary of 2020–21 geophysical survey

2.4.2 The geophysical survey covered a total of 102Ha across 27 discreet land parcels/area (Magnitude Surveys 2021) Appendix 8.2 (Document Reference 3.08.02). The results revealed archaeological activity along the length of the proposed route, including enclosures, possible kilns/ovens, a trackway, and medieval/post-medieval agricultural activity.

Summary of 2022 trial trench evaluation

2.4.3 Between May and July 2022 Oxford Archaeology East undertook a programme of evaluation trenching along the route of the proposed Norwich Western Link, Norfolk **Appendix 8.3** (Document Reference 3.08.03). A total of 246 trial trenches of the planned 277 trenches were excavated within 22 fields (fields TT01-TT20 and TT22-TT23), many of which were targeted on cropmarks and geophysical anomalies. The evaluation uncovered evidence of Iron Age, Romano-British, medieval, and post-medieval activity.

2.4.4 Evidence for Neolithic and Bronze Age activity was limited to scattered finds of worked flint, but small numbers of features associated with Iron Age pottery were found in several areas in the southern and northern parts of the evaluated area (TT05, TT07/08 and TT20).

2.4.5 Evidence for Romano-British activity/land-use was revealed in two fields in the southern part of the evaluated area (TT07 and TT10) and in one field to the north (TT20) and was characterised by ditches relating to field systems and possible enclosures associated with small quantities of Roman pottery.

2.4.6 An extensive area of medieval settlement, previously known from cropmarks, was revealed by the trenching in field TT05, in the southern part of the evaluated area. This consisted of a complex of rectilinear enclosures and

associated boundary/field system ditches associated with pottery dating to the 12th to 13th centuries AD.

Areas not evaluated for this scheme

2.4.7 Four areas of the site have been subject to previous evaluation and are excluded from the evaluation.

- An evaluation for Norwich Northern Distributor Route (Block F1a) recorded several ditches and pits which contained possible middle Bronze Age pottery, late Bronze Age to early Iron Age pottery, 11th century pottery and struck and burnt flints (OA, 2015).
- An evaluation at Old Hall Farm in 2019 recorded pits and ditches. In one of the pits and one of the ditches pottery of late Neolithic/Early Bronze Age was recorded (Broadland Archaeology, 2021).
- An evaluation for the A47 Improvement Works (North Tuddenham to Easton) was undertaken in 2019 and 2020. A total of 48 areas were investigated which extended into the southern part of the site. Pits, ditches and postholes with later medieval metalwork and pottery and post-medieval pottery were recorded (PCA, 2020).
- An evaluation on the route of the Hornsea pipeline in the central part of the site was limited to post-medieval field boundaries (Louise Moan, Oxford Archaeology, pers. comm.).

2.4.8 The area of the Wensum valley is excluded from the evaluation area as it on alluvium and due to its level of environmental protection. Any evaluation trenches in this area would be subject to water ingress and would therefore not be practical to excavate.

2.4.9 Parts of the site that are wooded were also unsuitable for evaluation.

2.4.10 Some areas were not evaluated as new proposals and potential impacts have since come to light, including ecological mitigation areas, along with amendments to the site red line boundary.

2.4.11 Section 6 of this WSI sets out the scope and methodology to investigate the areas not previously evaluated.

2.5 Archaeological potential

2.5.1 The HEDBA **Appendix 8.4** (Document Reference 3.08.04) and subsequent archaeological evaluation report **Appendix 8.3** (Document Reference 3.08.03) provides a detailed archaeological and historical background, and the archaeological potential of the Site has been summarised below.

2.5.2 The northern part of the Site is located on the floodplain of the Wensum Valley, and a tributary of the Tud runs through the central part of the Site. The Site has moderate or high potential for palaeoenvironmental remains in these floodplains. The peat deposits in the Wensum Valley and the alluvium associated with the Tud tributary may contain well-preserved organic remains (due to waterlogging). Minerogenic deposits such as alluvial silts and clays have potential for diatom, mollusc and ostracod preservation, the assessment of which can provide information on the salt or freshwater nature of deposits that could enhance interpretation of the past landscape. Peat deposits preserve pollen, seeds, and plant fragments. Organic material can also be dated by radiocarbon techniques, important for establishing the chronology for the depositional sequence. In combination with geoarchaeological assessment of the sediments, examination of microfossils can provide valuable information on past environmental conditions.

2.5.3 The Site has high potential to contain prehistoric remains. The 2022 trial trenching (Oxford Archaeology, 2023) found evidence for Early–Middle Iron Age activity at three locations towards the south (TT05 and 08) and north (TT20) of the Site. This activity may indicate small scale, short-lived, occupation. A possible Middle Iron Age enclosure (which alternatively may date to the Roman period) was also recorded towards the south of the Site in TT07. In the northern part of the Site an evaluation recorded several ditches and pits which contained possible Middle and Late Bronze Age pottery (TT18). Isolated finds of Neolithic–Bronze Age worked flints found in low

quantities across areas of the Site suggest low level activity during these periods (TT14 and 18).

2.5.4 In the wider study are an archaeological investigation at Weston Park Golf Club recorded Neolithic flint knapping activity and cut features dating to the Bronze and Iron Ages. Cropmarks of an enclosures of possible Iron Age date are also noted in the study area. Isolated finds of prehistoric flint tools and pottery have been recorded at several locations in the study area.

