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HS2 Phase 2a LS-WSI: Ingestre Park Golf Course Proposed Relocation Area Trial Trenching

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1 Executive Summary

1.1 General

- 1.1.1 This Location Specific Written Scheme of Investigation (LS-WSI) sets out a methodology for the delivery of intrusive archaeological investigation works in advance of the proposed relocation of part of Ingestre Golf Course (hereafter 'the Site').
- 1.1.2 Previous assessment work for the HS2 Phase 2a Environmental Statement (ES; H2 2017) and a Detailed Desk-based Assessment (DDBA; C861-ARP-EV-REP-000-125230) has indicated the Site lies within an area of archaeological potential, particularly for prehistoric archaeology.
- 1.1.3 Geophysical survey (C861-ARP-EV-SUR-000-000186) carried out across the extent of the Site identified a number of anomalies consistent with probable archaeological remains, however, in other areas results were either inconclusive or were hampered by disturbance.
- 1.1.4 This LS-WSI conforms with current best practice and guidance for archaeological fieldwork outlined in the Chartered Institute for Archaeologists' (CIfA) Standards and Guidance for Archaeological Field Evaluation (2014) and to the HS2 Technical Standard Specification for historic environment investigations (HS2-EV-STD-000-000035).

1.2 Site Information

Proposed Area

- 1.2.1 The Site located at National Grid Reference (NGR) 398381, 324744 approximately 6km north-east of the town of Stafford at an approximate elevation of 80 m above Ordnance Datum (aOD; Figure 1).
- 1.2.2 It is approximately 41 ha in size and is situated between the River Trent to the east and the existing extent of Ingestre Golf Course to the west. The Site also lies adjacent to the Ingestre Conservation Area.

Site conditions

1.2.3 The Site is currently used for arable agriculture, a status that was confirmed during recent geophysical surveys.

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1.2.4 The Site is situated on the solid bedrock formation of the Mercia Mudstone Group overlain by River Terrace Deposits of sand and gravel (British Geological Survey Online Viewer).

1.3 Heritage Background

1.3.1 The following summary is taken from the information collated within the DDBA which focused on known heritage assets from within the Site and a 500m radial Study Area beyond it (C861-ARP-EV-REP-000-125230) and from the results of a geophysical survey and fieldwalking (C861-ARP-EV-SUR-000-000186).

Early Prehistory 500,000BC - 2,200BC

- 1.3.2 Although there are no archaeological finds or features recorded within the Study Area from the Palaeolithic (500,000BC 10,000BC), the presence of River Terrace Gravels associated with the confluence of the Trent and Sow to the south-east of the Site, may contain archaeological remains from this period.
- 1.3.3 The material record of the Mesolithic in Britain is primarily defined by lithic assemblages of which there is relatively little recorded in Staffordshire. This lack of evidence is likely to reflect the absence of previous systematic surface artefact collection rather than an absence of activity and occupation in the area during the Mesolithic period.
- 1.3.4 However, a systematic fieldwalking survey carried out across the Site in 2019 identified only two flints broadly datable to the prehistoric period indicating, in this area at least, there was a general absence of activity.
- 1.3.5 Beyond the Site and the Study Area, there is evidence for extensive Neolithic activity in the area around Kings Bromley and Alrewas, where cropmarks have revealed the presence of two causewayed camps, cursus monuments, as well as a possible henge and long barrow.
- 1.3.6 The most common features within the surrounding area which trace their origins to the Bronze Age are circular burial mounds which are easily identifiable thanks to their distinctive form visible on aerial imagery and in LiDAR data. Evidence from the area around Ingestre suggests there may be at least seven circular burial mounds measuring around 10 m in diameter all located on the gravel terrace deposits around Little Ingestre, approximately 300m to the south-west of the Site. Within the wider landscape, a number of other possible burial mounds have been identified on either side of Hanyard's Lane which both produced a number of cremations as well as Early and Middle Bronze Age pottery when excavated.

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Later Prehistory and Romano-British – 2,200BC – AD410

- 1.3.7 Information gathered during the ES (HS2 2017) and DDBA (C861-ARP-EV-REP-000-125230) has indicated that the area around Ingestre is part of an extensive Iron Age landscape. Cropmark evidence from the National Mapping Programme (NMP) suggests the presence of a number of pit alignments within the surrounding area which are consistent with others found in a similar context at the confluence of the Trent and Tame Rivers approximately 16km to the south-east. Pit alignments marked boundaries and seem to have first been used during the Middle Iron Age to divide the landscape into a series of blocks, generally running back from, and at right angles to, the River Trent.
- 1.3.8 In addition to the pit alignments, there are a number of areas within the surrounding landscape where evidence suggests the presence of Iron Age settlements. The best example of these is located to the south of Lionlodge Covert, approximately 500 m south of the Site which was identified during geophysical survey carried out for the HS2 ES. An anomaly within the northern section Site has been recorded as a possible archaeological feature which broadly conforms to the expected shape of a prehistoric enclosure, although the data collected is not conclusive enough to make any definitive interpretations.
- 1.3.9 Further to the north, beyond the Site boundary, a small group of linear features was identified during geophysical survey which are thought to represent a rectangular enclosure and were found in close association to a sherd of Iron Age or Romano-British pottery.
- 1.3.10 Outside of the Site, to the south, there is evidence of possible Iron Age funerary practices in the form of three possible square barrows which generally date to the Middle Iron Age. The barrows are located in close proximity to a number of other Iron Age features including the settlement enclosure to the south of Lionlodge Covert. Their presence further indicates the area around the Site is likely to have been part of a wider, active Iron Age landscape and increases the potential for similar remains to be encountered.

