AD404

# Phase 2/3 Brack's Farm, Bishop Auckland County Durham

## Archaeological Watching Brief

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| **Commissioned by** | Gleeson Homes |
| **Project Number** | 404 |
| **OASIS Number** | adarchae1-505756 |
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***EXECUTIVE SUMMARY***

*AD Archaeology Ltd was commissioned by Gleeson Homes to carry out a watching brief in advance of the construction of a proposed housing development on land forming part of the Phase 2/3 development site at Brack's Farm, Bishop Auckland, County Durham. This archaeological watching brief was targeted upon an undated gully of archaeological interest identified in trench 14 of an earlier evaluation carried out in 2018 by Archaeological Services Durham University (ASDU), (ASDU report 4676).*

*A gully (103) (representing the linear feature identified in the 2018 evaluation) was traced for a distance of 38m through the stripped area, being cut by later furrows. The gully (103), was a discontinuous east-west linear feature, following a slightly sinuous course. The gully did not extend into the easternmost 15m of the stripped area having been truncated away by later ploughing. Toward the western end of the stripped area the gully curved to exit the southern baulk into a disturbed area of the site. The gully was not located in trenches (Trenches 12, 17 or 18) to the west, the feature representing a discontinuous feature surviving over a limited length, being truncated by later agricultural activity at the site.*

*A sample taken from the gully during the evaluation trenching in 2018 contained insufficient palaeo-environmental remains to enable an interpretation of the age of the feature. No artefacts were recovered from the evaluation works or the seven further lengths of the feature excavated during the watching brief. A further soil sample was obtained from the current programme of works and was submitted for analysis. Charcoal from this sample produced a late Iron Age date of 165cal BC- 4cal AD (95.4% probability). The linear feature is likely to represent a late Iron Age field boundary which would have been associated with an Iron Age settlement, whose location is unknown, but would have been situated beyond the limits of the development area. An Iron Age rectilinear enclosure (HER 365) is known to have been located 850m south-west of the site and it is possible that the linear feature represents an associated outlying field boundary.*

# 1 INTRODUCTION

## 1.1 The Project

1.1.1 AD Archaeology Ltd was commissioned by Gleeson Homes to carry out an archaeological watching brief in advance of the construction of a proposed housing development on land at Brack's Farm, Bishop Auckland (Fig. 1).

1.1.2 The Phase 2/3 development area lies at Brack's Farm to the north-west of the A688. The site, centred at NGR NZ 2196 2920, consists of agricultural fields ranged around Brack's Farm. The watching brief was centred along the course of an undated gully identified during an archaeological evaluation (Fig. 2).

1.1.3 The archaeological evaluation follows on from work carried out in February 2018 by Archaeological Services Durham University (ASDU) on behalf of Keepmoat Homes, in which 32 trenches out of a planned 37 evaluation trenches were excavated (ASDU report 4676) and supplementary trenches by AD Archaeology in May 2020 (AD report 348) on behalf of Gleeson Homes.

## 1.2 Geology, Geomorphology and Topography

1.2.1 The site rests on Pennine Middle Coal Measures of the Carboniferous, sealed by Quaternary glacial deposits of the Devensian Stage of the Upper Pleistocene. The underlying rocks are overlain by a mantle of Boulder Clay and Morainic Drift with Glacial Sands and Gravels in places (BGS 2022).

1.2.2 The area of the site formed part of an agricultural field on land sloping to the south away from Brack's Farm situated to the north on higher land.

## 2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 There are no known prehistoric remains within the site. A number of features of possible prehistoric date in the vicinity include a possible Neolithic long barrow listed in the HER (5709) 1.13km to the north; a bank on the north side of St. Andrew's Church (600m south) interpreted as an Iron Age hill fort (HER 1467); an Iron Age rectilinear enclosure (HER 365) located 850m south-west; a mound located only 80m north (HER 1476); a rectilinear earthwork (HER 2676) 1km to the north-west; a crop mark (HER 2850) visible on aerial photographs 1.15km to the south; a rectilinear enclosure (HER 7997) 1.15km to the south; an enclosure (HER 8000) 1.5km to the south-east and a crop mark (HER 2861) 1.5km to the south. Aerial photographs have also revealed a circular feature 370m to the north, near to Auckland Park which may be of Iron Age date.

2.2 Dere Street Roman Road (HER 3174) ran through Bishop Auckland, 325m to the west and connected Piercebridge Roman fort with Binchester Roman fort (HER 1420), which lies 1.75km to the north. Roman activity has been identified in the wider area with coins found by metal detectorists to the north-east (HER 7934) and two cremation burials (HER 1416) next to the River Gaunless 850m to the north.

2.3 It has been suggested that the Battle of Alutthelia in AD 844 occurred in the Auckland area as the 'Alut' element of Alutthelia is similar to the known Alclit form of the name Auckland in 1050. The earliest settlement in the area was Auckland St Andrew, or South Church as it is now known, 450m to the south where the river Gaunless is crossed by a stone bridge (HER 6886).

2.4 The current Auckland Castle, a Grade 1 Listed Building (HER 1386) was established by Bishop Hugh Pudsey in 1183 and is located 400m north-west. Auckland Park, located 100m to the north (HER 1399) is first mentioned in the Boldon Book of 1181.

2.5 Greenwood's map of 1820 is the first to show Brack's Farm. In 1825, the Stockton and Darlington Railway opened and ran to the south of Bishop Auckland along the route of the current railway.