2.5.5 The Site has high potential to contain Roman remains. Evidence for activity during the period was recorded during the 2022 trial trenching towards the south of the Site (TT07) where a rectilinear enclosure (from which Middle Iron Age pottery was also retrieved). Evidence for possible localised, but undefined, activity was also recorded towards the centre of the Site (TT12) and the north (TT20). Evidence for field systems, probably dating to the period, were also recorded. Chance finds of Roman brooches are recorded in the Site. Within the wider study area further possible Roman field boundaries and chance finds of Roman artefacts have been also made.

2.5.6 The Site has low potential to contain early medieval remains. The Site was likely at some distance from the early medieval settlements in the area. Early medieval pottery was found during an evaluation in the northern part of the Site.

2.5.7 The Site has high potential to contain medieval activity. A medieval settlement and its associated field system has been indicated by the 2022 trial trenching in the location where cropmarks indicated rectilinear enclosures towards the southern part of the Site, and within the northern part of the site (TT04, 05, and 22). In addition, the earthwork remains of a possible moated site was recorded on aerial photographs in the Wensum Valley.

2.5.8 The remainder of the Site was located outside the areas of settlement throughout the medieval period. Cropmarks of ditches and field boundaries of possible medieval date are recorded within the Site as is the findspot of a

coin. Further cropmarks of possible medieval date are recorded in the study area.

2.5.9 The Site has moderate to high potential to contain post-medieval remains. The trial trenching identified linear features which had a close relationship with the existing field system, suggesting that they represent removed field boundaries. Cropmarks of ditches and field boundaries of possible post-medieval date are recorded within the Site and in the wider study area, while a former quarries, probably post-medieval, are noted in the southern part of the Site and in Gravelpit Plantation.

2.5.10 The Site has high potential to contain remains associated with the World War 2 Attlebridge Airfield. This airfield extended into the southern part of the Site and surveys undertaken in 2004–6 recorded a number of surviving structures within and close to the Site including air raid shelters, sewage plants, fuel stores, sentry posts and barracks.

3 Archaeological Strip, Map and Sample Mitigation

3.1 Introduction

3.1.1 To mitigate the impact on archaeological remains a strategy of preservation 'by record' is proposed, which has been informed by the area of construction impact and the results of the preceding archaeological trial trench evaluation (Oxford Archaeology, 2022) **Appendix 8.3** (Document Reference 3.08.03) and the HEDBA **Appendix 8.4** (Document Reference 3.08.04).

3.1.2 Nine areas (TT's) of archaeological Strip, Map and Sample (SMS) mitigation have been identified, which are shown on Figures 2-11 corresponding to areas of significant archaeological potential for Iron Age, Romano-British, and medieval settlement identified in the preceding evaluation.

3.1.3 Areas proposed for archaeological Strip, Map and Sample have been chosen based on the density of archaeological features identified during the preceding geophysical survey (Magnitude Surveys, 2021) and archaeological

evaluation (Oxford Archaeology, 2023), and with reference to the wider regional research objectives (Medlycott (ed.) 2011) (see 3.2.4), and best professional judgement.

3.1.4 Where areas of less dense early prehistoric activity were encountered, as such remains are rare and disperse, the SMS areas were defined by targeting dateable features and allowing a sufficient buffer around them. The selection of these less dense SMS areas also took account of the wider regional research objectives (Medlycott (ed.) 2011) (see 3.2.4), and the WSP Cultural Heritage and Archaeology Teams best professional judgement.

3.1.5 The nine SMS areas, and their sizes are given in Table 1.

Table 1 Proposed SMS areas

Area	Targeting	Size of Area (ha)	Estimated Average Depth of Overburden (topsoil and subsoil)
TT04	Medieval settlement activity-in the form of a deserted medieval settlement and associated field systems covering an extensive area comprising pits and ditches. Medium to high density of archaeological features expected.	0.597ha	0.7m
TT05	Medieval settlement activity-in the form of a deserted medieval settlement and associated field systems covering an extensive area comprising pits and ditches. Medium to high density of archaeological features expected.	3.343ha	0.6m

Area	Targeting	Size of Area (ha)	Estimated Average Depth of Overburden (topsoil and subsoil)
TT07	Iron Age and Romano-British activity- a rectilinear enclosure (from which Middle Iron Age pottery was also retrieved). Medium to high density of archaeological features expected.	1.532ha	0.45m
TT08	Early and Middle Iron Age Archaeological features-Evidence of settlement activity. Low-medium density of archaeological features expected.	0.043ha	0.5m
TT12	Iron Age and Romano-British activity-Evidence of settlement activity. Low-medium density of archaeological features expected.	0.177ha	0.43m
TT14	Neolithic activity-Isolated finds of Neolithic–Bronze Age worked flints found in low quantities. Low density of archaeological features.	0.016ha	0.55m
TT18	Neolithic, Bronze Age, Iron Age and early medieval activity Ditches and pits, possibly representing settlement activity. Low-medium density of archaeological features expected.	0.314ha	0.48m

Area	Targeting	Size of Area (ha)	Estimated Average Depth of Overburden (topsoil and subsoil)
TT20	Iron Age and Romano-British Activity- Evidence of settlement activity. Low-medium density of archaeological features expected.	1.162ha	0.49m
TT22	Medieval settlement activity-in the form of a medieval settlement activity and associated field systems comprising pits and ditches. Medium to high density of archaeological features expected.	0.934ha	0.5m

3.1.6 The fieldwork mitigation methodology will conform to best professional practice as summarised in Standard and guidance for archaeological field excavation (CIfA 2020a), and within local guidance (Allen et all, 2018). The relevant project archive repository (Norfolk Museums and Archaeology Service) will be confirmed by the archaeological fieldwork subcontractor and a unique project number - a 'site code' - obtained prior to the start of the project. 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 OASIS.

