HERITAGE NETWORK

Specialists in Archaeology and the Historic Environment Since 1992

Accredited Contractor

Constructionline









THE PIGGERIES
Waterloo Lane, Holwell, Herts.

HN1395

ARCHAEOLOGICAL PROJECT DESIGN

Page left blank to optimise duplex printing

HERITAGE NETWORK

Registered with the Chartered Institute for Archaeologists

Managing Director: David Hillelson, BA MCIfA

THE PIGGERIES
Waterloo Lane
Holwell, Hertfordshire

Project ref.: HN1395
Planning ref.: 17/02247/1
HER consultation ref.: 240/17

Archaeological Project Design

Prepared on behalf of Home County Enterprises Ltd

by

Chris Turner, BSc (Hons) MCIfA

December 2017

© The Heritage Network Ltd

11 FURMSTON COURT, ICKNIELD WAY, LETCHWORTH, SG6 1UJ
TEL: (01462) 685991 FAX: (01462) 685998

Page left blank to optimise duplex printing

1. Introduction

1.1 This *Project Design* has been prepared at the request of *InTouch Planning Ltd*, acting on behalf of *Home County Enterprises Ltd*, to cover a programme of archaeological work to be carried out as part of development works to be undertaken at The Piggeries, Waterloo Lane, Holwell, Hertfordshire.

1.2 Planning consent for the development (ref.: 17/02247/1) has been granted by North Hertfordshire District Council (NHDC), subject to a suite of archaeological conditions issued under the Department of Communities and Local Government's *National Planning Policy Framework* (NPPF). Conditions 8-10 of the planning consent state that:

> **8** *No demolition/development shall take place/commence until an Archaeological Written Scheme of Investigation has been submitted to and approved by the local planning authority in writing. The scheme shall include an assessment of archaeological significance and research questions; and:*
>
> - *The programme and methodology of site investigation and recording*
> - *The programme for post investigation assessment;*
> - *The Provision to be made for analysis of the site investigation and recording;*
> - *Provision to be made for publication and dissemination of the analysis and records of the site investigation;*
> - *Provision to be made for archive deposition of the analysis and records of the site investigation;*
> - *Nomination of a competent person or persons/organisation to undertake the works set out within the Archaeological Written Scheme of Investigation.*
>
> **Reason:** *the site lies within an area where there is significant potential for archaeological remains and any finds should be retrieved and/or recorded before they are damaged or destroyed as a result of the development hereby permitted.*
>
> **9** *The development shall take place/commence in accordance with the programme of archaeological works set out in the Written Scheme of Investigation approved under condition 8.*
>
> **10** *The development shall not be occupied/used until the site investigation and post investigation assessment has been completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition 8 and the provision made for analysis and publication where appropriate.*

1.3 The scheme of archaeological investigation on the present site will form an incremental process that will include one or more stages of field investigation, together with analysis and report preparation, leading to the publication of the findings and the deposition of the project archive with an approved repository. The present document represents the *archaeological written scheme of investigation* required by Condition 8 of the planning consent and includes a research design, an outline of the investigative process that is to be followed, and a method statement for the first stage of investigation, as defined by the

Historic Environment Team (HET) of Hertfordshire County Council, acting as archaeological adviser to NHDC. Further method statements may be prepared for subsequent stages of work.

1.4 The site is located on the south side of Waterloo Lane, to the rear of 'Glendale', centred on NGR TL 16186 32802 (Figure 1). The site lies within *Area of Archaeological Significance* No.127, as defined in the District Local Plan, which includes the adjacent 'Moat House', a moated site with a late medieval Grade II listed building at its centre. The development area is a former pig farm, consisting of three 20th century agricultural buildings.

1.5 The development entails the erection of three dwellings on the footprints of existing farm buildings, following their demolition.

2. Research Design

Archaeological and Historical Background

2.1 In order to establish the archaeological and historical context for the site, the overview set out below has been drawn from the Hertfordshire *Historic Environment Record* (HER), the Heritage Network's own records and other sources. The study area covers a 1km radius around the site.

2.2 The earliest prehistoric evidence of activity is the discovery of a Neolithic axe (HER 552), 430m to the south west. Early Iron Age features, succeeded by a late Iron Age-early Roman farmstead (HER 6818) were identified 850m to the south east. Further Iron Age pits with a Romano-British spindle whorl (HER 185), were encountered in a sand pit 730m to the south east. The cropmark of a small single-ditched circular enclosure, now destroyed, is also known from this area (HER 2418).

2.3 The plough-damaged remains of two possible prehistoric barrows (HER 17262), lie 630m to the south.

2.4 Further evidence for Roman activity around the site include, Roman coins possibly part of a hoard (HER 1165), which were discovered 250m to the north west. In addition, Roman glass (HER 4518) was recovered from 590m to the north east. A probable Roman field system (HER 31015), lies 765m to the south east.

2.5 The site lies adjacent to the eastern arm of a large medieval moated site (HER1930), around the later 'Moat House' (HER15600).

2.6 Earthworks to the north and west of Lordship Farm, (HER 1115), on the other side of Waterloo Lane, approximately 270m to the north of the present site, comprise ridge and furrow, hollow ways, platforms and probable quarry holes, this has been interpreted as the remains of the medieval settlement. Further traces of ridge and furrow (HER 17262), lie 630m to the south.

2.7 In total there are 10 listed buildings within the study area, all Grade II. These include:

- Moat House, A late 15th or early 16th century timber-framed house, originally an open hall, altered in the 17th and 19th centuries (Listing 1347088), 60m to the west.
- Timber framed Lordship Farmhouse, dating from at least 17th century (Listing 1103222), and a 17th century barn (Listing 1103223), 210m to the north east.