2.6 A geophysical survey (McBride 2011, TWM Archaeology), across the Brack's Farm development area site identified several anomalies of possible archaeological origin. Whilst it is possible that some of these anomalies relate to previous low-levels of scattered occupation across the site the geophysical survey produced no indication of the presence of a major archaeological settlement within the site.

2.7 In the Phase 1 Development Area evaluation trenching immediately to the east of the present site produced no significant archaeological features (AD Archaeology 2015). In the Phase 2/3 Development Area evaluation (ASDU 2018) a

shallow undated gully was identified in Trench 14. The sample from the feature contained a small quantity of material indicative of background levels of fuel waste; however the scarcity of charred palaeoenvironmental remains precluded interpretation of the age of the feature. This scheme of archaeological recording was recommended in the vicinity of Trench 14, with no further work in the other areas of the site where trenching had located no significant archaeological features (ASDU 2018).

## 3 AIMS AND OBJECTIVES

3.1 The objective of the watching brief was to record archaeological deposits and features exposed during the groundworks.

## 4. METHODOLOGY

4.1 The watching brief was carried out in compliance with all the relevant codes of practice by suitably qualified and experienced staff. The watching brief strategy was agreed with the Durham County Council Archaeology Section (DCCAS) and was undertaken in accordance with an approved written scheme of Investigation (Appendix 2).

## 5 RESULTS OF WATCHING BRIEF

### 5.1 Stripped Area (Figs. 2-5; Plates 1-10)

5.1.1 The stripped area was 65m by 9m in size. The topsoil consisted of a black loam (100), 0.30m in depth, overlying a brown clayey sand ploughsoil (101), 0.05m in depth. Four NNE-SSW furrows 2-2.5m in width and 0.08m in depth, were filled with the brown clayey sand ploughsoil (101). A linear east-west gully (103) following a slightly sinuous course was traced for a distance of 38m through the stripped area, being cut by the furrows. The gully (103) varied between 0.24-0.50m in width and 0.05-0.25m in depth. Seven 1m length sections of the gully were excavated, the profile varying between a steep and gentle concave sided feature with a concave base. The gully was filled with a grey silty clay with occasional lenses of orange-grey clay (102). The gully did not extend into the easternmost 15m of the stripped area having been truncated away by later ploughing. Toward the western end of the stripped area the gully curved to exit the southern baulk into a disturbed area of the site.

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## 6 DISCUSSION

6.1 A gully (103) (representing the linear feature identified in the 2018 evaluation) was traced for a distance of 38m through the stripped area, being cut by later furrows. The gully (103), was a discontinuous east-west linear feature, following a slightly sinuous course. The gully did not extend into the easternmost 15m of the stripped area having been truncated away by later ploughing. Toward the western end of the stripped area the gully curved to exit the southern baulk into a disturbed area of the site. The gully was not located in trenches (Trenches 12, 17 or 18) to the west, the feature representing a discontinuous feature surviving over a limited length, being truncated by later agricultural activity at the site.

6.2 A sample taken from the gully during the evaluation trenching in 2018 contained insufficient palaeo-environmental remains to enable an interpretation of the age of the feature. No artefacts were recovered from the evaluation works or the seven further lengths of the feature excavated during the watching brief. A further soil sample was obtained from the current programme of works was submitted for analysis. The linear feature is likely to represent a late Iron Age field boundary which would have been associated with an Iron Age settlement, whose location is unknown, but would have been situated beyond the limits of the development area. An Iron Age rectilinear enclosure (HER 365) is known to have been located 850m south-west of the site and it is possible that the linear feature represents an associated outlying field boundary.

## 7. BIBLIOGRAPHY

AD Archaeology 2020 Phase 2/3 Brack's Farm, Bishop Auckland, County Durham Archaeological Evaluation Report 348

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UKIC ,1993 Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites

Wilkinson, D. & Neal, V. 2001 First Aid for Finds

**APPENDIX 1: LIST OF CONTEXTS**

| Context | Depth | Description |
|---|---|---|
| 100 | 0.30m | Topsoil |
| 101 | 0.08m | Ploughsoil |
| 102 | 0.25m | Fill of Gully |
| 103 | 0.25m | Cut of Gully |
| 104 | - | Yellow clay natural subsoil |

## APPENDIX 2-WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL WATCHING BRIEF DURING THE SOIL STRIP OF LAND AT BRACKS FARM, BISHOP AUCKLAND, COUNTY DURHAM

### 1 Introduction

1.1 This written scheme of investigation represents a methods statement for undertaking an archaeological watching brief as mitigation to discharge the archaeological planning condition (DM/18/01423/NMA) prior to the construction of a housing development on land at Bracks Farm, Bishop Auckland, County Durham. This archaeological watching brief (fig.3) is targeted upon an undated gully of archaeological interest identified in trench 14 of an earlier evaluation carried out in 2018 by Archaeological Services Durham University (ASDU), (ASDU report 4676). No further scheme of archaeological works is required over the majority of the site.

1.2 An archaeological desk- based assessment (TWM Archaeology, 2011) and geophysical survey (TWM Archaeology, 2011) were undertaken for the wider development area and the Phase 1 (AD Archaeology, 2015) and Phase 2/3 evaluation work (ASDU, 2018) and (AD Archaeology 2020) were carried out in this area of the development site.

1.3 Policy relating to the assessment and mitigation of impacts to the heritage resource within the planning system is set out in the National Planning Policy Framework. The Framework identifies that the planning system should perform an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment (NPPF 2018, para 8, page 5).

1.4 The Framework further clarifies that, in circumstances where heritage assets will be damaged or lost as a result of development. Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible (NPPF 2018, para 199, page 56).

