

**AN ARCHAEOLOGICAL EVALUATION ON
LAND ADJACENT TO ESH WINNING INDUSTRIAL ESTATE,
ESH WINNING, DERWENTSIDE,
COUNTY DURHAM**

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PRE-CONSTRUCT ARCHAEOLOGY

**An Archaeological Evaluation on Land Adjacent to
Esh Winning Industrial Estate, Esh Winning, Derwentside, County Durham**

Central National Grid Reference: NZ 1918 4221

Site Code: EWG 05

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CONTENTS

List of Figures

	<i>page</i>
1. NON-TECHNICAL SUMMARY	1
2. INTRODUCTION	2
3. PLANNING BACKGROUND AND RESEARCH OBJECTIVES	6
4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	8
5. GEOLOGY AND TOPOGRAPHY	9
6. ARCHAEOLOGICAL METHODOLOGY	10
7. ARCHAEOLOGICAL RESULTS	13
8. CONCLUSIONS AND RECOMMENDATIONS	24
9. REFERENCES	25
10. ACKNOWLEDGEMENTS AND CREDITS	26

APPENDICES

Appendix A: Context Index

Appendix B: Geophysical Survey Report

List of Figures

	<i>page</i>
Figure 1 Site location	4
Figure 2 Trench location	5
Figure 3 Trenches 1 and 2, plans and sections	17
Figure 4 Trench 3, plan and section	18
Figure 5 Trench 4, plan and section	19
Figure 6 Trench 5, plan and section	20
Figure 7 Trench 6, plan and section	21
Figure 8 Trench 7, plan and section	22
Figure 9 Trench 8, plan and section	23

1. NON-TECHNICAL SUMMARY

- 1.1 A programme of archaeological field evaluation was co-ordinated and undertaken by Pre-Construct Archaeology Limited on land adjacent to Esh Winning Industrial Estate, Esh Winning, Derwentside, County Durham between 18th October and 4th November 2005. The central National Grid Reference for the site is NZ 1918 4221. The work was commissioned by Philadelphia Estates Limited.
- 1.2 The site is proposed for development as a western extension to the existing Esh Winning Industrial Estate, which occupies land formerly occupied by Esh Colliery. The colliery opened in 1866 and the associated settlement, Esh Winning, was one a number of 'model colliery villages' constructed by the Quaker firm of Joseph Pease and Partners during a period of intensive exploitation of minerals in the Deerness Valley, west of Durham.
- 1.3 An archaeological desk based-assessment of a larger proposed development area, which encompassed the current site, was undertaken in 2000. The area has particular potential for archaeological remains of the Neolithic period, Iron Age and Romano-British period. The Roman road Dere Street, which ran along the valley side to the north of Esh Winning, was detected by geophysical survey close to the industrial estate in 2002. The area also has potential for remains associated with the former colliery; a late 19th century waggonway is known to have crossed the central portion of the proposed development site.
- 1.4 The field evaluation had two elements. The first comprised geophysical survey of the northern portion of the site, an area covering c. 2.4 hectares. The southern portion of the site was covered with compacted building rubble and was therefore unsuitable for geophysical survey. The results of the geophysical survey were used, where possible, to guide the subsequent programme of archaeological trial trenching.
- 1.5 The second element of the field evaluation comprised archaeological trial trenching. This involved the investigation of eight linear trenches within the northern portion of the site. Some trenches were sited to test geophysical anomalies possibly indicative of sub-surface archaeological features, while the remainder were located on a judgement basis to provide sample coverage of the site.
- 1.6 In summary, no evidence for anthropogenic activity pre-dating late post-medieval agricultural usage of the site was recorded within any of the evaluation trenches. No evidence for any ancient land surfaces was encountered. No residual artefactual material or remains of structural features or other material derived from human activity was observed to suggest that the site might have been utilised in any archaeological period prior to the late post-medieval period.

2. INTRODUCTION

- 2.1 This report describes the methods and results of a programme of archaeological field evaluation co-ordinated and undertaken by Pre-Construct Archaeology Limited (PCA) on land to the west of and immediately adjacent to Esh Winning Industrial Estate, Esh Winning, Derwentside, County Durham. The work was undertaken between 18th October and 4th November 2005. The central National Grid Reference of the site, is NZ 1918 4221 (Figure 1).
- 2.2 The commissioning Client was Philadelphia Estates Limited and outline planning permission had been obtained for an extension to the existing industrial estate. Full details of the development proposals were not available at the time of the archaeological evaluation.
- 2.3 The proposed development site, which is c. 4.05 hectares in size, lies in the Deerness Valley, west of the existing Esh Winning Industrial Estate and, at the time of the archaeological evaluation, comprised two distinct portions divided by an internal east-west field boundary. The northern portion of the site was an undeveloped field rising to the north, up the valley side. To the south, the natural slope had been recently levelled with the addition of building rubble. The overall development site was bounded to the north and west by open fields, to the east by the existing industrial estate and to the south by an enclosed paddock overlooking a stream, the Priest Burn.
- 2.4 An archaeological desk-based assessment (DBA) of a larger proposed development area, encompassing the current site, was undertaken in 2000.¹ In broad terms, the site lies within an area of perceived archaeological sensitivity, with particular potential for remains of the Neolithic period, Iron Age and Romano-British period. The land to the east occupied by the industrial estate was the site of Esh Colliery, which dates from the mid 19th century and was closed in 1968. An associated waggonway is known to have crossed the development site, essentially along the line of the existing internal field boundary.
- 2.5 The archaeological evaluation comprised two fieldwork elements. Initially, geophysical survey was undertaken to assess the possibility of any sub-surface archaeological remains in the northern portion of the site, an area of c. 2.4 hectares. In the second element, a series of archaeological trial trenches were excavated, their locations guided, where possible, by the geophysical survey results.
- 2.6 The trial trenching element of the archaeological evaluation comprised the investigation of eight linear trenches. A Specification for the evaluation was produced by the Archaeological Section, Durham County Council (ASDCC), which set out the justification for the investigation, its objectives and the strategy and procedures that were to be applied.² A Project Design for the evaluation was prepared by PCA and approved by the ASDCC prior to commencement of the fieldwork.³
- 2.7 The broad aim of the archaeological evaluation was to assess the impact of the development proposals upon the archaeological resource, in order to inform the planning decision.

¹ Archaeology Section, Durham County Council, 2000.

² Archaeology Section, Durham County Council, 2005.

³ PCA, 2005.

- 2.8 At the time of writing, the project archive is housed at the Northern Office of PCA, at Unit N19a, Tursdale Business Park, Durham. The completed project archive, comprising written, drawn, and photographic records will be ultimately deposited with the County Durham Archaeological Archive, under the site code EWG 05.
- 2.9 The **Online Access to the Index of Archaeological Investigations (OASIS)** reference number for the archaeological project is: preconst-11134.