2.8 The northern and eastern of the three agricultural buildings on the site, first appear on OS mapping dated 1924. The remaining building first appears on OS mapping dated 1980. A visual structural inspection of the buildings, quoted by the Historic Environment Record (HER 31421), states:

> *"Inspection in 2015 found that the separate [northern] building was a timber-framed single-storey barn built in the traditional manner, on a brick plinth and clad in timber concealed by corrugated iron sheeting. One of the row of rectangular buildings was a timber building divided into three sheds. Another was 'a traditional pig ark', a concrete floor slab with dwarf masonry walls supporting a curving superstructure of corrugated iron sheets, without windows. None of the buildings was in good condition."*

No heritage value has been attributed to the buildings.

Research Aims

2.9 The aims of the present investigation shall be:

- to identify any remains that are liable to be threatened by the development and establish their location, depth, extent, date, character and condition;
- to consider the local and regional archaeological and historical context of such remains, and their significance and quality, in relation to the current published regional research agenda (Glazebrook 1997, Brown and Glazebrook 2000, Medlycott 2011);
- to ensure that an appropriate strategy for the mitigation of damage or destruction of such remains by the development is adopted.

2.10 It is considered that this investigation has the potential to contribute to an understanding of:

- the origins and development of settlement in Holwell from the prehistoric period onwards;
- the development and extent of the adjacent moated site;
- the extent of the settlement throughout the medieval and post-medieval periods.

Bibliography

Brown, N. & Glazebrook, J. 2000, *Research and Archaeology: a framework for the eastern counties, 2. Research agenda and strategy*. East Anglian Archaeology

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

Chartered Institute for Archaeologists, 2014, *Standard and Guidance for Archaeological Excavation.* (CIfA)

Chartered Institute for Archaeologists, 2014, *Standard and Guidance for Archaeological Watching Briefs.* (CIfA)

Dept. of Communities and Local Government, 2010, *Planning Policy Statement 5: Planning for the Historic Environment.* (TSO)

Gurney, D. et al, 2003, *Standards for Field Archaeology in the East of England*. ALGAO (EER)

Historic England, 2015, *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide.* (HBMC)

Historic England 2015 *Historic Environment Good Practice Advice in Planning* (HBMC)

Medlycott, M. & Brown, N. 2008 *Revision of the Regional Archaeological Framework for the Eastern Region*. ALGAO East of England

Medlycott, M. (ed.) 2011 *Research and Archaeology Revisited: A Revised Framework for the East of England*. East Anglian Archaeology Occasional Paper no.24

Websites

Heritage Gateway: www.heritagegateway.org.uk (Accessed 28/11/2017)

Multi-Agency Geographical Information for the Countryside: www.magic.gov.uk/MagicMap.aspx (Accessed 28/11/2017)

National Library of Scotland http://maps.nls.uk/ (Accessed 28/11/2017)

3. Scheme of Investigation

3.1 The programme of archaeological work to meet the requirements of the planning consent for the present development is intended to be an incremental process, the nature and extent of each new stage being dependent on the results of the foregoing stage(s).

Stage 1

3.1 Provision has been included for the archaeological monitoring of any remediation works to remove identified contaminants from the overburden, in advance of the start of the development groundworks.

3.2 Beyond this, first stage of work will involve the supervision of the removal of the existing slab/ floor surface and the stripping of soil/overburden to the archaeological horizon, across the footprint of each of the proposed new buildings. This will be undertaken in order to identify archaeological remains that may be damaged, destroyed or otherwise affected by the development groundworks (see Appendix 1).

3.3 If no remains of archaeological significance are identified, a report on the results of the investigation will be prepared and submitted for the approval of the HET and, subsequently, published in an appropriate form. The documentary archives for the project will also be finalised and deposited with the agreed repository, in this case, the North Hertfordshire Museums Service.

Stage 2

3.4 If remains of archaeological significance are identified at any point in the Stage 1 works, appropriate measures will be adopted to mitigate the effects of the development on the identified remains. Such mitigation could include:

- the appropriate recording of the identified remains prior to their controlled removal;
- the appropriate recording and protection of the identified remains and their preservation in situ beneath the development;
- the more extensive investigation of all or part of the footprint of the development to allow for the appropriate recording of all identified archaeological features and deposits that meet the research criteria of the project.

Stage 3

3.5 On completion of the mitigation fieldwork, the findings will be assessed by class to consider their significance and their potential for detailed analysis. If no detailed analysis is warranted, the collected data will be collated in a report, together with a discussion of their archaeological and historical context, and submitted for the approval of the HET as the definitive report on the results of the project and, subsequently, published in an appropriate form. The documentary and material archives for the project will also be finalised and deposited with the agreed repository, in this case the North Hertfordshire Museum Service.

Stage 4

3.6 If further analysis is considered to be necessary, an Assessment Report detailing the work to be undertaken will be prepared, including:

- a statement of the research aims of the fieldwork and an illustrated summary of results to date indicating to what extent the aims were fulfilled or extended;
- a summary of the quantities and potential for analysis of the information recovered for each category of finds, dating and environmental data;
- a list of the project aims as revised in the light of the results of fieldwork and post-excavation assessment;
- a list of the methods that will be used to achieve the research aims;
- a list of all the main tasks involved in using the stated methods to achieve the aims and produce a report and research archive in the stated format, wherever possible linking each task explicitly to the relevant method statement and indicating the personnel and time in days involved in each task (allowance will be made for general project-related tasks such as monitoring, management and project meetings, editorial and revision time);
- a provisional report synopsis, broken down into chapters, section headings and sub-headings, with approximate word lengths and numbers and titles of illustrations per chapter; the structure of the report synopsis should explicitly reflect the research aims of the project;
- a list of the personnel involved indicating their qualifications for the tasks undertaken;
- a cascade or Gantt chart indicating tasks in the sequence and relationships required to complete the project to publication;
- provisional publication options indicating potential publisher(s) and report format.

