LAND OFF CLAY LAKE BANK, SPALDING, LINCOLNSHIRE: WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL EVALUATION

ISSUE 1:	**ISSUED FOR APPROVAL**

Local Planning Authority:	**South Holland District Council**
Central NGR:	**TF 2587 2031**
Planning Reference	**H16-1174-17**
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FIGURES

FIGURE 1: SITE LOCATION

FIGURE 2: TRENCH LOCATION PLAN

SUMMARY

A glasshouse development is proposed on land south of Clay Lake Bank, Spalding. The proposed development site is located within an area of known archaeological remains of Iron Age-Roman date, with evidence of settlement and salt-making. Cropmarks of probable enclosures, field systems and droveways have been recorded on and in the immediate proximity of the site. An archaeological evaluation of the site is required to provide greater understanding of the nature of the archaeological resource at the site and assess potential development impacts to it. A trenching scheme is proposed that will focus on the areas of greatest development impact, largely avoiding the areas of glasshouses where impact is expected to be minimal. Should the evaluation identify archaeological remains that would be impacted by the development, and if these cannot be preserved in situ, then further archaeological mitigation works may be required.

1 INTRODUCTION

1.1 Pre-Construct Archaeology Ltd (PCA) has been appointed by the Robert Doughty Consultancy Ltd, on behalf of Bridge Farm Nurseries Ltd and Clay Lake Farm Ltd, to undertake an archaeological evaluation on land off Clay Lake Bank, Spalding, Lincolnshire (Figure 1). This document forms the Written Scheme of Investigation for the archaeological evaluation works.

1.2 The Site is approximately 2.5km southeast of the centre of Spalding in the open agricultural land that surrounds the town. It lies on the south side of Clay Lake Bank, with the A16 at its northwestern corner. It comprises approximately 39.5 hectares of land centred at National Grid Reference TF 2587 2031 (Figure 1). A Planning Application (H16-1174-17) for a proposed glasshouse development has been submitted to South Holland District Council. The glass houses will occupy 28ha of the site, the remainder being packing areas, offices, parking and turning, surface water attenuation and circulation space.

1.3 The Historic Environment Service of Lincolnshire County Council, as archaeological advisors to South Holland District Council, advised an archaeological evaluation of the site was required. A scheme of trial trenching will be undertaken.

1.4 All works will be undertaken in accordance with the following documents:

This Written Scheme of Investigation;

- Management of Archaeological Projects (English Heritage, 1990);
- Management of Research Projects in the Historic Environment (Historic England, 2015);
- Standards and Guidance for Archaeological Field Evaluations (Chartered Institute for Archaeologists, 2014).

Pre-Construct Archaeology Limited is a Registered Organisation (number 23) with the Chartered Institute for Archaeologists and will operate within the Institute's 'Code of Practice'.

1.5 All work, including reporting will be in accordance with the 'Lincolnshire County Council Archaeology Handbook' (2016).

2 GEOLOGY AND TOPOGRAPHY

2.1 Geology

2.1.1 The solid geology of the site is Oxford Clay of the Jurassic period. This is overlain by a substantial thickness of tidal flat deposits of clay and silt deposited in the Quaternary period up to 2 million years ago.

2.2 Topography

2.2.1 The site is a field on flat level land at c. 3m OD in the Fenland of south Lincolnshire.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 The Lincolnshire Historic Environment Record (HER) show that the application site lies within an area of archaeological potential.

3.1.1 A Romano-British settlement, represented by a sparse scatter of pottery and bones, has been identified in the southern part of the site (HER22384). Cropmarks of enclosures and associated fields have been identified immediately east of the present site and are associated with a dense scatter of Roman pottery (HER22370). These aforementioned two sites may be part of a larger settlement and field system complex (HER23596) that is centred on the southern part of the proposed development site. Cropmarks of these remains, including droves and shorter tracks, enclosures and field systems, are located in and around the present site (HER20025; HER23600; HER23601).

3.1.2 A Late Iron Age settlement and salt-making site has been investigated a short distance to the north of the present site (HER25736). A group of circular features was identified to the east of the present site on satellite images. These may represent a settlement of Iron Age roundhouses (HER25709). A late Roman coin has also been found nearby (HER23599). Roman pottery has been found in an ash-filled depression a little west of the present site (HER22376). A possible Roman cremation is reported from about 700m north of the present site, though the location is not secure (HER22371).