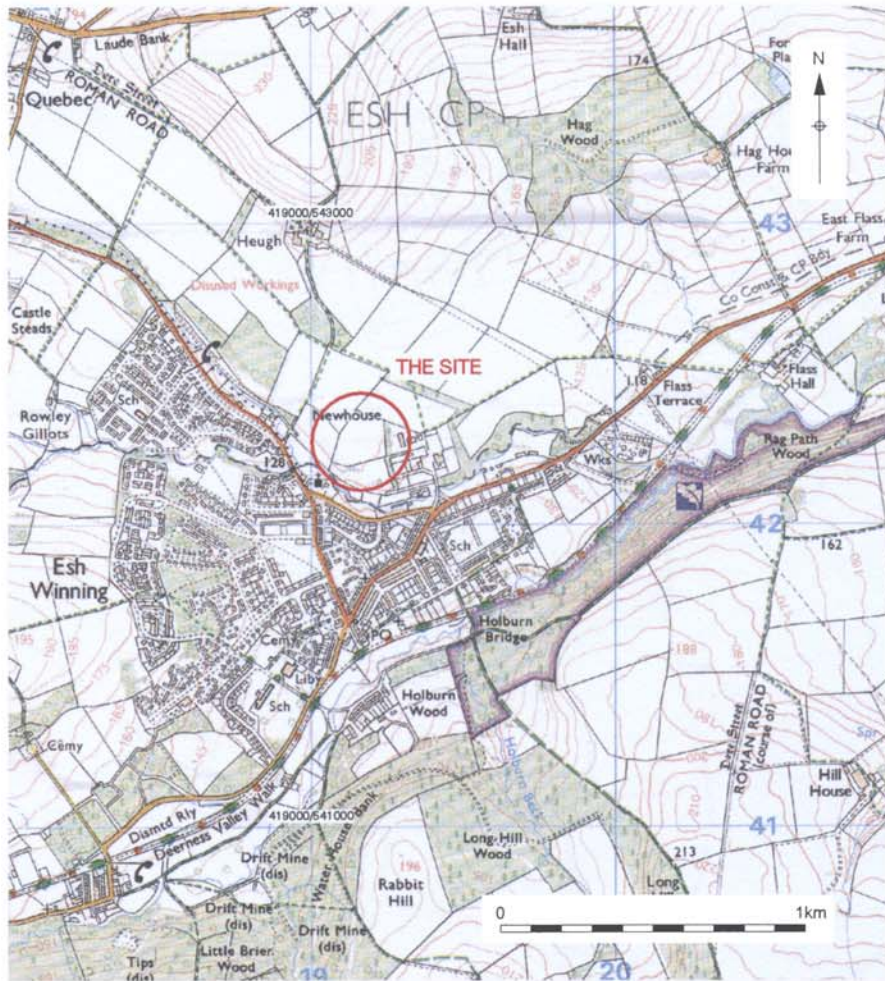
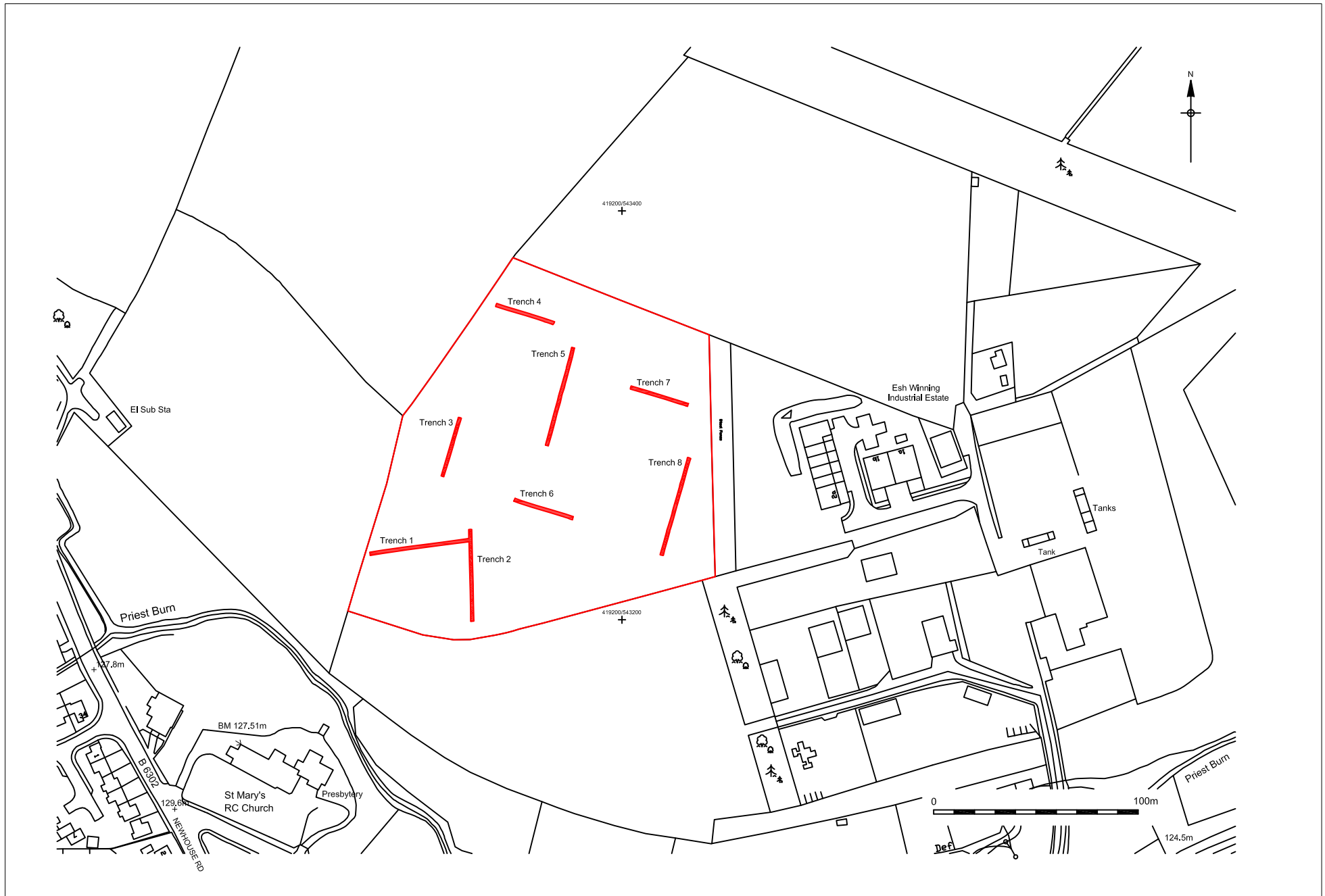


Figure 1. Site location
Scale 1:25,000



5

Figure 2. Trench location
Scale 1:2500

3. PLANNING BACKGROUND AND RESEARCH OBJECTIVES

3.1 Planning Background

3.1.1 Outline planning permission had been granted by Derwentside District Council to construct an extension to the existing Esh Winning Industrial Estate.⁴ The programme of archaeological work herein described was undertaken in advance of submission of detailed planning applications relating to the infill of the industrial estate.

3.1.2 At a national level, the need for early consultation in the planning process in order to determine the impact of development schemes upon the archaeological resource is identified in the planning policy document '*Planning Policy Guidance Note 16: Archaeology and Planning*' (PPG 16).⁵

3.1.3 At a local level, Derwentside District Local Plan⁶ contains '*Policy EN19: Protection of Sites and Settings of Ancient Monuments and Archaeological Features*', which states:

'Where nationally important archaeological remains, whether Scheduled Ancient Monuments or not, and their settings, would be affected by proposed development, there will be a presumption in favour of their physical preservation *in situ*.

Other known archaeological remains of more local importance will be protected from damage to their features of archaeological interest.

Where a proposed development is likely to affect a site of archaeological interest or its setting, the Council may request an archaeological assessment, prior to determining an application.

Where development is to be approved that could affect known archaeological remains, the Council will require the developer to ensure that adequate provision has been made for the excavation and recording of the remains before development commences. This will normally be a condition of planning permission'.

3.1.4 Throughout County Durham, the ASDCC has responsibility for identifying planning proposals that should be subject to archaeological conditions and advises District Councils regarding archaeological development control. The ASDCC considered that the proposed development would have a direct impact on the undeveloped field forming the northern portion of the site, which would result in the total and/or partial destruction of any archaeological remains therein.

3.1.5 The potential for the current site to contain archaeological remains was initially established in 2000 through the undertaking of a archaeological DBA for a larger proposed development area, which encompassed the current site. The DBA noted the particular potential (in respect of the larger area under consideration at the time) for:

- ritual or settlement activity of the Neolithic period;
- settlement and agricultural activity of Iron Age and Romano-British period;
- evidence associated with Dere Street Roman road, which ran to the north of the site.

⁴ The relevant planning application reference numbers are: 1997/0933/DMOP & 1/2004/0768/DMFP.

⁵ Department of the Environment, 1990.

⁶ Derwentside District Council, 1997.

- 3.1.5 In addition, the current site lies immediately to the west of the site of Esh Colliery, which dates from the mid 19th century. An associated wagonway is known to have crossed the site, essentially along the line of the existing internal field boundary.
- 3.1.6 A Specification for the programme of archaeological evaluation was issued by the ASDCC, setting out their justification for the archaeological project, its objectives and the strategy and procedures to be applied. The results were required to enable the Local Planning Authority make an informed and reasonable decision as per PPG16 and Policy EN19 of the Derwentside District Local Plan. Prior to the fieldwork commencing, a Project Design was compiled by PCA, and this was approved by the ASDCC.