Early medieval and medieval AD410 - AD1540

- 1.3.11 Staffordshire was located in the heart of the Kingdom of Mercia by the late 6th or early 7th century AD however, there is no known archaeological evidence for settlement at Ingestre or within the Site.
- 1.3.12 The River Trent was used as a route of travel for Viking invaders in the 9th century AD which led to the establishment of the fortified burh at Stafford in 913 to prevent their further advance into Mercian land. Ingestre occupies a strategically important position at the confluence of the Rivers Sow and Trent, although beyond the presence of a road

connecting the two settlements at Haynards lane, there is no archaeological evidence for activity during this period.

- 1.3.13 The settlement at Ingestre probably dates to at least the 10th century AD and by 1086, is likely to have been a fairly substantial settlement which was centred around the vicinity of the area of the current hall, church and home farm. The settlement had strong links with the nearby town of Stafford as evidenced by the key access route between the two settlements along Haynards Lane and the fact that Ingestre fell within the medieval parish of St Mary, Stafford.
- 1.3.14 The manor included a deer park, first referenced in 1417, with later 17th century maps suggesting the park covered much of the central and north-western part of the historic parish of Ingestre, although probably did not extend into the terrace gravels within which the Site lies. This area was likely to be core agricultural land thanks to the free draining soil facilitated by the underlying geological conditions

Post-medieval AD1540 - Present

- 1.3.15 The most substantial changes in the area surrounding the Site came in the post-medieval period when Ingestre developed from a medieval settlement into a designed landscape. The process of change was almost continuous involving the development and upgrading of the hall and its surroundings beginning with the enclosure of the medieval open fields. While there is no record of an enclosure act for Ingestre, the process is likely have begun in the first half of the 16th century.
- 1.3.16 By the time the first mapping is available in the late 18th century, the landscape had again been dramatically altered leaving little trace of earlier episodes of enclosure.
- 1.3.17 The current hall at Ingestre traces its origins to 1613-15 when Sir Walter Chetwynd demolished the existing building and built a new mansion using recovered material. Thanks to the Chetwynd family's strong Parliamentarian links, the area was subject to considerable turmoil during the English Civil War with the medieval church said to have been 'battered' during the fighting. The church is known to have been in a ruinous condition following the end of Civil War and it is presumed that the hall suffered a similar fate.
- 1.3.18 Radical change began taking place within the estate in the second half of the 17th century when a new church was constructed, and plans were drawn up to substantially redevelop the pleasure grounds around the house. Alterations continued through into the first half of the 18th century and were heavily influenced by the contemporary fashion for natural, romantic landscapes. As a result, Capability Brown was commissioned to redesign the estate to the north of the house.

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- 1.3.19 Beyond Ingestre's parkland, historic mapping from the late 17th century shows the location a 'Brine Well' approximately 900 m to the north west of the Site, located on the banks of the River Trent. Brine was used in salt production which is likely to have been well under way by this time with a saltworks located in the nearby village of Shirleywich and a place called 'Brine Pits' located between it and the settlement at Weston.
- 1.3.20 Geophysical survey carried out within the Site has identified the presence of a former sluice and small building which are visible on historic mapping along with evidence of post-medieval cultivation (HS2 2020).
- 1.3.21 Development and upgrading of the Ingestre estate continued throughout the 18th and 19th centuries, although much of the later planting and landscaping works were removed when the current golf course was established. The Site itself is shown to have been in agricultural use since the mid-19th century and remains so today.

2 Details of Construction and Related Activities

2.1 Construction activities

- 2.1.1 The works will comprise the establishment of a new golf course which is likely to require, but is not limited to, the following activities:
 - Topsoil stripping;
 - Hard landscaping works;
 - Planting new trees and creation of new grassed areas;
 - Excavation for sand traps and water features; and
 - Creation of new access routes.

2.2 HS2 Ltd Commitments

- 2.2.1 HS2 Ltd have prepared Heritage Memorandum to outline how the historic environment will be managed during the design and construction of Phase 2a. Some of the key undertaking and assurances set out within the Heritage Memorandum include:
 - Seeking to reduce harm to the historic environment, whether through the impact upon the setting of historic assets, direct impacts upon the assets themselves or impacts upon the character of the historic landscape;

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- Where avoidance has not been possible or practicable, a programmed of mitigation including, but not limited to, investigation, recording, analysis, reporting and archiving will be delivered;
- Sympathetic design of new structures and alterations and the careful integration of heritage assets into construction work will be of particular importance in achieving the above objectives;
- Continuing to engage with Historic England and the relevant local authority (and other stakeholders, as appropriate) on the approach to the mitigation and investigation and recording of affected heritage assets on a location-specific basis, or any other grouping of assets as appropriate to the arrangement of works;
- Seeking to maximise the opportunities for dissemination and outreach for the results
 of the investigation, recording and mitigation works, so as to advance our
 understanding of the significance of the historic environment and individual heritage
 assets;
- All works affecting heritage assets undertaken in connection with HS2 works will be carried out by suitably qualified, experienced and competent individual professionals and organisations;
- All such works will be undertaken with appropriate regard to national planning policy and archaeological standards, national guidelines and codes of practice appropriate to the project; this includes publications by historic England and the Chartered Institute for Archaeologists; and
- The heritage investigation programme will be fully integrated with the overall
 construction programme and that integration will be continuously reviewed to ensure
 that appropriate time is allowed for investigation works without undue impact on
 construction timetable.