3.1.3 Evidence of medieval saltmaking has been found to the south (HER225740).

4 PLANNING BACKGROUND AND RESEARCH OBJECTIVES

4.1 The site is the subject of a Planning Application (H16-1174-17) for a proposed glasshouse development. South Holland District Council has recommended an archaeological evaluation be undertaken as a condition of consent.

4.2 National Planning Policy on archaeology and built heritage is set out in National Planning Policy Framework (NPPF). Published in March 2012, National Planning Framework: Planning for the Historic Environment (NPPF) provides guidance for planning authorities, property owners, developers and others on the investigation and preservation of archaeological remains.

4.3 In considering any planning application for development, the local planning authority will be guided by the policy framework set by government guidance, in this instance NPPF, by Local policy and by other material considerations.

4.4 There are no Scheduled Ancient Monuments or Historic buildings within the study site or immediately adjacent to its boundaries.

4.6 Research Objectives

The Archaeology of the East Midlands, An Archaeological Resource Assessment and Research Agenda, Leicester Archaeology Monograph **13**, ed. N Cooper (2006), along with the *East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands,* ed. D. Knight, B. Vyner & C. Allen (2012) will be referenced for specific research criteria.

The archaeological evaluation will address the following objectives:

- To record the nature, extent, date, character, quality, significance and state of preservation any archaeological remains affected by the investigation.
- To assess where appropriate any ecofactual and palaeo-environmental potential of archaeological deposits and features from within the site.

5 SCOPE OF TRIAL TRENCHING

5.1 It is expected that much of the development, particularly the 28ha of glasshouses, parking and turning, and circulation space, will be minimally invasive and have no impact on potential buried archaeological remains. It is therefore proposed that trenching be focussed on areas of more invasive development works. These include the reservoirs in the southeastern part of the site; the production and packing areas with technical area, boiler and energy centre on the west side of the site; and the production & packing & office area, with the technical area, boiler and energy centre, and reed bed at the north of the site. Trenches will also be located along the ends of the greenhouse blocks, where foundation excavations will be deeper and accompanied by adjacent pipework. An initial programme of 38 trenches, each 50m x 2m, is proposed, as positioned on the accompanying plan. A contingency for further trenches, up to about 8, will be considered in the light of the findings of the initial group of trenches.

6 MACHINE AND HAND EXCAVATIONS

6.1 All machine excavation of trial trenches will be carried out under constant archaeological direction by a suitably experienced archaeologist familiar with the ground conditions anticipated on the site.

6.2 Machine excavation of the trial trenches will be undertaken by a mechanical excavator using a flat-bladed bucket. No mechanical excavators, earthmoving or other vehicles will travel within any excavated trench until it has been signed off by the Historic Environment Officer or specific agreement has been reached to enable re-stripping.

6.3 PCA will maintain a constant watch and closely inspect on an on-going basis surfaces exposed during the course of machining. Surfaces will be maintained clear of loose spoil.

6.4 Machine-excavated deposits and the exposed surface will be regularly scanned for the presence and collection of artefacts. Exposed surfaces and excavated spoil will be scanned by metal detector.

6.5 The excavation by machine is to be taken down to the top of any significant archaeological level or to the top of 'natural' subsoil where no archaeological deposits have been found at a higher level. In the event of significant archaeological deposits being encountered the Historic Environment Officer is to be informed immediately. Some further limited excavation may be required to clarify the nature, character and date of the archaeological deposits but the primary objective is to establish the presence/absence of archaeological deposits, their depth and extent.

6.6 If archaeological remains of limited significance are found to be present cutting through or overlying soils (e.g. colluvium) which conceal lower archaeological horizons then these will need to be recorded and investigated prior to removal of the underlying soil with the agreement of the Historic Environment Officer.

6.7 Machine excavation from the surface must be taken down in spits of no more than 100mm thickness to ensure that deposits and features are not over-excavated and that any artefacts/biological evidence in the soil are recorded.

6.8 Test sondages may need to be excavated through 'natural' subsoil in trial trenches to confirm that the appropriate geological horizons have been reached. Such sondages will be positioned to avoid damage to archaeological remains.

7 INVESTIGATION AND SAMPLING STRATEGY

7.1 Archaeological features or structures will generally only be sampled sufficiently to characterise and date them. Full excavation of features/structures/burials will not be undertaken at this stage unless otherwise agreed with the Historic Environment Officer and the client. Care will be taken not to damage archaeological deposits, features, structures or burials through excessive use of mechanical excavation.