### 2 Site Location and Scope of Works

2.1 The Phase 2/3 development area lies at Brack's Farm to the north-west of the A688. The site, centred at NGR NZ 2196 2920, consists of agricultural fields ranged around Brack's Farm. The watching brief is to be centred along the course of an undated gully identified during an archaeological evaluation (fig. 1).

2.2 Throughout the work Durham County Council Archaeology Section (DCCAS) will be kept informed.

### 3 Archaeological Background

3.1 The archaeological and historical background of the site is recorded in detail within the earlier Desk-Based Assessment (Pugh 2011, TWM Archaeology).

**3.2 Geophysical Survey**

3.2.1 The geophysical survey (McBride 2011, TWM Archaeology), identified several anomalies of possible archaeological origin. Whilst it is possible that some of these anomalies relate to previous low-levels of scattered occupation across the site the geophysical survey produced no indication of the presence of a major archaeological settlement within the site.

**3.3 Phase 1 Evaluation**

3.3.1 No significant archaeological features were found in the trenches. A post-medieval field boundary was located in Trench 2. A google-earth image of 2001 shows the site being stripped for use as a temporary haul road and site compound when the modern housing estate was built to the north-east. It is clear that ground disturbance relating to these works have been significant, with ploughsoil surviving in only two of the six trenches. An east-west linear geophysical anomaly in Trench 4 relates to the former haul road. In view of the absence of archaeological features in the trenches no further archaeological investigation would be appropriate.

**3.3 Phase 2/3 Evaluations**

3.3.1 An archaeological evaluation was carried out in Feb 2018 by Archaeological Services Durham University (ASDU) on behalf of Keepmoat Homes; 37 evaluation trenches were excavated (ASDU report 4676), at this time two 50m x 2m trenches could not be excavated in the south-east corner of the site due to the installation of modern drainage services associated with the adjacent Phase 1 development. A shallow undated gully was identified in Trench 14. The sample from the feature contained a small quantity of material indicative of background levels of fuel waste; however the scarcity of charred palaeoenvironmental remains precludes interpretation of the age of the feature. No artefacts were recovered from it. Furrows, the remains of medieval or post-medieval ploughing, were recorded in five trenches, cutting into the natural subsoil. A scheme of archaeological recording in the vicinity of Trench 14 was recommended as mitigation prior to development which is the subject of this WSI (fig. 3).

3.3.2 AD Archaeology conducted a small evaluation in 2020 on behalf of Gleeson Homes in the southern portion of the site which was not evaluated by the 2018 evaluation works. No features of archaeological interest were recovered during this phase of works (AD Archaeology 2020).

**4 Fieldwork Methodology for the Watching brief**

**Specific**

4.1 The proposed methodology is as follows:

i) Topsoil strip of a corridor to the level of natural subsoil along the length of the line of the gully for a distance of approximately 70m or for the length of the feature should this be shorter (fig. 1). The strip will be excavated to width of 10m overall; 5m either side of the gully. Should any archaeological features be identified either side of this corridor the strip may be slightly extended in a localised area so that it can be identified more fully. The corridor to be stripped can be extended at either end should the feature extend beyond the limits of the area depicted on figure 1.

ii) Archaeological stratigraphic deposits and features within the corridor strip will be

recorded by AD Archaeology staff and a limited excavation of these features will be undertaken to ascertain if possible their extent, character, function, and date.

4.2 Time shall be allowed by Gleeson Homes and their Contractors to permit any archaeological deposits revealed during the work to be adequately recorded. However, if significant archaeological deposits are encountered then the Durham County Council Archaeology Section (DCCAS) will be notified and if appropriate a consultation arranged between representatives of Gleeson Homes and the Durham County Council Archaeology Section (DCCAS).

4.3 Where there is an opportunity to sample any significant and sealed deposits samples up to 30 litres in volume will be taken, and selected samples will be submitted to a recognised specialist for micro- and macro-fossil analysis. Should suitable deposits be encountered advice will be sought from Don O'Meara, Historic England Scientific Advisor.

**General**

4.4 All work will be carried out in compliance with the codes of practice of the Institute for Archaeologists (CIfA) and will follow the CIfA Standard and Guidance for Archaeological Watching Briefs. All work will be carried out to the standards set by the DCC Archaeology Section as detailed in http://www.durham.gov.uk/media/22749/Standards-for-Archaeological-Work-in-County-Durham-and Darlington/pdf/StandardsForArchaeologicalWorkInCountyDurhamAndDarlington.pdf. All work will be carried out in compliance with the codes of practice of the Chartered Institute for Field Archaeologists CI*f*A (2014a) and will follow the CI*f*A (2014b) Standard and Guidance for Archaeological Watching briefs. All work will be in compliance with the Regional Statement of Good Practice (Yorkshire, The Humber and the North-East 2009).

4.5 AD Archaeology will provide copies of current insurance certificates for undertaking archaeological work on demand.

4.6 All staff will be suitably qualified and experienced for their project roles with practical experience of excavating archaeological sites of all periods. Curriculum Vitaes will be made available on request.

4.7 All staff will familiarise themselves with the results of previous assessments, watching briefs and excavations in the immediate area prior to the start of work. All staff must be aware of the work required under the specification, and must understand the project aims and methodologies. This will involve the systematic examination and accurate recording of all archaeological features, horizons and artefacts identified.

## 5 Recording

5.1 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings will be drawn at 1:50, 1:20 and 1:10 scales as appropriate. A plan of the features will be tied into the national grid.

