

Priory Farm, Solar Farm, Hertfordshire: Archaeological Mitigation Strategy – Written Scheme of Investigation

On Behalf of:	Axis Well House Barns Chester Road Bretton Chester CH4 0DH On behalf of: AGR Group
National Grid Reference (NGR):	TL 22190 28540 (centered)
AOC Project No:	25806/80064
Prepared by:	Vicky Oleksy
Illustration by:	Sam O’Leary
Approved by:	Lindsay Dunbar
Date of Report:	May 2022

This document has been prepared in accordance with AOC standard operating procedures.

Author: Vicky Oleksy	Date: 17th May 2022
Approved by: Lindsay Dunbar	Date: 20th May 2022
Draft/Final Report Stage: Draft	Date: 20th May 2022

Enquiries to: AOC Archaeology Group
Edgefield Industrial Estate
Edgefield Road
Loanhead
EH20 9SY

Tel. 0131 440 3593
Fax. 0131 440 3422
e-mail. admin@aocarchaeology.com



Contents

	Page
Appendixes.....	4
Illustrations.....	4
1 Introduction	5
2 Topographical & Geological Conditions	7
3 Archaeological and Historical Background.....	7
4 Proposed Development.....	8
5 Mitigation Strategy	9
6 Archaeological Monitoring.....	10
7 Trial Trenching	11
8 Scope of Works and Strategy.....	11
9 Methodology.....	12
10 Report and Archive Preparation.....	14
11 Health and Safety.....	16
12 General	16
13 Bibliography	17

Appendixes

Appendix 1a	General
Appendix 1b	Specialist Staff
Appendix 1c	Archaeological Archive Consent Form
Appendix 1d	OASIS Form

Illustrations

Figure 1: Site location plan

Figure 2: Trench location plan

1 INTRODUCTION

- 1.1 This document is a Written Scheme of Investigation (WSI) setting out an archaeological mitigation strategy for the proposed Solar Farm at Priory Farm, Hertfordshire situated to the west of Great Wymondley within North Hertfordshire (“the Site”). The Site is centred on TL 22190 28540 and is currently arable farmland. The Site currently comprises arable farmland set out across two portions of land to the north and south of Graveley Lane. It is bound to the east by the A1(M) and surrounded by further arable farmland on its other sides. The village of Great Wymondley and the Scheduled Monument of Wymondley Priory are located a short distance to the west of the Site.
- 1.2 Desk-based assessment undertaken for the Heritage Impact Assessment (AOC 2021) submitted with the planning application indicated a High potential for prehistoric, Roman and medieval remains with the Site given the recorded discovery of prehistoric flints and Iron Age pottery within the Site and the Site’s proximity to both known Roman settlement and cemetery remains and to Wymondley Priory.
- 1.3 Further geophysical survey of the Site, undertaken in November 2021 (AOC 2022) identified three concentrations of anomalies of archaeological origin, two smaller ones in the northwest and southeast of the survey area, covering roughly 1ha each, and a more substantial group in the central eastern part of the survey area which covers approximately 8ha. All three anomaly groups potentially date from later prehistory through to the medieval period, on the basis of their spatial arrangement and characteristics. All three activity foci also have evidence for settlement and for some sort of production involving high temperature processes. The northern part of the survey area also contains evidence for extraction, so it seems likely that the inhabitants of these settlements were extracting and processing local raw materials. A large modern utility passes through the eastern half of the survey area on a north-south alignment; this impacted the survey results and the archaeological features in this area making more certain dating or interpretation of them difficult.
- 1.4 Given the potential significance of the archaeological remains that appear on the evidence of both the desk-based assessment and geophysics to be present on the Site, further consultation was undertaken with North Hertfordshire Council and Hertfordshire County Council Historic Environment Advisor. Following on from these a draft mitigation strategy will be set out in detail in this WSI. The mitigation strategy includes provision for preserving any remains located within the three discrete areas of archaeology identified during the geophysical survey *in situ* via implementation of ‘no dig’ solutions and then undertaking a 3% trial trench evaluation across the remainder of the Site. It is envisaged that the trial trench evaluation can be undertaken post-determination with the proviso that should significant remains be identified then further requirements for mitigation, either by preservation *in situ* or by record as appropriate, may be required.
- 1.5 This document sets out the methods and standards for the proposed archaeological mitigation strategy. It has been drawn up in accordance with all current best archaeological practice, standards and guidelines, including:
 - Chartered Institute for Archaeologists – Code of Conduct (CIfA 2014, Updated October 2021);
 - Ministry for Housing, community and Local Government – National Planning Policy Framework (NPPF) (MHCLG, 2021); and
 - Historic England – Management of Research Projects in the Historic Environment (HE 2015).

2 Topographical & Geological Conditions

- 2.1 The British Geological Survey GeolIndex (BGS 2021) records that the Site is underlain by the Holywell Nodular Chalk Formation and New Pit Chalk Formation (undifferentiated), a sedimentary bedrock formed approximately 90 to 101 million years ago in the Cretaceous Period, in an environment previously dominated by warm chalk seas.
- 2.2 The BGS records several different Quaternary superficial deposits overlying the chalk bedrock within the Site. Mid-Pleistocene glaciofluvial deposits of sand and gravel are recorded in the central part of the Site and glaciolacustrine deposits of clay and silt are recorded in the northeast corner of the Site. The BGS records superficial deposits of diamicton of the Lowestoft Formation within the remainder of the Site, including along most of the eastern boundary. All of these superficial deposits were formed up to 2 million years ago in ice age conditions.
- 2.3 Several historic boreholes are recorded by the BGS adjacent to the eastern boundary of the Site, along the route of the A1(M): TL22NW14, TL22NW260, TL22NW297, TL22NW8, TL22NW. These record deposits of silty and/or sandy clay to a depth of over 4m below ground level. A further historic borehole (TL22NW16) sunk on Graveley Lane, close to the centre of the Site, in 1965 recorded ‘firm to stiff brown sandy clay with chalk and flint gravel’ overlying chalk bedrock at a depth of 1.07m below ground level.
- 2.4 The Site lies within agricultural land that slopes generally upwards towards the east and north. The ground level is recorded at approximately 95m Above Ordnance Datum (AOD) in the lowest lying parts of the Site adjacent to the south and west boundary, and at approximately 110m AOD close to the northeast corner of the Site. The Site is located within the ‘Hitchin-Stevenage Gap’, a broad glacial valley cut through the scarp of the Chilterns in the last ice age. Lakes formed in hollows left behind following the retreat of the Anglian ice sheet, which were gradually infilled with fine sediments. Within the wider area, these sediments have produced Palaeolithic implements discarded by people active around the edges of the lakes (Wymer 1999, 163).