7.2 Where necessary the surface and sections of trenches will be hand cleaned to define archaeological deposits and features clearly.

7.3 Measures will be taken to protect particularly significant, valuable or sensitive archaeological remains from exposure, accidental damage and / or theft.

7.4 No trenches will be backfilled until agreed with the Historic Environment Officer.

Burial Remains

7.5 Inhumation and cremation burials will normally be left in-situ for the purposes of evaluation. Subject to agreement with the Historic Environment Officer, graves may be partially excavated to confirm the presence of human remains and their state of preservation but skeletal remains will be left in situ. Graves will be scanned by metal detector to assess whether any grave objects are likely to be present.

7.6 Inhumation and cremation burials which are in a fragile state and are likely to be damaged by the reinstatement of evaluation trenches will be excavated and lifted subject to agreement with the Historic Environment Officer.

7.7 PCA will put in place arrangements to ensure the security, protection from deterioration and damage, and the respectful treatment of human remains and burial goods.

7.8 PCA will have available within the team or on call an appropriately qualified and experienced osteo-archaeologist to supervise the excavation and removal of any human remains (where this is necessary) from the site.

7.9 In the event that human burials are discovered, a Ministry of Justice Licence will be required (in accordance with Section 25 of the Burial Act 1857) before the remains can be lifted. The need for a Ministry of Justice Licence applies to both inhumation and cremated remains. Application for a Licence will be made by PCA. PCA will to comply with the conditions of the Licence and discuss any requirements of that Licence which conflict with the agreed method of investigation with the Historic Environment Officer.

8 FINDS RECOVERY PROCESSING AND TREATMENT

8.1 All artefacts (excluding any human remains) recovered during the excavations on the site are the property of the Landowner. They are to be suitably bagged, boxed and marked in accordance with the United Kingdom Institute for Conservation, *Conservation Guidelines no.2* and

on completion of the archaeological post-excavation programme the landowner will arrange for them to be deposited in a museum or similar repository agreed with the Historic Environment Officer and the Local Planning Authority.

8.2 Artefacts will be excavated carefully by hand. PCA will use an appropriately qualified and experienced archaeological conservator to assist in the lifting of fragile finds of significance and / or value.

8.3 Artefacts will be collected and bagged by archaeological context. The location of special finds will be recorded in three dimensions. Three-dimensional recording of in-situ flint working deposits (if encountered) will be carried out.

8.4 Records of artefact assemblages will clearly state how they have been recovered, sub-sampled and processed.

8.5 Excavated artefacts will be bagged upon recovery or placed in finds trays. They must not be left loose on site.

8.6 **Treatment of treasure** - Finds, discovered by PCA, falling under the statutory definition of Treasure (as defined by the Treasure Act of 1996 and its revision of 2002) will be reported immediately to the relevant Coroner's Office, the Lincolnshire Finds Liaison Officer (FLO) who is the designated treasure co-ordinator for Lincolnshire, the landowner and the Historic Environment Officer. A Treasure Receipt (obtainable from either the FLO or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. Failure to report within 14 days is a criminal offence. The Treasure Receipt and Report must include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

9 ARCHAEOLOGICAL SCIENCE AND ENVIRONMENTAL SAMPLING

9.1 Where appropriate, programs of archaeological science and environmental sampling will be commissioned, sufficient to provide an appropriate record of the palaeo-environmental significance of the affected heritage assets. The results of this work will be presented in the final report. The following guidance will be followed as appropriate: Archaeometallurgy (2001), Environmental Archaeology (2002), Dendrochronology (2004), Geoarchaeology (2004), Human Remains (2005), and X-radiography of archaeological metalwork (2006). All of these are available through the English Heritage Guidance section of the HELM website (www.helm.org.uk).

9.2 Where necessary the advice of the English Heritage Regional Scientific Advisor will be sought regarding specialist sampling requirements and any scientific applications relevant to the archaeological evaluation of this site.

9.3 If appropriate, environmental samples will be taken from features to enable their date, nature, extent and condition to be described and analysed. Samples will be taken from the fills of features where organic materials may be preserved, such as pits, ditches and other deposits, especially if waterlogged. English Heritage Environmental Guidelines (2002) *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation* will be adhered to.

9.4 If appropriate, environmental samples will be taken from features to enable their date, nature, extent and condition to be described and analysed. Samples will be taken from the fills of features where organic materials may be preserved, such as pits, ditches and other deposits, especially if waterlogged. English Heritage Environmental Guidelines (2002) *Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation* will be adhered to.

