

**Page's Lane, Church End,
Twyning, Gloucestershire:
An Archaeological Evaluation**



Trench 4 showing the natural substrate

ARS Ltd Report No. 2013/76
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Executive Summary

In September 2013 Archaeological Research Services Ltd were commissioned by Moreton C Cullimore (Gravels) Ltd. to undertake an archaeological evaluation on land to the south of Page's Lane, Church End, Twynning, Gloucestershire. The proposed extraction site covers an area of c.3.8 hectares, and was, up until recently, utilised as a market garden.

A total of ten targeted trenches were opened, which represented 2.6% of the total area. Trench locations were determined by the results of previous geophysical survey undertaken by Archaeological Research Services Ltd in July 2013. These results, which showed the field to the south of Page's Lane to be mostly archaeologically sterile, have been supported through this evaluation, which found very little evidence of archaeological features, aside from two ditches and a single pit spread across three trenches. The majority of the anomalies identified through geophysical survey were explained during the evaluation process, with many being accounted for by modern field drains and other such features.

1. Introduction

1.1 This report describes an archaeological evaluation undertaken on a proposed extraction site at land south of Page's Lane, Church End, Twynning, Gloucestershire, in September 2013 by Archaeological Research Services Ltd (ARS Ltd) on behalf of Moreton C Cullimore (Gravels) Ltd. The proposed extraction site covers an area of c.3.8 hectares, and was, up until recently, utilised as a market garden.

1.2 A total of ten targeted trenches were opened, which represented 2.6% of the total area. Trench locations were determined by the results of previous geophysical survey (Durkin 2013) undertaken by ARS Ltd in July 2013.

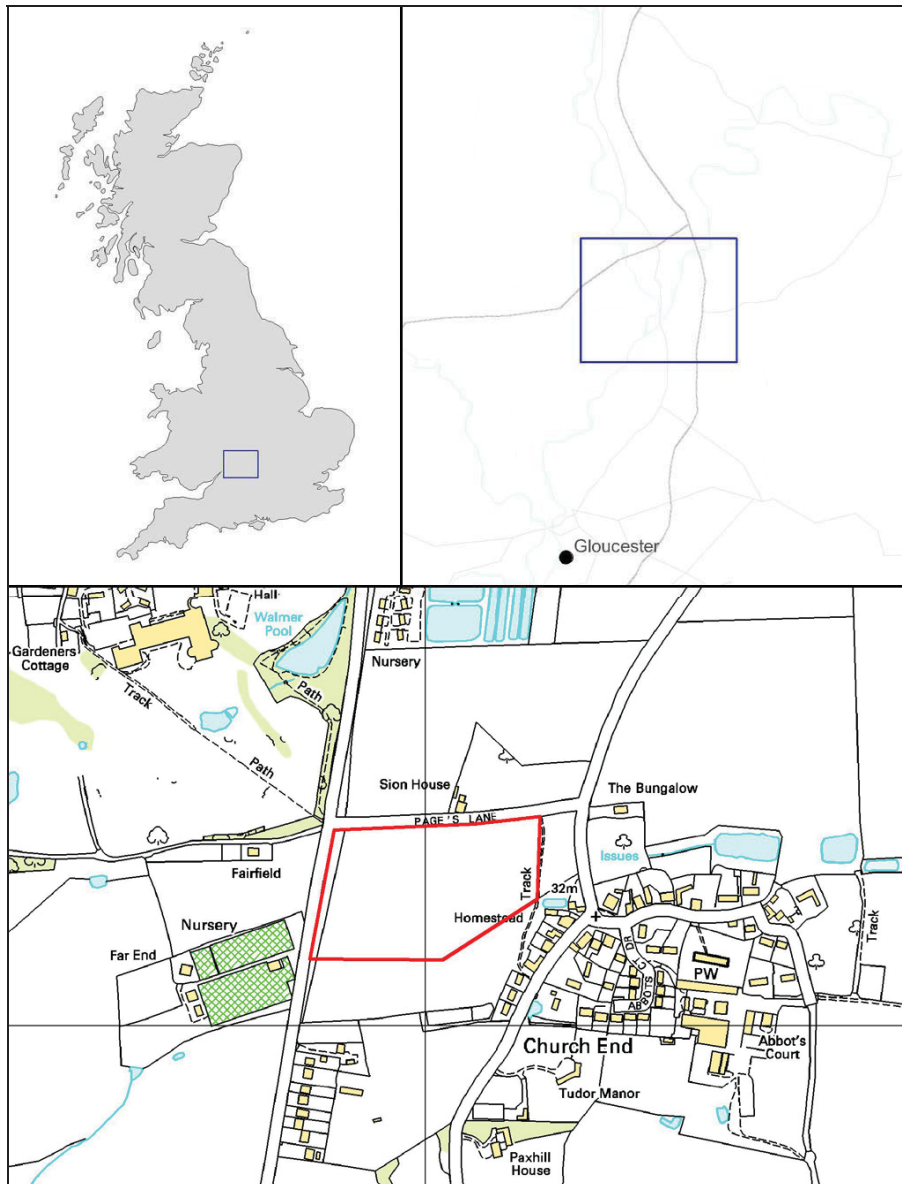


Figure 1: Site location. Ordnance Survey data copyright OS, reproduced by permission, Licence no. 100045420

2. Location and Geology

2.1 The proposed extraction site (see Figure 1) is located south of Page's Lane (centred on NGR SO 89024 36185), at Church End, Twynning, in Gloucestershire, north of the confluence of the rivers Avon and Severn. The site comprises a single field, which covers an area of c.3.8 hectares.