3 Archaeological and Historical Background

- 3.1 The Applicant commissioned AOC to prepare a Heritage Impact Assessment (HIA) covering the Proposed Development (AOC 2021). A copy of the HIA has been included within the planning application and it need not therefore be replicated here, although the findings of this assessment suggested High potential for archaeological remains of prehistoric, Roman and medieval date to survive on the Site. Historic map evidence suggests that the Site was in use as agricultural land throughout the post-medieval and modern periods and as such any evidence of these dates is likely to be agricultural in nature.

Geophysical Survey

- 3.2 A geophysical survey of the Site was conducted from the 15th to 24th November 2021 and in total 85ha were surveyed using fluxgate gradiometers (AOC 2022). The full geophysical report has also been submitted in support of the planning application. The results are summarised here.
- 3.3 Three areas of concentrations of anomalies likely related to archaeological features have been identified in the results (Figures 23, 29,30 and 32 in AOC 2022; see also Figure 2 of this WSI which indicates these areas), occupying c. 10ha overall, with the main concentration straddling a large service running north-south parallel to the A1-M just east of the survey area, and covering roughly 8ha (Figures 29 &30 in AOC 2022; see also Figure 2 of this WSI).

- 3.4 Area 1 as shown on Figure 2, covers roughly 1ha. At the centre of the group is a sub-circular group of associated anomalies interpreted as a round structure c.15m in diameter (Feature 1A in AOC 2022). This is large for a prehistoric round house, (which would be the usual interpretation for this configuration of anomalies) and so the structure has not been securely interpreted as such: it may be a later structure with a different purpose, or a ring-ditch of the type associated with prehistoric funerary monuments. This circular feature sits off centre (to the south and east) within a D shaped enclosure which is causing strong positive anomalies typical of ditches filled with magnetically enhanced material. This enclosure is double ditched (perhaps, from the layout, over two phases), with the inner enclosure being roughly 50m x 50m, with the 'flat' side along the northern edge. The outer (and therefore overall) enclosure is roughly 80m east-west and 90m north-south, and shares its northern edge with the inner enclosure, which is offset to the north and west (Feature 1B in AOC 2022). There is a possible subdivision of the outer enclosure in the eastern edge. There is a semi-circular extension that adjoins the northern edge of Feature 1B. It is apse-like rather than D shaped and is c. 40m across at the apex of the curve (Feature 1C in AOC 2022). It very clearly respects and connects with the northern border of Feature 1B, so it is likely that they are contemporary, or if from a different phase than Feature 1B, this feature must still have been visible to the people constructing it.
- 3.5 Most of the anomalies of archaeological interest identified during the geophysical survey are concentrated in Area 2 shown on Figure 2 and cover approximately 8 ha in a reverse 'L' shape (see also Figure 29, 30 in AOC 2022). The long edge of the concentration runs parallel to the eastern field boundary and is bisected by a modern service – likely a pipe. The anomalies that make the shorter part of the L run almost east-west from the main concentration. Away from this concentration of anomalies, there are few further anomalies of archaeological interest; though the activity seems relatively well constrained within the 8ha area.
- 3.6 The northern part of this anomaly group (Feature 4A in AOC 2022) is a complex of rectilinear enclosures formed by ditches with enhanced fills, which are producing strong positive anomalies. They apparently only occur to the east of the service (Feature 4L in AOC 2022), though given the disruption caused by the strong halo associated with the service, it is possible there are anomalies obscured within it. The enclosures are elongated along their north-south axis and show some evidence of internal sub-divisions. There are also anomalies present which are consistent with quarrying or other extraction processes. The amorphous anomalies associated with this do not have a clear relationship to the enclosures, making it difficult to discern the relative phasing of these events. The relative strength and coherence of the linear anomalies lessens to the south, giving way to much more ephemeral linear anomalies (Feature 4G in AOC 2022) which seem to connect the northern anomaly group with a complex consisting of a large square enclosure (Feature 4C in AOC 2022) with a series of related rectilinear enclosures (Feature 4B in AOC 2022).
- 3.7 The anomalies making up this second rectilinear enclosure system are similar in character and form to those to the north at Feature 4A. They are elongated in a north-south direction and occur to the east of the service (Feature 4B in AOC 2022), and adjoin a large square enclosure, agglomerating on its eastern margin (see Figure 30 in AOC 2022). Weak ephemeral linear anomalies (Feature 4G in AOC 2022) connect Feature 4A and Feature 4B.
- 3.8 The focus of the southern concentration of anomalies is a large square enclosure bisected by the service (Feature 4C in AOC 2022). This enclosure measures approximately 100m x 100m, though much of the interior and the northern and southern boundaries are obscured by magnetic disturbance from the service. The linear anomalies that mark the edges are strongly magnetically enhanced, and on the southern edge appear to potentially be multiple rather than single ditches. Large anomalies with strong dipolar signals within the interior of the

enclosure strongly suggest heating or burning processes, and potentially slag or other fired material buried within the sub surface. This may be the location of a quantity of tile and pottery recorded within the Site by the HER.