9.5 Where appropriate the guidance in the following English Heritage papers will be followed:

- “Guidelines on the recording, sampling, conservation, and curation of waterlogged wood” 1996
- “Dendrochronology – guidelines on producing and interpreting dendrochronological dates” 1997
- “Archaeometallurgy” 2001
- “Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation” 2002
- “Human bones from Archaeological Sites: Guidelines for Producing Assessment Documents and Analytical Reports” 2004
- “Geoarchaeology” 2004
- “Wet Wood and Leather”

- "Archaeomagnetic Dating: Guidelines on producing and interpreting archaeomagnetic dates" 2006
- "Guidelines on the X-radiography of archaeological metalwork" 2006

10 RECORDING

10.1 All trenches, structures, deposits, burials and finds will be recorded according to accepted professional standards. Sufficient data will be recorded to allow the required level of assessment and reporting (see section 12).

10.2 Recording must be carried out to a sufficiently high standard to provide a full record of the deposits evaluated, including in trenches where no archaeology is identified.

10.3 All features, deposits and finds are to be recorded according to accepted professional standards.

10.4 All archaeological contexts are to be recorded individually on context record sheets. A further more general record of the work, comprising a description and discussion of the archaeology, is to be maintained as appropriate. Context sheets are to be primarily filled in by the archaeologist excavating the feature or deposit.

10.5 A plan to indicate the location of the boundaries of the evaluated area and the site grid is to be drawn at a scale of 1:1250 (or a similar appropriate scale). Plans indicating the location of the excavated trenches and the location of all archaeological features encountered are to be drawn at an appropriate scale. An overall site plan is to be maintained at a scale of 1:100 or larger scale where appropriate. Sections will be drawn at a scale of 1:10. Significant archaeological features will normally be drawn in plan at a scale of 1:20 or 1:10 if appropriate. All detailed plans and sections are to be related to the 1:100 or 1:1250 plans. The 1:1250 and 1:100 plans are to be accurately related to the National Grid.

10.6 Long sections indicating the full stratigraphic sequence will be drawn for all trenches. Where a very simple sequence is revealed representative sections (minimum 1m wide) at each end of the trench will be sufficient, but where more complex stratigraphy is encountered, complete trench sections will be drawn. In the case of complex stratigraphy, all four sections will be drawn.

10.7 All plans and sections are to be levelled with respect to OD.

10.8 All plans and sections are to be drawn on polyester based drafting film and clearly labelled.

10.9 Photography will form an integral part of the recording strategy. All photos will be taken using a digital SLR camera with sensors exceeding 12 mega pixels, using the highest quality setting available on the camera. All photographs will incorporate scales, an identification board (clearly detailing site code & context information) and directional north arrow. All photographs were feasible, will be taken in appropriate light conditions.

10.10 The complete site archive including finds and environmental samples are kept in a secure place throughout the period of evaluation and post excavation works.

11 BACKFILLING AND COMPLETION OF FIELDWORK

11.1 On completion, trenches will be backfilled with arisings – this does not constitute reinstatement.

11.2 Where vulnerable archaeological deposits/structures/burials remain within trial trenches these will be appropriately protected from damage as part of the backfilling.

12 REPORTING

12.1 Within four-six weeks of completion of the evaluation fieldwork PCA will produce a report, copies of which (as a minimum) are to be provided to:

- the Developer/Client
- the Historic Environment Officer
- the Local Planning Authority
- the Lincolnshire Historic Environment Record

12.2 The Report will include as a minimum:

- a non-technical summary
- a table of contents
- an introduction including a list of staff members involved in the project
- summary geological, archaeological and historical background details for the site
- a statement for the aims of the project
- a full description of the results of the evaluation
- plans and sections at the appropriate scale cross-referenced with the written description
- appropriate maps, photographs
- a discussion of the location, date, extent, nature, condition, quality and significance of any archaeological deposits identified
- all finds and environmental specialist reports
- an interpretation of the results of the evaluation in relation to the archaeology in the vicinity
- a bibliography of sources consulted
- an index to the project archive
- the OASIS record

12.3 The report will be submitted to the Historic Environment Officer in digital format. The digital copy will be supplied in .pdf format and will contain all text, images and plans.