2.2 Geological information represented on the 1:50,000 scale BGS Geological Map shows the bedrock/solid geology of the site as Rugby Limestone Member - Mudstone And Limestone, Interbedded, with overlying superficial deposits of River Terrace Deposits, 4 - Sand And Gravel (BGS 2013).

3. Historical and Archaeological Background

3.1 The site has been the subject of an archaeological desk based assessment (Davies 2011) and preliminary geophysical survey (Durkin 2013) which indicated that the only possible prehistoric sites close to the proposed extraction site were fields containing cropmarks of an undated enclosure and an undated square enclosure (GHER 5540, now quarried away) and a prehistoric flint axehead (GHER 4473) which abut directly to the western and eastern extents of the proposed extraction site.

3.2 There is very little evidence for Romano-British activity around the site, although the potential course of a Roman road (HER 8090) between Birmingham and Gloucester is located 370m to the west of the proposed extraction site (APS 2007).

3.3 A tithe map of 1842 shows a fishpond which still exists as Walmer Pool directly west of the site. It is suggested that this may have been one of a number of monastic fishponds in the area (APS 2007), and a number of ponds are still located to the north of Church End. Probable medieval or post-medieval ridge and furrow cultivation remnants have been identified in the surrounding area (Davies 2011).

4. Aims and Objectives

4.1 The aim of the archaeological evaluation was to identify and assess archaeological features within the proposed development area in order to establish the extent, condition, character and date of any of these features; to assess the potential significance of buried archaeology on the site and the likely impact of proposed development upon such buried archaeological remains; and to record any features or deposits at an appropriate level as described in the Written Scheme of Investigation (Appendix II).

5. Methodology

5.1 All elements of the archaeological evaluation were carried out in accordance with the Institute for Archaeologists (IfA) *Standards and Guidance for field evaluation* (2009) and with the IfA *Code of Conduct* (2012).

5.2 In consultation with the Gloucestershire County Archaeologist, the archaeological evaluation comprised ten trenches measuring 50m by 2m. The trench locations (Figure 2)

were positioned in order to target possible features that were identified through the geophysical survey undertaken by Archaeological Research Services Ltd in July 2013 (Durkin 2013).

5.3 The trenches were opened by machine using a toothless ditching bucket in level spits until the natural level was reached, at which point the trenches were examined and cleaned by hand. All machine excavation was carried out under careful archaeological supervision.

5.4 The deposits were recorded according to the normal principles of stratigraphic excavation. Each context was recorded on pro-forma records which included the following: character and contextual relationships; detailed description (dimensions and shape, soil components, colour, texture and consistency); interpretation and phasing as well as cross-references to the drawn, photographic and finds registers.

5.5 Where appropriate, plans and section drawings of the trenches were drawn at a scale of 1:50, with features recorded at 1:10 or 1:20 scales as appropriate.

5.6 A photographic record was maintained including a plan and section photograph of the trench. All images were taken in digital format, and contain a graduated photographic scale.

6. Evaluation Results

6.1 *Trenches 2, 5, 6, 7, 8, 9, and 10*

Trenches 2 and 5 through to 10 were all archaeologically sterile. None of them produced any archaeological finds, features (aside from probable late 19th century/early 20th century field drains, and modern field irrigation pipes) or buried surfaces. Generally each trench was dug through compact dark grey-brown sandy silt topsoil, which had dark reddish-brown/orange-brown silty sand subsoil beneath. Each trench was excavated down to the level of the variably coloured natural sand and gravel substrate.

6.2 Various anomalies identified through geophysical survey correlated to features observed within a number of the trenches. *Trench 2* was placed to investigate a high contrast anomaly. Darker patches of soil were encountered within the topsoil during excavation of this trench and may have related to modern burning events in the field. Indeed, two areas of the field along the southern boundary still display evidence of recent fires. At a subsurface level a field drain was encountered. Within *Trenches 5* and *6* a number of areas of probable degraded iron-stone were observed, which would account for the disturbance anomalies identified at this location. In *Trench 5* a field drain was also observed cut into the natural substratum, and a continuation of the modern irrigation pipe was observed in *Trench 6*. Another modern irrigation pipe was observed in *Trench 7*, which may account for the bipolar linear anomaly identified at that location. A field drain was encountered towards the south-eastern extent of the trench. *Trenches 8* and *9* were archaeologically sterile. A single rudimentary field drain was observed in *Trench 10*, probably accounting for the positive linear anomaly identified at that location.

6.3 *Trench 1*

Trench 1 was excavated in the south-western corner of the site along an east to west orientation. A change in land use was noted at this location, whereby the eastern extent of

the trench was under cultivated arable land, and the western extent was covered with small saplings and a variety of vegetation. The trench was excavated through compact dark grey-brown sandy silt topsoil (101) which was not greater than 0.40m in depth, containing pebble inclusions which were less than 6cm in size and represented less than 10% of the total volume. A disturbed dark reddish-brown silty sand subsoil deposit (102) was located beneath the topsoil. This deposit was not observed to be greater than 0.20m in depth at this location, and also contained occasional pebble inclusions which were less than 6cm in size. The interface between the topsoil and subsoil was mixed by ploughing towards the eastern extent, and was disrupted by plant root activity towards the west. Cut through the subsoil deposit into the natural substratum was a single ditch feature (F104). A light orangey-beige natural mixed sand and gravel substrate (103) was located directly beneath deposit (102) and continued beyond the limit of excavation.

