



West Sussex County Council

A29 REALIGNMENT

Outline Archaeological Mitigation Strategy for
Planning Submission





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Figure 1 – Site location



EXECUTIVE SUMMARY

WSP has been commissioned by West Sussex County Council (WSCC) to produce an outline archaeological mitigation strategy in advance of proposed development for the A29 realignment, in Eastergate, West Sussex. The scheme comprises the construction of a new 1.3km-long single carriageway road between Fontwell Avenue at the north-western end and Barnham Road in the south-east. Three attenuation ponds would be built in the northern part, the north-western part and the southern part of the site. The scheme extends across what are currently open fields on the north-eastern outskirts of Eastergate village.

This report has been requested by the WSCC Archaeological Advisor and provides an outline archaeological mitigation strategy in support of a planning application. It sets out a staged process of preliminary evaluation followed by archaeological investigation and recording and post-excavation analysis, which will be required to mitigate the impact on any significant archaeological remains. The report provides a summary of the WSP archaeological desk-based assessment that will be submitted for the planning application, along with a review and interpretation of the archaeological investigations carried out to date, including a geophysical survey commissioned by WSP in June 2020.

Any future site-based archaeological investigation will need to be discussed in consultation with the WSCC Archaeological Advisor and carried out in accordance with an approved Written Scheme of Investigation (WSI) prior to undertaking the work. The planning application submission documents include a draft Written Scheme of Investigation (WSI) for an archaeological trial trench evaluation, which sets out the scope and methodology for the work along with reporting and archiving requirements. This WSI will need to be finalised and approved prior to undertaking the work. Subsequent stages of mitigation, if required, would also require a separate WSI(s).

1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1. WSP has been commissioned by West Sussex County Council (WSCC) to produce an outline archaeological mitigation strategy in advance of proposed development for the A29 realignment, in Eastergate, West Sussex (National Grid Reference NGR 495250 105650; **Figure 1** in **Appendix B**). The scheme comprises the construction of a new 1.3km-long single carriageway road between Fontwell Avenue at the north-western end and Barnham Road in the south-east. Three attenuation ponds would be built in the northern part, the north-western part and the southern part of the site. The scheme extends across what are currently open fields on the north-eastern outskirts of Eastergate village.
- 1.1.2. This report has been requested by the WSCC Archaeological Advisor and provides an outline archaeological mitigation strategy in support of a planning application. The WSCC has also advised on the content and suggested strategy approach. Sections 2.5 – 2.7 provide a review and interpretation of the investigations carried out so. These comprise the 2018 watching brief which monitored the geotechnical investigation, along with an updated interpretation geoarchaeological sequence. A review and interpretation of the geophysical survey undertaken on the route of the scheme in June 2020. This is followed by a summary of the archaeological desk-based assessment.
- 1.1.3. Section 3 contains the first set of research questions formulated for the trial trench evaluation and any potential mitigation. Section 4 describes a list of proposed mitigation options, outlining a staged process of trial trench investigation, and strategy for dealing with archaeological mitigation and post excavation analysis.
- 1.1.4. Any future site-based archaeological investigation will need to be discussed in consultation with the WSCC Archaeological Advisor and carried out in accordance with an approved Written Scheme of Investigation (WSI) prior to undertaking the work. The planning application submission documents include a draft Written Scheme of Investigation (WSI) for an archaeological trial trench evaluation, which sets out the scope and methodology for the work along with reporting and archiving requirements. This WSI will need to be finalised and approved prior to undertaking the work. Subsequent stages of mitigation, if required, would also require a separate WSI(s)

2 HISTORIC ENVIRONMENT BACKGROUND

2.1 SITE LOCATION

- 2.1.1. The site is located in fields and wooded areas between Barnham Road and Fontwell Avenue and in the area of a nursery, south of Barnham Road, Eastergate, West Sussex (NGR 495250 105650: **Figure 1**). The site is irregular in shape. It is bounded Fontwell Avenue, to the west. The central “dog leg” of the proposed route is bounded by fields by Fontwell Avenue and wooded areas to the north and south, and by houses along Murrell Gardens to the east. The southern part of site is currently a nursery. It is bounded by Barnham Road to the north; house along Upton Brooks to the east; fields to the south and buildings and open areas to the west.
- 2.1.2. The site falls within the historical parish of Eastergate and lay within the county of Sussex prior to being absorbed into the administration of Arun District Council.
- 2.1.3. There is a tributary of the Lidsey Rife, 700m to the south-west of the site.

