

ARCHAEOLOGICAL
SERVICES
DURHAM UNIVERSITY

on behalf of
Ravensworth Property
Developments LLP

Portobello Industrial Estate
Birtley
Gateshead

archaeological evaluation

report 3367
March 2014

Contents

1.	Summary	1
2.	Project background	2
3.	Landuse, topography and geology	2
4.	Historical and archaeological background	3
5.	The evaluation trenches	3
6.	The artefacts	4
7.	The palaeoenvironmental evidence	4
8.	The archaeological resource	5
9.	Impact assessment	5
10.	Recommendations	5
11.	Sources	5
Appendix 1: Data tables		6
Appendix 2: Stratigraphic matrices		8
Appendix 3: Project specification		9

Figures

Figure 1:	Site location
Figure 2:	Location of trenches
Figure 3:	Trench plans and sections
Figure 4:	Trench 1, looking west
Figure 5:	The waggonway, looking north-west
Figure 6:	Ditch F10, looking north
Figure 7:	Ditch F12, looking north
Figure 8:	Trench 2, looking north-east
Figure 9:	Gully F4, looking north

1. Summary

The project

- 1.1 This report presents the results of an archaeological evaluation conducted in advance of a proposed development at Portobello Industrial Estate. The works comprised the excavation of two machine dug trenches.
- 1.2 The works were commissioned by Ravensworth Property Developments Ltd and conducted by Archaeological Services Durham University.

Results

- 1.3 A pair of parallel ditches separated by the remnants of a bank recorded in Trench 1 are probably the remains of Humble's Waggonway.
- 1.4 An undated gully was recorded in Trench 2; this may be related to agricultural drainage.

Recommendations

- 1.5 A sample of the waggonway has been recorded. No further works are recommended.

2. Project background

Location (Figure 1)

- 2.1 The site is located at Portobello Industrial Estate, Birtley, Gateshead (NGR centre: NZ 28320 55836). It covers an area of approximately 2.8 ha. To the west is the industrial estate, to the east the A1(M) and to the north and south yards and buildings.

Development proposal

- 2.2 The proposed development is for the construction of industrial units. The planning application reference number is DC/11/003000/OUT.

Objective

- 2.3 The objective of the scheme of works was to assess the nature, extent and potential significance of any archaeological resource within the proposed development area, so that an informed decision may be made regarding the nature and scope of any further scheme of archaeological works that may be required in relation to the development.

Specification

- 2.4 The works have been undertaken in accordance with a specification provided by Tyne and Wear Specialist Conservation Team (Appendix 3).

Dates

- 2.5 Fieldwork was undertaken between 17th and 18th February 2014. This report was prepared for March 2013.

Personnel

- 2.6 Fieldwork was conducted by Mark Randerson, Natalie Swann and Jonathan Dye (supervisor). This report was prepared by Jonathan Dye, with illustrations by Janine Watson. Specialist reporting was conducted Dr Charlotte O'Brien (palaeoenvironmental). The Project Manager was Daniel Still.

Archive/OASIS

- 2.7 The site code is **PIE14**, for **Portobello Industrial Estate 2014**. The archive is currently held by Archaeological Services Durham University and will be transferred to Tyne and Wear Museums Service in due course. Archaeological Services Durham University is registered with the **Online Access to the Index of archaeological investigationS project (OASIS)**. The OASIS ID number for this project is **archaeol3-172078**.

3. Landuse, topography and geology

- 3.1 At the time of this assessment, the proposed development area comprised two fields separated by a dilapidated fence, both of which were in a state of rough pasture.
- 3.2 The survey area sloped gradually down to the south with elevations ranging from 95-100m OD.

- 3.3 The underlying solid geology of the area is mostly of the High Main Post sandstone, with a small area of other Pennine Middle Coal Measures strata to the east, both of which are overlain by Devensian till.

4. Historical and archaeological background

- 4.1 An archaeological desk-based assessment has been undertaken (TWM Archaeology 2011) and is summarised below.
- 4.2 There is a known background of prehistoric activity in the area. Throughout the medieval and post-medieval period the site was open fields with no evidence for the presence of any settlement. It is unclear whether the previously greenfield site was impacted on by the construction of the Birtley bypass and its upgrade, and as such the possibility remains for the existence of archaeological features of prehistoric date.
- 4.3 Humble's Waggonway, a late 18th- to early 19th- century coal waggonway, is recorded in the Historic Environment Record (TWHER 3010) as crossing the site, and topographical survey shows the location of two disused mineshafts within the site.
- 4.4 An archaeological geophysical survey of the site was undertaken in January 2014.

5. The evaluation trenches

Introduction

- 5.1 Two trenches, each 30m by 4m, were excavated. Trench 2 was positioned in the locations shown in Figure 2. Trench 1 was relocated from the specified location, due to poor ground conditions. Its new location was around 50m to the south of its specified position where the ground was firmer but the parallel soil filled features identified in the geophysical survey could still be targeted.

Trench 1 (Figures 3-7)

- 5.2 Natural yellow clay and sand [3], was identified at a depth of 0.5m. In the eastern end of the trench features relating to the Humble's Waggonway were present (Figure 5). A deposit of clean grey clay [19: 2m+ by 0.7m+, 0.15m deep] was noted running out of the trench and could be the result of levelling the site prior to construction. Two parallel ditches ran across the trench corresponding to the anomalies on the geophysical survey which were interpreted as drainage ditches for the waggonway. The western ditch [F10: 4m+ by 2.7m, 0.3m deep] was cut into the natural subsoil and had a black-brown clay silt fill with frequent inclusions of coal and coal dust [11] (Figure 6). The eastern ditch [F12: 4m+ by 2m, 0.35m deep] was cut into the natural subsoil and the grey clay [19] (Figure 7). It had a primary fill, possibly reflecting natural slumping, of grey clay silt [14: 1.5m+ by 2m, 0.3m deep] and a secondary fill of black clay silt with high concentration of coal and clinker [13: 2m+ by 2m, 0.35m deep]. Between the ditches were the remnants of a raised area, which may have formed the basis for the track bed. This was constructed from grey brown sandy silt [16: 2m+ by 5.5m, 0.15m deep], redeposited natural yellow clay and sand [15: 2m+ by 2.1m, 0.15m deep] and a dump of red-grey clinker and burnt material [17: 2m+ by 1.3m, 0.1m deep]. Overlying clay deposit [19], but not cut by ditch [F12], was a thin spread of coal [18: 2m+ by 0.7m+, 0.05 deep]. Overlying these features was a black-brown sandy silt topsoil [1: 0.5m deep].

Trench 2 (Figures 3 and 8)

- 5.3 Natural yellow clay and sand [3], was identified at a depth of 0.3m to 0.7m. In the north-east end of the trench this was cut by a linear gully [F4: 4m+ by 0.7m, 0.2m deep] which was also identified in the geophysical survey data (Figure 9). It was parallel with a land drain. It was filled by a grey-brown clay silt containing occasional rounded stones [5]. No artefacts were recovered from the fill. Two modern field drains ran across the trench, one of which [F8: 4.5m+ by 0.8m, 0.25m deep] had been identified in the geophysical survey data. A further possible feature was identified at the south-west end of the trench [F6], but excavation showed this to be a shallow accumulation of silt in a shallow undulation in the natural ground surface. Overlying all features was a grey-brown sandy silt [2: 0.15-0.2m deep] and above this was a black-brown sandy silt topsoil [1: 0.2-0.5m deep].