6.4 *F104*

This feature consisted of a linear ditch measuring 1.36m in width by 0.46m in depth, which was oriented in a north north-west to south south-east direction. The ditch cut [105] presented steep and slightly concave sides and a rounded base, which produced an open U-shaped profile. When excavated, no artefacts were recovered. This feature was cut from the topsoil deposit (101) through the subsoil (102) and into the natural substratum (103), and was located close to the change in use of the field at surface level, running along the same orientation. This feature was interpreted as a later, probably post-medieval field boundary ditch, which had survived at the subsurface level due to the lack of ploughing in this corner of the field.

6.5 *Trench 3*

Trench 3 was excavated in the north-western extent of the site, along a north to south orientation. The trench was excavated through compact mid grey-brown sandy silt topsoil (301) which was not greater than 0.40m in depth, containing pebble inclusions which were less than 10cm in size and represented less than 10% of the total volume. A disturbed dark reddish-brown silty sand subsoil deposit (302) was located beneath the topsoil. This deposit was not observed to be greater than 0.40m in depth at this location, and also contained occasional pebble inclusions which were less than 10cm in size. The interface between the topsoil and subsoil was diffuse, having been mixed by modern ploughing. An orangey-red-brown natural sand and gravel substrate (303) was located directly beneath deposit (302) and continued beyond the limit of excavation. A shallow pit feature (F304) was observed towards the northern extent of the trench which was cut within the subsoil into the natural substratum.

6.6 *F304*

This feature consisted of a shallow circular pit, with gradually sloping sides and a rounded base, measuring 0.80m x 0.80m by 0.20m deep. The fill was medium textured mid-grey-brown silty sand with inclusions of occasional small pebbles. To the eastern extent of the feature a lens of darker grey-black soil was noted, which may have been the result of burnt material. Small fragments of burnt bone were recovered from the fill. The location of this pit feature appeared to correlate to a high contrast anomaly identified through the geophysical survey. This feature was interpreted as a waste pit, and remains undated.

6.7 *Trench 4*

Trench 4 was excavated in the southern central area of the site, along an east to west orientation. The trench was excavated through compact mid grey-brown sandy silt topsoil (401) which was not greater than 0.50m in depth, containing occasional pebble inclusions

which were less than 10cm in size. A mid grey-reddish-brown silty sand subsoil deposit (402) was located beneath the topsoil. This deposit was not observed to be greater than 0.30m in depth at this location, and also contained occasional small pebble inclusions. A mid-orangey-brown natural mixed sand and gravel substrate (403) was located directly beneath deposit (402) and continued beyond the limit of excavation. A single ditch feature (F404) which was cut through the subsoil deposit into the natural substratum, was observed towards the western extent of the trench. An area of probable degraded iron-stone was observed towards the eastern extent of the trench, which would account for the area of disturbance highlighted by geophysical survey at this location. Also at this location, a modern irrigation pipe was observed. Other linear anomalies to the western extent of the trench which were recorded through geophysical survey could not be accounted for.

6.8 F404

This feature consisted of a linear ditch measuring 0.80m in width by 0.15m in depth, which was oriented in a north-east to south-west direction. The ditch cut [405] presented sloping sides and a rounded base, which produced a wide open U-shaped profile. When excavated, no artefacts were recovered. This feature appeared to be cut from the topsoil deposit (401) through the subsoil (402) and into the natural substratum (403) suggesting that it was a later feature, possibly post-medieval in date. This feature may account for the western most linear anomaly detected by geophysical survey at this location, although the orientation does not match.

7. Discussion

7.1 The results of the geophysical survey undertaken by ARS in July of 2013 showed the field to the south of Page's Lane to be mostly archaeologically sterile. Those results have been supported through this evaluation, which found very little evidence of archaeological features, aside from two ditches and a single pit within three trenches. The majority of the anomalies identified through geophysical survey were explained during the evaluation process, with many being accounted for by modern field drains and other such features.

7.2 Of the three archaeological features encountered, little can be said. The ditch in *Trench 1* was quite well preserved, existing to a depth of 0.46m. This was probably due to the apparent limited use of the south-western corner of the field. Whilst the depth of topsoil at this location was shallow, the subsoil did not appear to be disrupted by modern ploughing. The ditch was certainly cut from above the subsoil deposit, and no artefacts were recovered from the ditch fill. This ditch was most likely a post-medieval or later feature which followed the line of the change in use of the field in this corner, as previously discussed.

7.3 The ditch in *Trench 4* was represented by the very base of the feature, being only 0.15m in depth. The subsoil at this location was disrupted by modern ploughing, but the ditch appeared to have been cut from above the subsoil, again making it a likely post-medieval or later feature.

7.4 The pit in *Trench 3* contained fragments of burnt bone and a lens of darker soil which was interpreted as probable degraded burnt material. The bone could not be identified as human, and was therefore most likely animal in origin. The feature itself was most likely a waste pit. This feature was cut within the subsoil through to the natural substratum, but modern plough disturbance meant that the feature was heavily truncated, and remains undated.