- 3.9 Approximately 85m west of Feature 4C, there is another square enclosure (Feature 4D in AOC 2022), though this one lacks the adjoining features that occur with Feature 4C. Feature 4D is 60m east-west and about 50m north-south, though the southern boundary is indistinct. There is a possible internal sub-enclosure in the southeast corner, and possibly associated linear anomalies running south from here.
- 3.10 Linking Features 4D and 4C, there are a series of linear anomalies and patches of generally enhanced magnetism (Feature 4F in AOC 2022) suggestive of the habitation effect – whereby soils on settlement sites gain overall magnetic enhancement. These occupy a band running roughly east-west from the large enclosure at Feature 4C towards the edge of the survey area closest to the Priory complex. They are interpreted as enclosures and droves or trackways, with some suggestion of settlement activity (albeit without any clearly identified structures).
- 3.11 Overall, this concentration of anomalies within Area 2 is interpreted as a ladder settlement, likely to be Romano British in date given the fieldwalking finds and observations during the construction of the service. However, it is also possible this settlement is medieval in date, given that the finds extend into that period, and is thus associated with the Priory. Given the differences in layout and character observed, it is also possible that this complex is multi-phase, and rather than being a ladder settlement occupied contemporaneously, the various sub-groupings relate to farmsteads of different dates using the same general location in the landscape. The service neatly bisecting the complex prevents a more definitive interpretation. There are tracks, enclosures and field boundaries, as well as industrial activity of some sort, perhaps using local materials extracted from the surrounding area, including further possible burning identified within Area 2 itself (Feature 4H in AOC 2022), and extraction (Feature 4I in AOC 2022). It is possible that more information about dating could be obtained by careful comparison with the HER records and any available maps: there are two services evident in Area 2, and at this juncture it is not possible to confidently state which is the 1975 water pipeline mentioned in the HER records, and so the relative location of the anomalies to the aforementioned finds and features is unclear.
- 3.12 The third and final group of archaeological anomalies occurs along the southern border of the Site, marked on Figure 2 as Area 3 (See Figures 31 and 32 in AOC 2022). A series of somewhat concentric curvilinear and branching rectilinear complex of anomalies (Feature 5A in AOC 2022), interpreted as ditches with enhanced fills lies in the south-eastern corner of the area. It is partly obscured / disturbed by the main service (Feature 5E in AOC 2022), and by the field boundary; it likely continues to the south. The main circular enclosure is roughly 70m in diameter and contains multiple subdivisions and discrete positive anomalies interpreted as pits. Further rectilinear enclosures adjoin it to the north and, potentially, west, past the line of the service. The complex also contains anomalies typical of burning or high-temperature processes as well as the generalised enhancement of soils associated with past settlement. The function and period of the complex are unclear, though it likely dates to later prehistory on the basis of the curvilinear morphology of much of the complex.
- 3.13 Throughout the rest of the Site the geophysical survey did not identify any anomalies thought to be of definite archaeological origin. However, some anomalies have been interpreted as possible archaeology. These include possible quarrying or extraction pits and boundaries. Ploughing trends identified may relate to survival of ridge and furrow cultivation.

4 Proposed Development

- 4.1 The Applicant proposes to construct a solar photovoltaic ('PV') farm and associated infrastructure (hereafter referred to as the 'Proposed Development' where applicable). The proposed development would consist of arrays of PV panels set rows approximately 5m apart, with panels being up to 3m high. Associated infrastructure includes 22 inverter/transformer stations, 22 battery storage containers, a storage container, switchgear building and control room building. Approximately 2.1km of new/resurfaced internal site access roads would be required along with ditch culverts for the track crossings and the improvement of two existing access points of Graveley Lane. The Site would be surrounded by an approximately 7.8km of 'deer fence' and a number of fixed CCTV cameras. Woodland and hedgerow planting are also proposed.

5 Mitigation Strategy

- 5.1 Three archaeological sensitive areas have been identified on the Site via the HIA and geophysical survey results. The archaeological sensitive areas are shown on Figure 2 and have been described in Section 3. In summary they are as follows:
- **Area 1** (c. 1 hectare): This Area has been set to protect a round structure set within a D-shaped enclosure; tentatively interpreted as a ring-ditch of the type associated with prehistoric funerary monuments or possible a later structure of hitherto unknown purpose.
 - **Area 2** (c. 8 hectares): This Area covers large reverse L-shaped group of anomalies interpreted as a possible Romano-British ladder settlement or later medieval settlement associated with Wymondley Priory to the west.
 - **Area 3** (c. 1 hectare): This Area has been set to protect a complex of rectilinear and circular enclosure of likely later prehistoric date.
- 5.2 Although the design of the Proposed Development will not be fixed until consent has been obtained the mitigation strategy that is outlined below would be secured through the use of a planning condition.
- 5.3 Within these four archaeological sensitive areas (Areas 1-3), the Applicant has agreed to finalise the design of their development to ensure that development within these sensitive areas would be achieved via 'no dig' solutions. This will be achieved by:
- Setting all solar panels within the sensitive areas upon concrete shoes laid directly upon the surface so as to avoid the need for piling.
 - Laying any access tracks within the sensitive areas upon a Terram permeable separation layer which will sit directly upon the ground surface.
 - Designing the installation of the electricity cabling within the sensitive areas to avoid ground breaking. Catenary wire suspended systems, cable troughs or cable trays will be used as these are 'no dig' solutions and will therefore negate the need for groundworks altogether. However, the Applicant requests that an allowance of up to 0.30m of ground reduction along the cable routes be allowed for so as to permit the troughs and trays to be set into ground if required. This depth is likely to have already been significantly impacted upon by modern ploughing and cultivation.

- Locating all other infrastructure, including but not limited to inverter stations, switchgear housing, security cameras and fencing outwith the sensitive areas
- 5.4 Archaeologically sensitive areas have been defined based on the results of the geophysical survey and include a further 12m buffer around the extent of the anomalies identified. These have been established in GIS using the OSGB coordinate system (EPSG 27700) and the areas will be set out on the ground using differential GPS, specifically Trimble R8s or R2 using the VRS Now real-time RTK corrections service. Set-out positions will be located to within 5cm of the design position (to RTK precision, typically 10- 15 mm), and the set out position recorded for comparison. The archaeologically sensitive areas will be fenced off with netlon or canes and hazard tape. These area will be fenced prior to the commencement of the archaeological trial trench evaluation and prior to commencement of the main construction works.
- 5.5 Compliance with the mitigation strategy will be ensured through a programme of archaeological monitoring undertaken during the construction phase that is set out below. Should any further archaeological sensitive areas be identified through the post-determination trial trenching then these will be added to the scope of the mitigation programme with monitoring or, should the significance of the remains to be impacted warrant it, an archaeological excavation or no dig construction solution.
- 5.7 Beyond the three sensitive areas (Areas 1-3), Hertfordshire County Council Historic Environment Advisor, as advisors to North Hertfordshire Council, has agreed to a 3% archaeological trial trenching evaluation, which, it is envisaged, will be undertaken following the determination of the planning application. Should significant archaeological remains be identified during this trenching further consultation with the Historic Environment Advisor will be undertaken to agree an appropriate mitigation strategy. Preservation *in situ* is the preferred policy preference. In the event that preservation is not possible then the scope of the mitigation programme will be extended to include monitoring or, should the significance of the remains to be impacted warrant it, an archaeological excavation, followed by any post-excavation analysis and reporting that may be required or no dig construction solution. Provision for this would be included within the wording of the proposed planning condition and any further post-trenching mitigation works would be undertaken in accordance with an approved WSI prepared following the trenching in order to take account of its findings.