3.1.7 The SMS will be undertaken under the terms of any archaeological planning condition, following the granting of consent.

3.2 Research aims and objectives

3.2.1 The aim of the SMS as defined by CIfA as part of archaeological excavation, is to undertake 'a programme of controlled, intrusive fieldwork with defined research objectives which examines, records, and interprets archaeological deposits, features, and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design' (CIFA, 2020a, 4).

3.2.2 The following general Archaeological Research objectives have been compiled with particular consideration of the results of archaeological evaluation Appendix 8.3 (Document Reference 3.08.03), and the East of England Regional Research Framework (Medlycott (ed.) 2011). These research objectives may be revised during the SMS in consultation with the County Planning Authority's Archaeological Advisor.

- To ascertain the extent and character of those archaeological deposits associated with the previous evaluation results;
- To determine the extent, condition, nature, character, date, and significance of any hitherto previously unrecorded archaeological remains encountered;
- To establish the nature of the activity of any hitherto previously unrecorded archaeological remains;
- To recover any environmental or ecofactual evidence from archaeological features and to ascertain the potential for any such preservation;
- To identify any artefacts relating to the occupation or use of any hitherto previously unrecorded archaeological remains; and,
- To provide further information on the archaeology of Norfolk through any archaeological remains encountered.

3.2.3 Archaeological research objectives specific for each of the SMS area identified are set out below. These may be revised during the SMS activities in consultation between WSP (the consultant) and the County Planning Authority's Archaeological Advisor.

SMS Area TT04-05 & 22 (Figure 3 & 6)

Medieval

- What can we learn about medieval rural demography?
- Can we improve our understanding of medieval agricultural practices?
- Can we improve our understanding of medieval rural industries?
- Can we clarify the dating, form, and function of medieval rural moated sites?
- Can we characterise and explain medieval rural settlement change, evolution, and abandonment?

SMS Area TT07, 12 & 20 (Figure 3, 4 & 5)

Late Iron Age/Roman

- Can the works further the objective of further understanding of prehistoric and Romano-British field systems, and their relationship to preceding and succeeding systems.
- Is there evidence of early contact or Roman presence in Norfolk pre-conquest? Did the native elite remain in place post-conquest; did they adopt, adapt or resist? Can the impact of conquest be detected in settlement changes in this period?
- Can we increase our understanding of Late Iron Age and Roman farmsteads? Can we improve the environmental sampling of Late Iron Age and Roman farmsteads?

SMS Area TT08, 18 (Figure 3 & 5)

Early-Middle Iron Age

- What can be done to refine the chronology of the Late Bronze Age to Middle Iron Age?
- How can we increase our understanding of the Early to Middle Iron Age transition?
- Can we identify and characterise regional difference during the Late Bronze Age to Middle Iron Age?
- What can the relationship between settlements tell us about social change?
- Were settlements permanently or periodically occupied?
- What were the functions of pits and pit alignments?

SMS Area TT14, 18 (Figure 4 & 5)

Neolithic

- How do we improve the dating of Neolithic sites and artefacts?
- To what extent is the Neolithic in Norfolk distinctive in the region?
- How can we better understand Neolithic diet and economy?
- Can we better appreciate the emergence of agriculture in the Neolithic?
- How can we learn more about climate and environmental conditions during the Neolithic?
- To what extent was there continuity from the Late Neolithic to the Early Bronze Age?

SMS Area TT18 (Figure 5)

Late Bronze/Middle Iron Age

- What can be done to refine the chronology of the Late Bronze Age to Middle Iron Age?

- How can we increase our understanding of the Early to Middle Iron Age transition?
- Can we identify and characterise regional difference during the Late Bronze Age to Middle Iron Age?
- What can the relationship between settlements tell us about social change?
- Were settlements permanently or periodically occupied?
- What were the functions of pits and pit alignments?
- Can we increase our understanding of Bronze Age field systems? What crops were grown, and which animals reared during this period?

Early Medieval

- Can we better characterise Middle and Late early medieval settlement types and forms? To what extent was their continuity or discontinuity between Early and Middle early medieval settlements?
- Can we better understand the extent of Middle and Late early medieval landscape reorganisation?
- Can we identify any evidence for Scandinavian presence in East Anglia?
- Did climate change impact settlements during the Middle and Late early medieval periods?

3.3 Strip, map and sample methodology

Preliminary Topsoil Removal

3.3.1 Machine stripping of the proposed SMS 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.

3.3.2 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.

3.3.3 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.

3.3.4 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.

3.3.5 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.

3.3.6 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

3.3.7 Following monitoring of the preliminary stripping, archaeological excavation and recording within the area can commence. All excavation work will be supervised and monitored by a fully qualified Archaeological Project Officer/Supervisor.

3.3.8 A pre-excavation site-plan will be produced by the archaeological contractor for an initial site excavation strategy meeting attended by the WSP Archaeology and Heritage Team and the County Planning Authority's Archaeological Advisor. The site plan will be used to guide the recording and sampling strategy which will be subject to an updated specification, if necessary, based on the results of further investigation, in consultation with the WSP Archaeology and Heritage Team and the County Planning Authority's Archaeological Advisor. The excavation strategy will be flexible and will accommodate changes as the fieldwork proceeds. The excavation strategy will be justified against the stated aims and objectives of the excavation and will be agreed with the County Planning Authority's Archaeological Advisor.

3.3.9 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 Applicant in consultation with the County Planning Authority's Archaeological Advisor. There will be no direct liaison without permission between the archaeological fieldwork subcontractor and the County Planning Authority's Archaeological Advisor.

