Making the Right Choice

HS2 WP 022 – Priority Historic Environment Works – Middleton, Staffordshire – Enabling Works North Contract

Location Specific Written Scheme of Investigation for Trial Trenching

Document Number: 1EW04-LMJ-EV-SPE-NS05_NL14-022000

Revision	Author	Checked by	Approved by	Date	Reason for revision
P01	Nuala C. Woodley	Jon Chandler DJV	Rob Early DJV	13/06/17	Issued for acceptance
P02	Nuala C. Woodley	Jon Chandler DJV	Rob Early DJV	27/09/17	Issued for acceptance

DOCUMENT OWNER: ROB EARLY

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: Uncontrolled when printed

Contents

List of figures

List of tables

1 Executive Summary

1.1.1 This Location Specific Written Scheme of Investigation (LSWSI) sets out the methodology, deliverables, programme, health, safety and environmental requirements, resources and interfaces necessary to deliver an archaeological evaluation as defined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018). The project plan established the scope, aims, contribution to the Generic Written Scheme of Investigation Historic Environment Research and Delivery strategy (GWSI:HERDS) objectives, techniques, deliverable and reporting mechanism for trial trenching investigation.

1.1.2 Production of this LS-WSI follows the Guidance as outlined in Technical Standard – Specification for Historic Environment Project Plans and Location Specific Written Schemes of Investigation (Doc No: HS2-HS2-EV-STD-000-000036) and Technical Standard – Specification for Historic Environment Investigations (Doc No: HS2-HS2-EV-STD-000-000035). Reference is also made to other guidance as specified in the GWSI HERDS (Doc No: HS2-HS2-EV-STR-000-000015). The structure of this LS-WSI follows the Technical Standard – Specification for Historic Environment Project Plans and Location Specific Written Schemes of Investigation (Doc No: HS2-HS2-EV-STD-000-000036), section 3). Other relevant guidance is noted throughout the remainder of this document.

1.1.3 The trial trench investigation site ('the Site') lies in the Trickley Coppice Embankment section of the wider HS2 Scheme which includes an area of land habitat compensation and a receptor site for Great Crested Newt translocation. The site covers an area of c.6.12 ha (centred on NGR SP 17969 98790; see figure 1, Appendix 15).

1.1.4 The survey is required to help identify the location, extent, survival and significance of known and potential heritage assets in the area of early works at Marl Pit and Coppice Lane Cuttings (CR02184 and CR02276). The objective of the investigation is to gain information about the archaeological potential of the site to contribute to Specific Objectives set out in the Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (Doc No: HS2-HS2-EV-STR-000-000015) (see below). The outcome of the investigation may be used to inform future decision-making on the requirement for further archaeological investigation at the Site, or where appropriate, inform the development of mitigation by design.

1.1.5 Specifically, and as outlined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018), the trial trenching programme aims to identify the location, extent, survival and significance of known and potential heritage assets within the site .

The trial trenching programme aims to contribute to the following specific HERDS Knowledge Creation objectives, as outlined in Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (Doc No: HS2-HS2-EV-STR-000-000015), section 6.7:

- KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age.
- KC9: Does a lack of visibility of Neolithic and Bronze Age monuments reflect genuine area distinctiveness, or is this due to variation in geology or investigative techniques?
- KC12: What is the evidence for pre-Iron Age phases of enclosure at the margins of the Trent Valley, and to what extent were Iron Age and Romano-British field systems and settlement influenced by earlier structuring of the landscape?
- KC15: Can we identify regional patterns in the in the form and location of Late Bronze Age and Iron Age settlements across the route, and are there associated differences in landscape organisation and enclosure?
- KC30: Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in the period.

1.1.6 The way the trial trenching aims to contribute to aforementioned KC's is outlined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018), section 3.2, table 1).

2 Site Location, extent and condition

2.1.1 The Site comprises an irregularly shaped area around a former marl pit (CR02184) and an access route and area of land to the south-east (CR02276) (see Figure 1, Appendix 15). The total area is approximately 6.12ha and is centred on NGR SP 17969 98790. The site lies within the Community Forum Area (CFA) of Drayton Bassett, Hints and Weeford (CFA 21) and Curdworth to Middleton (CFA20).

2.1.2 The Site lies at a height of between 85m aOD (above Ordnance Datum) and 75m aOD. The underlying geology of the Site is recorded as the Mercia Mudstone Group with superficial deposits of river terrace deposits and alluvium mapped across sections of the area[1].

2.1.3 Access has not been available to conduct a walkover survey of the Site as part of the current design phase. Access for a walkover survey will therefore be required prior to the commencement of the trial trenching.

3 Overview of Project Plan

3.1.1 This LS-WSI has been prepared to provide the necessary specification and site specific information to enable the delivery of the archaeological evaluation defined in the Project Plan for Trial Trenching at Middleton, Staffordshire (1D037-EDP-EV-REP-030-000018). As outlined in section 4 the Project Plan defines the scope of the trial trenching, outlines the aims of the evaluation and how they will contribute to the specific objectives laid out in the GWSI: HERDS, and describes the proposed deliverables and reporting mechanisms. The Project Plan should be referred to for detailed information on these matters (see Appendix 15.1).

4 Scheme design elements

4.1.1 The trial trenching will be undertaken in accordance with specific guidance produced by HS2, namely the Technical Standard Specification for Historic Environment Investigations (HS2- HS2-EV-STD-000-000035) and the Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS; HS2-HS2-EV-STR-000-000015).

4.1.2 The Trench plan layout; and numbering of the trenches has been specified by the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018).

4.1.3 It is proposed to excavate 12 no. evaluation trenches across the site. All trenches will be 50m long, between 1.8m and 2.1m in width, and their maximum depth will be 0.5m. One trench (TR005) consists of 2 x 50m trenches in a t-shape. This represents a sample of approximately 2% of the overall site area. The trenches have been positioned to provide a representative sample of the available Site area (see Figure4, Appendix 15) whilst targeting proposed new ponds and possible archaeological anomalies identified in the geophysical survey. It has been suggested that Trench 4 is too close to the Great Crested Newt (GCN) breeding pond and the core habitat

[1] British Geological Survey, online viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html

and will therefore need to move south of its current position. The locations of all trenches are provisional and subject to confirmation of the locations of any utilities and services present on the Site.

4.1.4 In addition to the general requirements, the topsoil/ploughsoil is to be sampled for artefacts within each trench. The sample will include a shovel test pit at each end and in the centre of each trench (3 samples per trench) prior to the excavation of the trench.

4.1.5 The trenches are listed in the table below. All trenches have been assigned a Unique ID in accordance with the Employer's Asset Information Management System (AIMS), and follow the numbering outlined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018).

Table 1 Schedule of Trial Trenches

Trench No.	Length	Width	Max. Depth	Objectives / Comments
TR001	50m	1.8m	0.5m	Random trench location
TR002	50m	1.8m	0.5m	Random trench location, intersects mapped alluvium
TR003	50m	1.8m	0.5m	Random trench location, intersects mapped alluvium
TR004	50m	1.8m	0.5m	Random trench location
TR005	2 x 50m	1.8m	0.5m	Random trench location, intersects mapped alluvium
TR006	50m	1.8m	0.5m	Random trench location
TR007	50m	1.8m	0.5m	Random trench location, intersects mapped alluvium
TR008	50m	1.8m	0.5m	Random trench location
TR009	50m	1.8m	0.5m	Targeted on pit-type geophysical anomalies
TR010	50m	1.8m	0.5m	Random trench location
TR011	50m	1.8m	0.5m	Random trench location
TR012	50m	1.8m	0.5m	Random trench location

4.1.6 Trenches 1-8 will be located in a field to the north of Gallows Brook. Trenches 9 -12 will be located

over two fields to the south of Gallows Brook, to the north of Church lane as detailed in the Project Plan for Trial Trenching at Middleton, Staffordshire 1D037-EDP-EV-REP-030-000018.

4.1.7 Following a review of the utility locations it has shown that:

- A Local High Pressure (LHP) Gas Main runs roughly north-south, east of the main trenching area. Whilst the majority of trenches will not be affected, Trench 11 may be within the buffer of safe working distance from the route and will have to be moved.
- It is likely the route taken to track the excavator to the trenching areas will involve crossing the LHP Gas Main. The contractor will seek advice from the owner of the gas main to ascertain the correct protection required.

4.1.8 The on-site works associated with the trial trenching evaluation will be as follows:

- Walkover survey;
- Setting Out;
- Mechanical excavation;
- Hand Excavation and Fieldwork Recording; and
- Environmental Sampling (as relevant).

4.1.9 The off-site works associated with the trail trenching will be as follows:

- Environmental Sample Processing and Assessment;
- Artefact Processing and Assessment; and
- Reporting and Archiving.

4.1.10 The applicable methodologies and standards for these activities will be as follows:

- Project Plan for Trial Trenching at Middleton, Staffordshire (1D037-EDP-EV-REP-030-000018, Section 4 – see Appendix 15.1);
- Technical Standard: Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035, Section 3);
- All other Technical Standards as outlined in Technical Standard: Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035, Section 1.2).

4.1.11 Where relevant, the trial trenching will also reflect other best practice guidance e.g.:

- Archaeology Data Service/Digital Antiquity guides to good practice.
- Chartered Institute for Archaeologists (2014) Code of Conduct.

- Chartered Institute for Archaeologists (2014) Standard and guidance: archaeological field evaluation.
- Chartered Institute for Archaeologists (2014) Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives.
- Historic England (2006) Management of research projects in the historic environment.

5 Programme

5.1.1 The proposed programme of works is given in the table below:

Table 2 Programme

Activity	Start date
Commencement of Evaluation	19th June 2017
Completion of Evaluation	30th June 2017
Reporting and Post-excavation Assessment	31st July 2017
Archiving	4th September 2017

6 Methodology

6.1.1 The trail trenching will be conducted according to the detailed methodology laid out in the Project Plan for Trial Trenching at Middleton, Staffordshire (1D037-EDP-EV-REP-030-000018 (Appendix 15.1). This covers the methodology for all parts of the investigation, including walkover survey (Section 4.2.2-4.2.5), setting out (Section 4.2.6-4.2.9), mechanical excavation (Section 4.2.10-4.2.14), fieldwork recording (Section 4.2.15-4.2.27), human remains (4.2.28-4.2.32), environmental sampling (Section 4.2.33-4.2.47), backfilling (Section 4.2.48-4.2.49), and post-investigation reporting and archiving (Section 5.1.1-5.1.3). The work will also adhere to Technical Standard: Archaeology and Built Heritage Approach to Ground Investigation (Doc No: HS2-HS2-EV-STD-000-000038).

6.1.2 The following sections address wider issues of methodology and project delivery.

6.2 Site set-up process

6.2.1 A walkover survey will aim to identify and record any previously unrecorded historic assets (including historic landscape features), to analyse the topography and identify potential impacts that may have affected the survival of the resource (such as modern or historic ground disturbance). The immediate surrounds will also be inspected to record any contextual data such as features and earthworks that add additional information to the understanding of the location. Observations will be recorded digitally on plans and survey sheets.

6.2.2 The walkover survey will also aim to highlight any site-specific logistical issues at the Site prior to the commencement of the trial trenching.

6.2.3 HS2 have full consent to undertake the trial trenching within the Site (as defined by the red line boundary), although ownership of the land remains with the landowners. The Employer will manage landowner liaison and will notify the landowners in advance that the archaeological works are taking place. The Employer will also fully compensate the landowners for any damage caused to crops and fences during the trial trenching. It is therefore assumed that interaction between the landowners and the Archaeological Contractor will not take place or be minimal, although should negotiation and interaction with landowners be required it will be undertaken by senior and experienced members of the Archaeological Contractor's field team, supported by senior management. Communication and engagement with third parties will use the Employer's communication protocols set out in the Community Relations Strategy.

6.2.4 It is proposed to set up a small-scale, temporary site compound on the periphery of one of the fields within the main part of the Site (the exact location to be determined following the walkover survey.

6.3 Details of site access

6.3.1 Staff and plant will access the area via Brook Farm, off Portleys Lane. As this access is outside of the red line boundary, permissions will need to be agreed by the Employer.

6.3.2 Welfare facilities will be delivered and collected from a suitable location and placed within a small-scale site compound located on the edge of one of the fields.

6.4 Details of plant and methodology for its use

6.4.1 It is proposed to use one 360 tracked excavator of between 14 and 22 tonnes. It will be fitted with a broad toothless ditching bucket and delivered to site on a low loader. A three-inch diaphragm water pump may also be required.

6.4.2 All machine excavation will be carried out under the constant supervision of a suitably qualified and experienced archaeologist. Deposits will be removed in spits, the depths of which will be determined by the supervising archaeologist. Each spit will be examined carefully in order to assist in the retrieval of archaeologically significant artefacts. Machine excavation will cease at the top of the first significant archaeological horizon, and the Archaeological Contractor will ensure that a 'clean' machined surface is exposed. Spoil will be stored along the edges of excavated trenches, topsoil being kept separate from subsoil. The storage of excavated material will be in accordance with the Contractor's environmental protection requirements, as set out in their Environmental Management Plan.

6.4.3 Prior to backfilling the trenches will be pumped dry and any necessary protection measures for archaeological remains, below ground infrastructure, services and/or utilities will be implemented. Generally, all backfill material will consist of non-toxic, uncontaminated, non-putrescible, natural and inert material which will be compacted and (if necessary) tested (dynamic compaction test or other). Original surface conditions will be reinstated to the required standard. The excavations and backfilling will comply with Technical Standard – Agriculture, Forestry and Soils Route-wide Soil Resource Plan (HS2-HS2-EV-STD-000-000008). A photographic condition survey will be carried out at each trench location prior to excavation and after backfilling of the trench.

6.4.4 All plant movements across the Site (see above) will be supervised by an archaeologist acting as banksman, who will be present at all times during the movements. If it is necessary for plant to cross a road two archaeologists acting as banksmen will supervise the crossing (as outlined in the project Risk Assessment and Method Statement (RAMS); Appendix 15.2).