5.2 All deposits and features encountered as well as the base of the trench will be adequately levelled. The depth at which the highest point of each context will be recorded

both in terms of above Ordnance Datum and depth beneath present ground level, and a table showing this data will be included in the report.

5.3 A photographic record of all contexts will be taken in colour digital format and will include a clearly visible, graduated metric scale.

## 6 Report Preparation

6.1 On the completion of the fieldwork an Archive Report will be prepared, which will be submitted to the Durham County HER within three months of completion of the work. The Archive Report will detail the stratigraphical history of the site and will contain a full textual account setting out the significance of the structural, artefactual and paleoenvironmental evidence.

6.2 The report shall be bound with each page and paragraphs numbered, and include as a minimum the following:

- A location plan of the site
- A location plan of the trenching within the site. This must be to a suitable scale, and located with reference to the National Grid, to allow the results to be accurately plotted on the Historic Environment Record
- Plans, sections and photographs of archaeology located
- A summary statement of the results
- A table summarising the deposits, features, classes and numbers of artefacts encountered and spot dating of significant finds.
- Photographs of all features of interest and general photographs to illustrate conditions under which work took place.

6.3 If required a brief note on the work should be prepared for submission to a local journal within one year of completion of the fieldwork. This Publication Report should contain results of further analysis of material evidence from the site as deemed appropriate by Historic England and the County Archaeologist.

6.4 A short report of the work shall also be submitted to a local or national journal if appropriate.

6.5 Information about projects carried out in Durham is normally submitted to the Online Access to the Index of Archaeological Investigations (OASIS) project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large scale developer funded fieldwork. AD Archaeology will complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/. The report in an appropriate format will be uploaded to Oasis within 3 months of the reports completion.

## 7 Storage

7.1 During and after the excavation, any objects will be temporarily stored in the appropriate materials and storage conditions to ensure minimal deterioration and loss of information (this will include controlled storage, correct packaging, and regular monitoring of conditions, immediate selection for conservation of vulnerable material).

7.2 All storage will have appropriate security provision.

## 8 Finds Processing

8.1 All finds processing, conservation work and storage of finds will be carried out in compliance with the CI*f*A Guidelines for Finds Work (2014c) and those set by UKIC.

8.2 Artefact collection and discard policies will be fit for the defined purpose.

8.3 Any bulk finds which are not discarded will be washed and, with the exception of animal bone, marked. Marking and labelling will be indelible and irremovable by abrasion. Bulk finds will be appropriately bagged and boxed and recorded. This process will be carried out no later than two months after the end of the excavation.

8.4 All small finds will be recorded as individual items. All small finds will be appropriately packaged. Vulnerable objects will be specially packaged, and textiles, painted glass and coins stored in appropriate specialist systems. All finds work will be undertaken in line with the standards set out "A strategy for the Care and Investigation of Finds" (English Heritage 1995); "First Aid for Finds" (Wilkinson & Neal 2001); and "Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites"(UKIC 1993

8.5 Assessment and analysis of artefacts and environmental samples will be carried by an approved named specialist listed below:

Roman Pottery – Alex Croom/Paul Bidwell
Medieval Pottery – Andy Sage
Prehistoric Pottery – Clive Waddington (ARS)
Animal bone – Louisa Gidney (former Univ. of Durham)
Environmental material – Charlotte O'Brien (ASUD)
Conservation – TWAM

Any other classes of artefact will be dealt with by appropriate specialists approved in writing by the Durham County Council Archaeology Section (DCCAS).

## 9 Site Archive

9.1 Archiving work will be carried out compliance with the CI*f*A Guidelines for Archiving (2014d).

9.2 Any finds, including any such items affected by the Treasures Act, will remain the property of the landowner. Any artefacts recovered should be deposited with County Durham Archaeological Archives for eventual curation, storage and archiving upon the completion of the project. Artefacts will be submitted for specialist analysis on the basis of an instruction from the Durham County Council Archaeology Section (DCCAS).

## 10 Monitoring

10.1 Reasonable access during proposed work for the purposes of monitoring the archaeological scheme will be afforded to the County Archaeologist or their nominees at all times.

## 11 Staff

11.1 Overall project Management of the scheme will be undertaken by Mr. J. McKelvey, while the field staff will be professionally qualified field staff of AD Archaeology: *Curricula vitae* available on request.

## 12 Health and Safety

12.1 All staff are provided with protective headgear and footwear, gloves and face-masks as appropriate and high-visibility clothing, as appropriate.

12.2 The Team Leader is supplied with a mobile telephone.

12.3 The Team will be equipped with a First Aid kit.

12.4 The staff agrees to comply with any Health and Safety regulations required by Gleeson Homes and their appointed Contractor.

12.5 Staff will follow safe practices as regards the Covid 19 disease. The recommended social distancing of no closer than 2m between people during field work, will be followed by staff and contractors. Good hygiene will be applied with hand washing and the use of gel sanitisers in any areawhere washing facilities not readily available.

## 13 Further Information

13.1 This specification may be varied by agreement with Gleeson Homes and the Durham County Council Archaeology Section (DCCAS).

## 14 Bibliography

AD Archaeology 2020 Phase 2/3 Brack's Farm, Bishop Auckland, County Durham Archaeological Evaluation Report 348

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UKIC ,1993 Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites

Wilkinson, D. & Neal, V. 2001 First Aid for Finds

Appendix 3 – Palaeo-environmental report

ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

on behalf of
AD Archaeology Ltd

# Brack's Farm
# Bishop Auckland
# County Durham

## palaeoenvironmental assessment

report 5778
April 2022

Durham University

## Contents




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# 1. Summary

## The project

1.1 This report presents a palaeoenvironmental assessment of a bulk sample, taken during archaeological works at Brack's Farm, Bishop Auckland, County Durham.