7.5. No evidence of medieval or post-medieval ridge and furrow ploughing was encountered during this evaluation. Therefore it is assumed that modern deep ploughing has removed any such evidence, if indeed it existed at this location.

8. Publicity, Confidentiality and Copyright

8.1. Any publicity will be handled by the client.

8.2. Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

9. Statement of Indemnity

9.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

10. Acknowledgements

10.1 Archaeological Research Services Ltd would like to thank all those involved with this work. In particular we would like to thank Moreton C. Cullimore (Gravels) Ltd. and Charles Parry, Archaeologist at Gloucestershire County Council.

11. References

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Appendix I - Figures

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Site Code: Twynning
Drawing Ref:
Date: July 2013
Drawn: RD

Twynning Quarry
Layout of Evaluation
Trenches

Key:
50m x 1.5m Evaluation
Trench

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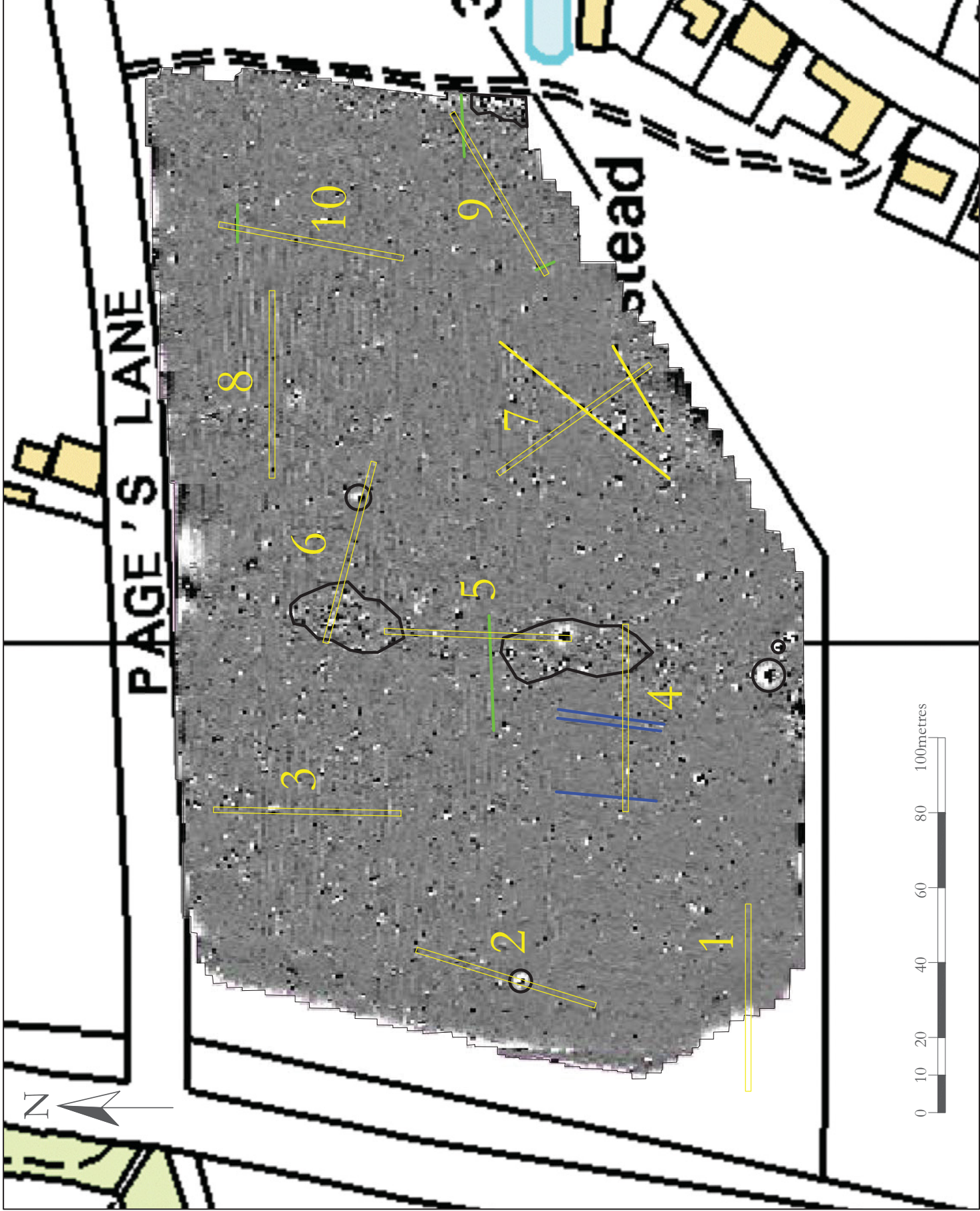


Figure 3: Plans and sections
 of features encountered
 during the evaluation

Key:

Notes:

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Figure 4: Trench 1, facing west. Scale = 1m, 2m and 2m.



Figure 5: North-west-facing section of Trench 1. Scale = 1m.



Figure 6: Feature 104. Scale = 0.25m.



Figure 7: Trench 2, facing south-east. Scale = 1m, 2m and 2m.



Figure 8: Trench 2 east-facing section. Scale = 1m.



Figure 9: Trench 3, facing south. Scale = 1m, 2m and 2m.