6.5 Main Work Packages

6.5.1 The work will be carried out between the 19th and 30th of June 2017.

6.6 Provision for unexpected remains

6.6.1 As outlined in Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018) a number of earlier investigations indicate the character of the archaeological remains that many be expected to be found on site.

6.6.2 The LLAU has been subject to LiDAR and Hyperspectral survey and areas within and in the vicinity of the Site have been subject to geophysical survey (WSI-CFA20-008, WSI-CFA20-012, WSI-CFA20-013, WSI-CFA21-001) (Figure 3). Geotechnical investigations (WP-NPB-001) are proposed for the area but have yet to be completed.

6.6.3 Within and adjacent to the Site several linear features were identified from LiDAR data, including a palaeochannel (WA20.50, CWM109) and former field boundaries or drainage feature of post-medieval or modern date (WA20.45).

6.6.4 Geophysical survey of the area around the former marl pit (WSI-cFA21-001) confirmed some modern drainage features within the area as well as identified possible archaeological features comprising a ditch and possible pits. A further survey to the south of this (WSI-CFA20-008) found two potential large cut pits at the northern edge of the survey area along with some other possible pit and ditch features adjacent to the site.

6.6.5 Gallows Brook, which traverses the Site, defines the historic county boundary between Staffordshire and Warwickshire and both the presence of gravels and the topography of the north of the site (being a raised area between two brooks or watercourses) give increased potential for archaeological activity, especially relating to prehistoric exploitation of the area. A woolly mammoth tusk reportedly found at Middleton Hall Quarry approximately 2km south-east of the Site illustrates the potential for recovery of Pleistocene faunal remains within the terrace gravel deposits in the area.

6.6.6 A Lower Palaeolithic stone handaxe is recorded as a findspot in the village of Middleton (MWA111) and a Bronze Age Axe was found, south of Brook Farm, to the north-east of the site (DHW167). At the northern edge of the Site an L-shaped cropmark visible on aerial photographs has been potentially identified as an Iron Age field system or enclosure (DHW102).

6.6.7 Romano-British activity is also known in Middleton village where a Roman figurine mount (MWA12358) and Romano-British pottery (MWA10352) have been found.

6.6.8 The site lies in arable land between the medieval settlements of Drayton Basset (Staffordshire) to the north-east and Middleton to the south-west (Warwickshire) (CWM048). The medieval manor

and deer park of Middleton Hall is approximately 600m to the south-east (CWM099 and CWM100) and most of the known sites and findspots in the vicinity relate to the medieval period.

6.6.9 Upper House Farm, to the west, is a 19th century historic farmstead (CWM105) with areas of ridge and furrow identified to the north (CWM051) and south-east (CWM049).

6.6.10 The site lies within CFA21 archaeological character sub-zone 21.02 'Gallows Brook valley'; and CFA20 archaeological character area 3; sub-zones 28 'Langley Brook valley', 30 'Arable fields between two Brooks' and 31 'Gallows Brook and valley' with potential for prehistoric, Romano-British, medieval and post-medieval activity noted.

6.6.11 The above suggests that features such as field boundaries and enclosures might be encountered during the evaluation, and these may be associated with occupation activity in places, perhaps in the form of pits, posthole structures or ditches. It is possible that funerary remains may be encountered during the trial trenching.

6.6.12 However, the following classes of remains may be considered 'unexpected' for this location:

- Extensive human burials;
- Significant and extensive structural remains;
- Significant and extensive waterlogged remains (leather, timber etc.).

6.6.13 In all three instances, disturbance of these remains will be kept to a minimum during the evaluation.

6.6.14 For human remains, the provisions outlined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018) (Section 4.2.28-4.2.32; Appendix 15.1) and in Burial Grounds, Human Remains and Monuments Procedures (HS2-HS2-EV-PRO-0000-000008) will be followed. Should human remains be encountered the Archaeological Contractor should inform the Employer or the Employer's Project Manager immediately so that these procedures can be implemented. Visible grave goods would be recorded and lifted before the end of the working day. Where this is not achievable the Archaeological Contractor should liaise with the Employer to ensure that adequate security is provided at the Site.

6.6.15 Other best practice guidance would also be utilised, such as Guidance for the Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England (Church of England/Historic England, 2005), and Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports (Historic England, 2004).

6.6.16 Any in situ structural remains would be fully recorded for the extent that they are exposed; brick and stone samples may be taken if potentially diagnostic of date or function. The Employer or the Employer's Project Manager would be fully informed of the presence of extensive structural remains and of their assessed significance.

6.6.17 Waterlogged organic materials would be dealt with in line with Historic England's guidance documents, Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (2012), Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood (2010), and Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation (2011).

6.6.18 Should geoarchaeological investigations be required the procedures outlined in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018, section 4.2.47; see Appendix 15.1) would be implemented. These may be supplemented by additional guidance contained in Historic England's guidance note Geoarchaeology: using earth sciences to understand the archaeological record (2007).

6.7 Treasure

6.7.1 In the event of the discovery of 'treasure' as defined below, the Treasure Act 1996 will apply to works for Phase One of HS2 and the Archaeological Contractor shall comply with it. The Treasure Act defines 'Treasure' as:

- any object at least 300 years old when found which is not a coin but has metallic content of which at least 10 per cent by weight is precious metal;
- When found, is one of at least two coins in the same find which are at least 300 years old at that time and have that percentage of precious metal; or
- When found, is one of at least ten coins in the same find which are at least 300 years old at that time.
- any object at least 200 years old designated as treasure by the Secretary of State under section 2(1) of the Treasure Act 1996.
- Any object that would have been 'Treasure Trove'.
- Any object found with any of the above.

6.7.2 The Treasure (Designation) Order 2002 extends the definition of treasure to include:

- Finds of least two base metal objects (other than coins) of prehistoric date; and
- Any object (other than a coin) of prehistoric date with any precious metal content.

6.7.3 All finds falling within the definitions of treasure shall be reported immediately to the Contractor's Historic Environment Manager who will inform the Employer. All subsequent works must be undertaken in accordance with the relevant legislative requirements of the Treasure Act and all necessary measures taken to comply with those requirements and any project specific requirements will be implemented.

6.7.4 To protect the finds from theft, the Archaeological Contractor shall record the finds and remove them to a safe place. Where recording and removal is not feasible or appropriate on the day of discovery, the Archaeological Contractor shall ensure, on liaison with the Contractor's Historic Environment Manager that adequate site security is provided by the Contractor.

6.7.5 Subject to the Provisions of the Treasure Act 1996, all material that is defined as Treasure is vested in the franchisee or, if none, the Crown.

6.8 Provision of sampling facilities to support requirements established by Project Plans

6.8.1 The on-site sampling methodologies will follow the recommendations as set out in the Project Plan for Trial Trenching at Middleton, Staffordshire (Doc No: 1D037-EDP-EV-REP-030-000018), sections 4.2.33 to 4.2.47.

6.8.2 The off-site sampling will be conducted at Connect Archaeology's in-house sampling facilities.

7 Delivery Interfaces

7.1.1 The Archaeological Contractor will have direct communication either with the Employer or with the Project Manager appointed by the Employer. The trial trenching will be overseen and quality-assessed by the Archaeological Contractor's senior management, and will be project managed by the Archaeological Contractor's Project Manager. The trial trenching will be supervised by a suitably qualified and experienced Project Officer appointed by the Archaeological Contractor. All parties will follow the Employer's protocols for Intra- and Inter-project communication.

7.1.2 Details of the Contractor's design, programme and Health and Safety policy are awaited.

7.1.3 Connect Archaeology have ISO 9001:2008 accreditation and the interface, consultation and communication will be undertaken in accordance with these protocols.

8 Health, Safety and Environment

8.1.1 The Archaeological Contractor will undertake the works in accordance with the Employer's route wide health and safety requirements (Safe at Heart) and, if applicable, the Contractor's health and safety requirements for specific locations.

8.1.2 The Archaeological Contractor will be solely responsible for Health and Safety during the trial trenching, and a Risk Assessment and Method Statement (RAMS) for the evaluation has been produced (see Appendix 15.2). All work will also be undertaken in accordance with the Archaeological Contractor's Health and Safety Policy (Connect Archaeology 2017).

8.1.3 All site staff will be fully inducted and will read and sign the RAMS before commencing work on site.

8.2 Site access and construction traffic

8.2.1 Specific risks have been identified regarding delivery of plant and plant movements between different parts of the Site (see the RAMS, Appendix 15.2). It will be necessary to load / unload plant on or in the vicinity of both Portleys Lane and Church Lane. All loading / unloading of plant and all plant movements will be supervised by a minimum of one archaeologist acting as banksman. Where it is necessary to track plant across a road a minimum of two archaeologists acting as banksmen will monitor the crossing.

8.2.2 Although multiple plant movements are envisaged, these should only involve a single low loader and the impact of construction traffic on the local infrastructure will be minimal.

8.3 Agriculture and Ecology

8.3.1 Current crop regimes and land use will be assessed during a walkover survey of the site to be undertaken prior to the commencement of the trial trenching. Should crops be present, all attempts will be made to limit damage. Plant will be tracked around the edges of fields and along existing trackways and 'tramlines' within crops, where this is practicable. However, it is acknowledged that the trenching will inevitably cause damage to any crops present within the red line boundary of the Site. The Employer will fully compensate the landowners for any such loss.

8.3.2 No areas outside the red line boundary of the Site will be tracked over by plant unless this has been specifically authorised by the Employer.

8.3.3 No hedgerows or fences will be uprooted to facilitate site access unless this has been specifically authorised by the Employer.

8.3.4 Ecological constraints are present on the site and any mitigation in place for these constraints will be adhered to throughout the duration of the fieldwork: The ecological constraints present at Middleton are as follows:

- Great Crested Newts (GCN): The existing ponds on site are known to be GCN breeding ponds. Due to proximity to those breeding ponds, all terrestrial habitats on site must be considered suitable for GCN foraging/resting/commuting and as such there is a risk of encountering GCN across the whole site. All trenches will need to be excavated in accordance with the GCN Precautionary Method of Working (PMoW) (in draft) and under supervision by an Ecological Clerk of Works (ECoW).
- Badgers: There is a badger sett on site.
  - All works must be conducted in accordance with the HS2 route-wide badger licence.
  - Prior to the start of works, an 'exclusion zone' with a minimum distance of 10m of the existing active badger sett entrances must be clearly marked using coloured tape, string, paint, or other markers.
  - Within the marked 'exclusion zone' no heavy machinery is to be used.
  - Any further setts which are discovered during the operation must be similarly marked as soon as their presence becomes known.
  - No badger sett entrances may be blocked or obstructed.
  - Vehicles must not drive directly over badger sett entrances.
  - Works should be avoided between dusk and dawn.
  - Trees/stumps/shrubs/hedges within 20m of the existing active badger sett must not be uprooted.
  - No storage of materials within 30m of existing sett.

- Breeding birds: there is potential for any hedgerow, scrub or other vegetation to contain active birds' nests. Where these habitats will be affected they must be checked by the ECoW prior to commencement of works. If any active nests are found then a suitable exclusion zone must be set up, to be determined by the ECoW, until the nest is no longer in use.
- In addition, please be aware of the potential for reptiles and [non-GCN] amphibians which although not key constraints may well be found on site. Locations to be dug for trenches must be checked by ECoW who will check for these species as well as GCN and nesting birds. Reptiles must only be handled by an ecologist and both reptiles and amphibians (non GCN) moved to a suitable location away from the works, to be decided by the ECoW.
- Habitats:
    - Hedgerows: It is understood that access is to be sought from the south east of the site, thereby requiring the removal of a section of hedgerow. Hedgerow removal should be avoided where possible. If it must be conducted it is recommended that this is done outside of the bird breeding season (March – August, inclusive, although some species will breed all year round) to ensure legal compliance. If works need to be undertaken during the bird breeding season an appropriate working method statement will need to be completed and in place in advance of clearance works commencing. Hedgerow removal requires permission from the Local Planning Authority.
    - Gallows Brook: the proposed access route will require the crossing of Gallows Brook. The brook has the potential to be suitable for foraging GCN and therefore any area of vegetation removal of placement of substrates enabling movement of vehicles must be checked by an ECoW.
    - Scrub: It is assumed that no trial trench digging will require the removal of scrub. Scrub removal should be avoided where possible. If it must be conducted it is recommended that this is done outside of the bird breeding season (March – August, inclusive, although some species will breed all year round) to ensure legal compliance.
    - Arable: although considered to have low suitability for GCN foraging, this cannot be ruled out. Arable can also provide suitable nesting habitat for ground nesting

bird species e.g. skylark. All arable vegetation clearance must be conducted under supervision of ECoW.

- Grassland: Potential as GCN foraging habitat. Clearance must be conducted under supervision of ECoW.
- Ponds: exclusion zones to be implemented in line with requirements for GCN.

8.4 Plant noise

8.4.1 It is anticipated that plant noise will be minimal, and the main part of site lies some distance from any residential area. It is not anticipated that a mechanical breaker will be used on any part of the site.

8.4.2 The Archaeological Contractor will ensure that all staff working in the vicinity of plant are provided with ear defenders.

8.5 Utilities

8.5.1 The Utility locations show that a Local High Pressure (LHP) Gas Main runs roughly north-south, east of the main trenching area. Whilst the majority of trenches will not be affected, the following issues are predicted:

- Trench 11 may be within the buffer of safe working distance from the route and will have to be moved.
- The route taken to track the excavator to the trenching areas will likely involve crossing the LHP Gas Main.

8.5.2 The contractor will seek advice from the owner of the gas main to ascertain the correct protection required for works in the vicinity of the LHP.

8.5.3 No other issues are predicted, however all trenches will be scanned with a Cable Avoidance Tool prior to excavation.