1.2 The works were commissioned by AD Archaeology and conducted by Archaeological Services Durham University.

## Results

1.3 The generally poor condition of the charcoal is compatible with a prehistoric origin and the same can be said of the mineral-encrusted rhizomes, which often occur in features of later prehistoric or Romano-British date. The absence of any certain domestic waste fits with the gully being an isolated feature, located beyond the main focus of occupation. Material for radiocarbon dating is present if required.

## Recommendations

1.4 An updated account of the charcoal in conjunction with radiocarbon dating, would help to refine the palaeoenvironmental evidence.

1.5 The flot has been retained as part of the physical archive of the site. The residue was discarded following examination.

1.6 The following plant remains are recommended as the best options for radiocarbon dating and are ranked by their likelihood to provide a reliable date (other options are available): -

[102] <1> gully fill – Alder charcoal (to check if prehistoric)
[102] <1> gully fill – Hazel twig (to check if Iron Age or Romano-British)
[102] <1> gully fill – Oak charcoal (most representative material – prehistoric?)

# 2. Project background

## Location and background

2.1 Archaeological works were conducted on land at Brack's Farm, Bishop Auckland by AD Archaeology. This report presents a palaeoenvironmental assessment of a bulk sample, taken from the fill [102] of an isolated gully that may represent a prehistoric field boundary.

## Objective

2.2 The objective of the scheme of works was to assess the palaeoenvironmental potential of the sample, establish the presence of suitable radiocarbon dating material, and provide the client with appropriate recommendations.

## Dates

2.3 The sample was received by Archaeological Services on 1st April 2022. Assessment and report preparation was conducted between 4th and 25th April 2022.

## Personnel

2.4 Assessment and report preparation was conducted by Lorne Elliott. Sample processing was by Amy Nicholls.

## Archive

2.5 The site code is **BKF22**. The flot and charred plant remains are currently held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University.

# 3. Methods

3.1 The bulk sample was manually floated and sieved through a 500$\mu$m 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 for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope.

3.2 Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating and to determine the nature and condition of the assemblage. The transverse, radial and tangential sections were examined at up to x500 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000), and modern reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Plant nomenclature follows Stace (2010). Habitat classification follows Preston *et al.* (2002).

3.3 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).

# 4. Results

4.1 The sample produced a moderate-sized flot containing modern roots, charcoal, traces of cindered coal and a few charred grass-type rhizomes. Most of the charcoal

is heavily encrusted in mineral precipitates, with the denser fragments remaining in the sample residue. There are no finds.

4.2 Detailed palaeoenvironmental data and a provisional date are presented in Appendix 1. Material for radiocarbon dating is shown in the recommendations.

## 5. Discussion

5.1 The generally poor condition of the charcoal is compatible with a prehistoric origin and the same can be said of the mineral-encrusted rhizomes, which often occur in features of later prehistoric or Romano-British date. The slight variability in the condition of the charred plant remains suggests there may be more than one phase of activity represented. This is possibly supported by the make-up of the charred plant remains, as alder and willow charcoal indicate damp woodland or carr, whereas the charred heather twigs suggest heathland or moorland. The absence of any certain domestic waste fits with the gully being an isolated feature, located beyond the main focus of occupation.

5.2 The palaeoenvironmental evidence is comparable to that identified in a similarly isolated ditch located on the outskirts of Darlington (Archaeological Services 2022). This might mean that they have a similar chronology and possibly even have a related function. Several radiocarbon dates were obtained for the ditch, ranging from the Bronze Age to Roman period, with a focus during the middle Iron Age.

## 6. Recommendations

6.1 An updated account of the charcoal in conjunction with radiocarbon dating, would help to refine the palaeoenvironmental evidence.

6.2 The flot has been retained as part of the physical archive of the site. The residue was discarded following examination.

6.3 The following plant remains are recommended as the best options for radiocarbon dating and are ranked by their likelihood to provide a reliable date (other options are available): -

[102] <1> gully fill – Alder charcoal (to check if prehistoric)
[102] <1> gully fill – Hazel twig (to check if Iron Age or Romano-British)
[102] <1> gully fill – Oak charcoal (most representative material – prehistoric?)

## 7. Sources

Archaeological Services 2022 *Berrymead Farm, Harrowgate Hill, Darlington: post-excavation analysis*. Unpublished report **5568**, Archaeological Services Durham University

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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, 2010 *New Flora of the British Isles*. Cambridge

# Appendix 1: Palaeoenvironmental data

| Sample | Context | Feature | Volume processed (l) | Flot volume (ml) | C14 available | Rank | Notes |
|---|---|---|---|---|---|---|---|
| 1 | 102 | gully | 24 | 100 | Y | ** | The sample produced a moderate-sized flot comprising modern roots, charred plant remains (mainly charcoal) and traces of fragmented (<4mm) coal and cinder. Most of the charcoal is heavily encrusted in iron precipitates, although this condition is variable, suggesting the remains could be from more than one phase of activity. There are several species in the charcoal record of which oak, alder and willow are more encrusted than the heather. The denser remains were retained in the residues. There are also several charred grass-type rhizomes. **Prehistoric / Romano-British?** |

[Rank: *: low; **: medium; ***: high; ****: very high potential to provide further palaeoenvironmental information]

Appendix 4 – Radiocarbon analysis

Scottish Universities Environmental Research Centre
Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor F M Stuart Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