2.2 TOPOGRAPHY

- 2.2.1. Topography can provide an indication of suitability for settlement, and ground levels can indicate whether the ground has been built up or truncated, which can have implications for archaeological survival.
- 2.2.2. The site is located on the West Sussex Coastal Plain. It lies between two dry valleys which form part of the Lidsey Rife river system. The dry valley to the west of the site, following the approximate line of Fontwell Avenue, is a continuation of the Slindon Bottom dry valley. The dry valley to the east is less distinct (ASE 2019).
- 2.2.3. There is a general slope down across the site from north-west to south-east. The ground level is recorded at 15.4m Ordnance Datum (OD) in the western part of the site by Fontwell Avenue. The ground rises slightly to a level of 16.1m OD at the wooded area in the west of the site. From this high point the ground falls to 13.0m OD in the centre of the site. The ground level is recorded at 11.1m OD in the south of the site by Barnham Road (Siteline, Dwg No. 36ES001 – OVERVIEW, Rev -, June 2018). South of Barnham Road the level is recorded at 11.0m OD. At the southernmost part of the site the level is recorded at 10.0m OD (Unreferenced AutoCad drawing, date November 2019)

2.3 GEOLOGY AND GEOARCHAEOLOGY

- 2.3.1. The bedrock and superficial geology provides an indication of archaeological and paleoenvironmental potential through sediment type, sequence and topography or landscape position.
- 2.3.2. The British Geological Survey (BGS) digital Geology of Britain maps the site on London Clay bedrock, overlain in the southern area by Head, and in the north west by River Terrace Deposits (ADBA, Figure 3, **Appendix C**). Head is a poorly sorted superficial deposit, usually of silt, sand and gravel that accumulates by down-slope hillwash (colluviation and solifluction). It is a poorly-sorted, minerogenic deposit type often of low paleoenvironmental potential. River Terrace Deposits are typically gravels and sands, with silts and clays.

- 2.3.3. The geological background section makes use of geoarchaeological test pit monitoring report that augments BGS sediment mapping with Quaternary knowledge of the Sussex and Hampshire Coastal Plain landform, and more specifically the West Sussex lower coastal plain (WSCP). The WSCP is of interest and value from a Pleistocene sedimentary and Palaeolithic archaeology perspective. It is best known through the site at Boxgrove (Roberts and Parfitt 1999) situated on a former, now raised, beach (Goodwood-Slindon Raised Beach). The WSCP raised beaches developed as a result of high sea level stands during Quaternary warm stages, against the background of slow tectonic uplift and sea-level rise driven by late Quaternary climate cycles.
- 2.3.4. Geoarchaeological monitoring of geotechnical investigation (ASE 2018) was commissioned by WSCC, due to the site crossing the Brighton-Norton Raised Beach (220 thousand years old). Nine boreholes (BH01–BH09), 15 test pits (TP01–TP17) and three windows samples (WS02–WS04) were carried out (Figure 3, **Appendix C**). The sediment sequence observed is typical for this part of the Coastal Plain with London Clay overlain by marine deposits (provisionally interpreted as relating to the Brighton-Norton raised beach) and fluvial gravels. Localised Brickearth was recorded in several locations and made ground (likely of modern origin, possibly dumping) in BH03, TP06, TP12, TP16 and TP18 (ASE 2019). The results of the investigation are shown in Table 4-1 in the ADBA and discussed in Section 4.5. Note: the interpretation of is that of ASE specialists without input from WSP.
- 2.3.5. A possible sinkhole or doline observed by ASE during Ground Investigation monitoring. It is possible that the upper fills have archaeological and/or palaeoenvironmental potential and is discussed in Section 2.5. However, this feature is 60m south-west of the boundary of the site

2.4 OVERVIEW OF PAST INVESTIGATIONS

INTRODUCTION

- 2.4.1. Two investigations have been carried out within the site itself. In 2018, a geoarchaeological watching brief was undertaken by ASE on the geotechnical investigation along the route of the proposed A29 realignment (Archaeology South East 2019, **Appendix D**). Around half of the boreholes, test pits and windows samples were monitored archaeologically (see Figure 3, **Appendix C**). A single prehistoric flake fragment was found in Test Pit 3. A single fragment of ceramic building material (CBM) was found in Test Pit 2 of Roman or post-medieval date (ASE 2019). A discussion of the geoarchaeological sequence recorded during the investigation is presented in Section 2.5.
- 2.4.2. In June 2020 Wessex Archaeology conducted a geophysical survey on the route of the proposed A29 realignment works (see **Appendix E**). The work was commissioned by WSP who managed and assured the work. The survey identified anomalies considered likely to be archaeological in origin, this included a distinct parallel alignment of positive anomalies that could indicate a former trackway. It is possible that this defined a former field system that could relate to Late Iron Age or Romano-British activity, noted in the surrounding area. However, a late prehistoric origin is also possible. There were also slight indications of possible lesser ditches at right angles to the “trackway” ditches, which may suggest a prehistoric or Roman field system.
- 2.4.3. As discussed in the ADBA (WSP 2020) investigations have been carried out at 10 sites within a 1km study area around the site (Figure 2, **Appendix C**). Prehistoric remains have been found at eight sites; Roman remains at five sites; later medieval remains at four sites; and post-medieval remains at three sites. Few of these investigations have been carried out in the immediate vicinity of the site so the archaeological understanding of the area of the site itself is limited, in particular for the