8.6 Site safety and security

8.6.1 The majority of the trenches are on agricultural land that lies some distance from residential areas, and no public footpaths cross the Site. The RAMS outlines the procedures to be followed if members of the public enter the site, which include standing down plant until any unauthorised people have left the Site (Appendix 15.2).

8.7 Local community, general public, neighbouring properties and businesses

8.7.1 It is not anticipated that the trial trenching will cause significant disruption to the local community or neighbouring properties and business, as most of the works will be on agricultural land that lies some distance from residential areas and public footpaths.

8.7.2 Given the distances between most of the trenches and residential areas, it is not anticipated that plant noise will be problematic for the local community.

8.7.3 All plant movements will be undertaken with a mind to minimising disruption to local traffic and infrastructure.

8.7.4 Health and Safety procedures will be in place to minimise the risk to any member of the public who enters the Site during the trial trenching (see the RAMS, Appendix 15.2)

9 Information Management

9.1.1 GIS deliverables will be provided in accordance with the Employer's Cultural Heritage GIS Specification (Doc No: HS2-HS2-GI-SPE-000-000004). CAD files will be GIS compatible and follow standards set out in the same Specification. Figures may be produced using CAD but final deliverables will be supplied in GIS format.

9.1.2 Mapping and spatial data deliverables will conform to the Employer's Cultural Heritage GIS Standard (Doc No: HS2-HS2-GI-STD-000-000010) and other associated referenced documents.

9.1.3 The Employer's standard template for reporting as set out in Technical Standard: Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035, Section 4.4) will be followed.

10 Site Monitoring and engagement

10.1.1 The Employers Historic Environment Manager (HS2) will arrange, convene and attend monitoring site visits.

10.1.2 The Archaeological Contractor will provide weekly written progress reports to the Employer or the Employer's Project Manager.

10.1.3 The Employer's Project Manager will inform the Principal Archaeologist at Staffordshire County Council's Historic Environment Service that the trial trenching will take place at least one week in advance of the commencement of fieldwork.

10.1.4 The Employer's Project Manager will arrange and convene monitoring site visits by external consultees, as appropriate. These may include:

- Historic England;
- The Principal Archaeologist at Staffordshire County Council's Historic Environment Service;
- Relevant local interest groups; and
- Relevant and acknowledged specialists in such fields as geophysical survey and archaeological science.

10.1.5 Communication and engagement with third parties will use the Employer's communication protocols set out in the Employer's Community Relations Strategy.

11 Quality Assurance Processes

11.1.1 Connect Archaeology are ISO 9001:2008 Quality Assured and all of their work practices will adhere to these independently qualified standards.

11.1.2 All project staff employed by the Archaeological Contractor will be suitably qualified, experienced and trained to undertake the work in hand.

11.1.3 Fieldwork will be monitored by the Archaeological Contractor's Project Manager responsible for the project, under the general supervision of the Archaeological Contractor's senior management.

11.1.4 The trial trenching assessment report will be checked and reviewed by a suitably qualified and experienced Project Manager or a member of the Senior Management Team before it is issued to the Employer. On receipt of comments, the final report will be checked and reviewed again prior to its reissue.

12 Fieldwork Sign-off Sheet

Historic Environment Fieldwork Sign-off Sheet			
Work Package Reference	WP22		
Historic Environment Investigation Type	Trial Trenching		
Contractor	AOC		
Fieldwork conducted by (site director)	Alan Duffy	Dates	20/6/17
Summary of results	- 1-8 Trenches opened no archaeology identified - Small plough scar identified - Tr 7 - Sandy gravel with clay - occasional field drains. - No access to Trenches 9-12		
Document References Project Plan: 1D037-EDP-EV-REP-030-000018 LS-WSI (this document):			

	Name	Date	Signature
Compiled by	Alan Duffy	20/06/2017	A. Duffy.
Checked by	Glen Rol	20/06/2017	
Approved by	Tony Hanna	20/6/17	

13 References and Glossary of Terms

13.1.1 The following terms have been used in this report:

- **Archaeological Contractor** – the organisation undertaking the Geophysical Survey on behalf of the Employer.
- **Contractor** – the early works contractor (EWC) or main works construction contractor (MWCC) responsible for the location within which historic environment works are undertaken; the historic environment/archaeological contractor is part of the Contractor's supply chain.
- **Employer** – the body responsible for the terms and conditions, policies, procedures and payments.
- **Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS)** – the framework for delivering all historic environment investigations undertaken as part of the HS2 Phase 1 programme.
- **Location** – a specific HS2 worksite or group of worksites that are being addressed as a combined historic environment investigation programme of assessment, evaluation and investigation.
- **Project Manager** – acts as administrator of the contract, handling certification, compensation events etc., with an obligation to act fairly and impartially as an agent of the Employer.
- **Project Plans** – specification document for each specific package of activity (e.g. a survey, desk based assessment, excavation, recording project). The plans would respond to the Specific Objectives set out in the GWSI: HERDS and be delivered within an agreed budget.
- **Works** – the specific historic environment assessment, evaluation or investigation works at each location.

13 1.2 The following documents are referred to:

.

Title	Reference
HS2 Phase One Environmental Statement and Supplementary Environmental Statements CFA20 Curdworth to Middleton	CH-001-020, ES 3.5.2.17.4 CH002-020, ES 3.5.2.17.5 CH003-020, ES 3.5.2.17.6 CH003-020, ES 3.5.2.17.7 ES 3.5.1.4.4
HS2 Phase One Environmental Statement and Supplementary Environmental Statements CFA21 Drayton Bassett, Hints and Weeford	CH-001-021, ES 3.5.2.21.4 CH002-021, ES 3.5.2.21.5 CH003-021, ES 3.5.2.21.6 CH003-021, ES 3.5.2.21.7 ES 3.5.1.4.3
Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
Cultural Heritage GIS Standard	HS2-HS2-GI-STD-000-000010
Technical Standard – Temporary Works	HS2-HS2-CV-STD-000-000005
Burial Grounds, Human Remains and Monuments Procedures	HS2-HS2-EV-PRO-000-000008
Technical Standard – Agriculture, Forestry and Soils Route-wide Soil Resource Plan	HS2-HS2-EV-STD-000-000008
Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015
Technical Standard - Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
HS2 Technical Standard: Specification for Project Plans and Location Specific Written Scheme of Investigations	HS2-HS2-EV-STD-000-000036
Technical Standard: Historic Environment Physical Archive Procedure	HS2-HS2-EV-STD-000-000039
Technical Standard: Archaeology and Built Heritage Approach to Ground Investigation	HS2-HS2-EV-STD-000-000038

Technical Standard: Historic Environment Digital Data Management and Archiving Procedure	HS2-HS2-EV-STD-000-000040
Project Plan for Trial Trenching at Middleton, Staffordshire	1D037-EDP-EV-REP-030-000018
Contractors' Environmental Management Plan	1EW04-LMJ-EV-PLN-N000-000022
Employers Community Relations Strategy	IMS 11.1.1
Employer's protocols for Intra- and Inter-project Communication	IMS 12.1.1
Safe at heart: Supply chain health and safety standard	
Connect Archaeology 2017 – Health and Safety Policy	
British Geological Survey, Geology of Britain viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html	
Church of England/ Historic England 2005 – Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England	
Health and Safety Executive 2013 – Avoidance of Danger from Overhead Electricity Lines (GS6, 4th edition)	
Historic England 2004 – Human Bones from Archaeological Sites: Guidelines for Producing Assessment Documents and Analytical Reports	
Historic England 2007 – Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record	
Historic England 2010 – Waterlogged Wood: Guidelines on the Recording, Sampling, Conservation and Curation of Waterlogged Wood	

Historic England 2011 – Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation	
Historic England 2012 – Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation	

14 Figures

Table 3 Figures

Figure title	**Drawing No.**
Figure 1 Site Location	See p.23 of Project Plan (1D037-EDP-EV-REP-030-000018)
Figure 2 Heritage assets	See p.24 of Project Plan (1D037-EDP-EV-REP-030-000018)
Figure 3 Previous investigations	See p.25 of Project Plan (1D037-EDP-EV-REP-030-000018)
Figure 4 Scheme design	See p.26 of Project Plan (1D037-EDP-EV-REP-030-000018)
Figure 5	Not Used
Figure 6	Not Used
Figure 7	Not Used
Figure 8	Not Used
Figure 9 Utilities locations	Not Used

15 Appendix

15.1 Project Plan

Report: Project Plan for Trial Trenching at Middleton, Staffordshire

Document no.: 1D037-EDP-EV-REP-030-000018

Revision	Author	Checked by	Approved by	Date approved	Reason for revision
P01	Naomi Brennan	Chris Moore	Christine George	22/02/17	Issue for comment
P02	Naomi Brennan	Chris Moore	Joanne Deegan	12/04/17	HS2 comments addressed

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: None

Contents

List of figures

List of tables

1 Executive Summary

1.1.1 This Project Plan details proposed methodologies, techniques and deliverables for archaeological trial trenching at Middleton, Staffordshire. The trial trenching addresses known and potential archaeological features identified from cropmarks and geophysical survey on land required for construction of the proposed Trickley Coppice Embankment to the north and east of Middleton. It covers an area of c. 6.12ha.

1.1.2 The trial trenching is required to identify the location, extent, survival and significance of known and potential heritage assets in the area of early works at Marl Pit and Coppice Lane Cuttings (CR02184 and CR02276), including land habitat compensation and receptor site for Great Crested Newt translocation. It will contribute to the following specific objectives:

- KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age.
- KC9: Does a lack of visibility of Neolithic and Bronze Age monuments reflect genuine area distinctiveness, or is this due to variation in geology or investigative techniques?
- KC12: What is the evidence for pre-Iron Age phases of enclosure at the margins of the Trent Valley, and to what extent were Iron Age and Romano-British field systems and settlement influenced by earlier structuring of the landscape?
- KC15: Can we identify regional patterns in the in the form and location of Late Bronze Age and Iron Age settlements across the route, and are there associated differences in landscape organisation and enclosure?
- KC30: Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in the period.

1.1.3 The purpose of this Project Plan is to:

- define the scope of work for evaluation trenching;
- outline the aims of the investigation and how they will contribute to the specific objectives of the GWSI: HERDS;
- describe the methodology to be employed; and
- set out the proposed deliverables and reporting mechanisms.

2 Location and Site Background

2.1.1 The evaluation area comprises an irregularly shaped area around a former marl pit (CR02184) and an access route and area of land to the south-east (CR02276) (Figure 1). The total area is

approximately 6.12ha and is centred on NGR SP 17969 98790. The site lies within the Community Forum Areas (CFA) of Drayton Bassett, Hints and Weeford (CFA 21) and Curdworth to Middleton (CFA20).

2.1.2 The Site lies at a height of between 85m aOD (above Ordnance Datum) and 75m aOD. The underlying geology of the Site is recorded as the Mercia Mudstone Group with superficial deposits of river terrace deposits and alluvium mapped across sections of the area[1].

2.1.3 Access has not been available to conduct a walkover survey of the Site as part of the current design phase. Access for a walkover survey will therefore be required to inform compilation of a Location-Specific Written Scheme of Investigation (LS-WSI) following acceptance by HS2 of this Project Plan.

2.1.4 The archaeological and historical background of the Site and the wider area is summarised from the Technical Appendix to the Environment Statement (ES) Curdworth to Middleton Baseline report (CH-001-020)[2] and Gazetteer of heritage assets (CH-002-020)[3] (assets prefixed CWM); and the CFA21 Drayton Bassett, Hints and Weeford Baseline report (CH-001-021)[4] and Gazetteer of heritage assets (CH-002-021)[5] (assets prefixed DHW). Where appropriate relevant entries from the Historic Environment Record (HER) are included (assets prefixed MWA). The location of heritage assets is shown in Figure 2.

2.1.5 The LLAU has been subject to LiDAR and Hyperspectral survey and areas within and in the vicinity of the Site have been subject to geophysical survey (WSI-CFA20-008, WSI-CFA20-012, WSI-CFA20-013, WSI-CFA21-001) (Figure 3). Geotechnical investigations (WP-NPB-001) are proposed for the area but have yet to be completed.

2.1.6 Within and adjacent to the Site several linear features were identified from LiDAR data, including a palaeochannel (WA20.50, CWM109) and former field boundaries or drainage feature of post-medieval or modern date(WA20.45)[6].

2.1.7 Geophysical survey of the area around the former marl pit (WSI-cFA21-001) confirmed some modern drainage features within the area as well as identified possible archaeological features comprising a ditch and possible pits[7]. A further survey to the south of this (WSI-CFA20-008) found two potential large cut pits at the northern edge of the survey area along with some other possible pit and ditch features adjacent to the site[8].

[1] British Geological Survey, online viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html
[2] ES Vol. 5, Tech. Appendices: CFA20 Curdworth to Middleton, Baseline Report (CH-001-020), Cultural heritage
[3] ES Vol. 5, Tech. Appendices: CFA20 Curdworth to Middleton, Gazetteer of heritage assets (CH-002-020), Cultural heritage
[4] ES Vol. 5, Tech. Appendices: CFA21 Drayton Bassett, Hints and Weeford Baseline Report (CH-001-021), Cultural heritage
[5] ES Vol. 5, Tech. Appendices: CFA21 Drayton Bassett, Hints and Weeford, Gazetteer of heritage assets (CH-002-021), Cultural heritage
[6] ES Vol. 5, Tech. Appendices: CFA20 Curdworth to Middleton, Survey reports (CH-004-020), Cultural heritage, 4-11
[7] SES and AP2 ES Vol. 5, Tech. Appendices: CFA21 Drayton Bassett, Hints and Weeford, Technical appendices, 1-12
[8] SES and AP2 ES Vol. 5, Tech. Appendices: CFA20 Curdworth to Middleton, Technical appendices, 19-30

2.1.8 Gallows Brook, which traverses the Site, defines the historic county boundary between Staffordshire and Warwickshire and both the presence of gravels and the topography of the north of the site (being a raised area between two brooks or watercourses) gives increased potential for archaeological activity, especially relating to prehistoric exploitation of the area[9]. A woolly mammoth tusk reportedly found at Middleton Hall Quarry[10] approximately 2km south-east of the Site illustrates the potential for recovery of Pleistocene faunal remains within the terrace gravel deposits in the area.