6. The artefacts

- 6.1 No artefacts were recovered during excavation.

7. The palaeoenvironmental evidence

- 7.1 A palaeoenvironmental assessment was carried out on a bulk sample of the fill [context 5] of gully [F4]. The sample was manually floated and sieved through a 500µm mesh. The residue was examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and was scanned using a magnet for ferrous fragments. The flot was examined at up to x60 magnification using a Leica MZ7.5 stereomicroscope for waterlogged and charred botanical remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (1997). Habitat classifications follow Preston *et al.* (2002).
- 7.2 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010).

Results

- 7.3 The sample comprised coal, clinker/cinder and a small fragment of fired clay and corroded metal. Pre-Quaternary trilete megasporangia, which derive from the coal deposits, were noted in the sample. Charred plant remains included a few heather twigs, monocot stems and a ribwort plantain seed. Although a few uncharred seeds of fat-hen and bramble were present in the flot, the non-waterlogged nature of the site and the presence of modern roots and earthworm egg cases suggest that these are recent intrusions. The results are presented in Table 1.2. Although the heather twigs would probably provide a radiocarbon date, the possibility that they represent later heather clearance burning should be considered.

Discussion

- 7.4 The assessment can provide little information about the nature or date of the gully due to the low number of diagnostic palaeoenvironmental remains. The small charred plant macrofossil assemblage comprising heather twigs, monocot stems and a ribwort plantain seed (a weed of meadows and pastures), could derive from a range of sources, including fodder, bedding, dung, hay or turves.

Recommendations

- 7.5 No further analysis is required for the plant macrofossils due to their low numbers and poor preservation. If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced.

8. The archaeological resource

- 8.1 A pair of parallel ditches separated by the remnants of a bank recorded in Trench 1 are probably the remains of Humble's Waggonway.
- 8.2 A small gully was recorded in Trench 2; this was undated but was parallel with a land drain and may be related to agricultural drainage.

9. Impact assessment

- 9.1 Any groundworks for the development to the north of the site have the potential to truncate or remove the physical remains of Humble's Waggonway.

10. Recommendations

- 10.1 A sample of the waggonway has been recorded. No further works are recommended.

11. Sources

- Hall, A R, & Huntley, J P, 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in northern England*, Research Department Report Series no. **87**. London
- Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*. London
- Huntley, J P, 2010 *A review of wood and charcoal recovered from archaeological excavations in Northern England*. Research Department Report Series no. **68**. London
- Petts, D, & Gerrard, C, 2006 *Shared Visions: The North-East Regional Research Framework for the Historic environment*. Durham
- Preston, C D, Pearman, D A, & Dines, T D, 2002 *New Atlas of the British and Irish Flora*. Oxford
- Schweingruber, F H, 1990 *Microscopic wood anatomy*. Birmensdorf
- Stace, C, 1997 *New Flora of the British Isles*. Cambridge
- TWM Archaeology. 2011, *Portobello Industrial Estate, Birtley, Gateshead, Archaeological Desk Based Assessment*. Unpublished.

Appendix 1: Data tables

Table 1.1: Context data

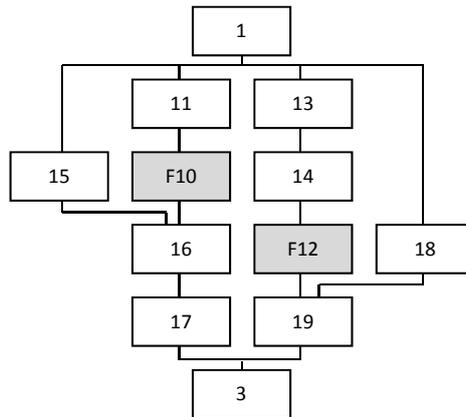
No	Area	Description
1	Tr2	Topsoil
2	Tr2	Subsoil
3	Tr2	Natural
F4	Tr2	Gully
5	Tr2	Fill of gully F4
F6	Tr2	Void-Natural undulation
7	Tr2	Void-Remnant Subsoil
F8	Tr2	Field drain
9	Tr2	Fill of field drain
F10	Tr1	Western waggonway ditch
11	Tr1	Fill of F10
F12	Tr1	Eastern waggonway ditch
13	Tr1	Secondary fill of F12
14	Tr1	Primary fill of F12
15	Tr1	Redeposited clay-track bed
16	Tr1	Redeposited subsoil-track bed
17	Tr1	Clinker
18	Tr1	Coal
19	Tr1	Grey Clay

Table 1.2: Data from palaeoenvironmental assessment

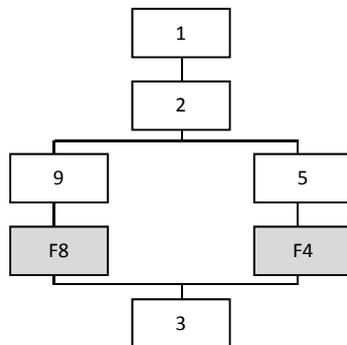
Sample	1
Context	5
Feature	4
Feature number	Gully
<i>Material available for radiocarbon dating</i>	(✓)
<i>Volume processed (l)</i>	19
<i>Volume of flot (ml)</i>	150
<i>Residue contents</i>	
Coal	++
Fired clay / CBM	(+)
Metal object (corroded fragment)	1
<i>Flot matrix</i>	
Clinker / cinder	++
Coal	++
Earthworm egg case	+
Heather twigs (charred)	(+)
Monocot stems (charred)	(+)
Pre-Quaternary trilete megasporangia	(+)
Roots (modern)	++
Uncharred seeds	+
<i>Charred remains (total count)</i>	
(r) <i>Plantago lanceolata</i> (Ribwort Plantain) seed	1

Appendix 2: Stratigraphic matrices

Trench 1



Trench 2



Appendix 3: Project specification

Tyne and Wear Specialist Conservation Team

Specification for Archaeological Evaluation at Portobello Industrial Estate, Birtley, Gateshead

Planning Application: DC/11/00300/OUT

Author: David Heslop
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Date: 100/02/2014

County Archaeologist's Reference Number: MON9039

The Tyne and Wear Specialist Conservation Team is the curatorial service for archaeology, industrial archaeology and historic buildings throughout the Tyne and Wear districts. It helps and advises Newcastle, Gateshead, North Tyneside, South Tyneside and Sunderland Councils to carry out their statutory duties to care for the precious historic environment of Tyneside and Wearside. The Team can be found at the Strategic Housing, Planning and Transportation Division of the Environment & Regeneration Directorate of

Introduction

The proposal to develop a green-field site on the edge of Birtley village has triggered the commissioning of a geophysical survey to test the possibility that archaeological remains exist on the site. Among the post-enclosure field boundaries, a pair of parallel line of ditches that run diagonally across the northern part of the field, on a NNW – SSE line (marked “C” Drawing ARC_1186_442_2 are of interest and merit trail trenching. The ditches are about 8 m apart and might represent the physical remains of Humble’s Waggonway, a late 18th and early 19th cen coal waggonway marked on our Historic Environment Record (TWHHER 3010). The timber waggonway was often flanked by drainage ditches to stop water collecting on the track bed. The system of waggonways that linked the collieries to the river staithes enabled the development of the Tyneside coal-field and represents the first integrated industrial transport system in the world. This element merits further investigation. The wider research background is covered by publications by Les Turnbull and the classic monograph on the subject is “A Fighting Trade: Rail Transport in Tyne Coal, 1600-1800” by Bennett, Clavering and Rounding, Gateshead 1990.