Stage 5

3.7 Once the Assessment Report has been approved by the HET, the defined analysis can be undertaken leading to the preparation of a definitive report on the results of the project, publication in an appropriate form, and the deposition of the documentary and material archives for the project with the agreed repository, in this case the North Hertfordshire Museum Service.

4. Structure and General Practice

Introduction

4.1 The Heritage Network is an independent practice specialising in archaeology and the historic environment. Founded in 1992, the company has undertaken a wide variety of commercial archaeological projects for clients involved in housing and industrial development, pipeline and road construction, agriculture and landscaping. As a *Registered Organisation*, the company is monitored annually by the Chartered Institute for Archaeologists (CIfA) to ensure that its work meets the highest professional standards.

Project Management

4.2 The Project will be administered and co-ordinated by David Hillelson BA MCIfA, the Heritage Network's *Managing Director*. He holds an honours degree in archaeology from the University of Durham and has more than thirty-five years' experience of the management of archaeological projects, and of fieldwork in both urban and rural contexts.

4.3 Fieldwork will be managed by Chris Turner BSc MCIfA, the Heritage Network's *Operations Manager*. Chris holds an honours degree in Archaeological Science from the University of Bradford, and has over twenty years of practical archaeological experience in the commercial sector.

4.4 Post-excavation research and analysis will be managed by Helen Ashworth BA ACIfA, the Heritage Network's *Research Manager*. She holds a degree in English and History from Middlesex Polytechnic, the Certificate in Field Archaeology from the University of Oxford, and has over thirty-five years of fieldwork and post-fieldwork experience with local government, the Royal Commission for the Historical Monuments of England, and in private practice.

Staffing

4.5 The Heritage Network employs technical and specialist staff with a broad range of complementary experience covering all aspects of research, recording and analysis of archaeological and historical structures, features, and deposits, together with the artefacts and ecofacts associated with them.

4.6 Field staff on the project will normally be expected to have the following qualifications:

(a) All Project Officers will have had at least four years' experience in the field, with at least one of those at supervisory grade. They will also be corporate members of the Chartered Institute for Archaeologists.

(b) All Assistant Project Officers will have had at least three years' experience in the field. They will also be corporate members of the Chartered Institute for Archaeologists.

(c) All other members of the team will have had a minimum of two years' experience in the field. Corporate or affiliate membership of the Chartered Institute for Archaeologists will be considered desirable.

Specialist Support

4.7 While members of the project team have the necessary local, academic and professional knowledge to examine a broad range of artefacts and ecofacts, and to undertake the majority of tasks required in archaeological practice, provision will be made for academic advice and technical services to be sought from appropriate recognised specialists if required. The current list of relevant specialists is given below:

Ceramics: Prehistoric	Andy Fawcett, Bury St Edmunds
Ceramics: LPRIA/Romano-British	Helen Ashworth, BA AIFA, Heritage Network
Ceramics: Medieval/post-medieval	Paul Blinkhorn, Northampton
Ceramics: Saxon	*Ditto*
Conservation	Julia Park Newman, Conservation Services
Decorative metalwork: IA/Roman	Angela Wardle, Stevenage
Dendrochronology	Dr K. Lucus, Reading University
Environmental analysis	James Rackham, Environmental Archaeology Consultancy
Faunal remains	*Ditto*
Flints	Keith Fitzpatrick-Matthews, N Herts. Museums
Geophysical surveying	Stratascan SUMO Ltd
Human remains	Malin Holst, York Osteoarchaeology
Industrial residue analysis	Jane Cowgill, Lincolnshire
Numismatics	M.Curteis, BA AMA, Essex
Palynology	Rob Scaife, Palaeopol
Petrology	D. Williams, Southampton University
Radio carbon dating	SUERC, Glasgow

Standards

4.8 The Heritage Network's general operational procedures for archaeology are documented in a series of manuals which are available for consultation on site and in our offices.

4.9 The Heritage Network is registered with the Chartered Institute for Archaeologists (CIfA) and undertakes to follow the *Code of Conduct* of the CIfA, the *Standards for Field Archaeology in the East of England* published by the Association of Local Government Officers (ALGAO), and the relevant sections of the professional standards and guidelines set by the CIfA, Historic England, the United Kingdom Institute of Conservation (UKIC), and such others as may be appropriate to the effective execution of the project.

4.10 The Heritage Network is registered with Constructionline, and is accredited by the *Contractors Health and Safety Scheme* (CHAS). All staff hold *Construction Skills Certification Scheme* (CSCS) cards covering Health and Safety. The company undertakes to follow all relevant Health and Safety regulations, and receives support and advice on health and safety matters from QDOS Consulting through the *Federation of Archaeological Employers and Managers* (FAME). A risk assessment for the project has been prepared.

4.11 The Heritage Network maintains full Public Liability insurance and full Professional Indemnity insurance. Policy details are available on request.

Copyright

4.12 The Heritage Network shall 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 hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the *Project Brief* and the *Project Design*.

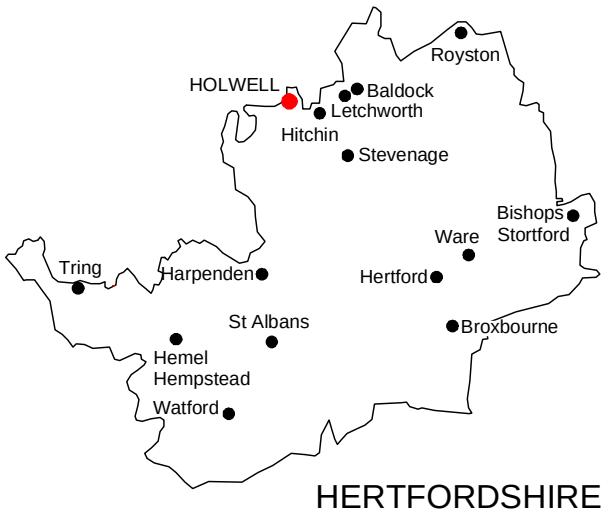
4.13 The Heritage Network will assign copyright on completion of the project to the museum or repository undertaking the ultimate curation of the archive, but will retain the right to be identified as the author of all project documentation and reports as defined in the *Copyright, Designs and Patents Act* 1988 (Chapter IV, s.79).