2.1.9 A Lower Palaeolithic stone handaxe is recorded as a findspot in the village of Middleton (MWA111) and a Bronze Age Axe was found, south of Brook Farm, to the north-east of the site (DHW167). At the northern edge of the Site an L-shaped cropmark visible on aerial photographs has been potentially identified as an Iron Age field system or enclosure (DHW102).

2.1.10 Romano-British activity is also known in Middleton village where a Roman figurine mount (MWA12358) and Romano-British pottery (MWA10352) have been found.

2.1.11 The site lies in arable land between the medieval settlements of Drayton Basset (Staffordshire) to the north-east and Middleton to the south-west (Warwickshire) (CWM048). The medieval manor and deer park of Middleton Hall is approximately 600m to the south-east (CWM099 and CWM100) and most of the known sites and findspots in the vicinity relate to the medieval period.

2.1.12 Upper House Farm, to the west, is a 19th century historic farmstead (CWM105) with areas of ridge and furrow identified to the north (CWM051) and south-east (CWM049).

2.1.13 The site lies within CFA21 archaeological character sub-zone 21.02 'Gallows Brook valley'; and CFA20 archaeological character area 3; sub-zones 28 'Langley Brook valley', 30 'Arable fields between two Brooks' and 31 'Gallows Brook and valley' with potential for prehistoric, Romano-British, medieval and post-medieval activity noted[11] [12].

3 Aims and Objectives

3.1 Need and Aims

3.1.1 Trial trenching is required to determine, as far as reasonably possible, the nature of the archaeological resource within the Site, prior to commencement of ecological mitigation works.

[9] ES Vol. 5, Tech. Appendices: CFA21 Drayton Bassett, Hints and Weeford Baseline Report (CH-001-021), Cultural heritage
[10] Stephen Dean, Staffordshire County Council, pers. comm. 04/06/2017 -see 8.1.1 below
[11] ES Vol. 5, Tech. Appendices: CFA21 Drayton Bassett, Hints and Weeford Baseline Report (CH-001-021), Cultural heritage, 30
[12] ES Vol. 5, Tech. Appendices: CFA20 Curdworth to Middleton, Baseline Report (CH-001-020), Cultural heritage, 41

3.1.2 The objective of the investigation is to gain information about the archaeological resource in order to support an assessment of its character, extent, knowledge value and ability to contribute to Specific Objectives. The outcomes of investigations may be used to inform the requirement and strategy of further archaeological investigation. Where present the investigation will define the character, extent, quality and preservation of archaeology in order to determine its likely ability to contribute to Specific Objectives set out in the GWSI: HERDS.

3.1.3 The aims of the trial trenching are to:

- locate, characterise and record any remains relating to the potential archaeological features identified from cropmarks and geophysical survey within the Site;
- assess the extent and nature of archaeological remains within the survey boundaries;
- characterise the nature of any archaeological remains within the survey boundaries;
- assess the significance of any archaeological remains within the survey boundaries;
- assess the change to the significance of the identified heritage assets as a result of the detailed design;
- suggest measures, if appropriate and feasible, for further archaeological investigation to mitigate identified significant impacts; and
- contribute to the delivery of GWSI: HERDS Specific Objectives as specified in Section 3.2.

3.2 Contribution to Specific Objectives

3.2.1 Through delivery of the works set out in Section 4 and through addressing the aims set out in 3.1.2 the trial trenching will create knowledge and outputs that would contribute to the following specific objectives in the following ways:

Table 1 Contribution to Specific Objectives

Specific Objective	Contribution
KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age.	The Site is adjacent to the Gallows Brook and a possible palaeo-channel identified on LiDAR. The evaluation can address the potential for earlier prehistoric activity close to water courses and former watercourses and the need to evaluate the presence of activity in the landscape.
KC9: Does a lack of visibility of Neolithic and Bronze Age monuments reflect genuine area distinctiveness, or is this due to variation in geology or investigative techniques?	The trial trench evaluation will contribute to the wider distribution model of activity along the route.

KC12: What is the evidence for pre-Iron Age phases of enclosure at the margins of the Trent Valley, and to what extent were Iron Age and Romano-British field systems and settlement influenced by earlier structuring of the landscape?	A possible enclosure or field system has been identified which may extend into the Site, this may relate to Iron Age activity. The evaluation provides an opportunity to characterise this feature and identify any earlier activity which may have influenced landscape organisation at the margins of the Trent Valley in the Iron Age and Romano-British periods.
KC15: Can we identify regional patterns in the form and location of Late Bronze Age and Iron Age settlements across the route, and are there associated differences in landscape organisation and enclosure?	The investigation of elements of the enclosure or field system that may extend into the Site and the identification of any related settlement activity may help identify regional patterns of settlement, landscape enclosure and organisation.
KC30: Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in the period.	The Site is adjacent to the Gallows Brook, recent work in Staffordshire at Norton Bridge has revealed waterlogged Saxon deposits in similar circumstances on two small watercourses. The evaluation can identify any similar evidence and place this in the context of medieval settlement in the vicinity at Middleton and Middleton Hall, in terms of landscape occupation and continuity.

4 Scope and Methodology

4.1 Trial Trenching Scope

4.1.1 Trial trenching will be undertaken in accordance with specific guidance produced by HS2, namely the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035)[13] and the Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS) (HS2-HS2-EV-STR-000-000015)[14]. The trial trenching is required to determine the presence or absence of archaeological features, structures, deposits, artefacts and/or ecofacts within the Site. Where present the investigation will define the character, extent, quality and preservation of archaeology in order to determine its likely ability to contribute to Specific Objectives set out in the GWSI: HERDS.

4.1.1 All trial trenches will be between 1.8 and 2.1m in width. The survey will comprise excavation of 12 no. 50m long trenches (equivalent to an approximately 2% sample by area). All trenches are listed in Table 2. All trenches have been assigned a unique ID in accordance with the Employer's Asset Information Management System (AIMS). Trenches have been positioned to provide a representative sample of the available areas (Figure 4) whilst targeting proposed new ponds and possible archaeological anomalies identified in the geophysical survey. **The**

[13] HS2 Ltd, 2016b, Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035)
[14] HS2 Ltd, 2016a, Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (HS2-HS2-EV-STR-000-000015)

locations of all trenches are provisional subject to confirmation of any utilities and services present on the Site.

Table 2 Schedule of Trial Trenches

AIMS UID	Tr No	Tr Length	Tr Width	Max Trench Depth	Objectives/Comments
	TR001	50m	1.8m	0.50m	Random trench location
	TR002	50m	1.8m	0.50m	Random trench location, intersects mapped alluvium
	TR003	50m	1.8m	0.50m	Random trench location, intersects mapped alluvium
	TR004	50m	1.8m	0.50m	Random trench location
	TR005	2 x 50m	1.8m	0.50m	Random trench location, intersects mapped alluvium
	TR006	50m	1.8m	0.50m	Random trench location
	TR007	50m	1.8m	0.50m	Random trench location, intersects mapped alluvium
	TR008	50m	1.8m	0.50m	Random trench location
	TR009	50m	1.8m	0.50m	Targeted on pit-type geophysical anomalies
	TR010	50m	1.8m	0.50m	Random trench location
	TR011	50m	1.8m	0.50m	Random trench location
	TR012	50m	1.8m	0.50m	Random trench location

4.2 Methodology

4.2.1 Tasks and activities that will be undertaken include:

- Walkover survey;
- Preparation of Location Specific Written Scheme of Investigation (LS-WSI);
- Setting out;
- Mechanical excavation;
- Fieldwork recording;
- Environmental Sampling, processing and assessment (as relevant); and

- Post-investigation reporting and archiving.

Walkover Survey

4.2.2 A walkover survey shall be undertaken to inform preparation of the LS-WSI for the investigation, subject to access. Generally, the aim of the walkover survey will be to identify and record any previously unrecorded historic assets (including historic landscape features), to analyse the topography and identify potential impacts that may have affected the survival of the resource (such as modern or historic ground disturbance). The immediate surrounds will also be inspected to record any contextual data such as features and earthworks that add additional information to the understanding of the location. Observations will be recorded digitally on plans and survey sheets.

4.2.3 The main aims of a rural archaeological walkover survey will generally be to:

- identify any known assets;
- identify any previously unrecorded potential archaeological features, such as earthworks; and
- identify areas of modern impacts.

4.2.4 Accessibility issues will also be assessed during rural walkover surveys, though these are more likely to be concerned with:

- identification of access routes to site;
- the suitability of ground condition for machines and survey equipment; and
- presence of crop, pasture and livestock.

4.2.5 The results of the walkover survey will be used to reive the proposed scope of trial trenching set out in section 4.1 above.

Setting out

4.2.6 All spatial setting out and recording shall be in accordance with The Ordnance Survey National Grid and Ordnance Survey Newlyn Datum (ODN) as defined by the OS Active GNSS network and use of a Virtual reference system. A minimum of three Permanent Ground Markers (PGM) shall be created using this system for each trench or group of geographically related trenches.

4.2.7 Trenches shall be located to a horizontal accuracy of +/-500mm. The corner points of each trench location shall be set out with Real Time Kinematic (RTK) Global Navigation Satellite System (GNSS) equipment or other suitable automated equipment referenced from the PGMs.

4.2.8 Surface heights shall be recorded using RTK GNSS and related to PGMs. Ordnance Survey Bench Marks (OSBM) are not to be used. Levelling accuracy shall be within 10 mmÖk: where 'k' is the total distance levelled in kilometres.

4.2.9 The Contractor shall ensure that all trench or excavation limits, and significant archaeology detail are surveyed 'as dug' in relation to the project grid before leaving the site. Ground level height data shall be recorded for each trench. Survey methodology and a detailed survey record shall be provided to the Employer within the survey report.

Mechanical excavation

4.2.10 Trial trenches and test pits shall be excavated to the first archaeological level. Excavation will be undertaken using a mechanical excavator with toothless ditching bucket. Machining shall be carried out under the constant supervision of the Contractor to excavate the ground in spits. The Contractor shall use their professional judgement to determine the appropriate depth of each spit. Any variations to the excavation methodology shall be at the discretion of the Contractor and recorded in writing for inclusion in the final report. Each spit shall be examined carefully to assist the recovery of any archaeologically significant artefacts and thus to determine when to cease machining. It is the responsibility of the Contractor to ensure that the finished surface is machined to a suitably 'clean' state in order to identify, define and investigate any exposed archaeological deposits. If the surface is not sufficiently clean, hand cleaning of the surface will be required. Machine excavation will comply with the *Technical Standard - Route wide soil resources plan* (HS2-HS2-EV-STD-000-000008).

4.2.11 The Contractor shall ensure that water is discharged and excavated material from archaeological excavations are stored in accordance with the Contractor's environmental protection requirements (as set out in the package Works Information and their Environmental Management Plan) and any relevant consents for the worksite. The Contractor shall monitor discharge rates and, if necessary, conductivity of discharge waters to ensure compliance.

4.2.12 In areas of deep stratigraphy, such as alluvial sequences, each intervention shall be excavated to the base of the stratigraphic sequence, and shall be appropriately shored and kept free of water to allow 'person entry' to the excavations i.e. to allow the Contractor to undertake investigation and recording to fulfil the aims of the work. The Contractor will ensure that all works undertaken in deep stratigraphy will comply with the Employer's Technical Standard – Temporary Works (HS2-HS2-CV-STD-000-000005).

4.2.13 Within alluvial sequences the Contractor shall pay particular attention to establishing the vertical extent of layers of archaeological potential and shall be aware that horizons of cultural activity may be interdigitated with horizons of sterile alluvium. The Contractor shall supervise the excavation of each test pit in such a manner so as to allow a cumulative or continuous section to be recorded.

4.2.14 Should any material be excavated that is deemed to be contaminated or potentially contaminated it shall be investigated, controlled (e.g. placed separately from clean material) and removed from the site in accordance with the Contractor's environmental protection requirements (as set out in their Environmental Management Plan).

Fieldwork Recording

4.2.15 Archaeological recording shall be undertaken by the Contractor to the general requirements as described in the GWSI: HERDS (section 7.3). A sufficient sample of the archaeological features and deposits revealed must be sampled/or fully excavated to allow the resolution of the aims and objectives of the work. Structures, features, or finds which might reasonably be considered to merit preservation in-situ shall not be unduly damaged.

4.2.16 In addition to the general requirements, the topsoil/ploughsoil is to be sampled for artefacts within each trench. Samples are to be taken across the Site to provide a total coverage of 20 shovel test pits per hectare; the sample should include a shovel test pit at each end and in the centre of each trench (3 samples per trench). Samples are to be equivalent in volume to a 0.5m square test-pit to the depth of the ploughsoil. Samples can be removed by shovel digging and the soil should then be sieved or screened through ¼" or 6mm wire mesh to recover artefacts. Samples can be sieved on site or retained for immediate sieving off-site.

4.2.17 Where areas of extensive archaeological stratification are encountered, the horizontal and vertical extent of archaeological stratification shall be assessed by the Contractor through implementation of an appropriate strategy including, either the excavation of features cut into horizontal stratification, limited test pitting or auguring. The aim shall be to recover suitable stratigraphic, finds and environmental samples from the full, intended depth of the trench, as far as is practicable. The exact methodology may need to be determined by the Contractor during the excavation of individual trenches and agreed with the Employer.

4.2.18 Metal detectors will be used by experienced staff to scan for metallic finds during the excavation of key archaeological features or deposits.

4.2.19 Where deposits are investigated, and found to be undated, and where these have the potential to be of archaeological significance (e.g. of earlier prehistoric or early medieval date, or any other deposit types notable for artefactual scarcity) appropriate samples should be taken for artefact recovery. The soil should be hand excavated and then sieved or screened through ¼" or 6mm wire mesh to recover artefacts. Samples can be sieved on site or retained for immediate sieving off-site.