The evaluation report should make reference to Regional and Thematic Research Frameworks. The North-East Regional Research Framework for the Historic Environment (2006) notes the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions. The relevant key research theme for this evaluation is *PM1 – Early coal industry and coal use*.

See <http://www.algao.org.uk/Association/England/Regions/ResFwks.htm>

Ideally and where possible the evaluation should cross-reference its aims and objectives to national priorities, defined in SHAPE (Strategic Frameworks for Historic Environment Activities and Programmes in English Heritage), and the English Heritage Research Agenda 2005-2010.

Where appropriate note any similar nationwide projects using ADS, internet search engines, ALSF website, HEEP website, OASIS, NMR excavation index.

All staff on site must understand the project aims and methodologies.

Methods statement

Two evaluation trenches are needed to examine the character, nature, date, depth, degree of survival of archaeological deposits on this site. The excavation must be carried out by a suitably qualified and experienced archaeological organisation. The work will record and environmentally sample any archaeological deposits of importance. The report must be the definitive record for deposition in the Tyne and Wear HER.

All staff employed by the Archaeological Contractor shall be professional field archaeologists with appropriate skills and experience to undertake work to the highest professional standards. They must all have been fully briefed as to the Scheduled status of the site and be aware that ground disturbance beyond the scope of the present specification is strictly forbidden.

The work will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 (www.english-h.gov.uk/guidance/map2/index.htm) and Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide, Project Planning Notes and Technical Guides 2006 (www.english-heritage.org.uk/publications).

The work will be undertaken according to MoRPHE Project Planning Notes 2006 - PPN3 – Archaeological Excavation and PPN6 – Development of Procedural standards and guidelines for the historic environment.

All work must be carried out in compliance with the codes of practice of the Institute of Field Archaeologists and must follow the IFA Standard and Guidance for Archaeological Field Evaluations, Excavation or Watching Briefs as appropriate. www.archaeologists.net

Notification

The County Archaeologist needs to know when archaeological fieldwork is taking place in Tyne and Wear so that he can inform the local planning authority and can visit the site to monitor the work in progress. The Archaeological Contractor must therefore inform the County Archaeologist of the start and end dates of the Evaluation. He must also keep the County Archaeologist informed as to progress on the site. The CA must be informed of the degree of archaeological survival and of any significant finds.

PROJECT DESIGN

Because this is a detailed specification, the County Archaeologist does **not** require a Project Design from the appointed archaeologist. However a health and safety statement and risk assessment, identifying potential risks in a risk log (see template in appendix 2 of The MoRPHE Project Manager's Guide) and specifying suitable countermeasures and contingencies, is required to be submitted to the commissioning client.

The Management of Research Projects in the Historic Environment (MoRPHE) – The MoRPHE Project Managers' Guide 2006 contains general guidance on Risk management (section 2.3.2, Appendix 2).

Risk assessments must be produced in line with legislative requirements (for example the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999, the Control of Substances Hazardous to Health (COSHH) Regulations 2002 and the Personal Protective Equipment at Work Regulations 2002) and best practice e.g. as set out in the SCAUM (Standing Conference on Archaeological Unit Managers) Health and Safety Manual <http://www.scaum.org/uk>

Detailed information on hazards and how to carry out a risk assessment can be obtained from the Health and Safety Executive (www.hse.gov.uk) and the local authority health and safety department.

Specific guidance for land contamination and archaeology can be obtained from the Institute for Archaeologists (www.archaeologists.net), the Construction Industry Research and Information Association (www.contaminated-land.org) and the Association of Geotechnical and Geoenvironmental Specialists (www.ags.org.uk).

See also Environment Agency, 2005 "Guidance on Assessing the Risk Posed by Land Contamination and its Remediation on Archaeological Resource Management".

The Archaeological Contractor must be able to provide written proof that the necessary levels of Insurance Cover are in place.

The Archaeological Contractor must detail measures taken to ensure the safe conduct of excavations, and must consult with the client's structural engineers concerning working in close proximity to the foundations of the surrounding buildings. The Client may wish to see copies of the Archaeological Contractor's Health and Safety Policies.

The Archaeological Contractor must maintain a Site Diary for the benefit of the Client, detailing the nature of work undertaken on a day by day basis, with full details of Site Staff present, duration of time on site, etc. and contact with third parties.

PROJECT EXECUTION

1) Archaeological evaluation

The position of the two trenches is shown on the accompanying plan. Each needs to be 4 m wide and approx 30 m long, and excavated to natural sub-soil.

Trench positions should be accurately surveyed prior to excavation and tied in to the national grid.

Tasks

Any modern overburden or levelling material can be machined-off using a wide toothless ditching bucket under strict archaeological supervision and the remaining deposits are to be excavated by hand.

All faces of the trenches that require examination or recording will be cleaned.

Excavation is to be carried out with a view to avoid damage to any archaeological features which appear to worthy of preservation *in-situ*.

Excavation is to be carried out by single context planning and recorded on *pro forma* context sheets. Features over 0.5 m in diameter can be half sectioned.

Environmental sampling (and where relevant scientific dating) are compulsory parts of the evaluation exercise. All tenders will give a price for the assessment, full analysis, report production and publication per environmental and scientific dating sample as a contingency.

Samples will be taken of bricks from any brick-built structures. The dimensions of the bricks and the type of bonding must be recorded.

Scientific investigations should be undertaken in a manner consistent with "The Management of Archaeological Projects", English Heritage 1991 and with "Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists", English Heritage, 2003. Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Regional Advisor for Archaeological Science (jacqui.huntley@english-heritage.org.uk or 07713 400387) **before** the evaluation begins. See Appendix 1 for more information.

See Appendix 2 for guidance on procedures relating to human remains.

See Appendix 4 for guidance on Treasure Act procedures.

The spoil can be kept close-by and rapidly backfilled into the trenches at the conclusion of this work.

Recording

A full written, drawn (accurate scale plans, elevations and section drawings) and photographic record (of all contexts in black and white print and colour transparency with clearly visible graduated metric scale) will be made.

The finished report must include a plan and section of the trenches (even where no archaeological remains are recorded) plus plans and sections through excavated archaeological features.

The plans will include at least two site grid points and will show section line end points.

The plans will depict building material (i.e. brick and stone) where a complex of structures has been found.