3.2 Research Objectives

- 3.2.1 The broad aim of the archaeological evaluation was to ascertain whether there were any archaeological constraints that may affect the proposed development of the site.
- 3.2.2 The Specification for the programme of archaeological evaluation set out these overall aims:
- to establish the presence/absence, nature, depth and character of any possible archaeological features identified in the geophysical surveys;
 - to establish, where possible, further mitigation which may be necessary to preserve archaeological features *in situ*, or
 - to ascertain if preservation of archaeological features by record is required, where necessary;
 - to determine if further archaeological interventions are needed.
- 3.2.3 In summary, due to the archaeological potential of the development site, the project had the potential to make an important contribution to archaeological knowledge at a local and regional level.

4. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 4.1 The archaeological DBA from 2000 identified no evidence for any prehistoric activity within the proposed development site adjacent to Esh Winning Industrial Estate. A Neolithic (c. 4,500-1,500 BC) stone axe (SMR 1018) is recorded c. 0.5km to the south-east of the site. It was reportedly recovered, before 1934, from the bottom of a ditch that drained into the Priest Burn. The DBA suggested that this find was of either indicative Neolithic settlement in this part of the valley or was possibly related to religious or ritual ceremony.
- 4.2 There is no evidence for Roman activity within the proposed development site. The nearest Roman activity is located c. 0.5 km to the north, where the Roman road, Dere Street, (SMR 3119-3120) runs SE-NW along the side of the Deerness Valley. Dere Street was the principle road for much of the Roman period running from York to Hadrian's Wall and beyond. The position of the Roman road to the east of the site was established by geophysical survey in 2002.⁷ From this work, it is known that Dere Street does not cross the site, although it is possible that field systems associated with any roadside settlement could extend down the valley side. The DBA also identified an Iron Age native farmstead (SMR 358) located c. 0.8km to the north of the site, although this no longer appears on the SMR.
- 4.3 There is no evidence for any Anglo-Saxon activity within the proposed development site, although there were early settlements in the general vicinity. To the north of the site is the village of Esh which can trace its origins to the Anglo-Saxon period and was a village in the medieval village. Approximately 1.2km to the west of the site are the earthwork remains of the Castle Steads medieval manor house (SMR 1840), which has Scheduled Ancient Monument status – one of only 13 in Derwentside - with a medieval deserted village with the same name associated with it (SMR 7808).
- 4.4 The village of Esh Winning (SMR 823) was established simultaneously with the opening of Esh Colliery (SMR 5566) in 1866, to house the miners and their families. It was one of a number of 'model colliery villages' constructed by the Quaker firm of Joseph Pease and Partners which mined and quarried extensively along the Deerness Valley. Esh Colliery closed in 1968, with much of the eastern side of the village being demolished thereafter.
- 4.5 The 1st edition Ordnance Survey map, c. 1856, shows the area completely undeveloped pre-colliery and village; the site itself is shown as woodland. The 2nd edition, c. 1896, shows Esh Colliery in place, with several rows of planned terraced housing around its fringes. The site itself is crossed by a waggonway running roughly east-west from the colliery to join the Cornsay Railway. The southern boundary of the development site roughly follows the line of the former railway and the existing internal field-boundary closely follows the northern limit of the former waggonway corridor. To the north of the waggonway, the northern portion of the site is shown as 'rough ground'. By the 3rd edition, c. 1923, the northernmost corner of the site had been parcelled off, with a row of three square 'pens' on the eastern side of the boundary. By the 1950's edition, this area was no longer delineated. The waggonway remained on successive editions until the 1970's, although it is not certain precisely when it ceased to function.

⁷ GeoQuest Associates, 2002.

5. GEOLOGY AND TOPOGRAPHY

5.1 Geology

- 5.1.1 The 'solid' geology of the area is formed by the middle Carboniferous Coal Measures of the Durham Coalfield. 'Drift' sediments of various types are widespread in the area and largely conceal the underlying Carboniferous rocks.

5.2 Topography

- 5.2.1 Esh Winning lies in the valley of the River Deerness, c. 8km to the west of Durham. The proposed development site is located to the west of the existing Esh Winning Industrial Estate, on the north side of the village, north of the B6302. The site is c. 4.05 hectares in size and occupies sloping ground on the valley side at c. 130m OD. The site is centred at National Grid Reference NZ 1918 4221 (Figure 1).
- 5.2.2 The overall development site is bounded to the north and west by open fields, to the east by a conifer plantation screening the Esh Winning Industrial Estate and to the south by an enclosed paddock, which overlooks a stream, the Priest Burn.
- 5.2.3 At the time of the archaeological evaluation, the site had two distinct portions, divided by an internal east-west field boundary. The southern portion had recently been levelled with the ground surface made up with compacted rubble hardcore – this area was not subject to archaeological evaluation. The northern portion was an undeveloped field rising to the north, up the valley side. There was a distinct natural ridge crossing the south-western part of the northern field from NW-SE, with the ground falling away steeply down to the south-western corner of the field.

6. ARCHAEOLOGICAL METHODOLOGY

6.1 Geophysical Survey

6.1.1 Geophysical survey was undertaken across the majority of the northern field within the overall development site. The survey was undertaken on 16th October 2005. The methodology and results of this work, which were used to guide some of the trial trenches in the subsequent phase of the evaluation, are described in Appendix B to this report.

6.2 Trial Trenching

6.2.1 The trial trenching element of the evaluation was undertaken in accordance with the relevant standard and guidance document of the Institute of Field Archaeologists (IFA).⁸ PCA is an IFA-Registered Archaeological Organisation (RAO 23). Prior to the fieldwork, a Project Design was compiled by PCA and approved by the ASDCC. The trenching was undertaken between 18th October and 4th November 2005.

6.2.2 The northern field at the proposed development site covers an area of c. 2.4 hectares. In total, eight trenches (Trenches 1-8) were investigated, with the total area of the trenches being c. 480 square metres representing a c. 2% sample of the northern field. The trenching strategy was designed to test the results of the geophysical survey, as well as provide sample coverage of the field (Figure 2). The dimensions of the trenches are shown in Table 1, below.

Trench	Length	Maximum Depth
1	48.70m E-W	0.42m
2	45m N-S	0.40m
3	29.80 NE-SW	0.49m
4	29.70m SE-NW	0.28m
5	49.46m NE-SW	0.38m
6	29.90m SE-NW	0.34m
7	29.20m SE-NW	0.42m
8	49.40m NE-SW	0.38m

Table 1. Dimensions of trial trenches

6.2.3 All trenches were excavated using a back acting 180° mechanical excavator fitted with a 1.60m wide 'toothless' ditching bucket. The excavation of trenches was carried under the direct guidance of the supervising archaeologist. All undifferentiated topsoil and subsoil were removed by the mechanical excavator in spits no more than 100mm thick. Spoil was mounded alongside trenches.

6.2.4 Subsequent excavation and recording was undertaken in accordance with recognised archaeological practice and following methodology set out in PCA's field recording manual.⁹ Following machine clearance, the sections and the base of each trench were cleaned using the appropriate hand tools. Sections within each trench were drawn at a scale of 1:20 and plans were drawn at a scale of 1:50. The location of each trench was precisely located using a Geodimeter Total Station EDM.

- 6.2.5 Deposits were recorded using a 'single context recording' system and *pro forma* context recording sheets were employed. A photographic record of the investigations was compiled using SLR cameras. This comprised black and white prints and colour transparencies (on 35mm film). All photographs (except 'working shots') included a graduated metric scale. The photographic record forms part of the project archive.
- 6.2.6 Two Temporary Bench Marks (TBMs) were established at the site using a Geodimeter Total Station EDM, derived from an Ordnance Survey Bench Mark (value 127.51m OD) on St. Mary's RC Church to the south-west of the site.

6.3 Post-excavation

- 6.3.1 The project's stratigraphic data is represented by the written, drawn and photographic records. Post-excavation work involved checking and collating site records, compiling matrices and phasing the stratigraphic data. A written summary of the sequence of deposits in each trench was then compiled, as described below in Section 7.
- 6.3.2 The contents of the written, graphic and photographic archive are quantified in Tables 2 and 3, below:

<i>Item</i>	<i>No.</i>	<i>Sheets</i>
Context Register	1	1
Context Sheets	26	26
Section Register	1	1
Section Drawings	8	20
Plan Drawings	8	9

Table 2. Quantification of paper archive

<i>Item</i>	<i>No.</i>	<i>Sheets</i>
Colour Slide Register	1	1
Colour Slides	16	1
Monochrome Print Register	1	1
Monochrome Prints	16	1
Monochrome Negatives	16	1

Table 3. Quantification of photographic archive

- 6.3.3 No artefactual material was retained from site.
- 6.3.4 No organic material, including faunal remains, was recovered from the site.
- 6.3.5 The project's palaeoenvironmental sampling strategy was to recover bulk soil samples from deposits associated with archaeological features of note. To this end, no features of significance were encountered to warrant the recovery of bulk samples.