4.2.20 In order to protect any waterlogged remains during the works, the Contractor may identify a requirement for trial excavations to be allowed to refill with water overnight. In such cases, the Contractor shall ensure that any hazards to staff or 3rd parties are minimised.

4.2.21 Archaeological recording is to include, as a minimum:

- At least one representative section at (1:10 or 1:20 scale) of each evaluation trench, from ground level to the base of the excavation;
- the written record of individual context descriptions on appropriate pro-forma;
- plans at appropriate scales (1:10, 1:20 or 1:50);
- single context planning should be used only if appropriate;
- photographs and other appropriate drawn and written records; and ·
- other sections, including the half-sections of individual layers or features shall be drawn as appropriate to 1:10 or 1:20.

4.2.22 A 'site location plan', indicating site north shall be prepared at 1:1250. Individual 'trench plans' at 1:200 (or 1:100) shall be prepared which show the location of archaeology investigated in relation to the investigation area. The location of site plans will be identified using OSGB co-ordinates.

4.2.23 Section drawings shall be located on the relevant plan and OSGB co-ordinates recorded. The locations of the PGM bench markers used and any site TBM shall also be indicated.

4.2.24 A record of the full extent in plan of all archaeological deposits as revealed in the investigation shall be made. These plans will normally be based on digital survey data (digital planning methods shall be agreed in advance with the Employer.) supplemented where appropriate by hand drawn records on polyester based drawing film (at a scale of 1:10 or 1:20 unless otherwise agreed with the Employer). All hand drawn information shall be digitised (or preferably generated digitally in the first instance), and final deliverables will be supplied in an Esri format and adhere to standards set out in the *Cultural Heritage GIS Standard* (HS2-HS2-GI-SPE-000-000004). Single context planning shall be used where complex stratigraphy is encountered.

4.2.25 A 'Harris matrix' stratification diagram shall be employed to record stratigraphic relationships (Harris *et al.* 1993) where appropriate. This record shall be compiled and fully checked by the Contractor during the course of the excavations. Spot dating shall be incorporated onto this diagram during the course of excavations.

4.2.26 Recording of structural evidence revealed below ground level will vary according to the level of special interest of the structure and its relationship to archaeological remains. Structures of little or no significance shall be noted on a site plan. Detailed drawings of important features revealed in investigations may be required in accordance with the aims and objectives of the investigation as defined in the Project Plan.

4.2.27 The photographic record will be in digital format, resulting in high resolution TIFF (uncompressed) images. Photographs will illustrate both the detail and context of the principal archaeological features discovered. In addition, the Contractor shall take

appropriate record photographs to illustrate work in progress. All photographic records will include information detailing: site name and number/code, date, context, scale and orientation.

Human Remains

4.2.28 Where human remains are identified, all subsequent work must be undertaken in accordance with the *Human remains and monuments procedure* (HS2-HS2-EV-PRO-0000-000008).

4.2.29 Should human remains be discovered, the Contractor shall notify the Employer immediately so that these procedures can be implemented. This notification may be initially made personally or by telephone but shall be confirmed in writing (including email) within 24 hours of discovery.

4.2.30 The Contractor will be required to cease all works at that location until further instruction is provided by the Employer. The Contractor shall undertake an initial in situ observation and assessment of the remains and shall advise the Employer of the course of action required.

4.2.31 Lifting of human skeletal remains shall be kept to the minimum which is compatible with an adequate evaluation, where the remains contribute to Specific Objectives and as required by the Project Plan.

4.2.32 Visible grave goods and other obvious artefacts, shall be recorded and lifted before the end of the working day to avoid the risk of vandalism and theft. Where this is not feasible or appropriate, the Contractor shall ensure, on liaison with the Employer 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. This is a particular issue for rural sites and 'occasional burials'.

Environmental Sampling

4.2.33 Where required to meet the Specific Objectives being addressed by the investigation, appropriate features and deposits shall be sampled to retrieve palaeoenvironmental and economic indicators. The Contractor shall make provision for the sampling of a wide range of contexts for potential assessment and analysis for plant and animal micro/macro fossils and soils/sediments in order to fulfil the aims set out in the Project Plan.

4.2.34 The need for and focus of sampling will be determined by the Specific objectives the investigation is seeking to address. The selection, preparation for and methods of taking samples together with their size, presentation and processing shall be in accordance with current best practice (e.g. CIfA 2014; Campbell et al. 2011; Ayala et al. 2007).

4.2.35 Bulk samples shall normally be in the range of 10-60 litres. The size selected will depend on the likely density of macrofossils in the soil. The lower end of the range (10-20 litres) will be suitable for the recovery of macrofossils from waterlogged deposits. For non-waterlogged deposits the sample volume is likely to be in the middle to higher range (20-40 or 40-60 litres)

dependent upon site activity, conditions and preservation. Where contexts have a volume of less than that stated above then 100% of the context should be sampled. Each bulk sample should only contain sediment derived from a single context.

4.2.36 The Contractor shall use ten litre plastic buckets (with lids and handles), or strong polythene bags (double bagged) secured at the neck, for the recovery of bulk 'disturbed' environmental samples. An adhesive label recording the project event code, context number and sample information shall be securely fixed to a vertical face of the bucket only or attached to the neck of the bag. Labels shall be completed with an indelible ink pen. A duplicate non-adhesive label shall be inserted within the bucket or between the polythene bags. Alternative methods such as the use of bar codes / Q-codes will be considered by the Employer on a case-by-case basis.

4.2.37 Flotation samples and samples taken for coarse-mesh sieving from dry deposits shall be processed at the time of the fieldwork, to permit variation of sampling strategies if necessary. Sampling strategies for wooden structures shall follow the methodologies presented in Brunning and Watson (2012), while other waterlogged organic materials shall be processed in accordance with guidance provided by Karsten et al. (2012).

4.2.38 The Contractor shall use appropriately sized monolith or kubiena boxes for the recovery of 'undisturbed' monolith samples for soil micromorphology and to sub-sample for microfossils (e.g. pollen and spores, diatoms, ostracods). Adjacent to each kubiena box (for) bulk samples of 50-100g should be taken to provide additional material for analyses such as loss-on-ignition, magnetic susceptibility, soil phosphate analysis etc. Alternatively, this could be sampled as a second monolith / kubiena box.

4.2.39 Care shall be taken to ensure that wherever possible only newly exposed sections are sampled to avoid contamination, desiccation and decalcification. This sampling shall be undertaken under supervision of the Contractor's environmental specialist. Boxes shall be wrapped neatly and tightly in bin-liners or plastic sacks and secured with rubber bands. A label shall be attached to the outside (in duplicate) with site name and code, feature/context number and depths of sample.

4.2.40 The Contractor shall record the depth of the 'undisturbed' monolith at the top and the bottom of the sample. There shall be a 50mm overlap between each monolith. This information shall be plotted onto a section drawing at an appropriate scale, with all levels reduced to heights relative to Ordnance Datum. Monoliths should be taken to ensure that context boundaries are sampled and these should be noted on the sample recording pro-forma.

4.2.41 Where it is not possible to insert monolith boxes, the Contractor shall take a vertical series of small 'spot' samples. Samples shall be at 20mm vertical intervals with no more than 10mm depth being sampled. In the case of deposits with a low organic content it may be necessary to take as much as 5g or even 20g per sample. If so, sampling shall be extended laterally at a given depth in 10mm deep spits.

4.2.42 Where appropriate, the Contractor shall take contiguous column samples for the retrieval of macrofossils (e.g. molluscs, plant remains and insects). The individual sub-samples will be of 1-10kg, depending on the nature of the deposit and the category of material to be retrieved. Where several specialists are involved it may be necessary to take separate subsamples for a range of palaeoenvironmental evidence, for example, insects, molluscs and waterlogged plant remains, to ensure that adequate sub-samples are available for specialist assessment.

4.2.43 Wherever appropriate, artefacts, biological samples and soils shall be assessed for evidence of site and deposit formation processes and taphonomy and especially for evidence of recent changes that may have been caused by alterations in the site environment.

4.2.44 Processing of all soil samples collected for biological assessment, or subsamples of them, should be completed within two weeks of collection. The preservation state, density and significance of material retrieved shall be assessed by the Contractor's recognised specialist. Special consideration shall be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples shall be stored in appropriate conditions in accordance with the Contractor's method statement.

4.2.45 The Contractor shall be responsible for the protection of all samples and finds and for their transport (including loading and unloading) to the processing facilities or other location as agreed with the Employer. Samples shall be protected at all times from temperatures below 5°c and above 25°c and from wetting and drying out due to weather exposure.

4.2.46 Where necessary to address Specific Objectives, animal bone assemblages, or sub-samples of them, shall be assessed by the Contractor's specialist with reference to Historic England guidance (Baker and Worley 2014). When employed, other palaeoenvironmental techniques, such as, but not limited to, pollen, insects, molluscs, ostracoda, diatoms and charcoal shall follow standard methodologies (see Campbell et al. 2011) and adopt recognised standards in procedure (at both assessment and analysis stages) and agreed nomenclatures.

4.2.47 Samples collected for geo-archaeological assessment should be processed promptly by the Contractor's specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment shall be undertaken as agreed with the *Employer*. Where preservation *in situ* is a viable and desirable option, consideration shall be given to minimising the possible effects of compression and loading on the physical integrity of the site and any hydrological or chemical impacts of the proposed construction works (Campbell *et al.* 2011).

Backfilling

4.2.48 The trenches shall be pumped dry (by the *Contractor*) and any necessary protection measures for archaeological remains (in addition to those for below ground infrastructure, services or utilities) shall be completed prior to backfilling. Generally, all backfill material shall consist of

non-toxic, uncontaminated, non-putrescible, natural and inert material which shall be compacted and (if necessary) tested (dynamic compaction test or other) in accordance with a specification provided by the *Contractor*. Surface conditions shall be reinstated to the required standard.

4.2.49 The *Contractor* shall ensure, in liaison with the *Employer* that adequate protection is provided for any archaeological remains. Any specific archaeological requirements relating to backfilling including use of materials to mark excavated depth, such as geotextiles, shall be specified by the Contractor in the LS-WSI.

5 Post-investigation reporting and archiving

5.1.1 Trial trenching reports will be produced with the following structure:

- Executive Summary
- Introduction
- Summary of project's background (including the Specific Objectives addressed)
- Assumptions and limitations
- Description and illustration of the site location
- Previous work(s) relevant to the archaeology of the site (e.g. DDBA, previous surveys)
- Geology and topography of the site
- Specific Objectives and Aims
- Scope and Methodology, to include:
  - Date(s) of fieldwork;
  - Number and dimensions of trial trenches;
- Results and observations
  - Stratigraphic report
  - Finds report
  - Environmental evidence report
  - Interpretation of results against original expectations and Specific Objectives
  - Review of evaluation strategy (where appropriate).

- Recommendations and research aims for further investigation
- Conclusions
  - Statement of potential of archaeology
  - Assessment of achievement (or not) of survey objectives.
- Evaluation of methodology employed and results obtained (i.e. a confidence rating)
- Publication and dissemination proposals, including archive deposition
- References to all primary and secondary sources consulted.
- Appendices to include illustrations, contextual summary by trench, finds reports, environmental reports, site matrices (where appropriate) and full definitions of the interpretation terms used in the report.

5.1.2 The trial trenching reports will contain figures accompanied by supporting text. All figures within the report shall be on the same paper size, where appropriate. All features will be labelled with the appropriate assigned number code on the figures, which will be referred to in the text document.

5.1.3 The following figures will be included in trial trenching reports:

- General plan (mandatory)
- Engineering design (mandatory)
- Site location
- Survey extent and trial trench locations
- Survey results to include plans and sections of archaeological features, deposits and sequences
- Selected photographs of representative and/or significant features and finds

6 Information Management

6.1.1 GIS deliverables will be provided in accordance with the Cultural Heritage GIS Specification (HS2-HS2-GI-SPE-000-000004). CAD files will be GIS compatible and follow standards set out in the same Specification. Figures may be produced using CAD but final deliverables must be supplied in GIS format.

6.1.2 Mapping and spatial data deliverables will conform to the GIS Standards as set out in HS2-HS2-GI-STD-000-000002 and other associated referenced documents.

6.1.3 The standard template for reports (HS2-HS2-PM-TEM-000-000004) will be used.

7 Quality Assurance Processes

7.1.1 Trial trenching reports will be prepared and conducted by suitably qualified, experienced and competent professionals.

7.1.2 Trial trenching reports will be checked and then reviewed by senior qualified, experienced and competent professionals prior to issue to the *Employer* for acceptance. Final reports, following comments, will be checked and reviewed again prior to issue.

8 Evidence of engagement

8.1.1 The Staffordshire County Council Principal Archaeologist was contacted on 25 January 2017 with regard to this project plan. No response was received in respect of this contact. The Principal Archaeologist was subsequently consulted in person at a meeting on 4 April 2017. The following observations and comments were noted:

- The proposal for trial trenching is supported in principle.
- A woolly mammoth tusk reportedly found at Middleton Hall Quarry approximately 2km south-east of the Site illustrates the potential for recovery of Pleistocene faunal remains within the terrace gravel deposits in the area.

9 Figures

9.1.1 The following figures are included at Appendix A.

- Figure 1 Site location
- Figure 2 Heritage assets
- Figure 3 Previous investigations
- Figure 4 Scheme design
- Figure 5 [not used]
- Figure 6 [not used]
- Figure 7 [not used]
- Figure 8 [not used]
- Figure 9 Utilities locations [AWAITING UTILITIES DATA]

10 References and glossary of terms

10.1 Glossary of terms

10.1.1 The following terms have been used in this report:

- **Contractor** – the organisation undertaking the evaluation on behalf of the Employer.
- **Detailed Desk Based Assessment (DDBA)** – analytical document that builds on the information gathered previously in the Environmental Statement to address particular issues, questions or uncertainties within a given area. It may be developed to provide a more detailed understanding of the resource in an area to inform design development or construction programming.
- **Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS)** – the framework for delivering all historic environment investigations undertaken as part of the HS2 Phase 1 programme.
- **Location** – a specific HS2 worksite or group of worksites that are being addressed as a combine historic environment investigation programme of assessment, evaluation and investigation.
- **Project Plans** – specification document for each specific package of activity (e.g. a survey, desk based assessment, excavation, recoding project). The plans would respond to the Specific Objectives set out in the GWSI: HERDS and be delivered within an agreed budget.
- **Works** – the specific historic environment assessment, evaluation or investigation works at each location.