Figure 10: Trench 3 east-facing section. Scale = 1m.



Figure 11: Feature 304. Scale = 0.25m.



Figure 12: Trench 4, facing east. Scale = 1m, 2m and 2m.



Figure 13: Trench 4, north-facing section. Scale = 1m.



Figure 14: Trench 5, facing south. Scale = 1m, 2m and 2m.



Figure 15: Trench 5, west-facing section. Scale = 1m.



Figure 16: Trench 5, probable degraded iron-stone. Scale = 0.25m.



Figure 17: Trench 6, facing east. Scale = 1m, 2m and 2m.



Figure 18: Trench 6, north-east-facing section. Scale = 1m.



Figure 19: Trench 7, facing south-east. Scale = 1m, 2m and 2m.



Figure 20: Trench 7, north-east-facing section. Scale = 1m.



Figure 21: Trench 8, facing east. Scale = 1m, 2m and 2m.



Figure 22: Trench 8, north-facing section. Scale = 1m.



Figure 23: Trench 9, facing north-west. Scale = 1m, 2m and 2m.



Figure 24: Trench 9, north-east-facing section. Scale = 1m.



Figure 25: Trench 10, facing north-east. Scale = 1m, 2m and 2m.



Figure 26: Trench 10, south-east-facing section. Scale = 1m.

Appendix II – Specifications



Archaeological Research
Services Ltd

Page's Lane, Church End, Twynning, Gloucestershire

Written Scheme of Investigation for Archaeological Evaluation

July 2013

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1. INTRODUCTION

1.1 This Written Scheme of Investigation (WSI) has been prepared by Archaeological Research Services Ltd (ARS Ltd) on behalf of Moreton C. Cullimore Ltd. It provides a WSI for an archaeological evaluation over a c.3.8 ha proposed extraction site. The proposed extraction site is located north of the confluence of the rivers Avon and Severn (see location plan attached). The site has been the subject of an archaeological desk-based assessment and preliminary geophysical survey (reports deposited with the County Historic Environment Record). The assessment indicates that fields containing cropmarks of an undated enclosure and an undated square enclosure (GHER 5540, now quarried away) and a prehistoric flint axehead (GHER 4473) abut directly to the western and eastern extents of the extraction site. Formerly extant medieval or post-medieval ridge and furrow is now ploughed away, and sub-surface archaeological features may have been truncated. The geophysical survey, though, detected some anomalies that may represent a linear feature and pits.

1.2 This WSI covers the programme of archaeological evaluation, which includes a geophysical (magnetometry) survey and 2% sample trenching plus 2% contingency of the entire site.

1.3 The archaeological evaluation will be carried out in compliance with the Institute for Archaeologists (IfA) *Codes of Conduct* (2012) and will follow English Heritage's *Geophysical Survey in Archaeological Field Evaluation* (2008), the IfA's *Standard and Guidance for archaeological geophysical survey* (2011) and the IfA's *Standard and Guidance for Archaeological Evaluation* (2009a).

1.4 This evaluation programme has been prepared in line with the National Planning Policy Framework (NPPF) paragraph 128: "*Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation*" (DCLG 2012, 30).

2. AIMS AND OBJECTIVES

2.1 Aim

- Identify and record the possible presence/absence, location, nature, extent, survival, quality, significance and date of prehistoric and earlier historic archaeological deposits that may exist on the proposed extraction site.
- Gather sufficient evidence to establish, supplement, improve and make available information about the archaeological resource existing within the areas of investigation.
- Assist the formulation of any strategies for the future treatment of archaeological deposits in relation to the extraction proposals.

2.2 Objectives

- Magnetometry survey to identify potential sub-soil archaeological features.

- Excavation of trenches by machine targeting potential sub-soil features identified by the magnetometry survey and covering 2% plus 2% contingency of the proposed extraction site down to the surface of any archaeological deposits and investigation of these deposits in order to ascertain their nature and date (following standard excavation methodologies).
- Appropriate post-excavation assessment, analysis, reporting, archiving and dissemination.

3. TIMING AND PHASING OF WORK ON-SITE

3.1 The geophysical survey will be undertaken within a week and is scheduled for the week commencing 29th July 2013.

3.2 On completion of the geophysical survey a plan showing the proposed location of evaluation trenches will be produced and agreed with the Senior Planning Archaeologist at Gloucestershire County Council.

3.3 As soon as the evaluation trench plan has been agreed, work will start on excavating and recording the trenches. The Senior Planning Archaeologist at Gloucestershire County Council will be notified in advance of the start of the trenching.

4. GEOPHYSICAL SURVEY METHODOLOGY

4.1 The geophysical (magnetometer) survey will cover the entire area proposed for extraction (see plan of grid locations attached).

Selected technique

4.2 The geophysical survey technique selected for the site is magnetometry. Magnetometry using Fluxgate Gradiometer instruments is the preferred geophysical technique used for the detection of buried features such as iron-based features and objects, or those subjected to firing such as kilns, hearths and even the buried remains of brick walls. It is also used to locate more subtle features such as boundary or enclosure ditches, pits and post holes which have been gradually in-filled by more humic material. The breakdown of organic matter through microbiotic activity leads to the humic material becoming rich in magnetic iron oxides when compared with the subsoil allowing features to be detected. In addition to this, variations in the magnetic susceptibility between the topsoil, subsoil and bedrock have a localised effect on the Earth's magnetic field enabling the detection of features such as backfilled ditches or pits due to the fact that the topsoil has more magnetic properties than the subsoil or bedrock, resulting in a 'positive' magnetic anomaly. Conversely, earthwork or embankment features can also be identified as 'negative' magnetic anomalies due to the action of placing less magnetic subsoil on top of more magnetic top soil.