prehistoric and Roman periods for which there is no documentary record, although the finds in the study area suggest background potential for multi-period activity. The results of these investigations, along with other known sites and finds within the study area, are discussed by period, in Section 4.6 of the ADBA (**Appendix C**). The date ranges are approximate.

GEOARCHAEOLOGICAL WATCHING BRIEF

- 2.4.4. The watching brief on ground investigation (GI) was carried out to understand the archaeological significance and potential of the deposits on the route of the scheme (ASE 2019, **Appendix D**). Comment on Prehistoric archaeological potential is not made in the watching brief report. It is likely that potential is variable, ranging from low to moderate for Palaeolithic archaeology and palaeoenvironmental evidence, but higher (moderate to high) for Holocene prehistoric features (Mesolithic to Iron Age).
- 2.4.5. The investigation recorded the following sequence from top to bottom:
- **Colluvium and subsoil** – clayey sand with gravel. These are Holocene deposits relating to the last 10 thousand years (ka), the Mesolithic to the Iron Age. Archaeology would be represented by stone tools, pottery and pits and/or ditches. Although the sediment is mineral-rich (with no organic remains recorded and therefore low environmental potential), there is moderate to high potential for archaeological remains within these upper horizons.
 - **Brickearth** – a firm, structureless silt clay (unit 6) thickest in the southeast area of the site is interpreted as brickearth. It is possible that this dates to the last cold stage (the Devensian, Marine Isotope Stage (MIS) 2–4). Accumulation through erosion is likely, along with windblown sediment, over an extensive period of time. Environmental potential of Brickearth varies dependent on age, mineral versus organic content and the presence of soil horizons representing episodes of exposure and stability (that may have relevance to local and region-wide environmental change). This unit is mineral-rich and likely of low environmental potential. Brickearth may infill the closed depression (4007 / A54, paragraph 2.3.5), a potential Doline (large-scale solution hollow), and will require further intrusive investigation (trenching) under geoarchaeological supervision (see **Section 4**, mitigation measure i. Geoarchaeological Investigation).
 - **Head (calcified and decalcified units)** is recorded overlying fluvial sand. Head accumulates through slope processes. The report invokes gelifluction, a slope process much like solifluction whereby deposits move en masse, triggered by seasonal freeze-thaw. The superposition over fluvial or marine sand suggests Head eroded the landscape at the time of raised beach. Evidence of post-depositional decalcification is apparent in the upper horizons, suggesting exposure and weathering.
 - **Fluvial Sands** – fluvial sands (observed in BH05 and GTP14) are likely associated with either the last or previous cold stage (Devensian or Wolstonian) or a combination of the two.
 - **Marine sand (unit 2) of the Brighton-Norton Raised Beach** (MIS 7 – deposits from an interglacial 220 ka). MIS 7 sites in Britain are rare, with roughly 20 known. This interglacial has been called the ‘Aveley’ Interglacial, named after the site in Essex (e.g. Schreve 2001) and was warmer than the present, characterised by exotic fauna. Other MIS 7 sites include Marston quarry, Buckinghamshire (Murton et al 2015) and Ebbsfleet as part of the High Speed 1 works (e.g. Wenban-Smith 2017; Scott et al 2010). The interpretation of MIS 7 deposits on site is provisional, and sands could relate to the last glacial (Devensian MIS 2–4), previous (‘Wolstonian’ MIS 6) stage or a combination of the two. On average, this unit’s surface is recorded at around

5mbgl. Sands may be less deeply buried at the southern extent of the route (BH08 logs the surface at 3.2mbgl and marine sand may have been observed at 3.1mbgl in TP16). However, these interventions were not observed by the geoarchaeologist, and specialist interpretation nearby (BH09) records sands at 4.5mbgl.