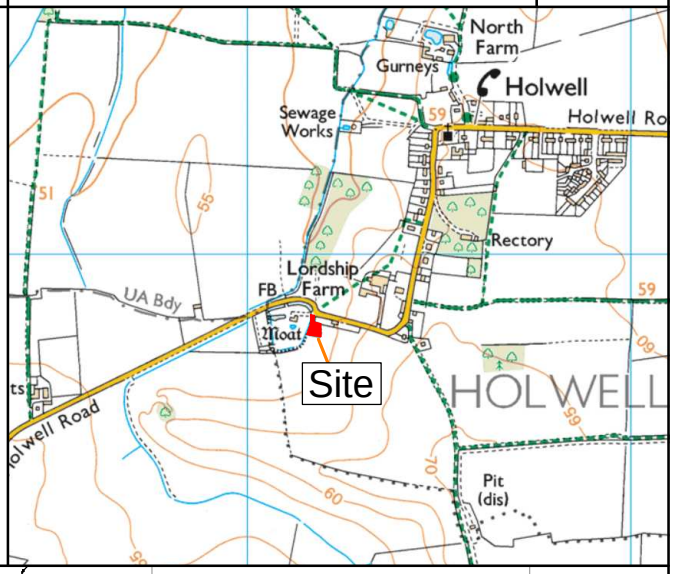
Monitoring

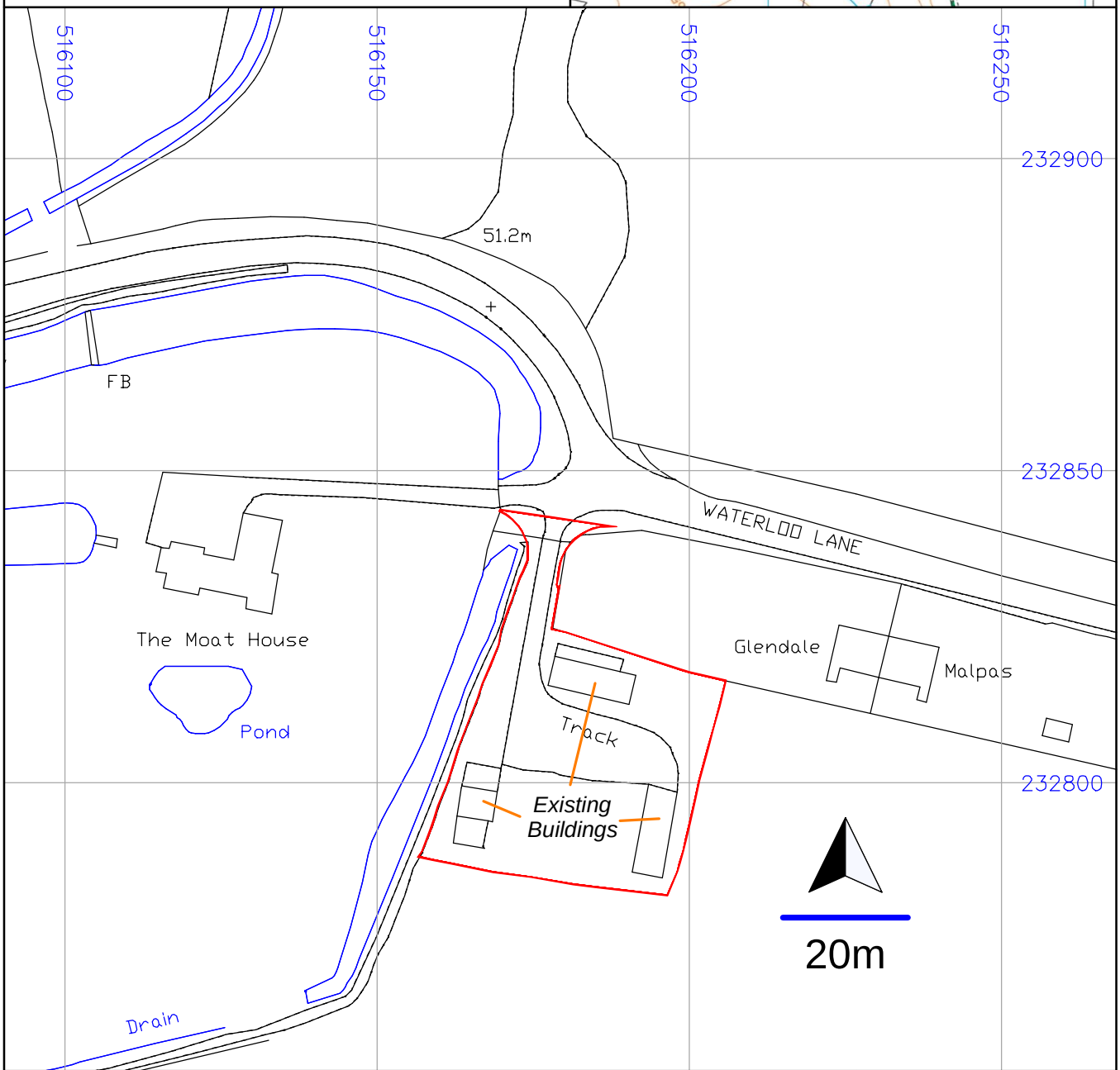
4.14 Hertfordshire County Council's *Historic Environment Team*, as the lead curatorial authority for the area, will be kept informed of the progress of fieldwork to enable the timetabling of monitoring visits at appropriate intervals.