13 ARCHIVE PREPARATION & DEPOSITION

13.1 The site archive, to include all project records and cultural material produced by the project, is to be prepared in accordance with *Guidelines for the preparation of excavation archives for long-term storage (UKIC 1990), 'Lincolnshire County Council Archaeology Handbook' (2016),* and "*Archaeological Archives: A Guide to Best Practice in creation, compilation, transfer and curation*" (Archaeological Archives. On completion of the project PCA will arrange for the archive to be deposited at The Collection, Lincoln, in accordance with the provisional arrangements made at the onset of fieldwork. Any alternative arrangements will be agreed with the Historic Environment Officer and the Local Planning Authority.

13.2 An Accession number will be obtained prior to commencement of work; LCNCC: 2018.31; Site code: CLSL18; Deposition date: December 2018.

13.3 Upon completion of the fieldwork, the online OASIS form http://www.oasis.ac.uk/ will be completed. Once the report has become a public document, following their incorporation into the HER, it will be uploaded to the Archaeological Data Service web site where it may be freely consulted.

14 MONITORING AND LIAISON

14.1 PCA will allow the site records to be inspected and examined at any reasonable time, during or after the evaluation fieldwork, by the client/developer, the Historic Environment Officer or any designated representative of the Local Planning Authority.

14.2 Once the trenches have been evaluated and an initial assessment of the archaeology carried out, there will be an on-site meeting with the Historic Environment Officer to determine if further evaluation work is appropriate in order to meet the objectives.

14.3 PCA will liaise closely with the Historic Environment Officer throughout the course of the evaluation to arrange for on-site meetings at key decision points.

15 HEALTH AND SAFETY

15.1 PCA will conduct the work in compliance with the Health and Safety at Work etc. Act 1974. The Archaeological Contractor will also follow the guidance set out in "Health and Safety in Field Archaeology" Standing Conference of Archaeological Unit Managers 1997.

15.2 PCA Health and Safety Policy and a procedures manual will be available on site and. Site staff will have an appropriate level of training to enable them to carry out fieldwork safely.

15.3 PCA will maintain the site in a safe condition. All hazards will be appropriately identified and managed. Deep excavations will be appropriately fenced. PCA will carry out a risk assessment and complete a Health and Safety Method Statement prior to commencement of fieldwork and where appropriate a COSHH assessment. Risks and measures to reduce risk will be communicated to all working on and visiting the site.

15.4 PCA will provide site accommodation, welfare and toilet facilities as well as the hire of a machine.

16 Lincolnshire HER

16.1 PCA will provide the Lincolnshire Historic Environment Record with copies of all reports in digital format.

17 RESOURCES AND PROGRAMMING

17.1 The duration of the fieldwork is dependent on the quantity of trenches to be opened, the site and ground conditions, but is expected to take about ** days.