- 2.4.6. A circular depression not investigated during the watching brief represents a possible sediment sink (a solution hollow) that may contain palaeoenvironmental information (see ASE 2019, Fig 2, **Appendix D**). This feature is 60m south-west of the site boundary. This feature was also recorded during the geophysical survey as a large, weakly positive discrete anomaly (Wessex Archaeology 2020, Figure 5, **Appendix D**). Its poor definition suggests that it is associated with natural variation in the underlying superficial deposits. Although, sink-holes are of geological origin, and if this feature can be identified as such, its fills might retain archaeological deposits eroded by ploughing elsewhere on the site and may contain deposits of palaeoenvironmental interest (J Mills, pers comm).
- 2.4.7. It should be noted that the majority of the GI records, included in the ASE report, were devoid of OD heights, and the Window Samples are missing from the report. Drillers logs were included and geoarchaeological interpretations summarised in Table 3 of the ASE report. Geoarchaeological descriptions relating to each borehole were not included, making it difficult to link drillers logs to the specialist interpretation.

GEOPHYSICAL SURVEY

- 2.4.8. A geophysical survey was carried out in June 2020 (Wessex Archaeology 2020; see **Appendix C**). The survey identified anomalies considered likely to be archaeological in origin, this included a distinct parallel alignment of positive anomalies that could indicate a former trackway (4000 and 4001, **Appendix C**, figure 5). It is possible that this defined a former field system that could relate to Late Iron Age or Romano-British activity, noted in the surrounding area (WSP 2020, 18–19). However, a late prehistoric origin, for example Late Bronze Age (c. 3200- 2700 years Before Present), is also possible (J Mills, pers comm). There are also slight indications of possible lesser ditches at right angles to the “trackway” ditches, which may suggest a prehistoric or Roman field system.
- 2.4.9. Linear anomalies 4003 and 4005 in Section 2 (**Appendix C**, figure 3) are on similar alignments and may be part of the same suggested late prehistoric/ Roman agricultural field system. 4002 and 4006 in Section 3 South (**Appendix C**, figure 7) may also be part of the suggested prehistoric / Roman agricultural landscape.
- 2.4.10. Another ditch-like anomaly (4004, **Appendix C**, figure 3) was also identified in the survey results in northern area; however, this feature which was possibly of archaeological in origin and potentially relates to modern agricultural activity. Feature 4004 may be part of a field division in the 18th century or earlier, before the earliest available historical mapping (J Mills, pers comm).
- 2.4.11. Similarly, numerous uncertain pit-like anomalies were identified throughout all areas of the survey; potentially of archaeological origin however they may simply relate to localised variations in the underlying superficial deposits. It should be noted, however, the possible archaeological field systems, mentioned above are unlikely to have existed in isolation. The possibility has been raised that many smaller archaeological features, such as small refuse pits or post-holes, if present, may have escaped detection using this geophysical survey method. The density of buried archaeological

features present should be expected to be greater than apparent from the survey (J Mills, pers. comm.). Therefore, underling the need for trial trenching (See WSI).

- 2.4.12. The survey also identified a large, weakly positive discrete anomaly (4007) in the west of Section 3 at (**Appendix C**, figure 5), corresponding to the possible sink-hole . However, the feature is 60m from the site boundary so would not be impacted.

2.5 RESULTS OF THE ARCHAEOLOGICAL DESK BASED ASSESSMENT

BASELINE SUMMARY

- 2.5.1. The archaeological desk-based study (WSP 2020) assesses the impact on buried heritage assets (archaeological remains). Although above ground heritage assets (historic structures) were not discussed in detail, they have been noted where they assist in the archaeological interpretation of the site. The ADBA incorporates the results of the previous investigations within the site.
- 2.5.2. The findings of the ADBA indicated that the site does not contain any nationally designated (protected) heritage assets, such as scheduled monuments or listed buildings.
- 2.5.3. The site has moderate to high potential to contain prehistoric remains. If present, isolated remains of prehistoric stone tools or pottery would be of low significance while cut features would be of medium or high significance.
- 2.5.4. The site has moderate potential to contain Roman remains. If present, isolated remains, such as pottery or tile, would be of low significance. Cut features associated with agriculture would be of medium significance

IMPACT ASSESSMENT

- 2.5.5. The ADBA assesses the likelihood for the project to have an impact on the significance of buried heritage assets. Such impacts include anything that would cause ground disturbance, such as preliminary ground works, site strip, topsoil removal, demolition, remediation, landscaping, planting, excavation for basements, foundations, services, drainage and lighting.
- 2.5.6. An assessment of operational phase effects was scoped out on the basis that once the scheme has been completed, no further ground disturbance would occur and consequently there would be no additional impacts upon buried heritage assets.
- 2.5.7. It was outside the scope of the ADBA report to consider the impact of the scheme on above ground assets, eg physical impacts which would remove or change building fabric, or changes to the historic character and setting of designated above ground heritage assets within the site or outside it.