⁸ Institute of Field Archaeologists, 1999.

⁹ PCA, 1999.

- 6.3.6 Survival of all materials recovered during or generated by archaeological projects depends upon suitable storage. The complete project archive, comprising written, graphic and photographic records (including all material generated electronically during post-excavation) and all recovered materials have been packaged for long term curation according to relevant guidelines.¹⁰ The depositional requirements of the receiving body will be met in full.
- 6.3.7 Data will be prepared for accession to the County Durham Archaeological Archive. The PCA site code for the archaeological project is: EWG 05.
- 6.3.8 The **Online Access to the Index of Archaeological InvestigationS** (OASIS) reference number for the archaeological project is: preconst-11134.

¹⁰ UKIC, 1990.

7. ARCHAEOLOGICAL RESULTS

Note: Discrete stratigraphic entities (e.g., a cut, a fill, a deposit) were assigned unique and individual archaeological 'context' numbers, and these are indicated in the following text as [']. The geomorphological and archaeological sequence at the site has been described by trench, detailing the progression of deposition.

7.1 Trench 1 (Figure 3)

7.1.1 Trench 1 was located in the southwestern portion of the northern field and was positioned to test two linear anomalies, NNE-SSW and NW-SE aligned, detected by geophysical survey (numbered 'f2' in Appendix B). This trench measured 48.70m ENE-WSW by 1.60m wide and was excavated to a maximum depth of 0.42m.

7.1.2 The earliest deposit, [20], encountered in Trench 1, comprised firm light brownish yellow silty clay deposit. This deposit extended across the whole of the trench and was recorded at a highest level of 133.11m OD at the eastern end of the trench sloping down to 131.04m OD at the western end of the trench (c. 0.42m below present ground level). Deposit [20] has been interpreted as a natural drift sediment (boulder clay).

7.1.3 Directly overlying natural sub-stratum was topsoil, [19], comprising firm mid grey clayey silt. This deposit extended across the whole of the trench. Its maximum thickness was 0.42m and it occurred at a highest level of 133.52m OD sloping down to 131.28m OD. No sub-surface features were detected to account for the 'f2' anomalies in the geophysical survey and, in sum, no archaeological remains were encountered.

7.2 Trench 2 (Figure 3)

7.2.1 Trench 2 was located at the eastern end of Trench 1 and measured 45m north-south by 1.60m wide by 0.40m maximum depth. It was sited to test the same NW-SE aligned linear geophysical anomaly (numbered 'f2' in Appendix B) tested by Trench 1 and, in addition, to investigate the environs of the former colliery waggonway, the position of which has been fossilised in the line of the internal field boundary at the site.

7.2.2 The earliest deposit, [18], encountered in Trench 2, comprised firm mid orange brown to mid yellow brown clay, clayey sand, interpreted as the natural boulder clay sub-stratum. This deposit extended across the entire trench and was recorded at a highest level of 133.15m OD in the north of the trench sloping down to 130.92m OD in the south (c. 0.40m below present ground level).

7.2.3 Directly overlying deposit [18] was topsoil, [17], comprising firm mid grey clayey silt. This deposit extended across the whole of the trench. Its maximum thickness was 0.40m and it occurred at a highest and lowest level of 133.53m OD and 131.19m OD. No sub-surface feature was detected to account for the linear anomalies identified by geophysical survey and, in sum, no archaeological remains were encountered.

7.3 Trench 3 (Figure 4)

- 7.3.1 Trench 3 was located adjacent to the central part of the western boundary of the site and was positioned to investigate a snaking but generally linear geophysical anomaly (numbered 'f3' in Appendix B), detected on a NW-SE alignment. This trench measured 29.80m NE-SE by 1.60m wide, with a maximum depth of 0.49m.
- 7.3.2 The earliest deposit, [26], encountered in Trench 3 comprised firm light to mid greyish yellow to greyish orange silty clay and clay sand. This deposit, interpreted as natural boulder clay, extended across the whole of the trench and was recorded at a highest level of 134.17m OD in the southern end of the trench and 133.92m OD in the northern portion (c. 0.49m below present ground level).
- 7.3.3 Two linear features, [23] and [25], truncated the natural sub-stratum. Feature [25] was aligned NW-SE and had a shallow U-shaped profile. The feature was 0.70m wide by 0.22m deep and was exposed for a length of 1.60m. The highest level at which it was recorded was 134.13m OD. Its fill, [24], comprised firm mid yellowish grey silty clayey sand. Feature [23] was similarly orientated and was 0.80m wide and was exposed for a length of 1.60m. Its fill, [22], comprised firm mid yellowish grey silty clayey sand. The highest level at which this feature was recorded was 134.01m OD. Linear features [23] and [25] have been interpreted as post-medieval plough furrows.
- 7.3.4 Directly overlying deposits [22] and [24] was topsoil, [21], comprising firm mid grey clayey silt. This deposit extended across the whole of the trench and its maximum thickness was 0.38m. It occurred at highest and lowest levels of 134.56m OD and 134.23m OD, respectively. There was no evidence for the linear anomaly detected by geophysical survey in the central part of the trench, although it was possibly a vestige of the plough activity represented by the two shallow features that were recorded.

7.4 Trench 4 (Figure 5)

- 7.4.1 Trench 4 was located in the northwestern part of the site and measured 29.70m NW-SE by 1.60m wide, with a maximum depth of 0.28m. It was positioned on a judgement basis.
- 7.4.2 The earliest deposit, [2], encountered comprised firm light greyish yellow clayey silt, interpreted as natural boulder clay. This deposit extended across the whole of the trench and was recorded at a highest level of 136.88m OD in the western part of the trench and sloping down to 135.52m OD in the eastern part (c. 0.28m below present ground level).
- 7.4.3 Directly overlying deposit [2] was topsoil, [1], firm mid grey clayey silt. This deposit extended across the whole of the trench and its maximum thickness was 0.28m. The highest and lowest levels at which it was recorded were 137.27m OD and 135.82m OD, respectively. In sum, Trench 4 recorded no archaeological remains.

7.5 Trench 5 (Figure 6)

- 7.5.1 Trench 5 was located towards the central part of the site and was positioned to investigate one of a series of linear NW-SE aligned anomalies (numbered 'f4' in Appendix B) detected by geophysical survey. The trench measured 49.46m NNE-SSW by 1.60m wide, with a maximum depth of 0.38m.
- 7.5.2 Natural sub-stratum boulder clay, [10], comprising firm light greyish yellow silty clay was encountered across the extent of the trench. This deposit was recorded at a highest level of 134.41m OD in the northern part of the trench and 131.96m OD in the southern part (c. 0.22m below present ground level).
- 7.5.3 Two linear features, [7] and [9], truncated natural sub-stratum. Feature [7] was orientated WNW-ESE and was 0.97m wide by 0.06m deep with a very shallow U-shaped profile. It was recorded at a highest level of 133.24m OD and its fill, [6], comprised firm mid yellowish grey silty clay. Linear feature [9] was similarly orientated and also had a shallow U-shaped profile. It was 1.90m wide by 0.12m deep and was recorded at a highest level of 134.07m OD. Its fill, [8], comprised firm mid yellowish grey silty clay. Linear features [7] and [9] have been interpreted as post-medieval plough furrows. Feature [9] may have been the source of anomaly 'f4' detected by geophysical survey towards the northern end of the trench.
- 7.5.4 Directly overlying deposits [6] and [9] was topsoil, [5], firm mid grey clayey silt. This deposit extended across the whole of the trench and its maximum thickness was 0.22m. It occurred at highest and lowest levels of 134.73m OD and 132.31m OD, respectively.