THE HERITAGE NETWORK LTD

The Piggeries, Waterloo Lane, Holwell | HN1395







Site location and layout

Scale 1:1000

Figure 1

Ordnance Survey (c) Crown Copyright 2015. All rights reserved. Licence number 100022432

Appendix 1

Method Statement: Archaeological Investigation & Recording

1 It is considered that the best strategy to assess the survival of archaeological deposits, and fully investigate the archaeological potential of the site, will involve the open-area excavation of the footprints of each of the proposed new dwellings, under a process called *Strip, Map and Sample* (SMS).

2 Provision is included for the archaeological monitoring of any remediation works to remove identified contaminants from the overburden, in advance of the start of the development groundworks.

3 The existing floor slab and overburden in the footprint of the proposed buildings will be removed under direct archaeological supervision, to ensure that all archaeological features and deposits are identified, investigated to an appropriate level, and, wherever possible, protected and preserved in situ.

PRELIMINARY RECORDING

4 Within the footprints of the proposed new dwellings, where intrusive groundworks are likely to damage or destroy archaeological features and deposits, the existing floor slab and overburden will be removed down to the first significant archaeological horizon under close supervision of an archaeologist, using a mechanical excavator fitted with a toothless ditching bucket.

5 Sufficient cleaning by hand will be undertaken to define and clarify any exposed archaeological features and deposits.

6 The location and outline of all defined archaeological contexts will be recorded in relation to existing features by offset measurement, and a site plan produced at 1:50.

7 Spoil will be scanned visually and using a metal detector and all finds not of modern origin will be collected and recorded as unstratified.

8 The results of the preliminary recording and an assessment of the significance of the identified features and deposits will be provided to the HET together with recommendations for the most appropriate strategy to be adopted to mitigate the effects of the development on those remains.

9 Where preservation in situ is not practical or can only be partially achieved, appropriate mitigation is likely to involve a full record being made of those features and deposits that will inevitably be destroyed, in written, drawn and photographic forms, supported by appropriate sampling of associated artefacts and ecofacts.

NOTE: A geotechnical report for the site (AGB Environmental, P2426.1.1) has indicated the presence of *Polycyclic Aromatic Hydrocarbons* (PAH) in Test-pits 2 and 3 on the eastern side of the site, and asbestos fibres in Test-pits 5 and 6 towards the centre of the site. Made-ground bearing these contaminants, which occur in the upper 0.10m, is likely to require remediation in advance of the start of development works. Archaeological monitoring of the remediation process will be required, and all staff will be provided with appropriate PPE, including gloves and masks.

PRESERVATION IN SITU

10 Where identified features or deposits are considered to be of archaeological significance but will remain unaffected by the groundworks, they will be protected by a layer of geotextile membrane fixed in place by a layer of sand, ballast or similar granular make-up material.

11 Where structural elements are encountered, these will be left in situ wherever possible, and bridged. Where partial removal is inevitable, care will be taken to ensure that such removal does not damage or otherwise impact the integrity of the surviving elements.

12 Where identified features or deposits are considered to be of archaeological significance but will require partial removal, the surviving elements will be protected using a patch of geotextile membrane, cut so as to overlap the feature by a minimum of 500mm, and weighted down with 100mm depth of granular material laid by hand. Where, for structural reasons, features or deposits would normally be required to be dug out, these will be bridged and left in situ.

13 If human remains, artefacts falling within the terms of the Treasure Act (1996), or collections of artefacts or ecofacts which are considered to be of particular significance are uncovered in these groundworks, provision will be made for their complete recording and recovery.

PRESERVATION BY RECORD

14 All features and deposits that will be inevitably damaged or destroyed by the development groundworks, will be fully investigated and recorded within the limits of the impact of those groundworks.

15 The sampling level of the archaeological remains to be excavated will be determined as the project proceeds, in accordance with considerations of accessibility and the potential for preservation in situ. It will, however, take into account the principles set out below:

- *Structures and specific features of specialised activity* (e.g. industrial or agricultural processing; ceremonial; funerary): will be fully excavated or sufficiently sampled to fully understand their character, and all relationships recorded.
- *Ditches and gullies and other linear features:* all significant relationships will be defined and investigated. All terminals will be excavated. Sufficient of the ditch lengths will be excavated to determine the character of each individual ditch over its entire course with consideration given to possible re-cutting of ditches which may not have taken place over the entire length. This will aim to achieve an approximate average sample of 20% of each ditch length including excavation of intersections. Should specialised deposits (e.g. localised refuse dumping, industrial wastes) be discovered, then more extensive excavation may be carried out with the advice of the appropriate material specialist. Consideration will be given to the recovery of sufficient artefact assemblages to assist in dating stratigraphic sequences and for obtaining sufficient ceramic assemblages for comparison with other sites.
- *Pits:* all will be investigated in half section, or in the case of complex intercutting, in quadrant. Where sufficient artefactual and ecofactual evidence can be recovered in the excavated half of each feature, no further excavation will be undertaken.
- *Post and stake holes:* where practical, all will be investigated in half-section, or else will be totally excavated. Where sufficient artefactual and ecofactual evidence can be

recovered in the excavated half of each feature, no further excavation will be undertaken.

- *Extensive archaeological deposits, buried soil horizons:* where such deposits are of limited extent and are intrinsically of clear archaeological significance (e.g. middens) a 50% sample will be systematically excavated employing a sampling grid and in appropriate spits to ensure spatial control of finds, and palaeo-environmental samples (see below). Where they are of a less specific nature (e.g. of topographical interest) a control area representing up to 20% of the whole will be investigated in appropriate spits or in stratigraphic layers if identifiable in order to establish the nature, depth and date of the deposit, and to achieve the aims and objectives of the project. The remaining material may be removed, by machine if appropriate, to investigate the underlying material.
- *Working hollows, quarry pits, ponds etc.:* all relationships will be ascertained and one or more hand dug sections cut of suitable width (e.g. 1.5-2.0m) to establish the character of the fill, the base of the feature, any evidence of the method of excavation, and in order to obtain dating evidence. Further investigation will be a matter for on-site judgement. The scale and method of excavation will be determined by the need to define their extent, date and function. The potentially long time span and likely character of the backfilling of such features gives a high probability of artefacts in secondary contexts being re-deposited. Unless there are specific reasons to expect special deposits or stabilised horizons with evidence of occupation activity in their backfill, a combination of machine excavation following the basic stratigraphy and hand sampling may be used for further excavation.
- *Other archaeological deposits:* excavation and sampling strategies for other types of deposit will be decided according to their nature and significance with regard to achieving the aims and objectives of the project.