Objectives

4.3 The objective of the detailed gradiometer survey is to identify anomalies of possible archaeological origin within the survey area in order to inform:

- the location and potential significance of buried archaeology on the site;
- the targeting of evaluation trenching.

4.4 The survey, including the presentation and interpretation of the results, will be carried out in accordance with the *Code of Conduct* of the Institute for Archaeologists (IfA) (2012) and will follow the English Heritage guidelines *Geophysical survey in archaeological field evaluation* (2002) and the IfA *Standard and guidance for archaeological geophysical survey* (2011) and in accordance with the following methodology. ARS Ltd is a corporate member of the International Society of Archaeological Prospection (ISAP).

Methodology

4.5 A survey grid comprising 30m x 30m individual grids will be set up over the selected survey areas. The survey will use a temporary survey grid accurately positioned using a suitable DGPS system. The temporary grid will be co-registered to the Ordnance Survey National Grid using digital tiles provided by ARS Ltd or suitable digital map tiles provided by the client.

4.6 These grids will then be surveyed using a Bartington Grad 601-2 gradiometer. The Grad 601-2 has two gradiometer sensors and therefore collects two lines of data during each traverse. Data are collected in a zigzag fashion within the grid starting in the north-west corner, facing east. Readings are taken every 0.125m on traverses 1m apart. This equates to 7200 readings in a complete 30mx30m grid. Sensor balance will be checked and adjusted at regular intervals.

4.7 Two times each day the data will be downloaded to a PC or laptop using DW Consulting's *ArcheoSurveyor2*.

4.8 All staff employed on the geophysical survey will be suitably qualified and experienced for their respective project roles and have practical experience of geophysical survey.

4.9 All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this WSI.

Data Processing, Interpretation and Report

4.10 Data processing will be undertaken by a geophysicist using DW Consulting's *ArcheoSurveyor2*. Anomalies will be digitised and geo-referenced in the project GIS. They will be colour coded using ARS Ltd's standard scheme to provide the most likely interpretation. Anomalies will be numbered and catalogued in the GIS and report text as systematic groups or individual anomalies as appropriate. The final report will include a graphical and textual account of the techniques undertaken, the data obtained and an archaeological interpretation of that data and conclusions about any likely archaeology. The report will describe the work undertaken and the results obtained. The report will form an appendix to the final report. It will (as a minimum) include the following.

- A Non-technical summary
- Introduction
- Geological and topographical setting
- Methodology
- Discussion of archaeological and historical background
- Discussion on the results of the survey
- Conclusions and recommendations
- Sources

- Copy of WSI
- Figure showing location of the site
- Figure showing location of survey grids and referencing
- Figure showing raw gradiometer data
- Figure showing processed data
- Figure showing abstraction and interpretation of anomalies.

4.11 On completion of the work a digital copy of the report in PDF/A format should be provided to the County Archaeology Service (archaeology.planning@gloucestershire.gov.uk). This report will be passed to the Gloucestershire Historic Environment Record (HER). In addition, where it is available, the HER would like to receive geo-referenced digital data for survey, evaluation and excavation locations (including excavation phase plans) in the form of a shape file or dxf file. This information, along with the report, should be forwarded to archaeology.planning@gloucestershire.gov.uk.

4.12 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines. The project archive represents the collation and indexing of all the data and material gathered during the course of the project. A properly ordered and indexed project archive will also be deposited.

5. EVALUATION TRENCHING METHODOLOGY

5.1 The evaluation trenching targeting potential sub-soil features identified by the magnetometry survey and covering 2% of the proposed extraction site will be undertaken in accordance with the following methodology.

Objectives

5.2 The objective of the evaluation trenching is to identify and assess archaeological features within the area of the proposed development in order to inform:

- the location, nature and date of any archaeological features encountered;
- and potential significance of buried archaeology on the site.

5.3 All elements of the archaeological evaluation will be carried out in accordance with the Institute for Archaeologists (IfA) *Standards and Guidance for field evaluation* (2009a) and with the IfA *Code of Conduct* (2012).

5.4 Any changes to the agreed trenching plan will be discussed with, and agreed with, the Senior Planning Archaeologist at Gloucestershire County Council before implementation.

Excavation by machine

5.5 Topsoil and unstratified modern material will be removed mechanically by a machine equipped with a smooth (or toothless) ditching blade under the supervision of a qualified archaeologist. The topsoil will be removed down to the first significant *in situ* archaeological horizon or the natural horizon, whichever is encountered first. The exposed surface would be cleaned using appropriate hand tools for the purpose of identifying any archaeological remains. The trenches and all exposed features and

deposits will be drawn in plan and located on a general site plan compiled at an appropriate scale.