3.3.10 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).

3.3.11 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.

3.3.12 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 County Planning Authority's Archaeological Advisor.

Table 2 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%

Feature Type	**Minimum percentage of each example**
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%

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

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

3.3.15 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.

Palaeoenvironmental Sampling

3.3.16 Samples from the evaluation were not abundant in plant remains (e.g., cereal grains, legumes, roots, stems, seeds, and charcoal) nor faunal remains (snails and animal bone) **Appendix 8.3** (Document Reference 3.08.03). Organic-rich or peat deposits were not recorded in the evaluation, and only

one feature yielded more than 100 grains. If organic deposits are encountered or if significant sedimentary sequences are revealed (this is unlikely) a site-specific strategy will be agreed between the consultant WSP and the County Planning Authority's Archaeological Advisor and their HE Scientific Adviser. Palaeoenvironmental samples will be taken in accordance with best practice (HE 2015b) to facilitate the projects aims and objectives.

3.3.17 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.

3.3.18 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

3.3.19 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 County Planning Authority's 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).

3.3.20 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* (CIfA 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.

3.3.21 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.

3.3.22 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 County Planning Authority's 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

3.3.23 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

3.3.24 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 Museums and Archaeology 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.

3.3.25 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 (Appendix A to this Appendix).

3.3.26 In such case, the Applicant (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.

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

Human Remains

3.3.28 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 should 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).

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

3.3.30 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.

3.3.31 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.

3.3.32 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

3.3.33 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, County Planning Authority's 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.

3.3.34 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

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

3.3.36 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.

4 Watching Brief Methodology

4.1 Introduction

4.1.1 Three areas have been identified for watching brief during preliminary groundworks during construction phase to mitigate the impact on archaeological remains to achieve preservation 'by record' within the Water Framework Directive Mitigation areas. These comprise WB Areas A–C (Figure 12). These are proposed in areas where preliminary evaluation is neither warranted or feasible and comprise an area of riverbank reprofiling and an area of channel modification as part of the ecological mitigation. It is not practical to carry out trial trenching at these locations as trenches would instantly fill with floodwater.

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

4.1.3 As final mitigation, the watching brief will be undertaken under the terms of any standard archaeological planning condition, following the granting of consent.

4.2 Aims and objectives

4.2.1 The aim of the watching brief 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 watching brief 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 The objectives of the watching brief in the three areas are as follows:

4.2.4 WB Area A (Figure 12). The site of a probable medieval moated homestead and other associated earthworks (HEDBA ref A26) are recorded within the area proposed for grassland enhancement within the Wensum valley. No groundworks (such as topsoil stripping or ploughing) is proposed in order to enhance the existing grassland and consequently there will be no impact to the moat or to currently unknown buried archaeological remains. The works will include rewatering a former meander of the River Wensum as well as the riparian planting mentioned above. There are no works proposed in the vicinity of the moat. The watching brief is essentially to ensure that the proposed works do not inadvertently impact the asset.

4.2.5 WB Area B & C (Figure 12). This is proposed in an area of riverbank reprofiling as part of the ecological mitigation of the Foxburrow stream, a tributary of the River Tud. It is not practical to carry out trial trenching at these locations due to dense undergrowth and the high water table as trenches would instantly fill with floodwater. The watching brief will ensure that any archaeological remains associated with prehistoric and medieval activity (**Appendix 1 HEDBA** (Document Reference: 3.08.01) ref 69) to the south of the area, and WW2 remains associated with Attlebridge airfield (HEDBA ref 90–95) are not removed without record.

4.3 Archaeological monitoring

4.3.1 A number of archaeological features are located within the Water Framework Directive and grassland mitigation areas. If groundworks cannot be designed to avoid these assets, watching briefs are to be undertaken. The aim of the watching briefs is to ensure any remains of archaeological interest associated with grassland mitigation or Water Framework Directive Mitigation are not removed without record, and to minimise disturbance to the assets (see Figure 12). 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 consultant immediately, who will then consult with the County Planning Authority's 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 County Planning Authority's 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 consultant, acting on behalf of the client, and the County Planning Authority's 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 watching brief 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 CIfA (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 watching brief 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 CIfA 'Standard and Guidance for the collection, documentation, conservation and research of archaeological materials' (CIfA 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 County Planning Authority’s 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 Geoarchaeological Deposit Model Evaluation

5.1 Introduction

5.1.1 Deposit models use information on buried sediments (often geotechnical ground investigation data) to map zones of varying potential for palaeoenvironmental and archaeological remains. Producing a deposit model is a minimally intrusive way of understanding the risk of encountering deposits of heritage significance that cannot be evaluated by methods such as geophysical survey or trial trenching. This may be because thick superficial deposits mask potential (e.g. alluvium in river valleys), or that ground conditions or environmental protection prevent intrusive survey.

5.1.2 Deposit models are most effective in the earlier stages of the planning process at the desk-based stage but can be used or updated throughout the project lifecycle during evaluation, mitigation or off site during post-excavation.

5.1.3 The deposit model for the Wensum channel **Appendix 8.5** (Document Reference 3.08.05) provides a way of understanding the impact of the road viaduct piles on geoarchaeologically sensitive sediments and recommends a purposive borehole survey.