Where there is a complex of interlocking multi-phased structures, a phasing plan will also be included.

There will be elevation drawings of any standing structures such as walls.

Pro-forma context sheets will be used.

All deposits and the base of the trenches will be levelled. Levels will be expressed as metres above Ordnance Datum.

Stratigraphy shall be recorded even when no archaeological features have been recognised.

A 'Harris' matrix will be compiled where stratified deposits are recorded.

2) Post-excavation and report production

Finds Processing and Storage

The Archaeological Contractor will process and catalogue the finds in accordance with Museum and Galleries Commissions Guidelines (1992) and the UKIC Conservation Guidelines, and arrange for the long term disposal of the objects on behalf of the Client. A catalogue of finds and a record of discard policies, will be lodged with the finds for ease of curation.

Finds shall be recorded and processed in accordance with the IFA Guidelines for Finds Work

Finds will be assessed by an experienced finds specialist.

Human and animal bone assemblages should be assessed by a recognised specialist (see Appendices 2 and 3 for more information).

Industrial slag and metal working debris will be assessed by a specialist.

Assessment should include x-radiography of all iron objects (after initial screening to exclude recent debris) and a selection of non-ferrous artefacts (including all coins). Refer to "Guidelines on the x-radiography of archaeological metalwork, English Heritage, 2006.

Brick dimensions will be measured and a note made of the bonding material.

If necessary, pottery sherds and bricks should be recommended for Thermo-luminescence dating.

Finds processing, storage and conservation methods must be broadly in line with current practice, as exemplified by the IFA "Standard and guidance for the collection, documentation, conservation and research of archaeological materials", 2001. Finds should be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication "First Aid for Finds" (Watkinson and Neal 1998). Proposals for ultimate storage of finds should follow the UKIC publication "Guidelines for the Preparation of Excavation Archives for Long-term Storage" (Walker 1990). Details of methodologies may be requested from the Archaeological Contractor.

Other useful guidance – "A Strategy for the Care and Investigation of Finds", English Heritage, 2003, "Finds and Conservation Training Package", English Heritage, 2003.

All objects must be stored in appropriate materials and conditions to ensure minimal deterioration. Advice can be sought from Jacqui Huntley of English Heritage (07713 400387) where necessary.

PRODUCTS

The report

1. The Archaeological Contractor must produce an interim report of 200 words minimum, no more than 10 days after the completion of the field-work, for the Client and the Planning Authority, with a copy for information to the County Archaeologist. This will contain recommendations for any further work needed on site.

2. The production of Site Archives and Finds Analysis will be undertaken according to English Heritage Guidelines - Managing Archaeological Projects 2nd Edition ('MAP2') 1991 and Management of Research Projects in the Historic Environment (MoRPHE) 2006.

3. A full archive report or post-excavation assessment, with the following features should be produced **within six months of the completion of the field-work**. All drawn work should be to publication standard. The report must include:

- * Location plan of the trenches and grid reference of site
- * Site narrative – interpretative, structural and stratigraphic history of the site
- * Plans showing major features and deposit spreads, by phase, and section locations
- * Sections of the two main trench axes and through excavated features with levels
- * Elevation drawings of any walls etc. revealed during the excavation
- * Artefact reports – full text, descriptions and illustrations of finds
- * Tables and matrices summarising feature and artefact sequences.
- * Archive descriptions of contexts, grouped by phase (not for publication)
- * Deposit sequence summary (for publication/deposition)
- * Colour photographs of trenches and of archaeological features and finds
- * Laboratory reports and summaries of dating and environmental data, with collection methodology.
- * A consideration of the results of the field-work within the wider research context (ref. NERRF).
- * Recommendations for further work on site, or further analysis of finds or environmental samples
- * Copy of this specification

4. A single bound and collated copy of the report needs to be submitted to the Tyne & Wear HER, with good quality illustrations. Three digital (ie pdf) copies are needed:

- one for the commissioning client
- one for Gateshead MBC, which can be used to deposit with the LA as part of the process to discharge the archaeological conditions on the planning application
- one for deposition in the County HER on CD in a plastic case, at the address below. Please do not attach this to the report..

The report and CD for the HER must be sent by the archaeological consultant or their client directly to the address below. If the report is sent via the planning department, every page of the report will be stamped with the planning application number which ruins the illustrations. The HER is also often sent a photocopy instead of a bound colour original which is unacceptable.

Archive Preparation and Dissemination

The archive should be a record of every aspect of an archaeological project – the aims and methods, information and objects collected, results of analysis, research, interpretation and publication. It must be as complete as possible, including all relevant documents, records, data and objects {Brown, 2007, 1}.

The site archive (records and materials recovered) should be prepared in accordance with Managing Archaeological Projects, Second Edition, 5.4 and appendix 3 (HBMC 1991), MoRPHE Project Planning Notes 2006 PPN3 – Archaeological Excavation, “Archaeological documentary archives” IFA Paper No. 1, “Archaeological Archives – creation, preparation, transfer and curation” Archaeological Archives Forum etc., Guidelines for the Preparation of Excavation Archives for Long Term Storage (UKIC 1990) and “Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation” by Duncan H. Brown, Archaeological Archives Forum, July 2007.

Documentary Archive

The documentary archive comprises all records made during the archaeological project, including those in hard copy and digital form.

This should include written records, indexing, ordering, quantification and checking for consistency of all original context sheets, object records, bulk find records, sample records, skeleton records, photographic records (including negatives, prints, transparencies and x-radiographs), drawing records, drawings, level books, site note-books, spot-dating records and conservation records, publication drafts, published work, publication drawings and photographs etc.

A summary account of the context record, prepared by the supervising archaeologist, should be included.

All paper-based material must at all times be stored in conditions that minimise the risk of damage, deterioration, loss or theft.

Do not fold documents

Do not use self-adhesive labels or adhesive or tape of any kind

High quality paper (low-acid) and permanent writing materials must be used.

Original drawings on film must be made with a hard pencil, at least 4H.

Do not ink over original pencil drawings.

Use polyester based film for drawings (lasts longer than plastic).

Store documents in acid-free, dust-proof cardboard boxes

Store documents flat

All documents must be marked with the project identifier (e.g. site code) and/or the museum accession number.

All types of record must use a consistent terminology and format.

Use non-metal fastenings, and packaging and binding materials that ensure the longevity of documents.

Copies of reports and appropriate drafts, with associated illustrative material, must be submitted for inclusion with the archive.

Material Archive

The material archive comprises all objects (artefacts, building materials or environmental remains) and associated samples of contextual materials or objects.

All artefacts and ecofacts retained from the site must be packed in appropriate materials.

All finds must be cleaned as appropriate to ensure their long-term survival

All metal objects retained with the archive must be recorded by x-radiograph (except gold or lead alloys or lead alloys with a high lead content and objects too thick to be x-rayed effectively e.t.c.)