Outline of the Proposal Relevant to the Assessment

- 2.5.8. The scheme comprises the construction of a new single carriageway road between Fontwell Avenue and Barnham Road. Three attenuation ponds would be built in the northern part, the north-western part and the southern part of the site, with a maximum depth of 2.5m. Two temporary construction compounds will be established in the northern and southern part of the site, respectively.
- 2.5.9. The ADBA has assumed that topsoil will be stripped from the entire site, prior to construction, for the road construction, temporary access, temporary construction compounds and topsoil storage areas.

Likely Archaeological Impact

- 2.5.10. The main potential is for prehistoric and Roman remains, the significance of which would depend on the nature and extent of the remains. The proposed impacts as outlined below would constitute substantial harm or total loss of significance, under the terms of the NPPF.
- 2.5.11. Geoarchaeological investigation recorded the archaeological sediment sequence extending to a depth of >6.0m (ASE 2018, **Appendix D**). The provisional Brighton-Norton Raised Beach deposits are on average 5.0mbgl, with a highest level of 3.1mbgl, too deeply buried to be affected by the proposed scheme. There is a potential sinkhole or doline, 60m to the south-west of the site boundary. There would be no impacts on this natural feature during construction.

Preliminary Site Strip

- 2.5.12. Removal of topsoil is a potential impact as, in addition to the loss of any residual evidence it contains, it exposes any archaeological remains that may be present immediately beneath the topsoil. These may then be affected by movement of vehicles and plant involved in construction activities, for example through rutting and compaction. In addition, it is possible that topsoil removal without archaeological supervision may result in overstripping, which would have an impact upon archaeological remains located beneath the topsoil, or understripping, where archaeological features are concealed beneath a thin layer of topsoil but are then exposed and unprotected from subsequent construction activities.
- 2.5.13. Topsoil stripping will be required in the area of construction compound areas A and C in the southern and northern parts of the site, respectively. In area A topsoil stripping of 0.5m is required; in area C topsoil stripping of 0.3m is required.

Road Construction

- 2.5.14. The majority of the scheme will be raised / embanked with the new level above the existing ground level with exceptions at the western and eastern ends. Landscaping and the excavation for the new road would extend to a depth of 1.0–2.0mbgl at the western end of the scheme (Capita, Dwg A29-CAP-HPN-00-DR-C-0180, Rev P03, 04-09-20), whilst at the eastern end of the scheme the new road would extend to a depth of 0.5mbgl (Capita, Drawing A29-CAP-HPN-00-DR-C-0182, Rev P03, 04-09-20). This would entirely remove any archaeological remains within the excavation footprint. Road construction and associated landscaping would not extend into any pre-Holocene deposits with potential palaeoenvironmental interest.
- 2.5.15. Sections of the Victorian garden wall on Fontwell Avenue will be demolished (ADBA, Figure 2, **Appendix C**).

Attenuation Ponds

- 2.5.16. The excavation for the three attenuation ponds would entirely remove any archaeological remains within the excavation footprint. The maximum excavation depth of 2.5mbgl would not extend into any pre-Holocene deposits with potential palaeoenvironmental interest.

Service / Utilities Trenches / Drains / Planting

- 2.5.17. The excavation of any new service trenches and drains, along with temporary and permanent fencing, would extend to a depth of 1.0–2mbgl. This will include a trench that will be excavated for a pipeline south of Barnham Road. This would entirely remove any archaeological remains within the

trench footprint to this depth. The bases of cut features such as pits and ditches might survive intact, although their context would be lost.

- 2.5.18. Excavations for the reinforced concrete base for a relocated electrical substation on Fontwell Avenue would be up to 1.5mbgl.
- 2.5.19. Ground intrusion from any new tree planting, (e.g. for screening), and subsequent root action is assumed for the purposes of this assessment to reach a depth of c 1.0–1.5mbgl. This could disturb any archaeological remains at the tree location to this depth. The bases of cut features might survive intact, although their context would be lost.

CONCLUSIONS

- 2.5.20. There are no designated assets on the site. The site is not in a conservation area or an archaeological notification area.
- 2.5.21. Archaeological survival across the site is anticipated to be moderate to high. Apart from the farm buildings and quarrying in the western part of the site, there has been no construction on the site, although the former use of much of the site as an orchard is likely to have caused some disturbance through root action.
- 2.5.22. There would be impact from site preparation (topsoil stripping is assumed to be site-wide), excavation for road construction and excavation for attenuation ponds and services/drainage and possibly planting.
- 2.5.23. The table below summarises the known or likely buried assets within the site, their significance, and the impact of the proposed scheme on asset significance.