7.6 Trench 6 (Figure 7)

- 7.6.1 Trench 6 was positioned, on a judgement basis, in the southern central part of the site and measured 29.90m NW-SE by 1.60m wide, with a maximum depth of 0.34m.
- 7.6.2 The earliest deposit, [4], encountered in Trench 1 was firm light greyish yellow silty clay. This deposit extended across the whole of the trench and was recorded at a highest level of 132.46m OD at the western end of the trench sloping down to 130.96m OD in the east (c. 0.36m below present ground level). Deposit [4] has been interpreted as the natural boulder clay sub-stratum.
- 7.6.2 Directly overlying deposit [4] was topsoil, [3], firm mid grey clayey silt. This deposit extended across the trench and its maximum thickness was 0.36m, it occurred at highest and lowest levels of 132.78m OD and 131.23m OD, respectively. In sum, no archaeological remains were recorded by Trench 6.

7.7 Trench 7 (Figure 8)

- 7.7.1 Trench 7 was located in the eastern part of the site and measured 29.20m NW-SE by 1.60m wide, with a maximum depth of 0.42m. It was positioned on a judgement basis.

- 7.7.2 The earliest deposit, [16], encountered in Trench 7, comprised firm light grey to mid brownish yellow clay to clayey sand. This deposit extended across the whole of the trench and was recorded at a highest level of 132.48m OD at the western end of the trench sloping down to 131.57m OD in the east (c. 0.32m below present ground level). Deposit [16] has been interpreted as the natural drift sediment.
- 7.7.2 Directly overlying deposit [16] was topsoil, [15], firm mid grey clayey silt. This deposit extended across the whole of the trench and its maximum thickness was 0.32m. It occurred at highest and lowest levels of 132.66m OD and 131.78m OD, respectively. In sum, no archaeological remains were recorded by Trench 7.

7.8 Trench 8 (Figure 9)

- 7.8.1 Trench 8 was located in the southeastern corner of the site and measured 49.40m NNE-SSW by 1.60m wide, with a maximum depth of 0.38m. It was positioned to test one of a series of linear NW-SE aligned anomalies (numbered 'f4' in Appendix B) detected by geophysical survey. Due to heavily waterlogged ground in the low-lying south-eastern corner of the field, the trench was moved c. 8m to the north of its intended position.
- 7.8.2 The earliest deposit, [12], encountered in Trench 8, comprised firm light greyish yellow silty clay. This deposit extended across the trench and was recorded at a highest level of 129.93m OD in the northern part of the site sloping down to 128.73m OD in the south (c. 0.32m below present ground level). Deposit [12] has been interpreted as natural boulder clay.
- 7.8.3 A linear feature, [12], aligned WNW-ESE truncated natural sub-stratum. This had a very shallow U-shaped profile and measured 0.85m wide by 0.09m deep and is interpreted as a post-medieval plough furrow. The highest level at which it occurred was 129.33m OD. Its fill, [13], comprised firm mid greyish brown silty clay.
- 7.8.4 Directly overlying deposit [13] was topsoil, [11], firm mid grey clayey silt. This deposit extended across the trench and was 0.32m thick. The highest and lowest levels at which it occurred were 130.35m OD and 128.73m OD, respectively.

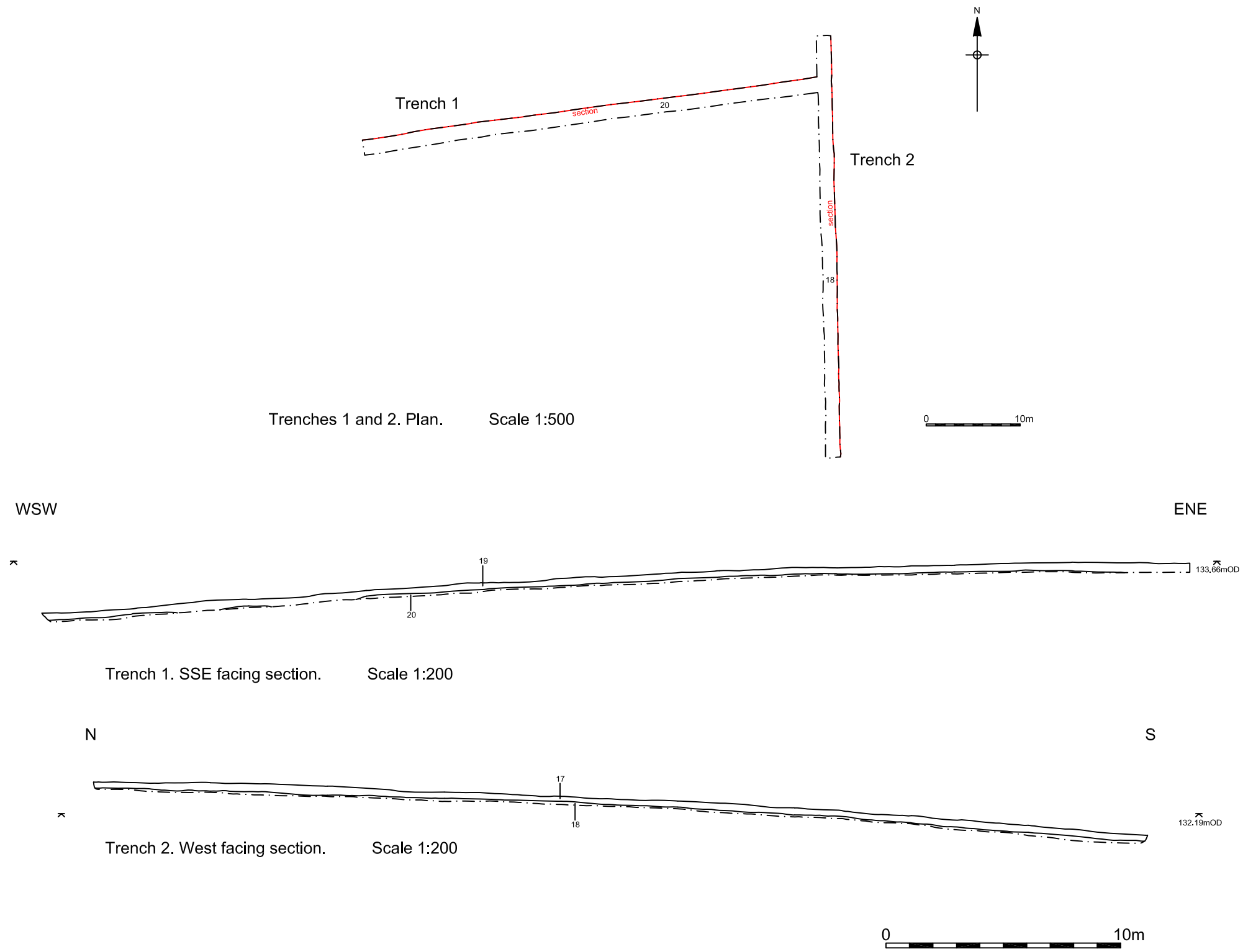
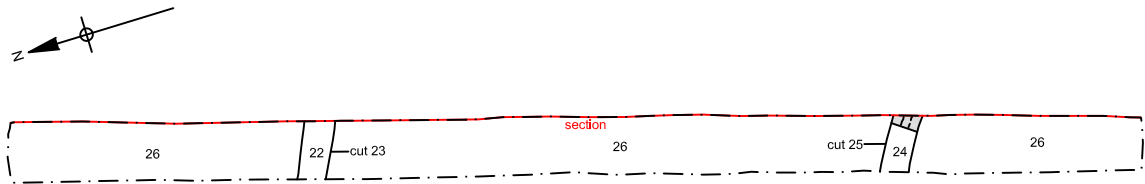
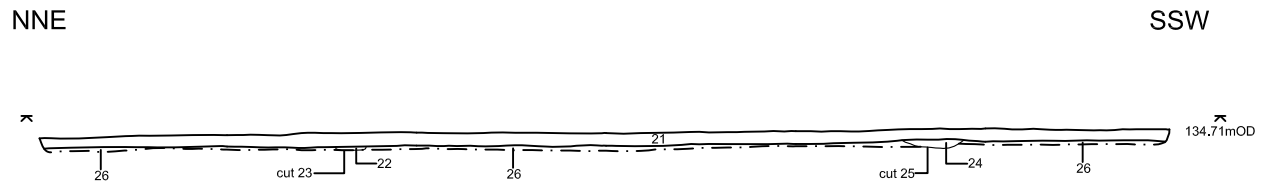


Figure 3. Trenches 1 and 2, plan and sections



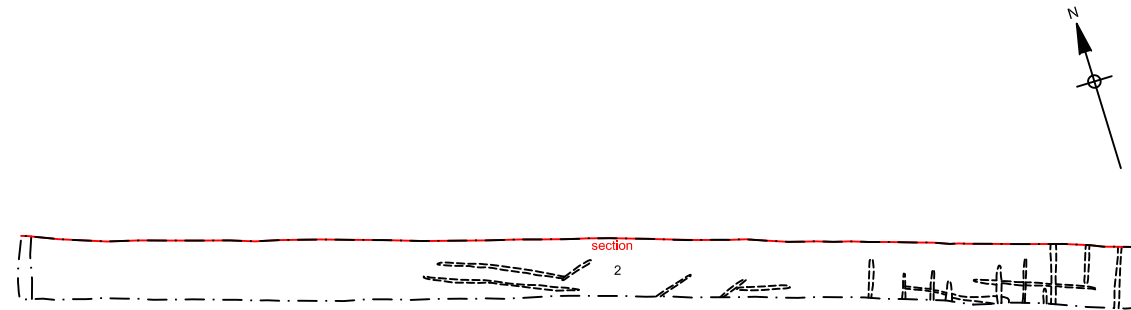
Trench 3. Plan.