16 The physical security of all archaeological deposits, features and artefacts, both on and off the site, will be a central concern and all reasonable measures will be taken to ensure their protection before, during and after excavation.

Recording procedures

17 In order to facilitate the production of an overall project archive of consistent standard the following recording procedures will be applied as far as possible.

- The site will be assigned a unique alphanumeric code that will be used to identify all records, finds and samples relating to the project.
- A continuous unique numbering system will be operated. Context records will be compiled on individual pro-forma record cards. Each layer, fill, cut etc will be described in terms of soil detail, stratigraphic position, dimensions, artefact content, samples and interpretation. The context system will be cross-referenced to all other records including plans and sections and may be stored in the form of a computer database. A separate set of registers will be maintained for samples, registered finds, levels and context sequence.
- Where stratified deposits are encountered a Harris Matrix will be compiled during the course of the investigation.
- Soil descriptions will be standardised, as far as possible, to conform to the use of sorting charts, roundness index, percentage of area, grain size, texture, consistency and colour.

- All plans of excavated features will be drawn on polyester film at a scale of 1:20 (or 1:10 if necessary in order to show detail). Plans of intermediate contexts may be drawn in the spaces provided on the pro-forma record cards or on polyester film, as appropriate. Any burials will be drawn at 1:10. A register of plans will be kept.
- Sections through features will normally be drawn at 1:10. If required, long sections, to demonstrate stratigraphy or sedimentary sequences, will normally be drawn at 1:50 or 1:20. A register of sections will be kept.
- All plans and section drawings will be annotated with absolute heights derived from an established TBM.
- A full photographic record in monochrome 35mm film and digital formats will be maintained illustrating in both detail and general context the principal features and finds discovered. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work. A register of all photographs will be kept.

Artefact Recovery

18 Artefact evidence will be collected and treated according to the following general strategy.

- All artefacts will be retained from hand excavated contexts unless they are of recent origin. In these cases sufficient of the material will usually be retained where it is important to validate the date and establish the function of the feature.
- Some categories of finds of limited intrinsic interest may be sampled and recorded on site where their retention is not considered essential to the archaeological aims and objectives of the project and they would constitute an excessive storage burden. For example, burnt stone or undifferentiated post-medieval tile fragments.
- Unstratified objects from topsoil or other modern deposits will not normally be retained except where they are of intrinsic interest either in their own right or in contributing to an understanding of the site.
- Metal detecting equipment, where its use is considered appropriate, will be operated by, or under the supervision of, archaeological staff.
- Bulk samples of industrial residues will be taken under the advice of the relevant specialists for laboratory processing and identification.
- Recovery of artefacts will normally be by hand, except where bulk samples are taken for other purposes or for special recovery of small items.
- Should human remains be encountered and removal be required, the Heritage Network will obtain a Ministry of Justice licence, and will ensure that the conditions of its issue are maintained.
- Should artefacts falling within the terms of the Treasure Act (1996) and subsequent amendments, be encountered, or collections of artefacts or ecofacts that are considered to be of particular significance are uncovered in the course of the project, provision will be made for their complete recording and recovery.
- All *registered* finds (excluding bulk finds) will be recorded in relation to the site grid and their height above OD. The register of these finds will form part of the archive.
- In certain circumstances where unusual or extremely fragile and delicate objects are found, their recovery will be undertaken by appropriate specialists.

- All finds and samples will be exposed, lifted, cleaned, stabilised, marked, bagged and boxed in accordance with the guidelines set out in UKIC's *Conservation Guidelines no. 2.*
- All excavated objects will be deemed to form an integral part of the site archive (that is, they will not be separated, except for display or research purposes, or for reasons of security, from the archive itself).

Ecofact Recovery

19 Ecofact evidence will be collected and treated in accordance with the guidelines set out in Environmental Archaeology (English Heritage 2011). In general, the following strategy will be followed.

- All macroscopic evidence will be collected and treated in the same manner as described for artefacts.
- Where a deposit appears to be rich in faunal remains it will be dry-sieved (using a 5mm mesh size) in order to maximise the range of animal species present in the context. However, this should only be undertaken where the deposit has obvious potential and can be reliably phased.
- A standard 40 litre sample will be taken from as many single, datable contexts as possible for the recovery of small animal bones, carbonised remains, molluscs etc.
- Linear features will generally be sampled at intervals commensurate with their length in order to recover a general spread of material. In the case of house gullies (eves-drips/construction slots) at least four points should be sampled (assuming that the gully is at least 80-90% complete). All ditch terminals should be sampled.
- Undisturbed *kubiena* tin or column samples of sediments will be taken for *micromorphology* of buried soils where these are likely to shed important light on the environmental development of the area.

Post-Fieldwork Methodology

20 The post-fieldwork methodology will be dependent on the nature and extent of the features and deposits identified and recorded in the course of the monitoring programme. It will follow current practice, as set out in the MoRPHE Project Managers' Guide (Historic England 2015) and will be the subject of a separate method statement.

21 It is intended that the results of the groundworks monitoring should be published either in the local archaeological journal, or in an appropriate specialist academic journal, depending on the nature and complexity of the information recovered. As a minimum, the results will be uploaded to the Archaeology Data Service's OASIS database together with any unpublished archive reports.