All finds must be marked or labelled with the project and context identifiers and where relevant the small-finds number

Use tie-on rot-proof labels where necessary

Bulk finds of the same material type, from the same context, may be packed together in stable paper or polythene bags

Mark all bags on the outside with site and context identifiers and the material type and include a polyethylene label marked with the same information

Use permanent ink on bags and labels

Sensitive finds must be supported, where appropriate, on inert plastic foam or acid-free tissue paper. It is not advisable to wrap objects in tissue as the unwrapping could cause damage.

The archive will be placed in a suitable form in the appropriate museum (typically the Museum of Antiquities for Newcastle (stores in Bedson Building and at Team Valley) and Tyne and Wear Museums for the rest of Tyne and Wear (check with these institutions) with the landowner's permission. Contact Andrew Parkin at the Museum of Antiquities (0191 2228996) and Alex Croom at Tyne and Wear Museums (0191 4544093).

A letter will be sent to the County Archaeology Officer within six months of the report having been submitted, confirming where the archive has been deposited.

Digital Archive

See MoRPHE Technical Guide 1 – Digital Archiving & Digital Dissemination 2006.

SIGNPOSTING

OASIS

The Tyne and Wear County Archaeologist supports the Online Access to the Index of Archaeological Investigations (OASIS) project. This project aims to provide an online index/access to the large and growing body of archaeological grey literature, created as a result of developer-funded fieldwork.

The archaeological contractor is therefore required to register with OASIS and to complete the online OASIS form for their evaluation at <http://www.oasis.ac.uk/>. Please ensure that tenders for this work takes into account the time needed to complete the form.

Once the OASIS record has been completed and signed off by the HER and NMR the information will be incorporated into the English Heritage Excavation Index, hosted online by the Archaeology Data Service.

The ultimate aim of OASIS is for an online virtual library of grey literature to be built up, linked to the index. The unit therefore has the option of uploading their grey literature report as part of their OASIS record, as a Microsoft Word document, rich text format, pdf or html format. The grey literature report will only be mounted by the ADS if both the unit and the HER give their agreement. The grey literature report will be made available through a library catalogue facility.

Please ensure that you and your client understand this procedure. If you choose to upload your grey literature report please ensure that your client agrees to this in writing to the HER at the address below.

For general enquiries about the OASIS project aims and the use of the form please contact: Mark Barratt at the National Monuments Record (tel. 01793 414600 or oasis@english-heritage.org.uk). For enquiries of a technical nature please contact: Catherine Hardman at the Archaeology Data Service (tel. 01904 433954 or oasis@ads.ahds.ac.uk). Or contact the Tyne and Wear Archaeology Officer at the address below.

The tender

Tenders for the work should contain the following:-

1. Brief details of the staff employed and their relevant experience
2. Details of any sub-contractors employed
3. A quotation of cost, broken down into the following categories:-
 - * Costs for the excavation, incl. sub-headings of staff costs on a person-day basis, transport, materials, and plant etc.
 - * Post-excavation costs, incl. storage materials
 - * Cost of Environmental analysis and scientific dating per sample
 - * Estimated cost for full publication of results in an archaeological journal
 - * Overheads
4. An indication of the required notification period (from agreement to start date) for the field-work; the duration of fieldwork and the expected date for completion of the post-excavation work (a maximum of 6 months after completion of the fieldwork)

Monitoring

The Archaeological Contractor will inform the County Archaeologist of the start and end dates of the excavation to enable the CA to monitor the work in progress.

Should important archaeological deposits be encountered, the County Archaeologist must be informed. If further archaeological evaluation is required on this site, then the archaeological contractor must submit a written scheme of investigation for approval by the CA before extending the size of the trenches.

APPENDICES

1 Environmental Sampling, Scientific Analysis and Scientific Dating

Scientific investigations should be undertaken in a manner consistent with "The Management of Archaeological Projects", English Heritage 1991 and with "Archaeological Science at PPG16 Interventions: Best Practice for Curators and Commissioning Archaeologists", English Heritage, 2003.

Aims of environmental sampling – to determine the abundance/concentration of the material within the features and how well the material is preserved, to characterise the resource (the site) and each phase, to determine the significance of the material and its group value, what crop processing activities took place on the site? What does this tell us about the nature of the site? Is there any evidence for changes in the farming practice through time? How did people use this landscape? Can we place certain activities at certain locations within the site? Function and date of individual features such as pits, hearths etc. Are the charred assemblages the result of ritual deposition or rubbish? Is the charcoal the result of domestic or industrial fuel?

Advice on the sampling strategy for environmental samples and samples for scientific dating etc. must be sought from Jacqui Huntley, English Heritage Regional Advisor for Archaeological Science (07713 400387) **before** the evaluation begins. The sampling strategy should include a reasoned justification for selection of deposits for sampling.

Deposits should be sampled for retrieval and assessment of the preservation conditions and potential for analysis of biological remains (English Heritage 2002). Flotation samples and samples taken for coarse-mesh sieving from dry deposits should be processed at the time of fieldwork wherever possible. Sieving recovers fish, amphibian, small bird and mammal bone, small parts of adult mammals and young infused bones which may be under-represented otherwise. However it is noted that clay soils in

this region make sieving difficult. Discuss the potential for sieving with Regional Advisor for Archaeological Science.

Environmental samples (bulk soil samples of 30-40 litres volume) will be collected by the excavator from suitable (i.e. uncontaminated) deposits. It is suggested that a large number of samples be collected during evaluation from which a selection of the most suitable (uncontaminated) can be processed. All tenders will give a price for the assessment, full analysis, report production and publication per sample.

The full 30-40 litre sample must be assessed by the laboratory, not just a small sub-sample.

Deposits will be assessed for their potential for radiocarbon, archaeomagnetic (guidance is available in the Centre for Archaeology Guideline on Archaeometallurgy 2001) and Optically Stimulated Luminescence dating. Timbers will be assessed for their potential for dendrochronology dating. Sampling should follow procedures in "Dendrochronology: guidelines on producing and interpreting dendrochronological dates", Hillam, 1998. All tenders will quote the price of these techniques per sample.

The following information should be provided with the environmental samples to be processed – brief account of nature and history of the site, aims and objectives of the project, summary of archaeological results, context types and stratigraphic relationships, phase and dating information, sampling and processing methods, sample locations, preservation conditions, residuality/contamination etc.

Laboratory processing of samples shall only be undertaken if deposits are found to be reasonably well dated, or linked to recognisable features and from contexts the derivation of which can be understood with a degree of confidence.

A range of features, and all phases of activity, need to be sampled for charred plant remains and charcoal. Aceramic features should not be avoided as the plant remains from these features may help to date them. Deep features should be sampled in spits to pick up changes over time. Part, or all of each of the contexts should be processed. In general samples should be processed in their entirety. All flots should be scanned, and some of the residues.

Pollen

Pollen samples can be taken from features such as lakes, ponds, palaeochannels, estuaries, saltmarshes, mires, alluvium and colluvium, and from waterlogged layers in wells, ditches and latrines etc. Substances such as honey, beer or food residues can be detected in vessels. Activities such as threshing, crop processing and the retting of flax can be identified. When taken on site, pollen samples should overlap. Your regional science advisor can advise on the type of corer or auger which would be most appropriate for your site. Samples need to be wrapped in clingfilm and kept dark and cool. Make a description of the sediments in which the pollen was found, and send this with the sample to be assessed.