3 Aims and Objectives

3.1 General

- 3.1.1 The Site is located within a distinct topographic landscape, the Trent Valley, which has been spilt into individual Archaeological Character Areas (ACA) identified in the Phase 2a Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS; HS2-HS2-EV-STR-000-000015).
- 3.1.2 This ACA, ACA 3 Trent Valley Crossing 2 (Great Haywood to Ingestre), comprises the Pleistocene river terrace deposits and Pleistocene or Holocene alluvium that flank the River Trent where it is crossed by the Phase 2a route at Great Haywood and Ingestre.
- 3.1.3 Within this ACA, the Site is situated within a Recognised Archaeology Zone (RAZ). An RAZ is an area within the land required for the scheme, which contains known heritage assets,

or groups of heritage assets, identified during the production of the Environmental Statement (ES) and through subsequent surveys, that merit investigation and documentation in the pre-construction period.

"RAZ 12 lies within the floodplain of the Trent to the north of the confluence with the River Sow at Great Haywood. No prehistoric material or features have been recognised within the area up to the present although the potential of the Pleistocene gravels and Holocene alluvium to contain or conceal archaeological and palaeoenvironmental remains is clear. The area encompasses the area around Hoo Mill, on the western edge of the floodplain, where buried remains of medieval water management structures are likely to survive. There are widespread remains of post-medieval water meadows in this section of the valley (Breeze et al 2008). The Trent and Mersey Canal continues to follow the course of the Trent, including a wharf formerly connected by a tramway to Hoo Mill, which ground flint for the Stoke potteries in the eighteenth and nineteenth centuries."

3.1.4 Through the information presented within the ES and GWSI: HERDS documents, a detailed desk-based assessment (DDBA) and the geophysical surveys undertaken within the Site it has been determined that further intrusive investigation in the form of trial trenching is required to adequately determine the presence, or absence, of any archaeological features and their significance.

3.2 Specific Objectives

- 3.2.1 Archaeological trial trenches are used to determine, as far as reasonably possible, the nature of the archaeological resource within a specified area. This comprises a limited programme of intrusive fieldwork to determine the presence or absence of archaeological features, structures, deposits, artefacts and/or ecofacts. 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.
- 3.2.2 The Specific Objectives relevant to this Site are:

Specific Objective Reference	Specific Objective
2aKC7	Explore the Neolithic/Bronze Age ritual landscape of the Trent Valley, placing it within its wider settlement context
2aKC10	Investigate evidence for mobility among past populations along the proposed route
2aKC15	What is the origin, purpose and trajectory of hays and parks in this area?
2aKC22	Test and develop geophysical survey methodologies

3.3 Trial Trenching

- 3.3.1 The evaluation will comprise the excavation, investigation and recording of 63 trenches; 50m long and 2m wide (Figures 1-8). Excluding areas within the field boundary and pond buffer and around the known service locations the number of trenches and sample size is as follows:
 - 47 trenches within the northern section equating to an approximate sample of 1.5%. Eleven trenches, or the equivalent area, area available as contingency.
 - 16 trenches within the southern section equating to a 3% sample. Six trenches, or the equivalent area, area available as contingency. Due to the presence of a large service running through this section, a higher percentage sample was not possible due to logistical challenges and maintaining safe working practices.
- 3.3.2 Trenches held in contingency can be used should any further investigation be required of archaeological remains and can be deployed either through the placement of additional trenches or the extension of existing trenches.
- 3.3.3 Trench locations across the majority of the Site have been placed to target areas of probable and possible archaeological remains identified during the geophysical survey, in areas of higher archaeological potential (i.e. closer to the River Trent) and to test apparent 'blank' areas where no geophysical anomalies relating to potential archaeology were identified.
- 3.3.4 The targeted trenches will attempt to identify the presence, nature, date, extent, survival and significance of known or potential heritage assets which may be affected by the proposed scheme, in order to inform, if required, an appropriate mitigation strategy aimed at reducing or removing any adverse effects.
- 3.3.5 Within the southern section of the Site, results from the geophysical survey were affected by substantial levels of disturbance. This disturbance, coupled with the presence of a larger underground service, severely restricted the effectiveness of the magnetometry survey.
- 3.3.6 Within this area, a patterned sampling strategy has been employed to mitigate the lack of usable geophysics result so as to adequately investigate the presence or absence of any potential archaeological remains.

4 Methodology

4.1 General

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- 4.1.1 All works will be undertaken in accordance with detailed methods set out in this LS-WSI.
- 4.1.2 All works will be carried out in accordance with current industry best practice and guidance (CIfA 2014a, b & c) and in line with the standards set out by HS2 in the HS2 Technical Standard Specifications for Historic Environment Investigations (HS2-HS2-EV-STD-000-000035).

4.2 Service location and other constraints

- 4.2.1 Wessex Archaeology will comply the safety requirements of the Main Contractor in regard to service location and avoidance and with the HS2 Achieving Best Practice in Service Avoidance Guidance notes.
- 4.2.2 Wessex Archaeology has carried out an initial search for services via Linesearch, geophysical survey results and online aerial imagery via Google Earth and have included the combined results in Figure 1. Several modern services are present within the Site. A 5 m buffer zone will be established on either side of the service which has been located by CAT and Genny survey. No excavation will take place inside the buffer zone.
- 4.2.3 Overhead lines are present within the Site (Figure 1). Plant will not operate beneath overhead utilities. Goalposts, which are available on site, will be erected in accordance with GS6 for plant travelling beneath overhead power lines lower than 10m if they are required.
- 4.2.4 Machine stripping to be carried out in discrete 0.1 m spits under constant supervision, and periodically re-checked using the CAT.
- 4.2.5 Any located services will be treated as live and will be marked up, protected and identified as such. If buried services are suspected or anticipated then hand-excavation may be required to initially establish the location and alignment of such services. Work will be carried out in line with HSG47
- 4.2.6 There will be no excavation over gas or fuel services at any time, therefore the services will never be exposed.
- 4.2.7 Appropriate buffers will be established around known or suspected services.