Archive Deposition

22 It is intended that the archive for the present project, including the documentary records owned by the Heritage Network, and the material records owned by the client and held in the care of the Heritage Network, will be deposited with the North Hertfordshire Museum Service.

RESOURCES AND PROGRAMMING

Fieldwork

23 One member of the Heritage Network's staff will be detailed to take responsibility for the co-ordination of the fieldwork element of the present project, and will normally be available for all supervision of plant.

24 Where necessary, alternative or additional staff will be made available to ensure the adequate recording of any archaeological remains, and to minimise any delays to the client's programme arising from unforeseen circumstances including delays resulting from adverse weather, the presence of a higher than predicted density of features requiring to be investigated, the discovery of human remains, the discovery of unusually large, deep or complicated features, or the discovery of unusually large or complicated assemblages of artefacts or environmental deposits.

Timetable

25 The fieldwork programme will follow the client's groundworks schedule, which has yet to be timetabled.

Appendix 2

Fieldwork Risk Assessment			
Site Name:	The Piggeries, Waterloo Lane, Holwell	**HN:**	1395
Project Type:	Strip Map and Sample, and Monitoring	**Date:**	27/11/2017
Signed:	**CT**	**Approved:**	**DJH**
Overall Risk BEFORE Mitigation (Low, Moderate, High)			
Moderate			
Overall Risk AFTER Mitigation (Negligible, Low, Low-Moderate, Moderate High-Moderate, High)			
Low-Moderate			

Remember mitigation measures MUST be put in place for hazards with a PR score of 4 or above

Abnormal Risks (Site Specific)

Hazard		At Risk	Potential injury	Appropriate Action (Mitigation)	Calculated Risk			
Process	Type				LO	PS	PR	MR
On site	Contamination; hazardous waste	All in vicinity	Irritant of varying degrees of severity; serious disease or death	Wear suitable protective clothing, gloves and appropriate breathing apparatus; avoid contact, direct or close proximity with harmful substances. Withdraw and inform authorities if necessary.	2	3	6	4

All hazards need to be monitored during the course of a project and reassessed if methodologies change significantly.

Key: *Likelihood of hazard occurrence* (**LO**) **1**=Rare; **2**=occasional; **3**= very likely
Potential Severity of injury (**PS**) **1**=negligible; **2**=minor injury; **3**=serious injury/ fatal

Perceived Risk (**PR**) Calculated using (**LO** x **PS**)

Mitigated Risk (**MR**) **1**=V.Low; **2**=Low; **3**=Normal; **4**=Proceed with Caution; **5**=Unacceptable

A MITIGATED RISK (MR) OF 5 OR MORE IS UNACCEPTABLE WITHOUT FURTHER ACTION BEING TAKEN

Hazard		At Risk	Potential injury	Appropriate Action (Mitigation)	Calculated Risk			
Process	**Type**				**LO**	**PS**	**PR**	**MR**
Arriving and Departing								
Loading/ unloading vehicle	Carrying too much equipment; dropping equipment	All users	Back injury; foot injury; minor cuts	Follow the manual handling procedures; Training in safe lifting; caution while loading tools	2	2	4	**3**
Transport to and from site	Traffic accident; vehicle fire	All users	Serious injury or death	Vehicles kept in good order; all drivers have company vehicle test; properly maintained fire extinguisher in vehicle	1	3	3	**2**
Parking vehicles	Run down or traffic accident	All drivers	Serious injury or death	Park in designated areas on site or find a safe place to park; do not park on pavements or obstruct highways.	1	3	3	**2**
Site Conditions								
On site	Adverse hot weather conditions, hot/cold/ rain/ snow	All on site	Dehydration; heat-stroke; sunburn of varying degrees of severity. Increased likelihood of falling ill; exposure	Use high factor sun creams/ sunblocks; drink at least 1.5-2 litres of water; take regular breaks in shade. Wear suitable warm/ waterproof clothing; take shelter from extreme weather	3	2	6	**4**
On site	Extreme noise	All in vicinity	Serious damage to hearing	Wear approved ear defenders; limit the time of exposure to sound.	1	3	3	**2**
On site	Contamination; hazardous waste	All in vicinity	Irritant of varying degrees of severity; Serious disease or death	Wear suitable protective suits; gloves and appropriate breathing apparatus; Avoid contact, direct or close proximity with harmful substances. Withdraw and inform authorities if necessary.	2	3	6	**4**
On site	Lone working	Worker	Injury without help or support.	Inform colleagues of whereabouts. Maintain communications with office.	1	2	2	**2**
Ground conditions	Tripping, or falls on uneven ground	All on site	Serious injury; muscle strains	Wear PPE; clearance if possible; Caution when walking across site, particularly when carrying equipment.	2	3	6	**4**
Vegetation, Plants, bushes and trees	Trips and falls, unsafe or low tree branches	All in vicinity	Serious injury; minor cuts; muscle sprains; tetanus; stomach illness; allergic reaction varying degrees of severity; poisoned	Wear PPE; If possible clear area of vegetation. Avoid direct contact with vegetation likely to cause allergic reaction; do not eat any unknown berries or fruit.	1	3	3	**2**
Animals	Bitten, chased or stood on by large animals (e.g. cows/ horses) Contact with animal excrement or urine.	All in vicinity	Serious injury; cuts; disease	Wear PPE; If possible request the removal of animals (e.g bulls etc) from site prior to start of work; adequate washing facilities on site. Know the symptoms of animal borne diseases.	1	3	3	**2**