5.2 Aims and objectives

5.2.1 The aim of the deposit model is to map and interpret the sub-surface stratigraphy across the Wensum Valley within the red line boundary in the northern part of the Proposed Scheme. Using geotechnical ground investigation and geological information, the model indicates the likely nature and depth of any archaeological remains and palaeoenvironmental deposits. This is achieved through the following objectives. Using geotechnical borehole log and trial pit descriptions, the model:

- Identifies Pleistocene and Holocene deposits within the Site Boundary and maps their location, extent, and thickness;
- Identifies zones of likely archaeological/palaeoenvironmental potential;
- Provides an indication of the likely nature, depth, and significance of buried archaeological deposits within each zone; and
- Recommends a borehole survey of six purposive boreholes, and to make any geoarchaeological deposit model and site stratigraphy information accessible to the Historic Environment Record (HER) to contribute to understanding prehistory in the region, particularly the Palaeolithic to Mesolithic (Medlycott 2011).

5.2.2 It is noted that robust deposit models rely on good data, and therefore models may not accurately represent ground conditions. A deposit model is a decision-making tool that provides a conceptual framework of sub-surface that relies on high quality ground investigation (minimal sediment disturbance), evenly distributed and numerous data, and consistent logging descriptions to support good interpretations. Models can be refined and strengthened by additional data.

5.3 Methodology

5.3.1 To create the deposit model geotechnical deposit descriptions were entered into a digital database (texture, sorting, structure, colour, and inclusions)

where available and a major and minor component assigned to each sedimentary unit (eg clay, silty; gravel, sandy). These key characteristics allow later consideration or interpretation of processes and depositional environments.

5.3.2 The numbers of each data type or drilling method entered into the database are recorded so that the quality of the information can be taken into account in interpretation.

5.3.3 A series of 'working transects' or cross-sections were drawn up to illustrate sediment sequences relative to height above OD and positioned according to spacing on the ground. Horizontal and vertical deposit relationships will be examined, sediment descriptions grouped, and correlations across the valley made to build a stratigraphic sequence. The base of the Holocene sequence is identified and correlated between logs to represent the inherited Lateglacial/early Mesolithic topography. This 'pre-Holocene template' influenced later sediment deposition.

5.3.4 Where present, buried landscape features, such as palaeochannels (previous watercourses) and 'islands' of areas of higher gravels beneath flood alluvium are identified and illustrated.

5.3.5 The key units and surfaces emerging from data interrogation were transferred to a geographic information system to illustrate the findings using maps showing the OD surface level and thickness of deposits of potential and significance.

5.3.6 On the basis of the location, extent and thickness of the various deposits, the site is divided up into 'Landscape Zones' of varying archaeological and palaeoenvironmental potential. A description of the character of each zone and likely archaeological and paleoenvironmental potential is summarised in the report. The report, carried out in accordance with the HE guidance on deposit modelling (Historic England 2020), and forms a technical appendix to the ES **Appendix 8.5** (Document Reference 3.08.05).

5.4 Reporting

5.4.1 The deposit model report illustrated with maps and cross-sections was made available to the client and the County Planning Authority's Archaeological Advisor to inform the archaeological mitigation design in the Wensum channel.

5.4.2 The model identified three 'Landscape Zones' (LZ1 to LZ3) varying from low to high palaoenvironmental potential. Peat or peaty loam within floodplain channels particularly on the east of the floodplain are likely to preserve evidence of Holocene environmental change. There is low potential for archaeology of medium heritage significance at the edge of the floodplain.

5.4.3 The digital archive will be transferred into the care of a Trusted Digital Repository, and the information made accessible to the Historic Environment Record (HER) if appropriate.

6 Archaeological Trial Trench Evaluation

6.1 Introduction

6.1.1 Areas not evaluated previously due to land use constraints and changes to the Red Line Boundary are outlined in Figure 13-14. Trial trench evaluation is required in these areas prior to any mitigation design. This section will therefore be an addendum to the WSI produced as the method statement for undertaking the 2023 trial trench evaluation, reported on in **Appendix 8.3** (Document Reference 3.08.03)..

6.1.2 The evaluation is intended to be undertaken in support of the EIA, to inform on possible impacts to archaeology from the Proposed Scheme, and to enable the formulation of an appropriate mitigation strategy, if required. This is likely to entail an update to this WSI for Archaeological Mitigation.

6.1.3 An appropriate mitigation strategy for any significant archaeological remains revealed might comprise a second stage of investigation, as mitigation, in the form of targeted archaeological excavation and recording in advance of

construction, and/or an archaeological watching brief during topsoil removal ('strip, map and record') 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 evaluation reveals no significant remains, in which no further work would be required.

6.1.4 As pre-construction work, the evaluation will not be subject to Construction (Design and Management) Regulations (CDM 2015). The Principal Contractor is responsible for ensuring that the necessary Health & Safety, welfare, and site security are in place.

6.2 Aims and objectives

6.2.1 The aim of the evaluation 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 evaluation reveals little of archaeological significance then no further work may be necessary.

6.2.2 The objective of trial trench evaluation 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 evaluation will inform an appropriate mitigation strategy for any archaeological remains, if required.

6.2.3 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.'

6.2.4 In respect of the archaeological research objective specific to the areas proposed for additional evaluation trenches, these are as follows based on the HEDBA and geophysical survey to date (where it has been undertaken):

- What evidence is there for Prehistoric activity? If present what is its nature, extent, and significance?
- What evidence is there for Roman activity? If present what is its nature, extent, and significance?
- What evidence is there for later medieval activity? If present what is its nature, extent, and significance?
- What are the nature and levels of natural deposits, and has there been any modern disturbance?

6.2.5 The archaeological work will comprise of 87 trenches of varying length, and includes area TT21, consisting of 26 trenches (trenches 18–43), that could not be excavated during the previous archaeological survey **Appendix 8.3** (Document Reference 3.08.03).