4.3 Pre-trenching walkover

4.3.1 A pre-trenching walkover will be carried out by appropriately qualified members of the archaeological team to identify preferred compound locations, access points, the

suitability of the proposed trench locations, and potential environmental and health and safety issues.

- 4.3.2 During further pre-trenching survey, the proposed trench locations will be verified on the ground in consultation with utilities and service plans provided by HS2. The trench locations will be subject to an initial Cable Avoidance Tool (CAT) scan carried out by a suitably qualified individual in order to verify the presence or absence of any live underground utilities or services in advance of fieldwork commencement.
- 4.3.3 Photographs of the Site and the proposed trench locations will be taken prior to the commencement of excavation.

4.4 Setting out of the trenches

- 4.4.1 The corner points of each trench will be set out to a horizontal accuracy of ±0.05m using a Real Time Kinematic (RTK) Global Navigation Satellite System (GNSS) in accordance with The Ordnance Survey National Grid and Ordnance Survey Newlyn Datum (ODN), as defined by the OS Active GNSS network and the use of a Virtual Reference System.
- 4.4.2 A minimum of three Permanent Ground Markers (PGM) shall be created using this system for each trench or group of geographically related trenches.
- 4.4.3 Surface heights shall be recorded using RTK GNSS and related to PGMs. Ordnance Survey Bench Marks (OSBM) are not to be used.
- 4.4.4 The location of the trial trenches have been adjusted (Figs. 1 8) to avoid overhead utilities (visible on Google Earth Map) and below ground utilities (maps supplied by Cadent via Linesearch) and other currently unknown services visible in geophysical survey results. However, final location of the trenches will be confirmed in consultation with the utility and service plans provided by the Contractor and HS2.

4.5 Excavation Methods

- 4.5.1 Excavation will be undertaken using a mechanical excavator fitted with a toothless ditching bucket and under the direct supervision of a suitably qualified and experienced archaeologist.
- 4.5.2 Machine excavation will proceed in level spits of approximately 50 to 200mm until either the archaeological horizon or the natural geology is exposed. Where necessary, the base of the trench/surface of archaeological deposits will be cleaned by hand.

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- 4.5.3 Machine excavation will comply with the Employer's Technical Standard Route wide soil resources plan (HS2-HS2-EV-STD-000-00008).
- 4.5.4 Excavated materials will be stored in accordance with the Work Package Environmental Management Plan (2G004-BAF-EV-PLN-A000-00001).
- 4.5.5 A sample of the archaeological features and deposits identified will be hand excavated, sufficient to address the aims of the evaluation. Spoil derived from both machine stripping and hand excavation will be visually scanned for the purposes of finds retrieval, and where appropriate will also be metal detected by trained archaeologists. Artefacts and other finds will be collected and bagged by context.
- 4.5.6 Structures, features, or finds that might reasonably be considered to merit preservation in situ shall not be unduly damaged.
- 4.5.7 Where complex archaeological stratification is encountered, deposits will be left in situ and alternative measures, to be agreed with Balfour Beatty, the Contractor and the Employer, will be taken to assess, as far as is practicable, their depth, recover suitable stratigraphic information, finds and environmental samples. Where modern features are seen to truncate the archaeological stratification, these may be removed, where practicable, in a manner that does not damage the surrounding deposits in order to enable the depth of stratification to be assessed.
- 4.5.8 If human remains are uncovered, the specific methods outlined below (section 4.9) will be followed.
- 4.5.9 In order to protect any waterlogged remains during the works, there may be a requirement for trial excavations to be allowed to refill with water overnight. In such cases, hazards to staff or 3rd parties will be minimised.

4.6 Recording

- 4.6.1 All exposed archaeological deposits and features will be recorded using a pro forma recording system.
- 4.6.2 Archaeological features will be sufficiently excavated to enable them to be characterised, dated and sampled to determine their significance, i.e. 10% of fills of linear features (unless the linear features are substantial in which case an alternative sampling strategy will be discussed) and 50% of pit fills. Smaller discrete features, such as postholes, will be subject to 100% sampling.

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- 4.6.3 A complete drawn record of excavated archaeological features and deposits will be made. This will include plans and sections, drawn to appropriate scales (generally 1:20 or 1:50 for plans, 1:10 for sections) and tied to the OS National Grid. The ODN heights of all principal features will be calculated (as defined by OSGM15 and OSTN15) and the levels added to the drawings.
- 4.6.4 The locations of the PGM bench markers used and any site Temporary Bench Mark (TBM) used for the evaluation shall also be indicated.
- 4.6.5 The stratigraphy of all trial trenches will be recorded (even where no archaeological deposits are identified), by means of a representative section for each trench.
- 4.6.6 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 during the course of the excavations. Spot dating, where appropriate, shall be incorporated onto this diagram during the course of excavations.
- 4.6.7 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.
- 4.6.8 All hand drawn information shall be digitised and final deliverables will be supplied in an Esri format and adhere to standards set out in the Cultural Heritage GIS Standard (HS2-HS2-GISPE-000-000004). Wessex Archaeology will provide a final GIS deliverable of the survey results including intervention areas, archaeological features and objects, structures and buildings.
- 4.6.9 Single context planning shall be used where complex stratigraphy is encountered.
- 4.6.10 A full photographic record will be made using digital cameras equipped with an image sensor of not less than 10 megapixels in high resolution TIFF (uncompressed) format. This will record both the detail and the general context of the principal features and the site as a whole. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Photographs will also be taken of all areas, including access routes, to provide a record of conditions prior to and on completion of the evaluation.