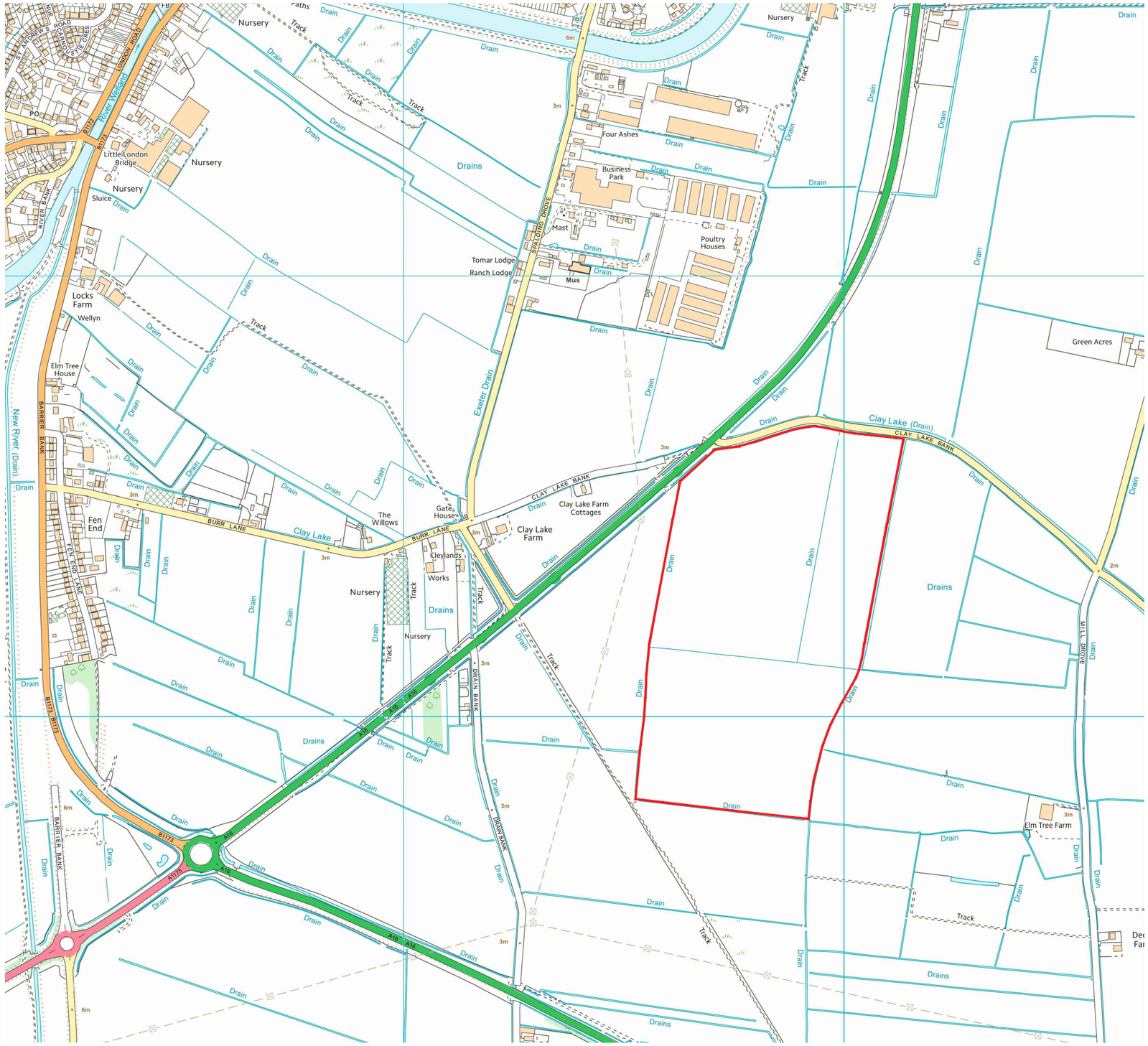
17.2 The archaeological field team will comprise 1 Supervisor and up to 4 further Archaeologists who will deal with the archaeology within each trench.

17.3 Subject to approval from the Historic Environment Officer it is proposed to commence the evaluation as soon as possible (late February 2018) at the request of the client. The work can only start with approval of this WSI by the Historic Environment Officer.

17.4 The following table lists the personnel who may be involved in both archaeological fieldwork and post-excavation:

Role	***Name***
Project Management	Kevin Trott (PCA)
Archaeological Supervision	Mark Williams (PCA)
Archaeological Assistants	TBA (PCA staff)
Illustrations	PCA CAD dept.
Prehistoric Pottery	Ian Rowlandson
Roman Pottery	Ian Rowlandson
Post-Roman Pottery	Jane Young
Ceramic Building Material	Jane Young
Architectural Stone Work	Kevin Hayward (PCA)
Petrology	Kevin Hayward (PCA)
Animal Bone	Kevin Rielly (PCA)

Human Remains	James Langthorne (PCA)
Lithics	Barry Bishop
Timber	Maisie Taylor or Mike Bamforth
Glass	Gary Taylor (PCA) or John Shepherd
Small Finds	Gary Taylor (PCA)
Roman Coins	Kevin Trott (PCA) or Dr Malcolm Lyne
Metalwork	Gary Taylor (PCA)
Leather	Kevin Trott (PCA)
Iron Slag	Gary Taylor (PCA) or Jane Cowgill
Conservation	York Archaeological Trust
Environmental Archaeology	Val Fryer



N

0 100 200 300 400 500m

Notes

Ordnance Survey Map
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Rev	By	Notes	Date
A	WW	Client name revised	4.12.17

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Client		
Bridge Farm Nurseries Ltd & Clay Lake Farm Ltd		
Project		
A16/ Clay Lake Bank, Spalding		
Drawing title		
Location Plan		
Drawing No	Rev	Drawn
1285-1_PL_LP01	A	WW
Scale	Date	Checked
1:10,000 @ A3	10.11.17	LMS

Development plan reproduced from a drawing by KG Greenhouses (December 2017)



0 200m

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13/02/18 MR

Figure 1
Proposed Development overlain on cropmark data
1:4,000 at A4