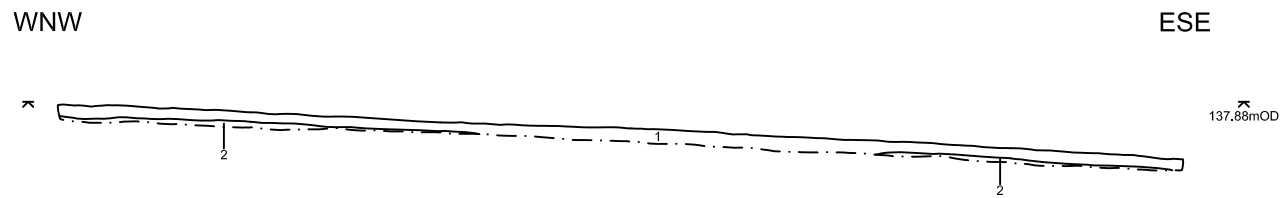
Trench 3. WNW facing section.



Figure 4. Trench 3, plan and section
Scale 1:200



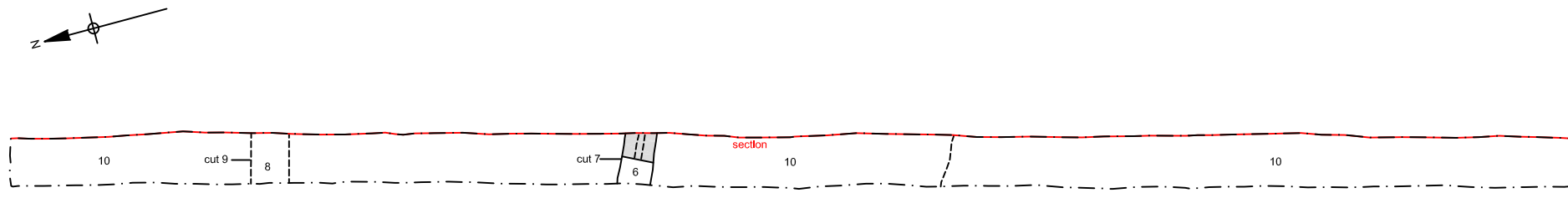
Trench 4. Plan.



Trench 4. SSW facing section.



Figure 5. Trench 4, plan and section
Scale 1:200



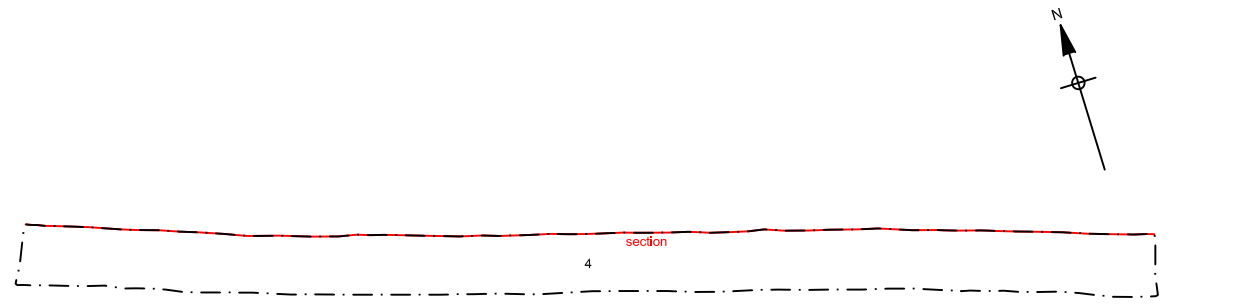
Trench 5. Plan.



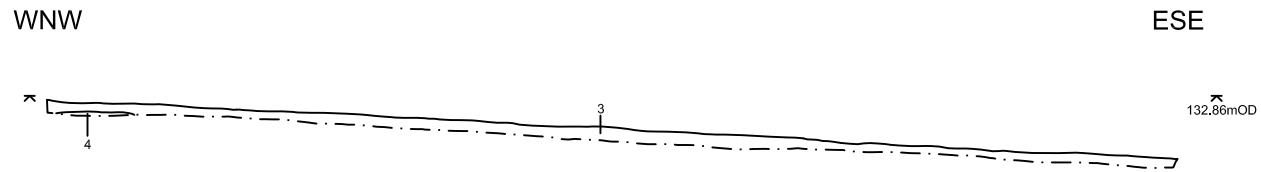
Trench 5. WNW facing section.



Figure 6. Trench 5, plan and section
Scale 1:200



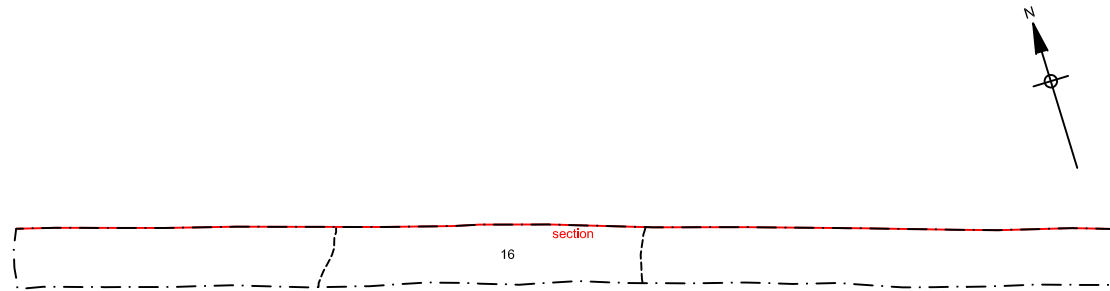
Trench 6. Plan.



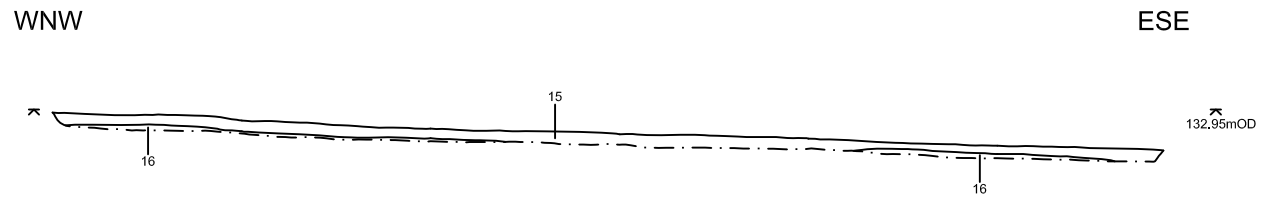
Trench 6. SSW facing section.



Figure 7. Trench 6, plan and section
Scale 1:200



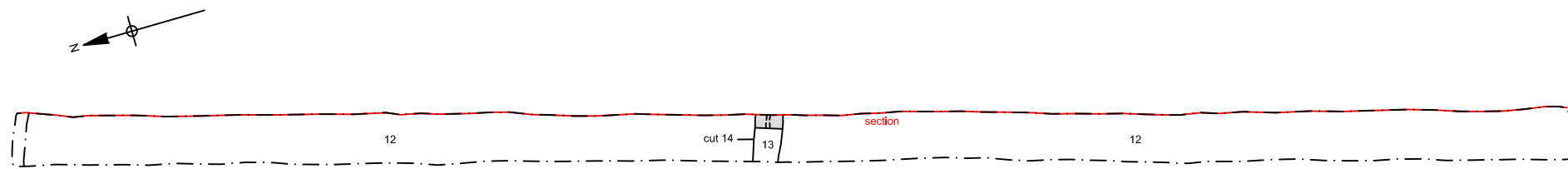
Trench 7. Plan.