Excavation by hand

5.6 Archaeological features will generally only be sample-excavated sufficiently to characterise and date them.

5.7 The site will be recorded using in accordance with the ARS Ltd field recording manual. A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using a single context planning system with pro-forma record sheets and text descriptions appropriate to the work in accordance with the ARS Ltd field recording manual. Accurate scale plans and section drawings will be drawn at 1:50, 1:20 and 1:10 scales as appropriate. A photographic record of all contexts will be taken in colour high resolution digital format and will include a clearly visible, graduated metric scale. A register of all photographs will be kept.

Treatment of finds

5.8 All finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds* (1990), The Institute for Field Archaeologists *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (IfA 2008) and the recipient museum's guidelines. All artefacts will be collected with consideration of what material should be retained or discarded being made after post-excavation assessment and following the advice from the relevant specialist(s).

5.8.1 Any finds of human remains will be left *in situ*, covered and protected and reported to the local Coroner. If removal is essential it can only take place under appropriate Home Office and environmental health regulations, and if appropriate, in compliance with the 'Disused Burial Grounds (Amendment) Act, 1981.

5.8.2 All finds which may constitute 'treasure' under the Treasure Act 1997 will be removed to a safe place and reported to the local Coroner. Where removal cannot take place on the same working day as discovery, suitable security will be taken to protect the finds from theft.

5.9 The deposition and disposal of artefacts will be agreed with the legal owner and the appropriate museum prior to the work taking place. All finds except treasure trove are the property of the landowner

Report

5.10 Following the fieldwork ARS Ltd will prepare a report in accordance with The Institute for Field Archaeologists *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (IfA 2008) that will include the following.

- A digital location plan showing all the excavated areas, tied into the Ordnance Survey Data
- Section drawings at a scale of 1:10 showing depth of deposits including present ground level with Ordnance Datum, vertical and horizontal scale.
- A stratigraphical description of features and deposits.
- A summary of the artefacts recovered by trench together with their interpretation.
- Photographic record of the site and detail of archaeological features.

- Any specialist assessments. This will include a report on any flintwork, pottery and/or metalwork discovered *in situ* in an archaeological context or that pre-dates the 19th century. A specialist report on any animal or human bone discovered within an archaeological context will also be included.
- A concise non-technical summary of the project results.

5.11 On completion of the work a digital copy of the report in PDF/A format should be provided to the County Archaeology Service (archaeology.planning@gloucestershire.gov.uk). This report will be passed to the Gloucestershire Historic Environment Record (HER). In addition, where it is available, the HER would like to receive geo-referenced digital data for survey, evaluation and excavation locations (including excavation phase plans) in the form of a shape file or dxf file. This information, along with the report, should be forwarded to archaeology.planning@gloucestershire.gov.uk.

5.12 At the start of work (immediately before fieldwork commences) an OASIS online record <http://ads.ahds.ac.uk/project/oasis/> will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded pdf version of the entire report. Should any archaeological remains uncovered through this work be deemed to be of special significance, discussions will be held involving the client and the Senior Planning Archaeologist at Gloucestershire County Council about a suitable means of further dissemination or publication.

Archive

5.13 An archive, consisting of all written records and materials recovered, drawn and photographic records will be prepared. It will be quantified, ordered, indexed and internally consistent. It will contain a site matrix, site summary and brief written observations on the artefactual and environmental data. The archive will also be prepared in line with UKIC Guidelines for the preparation of excavation archives for long term storage (1990), The Institute for Field Archaeologists *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (IfA 2009b) and the recipient museum's guidelines.

5.14 Arrangements for the deposition of the full site archive will be made with the appropriate museum archive curator.

5.15 The archive will be presented to the archive curator within six months of completion of the fieldwork, unless alternative arrangements have been agreed in writing with the Senior Planning Archaeologist at Gloucestershire County Council and the archive curator.

6. STANDARDS AND PROJECT MANAGEMENT

6.1 ARS Ltd is a Registered Organisation with the Institute for Archaeologists (IfA). Registered Organisations are continuously assessed to ensure that the highest standards of work are carried out, in line with the *Code of Conduct* of the IfA (2012). In addition to our key management staff, who have achieved the highest grade of corporate IfA membership, many of our field staff also hold corporate grade membership.

6.2 All staff employed on the project will be suitably qualified and experienced for their respective project roles and have practical experience of archaeological excavation and recording. All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification. Each member of staff will be fully conversant with the aims and methodologies and will be given a copy of this WSI to read. All members of staff employed by ARS Ltd are fully qualified and experienced archaeologists, this will ensure that appropriate decisions regarding excavation and sampling will be made in the field.

6.3 *Project Team*

Project management:	Chris Scott MifA (ARS Ltd)
Fieldwork supervisor:	Scott Williams MifA (ARS Ltd)
Post-fieldwork and reporting:	Scott Williams MifA (ARS Ltd)
Flint specialist	Dr Robin Holgate MifA (ARS Ltd)
Ceramic specialists:	Dr. Clive Waddington MifA (ARS Ltd), Dr Jane Timby, Mike Wood MifA
Metalwork specialist:	Dr Jenny Jones (Durham University Conservation Laboratory)
Plant macrofossils and charcoals:	Laura Strafford AifA (ARS Ltd)
Human remains:	Kate Mapplethorpe (ARS Ltd)
Faunal remains:	Kate Mapplethorpe (ARS Ltd)
Finds Conservation:	Dr Jenny Jones (Durham University)

7. MONITORING

7.1 The archaeological evaluation work, and the subsequent post-excavation and report preparation, will be monitored by the Senior Planning Archaeologist at Gloucestershire County Council, or their representative, by means of project updates and/ or site visits. Prior notification of a site visit is required from Gloucestershire County Council to ARS Ltd in their role as agent for Moreton C. Cullimore Ltd.