4.7 Reinstatement

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- 4.7.1 All trenches will be backfilled using excavated materials in reverse order from that in which they were excavated and left level on completion. The trenches shall be pumped dry, if required, following the Main Contractor's 'permit to pump' procedure and Wessex Archaeology Environmental Policy. Any necessary protection measures for archaeological remains 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).
- 4.7.2 Photographs shall be taken of each backfilled trench once completed and, following the completion of the fieldwork, taken of the entire Site.

4.8 Finds - Selection and retention strategy

- 4.8.1 It is widely accepted that not all the records (analogue and digital) and materials (artefacts and ecofacts) collected or created during the course of an archaeological project require preservation in perpetuity. These records and materials will be subject to selection in order to establish what will be retained for long-term curation, with the aim of ensuring that all elements selected to be retained are appropriate to establish the significance of the project and support future research, outreach, engagement, display and learning activities, ie the retained archive should fulfil the requirements of both future researchers and the receiving Museum.
- 4.8.2 The selection strategy, which details the project-specific selection process, is underpinned by national guidelines on selection and retention (Brown 2011, section 4) and generic selection policies (SMA 1993) and follows CIfA's 'Archive Selection Toolkit'. It should be agreed by all stakeholders (Wessex Archaeology's internal specialists, external specialists, consultants, local authority, museum) and fully documented in the project archive.
- 4.8.3 Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds (Watkinson and Neal 1998).

4.9 Human Remains

- 4.9.1 In the event of discovery of any human remains (articulated or disarticulated, cremated or unburnt), all excavation of the deposit(s) will cease pending Wessex Archaeology obtaining a Ministry of Justice licence (this includes cases where remains are to be left in situ).
- 4.9.2 Initially the remains will be left in situ, covered and protected, pending discussions between the client, Wessex Archaeology's osteoarchaeologist and the Staffordshire County Council Planning Archaeologist regarding the need for excavation/removal or

sampling. Where this is deemed appropriate, the human remains will be fully recorded, excavated and removed from site in compliance with the Ministry of Justice licence.

- 4.9.3 Human remains, once recognised, will be metal detected immediately to determine whether any metallic grave goods are present. If possible grave goods and other obvious artefacts shall be recorded and lifted on the day of discovery to avoid the risk of vandalism and theft. Where this is not feasible or appropriate, Wessex Archaeology shall ensure, on liaison with the Contractor, 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 'isolated burials.
- 4.9.4 Excavation and post-excavation processing of human remains will be in accordance with Wessex Archaeology protocols and in-line with current guidance documents (eg, McKinley 2013) and the standards set out in CIfA Technical Paper 13 Excavation and post-excavation treatment of cremated and inhumed remains. Appropriate specialist guidance/site visits will be undertaken if required.
- 4.9.5 The final deposition of human remains subsequent to the appropriate level of osteological analysis and other specialist sampling/examinations will follow the requirements set out in the Ministry of Justice licence.
- 4.9.6 Human remains will be accorded due dignity, care and respect at all times. Wessex Archaeology may need to screen the remains, dependent on their location.

4.10 Treasure

4.10.1 The Contractor will be notified immediately on discovery of any material covered, or potentially covered, by the Treasure Act 1996 (as amended by The Coroners and Justice Act (2009) All information required by the Treasure Act (ie, finder, location, material, date, associated items etc.) will be reported to the Coroner within 14 days.

4.11 Environmental Sampling

4.11.1 In line with the HS2 Technical Standard Specification for Historic Environment Investigations (HS2-HS2-EV-STD-000-000035) an initial sampling strategy is set out below. This strategy is based on the existing information about the evaluation area, gathered from non - intrusive surveys and the HERDS Objectives listed in Section 2 above.

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- 4.11.2 Where deemed appropriate, the advice of the relevant Historic England Regional Science Advisor will be sought in relation to the collection of palaeoenvironmental material, industrial residues or other relevant scientific material.
- 4.11.3 The sampling strategy, along with the HERDS Objectives outlined in Section 2 identify the key elements that should, where present, be sampled during this evaluation. However, the strategy will need to be reviewed throughout the on site work, and where unexpected features or deposits are identified, revised accordingly to take these into account. This review and any revisions will be undertaken by Wessex Archaeology in consultation with the County Archaeologist.
- 4.11.4 The purpose of sampling at the evaluation stage is to identify the range of environmental materials present, their preservation, significance and distribution.
- 4.11.5 The evidence from non intrusive surveys for the evaluation area indicate a number of potential features which should be targeted through sampling. These include features associated with potential early-medieval settlement and a possible medieval moated site.
- 4.11.6 Sampling will therefore target the following, where present, as a minimum:
 - Buildings, ditches, pits, gullies, postholes, etc, of early medieval date, at a potential oval area of enclosure or settlement (to assess the concentration, distribution and survival of early medieval palaeoenvironmental material);
 - Buildings, ditches, pits, gullies, postholes, etc, of early medieval date, at a potential oval area of enclosure or settlement (to assess the concentration, distribution and survival of early medieval palaeoenvironmental material);
 - Floor surfaces where they survive and have not been truncated;
 - Deposits representing the main phases of activity (to assess whether there are changes in rates of deposition, material survival over time);
 - All samples will be screened for the presence of hammer scale and other
 indicators of industrial processes, particularly in the area of possible burning.
 Where significant concentrations are identified, this information should be fed back to the field team, so that where necessary, further samples can be taken to
 help to define any areas of metalworking, or other industrial processes;
 - Sampling will not only just target charcoal rich or wet deposits, but be undertaken
 on those features outlined above, taking into account advice from Wessex
 Archaeology's environmental archaeologist. This will ensure that samples are
 recovered from a representative range of contexts, which adequately characterise
 past activities, and allows an assessment to be made of the extent to which they
 help address paleoenvironmental and paleoecologic questions.