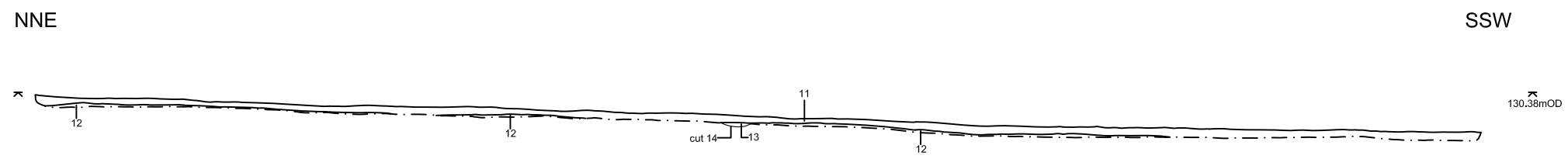
Trench 7. SSW facing section.



Figure 8. Trench 7, plan and section
Scale 1:200



Trench 8. Plan.



Trench 8. WNW facing section.



Figure 9. Trench 8, plan and section
Scale 1:200

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

- 8.1.1 The programme of archaeological evaluation on land adjacent to Esh Winning Industrial Estate recorded no significant archaeological features or deposits within any of the eight evaluation trenches. Of a group of linear anomalies detected by geophysical survey, only one, tested by Trench 5, appeared to have been caused by a sub-surface archaeological feature. The feature in question, along with similar shallow linear features exposed in Trenches 3 and 8, has been interpreted as a later post-medieval plough furrow. As a group, these features are considered to be of negligible archaeological significance.
- 8.1.2 No evidence of ancient land surfaces was recorded and no residual artefactual material, such as worked flint or pottery, or remnants of structural features, were observed at any location during the archaeological evaluation to suggest that the site was utilised in any prehistoric era, nor the Roman, Anglo-Saxon, medieval or earlier post-medieval periods.
- 8.1.3 It is therefore concluded that the proposed development of land adjacent to Esh Winning Industrial Estate will have no detrimental effect upon archaeological remains within the northern portion of the proposed development site.

8.2 Recommendations

- 8.2.1 It has been concluded that the proposed development of land adjacent to Esh Winning Industrial Estate will not have a detrimental effect upon archaeological remains within the northern portion of the proposed development site. Thus it is considered that no further mitigation is necessary to preserve archaeological features either *in situ* or by record, since no such features were recorded. Accordingly, it is recommended that no further archaeological intervention is required in advance of the proposed development scheme.

9. REFERENCES

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10. ACKNOWLEDGEMENTS AND CREDITS

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The curatorial role of the Archaeology Section, Durham County Council, particularly Lee White, is acknowledged.

PCA Credits

Fieldwork: Aaron Goode (Site Supervisor), Kathryn Johnson, James Langthorne

Report: Aaron Goode

Project Management: Robin Taylor-Wilson

Survey: Jim Wright

CAD: Adrian Bailey

Other Credits

Geophysical Survey: GeoQuest Associates

**APPENDIX A
CONTEXT INDEX**

context	type	trench	description	interpretation
1	layer	4	firm; mid greyish brown; clayey silt; very occasional small sub-rounded stones, very rare flecks of charcoal; extends across whole of Trench 4, thickness 0.28m	topsoil
2	layer	4	firm; light greyish yellow; clayey silt; very occasional medium sub-angular stones; extends across whole of Trench 4	natural boulder clay
3	layer	6	firm; mid grey; clayey silt; occasional small sub-rounded stones, rare flecks of charcoal, extends across whole of Trench 6, thickness 0.36m	topsoil
4	layer	6	firm; light greyish yellow; silty clay; rare medium sub-angular stones; extends across whole of Trench 6	natural boulder clay
5	layer	5	firm; mid grey; clayey silt; very occasional small sub-rounded stones, very rare flecks of charcoal; extends across whole of trench 5, thickness 0.22m	topsoil
6	fill	5	firm; mid yellowish grey; silty clay; very rare small sub-rounded stones, very rare patches of light grey silty clay; length >1.60m, width 0.97m, thickness 0.06m	fill of [7]
7	cut	5	linear; NW-SE orientated; gradual top break of slope, shallow sloping sides, gradual break of slope at base; concave base; length >1.60m, width 0.97m, depth 0.06m	plough furrow
8	fill	5	firm; mid yellowish grey; silty clay; very rare small sub-rounded stones, very rare patches of light grey silty clay; length >1.60m, width 1.90m, thickness 0.12m	fill of [9]
9	cut	5	linear; NW-SE orientated; gradual top break of slope, shallow sloping sides, gradual break of slope at base; concave base; length >1.60m, width 1.90m, depth 0.12m	plough furrow
10	layer	5	firm; light greyish yellow; silty clay; rare medium sub-angular stones; extends across whole of Trench 5	natural boulder clay
11	layer	8	firm; mid grey; clayey silt; very occasional small sub-rounded stones; extends across whole of Trench 8, thickness 0.32m	topsoil
12	layer	8	firm; light greyish yellow; silty clay; very rare medium sub-rounded stones, very occasional flecks of manganese; extends across whole of Trench 8	natural boulder clay
13	fill	8	firm; mid greyish brown; silty clay; very occasional small sub-rounded stones; length >1.60m, width 0.85m, thickness 0.09m	fill of [14]
14	cut	8	linear; NW-SE orientated; sharp top break of slope, shallow concave sides, imperceptible break of slope at base; concave base; length >1.60m, width 0.85m, depth 0.09m	plough furrow
15	layer	7	firm; mid grey; clayey silt; very occasional small sub-rounded stones; extends across whole of Trench 7, thickness 0.32m	topsoil
16	layer	7	firm; varies from mid brownish orange, light grey to mid brownish yellow; varies from clayey sand to clay; rare flecks of manganese, very occasional small sub-rounded stones; extends across whole of Trench 7	natural boulder clay
17	layer	2	firm; mid grey; clayey silt; very occasional small sub-rounded stones, very rare flecks of charcoal; extends across whole of Trench 2, thickness 0.40m	topsoil
18	layer	2	firm; varies from mid orange brown, mid yellowish grey to mid yellowish brown; varies from clay to clayey sand; frequent flecks of manganese; occasional small angular stones; extends across whole of Trench 2	natural boulder clay
19	layer	1	firm; mid grey; clayey silt; very occasional small sub-rounded stones; extends across whole of Trench 1, thickness 0.42m	topsoil
20	layer	1	firm; light brownish yellow; silty clay; very occasional small to medium sub-angular and sub-rounded stones, very occasional flecks of manganese; extends across whole of Trench 1	natural boulder clay
21	layer	3	firm; mid grey; clayey silt; very occasional small sub-rounded stones, very rare small fragments and flecks of charcoal; extends across whole of Trench 3, thickness 0.38m	topsoil
22	fill	3	firm; mid yellowish grey; silty clayey sand; very rare small sub-rounded stones, occasional flecks of manganese; length >1.60m, width 0.80m, thickness not established	fill of [23]
23	cut	3	linear; NW-SE orientated; length >1.60m, width 0.80m; feature not excavated	plough furrow
24	fill	3	firm; mid yellowish grey; silty clayey sand; very rare small sub-rounded stones, occasional flecks of manganese; length >1.60m, width 0.70m, thickness 0.22m	fill of [25]
25	cut	3	linear; NW-SE orientated; gradual top break of slope, sides vary from gently sloping to slightly concave, gradual break of slope at base; concave base; length >1.60m, width 0.70m, depth 0.22m	plough furrow
26	layer	3	firm; varies from light to mid greyish yellow and greyish orange; varies from silty clay to clayey sand; occasional small sub-angular stones, very rare flecks of manganese; extends across whole of Trench 3	natural boulder clay