Hazard		At Risk	Potential injury	Appropriate Action (Mitigation)	Calculated Risk			
Process	Type				LO	PS	PR	MR
Biting/stinging insects	Bites, stings, infection.	All in vicinity	Irritation; minor injury; disease	Wear PPE; apply suitable repellent where necessary; avoid known nests; if necessary have nests removed.	1	2	2	**1**
Fieldwork								
Vicinity of heavy machinery	Run down or struck by mechanical arm.	All in vicinity	Serious injury or death	Wear PPE; keep out of operating radius of machines; work with a banksman; keep within driver's field of vision.	2	3	6	**4**
Overhead Services	Striking overhead cables; machine arcing to power cables	All in vicinity	Serious injury or death	Never machine close to overhead services; when moving beneath overhead services the machine arm must be as low as possible and supervised; Wear PPE; Banksman to be used during all machine operations.	2	3	6	**4**
Buried services	Striking electric cables; breaking foul water drainage	All in vicinity	Serious injury or death; stomach illness	Wear PPE; Check developers plans; use a cat scan; consult with on site foremen/ surveyor; assume all services are live; avoid contact with foul water.	2	3	6	**4**
Buried services	Gas pipelines	All in vicinity	Serious injury or death	Check service maps, do not mechanically excavate near pipes, call 0800 111 999 in an emergency and evacuate site.	2	3	6	**4**
Open excavations	Falls into excavations	All in vicinity	Serious injury or death	Adequate fencing; safety notices; hazard tape around trenches and other excavations	2	3	6	**4**
Deep excavations	Collapse of excavations	All in vicinity	Serious injury or death	Excavations should be fenced off; adequate gap between stockpiled spoil and excavation edge; professional shoring and/ or stepping or battering the sides; wear PPE; Secure ladders for access; do not enter an unsafe excavations	2	3	6	**4**
Buried features	Sudden voids, ground collapsing	All in vicinity	Serious injury or death	Care should taken when walking or standing on known buried features, particularly cellars and suspected wells. Access to any identified void should be restricted using fencing, appropriate safety equipment should be used	1	3	3	**2**
Human remains	Contact with decayed human matter	All in vicinity	Infection and disease of varying severity	Human remains to be handled in accordance to IFA guidelines and terms of home office licence; mask should be worn if necessary	1	3	3	**2**
Portable electrical devices	Lights and generators	Operative	Serious injury or death.	Ensure all electrical devices, cables and fittings are in good condition. Do not use generators in confined space. Where appropriate use 110voth equipment.	1	3	3	**2**

Hazard		At Risk	Potential injury	Appropriate Action (Mitigation)	Calculated Risk			
Process	**Type**				**LO**	**PS**	**PR**	**MR**
Excavation tools	Hitting self or others nearby	All in vicinity	Serious injury; minor cuts	Wear PPE; training in the safe use of tools; don't work too close together	2	3	6	**3**
Wheelbarrows	Tipping over; collapsing excavation sides	All in vicinity	Serious injury; back injury; muscle strains	Barrows should be properly maintained; don't overload barrows; don't use barrows in wet slippery conditions; ensure barrow runs are adequately far away from excavation sections and are not too steep	1	3	3	**2**
Survey equipment	Eye strain; looking into the sun	User	Serious injury to eyesight	Adequate training; never look at the sun through any optical device.	1	2	2	**1**
Site pegs/ markers	Tripping over; falling or walking into them	All in vicinity	Serious injury	Wear PPE; All pegs/ markers should be sprayed and have protective caps.	1	3	3	**2**
Working on ladders/ raised platforms	Fall; dropping equipment	All in vicinity	Serious injury or death	Wear PPE; Working at height should be avoided. Excavations should be stepped to allow access. all ladders should be properly maintained and properly secured at the top and base; access to the area beneath ladder/ platform should be restricted; only access scaffolding that has been erected by an approved certified contractor; mechanical platforms should be operated by trained professionals only	1	3	3	**2**
Vicinity of overhead work	Struck on the head by falling objects	All in vicinity	Serious injury or death	Avoid working close to others working overhead; wear PPE; Make sure that everyone working overhead is aware of your presence below; work with a banksman	1	3	3	**2**
Structures	Struck by falling debris; buried under collapsing walls/ buildings	All in vicinity	Serious injury or death	Wear PPE; do not undermine walls; do not enter unsafe structures	1	3	3	**2**
Structures	Dust; air pollution; confined spaces	All inside structure	Breathing difficulties; loss of consciousness	Adequate fresh air supply; wear appropriate face masks; take regular breaks; only those with professional training should enter a confined space	1	2	2	**1**
Structures	Debris, broken glass, animal droppings	All inside structure	Trips or falls; minor cuts; disease	Wear PPE; area should be cleared; wear gloves and avoid contact with animal droppings; adequate washing facilities	2	2	4	**3**
Unexploded ordnance	Unearthing of unexploded ordnance	All in vicinity	Serious Injury or death.	Evacuate site (at least 100m) and contact police.	1	3	3	**2**
Site facilities								
Toilets	Contact with human waste	All users	Sickness; disease	Provide adequate hygienic facilities for the size of work force. Toilets are to be sanitary and regularly maintained, and washing facilities provided	1	2	2	**1**

Hazard		At Risk	Potential injury	Appropriate Action (Mitigation)	Calculated Risk			
Process	**Type**				**LO**	**PS**	**PR**	**MR**
Site office	Trips, falls; fire; electrical shock	All users	Serious Injury or death	Furniture, heaters, cookers, lights and fixtures are to be in good condition and properly maintained. Fire fighting appliances need to be in good working order; Passageways need to be kept open.	1	3	3	**2**
Site Visitors								
Visitors	Trips, falls; run down or struck by heavy vehicles	All visitors	Serious Injury or death	Restrict access to site using adequate fencing; wear PPE; Visitors must be accompanied at all times; On larger sites visitors should be undergo an on site health & safety induction	2	3	6	**3**
Vicinity of hostile clients/ landowners	Assault, Harassment	Individuals	Serious physical or verbal assault	Do not put yourself in danger. Make written appointments; if overtly hostile take colleague or police officer. If there is a clear danger leave site	1	2	2	**1**