Table 2-1 - Predicted impacts prior to mitigation

Heritage asset	Potential	Asset significance	Impact of proposals
Prehistoric remains, of trackways and associated field systems and isolated stone tools or pottery or occupation cut features such as pits and ditches.	Moderate to high	Low (isolated stone tools or pottery) or medium or high (cut features)	Site preparation, construction compound topsoil stripping, excavation for road construction, excavation for attenuation ponds and services/drainage
Roman remains of trackways and associated agricultural field system ditches and isolated pottery finds or cut features such as field system ditches.	Moderate to high	Low (isolated pottery) or medium (cut features)	Asset significance reduced resulting in either substantial harm or total loss of significance.

3 RESEARCH QUESTIONS

3.1.1. The following research questions and archaeological research objectives specific to the site, are based on the archaeological potential as identified in the ADBA, geoarchaeological and geophysical survey and the *South East Research Framework Resource Assessment and Research Agenda* (Kent County Council). General research questions are as follows:

- What are the nature and levels of natural deposits?
- Identification of either Prehistoric or Roman activity in the site boundary as indicated by the possible trackway identified from the geophysical survey. It is possible this formed part of the wider Romano-British landscape surrounding the Roman road noted north of the site. This provides a potential opportunity to contribute a South East Regional Research Framework objective of further understanding Romano-British field systems, and their relationship to preceding and succeeding systems.

3.1.2. More detailed thematic questions are listed below by period:

Middle Bronze Age to Iron Age periods (Champion, 2019)

- Is there scope for analysis of the colluvial deposits in the dry valleys, comparable to studies already carried out on the South Downs in Sussex?
- In terms of evidence for settlement diversity, can small-scale and low-density activity be recognised?
- How are sites of all types related to their wider landscape setting?
- Is it possible to recognise the importance of small-scale and low-density activity as well as the more concentrated evidence of traditional sites?
- Can the precise chronology of the construction, use and abandonment of field systems in the middle and late Bronze Age be recovered?
- Can evidence of a major phase of landscape organisation and division in the late Iron Age be identified, to understand its spatial patterning, its causes and its chronology?
- Is it possible to recover and analyse assemblages of faunal remains, particularly in those areas where soil conditions are likely to favour bone survival, such as the chalk lands of Sussex?
- Is it possible to recover and analyse charred plant remains to document the history of crop husbandry, including tillage methods and intensive versus extensive regimes?
- Is it possible to understand the timing and spread of plant and animal introductions by direct radiocarbon dating of plant material and faunal remains?

The Roman Period (Allen, Bird and Croxford 2019)

- All instances of rural settlement sites are valuable resources, can potential sites be mapped, phased, dated and can comparison with other known examples determine patterns of change or regionality?
- What building types are used on rural settlements? How common are roundhouses and how late do they remain in use?
- There is a need to examine the evidence of crop assemblages collectively, can types of crop grown and practices of processing and storage be identified? Is it possible to identify regional patterning that may exist within this data? Can likely circumstances for preservation be identified so as to permit targeted investigation to be included in future specifications for developer funded

excavations? Recovery of environmental evidence in general needs to be included in specifications for such work, and to be subjected to synthesis.

- Can the introduction of new crop types, technologies and agricultural practices be identified?
- Examination of faunal remains need to be consistently examined and published. With such a proviso allowing a regional synthesis, indicating variations in production practices and also in butchery and processing (salting for instance). The presence and significance of unusual faunal remains needs to be recorded to allow greater analyses: deer, fish and fowl principally.
- Can potential sites spanning the Iron Age and Roman period be identified, as these are of particular interest in relation to rural production in terms of what evidence they may provide for continuity or improvements? The same is also true for related technology.
- Can the palaeo-landscape be better understood in terms of vegetation (specifically woodland and whether or not it was significantly managed)? Recovery of pollen and soil samples required to determine basic characteristics of areas during the period.

3.1.3. In light of the predicted depth of pre-Holocene deposits no impacts on this potential resource has been identified and consequently no research questions have been proposed. Environmental information associated with human occupation in the prehistoric and Roman periods will be collected and sampled as part of the overall mitigation strategy.