7.2 Reasonable access to the site will be allowed to the Senior Planning Archaeologist at Gloucestershire County Council or their nominee for the purpose of monitoring the archaeological evaluation.

8. GENERAL ITEMS

Health and Safety

8.1 All work will be carried out in accordance with The Health and Safety at Work Act 1974. Specific health and safety policies exist for all our workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork. ARD Ltd retains Peninsula as its expert health and safety consultants.

Insurance Cover

8.2 ARS Ltd has full insurance cover for employee liability, public liability, professional indemnity and all-risks cover.

9. ADJUSTMENTS TO THE WRITTEN SCHEME OF INVESTIGATION

9.1 Changes to the approved methodology or programme of works will only be made after discussion and with written approval of the Senior Planning Archaeologist at Gloucestershire County Council.

10. REFERENCES

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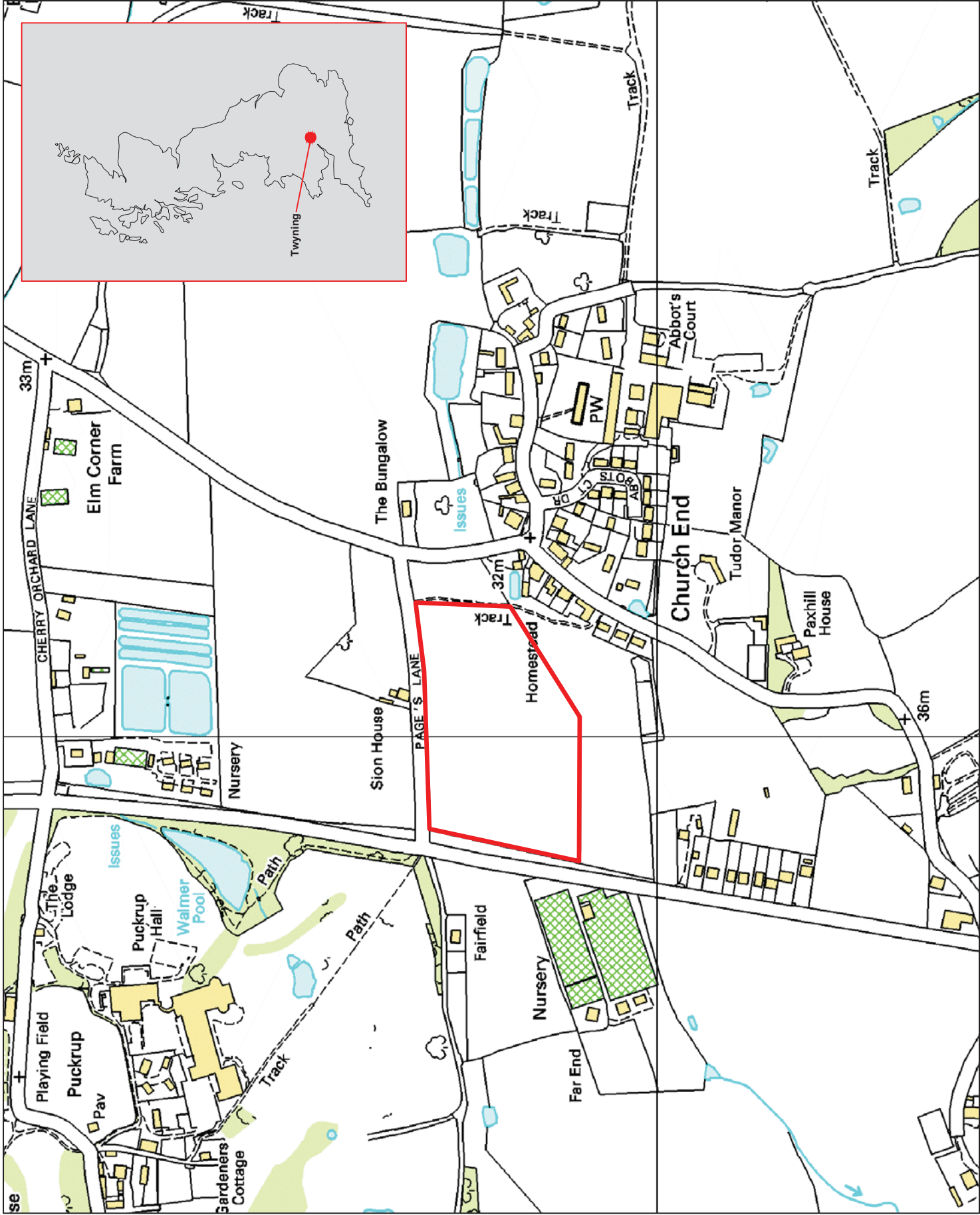
Site Code: Twynning
Drawing Ref:
Date: July 2013
Drawn: RD

Twynning Quarry - Site
Location

Key
□ Site Boundary

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Twyning Quarry
Location of Survey Grids

Key:
 30m x 30m Survey Grid

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Twynning Quarry
Layout of Evaluation
Trenches

Key:  50m x 1.5m Evaluation
Trench

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