# *RADIOCARBON DATING CERTIFICATE*

20 September 2022

| | |
|---|---|
| **Laboratory Code** | SUERC-105924 (GU61476) |
| **Submitter** | Charlotte O'Brien<br>Archaeological Services Durham University<br>South Road<br>Durham<br>DH1 3LE |
| **Site Reference** | Brack's Farm, Bishop Auckland, Co Durham |
| **Context Reference** | 102 |
| **Sample Reference** | BKF22-1 |
| **Material** | Charcoal : Alnus glutinosa |
| **$\delta^{13}C$ relative to VPDB** | -25.8 ‰ |
| **Radiocarbon Age BP** | 2074 ± 23 |

**N.B.** The above $^{14}C$ age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

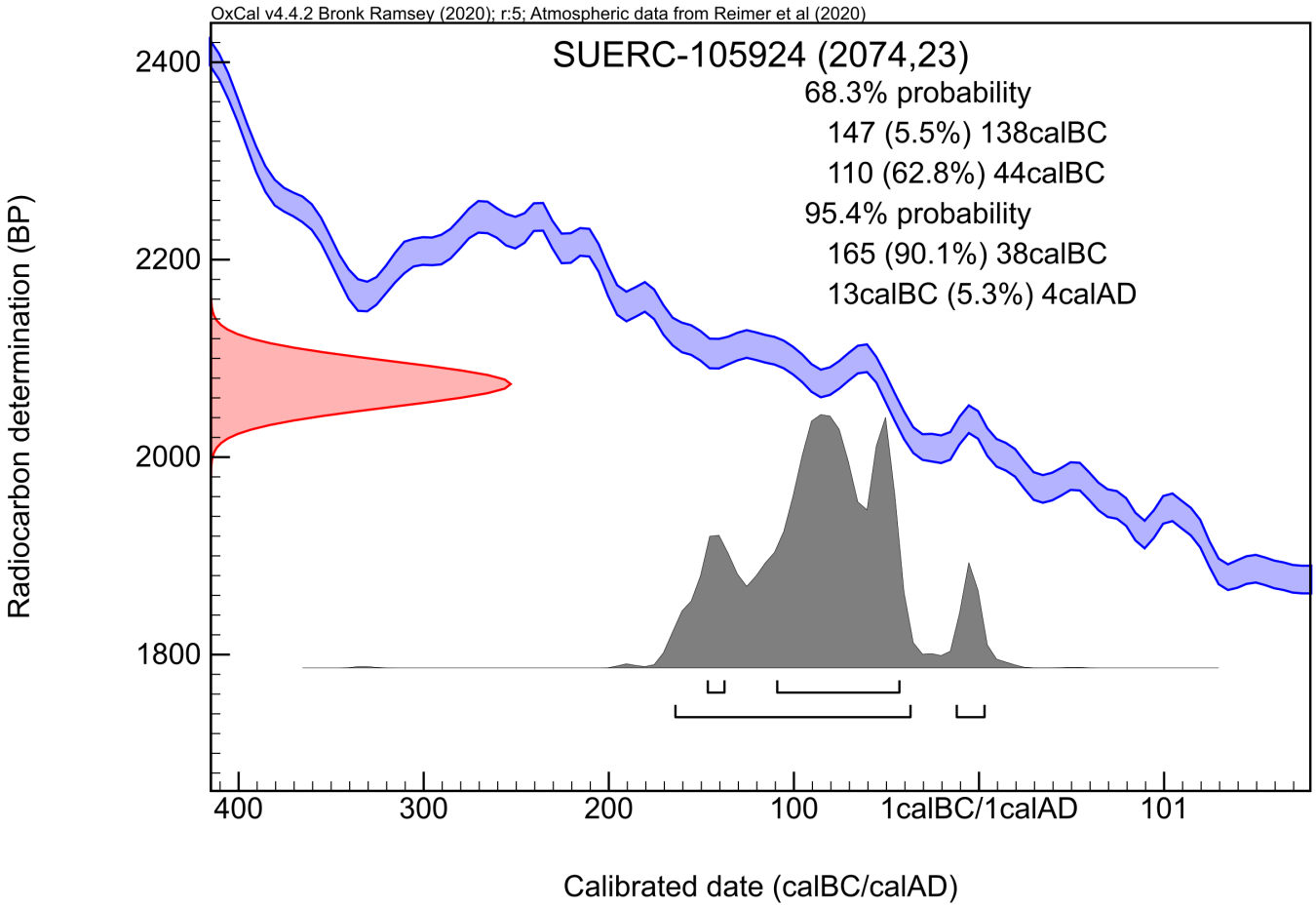
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Nayont




The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using the IntCal20 atmospheric calibration curve†