Forams and diatoms

Coastal or estuary sites (even those which are now well drained) are suitable for sampling for foraminifera. Diatoms can also be found on marine sites, but also in urban settings (sewers, wells, drains, ditches etc). They only survive in waterlogged conditions. These aquatic microfossils are used as proxy indicators of the former aquatic ecological conditions on site, changes in sea levels and temperature, salinity, PH and pollution. Forams are taken from cores, monolith tins or bulk samples. Diatoms are cut from monolith tins or cores or taken as spot samples.

Insects

Insects, which are useful as palaeoenvironmental indicators, survive best in waterlogged deposits such as palaeochannels and wells. They can provide information on climate change and landscape reconstruction as some species are adapted to particular temperatures, habitats or even particular trees. Certain insects can indicate the function of a feature or building (eg. Weevils, which were introduced by the Romans, often indicate granary sites, parasites will indicate the presence of particular animals such as sheep or horse, latrine flies survive in the mineral deposits in latrines, or in the daub of medieval buildings etc). Samples need to be sealed (eg. in a plastic box).

Industrial Activity

Where there is evidence for industrial activity, macroscopic technological residues should be collected by hand. Separate samples should be collected for micro-slugs (hammer-scale and spherical droplets). Guidance should be sought from the English Heritage Regional Science Adviser on the sampling

strategy for metalworking features and advice on cleaning and packaging. Specialist on-site advice must be sought on identification of metalworking features. Slag and metal working debris must be assessed by a specialist. Scientific analysis (such as x-ray fluorescence, chemical analysis, metallography or scanning electron microscope) of slag can provide information on the melting temperature, chemical composition (is it iron, zinc, copper etc), microstructure (the type and shape of the crystals), physical properties (the hardness or viscosity), isotopic composition (strontium_87 or strontium_88 etc) and mineralogical composition. Guidance is available in the English Heritage “Archaeometallurgy” guidelines, 2001; “Archaeomagnetic dating”, 2006 and “Guidelines on the X-radiography of archaeological metalwork”, 2006.

See also Historical Metallurgy Society, 2008, “Metals and metalworking: a research framework for archaeometallurgy”.

Buried soils and sediments

Buried soils and sediment sequences should be inspected and recorded on site by a recognised geoarchaeologist. Procedures and techniques in the English Heritage document “Environmental Archaeology”, 2002 and “Geoarchaeology”, 2004 should be followed.

Wood

Sampling strategies for wooden structures should follow the methodologies presented in “Waterlogged wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood” R. Brunning, 1996. If timbers are likely to be present on your site, contact a wood specialist beforehand. Pre-excavation planning – determine questions to ask, agree on a sampling strategy, allocate reasonable time and budget. Soil samples should be taken of the sediments surrounding the timber. Keep the timbers wet! Record them asap on-site – plan, photograph, record the size and orientation of the wood (radial, tangential, transverse), any toolmarks, joints, presence of bark, insect damage, recent breaks, and if another piece of wood was on top of or below the piece sampled. Both vertical and horizontal positioning of wattling must be recorded. Wood samples can provide information on woodland management such as medieval coppicing, type of taxa (native or foreign), conversion technology (how the wood was turned into planks), building techniques and type of tools used.

Suitable samples should be submitted for dendrochronological dating. See English Heritage guidelines, 2004, “Dendrochronology”.

Leather and organic materials

Waterlogged organic materials should be dealt with following recommendations in “Guidelines for the care of waterlogged archaeological leather”, English Heritage and Archaeological Leather Group 1995.

2 *Animal Bone*

Animal bone can explore themes such as hunting and fowling, fishing, plant use, trade network, seasonality, diet, butchery, animal husbandry, food procurement, age structures, farrowing areas, species ratios, local environment.

Domestic animal bone was used in prehistoric and Roman cremation rituals.

Post medieval cattle bones – small cow bones invariably represent animals which produced high quality buttermilk for cheese. Big ‘improved’ cattle with large bones were produced for large quantities of meat and poorer quality milk. Large and small cattle bones are often found together on post medieval sites, usually with less of the small bones.

Animal bone assemblages should be assessed by a recognised specialist.

The specialist will need to know a brief account of the nature and history of the site, an account of the purpose, methods (details of sampling) for recovery of animal bones, and the main aims and results of the excavation, details of any specific questions that the excavator wants the animal bone specialist to consider, information about other relevant finds from the excavation (e.g. bone tools, fishing equipment, weaving equipment), specific information about each context that has produced significant quantities of animal bone (recovery method, phase, context type, position in relation to major structures, contamination by more recent material, some indication of the amount of bone (by weight or by container size)). See “Ancient Monuments Laboratory Advisory Note, “Assessment of animal bone collections from excavations”, Sebastian Payne, 1991 and “The Assessment of a collection of animal bones”, S. Davis, n.d., Ancient Monuments Laboratory.

Fish bone – there was some herring exploitation in the early medieval period. Christian fasting from around 970 allowed fish to be eaten on Fridays which led to a huge demand for fish. There was an increase in marine fishing, fish trade and fish consumption (cod, haddock, ling, herring etc) around 1000 AD. Middens provide evidence of commercial fishing. There was a decline in freshwater fish (cyprinid or carp, salmon, smelt, eel, pike) from the eleventh century.

Smoking fish is a recent practice. They were previously air dried and salted.

Newcastle was a major port. Samples should be sieved to retrieve fish and bird bones along with small parts of other animal skeletons and young infused bones.

A crane bone was recovered from excavations at Tuthill Stairs, Newcastle – a rare find.

Herring bones are so small that they can only be retrieved by 2mm sieving.

Clay soils are difficult to sieve, hot water can help.

Acidic soils mean poor preservation of bone.

See English Heritage 2002, "Environmental Archaeology – a guide to the theory and practice of methods from sampling and recovery to post excavation", Centre of Archaeology Guideline 1.

Isotope analysis can determine where the fish were coming from – North Sea, Scandinavia, Newfoundland, Iceland etc.

There is an excellent reference collection of fish bone at York.

Fish bones should be archived to museums for future dating and isotope analysis where this is not undertaken as part of the post-excavation process.

www.fishlab.org

3 Human Remains

Human remains must be treated with care, dignity and respect.

Excavators must comply with the relevant legislation (essentially the Burial Act 1857) and local environmental health concerns. If found, human remains must be left in-situ, covered and protected. The archaeological contractor will be responsible for informing the police, coroner, local Environmental Health department and the County Archaeologist. If it is agreed that removal of the remains is essential, the archaeological contractor will apply for a licence from the Home Office and their regulations must be complied with.

Site inspection by a recognised osteologist is desirable for isolated burials and essential for cemeteries. The remains will be recorded in-situ and subsequently lifted, washed in water (without additives). They will be marked and packed to standards compatible with "Excavation and post-excavation treatment of cremated and inhumed human remains", McKinley and Roberts, 1993. After excavation, the remains will be subject to specialist assessment.