6 Scope of Works and Strategy

- 6.1 The trial trenching, archaeological monitoring, and subsequent post-excavation work will conform to current best archaeological practice and local and national standards and guidelines:
- Historic England – Archaeological Guidance Paper 3: Standards and Practices in Archaeological Fieldwork (HE 2015a);
 - Historic England – Management of Research Projects in the Historic Environment (HE 2015);
 - Historic England – Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation (HE 2015b);
 - Historic England – The Role of the Human Osteologist in an Archaeological Fieldwork Project (HE 2018);
 - Historic England – Investigative Conservation: Guidance on how the detailed examination of artefacts from Archaeological Sites can shed light on their manufacture and use (HE 2008);

- Historic England – Waterlogged Wood: Guidelines on the Recovery, Sampling, Conservation and Curation of Waterlogged Wood (HE 2010);
- Historic England – Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (HE 2012);
- Chartered Institute for Archaeologists - Standard and guidance for archaeological field evaluation (CIfA 2014a, Updated October 2020);
- Chartered Institute for Archaeologists - Standard and guidance for an Archaeological Watching Brief (CIfA 2014b, Updated June 2020);
- Chartered Institute for Archaeologists - Standard and Guidance for an archaeological excavation (CIfA 2014c, Updated October 2020);
- Chartered Institute for Archaeologists - Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA 2014d, Updated October 2020);
- Chartered Institute for Archaeologists – Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA 2014e, Updated October 2020);
- Chartered Institute for Archaeologists – Code of conduct (CIfA 2014, Updated October 2021);
- Hertfordshire Museums - Hertfordshire Archaeological Archive Standards (HM 2017);
- Museum of London – Archaeological Site Manual (MoLA 1994);
- RESCUE & ICON – First Aid for Finds (RESCUE & ICON 2001);
- United Kingdom Institute for Conservation – Conservation Guidelines No.2 (UKIC 1983); and
- United Kingdom Institute for Conservation – Guidance for Archaeological Conservation Practice (UKIC 1990).

6.2 Insurances, copyright and confidentiality, and standards are defined in Appendix 1a.

6.3 The site archive will be organised to be deposited with the local receiving museum, according to their current guidance.

6.4 AOC will order a unique site code for the project which will be used as the site identifier.

6.5 A copy of the approved WSI will be held on Site along with the detailed Site risk assessment. All site staff will be made aware of and will have reviewed both documents.

6.6 Demarcation of archaeologically sensitive areas will be undertaken by an experienced archaeological surveyor. The monitoring and archaeological trial trenching will be undertaken by an experienced field archaeologist under the overall direction of a Project Manager. Additional staff will be made available as required.

6.7 The investigation will be undertaken by AOC for the client. AOC will be advised of the start of the works ideally two weeks in advance of the proposed start date and will be provided with updates on progress during the site works. Following the completion of the trial trenching and any subsequently required intrusive fieldwork, AOC will require two weeks notice to allow for demarcation of the archaeologically sensitive areas, briefing of on site construction staff and to arrange a schedule for monitoring visits.

- 6.8 Hertfordshire County Council Historic Environment Advisor will be advised in advance of the proposed start date of works and will be invited to monitor the works. Virtual monitoring by digital photographs or video can be arranged if required to reduce the need for site visits.
- 6.9 Any additional works will be outlined in a further WSI.

7 Archaeological Monitoring

- 7.1 The Archaeological monitoring will be undertaken within the archaeological sensitive areas following the completion of the trial trenching and will be informed by its results. The general aims of the archaeological monitoring works will be as follows:
- To brief the construction team on the presence of archaeological remains on the Site and the requirements of the approved mitigation strategy;
 - To mark out the archaeologically sensitive areas on the ground, in line with the methodology set out in Paragraph 5.4, and to fence them in order to protect them
 - To undertake regular monitoring visits during the construction period whilst concrete shoes, access tracks and cable troughs are being placed within the archaeologically sensitive areas, to ensure that the no dig mitigation strategy is adhered to.
- 7.2 It is envisaged that these archaeological monitoring visits will be undertaken by the archaeological contractor at each key stage of the project; e.g. the commencement of the access track or the start of the installation within the archaeological sensitive areas under the terms of an archaeological watching brief. In order to ensure compliance provision will be made for the archaeological contractor to make additional visits to the Site during the course of the construction programme.

8 Trial Trenching

- 8.1 The Proposed Development area may contain previously unrecorded archaeological deposits, beyond those identified through geophysical survey. It is envisaged that the trenching would be undertaken post-determination and would be secured via an appropriately worded planning condition. This trial trenching is recommended to take place prior to any construction works.
- 8.2 A 3% archaeological trial trenching evaluation of the development area outwith the archaeological sensitive areas will be required. This will comprise of 201 evaluation trenches, measuring 50m long by 1.8m wide (Figure 2). Each trench will be excavated by a single bucket width (1.8m) tracked excavator, with the arisings closely monitored to extract any artefacts present.
- 8.3 The aims of the trial trench evaluation are defined as being:
- To establish the presence/absence of archaeological remains within the development area, outwith the define archaeologically sensitive areas.
 - To determine the extent, condition, nature, character, quality and date of any archaeological remains encountered.
 - To record and sample excavate any archaeological remains encountered.

- To assess the ecofactual and environmental potential of any archaeological features and deposits.
- To enable the Historic Environment Advisor to the North Hertfordshire Council to determine the nature of any further works or preservation in situ that may be required.
- To make available to interested parties the results of the investigation.

8.4 The specific aims of the archaeological evaluation are defined as being:

- To investigate the archaeological potential of areas beyond the anomalies identified by the geophysical survey, as defined by the archaeologically sensitive areas.
- To identify any late prehistoric, Romano-British or medieval remains possibly associated with features identified within the archaeological sensitive areas or associated with the nearby Roman and medieval settlements.

Methodology

8.5 Trenches will be excavated by machine down to the first significant archaeological horizon or to natural subsoil. All machine excavation will be supervised by an experienced field archaeologist. Trenches will be extended, or ancillary trenches excavated, in areas of archaeological discovery in establishing the full lateral extent of any significant archaeological material. Trenches will be up to 50m in length and set along differing orientations to maximise the opportunity of locating linear features which may cross the site. Figure 2 shows the initial provisional trench location plan. Where archaeological features are encountered, trenches will be extended to define the full lateral extent of these features. Ancillary trenching will be undertaken in the local vicinity in anticipating any nonnucleated or more dispersed distribution of associated features.