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*

† Reimer et al. (2020) *Radiocarbon 62(4) pp.725-57*

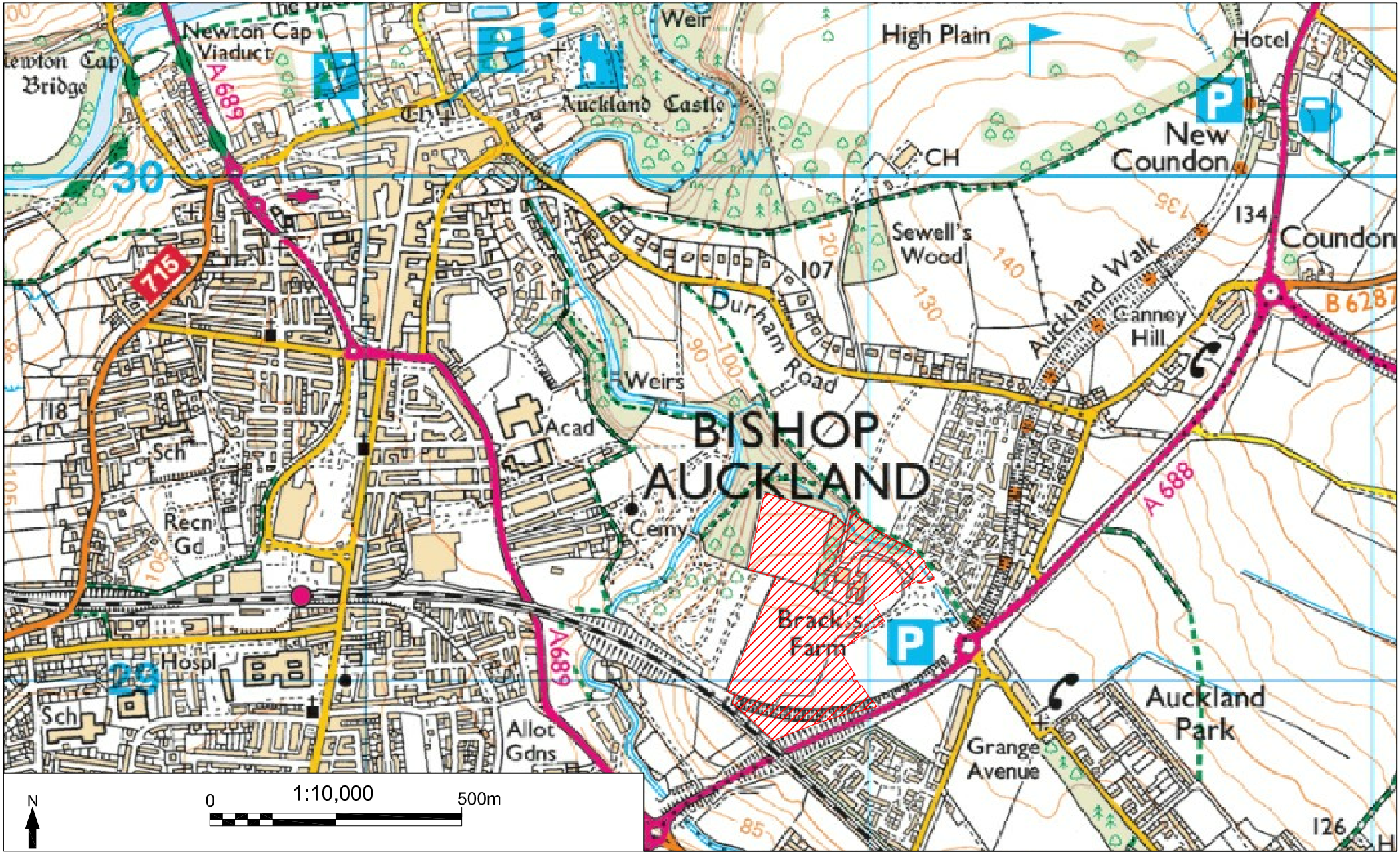



Figure 1: General location plan