Analysis of the osteological material should take place according to published guidelines "Human Remains from Archaeological Sites, Guidelines for producing assessment documents and analytical reports, English Heritage, 2002.

Some of the potential benefits from the study of human skeletons – demography, growth profiles, patterns of disease, genetic relationships, activity patterns, diet, burial practices, human evolution. New scientific techniques available include DNA and stable isotope analyses.

Diseases which yield ancient DNA – leprosy, syphilis, tuberculosis, mycobacterium bovis (animal form of TB passed to humans when they shared a living space from Neolithic period onwards).

Cremation destroys the crown of the tooth so it cannot be dated (the closure of the cranium vault can be used in adults for dating instead). Cremation also fragments bone, distorts it due to lack of water, shrinks the bone, causes microstructural alteration and destroys organic components (so DNA analysis not possible).

The final placing of the remains after scientific study and analysis will be agreed beforehand.

Further guidance is available in:

“Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England”, The Church of England and English Heritage, 2005 (www.english-heritage.org.uk/upload/pdf/16602_HumanRemains1.pdf)

“Church Archaeology: its care and management”, Council for the Care of Churches, 1999

The Advisory Panel on the Archaeology of Christian burials in England can provide free well-informed advice with consideration of relevant religious, ethical, legal, archaeological and scientific issues.

Panel’s website:

<http://www.britarch.ac.uk/churches/humanremains/index.html>

or email the secretary simon.mays@english-heritage.org.uk

4 Treasure

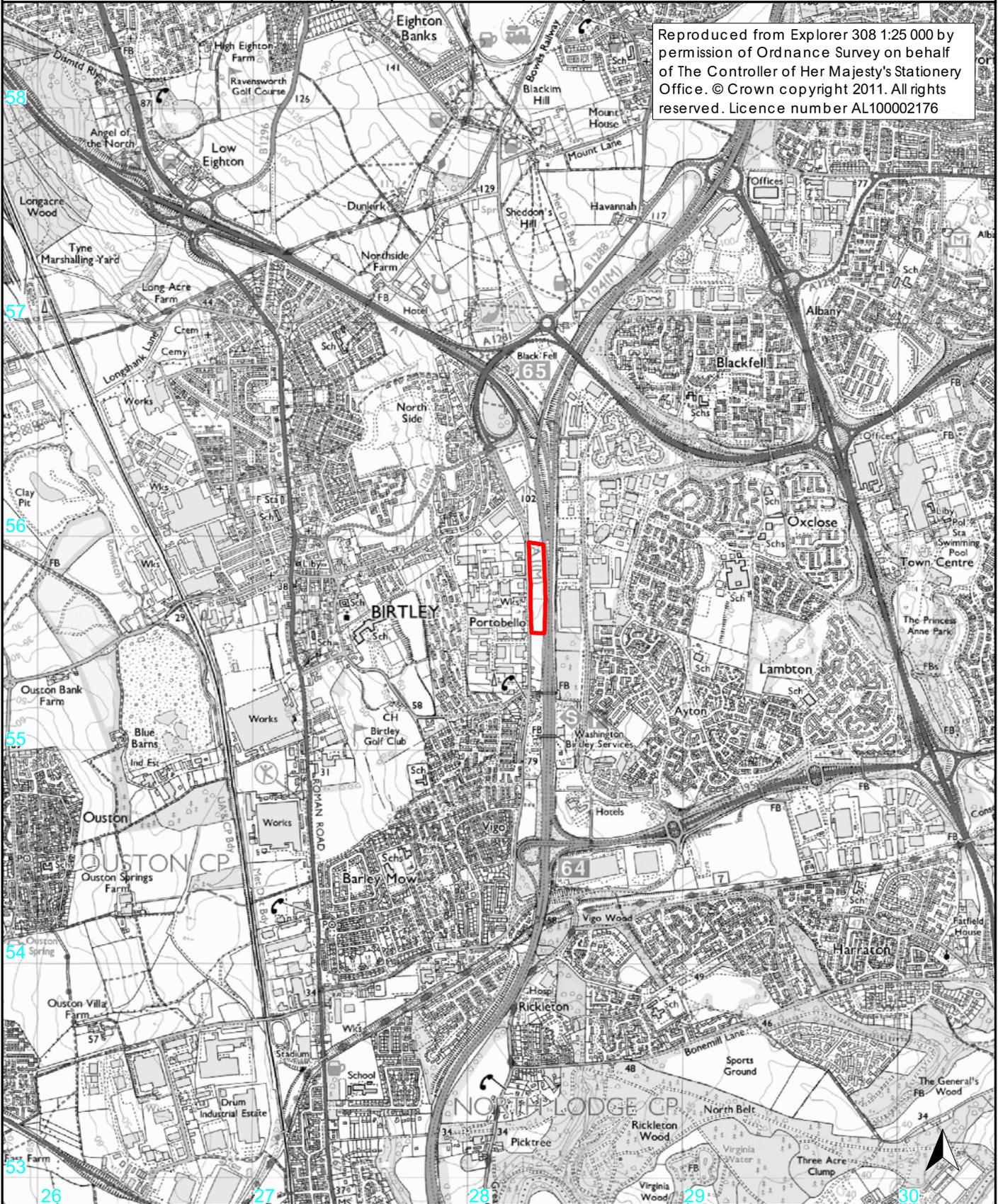
Defined as:

- Any metallic object, other than a coin, provided that at least 10% by weight of metal is precious metal and that is at least 300 years old when found
- Any group of two or more metallic objects of any composition of prehistoric date that come from the same find
- All coins from the same find provided that they are at least 300 years old when found, but if the coins contain less than 10% gold or silver there must be at least ten
- Any object, whatever it is made of, that is found in the same place as, or had previously been together with, another object that is Treasure
- Any object that would previously have been treasure trove, but does not fall within the specific categories given above. Only objects that are less than 300 years old, that are made substantially of gold or silver, that have been deliberately hidden with the intention of recovery and whose owners or heirs are unknown will come into this category

If anything is found which could be Treasure, under the Treasure Act 1996, it is a legal requirement to report it to the local coroner within 14 days of discovery. The Archaeological Contractor must comply with the procedures set out in The Treasure Act 1996. Any treasure must be reported to the coroner and to The Portable Antiquities Scheme Finds Liaison Officer, Rob Collins (0191 2225076 or Robert.Collins@newcastle.ac.uk) who can provide guidance on the Treasure Act procedures.

If you need this information in another format or language, please contact Jennifer Morrison, Archaeology Officer.