10.2 References

Title	Reference
HS2 Phase One Environmental Statement and Supplementary Environmental Statements CFA20 Curdworth to Middleton	CH-001-020, ES 3.5.2.20.4 CH002-020, ES 3.5.2.20.5 CH003-020, ES 3.5.2.20.6 CH003-020, ES 3.5.2.20.7 ES 3.5.1.4.4
HS2 Phase One Environmental Statement and Supplementary Environmental Statements CFA21 Drayton Bassett, Hints and Weeford	CH-001-021, ES 3.5.2.21.4 CH002-021, ES 3.5.2.21.5 CH003-021, ES 3.5.2.21.6

	CH003-021, ES 3.5.2.21.7 ES 3.5.1.4.3
Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
Technical Standard – Temporary Works	HS2-HS2-CV-STD-000-000005
Technical Standard - Route wide soil resources plan	HS2-HS2-EV-STD-000-000008
Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy	HS2-HS2-EV-STR-000-000015
Technical Standard - Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
HS2 Technical Standard: Specification for Project Plans and Location Specific Written Scheme of Investigations	HS2-HS2-EV-STD-000-000036
Technical Standard: Historic Environment Physical Archive Procedure	HS2-HS2-EV-STD-000-000039
Technical Standard: Historic Environment Digital Data Management and Archiving Procedure	HS2-HS2-EV-STD-000-000040
British Geological Survey, online viewer, http://mapapps.bgs.ac.uk/geologyofbritain/home.html	

10.3 List of acronyms

AIMS	Asset Information Management System
CIfA	Chartered Institute for Archaeologists
CoCP	Code of Construction Practice
DDBA	Detailed Desk Based Assessment
ES	Environmental Statement
GIS	Geographical Information Systems
GWSI: HERDS	Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy
HE	Historic England (formerly English Heritage)
HER	Historic Environment Record
LS-WSI	Location Specific Written Scheme of Investigation
OASIS	Online Access to the Index of archaeological investigations
PDF	Portable Document Format
PGM	Permanent Ground Markers
QA	Quality Assurance
RICS	Royal Institute of Chartered Surveyors
RTK	Real Time Kinematic
TBM	Temporary Bench Mark

TSA	The Survey Association
TST	Total Station Theodolite

Appendix A

HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it issued in part or issued incomplete in any way.

Derived from (...cite the scale of the BGS data used...) scale BGS Digital Data under licence 2011/111 BP British Geological Survey.© NERC.

Contains Environment Agency information© Environment Agency and databa ıe right.

Legend

- Route in tunnel
- Route on surface
- Site Extent
- Study Area
- Watercourse
- Water Body

High Speed Two

MIDDLETON

SITE LOCATION

Internal

Scale at A3: 1:5,000

0 50 100 150 200

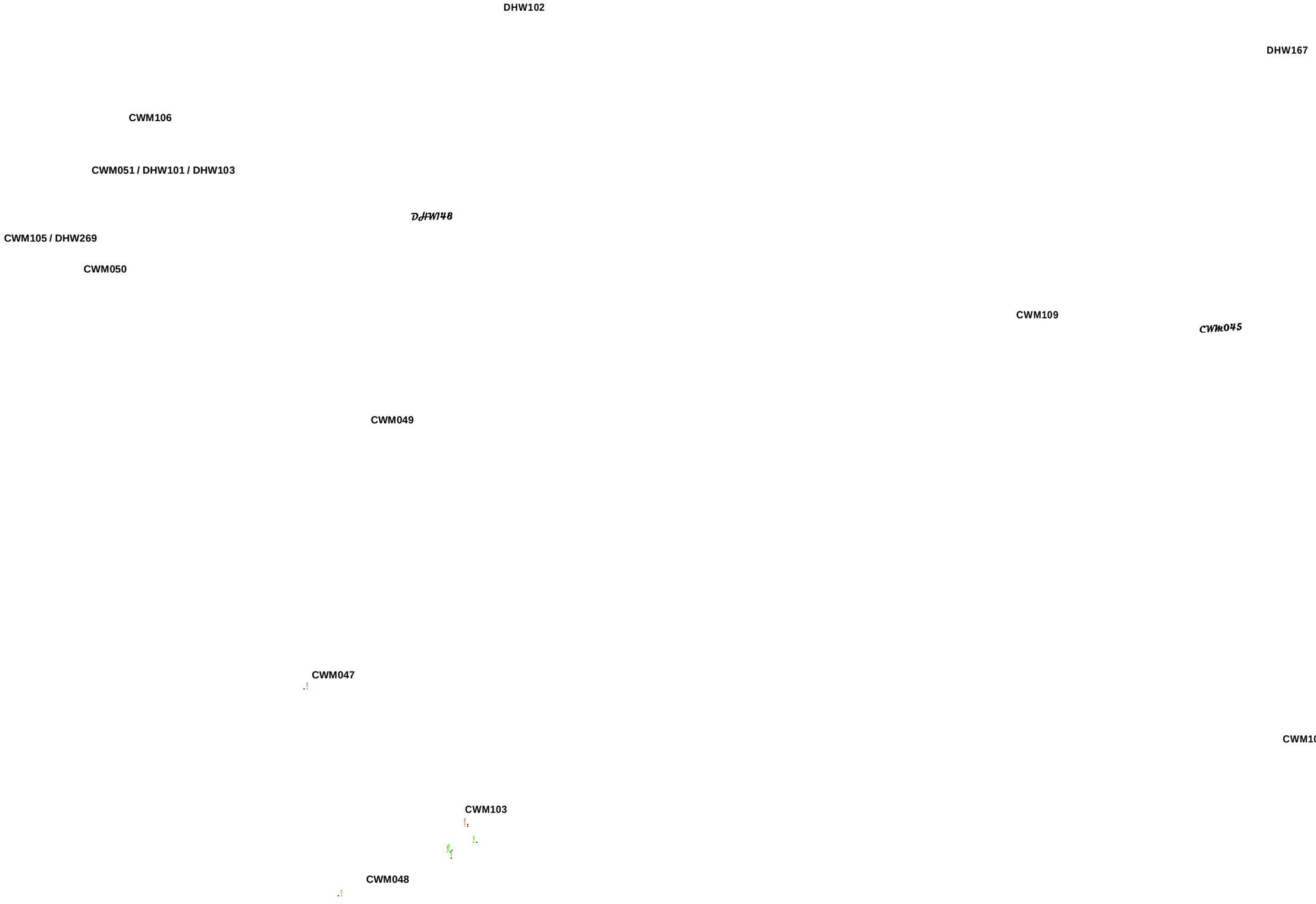
Meters

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA

Doc Number: FIGURE 1

Date: 10/04/17

This figure forms part of report10037-EDP-EV-REP-030-000018: Revision P02



Legend

Route in tunnel
Route on surface
Site Extent
Study Area
Watercourse
Water Body

!. Non Designated Heritage Asset
Non Designated Heritage Asset
Non Designated Assets

Listed Buildings

!. Grade I
!. Grade II*

High Speed Two

MIDDLETON

HERITAGE ASSETS

Scale at A3: 1:5,000

0 50 100 150 200

Meters

This figure forms part of report1D037-EDP-EV-REP-030-000018: Revision P02

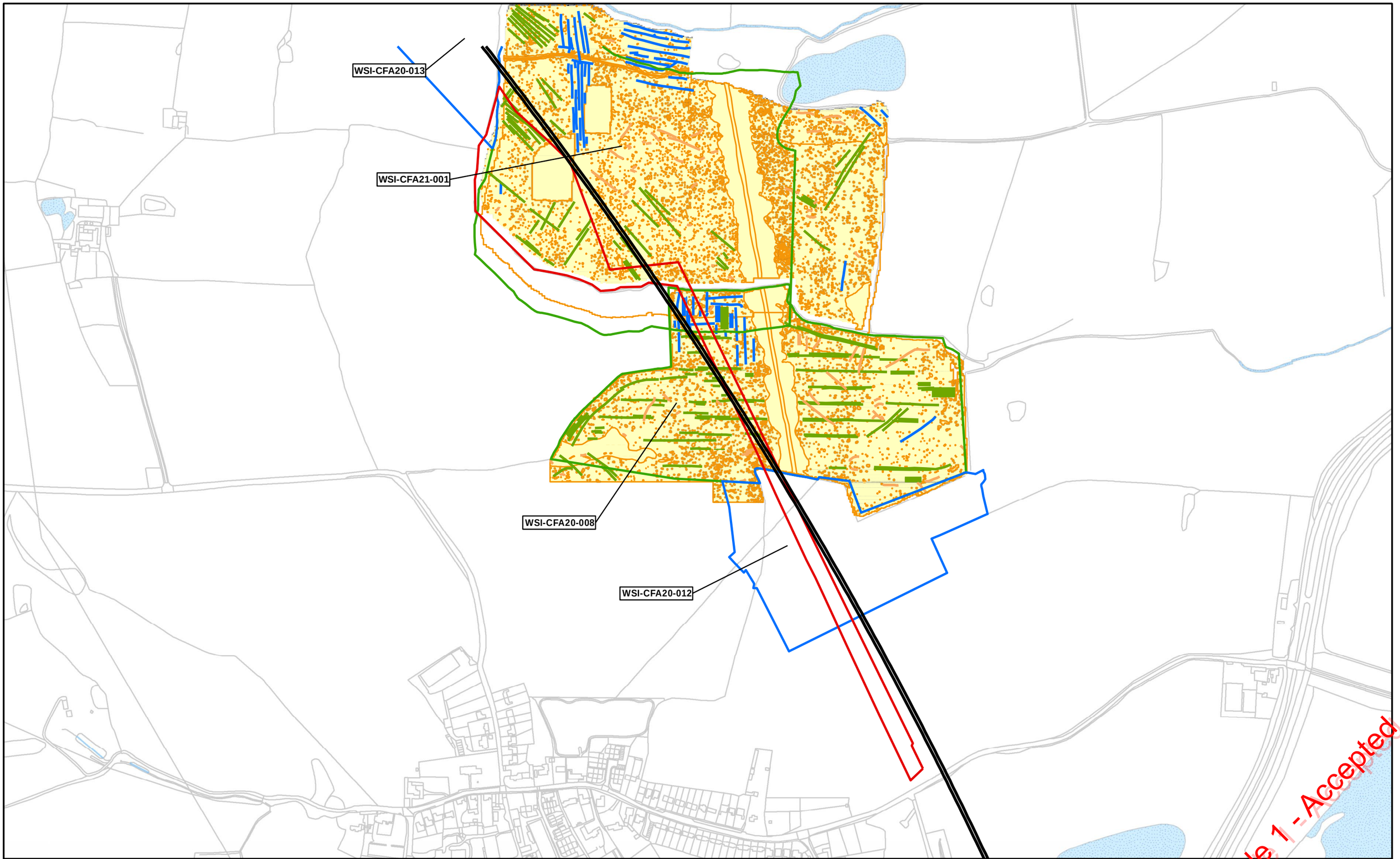
Anceient Woodland !. Grade II

BIRMINGHAM '

Internal

Doc Number: FIGURE 2

Date: 10/04/17



Legend

- Route in tunnel
- Route on surface
- Site Extent
- Watercourse
- Water Body

Extents required for survey

- Areas planned for surveys
- Areas planned for surveys, land access denied
- Areas surveys completed
- Geophysics Survey Results

Type of result

- Drain
- Interpretation areas
- Plough

High Speed Two

MIDDLETON

PREVIOUS INVESTIGATIONS

Internal

Scale at A3: 1:5,000

0 50 100 150 200

Meters

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Doc Number: FIGURE 3

Date: 10/04/17

Tr1
Tr2
Tr3
Tr4
Tr5
Tr6
Tr7
Tr8
Tr9
Tr10
Tr11
Tr12

Legend

- Route in tunnel
- Route on surface
- Site Extent
- Watercourse
- Water Body
- Trench Location
- Geophysics Survey Results

Type of result

- Drain
- Interpretation areas
- Plough

BIRMINGHAM

High Speed Two

MIDDLETON

SCHEME DESIGN

Internal

Scale at A3: 1:5,000

0 50 100 150 200

Meters

Registered in England. Registration number 06791 686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Doc Number: FIGURE 4

Date: 10/04/17

This figure forms part of report1D037-EDP-EV-REP-030-000018: Revision P02

15.2 Risk Assessment Method Statement (RAMS)

Refer to *Archaeological Contractor's* documentation.

Appendix 15.2: Middleton, Staffordshire – Archaeological Evaluation – June 2017

Risk Assessment/Method Statement (RAMS) for Archaeological Evaluation
Connect Archaeology, 1 Victoria Square, Birmingham B1 1BD

All Connect Archaeology staff and sub-contractors must read this document prior to starting work and sign below to indicate having read and understood its contents.

1 General Description of Works

Archaeological evaluation by trial trenching at Middleton, Staffordshire.

2 Scope of Works and Methodology

2.1 A programme of archaeological trenching will be undertaken to assess the potential for the survival of sub-surface archaeological remains at the site. Twelve trenches will be excavated, all measuring 50m by 2m; TR005 consists of two 50m trenches in a T-shape.

Setting out

2.2 All spatial setting out and recording shall be in accordance with The Ordnance Survey National Grid and Ordnance Survey Newlyn Datum (ODN) as defined by the OS Active GNSS network and use of a Virtual reference system. A minimum of three Permanent Ground Markers (PGM) shall be created using this system for each trench or group of geographically related trenches.