6.2.6 The 26 trenches originally proposed are targeted on possible archaeological features identified as anomalies in the geophysical survey and by cropmarks identified from aerial photographs **Appendix 8.2** (Document Reference 3.08.02). Some trenches are targeted on areas identified as blank by the geophysical survey, to confirm that no archaeological remains are present. Some areas have had no preceding geophysical surveys undertaken, and in that case a representative sample of the area will be excavated.

6.2.7 The remaining trenches, which represent the majority, are in areas that have not seen any preliminary geophysical survey due to the evolving nature of the non-critical design elements. This includes 16 trenches in the Essential Ecological Mitigation areas and 48 trenches in the south abutment area (used for spoil). Trenches have been positioned to avoid any known services and utilities.

6.2.8 The results of the evaluation will allow the County Planning Authority's Archaeological Advisor to determine an appropriate mitigation strategy for any significant archaeological remains revealed. This might comprise a mitigation stage as described in Sections 3 and 4. 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 evaluation reveals no significant remains, in which no further work would be required.

6.3 Methodology

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

6.3.2 Based on the predicted depth of deposits, 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 required.

Archaeological investigation

6.3.3 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.

6.3.4 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.

6.3.5 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.

6.3.6 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, the archaeological fieldwork subcontractor, and the County Planning Authority's Archaeological Advisor. This will typically entail a site visit. Where the evaluation has revealed no significant archaeological remains digital photographs may be sufficient.

6.3.7 In addition to the evaluation 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.

6.3.8 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 County Planning Authority's 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 County Planning Authority's Archaeological Advisor and relevant specialists, where required.

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

Sampling strategy

6.3.10 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 evaluation to archaeologically excavated features in their entirety as this would form part of a future mitigation strategy for preservation by record.

6.3.11 The following sampling strategy will be carried out:

- Linear features will be hand excavated to achieve a minimum of a 10% sample along their length, with a minimum of a section of 1.0m width.
- The termini of any linear features will hand excavated sufficient to determine their form.
- Significant solid or bonded structural remains, building slots or postholes will be preserved intact, even if fills are sampled.
- Discrete features such as postholes and pits will be 50% excavated.
- Complex features such as hearths, kilns and structural/industrial features will be excavated sufficient to establish their form, phasing, and construction techniques. All intersections will be investigated to determine the relationship(s) between the component features.

6.3.12 Datable finds from the sampled areas will be recovered to allow features and deposits to be dated.

6.3.13 Where palaeoenvironmental potential has been identified, bulk samples, 20L (litres) for wet and 40L–60L for dry contexts of 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).

6.3.14 Where necessary, a supplementary strategy for sampling of environmental deposits may be developed by the consultant in accordance with HE (2015b) and CIfA (2020b) guidelines. Advice will be sought from the County Planning Authority's Archaeological Advisor and the Historic England Regional Archaeological Science Advisor throughout the project, as appropriate.

Subsequent off-site analysis of the processed samples and remains will be undertaken by archaeological specialists.

Archaeological recording

6.3.15 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.

6.3.16 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.

6.3.17 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.

6.3.18 A record of the full sequence of all archaeological remains as revealed in the evaluation 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.

6.3.19 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.

6.3.20 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.

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

6.3.22 The process for finds treasure and human remains will be as set out in the SMS methodology in section 3.4.

6.4 Reporting

6.4.1 A fully illustrated archaeological evaluation report will be made available to the client and the County Planning Authority's Archaeological Advisor within 8–10 weeks of the completion of fieldwork. This will be carried out in accordance with the CIfA standards and guidance (2020a) and will have a structure as outlined in the WSP WSI for evaluation (2021). The report will form a technical appendix to the EIA.

7 Mitigation Reporting, Dissemination and Archiving

7.1 Reporting

7.1.1 The nature of the post-excavation reporting 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 fieldwork.

7.1.2 Following, and where possible during, the fieldwork, the findings will be assessed by the consultant in consultation with the County Planning Authority's 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.
- Straight to publication. The significance of the site archive is already reasonably well understood, and the most appropriate level of analysis and publication can be agreed with the County Planning Authority's Archaeological Advisor and other stakeholders. No further assessment is required to determine this.
- Post-Excavation Statement. The results of the fieldwork are not particularly significant. A grey literature report for deposition within the HER and Archaeological Data Service is considered an appropriate level of dissemination.

Post-Excavation Assessment (PXA) and Updated Project Design

7.1.3 A Post-Excavation Assessment will be prepared in accordance with the specification given in Appendices 4 and 5 of Management of Archaeological Projects 2 (English Heritage 1991). The PXA 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 publication (including editing stages) 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.

7.1.4 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, sub-divided 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
- 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.

7.1.5 An Updated Project Design will also be produced, as a separate section within the PXA or 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.

7.1.6 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 completion of the PXA.

7.1.7 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

7.1.8 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 County Planning Authority's Archaeological Advisor.

7.2 Publication and dissemination

7.2.1 Where potential for further archaeological work has been identified and detailed proposals for this set out in the PXA, further analysis and research may be required, leading to publication in either a dedicated site-based monograph, or in a regional, national, or period-based archaeological journal within five years (subject to availability in selected journal) of the completion of fieldwork on site. Agreement shall be sought with the client to allow a contingency sum to cover the estimated cost of such further analysis and publication should such work be recommended in the PXA report.