4 MITIGATION MEASURES

4.1 INTRODUCTION

- 4.1.1. The following section lists the proposed investigation and mitigation measures and the steps required for reporting up to and including post-excavation assessment and analysis and final publication. All archaeological investigations in connection with the planning and development management process in West Sussex should follow the recommended practice and procedures as set out in the *Sussex Archaeological Standards* (Chichester District Council *et al*, 2019).
- 4.1.2. Given the predicted levels of proposed impact no geoarchaeological investigation (e.g. geoarchaeological boreholes and deposit modelling) is proposed, although palaeoenvironmental remains will be sampled where appropriate as is standard practice during the site-based investigations. A natural sub-circular depression, 60m to the south-west of the site, may contain stratigraphic or palaeoenvironmental information but would not be affected by the proposed development.
- 4.1.3. A geophysical survey was carried out by Wessex Archaeology in June 2020, the results can be found in Appendix C and interpretation of the results in Section 2.6. Two areas in the west of the site were not surveyed at this time due to dense vegetation. It is possible that these two areas will require geophysical survey, prior to trial trenching.

4.2 STAGE 1 TRIAL TRENCH EVALUATION

- 4.2.1. Investigation of whole route (wooded area after clearance) targeting geophysical anomalies thought to be archaeological features, and an even distribution of trenches throughout the route, would be undertaken. A draft Written Scheme of Investigation (WSI) for an Archaeological Trial Trench Evaluation (WSP 2020) has been produced to support the planning submission, which includes a draft trench layout plan. As a draft WSI it sets out the broad principles and approach to the evaluation only, to accompany a planning application, this information will not be included at this stage. The information will need to be included in the future, finalised, version of the WSI in advance of commencement of the fieldwork.
- 4.2.2. Trial trench evaluation would be undertaken in advance of the construction phase and as such would not be undertaken under Construction (Design and Management) Regulations 2015 (CDM 2015). The archaeological subcontractor would be the main contractor on the site.

4.3 ALTERNATIVE TO TRIAL TRENCHING

- 4.3.1. It is expected that Stage 2 Archaeological Mitigation will follow-on from the Stage 1 trial trench archaeological evaluation. Concentrations of significant archaeology will be defined in consultation with WSCC Archaeology Adviser and will be excavated and recorded in advance of construction works.
- 4.3.2. However, an alternative strategy may be adopted. As an alternative to the trial trench archaeological evaluation, followed by archaeological mitigation, it is possible to proceed straight to mitigation during the preliminary site strip, in the form of Strip, Map and Sample.

- 4.3.3. Machine stripping of the site would be carried out under archaeological direction. A digital pre-excavation site-plan of any archaeological features will be prepared at an appropriate scale. The archaeological team will undertake monitoring of the machine stripping, hand-cleaning and planning.
- 4.3.4. Following monitoring of the preliminary stripping, archaeological excavation and recording within the area could commence. All excavation work would be supervised and monitored by a fully qualified Archaeological Project Officer/Supervisor. Enough time would need to be given to the archaeological team to record archaeological features. If extensive remains are uncovered there could be significant delays to the programme.
- 4.3.5. Such work would be carried out during the construction phase under Construction (Design and Management) Regulations 2015 (CDM 2015). The Principal Contractor, employed by client, would manage the site with responsibility for all site safety and security, in addition to providing plant and welfare and any necessary roadside working permits and safe roadside working measures (if required).
- 4.3.6. The benefit of the strategy of preliminary evaluation though would be to help reduce uncertainty in terms of the possible presence of previously unrecorded significant and extensive archaeological remains, the excavation and recording of which could potentially delay the main construction programme. If there is sufficient flexibility in the programme and approach to the preliminary site strip however, then a strategy of moving straight to mitigation in the form of Strip, Map and Sample, would potentially reduce the cost of the archaeological work without creating significant risk to programme.
- 4.3.7. Regardless of which option, trial trenching evaluation followed by archaeological mitigation or Strip, Map and Sample, is adopted, a Post-Excavation Assessment Report, leading to publication will be required.

4.4 BUILDING RECORDING OF A 19TH CENTURY GARDEN WALL ON FONTWELL AVENUE

- 4.4.1. A Victorian garden wall on Fontwell Avenue, which is not recorded on the HER will require a Level 1 Building Survey as defined by Historic England guidelines (Historic England 2016). This will be a basic visual / photographic record, supplemented by the minimum of information needed to identify the building's location, age and type.

4.5 FIRST REPORTING WINDOW

- 4.5.1. Prompt preparation of concise summary reports of the findings of the of the trial trench evaluation will be required to inform the mitigation strategy, along with likely resourcing and programming requirements. These will comprise short summaries, trench feature plans and provisional spot dating of material culture assemblages.