2.3 Trenches shall be located to a horizontal accuracy of +/-500mm. The corner points of each trench location shall be set out with Real Time Kinematic (RTK) Global Navigation Satellite System (GNSS) equipment or other suitable automated equipment referenced from the PGMs.

2.4 Surface heights shall be recorded using RTK GNSS and related to PGMs. Ordnance Survey Bench Marks (OSBM) are not to be used. Levelling accuracy shall be within 10 mmÖk: where 'k' is the total distance levelled in kilometres.

2.5 The Contractor shall ensure that all trench or excavation limits, and significant archaeology detail are surveyed 'as dug' in relation to the project grid before leaving the site. Ground level height data shall be recorded for each trench. Survey methodology and a detailed survey record shall be provided to the Employer within the survey report.

Mechanical excavation

2.6 Trial trenches and test pits shall be excavated to the first archaeological level. Excavation will be undertaken using a mechanical excavator with toothless ditching bucket. Machining shall be carried out under the constant supervision of the Contractor to excavate the ground in spits. The Contractor shall use their professional judgement to determine the appropriate depth of each spit. Any variations to the excavation methodology shall be at the discretion of the Contractor and recorded in writing for inclusion in the final report. Each spit shall be examined carefully to assist the recovery of any archaeologically significant artefacts and thus to determine when to cease machining. It is the responsibility of the Contractor to ensure that the finished surface is machined to a suitably 'clean' state in order to identify, define and investigate any exposed archaeological deposits. If the surface is not sufficiently clean, hand cleaning of the surface will be required. Machine excavation will comply with the Technical Standard - Route wide soil resources plan (HS2-HS2-EV-STD-000-000008).

2.7 Ecological constraints include Great Crested Newts (GCN), Badgers, Birds and habitats. Due to GCN breeding ponds being present on the site all terrestrial habitats on the site must be considered suitable for GCN foraging, resting and community therefore there is a risk across the whole site. Therefore machinery must not track within the core zone for GCN. If any birds nests are found to be active it should be noted that an exclusion zone will apply around the nest. Also removal of hedgerows, scrub, arable and grassland will need to be avoided or monitored by the Ecologist Clerk of Works. Also any changes to Gallows Brooks and the surrounding vegetation will need to be reviewed by the ECoW. All ponds should be implemented in line with the GCN requirements.

The following guidelines should be used for Badgers, this is especially relevant as there is a Badger Sett on site:

- All works must be conducted in accordance with the HS2 route-wide badger licence.
- Prior to the start of works, an 'exclusion zone' with a minimum distance of 10m of the existing active badger sett entrances must be clearly marked using coloured tape, string, paint, or other markers.
- Within the marked 'exclusion zone' no heavy machinery is to be used.
- Any further setts which are discovered during the operation must be similarly marked as soon as their presence becomes known.
- No badger sett entrances may be blocked or obstructed.
- Vehicles must not drive directly over badger sett entrances.
- Works should be avoided between dusk and dawn.

- Trees/stumps/shrubs/hedges within 20m of the existing active badger sett must not be uprooted.
- No storage of materials within 30m of existing sett.

2.8 The Contractor shall ensure that water is discharged and excavated material from archaeological excavations are stored in accordance with the Contractor's environmental protection requirements (as set out in the package Works Information and their Environmental Management Plan) and any relevant consents for the worksite. The Contractor shall monitor discharge rates and, if necessary, conductivity of discharge waters to ensure compliance.

2.9 In areas of deep stratigraphy, such as alluvial sequences, each intervention shall be excavated to the base of the stratigraphic sequence, and shall be appropriately shored and kept free of water to allow 'person entry' to the excavations i.e. to allow the Contractor to undertake investigation and recording to fulfil the aims of the work. The Contractor will ensure that all works undertaken in deep stratigraphy will comply with the Employer's Technical Standard – Temporary Works (HS2-HS2-CV-STD-000-000005).

2.10 Within alluvial sequences the Contractor shall pay particular attention to establishing the vertical extent of layers of archaeological potential and shall be aware that horizons of cultural activity may be interdigitated with horizons of sterile alluvium. The Contractor shall supervise the excavation of each test pit in such a manner so as to allow a cumulative or continuous section to be recorded.

2.11 Should any material be excavated that is deemed to be contaminated or potentially contaminated it shall be investigated, controlled (e.g. placed separately from clean material) and removed from the site in accordance with the Contractor's environmental protection requirements (as set out in their Environmental Management Plan).

Fieldwork Recording

2.12 Archaeological recording shall be undertaken by the Contractor to the general requirements as described in the GWSI: HERDS (section 7.3). A sufficient sample of the archaeological features and deposits revealed must be sampled/or fully excavated to allow the resolution of the aims and objectives of the work. Structures, features, or finds which might reasonably be considered to merit preservation in-situ shall not be unduly damaged.

2.13 In addition to the general requirements, the topsoil/ploughsoil is to be sampled for artefacts within each trench. Samples are to be taken across the Site to provide a total coverage of 20 shovel test pits per hectare; the sample should include a

shovel test pit at each end and in the centre of each trench (3 samples per trench). Samples are to be equivalent in volume to a o.5m square test-pit to the depth of the ploughsoil. Samples can be removed by shovel digging and the soil should then be sieved or screened through ¼" or 6mm wire mesh to recover artefacts. Samples can be sieved on site or retained for immediate sieving off-site.

2.14 Where areas of extensive archaeological stratification are encountered, the horizontal and vertical extent of archaeological stratification shall be assessed by the Contractor through implementation of an appropriate strategy including, either the excavation of features cut into horizontal stratification, limited test pitting or auguring. The aim shall be to recover suitable stratigraphic, finds and environmental samples from the full, intended depth of the trench, as far as is practicable. The exact methodology may need to be determined by the Contractor during the excavation of individual trenches and agreed with the Employer.

2.15 Metal detectors will be used by experienced staff to scan for metallic finds during the excavation of key archaeological features or deposits.

2.16 Where deposits are investigated, and found to be undated, and where these have the potential to be of archaeological significance (e.g. of earlier prehistoric or early medieval date, or any other deposit types notable for artefactual scarcity) appropriate samples should be taken for artefact recovery. The soil should be hand excavated and then sieved or screened through ¼" or 6mm wire mesh to recover artefacts. Samples can be sieved on site or retained for immediate sieving off-site.

2.17 In order to protect any waterlogged remains during the works, the Contractor may identify a requirement for trial excavations to be allowed to refill with water overnight. In such cases, the Contractor shall ensure that any hazards to staff or 3rd parties are minimised.

2.18 Archaeological recording is to include, as a minimum:

- At least one representative section at (1:10 or 1:20 scale) of each evaluation trench, from ground level to the base of the excavation;
- the written record of individual context descriptions on appropriate pro-forma;
- plans at appropriate scales (1:10, 1:20 or 1:50);
- single context planning should be used only if appropriate;

- photographs and other appropriate drawn and written records; and ·
- other sections, including the half-sections of individual layers or features shall be drawn as appropriate to 1:10 or 1:20.

2.19 A 'site location plan', indicating site north shall be prepared at 1:1250. Individual 'trench plans' at 1:200 (or 1:100) shall be prepared which show the location of archaeology investigated in relation to the investigation area. The location of site plans will be identified using OSGB co- ordinates.

2.20 Section drawings shall be located on the relevant plan and OSGB co-ordinates recorded. The locations of the PGM bench markers used and any site TBM shall also be indicated.

2.21 A record of the full extent in plan of all archaeological deposits as revealed in the investigation shall be made. These plans will normally be based on digital survey data (digital planning methods shall be agreed in advance with the Employer.) supplemented where appropriate by hand drawn records on polyester based drawing film (at a scale of 1:10 or 1:20 unless otherwise agreed with the Employer.). All hand drawn information shall be digitised (or preferably generated digitally in the first instance), and final deliverables will be supplied in an Esri format and adhere to standards set out in the Cultural Heritage GIS Standard (HS2-HS2- GI-SPE-000-000004). Single context planning shall be used where complex stratigraphy is encountered.

2.22 A 'Harris matrix' stratification diagram shall be employed to record stratigraphic relationships (Harris et al. 1993) where appropriate. This record shall be compiled and fully checked by the Contractor during the course of the excavations. Spot dating shall be incorporated onto this diagram during the course of excavations.

2.23 Recording of structural evidence revealed below ground level will vary according to the level of special interest of the structure and its relationship to archaeological remains. Structures of little or no significance shall be noted on a site plan. Detailed drawings of important features revealed in investigations may be required in accordance with the aims and objectives of the investigation as defined in the Project Plan.

2.24 The photographic record will be in digital format, resulting in high resolution TIFF (uncompressed) images. Photographs will illustrate both the detail and context of the principal archaeological features discovered. In addition, the Contractor shall take appropriate record photographs to illustrate work in progress. All photographic records will include information detailing: site name and number/code, date, context, scale and orientation.

Human Remains

2.25 Where human remains are identified, all subsequent work must be undertaken in accordance with the Human remains and monuments procedure (HS2-HS2-EV-PRO-0000-000008).

2.26 Should human remains be discovered, the Contractor shall notify the Employer immediately so that these procedures can be implemented. This notification may be initially made personally or by telephone but shall be confirmed in writing (including email) within 24 hours of discovery.

2.27 The Contractor will be required to cease all works at that location until further instruction is provided by the Employer. The Contractor shall undertake an initial in situ observation and assessment of the remains and shall advise the Employer of the course of action required.

2.28 Lifting of human skeletal remains shall be kept to the minimum which is compatible with an adequate evaluation, where the remains contribute to Specific Objectives and as required by the Project Plan.

2.29 Visible grave goods and other obvious artefacts, shall be recorded and lifted before the end of the working day to avoid the risk of vandalism and theft. Where this is not feasible or appropriate, the Contractor shall ensure, on liaison with the Employer 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. This is a particular issue for rural sites and 'occasional burials'.

Environmental Sampling

2.30 Where required to meet the Specific Objectives being addressed by the investigation, appropriate features and deposits shall be sampled to retrieve palaeoenvironmental and economic indicators. The Contractor shall make provision for the sampling of a wide range of contexts for potential assessment and analysis for plant and animal micro/macro fossils and soils/sediments in order to fulfil the aims set out in the Project Plan.

2.31 The need for and focus of sampling will be determined by the Specific objectives the investigation is seeking to address. The selection, preparation for and methods of taking samples together with their size, presentation and processing shall be in accordance with current best practice (e.g. CIfA 2014; Campbell et al. 2011; Ayala et al. 2007).

2.32 Bulk samples shall normally be in the range of 10-60 litres. The size selected will depend on the likely density of macrofossils in the soil. The lower end of the range (10- 20 litres) will be suitable for the recovery of macrofossils from waterlogged deposits. For non-waterlogged deposits the sample volume is likely to be in the middle to higher range (20-40

or 40-60 litres) dependent upon site activity, conditions and preservation. Where contexts have a volume of less than that stated above then 100% of the context should be sampled. Each bulk sample should only contain sediment derived from a single context.

2.33 The Contractor shall use ten litre plastic buckets (with lids and handles), or strong polythene bags (double bagged) secured at the neck, for the recovery of bulk 'disturbed' environmental samples. An adhesive label recording the project event code, context number and sample information shall be securely fixed to a vertical face of the bucket only or attached to the neck of the bag. Labels shall be completed with an indelible ink pen. A duplicate non-adhesive label shall be inserted within the bucket or between the polythene bags. Alternative methods such as the use of bar codes / Q- codes will be considered by the Employer on a case-by-case basis.

2.34 Flotation samples and samples taken for coarse-mesh sieving from dry deposits shall be processed at the time of the fieldwork, to permit variation of sampling strategies if necessary. Sampling strategies for wooden structures shall follow the methodologies presented in Brunning and Watson (2012), while other waterlogged organic materials shall be processed in accordance with guidance provided by Karsten et al. (2012).

2.35 The Contractor shall use appropriately sized monolith or kubiena boxes for the recovery of 'undisturbed' monolith samples for soil micromorphology and to sub- sample for microfossils (e.g. pollen and spores, diatoms, ostracods). Adjacent to each kubiena box (for) bulk samples of 50-100g should be taken to provide additional material for analyses such as loss-on-ignition, magnetic susceptibility, soil phosphate analysis etc. Alternatively, this could be sampled as a second monolith / kubiena box.

2.36 Care shall be taken to ensure that wherever possible only newly exposed sections are sampled to avoid contamination, desiccation and decalcification. This sampling shall be undertaken under supervision of the Contractor's environmental specialist. Boxes shall be wrapped neatly and tightly in bin-liners or plastic sacks and secured with rubber bands. A label shall be attached to the outside (in duplicate) with site name and code, feature/context number and depths of sample.

2.37 The Contractor shall record the depth of the 'undisturbed' monolith at the top and the bottom of the sample. There shall be a 50mm overlap between each monolith. This information shall be plotted onto a section drawing at an appropriate scale, with all levels reduced to heights relative to Ordnance Datum. Monoliths should be taken to ensure that context boundaries are sampled and these should be noted on the sample recording pro-forma.

2.38 Where it is not possible to insert monolith boxes, the Contractor shall take a vertical series of small 'spot' samples. Samples shall be at 20mm vertical intervals with no more than 10mm depth being sampled. In the case of deposits with a low organic content it may be necessary to take as much as 5g or even 20g per sample. If so, sampling shall be extended laterally at a given depth in 10mm deep spits.

2.39 Where appropriate, the Contractor shall take contiguous column samples for the retrieval of macrofossils (e.g. molluscs, plant remains and insects). The individual sub- samples will be of 1-10kg, depending on the nature of the deposit and the category of material to be retrieved. Where several specialists are involved it may be necessary to take separate subsamples for a range of palaeoenvironmental evidence, for example, insects, molluscs and waterlogged plant remains, to ensure that adequate sub- samples are available for specialist assessment.