7.2.2 Consideration will be given by the WSP Archaeology and Heritage Team in consultation the County Planning Authority's Archaeological Advisor as to whether it would be appropriate to publish the results of the project through a range of outlets, from conventional archaeological publications to, for example, site viewing platforms, interpretation panels and lectures, open days and school visits, radio and television programmes, videos and popular publications and the Internet. If, following the PXA, a formal letterpress or online journal publication report is agreed not to be warranted, consideration should be given to the availability of the digital report to ensure that the results of the project are widely available for future researchers and for the general public.

7.2.3 A short summary of the results of the work will be submitted to the local HER using the appropriate OASIS archaeological report form, and for publication in a local archaeological journal and/or other period-based archaeological journals.

7.3 Public engagement

7.3.1 This project is unlikely to afford opportunities for public engagement or participation during the course of the fieldwork, however consideration will be given for an open day, or other outreach opportunities if the results of the fieldwork warrant this. The results will be made publicly available on ADS and the archaeological fieldwork contractors' website, following completion of the post-excavation reporting requirements and approval of the report by the County Planning Authority's Archaeological Advisor, and subsequent deposition with the HER.

7.4 The project archive

7.4.1 A digital record of the archive will be stored on the Archaeological Database Service (ADS), any finds will be deposited with the Norfolk Museums and Archaeology Service within six months of completion of the fieldwork element of the project. A unique site code for the project will be used as the site identifier for all records produced.

7.4.2 The Project Archive will include all materials retained (or the comprehensive record of such materials as referred to above) and all written, drawn, and photographic records relating directly to the investigations undertaken. The archive will conform to recognised guidelines.

- Archaeological Archives Forum, 2011 Archaeological Archives. A guide to best practice in creation, compilation, transfer, and curation
- Museums and Galleries Commission (1992) Standards in the Museum Care of Archaeological Collections.
- Society of Museum Archaeologists (1993) Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales, and Northern Ireland.

- 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.
- Chartered Institute for Archaeologists, (CIfA), 2020c, Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives
- Norfolk County Council Standard for Development-led Archaeological Projects in Norfolk (Norfolk County Council 2018).

7.4.3 The archive will be quantified, ordered, indexed and internally consistent before transfer to the Norfolk Museums and Archaeology Service.

8 Programme, Staffing and Attendance

8.1 Initial timetable and staffing

8.1.1 The start date of the archaeological mitigation works is to be confirmed, with the duration of the works to be confirmed by the archaeological sub-contractor. Investigation is expected to continue for up to 24 weeks.

8.1.2 The archaeological fieldwork subcontractor will provide a programme for the archaeological monitoring to the consultant, which will include detailing of staffing requirements.

8.1.3 The exact details of time, areas and numbers of staff involved would be agreed in discussions between the consultant, the client, the Principal Contractor, and the County Planning Authority's Archaeological Advisor.

8.1.4 If significant archaeological remains are revealed which cannot be satisfactorily sampled and recorded 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 the consultant in consultation with the County Planning Authority's Archaeological Advisor.

8.2 Project team

8.2.1 The work will be undertaken by an archaeological fieldwork subcontractor that is a Registered Organisation with the CIfA and approved by the WSP Cultural Heritage and Archaeology Team.

8.2.2 Details of the archaeological fieldwork subcontractor staff including post-excavation specialists will be provided once the archaeological fieldwork subcontractor has been appointed.

8.2.3 The WSP Cultural Heritage and Archaeology Team years of experience in heritage management, consultancy, fieldwork design and monitoring.

8.2.4 CVs of the key members of staff will be made available to the client and Principal Contractor upon request.

8.3 Progress reports

8.3.1 The WSP Cultural Heritage and Archaeology Team will provide the client and, if appropriate, the County Planning Authority's 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).

8.4 Post excavation programming

8.4.1 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.

9 Health and Safety

9.1 Introduction

9.1.1 Pre-construction work, comprising the evaluation and potentially the SMS (depending on the Principal Contractor's programme), will be carried out prior to construction activities and is therefore not subject to Construction (Design and Management) Regulations (CDM 2015). The watching brief, and potentially the SMS (depending on the Principal Contractors programme), will be subject to CDM regulations as this is carried out during construction phase.

9.1.2 Regardless of phasing, the client has appointed a Principal Contractor to oversee all stages of work, in control of the site and taking full responsibility for health and safety.

9.1.3 During the pre-construction phases of the works, which will not be under CDM regulation (2015), the Principial Contractor will stipulate the site security and health and safety requirements, to be provided by the archaeological fieldwork contractor. During the construction phase, under CDM Regulations, the Principal Contractor is required to provide this along with welfare and plant.

9.1.4 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.

9.1.5 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, the Principal Contractor, landowner, and the archaeological fieldwork subcontractor.

9.2 Risk assessment and methodology statement (RAMS)

9.2.1 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 any other H&S documents requested by the Principal Contractor. These will

be reviewed by the consultant WSP to ensure that the policy and measures are appropriate.

9.2.2 The RAMS will have been read, understood, and signed by all staff attending the site before any fieldwork commences.

9.2.3 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.

9.3 Personal protective equipment (PPE)

9.3.1 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 and trousers, gloves, protective glasses, and safety helmet. The requirement for any additional PPE will be identified in the RAMS.

9.4 Welfare

9.4.1 The archaeological sub-contractor will be responsible for providing and positioning suitable welfare facilities on site, including a toilet and water for washing, unless otherwise advised by the Principal Contractor.

9.5 Site security

9.5.1 This Principal Contractor is responsible for site security during all phases of work.

9.5.2 Fencing and site security will be provided by the archaeological sub-contractor during the pre-construction phases of work, under the requirements of the Principal Contractor.