8.6 All trial trenching will be undertaken in accordance with the terms of the WSI. As well as random distribution, the placement of trial trenches will be designed to:

- ensure comprehensive coverage of the development area;
- investigate features of possible archaeological origin, including extraction pits and boundaries, identified by the geophysical survey;
- investigate features which may cross the landscape (i.e. trenches will be located on various orientations);
- ensure that the area of every feature of potential archaeological significance is investigated; anticipate the advantages derived from topographic advantage;
- examine the preservation potential of some areas, e.g. sediment traps.

8.7 Trenches will be machined to a maximum safe depth of 1.2m to allow access for hand-excavation and recording. If the trench depth is not sufficient to meet the archaeological objectives of the project the situation will be reviewed with Hertfordshire County Council Historic Environment Advisor so that further requirements can be established. Deeper excavation could be undertaken, where practicable in terms of space, contamination etc., provided the trench sides are stepped or battered and/or suitable trench support is used.

8.8 Archaeological recording, where not precluded by Health & Safety considerations, will consist of:

- Hand cleaning of archaeological features, sections and surfaces sufficient to establish the stratigraphic sequence exposed.

- Excavated material will be examined in order to retrieve artefacts to assist in the analysis of their spatial distribution.
- Sample excavation of exposed features (10% of linear features and 50% individual features).
- Completion of pro-forma record sheets.
- Plans and sections of all exposed archaeological features and horizons (including boundaries of natural) at an appropriate scale. 1:100/1:200 will be utilized to initially map the entire exposure and linked to detail plans at 1:20 of excavated features and sections at 1:10, if necessary. All features will be accurately tied into the Ordnance Survey National Grid and Ordnance Datum.
- A scaled photographic record of representative exposed sections and surfaces, along with sufficient photographs to establish the setting and scale of the ground works.
- A record of the datum levels of archaeological deposits.

- 8.9 Records will be produced using either pro-forma context or trench record sheets and by the single context planning method and will be compatible with those published by the Museum of London (MoL 1994).
- 8.10 A record of the full sequence of all archaeological deposits as revealed in the evaluation trenching will be made. Plans and sections of features will be drawn at an appropriate scale of 1:10 or 1:20, with sections drawn at 1:10.
- 8.11 A photographic record of all significant features observed will be undertaken. This will consist of digital photography which supplies both Jpeg formats.
- 8.12 Bulk samples of 40 litres in volume will be taken from appropriate contexts for the recovery and assessment of environmental data. Sampling methods will follow national guidelines (HE 2015b).
- 8.13 Any finds of human remains will be left in situ, covered and protected. The Ministry of Justice and the local constabulary will be informed. If investigation/removal is deemed necessary by Historic Environment Advisor to enable their significance as heritage assets to be properly understood then essential advice on how best to proceed will be sought from the Ministry of Justice and the local authority environmental health officer.
- 8.14 Any finds covered by the provisions of the Treasure Act (1996, amended 2003, 2008) and Treasure (Designation) Order 2002, including gold and silver, will be moved to a safe place and reported to the coroner's office according to the procedures determined by the Act. They will also be reported to the local finds liaison officer from the Portable Antiquities Scheme. Where removal cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the artefacts from theft or damage.
- 8.15 All identified finds and artefacts will be collected and retained. Certain classes of material, i.e. post-medieval pottery and building material may be discarded after recording if a representative sample is kept. No finds will be discarded without the prior approval of the archaeological advisor and the receiving museum.
- 8.16 Finds will be scanned to assess the date range of the assemblage with particular reference to pottery. In addition, the artefacts will be used to characterise the site, and to establish the potential for all categories of finds should further archaeological work be necessary.
- 8.17 All finds and samples will be treated in a proper manner and to standards agreed in advance with the recipient museum. Finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the guidelines set out in United Kingdom Institute for Conservation's Conservation Guidelines (UKIC 1990).

- 8.18 Provision for onsite conservation and finds treatment, in addition to any scientific dating of materials uncovered, will be undertaken where appropriate.
- 8.19 Upon completion of the project the landowner and the receiving museum will be contacted regarding the preparation, ownership and deposition of the archive and finds.
- 8.20 Once each trench has been fully recorded the trenches will be backfilled by tracked excavator. A geotextile layer maybe used to protect *in situ* archaeological deposits where appropriate. No specialised re-instatement will be undertaken. Trenches will be backfilled with trench arisings, firstly subsoil if present before topsoil. Its is then smoothed and dressed by excavator utilising its tracks and bucket. Trial trenches will not be backfilled under archaeological supervision, other than in areas of significant archaeological findings.

9 Report and Archive Preparation

Trial Trenching Report

- 9.1 Upon completion of the trial trenching, a report would be produced. In the event that no archaeological remains are encountered we could produce this within four to six weeks. If archaeological remains are encountered, we would need to clean and catalogue any finds and samples recovered and commission specialist assessment reports. We would normally expect to return a complete report within six to ten weeks.
- 9.2 The report will include as a minimum:
- A location plan of the site.
 - The date of the record, the names of the recorders and the location of the archive.
 - A table of contents and a list of figures and plates.
 - Acknowledgements to all contributors to the fieldwork, reporting and analysis. Also, a note of any copyrights for reproduced material.
 - A location plan of the trenches.
 - Plans and sections of features and/or extent of archaeology located. These will be at an appropriate scale.
 - A summary statement of the results.
 - A table summarising per trench the deposits, features, classes and numbers of artefacts encountered and spot dating of significant finds.
 - The procedures defined in Historic England's Management of Research Projects in the Historic Environment: The MoRPHE Project Managers Guide (HE 2015) will be followed for immediate post-field archive preparation and initial assessment if warranted.
- 9.3 A list of specialist staff that may be used for analysis of samples and artefacts is given in Appendix 1b.
- 9.4 Copies of the evaluation will be issued to the client and Hertfordshire County Council Historic Environment Advisor for comments and approval prior to the production of the final report, on the understanding that it will become a public document after an appropriate period of time. A copy of the final report, once approved, will

also be issued to the planning team at Hertfordshire County Council on the understanding that it will become a public document after an appropriate period of time.

- 9.5 An OASIS form will be initiated prior to commencement of fieldwork. This will be completed after fieldwork and an electronic copy of the evaluation report deposited with the Archaeological Data Service (ADS) A Hertfordshire HER summary form will also be completed (Appendix 1d).