2.40 Wherever appropriate, artefacts, biological samples and soils shall be assessed for evidence of site and deposit formation processes and taphonomy and especially for evidence of recent changes that may have been caused by alterations in the site environment.

2.41 Processing of all soil samples collected for biological assessment, or subsamples of them, should be completed within two weeks of collection. The preservation state, density and significance of material retrieved shall be assessed by the Contractor's recognised specialist. Special consideration shall be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples shall be stored in appropriate conditions in accordance with the Contractor's method statement.

2.42 The Contractor shall be responsible for the protection of all samples and finds and for their transport (including loading and unloading) to the processing facilities or other location as agreed with the Employer. Samples shall be protected at all times from temperatures below 5°c and above 25°c and from wetting and drying out due to weather exposure.

2.43 Where necessary to address Specific Objectives, animal bone assemblages, or sub- samples of them, shall be assessed by the Contractor's specialist with reference to Historic England guidance (Baker and Worley 2014). When employed, other palaeoenvironmental techniques, such as, but not limited to, pollen, insects, molluscs, ostracoda, diatoms and charcoal shall follow standard methodologies (see Campbell et al. 2011) and adopt recognised standards in procedure (at both assessment and analysis stages) and agreed nomenclatures.

2.44 Samples collected for geo-archaeological assessment should be processed promptly by the Contractor's specialist, particularly where storage of unprocessed samples is thought likely to result in deterioration. Appropriate assessment shall

be undertaken as agreed with the Employer. Where preservation in situ is a viable and desirable option, consideration shall be given to minimising the possible effects of compression and loading on the physical integrity of the site and any hydrological or chemical impacts of the proposed construction works (Campbell et al. 2011).

Backfilling

2.45 The trenches shall be pumped dry (by the Contractor) and any necessary protection measures for archaeological remains (in addition to those for below ground infrastructure, services or utilities) shall be completed prior to backfilling. Generally, all backfill material shall consist of non-toxic, uncontaminated, non-putrescible, natural and inert material which shall be compacted and (if necessary) tested (dynamic compaction test or other) in accordance with a specification provided by the Contractor. Surface conditions shall be reinstated to the required standard.

2.46 The Contractor shall ensure, in liaison with the Employer that adequate protection is provided for any archaeological remains. Any specific archaeological requirements relating to backfilling including use of materials to mark excavated depth, such as geotextiles, shall be specified by the Contractor in the LS-WSI.

3 Potential Hazards Identified and Risk Assessment

Details of tasks to be carried out	Potential Hazard	A Likelihood	B Severity Rating	Overall Risk Rating A x B	Control Measures	Action	Revised Risk Rating

1. Use of mechanical plant / delivery of mechanical plant	1. Danger to staff, contractors, public and visitors due to proximity of moving plant.	2	5	10	• Drivers to be trained to CITB (or equivalent) standard and in possession of necessary certification • All staff and visitors to wear high-visibility waistcoats, hard hats and protective boots (boots preferably conforming to BS1870 Pt.1). • Staff to remain in driver's view at all times and alert the driver to their presence. • One staff member to guide machine operators. • Staff not to stand or work within the swing area of the machine arm • Machines arriving on site and travelling from one part of the site to another to be escorted by a banksman. • When crossing a public road two banksmen will escort the machine. • Any areas of plant movement during delivery / collection outside the working area will be checked for a public presence before and during unloading / loading.	• Connect Archaeology's project supervisor will be responsible for checking certification, coordinating staff and supervising all plant movements. • All staff will maintain awareness of plant location/movement at all times.	5

	2.Noise from machinery (Hearing Damage)	2	3	6	• Noise to be kept to a minimum. • Staff to wear appropriate ear defenders when noisy machinery is in operation • All work will be undertaken under guidance of the Noise at Work Regulations (1989)	• Connect Archaeology will ensure that all staff are equipped with ear defenders and the project supervisor will distribute them as and when necessary.	2
2. Excavation of trenches using mechanical plant	1. Live services	4	5	20	• All trenches will be scanned with a Cable Avoidance Tool prior to excavation. • Client to provide service plans which will be checked prior to excavation and trenches positioned to avoid known services. • Unexpected services found during works will be confirmed by hand digging and their position marked on a plan. • Further machine excavation will be restricted to a minimum distance of 1m from location of identified services, to create a 2m wide berm over the position of services. • Broken drainage and sewage pipes to be treated with particular care, especially during periods of rainfall. Staff will avoid contact with any discharge.	• The project supervisor will walk over the site prior to the commencement of works to inspect the site for obvious service trenches and the like. • After the trench locations have been laid out staff will scan each position will a cable avoidance tool prior to excavation. • If unmapped services are located their presence will be confirmed by hand digging before proceeding and/or the trench moved to a new location or split either side of the service.	5

	2. Deep trenches	3	4	12	• It is not expected that excavations in excess of 1.2m in depth will be required. • No personnel will enter an un-stepped excavation in excess of 1.2m depth (or less if unstable).	• The project supervisor will continually assess the ground conditions as the trench is dug. • Excavations in excess of 1.2m will be avoided wherever possible. • Should excavation to depths exceeding 1.2m be deemed necessary, stepping will be employed. • Access to deep stepped trenches will be via machine cut steps or a ramp. • Deep excavations in excess of 1.2m in depth will be fenced off with netlon fencing.	4
	3. Open excavations with unstable sides	3	4	12	• No deep excavation to occur within 4m of existing buildings or beneath the canopy of mature trees. • Staff will not enter any trench deemed unsafe and particularly any unstepped excavation in excess of 1.2m depth. • Spoil and any loose material will be temporarily stored at least 1.0m from the edge of excavated areas	• Trench locations have been placed to avoid proximity to buildings and trees as far as possible. • Trenches will be moved, if necessary and practicable, to avoid proximity to buildings and trees. • The project supervisor will inspect all open trenches at the beginning of each day (or more often during periods of inclement weather). • The project supervisor will regulate all staff deployment into trenches.	4

	4. Flooding of trenches	3	4	12	• Excavated areas and deep excavations to be assessed for potential flooding; especially in the instance of heavy and/or prolonged rainfall. • Correct stepping of deeper excavations as noted in deep excavations above to be strictly adhered to - to ensure safe and quick exit and egress is possible.	• If shallow, localised flooding is encountered a submersible pump will be used to remove standing water. • The trench sides will be inspected by the project supervisor for undermining before the trench is entered. • In the case of extensive flooding the trench will not be entered and advice sought from the client as to the best approach for disposing of flood water prior to backfilling.	4
3. Hand excavation of deposits/archaeological features.	1. Physical injury sustained by manual handling	3	3	9	• All staff are trained and experienced in the use of hand tools. • All hand tools to be used should be checked by a competent person for defects in line with Manual Handling Operations Regulations 1992 • If objects are to be lifted, their weight should be assessed prior to lifting and mechanical means used if possible or help from others sought. Large loads should be broken into smaller components.	• Suitably qualified staff will be deployed to the project. • All equipment will be checked for defects prior to deployment. • Safe methods of lifting to be used.	3

	2. Harm from contact with hazardous substances	2	4	8	• If encountered hazardous substances are to be identified (if possible) without coming into physical contact with them and work in the trench is to cease; the position of the contamination should be marked and the trench backfilled immediately. • The client will be informed as to the presence of contamination. • In the event of a suspect material no staff to enter the area until the client has issued approved clearance.	• The project supervisor will maintain vigilance for contaminated ground when the trenches are opened. • All staff must be aware that if they see broken asbestos, tar like deposits, oil, patches of thick black material, blue powder or yellow powder, they should keep clear. • If substances come into contact with the skin they must be washed off with a proprietary cleaner, followed by soap and water. • Do not smoke or use naked flames on site. • Food is only to be eaten in the designated area. • Do not eat food without washing hands first.	4

	3. Harm from biological hazards (such as Weils Disease and Lyme Disease)	2	4	8	• Contact with standing water to be avoided at all times. • Wear gloves. • Always wash hands before eating/drinking/smoking. • Avoid unnecessary contact with eyes, mouth and nose using dirty hands. • All cuts and skin abrasions to be immediately washed and dressed. • Close fitting clothes (no shorts of short-sleeved shirts) to be worn in areas which are known to be inhabited by deer. • Insect repellent to be used in areas which are known to be inhabited by deer. • Medical attention to be sought if flu-like symptoms appear between one to four weeks after a possible insect or tick bite following working in such areas.	• It is the responsibility of each staff member to ensure compliance with the control measures. • If sewage enters the working area work will cease. • Face masks will be provided.	4

4. Movement around site	1. Slipping and tripping / uneven ground	2	3	6	• The site will be inspected for slip and trip hazards prior to work commencing. • Suitable safety footwear will be worn by all staff. • Tools will be stored neatly in designated areas. • If appropriate access and egress to trenches will be by designated safe routes.	• The project supervisor will assess the site for hazards and update the risk assessment as necessary. • The project supervisor will regulate deployment into trenches. • All staff are to ensure that footwear is maintained and replacement sought if necessary.	3
	2. Presence of unauthorised personnel / public footpaths	2	2	4	• In the event that unauthorised personnel gain access all mechanical excavation will cease until the person(s) have been removed from the site.	• All staff to maintain vigilance and communicate with other contractors/client.	2
	3. Movement around site	2	3	6	• Staff to be aware that movement across the site may involve crossing roads.	• Staff to be informed of potential dangers from traffic during induction	2
5. Isolated working areas	1. Injury or ill health when working alone or at a distance from others	2	3	6	• Staff to work in small groups in relatively close proximity where practicable. • When staff are required to work alone at a distance from others regular mobile phone contact must be maintained with the Project Supervisor.	• Project Supervisor to be aware of all staff working locations and to maintain personal or mobile phone contact. • All staff to maintain vigilance and communicate with Project Supervisor when working at a distance.	4

6. Severe weather	1. Exposure to the elements and extreme temperatures	3	3	9	• Individuals to wear appropriate clothing (rain proof and/or windproof and/or warm garments in adverse wet, windy or cold weather conditions. • Individuals to wear appropriate clothing (loose and light) and sun protection (sun screen, appropriate hat) in warm, bright weather conditions. Shorts or short-sleeved shirts should not be worn. • Work should cease in thunderstorms and appropriate shelter sought.	• All staff to adhere to the control measures.	2

7. Overhead electricity cables	1. Injury due to machine contact with cables	2	5	10	• Procedures given in HSE publication *Avoidance of danger from overhead electricity cables* (GS6, 4th ed.) to be followed. • All site staff and plant operators to be made aware of procedures for working with plant in proximity to overhead cables at induction. • Client to provide details of safe clearance distance between plant and cables. • Electricity supplier to be informed of archaeological works prior to their commencement and advice sought.	• Site supervisor to supervise all plant movements in the vicinity of overhead cables. • If plant needs to track beneath overhead cables, plant movement will be supervised by two members of staff. • Exclusion zones around cable lines to be established where appropriate. • If there is a risk of plant contact with overhead cables, or if safe clearance distances will be breached by plant, the route of the passageway beneath the cables will be marked by goalposts. • SEE BELOW FOR EMERGENCY PROCEDURES	5

Prepared by: Nuala C. Woodley Date: 2nd June 2017

4 Designated staff

LM	Paul Hunt	07775551776
WSP	Glenn Rose	07583 018586
Connect Archaeology Project Officer:	TBC	TBC
Connect Archaeology Project Manager:	TBC	TBC

5 Emergency Procedures

5.1 A qualified first aider will be present on site at all times (British Red Cross), as required by the Health and Safety (First Aid) Regulations (1981).

5.2 A complete first aid kit will be maintained on site at all times.

5.3 Any injury will be reported and included in the site accident book.

5.4 In the case of health and safety concerns or injury, Connect Archaeology staff are to inform the Project Officer in the first instance who will liaise with Stephen Potten (Connect Archaeology Project Manager). Any immediate health and safety and security issues should also be reported to the client.

5.6 All site staff carry valid CSCS cards which will be made available for inspection.

5.7 In the event that a member of staff is seriously injured on site the emergency services will be contacted immediately. The site address will be given as:

Northern section of the site:
Portleys Lane
Tamworth
Staffordshire
Nearest Postcode: B78 2AB

Southern section of the site:
Church Lane
Tamworth
Staffordshire
Nearest Postcode: B78 2AL

5.8 In case of accident or emergency Connect Archaeology Project Management will be informed. Connect will be responsible for reporting the incident to the Health and Safety Executive (HSE), should this be required, within the time periods stipulated by the HSE.

5.9 The nearest Accident and Emergency hospital is:

Walsall Manor Hospital
Moat Rd
Walsall

WS2 9PS

Tel: 01922 721172

Emergency Procedures if Contact is Made with Overhead Power Cables

If someone or something comes into contact with an overhead line, it is important that everyone involved knows what action to take to reduce the risk of anyone sustaining an electric shock or burn injuries. Key points are:

- never touch the overhead line's wires;
- assume that the wires are live, even if they are not arcing or sparking, or if they otherwise appear to be dead;
- remember that, even if lines are dead, they may be switched back on either automatically after a few seconds or remotely after a few minutes or even hours if the line's owner is not aware that their line has been damaged;
- if you can, call the emergency services. Give them your location, tell them what has happened and that electricity wires are involved, and ask them to contact the line's owner;
- if you are in contact with, or close to, a damaged wire, move away as quickly as possible and stay away until the line's owner advises that the situation has been made safe;

- if you are in a vehicle that has touched a wire, either stay in the vehicle or, if you need to get out, jump out of it as far as you can. Do not touch the vehicle while standing on the ground. Do not return to the vehicle until it has been confirmed that it is safe to do so; and

- be aware that if a live wire is touching the ground the area around it may be live. Keep a safe distance away from the wire or anything else it may be touching and keep others away.

7 Revisions (To be added by Site Supervisor as and when identified on site)

Signed as having read and understood:

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date

Name: Signed Date