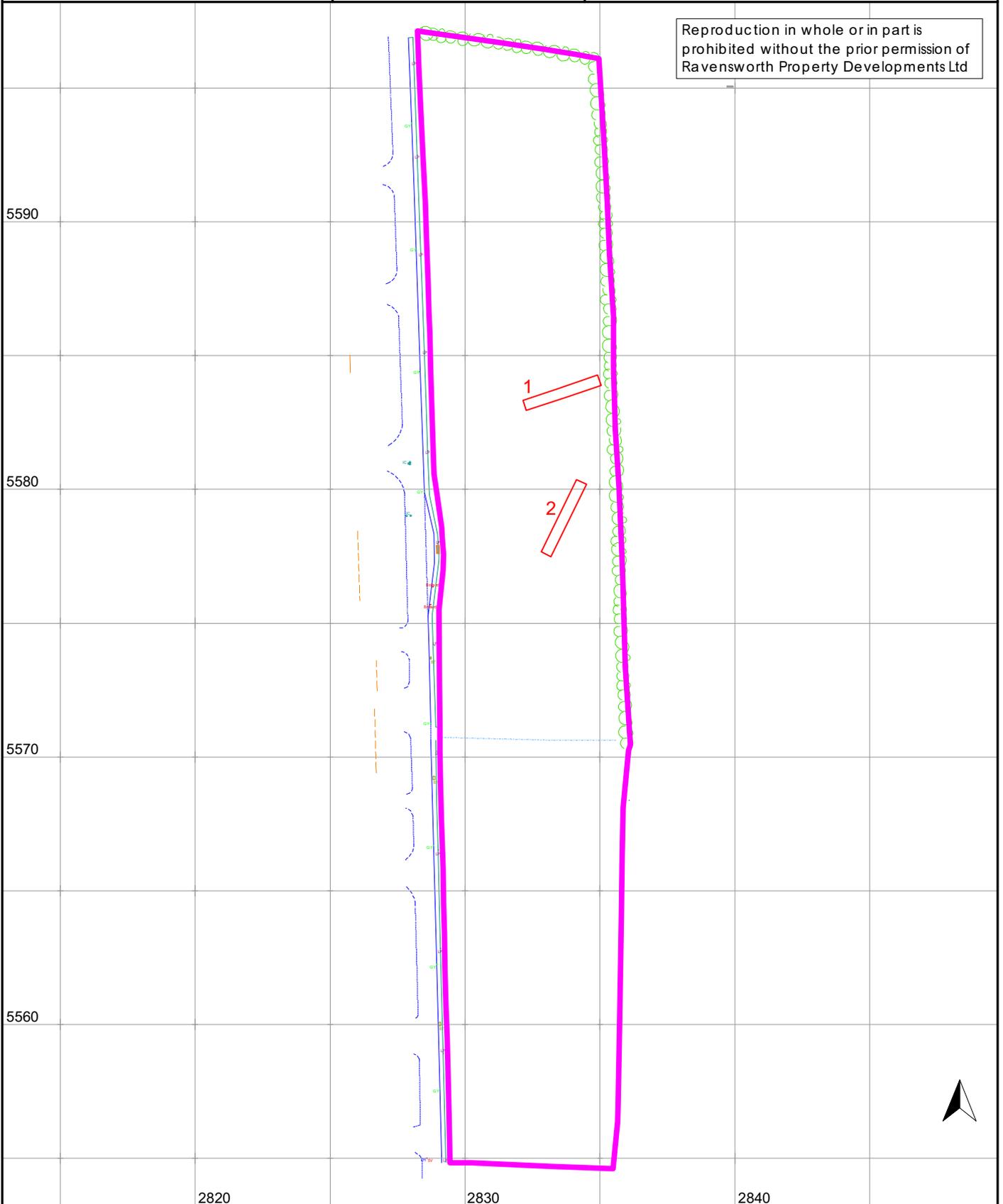
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 site location

0 1km
scale 1:25 000 for A4 plot

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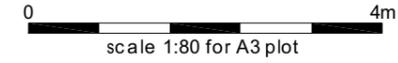
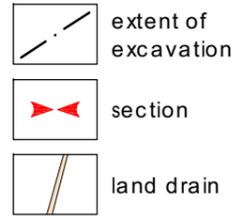
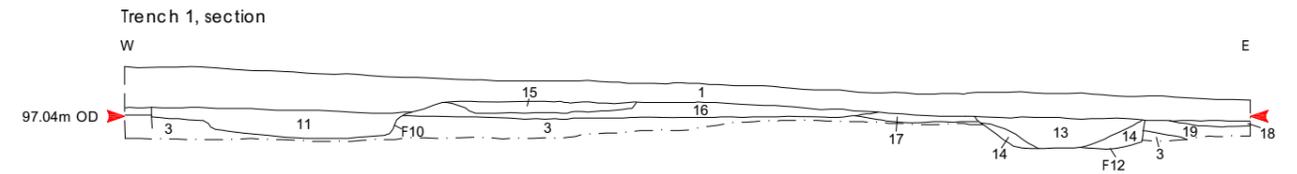
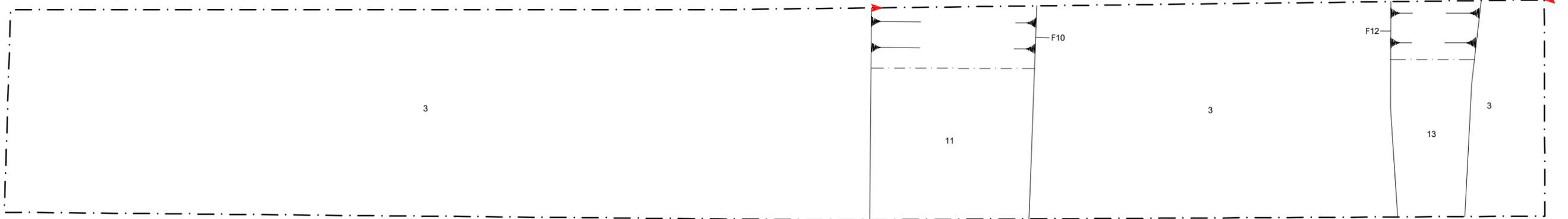


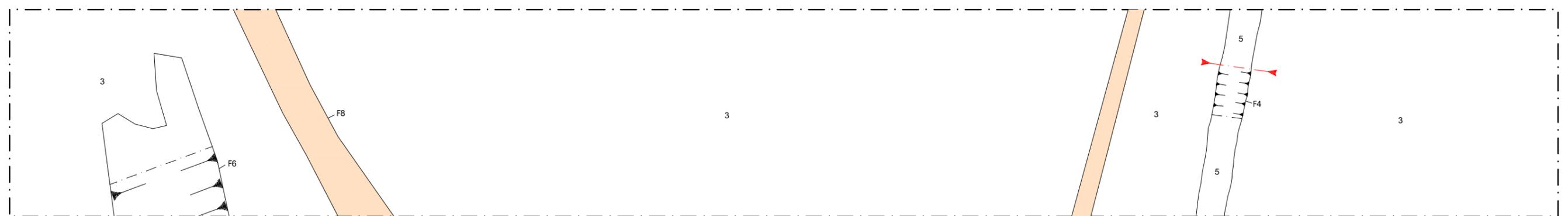
Figure 3: Trench plans and sections



Trench 1, plan



Trench 2, plan



Trench 2, section
SW NE
193.85m OD
3 5 F4



Figure 4: Trench 1, looking west



Figure 5: The waggonway, looking north-west



Figure 6: Ditch F10, looking north



Figure 7: Ditch F12, looking north



Figure 8: Trench 2, looking north-east



Figure 9: Gully F4, looking north