Archive Preparation

- 9.6 The site archive will comprise all artefacts, ecofacts and written and drawn records. It is to be consolidated after completion of the whole project, with records and finds collated and ordered as a permanent record. Archaeological finds rarely have any monetary value, but they are an important source of information for future research, included in museum exhibits and teaching collections. The Chartered Institute for Archaeologists (CIfA 2014b) and the Society of Museum Archaeologists (SMA 1993, 1995) recommend that finds are publicly accessible and that landowners donate archaeological finds to the appropriate local museum. The paper archive will be security copied and will then be deposited with the appropriate local museum.
- 9.7 The site archive will be prepared and deposited with North Hertfordshire District Council Museum Service, in accordance with the Hertfordshire Archaeological Archive Standards (HM 2017). In the case of the archive being a “paper” only (i.e. no finds are encountered) a digital archive will be deposited with the ADS (Archaeological Data Service).
- 9.8 In the event of the legal owner(s) resolving to retain all or part of the site archive, they shall be responsible for the future preservation and maintenance of any material element of that archive. That part of the site archive in question, shall be transferred to the legal owner only after; all necessary processing, research, analysis and investigative/ stabilising conservation and correct packing necessary to prepare the archive for preservation and in a usable, accessible form, and to produce a full report for publication, has been completed. The owner shall ensure that all necessary provision is made for the long-term preservation of the archive in a satisfactory environment, and that it is accessible for future research. AOC will ensure that a proper record of material kept by the landowner shall be included in the written archive and public record. The explicit (written) permission of the owner shall be obtained in order that the Data Protection Act 1984 is not contravened.
- 9.9 In the case where finds are retained, landowner consent will be required to allow transfer of the finds to the appropriate local museum. A Deed of Transfer will be drawn up for signing by the landowner. The complete finds inventory and further finds information can be provided to the landowner, on request.
- 9.10 The site archive will be retained at AOC Archaeology until such time as it can be deposited. It will then become publicly accessible.

10 Health and Safety

- 10.1 Health and Safety (H&S) will take priority over all other requirements. However, where archaeological remains are located, appropriate H&S measures will be agreed with the client and contractor to ensure recording of the remains can be undertaken safely. A conditional aspect of all archaeological work is both safe access to the area of work and a safe working environment.
- 10.2 The project will be carried out in accordance with safe working practices and under the defined Health and Safety Policy. The Construction Design and Management Regulations 2015 (CDM) will apply to certain elements the

archaeological work, as a principal contractor will be present on site during some of the works and will be responsible for all health and safety requirements.

- 10.3 A separate Risk Assessment/Method Statement (RAMS) will be prepared prior to the commencement of the fieldwork.
- 10.4 Staff present on site will be CSCS accredited, asbestos awareness trained and will be required to wear the appropriate Personal Protective Equipment (PPE), which will be issued as necessary. Welfare Facilities will be made available on site for washing.
- 10.5 Where AOC is not the principal contractor on a site the principal contractor’s Risk Assessment will have primacy over the AOC document given that:
- The main contractor risk assessment is aware of, and takes account of, AOC’s working practices – i.e. it does not compromise normal and safe archaeological procedure as set out in our Written Scheme of Investigation and Risk Assessment;
 - AOC was notified of the full suite of hazards present prior to arriving on site;
 - There is a proper induction and monitoring process in place and AOC staff have been through this process;
 - There is no significant conflict between AOC H&S procedures and those proposed by the main contractor; and
 - AOC are made aware of new threats or hazards as they arise during the course of our onsite involvement.

11 General

- 11.1 The methodologies of the WSI will be met in full where reasonably practicable.
- 11.2 Any significant variations to the proposed methodology will be discussed with the Hertfordshire County Council Historic Environment Advisor who acts as archaeological advisors to North Hertfordshire Council as well as the client.
- 11.3 The scope of fieldwork is aimed at meeting the aims of the project in a cost-effective manner. AOC Archaeology attempts to foresee all possible site-specific problems and make allowances for these. However, there may on occasion be unusual circumstances, which have not been included in the programme and costing. These can include:
- Unavoidable delays due to extreme bad weather, vandalism etc.;
 - Extensions to feature excavation sample sizes requested by the local authority's archaeological advisor.;
 - Complex structures or objects, including those in waterlogged conditions, requiring specialist removal;
 - Deep complex stratigraphy requiring specialist shoring, trench stepping and spoil management as well as additional Health and Safety considerations.

- 11.4 This WSI only relates to the works detailed above. The necessity for any further archaeological work will be agreed with the Hertfordshire County Council Historic Environment Advisor, as archaeological advisors to North Hertfordshire Council.
- 11.5 No provision has been made for fencing off individual trenches. Each trench will have bunds either long axis and the ends of each trench will be sloped to allow animals to escape. If fencing in form of orange mesh/road pins and/or heras fencing is required this would incur additional labour and materials costs.
- 11.6 The costs arising from further required works such as excavation, and/or post-excavation as agreed with Hertfordshire County Council Historic Environment Advisor, as archaeological advisors to North Hertfordshire Council, are to be borne wholly by the client

13 Bibliography

- ADS, 2011, *Guides to Good Practice*, <http://guides.archaeologydataservice.ac.uk/g2gp/Main>
- AOC Archaeology, 2021, *Proposed Priory Farm Solar Array, Hertfordshire: Heritage Impact Assessment*, AOC Project No.25806
- AOC Archaeology, 2022, *Wyndley Solar Farm, Hertfordshire: Archaeological Geophysical Survey Report*, AOC Project No. 40205
- British Geological Survey, 2021, Geology of Britain Viewer. Available at: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>, [Accessed 1 February 2021]
- Brown, D. H., 2011, *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation (Second Edition)*
- Chartered Institute for Archaeologists (Cifa 2014a), *Standard and guidance for archaeological field evaluation* (Updated October 2020)
- Chartered Institute for Archaeologists (Cifa 2014b), *Standard and guidance for an archaeological watching brief* (Updated June 2020)
- Chartered Institute for Archaeologists (Cifa 2014c), *Standard and guidance for archaeological excavation* (Updated October 2020)
- Chartered Institute for Archaeologists (Cifa 2014d), *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (Updated October 2020)
- Chartered Institute for Archaeologists(Cifa 2014e), *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Updated October 2020)
- Chartered Institute for Archaeologists (Cifa 2014), *Standard and guidance for historic environment desk-based assessment* (Updated October 2020)
- Chartered Institute for Archaeologists (2014). *Code of Conduct*. (Updated October 2021)
- Hertfordshire Museums. (2017). *Hertfordshire Archaeological Archive Standards*
- Historic England. (2008) *Investigative Conservation: Guidance on how the detailed examination of artefacts from Archaeological Sites can shed light on their manufacture and use*
- Historic England. (2010) *Waterlogged Wood: Guidelines on the Recovery, Sampling, Conservation and Curation of Waterlogged Wood*.
- Historic England. (2012) *Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation*.
- Historic England (2015) *Management of Research Projects in the Historic Environment*
- Historic England (2015b). *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation*
- Historic England. (2018). *The Role of the Human Osteologist in an Archaeological Fieldwork Project*.
- Museum of London, 1994), *Archaeological Site Manual (3rd ed.)*

RESCUE & ICON, 2001, *First Aid for Finds*. (3rd ed.)