APPENDIX B
GEOPHYSICAL SURVEY REPORT

**GEOPHYSICAL SURVEY ON LAND TO THE
WEST OF ESH WINNING INDUSTRIAL ESTATE,
FAIR VIEW ROAD, ESH WINNING, COUNTY
DURHAM**

Planning Refs.: 1997/0933/DMOP & 1/2004/0768/DMFP

A programme of research carried out on behalf of

Pre-Construct Archaeology Limited

by

GeoQuest Associates



1 INTRODUCTION

- 1.1 This report describes the results of an archaeological geophysical survey on an area of pasture land to the W of Esh Winning Industrial Estate, on the northern side of Esh Winning Village, County Durham (Figure 1). An outline planning proposal has been granted for an extension to the existing industrial estate and the aim of the survey was to test for the presence of subsoil archaeological features for which mitigation may be required prior to the development.
- 1.2 The research was carried out by GeoQuest Associates on behalf of Pre-Construct Archaeology Limited (PCA) who are acting as archaeological consultants to the developer. The survey was conducted in accordance with a specification prepared by the Archaeology Section of Durham County Council and follows a desk-based assessment of the site, as a first phase of archaeological work (SMR 5638).
- 1.3 As indicated by the desk-based assessment, the proposal site is situated in an area with archaeological potential. Features of note in the immediate vicinity include a colliery and old waggonway to the W and S; settlement and agricultural activity dating from the Iron Age and Romano-British periods, and ritual and settlement activity of Neolithic date. Geophysical survey undertaken by GeoQuest Associates on arable land E of the industrial estate in 2002 found traces of Dere Street and associated enclosures (SMR 6525).
- 1.4 Hence, it is clear from existing archaeological information that potential exists for subsoil features dating from the prehistoric to medieval periods to extend into the proposal area. In addition, the 2nd Edition Ordnance Survey records a number of pens and possible buildings in the northern quarter of the study area (Figure 1). A westward extension of the industrial estate may therefore impact on the archaeological resource, and geophysical investigation was hence proposed as part of a mitigation strategy.
- 1.5 Geophysical survey was carried out by staff from GeoQuest Associates on 16th October 2005. At this time the field was in pasture, although with several areas of thistles and scrub (Figure 1). Areas of rock rubble or mud also occur along the NW and N boundaries, while water troughs adjacent to an iron inspection cover are present on the northern boundary of the field.

2 THE GEOPHYSICAL SURVEY

- 2.1 A baseline for the geophysical survey was constructed approximately parallel to the western field boundary (a new post and wire fence). Figure 1 provides an exact definition of the baseline position and the origin of the geophysical survey block. Coordinates of features detected by the survey can be determined relative to this baseline or OS detail by extraction from the associated CAD file that forms part of the site archive. To minimise magnetic disturbance from wire fences and steel-reinforced fence supports (along the eastern boundary) the survey margin was offset by a suitable amount.
- 2.2 Measurements of vertical geomagnetic field gradient were recorded using a Geoscan FM36 fluxgate gradiometer with 0.05nT/m resolution. A zig-zag traverse scheme was employed and data were logged in grid units of 20x20m at 1.0x0.5m intervals, thus providing 800 measurements per grid. An area of 2ha was surveyed.

- 2.3 Data obtained from the survey were downloaded on-site into a portable graphics computer for quality checks and initial processing. These data were subsequently transferred to a laboratory computer for final processing, interpretation and archiving.
- 2.4 The GeoQuest InSite® software was used to process the gridded geophysical data and thus convert the field readings into a continuous-tone grey-scale image. In Figure 2 a convention has been used that shows positive magnetic anomalies as dark grey and negative magnetic anomalies as light grey. Further details of the data processing procedures are given in Appendix A.
- 2.5 An archaeological interpretation of the geophysical survey is presented in Figures 3 and 4. A key defines the colours and fill styles used in these drawings, while feature codes **f1** and **f2**, etc, are included in Figure 4 for reference in the discussion below.

3 INTERPRETATION

- 3.1 Geomagnetic anomalies in the study area block were found to be rather weak and diffuse, although sufficiently above the detection limit of the instrument to be recorded and analysed with a measure of confidence. It is interesting to note that the survey image contains no linear texture, such as would normally be associated with ploughing, suggesting that the field has not been deeply cultivated in modern times. In addition, no trace of ridge and furrow cultivation has been detected.
- 3.2 **f1**: Several minor concentrations of small magnetic dipoles are present, along the western field boundary, near the gate leading into the adjacent field and at several points within the field. These anomalies probably reflect iron, brick and slag material which is characterised by an intense thermoremanent magnetisation.
- 3.3 **f2**: Of archaeological interest is a weak positive magnetic lineation, about 2m wide and with right angle bend, in the southern quarter of the site. The style of this anomaly is consistent with a soil-filled ditch, possibly defining an enclosure which continues S, beyond the area investigated.
- 3.4 **f3**: Careful examination of the greyscale image reveals an extremely weak and diffuse positive lineation which trends SE from a point about 20m from the field gate. This anomaly is consistent with a soil-filled ditch which may connect with the eastern end of feature **f2**, at a point which was unmapped owing to the presence of thistles.
- 3.5 **f4**: Three weak positive magnetic lineations can be traced in the central part of the field, oriented generally WNW – ESE. These anomalies are close to the detection limit of the geophysical survey and provide tentative evidence for silted ditches or tile land drains.
- 3.6 **f5**: The final target detected by the geophysical survey comprises a weak, arcuate, negative anomaly, about 2m wide, in the northern quarter of the field, between a pair of linear features, **f4**. It is possible that this anomaly represents a section of trackway or gravel land drain. Unfortunately, it has not been possible to trace a continuation of the feature NW or SE.
- 3.7 No further geophysical anomalies of archaeological or geotechnical interest have been detected in the study area.

4 SUMMARY AND CONCLUSIONS

- 4.1 A fluxgate magnetometer was used to carry out an archaeological geophysical survey on the site of a proposed extension to Esh Winning Industrial Estate, N of the village of Esh Winning in County Durham. The site was found to be characterised by rather weak geomagnetic anomalies, indicative of low soil susceptibilities, with negligible contamination by ferrous litter. However, a number of positive magnetic anomalies, of linear form, have been detected, providing evidence for silted ditches of possible archaeological interest. A curving anomaly in the northern part of the site may reflect a former trackway (or alternatively a land drain).
- 4.2 The geophysical survey has found no evidence for subsoil traces relating to the pens and other features shown on the 2nd edition Ordnance Survey in the northern part of the site, suggesting that these constructions did not intrude significantly into the subsoil. In addition, the survey finds no contrast in geophysical texture associated with the enclosures, implying that the ground within was not substantially tilled or manured.

5 CONFIDENCE LIMITS

- 5.1 The following are the levels of confidence which we assign to the features inferred from the geophysical data:

FEATURE	INTERPRETATION	CONFIDENCE LEVEL, %									
		10	20	30	40	50	60	70	80	90	100
f1	Ferrous litter	█	█	█	█	█	█	█	█	█	█
f2	Silted ditches	█	█	█	█						
f3	Silted ditches	█	█	█	█						
f4	As ditches	█	█	█	█						
f4	As land drains	█	█	█	█						
f5	As trackway	█	█	█	█						
f5	As land drain	█	█	█	█						

6 CREDITS

Survey & Report: M. J. Noel PhD, FRAS
 Date: 18th October 2005

Note: Whilst every effort has been taken in the preparation and submission of this report in order to provide as complete an assessment as possible within the terms of the brief, GeoQuest Associates cannot accept any responsibility for consequences arising as a result of unknown and undiscovered sites or artefacts.



SETTING OUT:
Origin of baseline is a distance of 7m from northernmost gatepost, at right angles to fenceline. Baseline is then oriented SSW towards 1st fence post from field corner.



ESH WINNING INDUSTRIAL ESTATE, Co. DURHAM
Location of Geophysical Survey

0 1:1250 50m

SURVEY BY FOR
GeoQuest

FIGURE 1

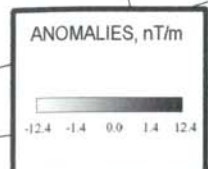


FIGURE 2



KEY

- Iron litter
- Silted ditch
- Stony material



ESH WINNING INDUSTRIAL ESTATE, Co. DURHAM
Archaeological Interpretation

0 1:1250 50m

SURVEY BY **GeoQuest** FOR **Pre-Construct Archaeology**

FIGURE 3



KEY

- Iron litter
- Silted ditch
- Stony material

ESH WINNING INDUSTRIAL ESTATE, Co. DURHAM
Archaeological Interpretation

0 1:1250 50m

SURVEY BY **GeoQuest** FOR **Pre-Construct Archaeology**

FIGURE 4

PCA

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