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- 4.11.7 It is possible that unexpected deposits or features will be identified during the evaluation within the areas where non intrusive survey has not revealed any evidence. As these are not covered in the initial sampling strategy above, the need for sampling will be assessed in terms of the specific objectives, and the sampling strategy updated and the features sampled accordingly.
- 4.11.8 All samples will be taken to address a specific question. The purpose of the sample, and the question it has been taken to address will be recorded on Wessex Archaeology's sample record sheet.
- 4.11.9 Samples will be taken using 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. Labelling will follow guidance set out in the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035).
- 4.11.10 For non-waterlogged deposits bulk samples will normally be taken in the range of 40-60 litres. Where contexts have a volume of less than that stated above then 10% of the context will be sampled. Each bulk samples will only contain sediment derived from a single context. Where waterlogged deposits are encountered, samples sizes will usually be in the range of 10-20 litres, which is suitable for the recovery of macrofossils from these contexts. Samples shall be protected at all time from temperatures below 5°c and above 25°c and from wetting and drying out due to weather exposure.
- 4.11.11 Where house floors or other buried land surfaces are encountered and these are sampled, appropriately sized monolith or kubiena boxes will be used for the recovery of undisturbed' monolith samples for soil micromorphology and to sub sample for microfossils (e.g. pollen and spores, diatoms, ostracods). Where longer sequences are sampled, contiguous column samples will be collected for the retrieval of macrofossils (e.g. molluscs, plant remains and insects). Further guidance on specialist samples is provided in the Technical Standard Specification for historic environment investigations (HS2-HS2-EV-STD-000-000035 -sections 4.21.22-4.21.26).
- 4.11.12 Processing of all bulk soil samples collected for biological assessment should be completed within two weeks of collection. Processing samples at the time of fieldwork will allow this sampling strategy to be updated and refined where necessary. The preservation state, density and significance of material retrieved shall be assessed by the Wessex Archaeology's environmental archaeology 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.

4.11.13 Wessex Archaeology are 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.

5 Reporting

5.1 General

- 5.1.1 Wessex Archaeology will produce an interim report, very briefly summarising findings of the evaluation, within five working days of the completion of fieldwork.
- 5.1.2 Wessex Archaeology will produce a fully illustrated final report for the field evaluation, within 25 working days of the completion of fieldwork, with the following structure:
 - Executive Summary;
 - Introduction, including site location and project background, aims, and GWSI:
 HERDS Specific Objectives (as identified in this Project Plan);
 - Baseline summary, including topography and geology, designated assets; archaeological potential and previous work(s) relevant to the archaeology of the site (e.g. DDBA, previous surveys);
 - Detailed Scope and Methodology, to include dates of fieldwork, the areas investigated at each stage and the rationale in relation to the Specific Objectives
 - Results and observations, along with the following sections:
 - Trial trench report;
 - Stratigraphic report;
 - Finds report;
 - Environmental evidence report;
 - Interpretation of results against original expectations and Specific Objectives; and
 - Review of evaluation strategy (ie, success and confidence rating).
 - Conclusions
 - Statement of findings, and summary of significance; and
 - Assessment of achievement (or not) of survey objectives.
 - Recommendations and research aims for further investigation (if required), publication and dissemination proposals, including archive deposition;
 - References to all primary and secondary sources consulted; and
 - 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.
- 5.1.3 The following figures will be included in the reports:

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- General Plan:
- Engineering Design;
- Site Locations;
- Survey extents;
- Trial trench locations;
- Survey results to include plane and sections of archaeological features, deposits and sequences; and
- Selected photographs of representative and/ or significant features and finds.
- 5.1.4 GIS deliverables will be provided in accordance with the Cultural Heritage GIS Specification (HS2-HS2-GI-SPR-000-000004) while all data supplied shall adhere to HS2 Ltd data standards (HS2-HS2-GI-STD-000-00007).
- 5.1.5 An online access to the index of archaeological investigations (OASIS) form shall be completed for each event. Electronic copies of the form will only be uploaded upon the written instruction of HS2 Ltd.
- 5.1.6 A PDF copy of the final report will be deposited with the HER, along with surveyed spatial digital data (.dxf or shapefile format) relating to evaluation.

6 Archive, Storage and Curation

6.1 Museum

6.1.1 It is recommended that the project archive resulting from the evaluation be deposited with the Potteries Museum and Art Gallery. Provision has been made for the cost of long-term storage in the post-fieldwork costs. The museum will receive notification of the project prior to fieldwork commencing, and an accession number will be obtained. Should deposition at this facility not be possible, an alternative facility will be identified.

6.2 Transfer of Title

6.2.1 On completion of the evaluation (or extended fieldwork programme), every effort will be made to persuade the legal owner of any finds recovered (ie, the landowner), with the exception of human remains and any objects covered by the Treasure Act 1996 (as amended by the Coroners and Justice Act 2009), to transfer their ownership to the museum in a written agreement.

6.3 Preparation of archive

6.3.1 The complete project archive, which may include paper records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by Potteries Museum and Art Gallery, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014c; Brown 2011; ADS 2013). The archive will usually be deposited within one year of the completion of the project, with the agreement of the Contractor.