United Kingdom Institute for Conservation, 1983, *Conservation Guidelines No 2*.

United Kingdom Institute for Conservation, 1990. *Guidance for Archaeological Conservation Practice*.

Wymer, J. 1999. *The Lower Palaeolithic Occupation of Britain, Volume 1* (Wessex Archaeology and English Heritage).

Appendix 1: Technical Appendixes and Terms and Conditions

Appendix 1a – General

Insurances

1. AOC holds Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details can be supplied on request.
2. AOC will not be liable to indemnify the client against any compensation or damages for or with respect to:
 - damage to crops being on the Area or Areas of Work (save in so far as possession has not been given to the Archaeological Contractor);
 - the use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project (including consequent loss of crops) or interference whether temporary or permanent with any right of way light air or other easement or quasi easement which are the unavoidable result of the Project in accordance with the Agreement;
 - any other damage which is the unavoidable result of the Project in accordance with the Agreement; and
 - injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the client or his agents' servants or their contractors (not being employed by AOC Archaeology or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto)
3. Where excavation has taken place evaluation trenches will be backfilled with excavated material but will otherwise not be reinstated unless other arrangements have previously been agreed. Open area excavations normally will not be backfilled but left in a secure manner unless otherwise agreed.

Copyright and Confidentiality

4. AOC Archaeology will retain full copyright of any commissioned reports, tender documents or other project documents under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive license to the Client in all matters directly relating to the project as described in the Written Scheme of Investigation.
5. AOC will assign copyright to the client upon written request but retains the right to be identified as the author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988.
6. AOC will advise the Client of any such materials supplied in the course of projects, which are not AOC's copyright.
7. AOC undertake to respect all requirements for confidentiality about the Client's proposals provided that these are clearly stated. In addition, AOC further undertakes to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that Clients respect AOC's and the Institute of Field Archaeologists' general ethical obligations not to suppress significant archaeological data for an unreasonable period.

Standards

8. AOC conforms to the standards of professional conduct outlined in the Chartered Institute for Archaeologists' Code of Conduct, the ClfA Code of Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment, the ClfA Standards and guidance for historic environment desk-based assessment, the ClfA Standard and guidance for archaeological field evaluation etc., and the British Archaeologists and Developers Liaison Group Code of Practice.
9. Where practicable AOC will liaise with local archaeological bodies (both professional and amateur) in order that information about particular sites is disseminated both ways (subject to client confidentiality).

Appendix 1b – Specialist Staff

The following specialist staff may be used on this project depending on the type of artefacts and soil samples recovered during the course of the fieldwork.

Macroscopic plant remains	Quaternary Scientific	Reading University
Soils and sediments analysis	Quaternary Scientific	Reading University
Palaeoenvironmental archaeology	Quaternary Scientific	Reading University
Human remains	Mara Tesorieri	AOC
Conservation	Gretel Evans	AOC
Building material	Luke Barber	Freelance
Lithics	Jon Cotton	Freelance
Mammal and bird bone	Matilda Holmes	Freelance
Prehistoric pottery	Anna Doherty	Arch SE
Roman pottery	Anna Doherty	Arch SE
Medieval and post-medieval pottery	Kylie MacDermott	AOC
Metal	Helen Chittock	AOC
Glass	Luke Barber	Freelance
Geoarchaeology	Virgil Yendell	AOC

Appendix 1c – Archaeological Archive Consent Form

ARCHAEOLOGICAL ARCHIVE CONSENT FORM

SITE: [Site address]

SITE CODE: [Site code]

AOC ARCHAEOLOGY REF: [Project number]

RECEIVING MUSEUM: [Local recipient museum]

I agree to the finds archive recovered from this site being donated to the specified museum.

SIGNED [Signature]

PRINT [Name]

Landowner/Agent

LANDOWNER'S NAME: [Landowner name]

LANDOWNER'S ADDRESS: [Landowner address]

Please retain a copy of this form for your records

Appendix 1d – OASIS Form

AOC would start an OASIS form prior to the commencement of works and complete it during archiving