9.5.3 As is typical for archaeological fieldwork, the excavation areas 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 excavation areas where these are on private land, where the excavation areas are within 100m of a public right of way (PRoW) is assumed that the Principal Contractor will require these to be fenced off with HERAS fencing. TT04 is within 100m of PRoW, and appropriate fencing will need to be provided. TT22 is also within 100m however this field is segregated from the public by pre-existing fencing, and further mitigation is likely not required.

9.6 Access

9.6.1 Site access from the relevant landowners will be arranged by the Principal Contractor and client before site works commence. The consultant and archaeological fieldwork subcontractor shall be notified if access arrangements change prior to or during the SMS and Watching Brief programme.

Non-archaeological constraints

Services above ground and buried

9.6.2 The Principal Contractor is responsible for identifying known services and utilities and will provide this information in advance of any archaeological works.

9.6.3 Each area of intrusive excavation will be scanned by the archaeological fieldwork contractor with a Cable Avoidance Tool (CAT) and Signal Generators (Genny) before machine excavation to identify the possible presence of any electrical services, and a Permit to Dig will be issued by the Subcontractor to the Principal Contractor for their approval.

9.6.4 The constraints on the placement of trenches have been determined from services and utilities data from 2019 (Cornerstone 2019 h). The archaeological fieldwork subcontractor will need to confirm the trench location by consulting up-to-date utilities data.

Unexploded ordnance (UXO)

9.6.5 The Principal Contractor is responsible for ensuring that the archaeological work can be carried out in a safe manner in respect of UXO.

9.6.6 A desk-based UXO report is available (MACC International, 2019) and was consulted as part of the preparation of the WSI. This concludes that there was a low potential for the presence of UXO within the site. However, this assessment was peer reviewed by Fellows (2021), who concluded due to the history of the site, including live fire exercises and aerial bombing, that there is a medium risk for UXO within the wider area. On this basis, it is assumed that the Principal Contractor will make provision for the attendance of a UXO contractor.

Ground contamination / asbestos

9.6.7 The Principal Contractor is responsible for ensuring that the archaeological work can be carried out in a safe manner in respect of any possible ground contamination.

9.6.8 A desk-based Generic Quantitative Risk Assessment is available (WSP 2021) and was consulted as part of the preparation of the WSI. This concludes that there is a low risk to human health from the presence of ground contaminants. The contamination assessment used samples from geotechnical investigation undertaken in 2019 and 2020. A total of 42 soil samples were obtained and tested for soil contamination. No exceedances of the Generic Assessment Criteria (GAC) were noted in any of the samples. Asbestos was not detected in any of the 33 samples sent for testing.

9.6.9 On this basis, it is assumed that the Principal Contractor will make no provision for the attendance of a ground risk and remediation contractor.

Possible ecological constraints

9.6.10 The works have been designed to avoid impacts to landscape, ecology and biodiversity including ancient woodlands, hedgerows, birds, reptiles, amphibians, and mammals. The Outline Construction Environment Management Plan (OCEMP) Appendix 3.1 (Document Reference 3.03.01) ensures mitigation measures set out in the Environmental Statement are implemented during construction. Control measures in the OCEMP relevant to archaeological works will be adhered to.

10 Monitoring and Assurance

10.1 On site fieldwork

10.1.1 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 County Planning Authority's 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 County Planning Authority's Archaeological Advisor.

10.1.2 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).

10.1.3 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.

10.1.4 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 County Planning Authority's Archaeological Advisor will be arranged so that they are satisfied that the works are being conducted to proper professional standards.

10.2 Post-Excavation Deliverables

10.2.1 The WSP Archaeology and Heritage Team will technically assure the deliverables conform to the format and scope agreed with the County Planning Authority's 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 County Planning Authority's Archaeological Advisor. This will be the case whether the agreed deliverables take the form of an archaeological report for the HER, journal article or monograph.

10.2.2 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.

11 Funding

11.1.1 Funding arrangements for the archaeological mitigation will be agreed between the WSP UK Archaeology & Heritage Team and the client or their representative (e.g., the Principal Contractor), together with agreements for attendance requirements, accommodation and facilities required.

11.1.2 The archaeological subcontractor may be appointed directly by the client or their representative, or it might be that they are appointed by the WSP UK Archaeology & Heritage Team.

11.1.3 Note that the client will be required to fund the on-site works up to the Post-Excavation Assessment stage as defined by CIfA and as described in this document. Additional costs for the later analysis/publication programme will be confirmed following the completion of the PXA and Updated project design: the client is also responsible for any such post-excavation costs including the cost of dissemination of the results at an appropriate level and also temporary and long-term archival storage costs.

Appendix A Draft Transfer of Finds Ownership Form

Transfer of Title Form

This form should be printed and will be used in conjunction with Norfolk Museums and Archaeology Service standard entry form. The entry form is a paper form that will be signed by owner of the objects or the depositing archaeological contractor at the time of deposition.

Museum accession number:

Site name and site code:

Name of Archaeological Contractor:

Name and address of owner:

Telephone Number:

I hereby confirm my donation of the archaeological discoveries (any objects, materials, or remains of archaeological interest, other than those articles declared by Coroner's Inquest to be Treasure) recovered from the site named as an absolute and perpetual gift. I wish all material to be unconditionally transferred to the _____, a service of _____

Signed ---------- Date ----------

Print name ----------

Data Protection

The Museum retains the names and addresses of persons donating, bequeathing, selling or loaning objects because this information forms part of the object's history. This information is for the Museum's records and is not made available to any other organisation.

Appendix B References

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