6.4 Selection Policy

6.4.1 The complete project archive, which may include paper records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by Potteries Museum and Art Gallery, and in general following nationally recommended guidelines (SMA 1995; CIfA 2014c; Brown 2011; ADS 2013). Every endeavour shall be made to deposit the archive within one year of the completion of the post-excavation assessment, analysis or publication, with the agreement of the Contractor.

6.5 Security Copy

6.5.1 In line with current best practice (eg, Brown 2011), on completion of the project a security copy of the written records will be prepared in the form of a digital PDF/A file. PDF/A is an ISO - standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill - suited to long - term archiving.

6.6 Outreach and Social Media

6.6.1 Where possible, and in consultation with Balfour Beatty and the Employer, Wessex Archaeology will seek opportunities to disseminate the results of the evaluation and engage with the local community through social media, press releases, open days and volunteer involvement, while taking into account issues such as Health & Safety, confidentiality and vandalism.

7 Health, Safety and Environment

7.1 Health and safety

7.1.1 Health and safety consideration will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times. Wessex Archaeology will supply trained, competent and suitably qualified staff to perform the tasks and operate the equipment used on site.

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- 7.1.2 Wessex Archaeology will undertake the work in accordance with the health and Safety at Work Act 1974 and the Management of Health and Safety at Work Regulations 1999 as well as in accordance with the Employer's health and safety requirements and with any site specific health and safety requirements.
- 7.1.3 Wessex Archaeology will be responsible for the implementation of, adherence to and reporting of health and safety during the trial trenching.
- 7.1.4 A draft site-specific Risk Assessment and Method Statement (RAMS) for the trial trenching has been produced and is included as Appendix 1.
- 7.1.5 All work on site is to be carried out in accordance with the procedures set out in the RAMS.
- 7.1.6 All staff deployed onto site are to be fully inducted by the Employer and will have read and signed the RAMS before commencing work.

7.2 Environment

- 7.2.1 An Environmental Management Plan will be prepared by Balfour Beatty, the procedures within which will be followed by Wessex Archaeology at all times.
- 7.2.2 The current land use of the site was assessed during previous geophysical survey and during the site walkover survey.
- 7.2.3 There will be no working under extant tree canopies or in the proximity of tree canopies to avoid potentially cutting through roots as this may have safety implications. Tracking over tree roots is to be avoided, where possible. Trenches will be micro sited or not excavated accordingly.
- 7.2.4 Trenches have been positioned to include a 20m buffer around existing field boundaries and ponds due to ecological considerations. No archaeological works (including hand excavations) are permitted within suitable ecological terrestrial habitat until an Ecological Clerk of Works (ECoW) has assessed the works and has undertaken pre-commencement checks.
- 7.2.5 All attempts will be made to limit damage to crops with the Employer responsible for compensation for any loss incurred. A pre-commencement environmental check will be carried out by the Main Contractor.

- 7.2.6 The red line site boundary will be clearly marked so that staff and subcontractors can work within it. No area outside the red line boundary will be surveyed unless specifically authorised by the Employer.
- 7.2.7 A silt control and dewatering methodology produced in line with national guidance and in accordance with Balfour Beatty and HS2 Ltd environmental policies will be produced and incorporated into the RAMS (Appendix 1).

8 Programme

8.1 General

8.1.1 The proposed programme of works is set out below:

Activity	Start Date	End Date
Site walkover inspection	1st March 2021	1st March 2021
Pre-trenching walkover	1st March 2021	1st March 2021
Trenching (including set up and contingency for delays)	1st March 2021	9th April 2021
Interim Report Delivery	16th April 2021	16th April 2021
Post-ex analysis and Reporting	19th April 2021	TBC
Archiving	TBC	TBC

9 General

9.1 Information Management

9.1.1 GIS deliverables will be provided in accordance with the Cultural Heritage GIS Specification (HS2-HS2-GI-SPR-000-000004) while all data supplied shall adhere to HS2 Ltd data standards (HS2-HS2-GI-STD-000-00007).

9.2 Interfaces

9.2.1 The interfaces of the work programme will be controlled and managed by the Balfour Beatty.

- 9.2.2 These interfaces should be laid out in consultation with the archaeological contractor and should ensure the compatibility of the investigations with the following:
 - Detailed scheme design; issues related to subsequent design iterations (such as the MWCC or others);
 - Programme sequence for handover parts of the sites to other contractors;
 - · Health and Safety arrangements and site sharing;
 - Temporary works and logistical arrangements carried out by the Contractor or others;
 - The proposed approach to communications with other contractors, local community, landowners and the general public.
- 9.2.3 Based on current information the following interfaces are anticipated:
 - The Employer (HS2);
 - The Main Contractor (Balfour Beatty);
 - The Archaeological Contractor (Wessex Archaeology);
 - Third party stakeholders (primarily Staffordshire County Council); and
 - Other contractors working on site.

9.3 Resource Plan and Specialist Roles

- 9.3.1 A resource plan and organogram is included as an Appendix key roles are set out below with a more complete organogram included in section 10.3;
 - 1. The leadership team:
 - Project Director Andrew Norton
 - Project Manager Milica Rajic;
 - Commercial manager Richard O'Neill
 - 2. The core team:
 - Project supervisor Hannah Dabill,
 - Responsible person for safety, environment, and quality Ian Smart
 - 3. Specialists who will visit the works and perform the laboratory works,

9.4 Quality Assurance

- 9.4.1 The Archaeological Contractor will liaise with the Main Contractor regarding the works programme and quality assurance of the archaeological works. In the event of potential delays to programme, the Archaeological Contractor will issue an Early Warning Notice (EWN) via CEMAR following internal approval by the Archaeological Contractor's Project Director.
- 9.4.2 The works will be overseen and internally quality-assessed by the Archaeological Contractor's senior management and will be directed by the Archaeological Contractor's Project Director.