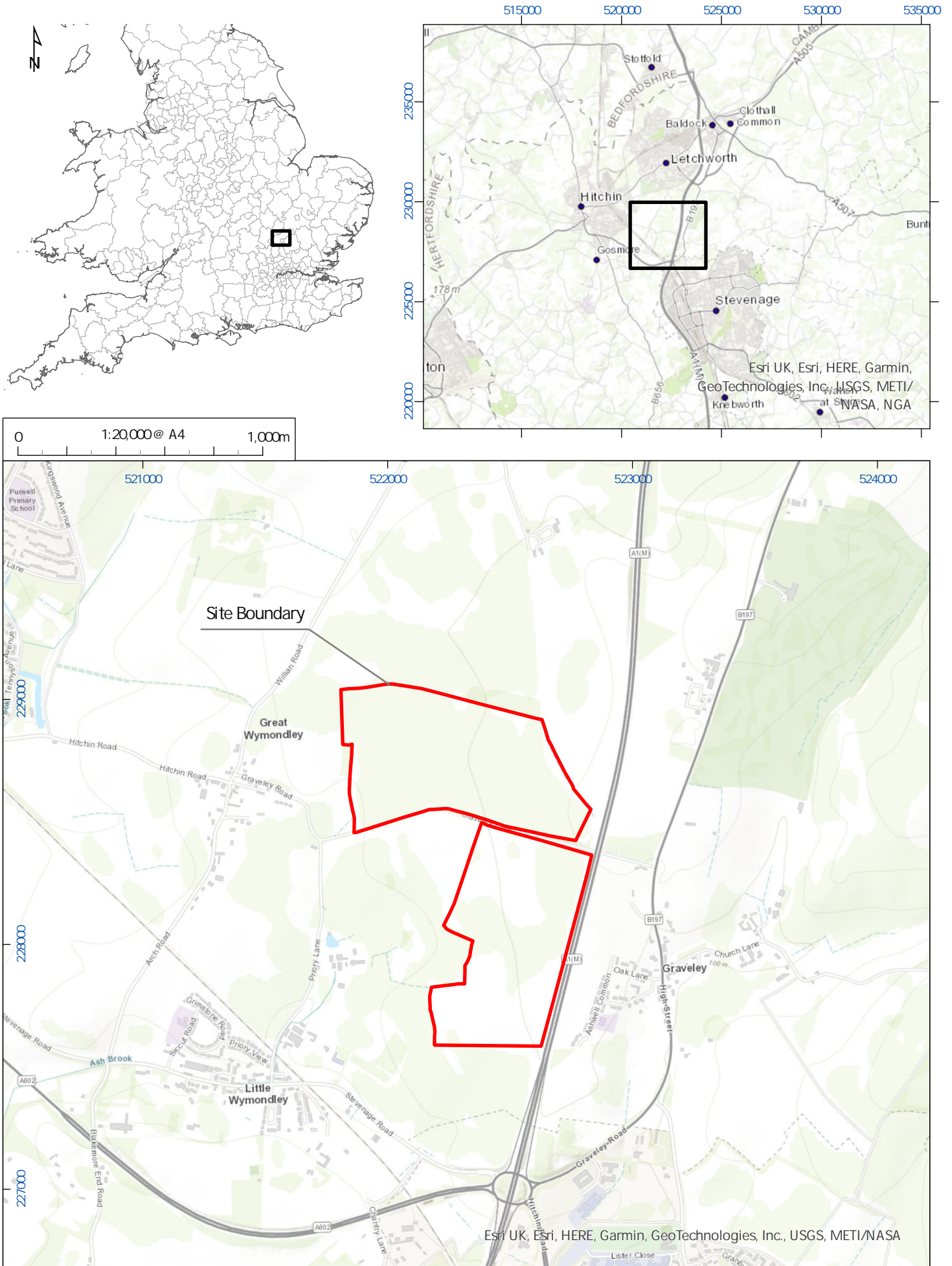


Figure 1: Site location on plan

01/25806/WSI/01/01

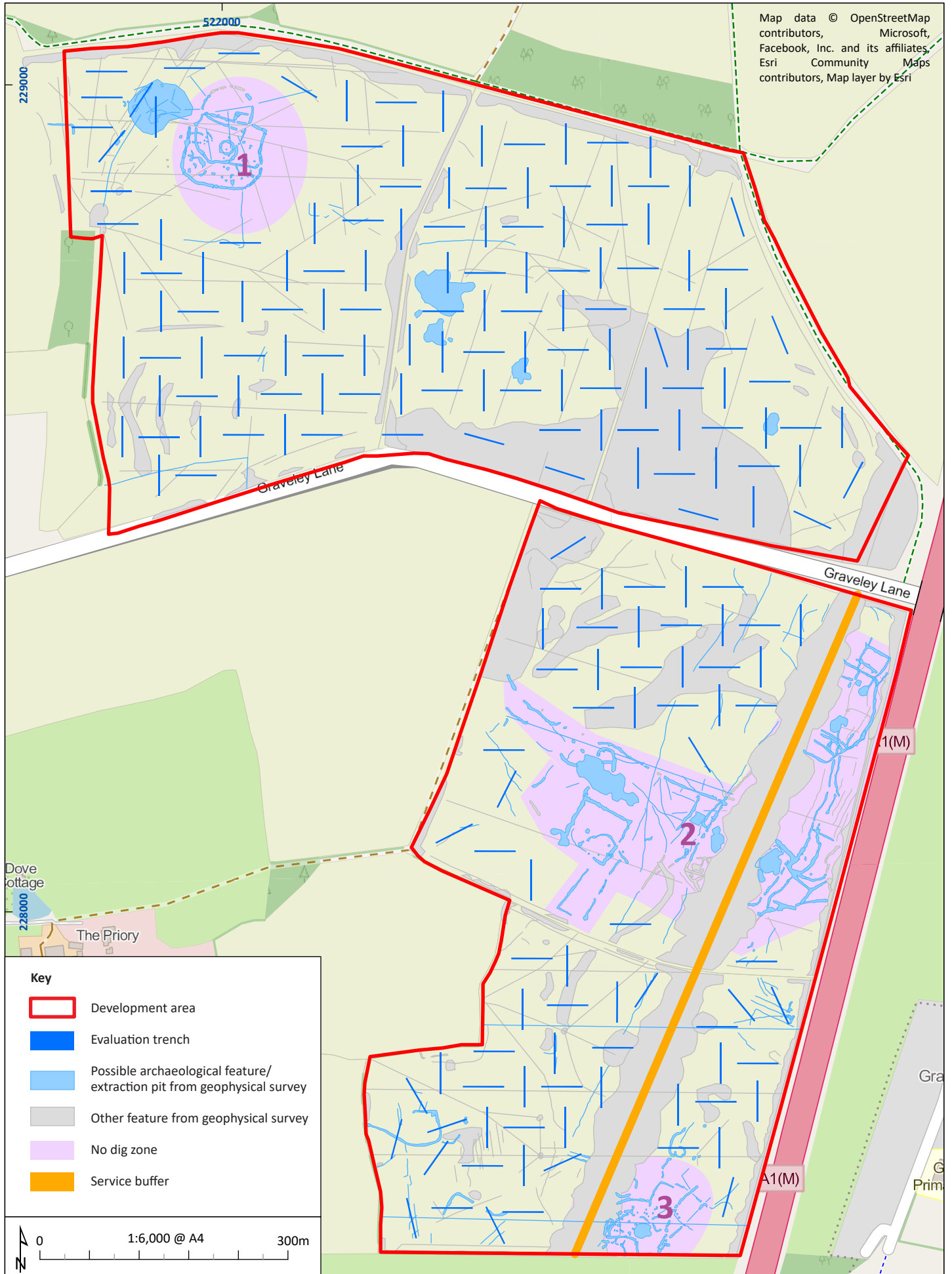


Figure 2: Trench location plan

01/25806/WSI/02/01



AOC Archaeology Group, Edgefield Industrial Estate, Edgefield Road, Loanhead EH20 9SY
tel: 0131 555 4425 | fax: 0131 555 4426 | e-mail: edinburgh@aocarchaeology.com

www.aocarchaeology.com