4.6 FINALISING THE MITIGATION STRATEGY

- 4.6.1. A broad strategy should be devised promptly where significant archaeological features are identified and avoidance of damage to them would be impractical or not feasible. This would include defining areas of expected significant archaeological remains or deposits within the Archaeological Mitigation Areas that lie within the scheme impact footprint. Such areas would be identified from the results of the geophysical survey and archaeological trial trenches and test pits. The positioning of these

areas will require the input of the WSP Cultural Heritage and Archaeology Team, archaeological contractor and County Archaeologist. Revised Research Questions will be devised at this time.

- 4.6.2. Depending on the nature and extent of remains identified during that archaeological evaluation full investigation and recording of the mitigation areas could comprise targeted archaeological excavation. Where remains of lesser significance are identified an archaeological watching brief during ground works may be required. The most likely approach however considering the extent of the site would be Strip, Map and Sample, as described above.

4.7 SECOND REPORTING WINDOW

- 4.7.1. The findings will be assessed by the WSP Cultural Heritage and Archaeology Team in consultation with the WSCC Archaeological Advisor, against the stated research aims and objectives as set out in this WSI. This will determine the extent to which the aims have been met and may lead to the identification of any new research questions. It will also enable a decision regarding the next step, which is likely to comprise one of the following:

- *Post-Excavation Assessment (PXA) and Updated Project Design.* The site archive and material finds are clearly significant but require further consideration as to further analyses and what form of publication and dissemination would be most appropriate.
- *Straight to publication.* The significance of the site archive is already reasonably well understood and the most appropriate level of analysis and publication can be agreed with the WSCC Archaeological Advisor and other stakeholders. No further assessment is required to determine this.
- *Post-Excavation Statement.* The results of the fieldwork are not particularly significant. A grey literature report for deposition within the HER and Archaeological Data Service is considered an appropriate level of dissemination.

4.8 REVIEW OF POST-EXCAVATION ASSESSMENT AND UPDATED PROJECT DESIGN

- 4.8.1. Where a Post Excavation Assessment and Updated Project Design has been produced, a review of these documents will be carried out by the WSCC Archaeological Advisor and the WSP Cultural Heritage and Archaeology Team, in their management and assurance role.

- 4.8.2. The Post-Excavation Assessment (PXA) has three principal aims:

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

- 4.8.3. A Post-Excavation Assessment report will normally contain the following information (ClfA 2014a):

- Introduction
- scope of the project (e.g. sites involved)

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

4.8.4. An Updated Project Design will also be produced, as a separate section within the PXA or stand-alone document. This will set out the updated research objectives for further analysis and this may include amendments or additions to the original research aims.

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

4.9 THIRD REPORTING WINDOW

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

4.9.2. The third reporting window will comprise the time required for the production of a pre-publication (final archive report) and publication reports. The level of publication will be proportionate to the significance of the findings.

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

4.10 STAKEHOLDER PARTICIPATION

- 4.10.1. It is anticipated that there will be stakeholder participation. This will be in the form of a Community Information Action Plan (CIAP) such as that carried out during the Lyminster Bypass (WSP 2019). The CIAP will supply information about the archaeology to the local Eastergate and neighbouring communities before, during and after the site work. The CIAP would outline how the subcontractor intends to provide information on the ongoing archaeological work and the findings to the local community. This will comprise a brief document including an introduction to the project, a summary of the requirement for a CIAP to provide information on the archaeological work to the local community, and that there will be regular information on it on the WSCC web page once the project begins.
- 4.10.2. Information shall be communicated through an “archaeological newsletter”. The newsletter would be a regular, non-technical brief compiled by the WSP Archaeology and Heritage Team. This will provide information for the Parish Councils and could be included in WSCC’s project webpage.

4.11 THE PROJECT ARCHIVE

- 4.11.1. A digital record of the archive will be stored on the Archaeological Database Service (ADS), any finds will be deposited with an appropriate local museum. A unique site code for the project will be designated to this project and will be used as the site identifier for all records produced.
- 4.11.2. The Project Archive will include all materials retained (or the comprehensive record of such materials as referred to above) and all written, drawn and photographic records relating directly to the investigations undertaken. The archive will conform to recognised guidelines
- Archaeological Archives Forum, 2011 *Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation*
 - Museums and Galleries Commission (1992) *Standards in the Museum Care of Archaeological Collections*.
 - Society of Museum Archaeologists (1993) *Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*.
 - Society of Museum Archaeologists (1995) *Towards an Accessible Archive. The Transfer of Archaeological Archives to Museums: Guidelines for Use in England, Northern Ireland, Scotland and Wales*.
 - Chartered Institute for Archaeologists, (CIFA), 2014c, *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives*
- 4.11.3. The archive will be quantified, ordered, indexed and internally consistent before transfer to an appropriate local Museum.