9.5 Engagement, Monitoring and Review

- 9.5.1 All parties will follow HS2 protocols for Intra- and Inter-project communication, which will consist of the following format:
 - Weekly progress meetings will be held to discuss the progress of on-site works, forecasting of the works programme and to highlight any potential EWNs; and
 - Matters arising from progress meetings will be discussed and meeting minutes will be forwarded to all parties (Archaeological Contractor, Groundworks Contractor).
- 9.5.2 In line with the requirements set out within the GSWSI: HERDS, a round table with the Employer, GI Contractor and Archaeological Contractor will be held to discuss the ongoing fieldwork and progress of the works against Specific Objectives and, if necessary, review the continuing validity of the Objectives.
- 9.5.3 The Archaeological Contractor will attend meetings of the Heritage Sub-Group to the Phase 2a Planning Forum to provide updates to stakeholders.
- 9.5.4 The County Archaeologist for Staffordshire County Council will be notified by HS2 Ltd at the start of the evaluation and given regular updates on its progress. Reasonable access will be arranged for the County Archaeologist for Staffordshire County Council to make site visits to inspect and monitor the progress of the evaluation. Any variations to the WSI, including the deployment of the contingency trenching, will be agreed in advance with HS2 Ltd and the County Archaeologist for Staffordshire County Council.
- 9.5.5 Should any substantial or significant archaeological remains be encountered, the Archaeological Contractor will inform the Client and HS2 Ltd immediately. Wessex Archaeology will then inform the County Archaeologist for Staffordshire County Council. If HS2, Wessex Archaeology or the County Archaeologist shall consider it necessary, HS2/WA shall invite the County Archaeologist to a site meeting to consult on a forward strategy.

- 9.5.6 The Archaeological Contractor will submit a draft of all reports for review. Received feedback may require that the Archaeological Contractor amends documentation before acceptance. The Archaeological Contractor will provide PDF's of accepted documents for issue to HS2. HS2 may provide feedback and require amendment to submitted documents before they are approved.
- 9.5.7 Following the internal review process, the resultant draft will be sent to the County Archaeologist for Staffordshire County Council for review and comment prior to the final submission of the report which will take account of any feedback provided.

9.6 Historic Environment Community Engagement & Skills, Employment and Education activities.

9.6.1 The trial trenching will not support any historic environment community engagement and skills employment and education (SEE) activities. This is due to requirement for specialist personnel and short-term turnaround to match construction programme.

10 References and glossary

10.1 References

ADS 2013 Caring for Digital Data in Archaeology: a guide to good practice. Archaeology Data Service & Digital Antiquity Guides to Good Practice

Brown, D H 2011 Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation (revised edition). Archaeological Archives Forum

Chartered Institute for Archaeologists (CIfA) 2014a Standard and Guidance for Archaeological Field Evaluation. Reading, CIfA

CIfA 2014b Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials. Reading, CIfA

CIfA 2014c Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives. Reading, CIfA

English Heritage 2011 Environmental Archaeology: A Guide to the Theory, Practice of Methods, from Sampling and Recovery to Post - excavation (second edition).

Portsmouth, English Heritage

Historic England 2015 Management of Research Projects in the Historic Environment: the MoRPHE project managers' guide. Swindon, Historic England

HS2 Ltd., 2017. High Speed Two London-West Midlands Environmental Statement (Volumes 1-5). Available at: https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement

McKinley, J I 2013 Cremation: excavation, analysis and interpretation of material from cremation related contexts, in S Tarlow and L Nilsson Stutz (eds) The Oxford Handbook of the Archaeology of Death and Burial. Oxford University Press 147–71

McKinley, J I and Roberts, C 1993 ClfA Technical Paper 13 Excavation and Post - Excavation Treatment of Cremated and Inhumed Human Remains

SMA 1995 Towards an Accessible Archaeological Archive. Society of Museum Archaeologists

Watkinson, D and Neal, V 1998 First Aid for Finds: practical guide for archaeologists. United Kingdom Institute for Conservation of Historic & Artistic Works

Reference	HS2 Document Reference No.
HS2 Technical Standard Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
HS2 Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS)	HS2-HS2-EV-STR-000-000015
HS2 Cultural Heritage GIS Specification	HS2-HS2-GI-SPE-000-000004
HS2 Geographic Information System Standards	HS2-HS2-GI-STD-000-000002
HS2 Ingestre Golf Course and Proposed Relocation Area: Detailed Desk Based Assessment	C861-ARP-EV-REP-000-125230
HS2 Phase 2a West Midlands to Crewe: EI-711 Geophysical and Archaeological Surveys	C861-ARP-EV-SUR-000-000186
HS2 Technical Standard Specification for historic environment investigations	HS2-HS2-EV-STD-000-000035
HS2 Phase 2a Burial Grounds, Human Remains and Monuments Procedure	HS2-HS2-EV-PRO-000-000008

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HS2 Data Standards	HS2-HS2-GI-STD-000-00007

10.2 Acronyms

Acronym	Title
CIfA	Chartered Institute for Archaeologists
ЕН	English Heritage (now Historic England)
ES	Environmental Statement
GIS	Geographic Information System
GPS	Global Positioning System
HE	Historic England (formerly English Heritage)
HER	Historic Environment Record
HS2	High Speed 2
LPA	Local Planning Authority
OASIS	Online Access to the Index of Archaeological Investigations
RTK	Real Time Kinematic
WSI	Written Scheme of Investigation

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10.3 Organogram

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