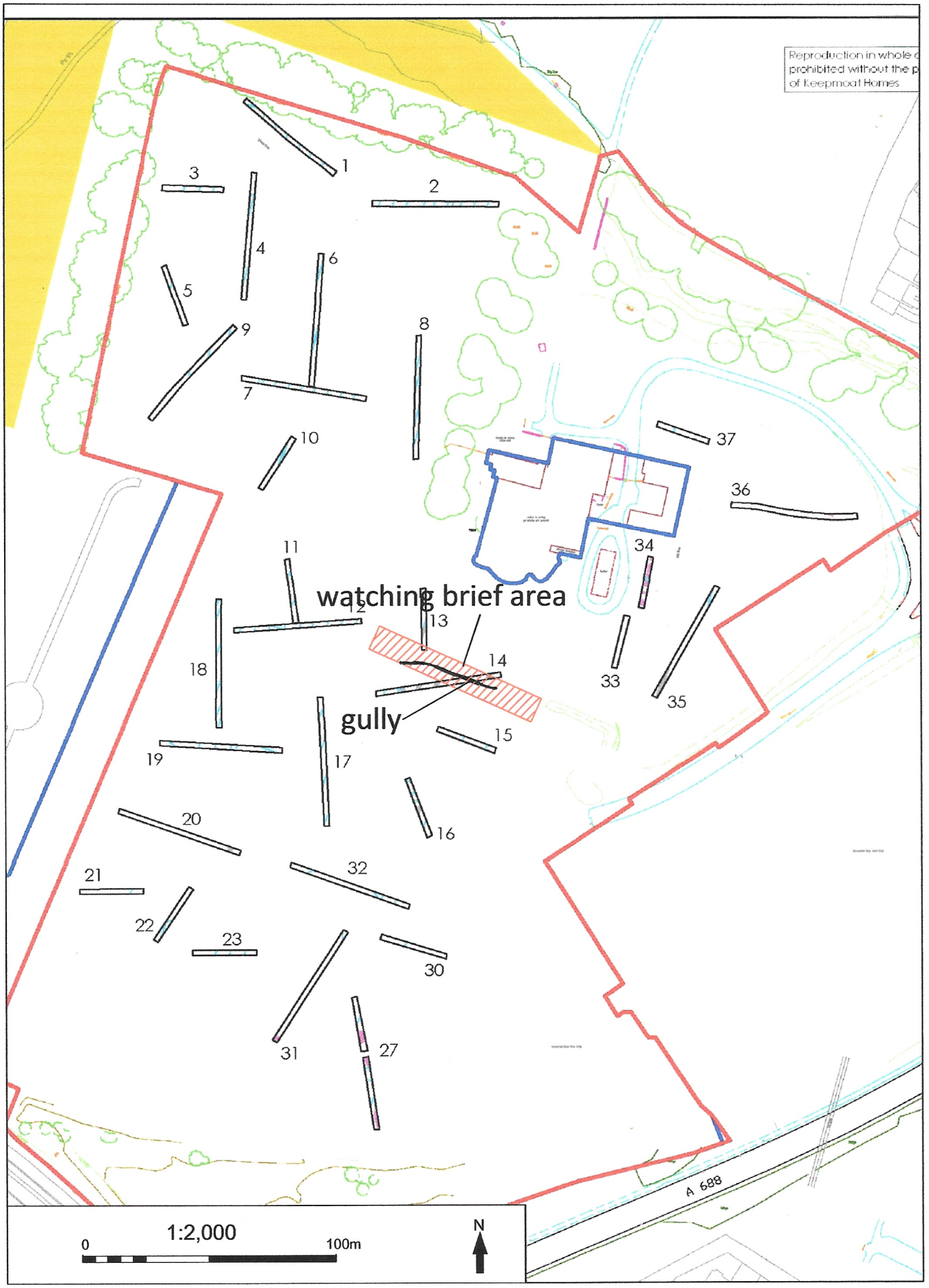





Figure 2: Detailed location of site
(overlain on results of 2018 evaluation)

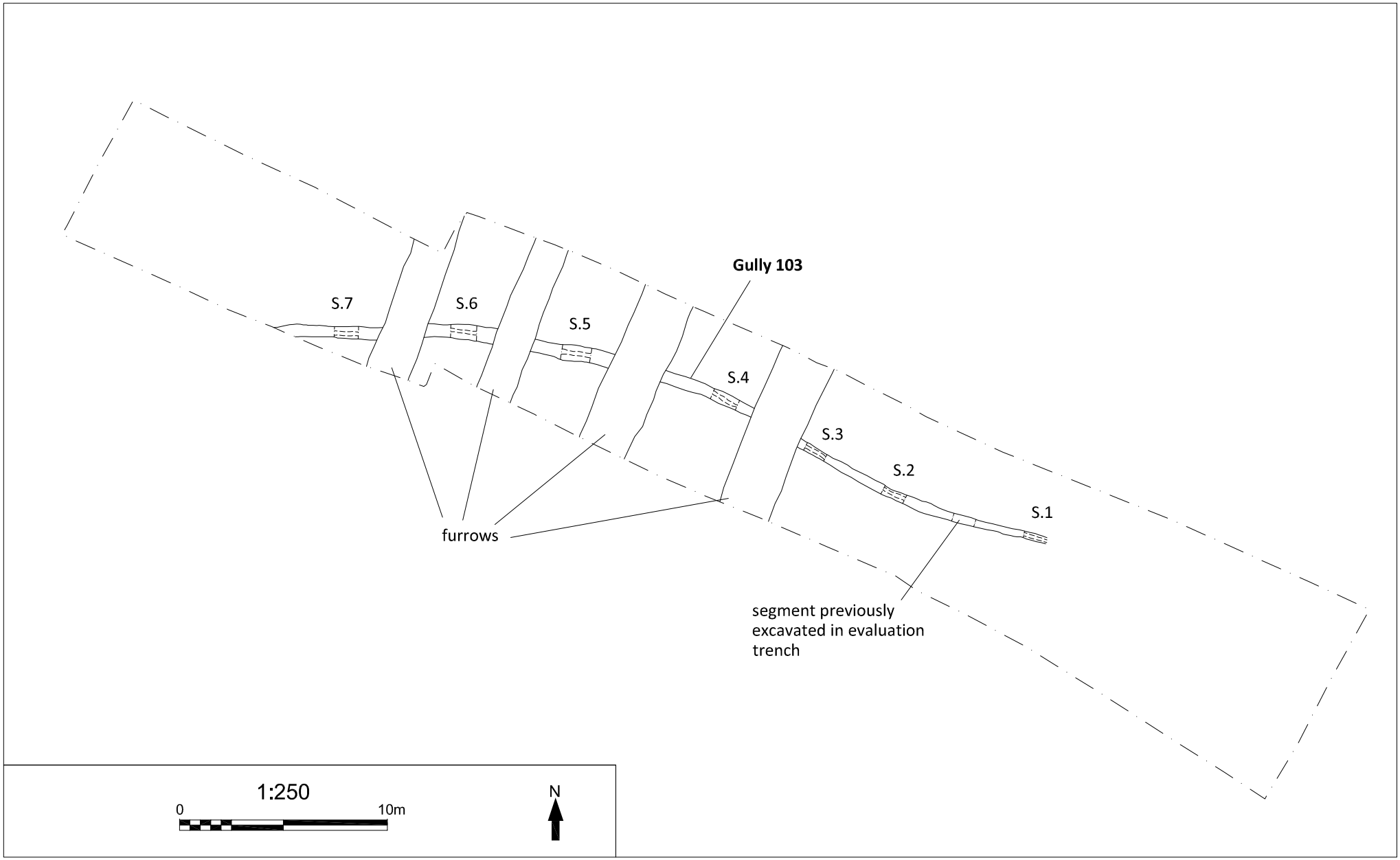



Figure 3: Watching brief area

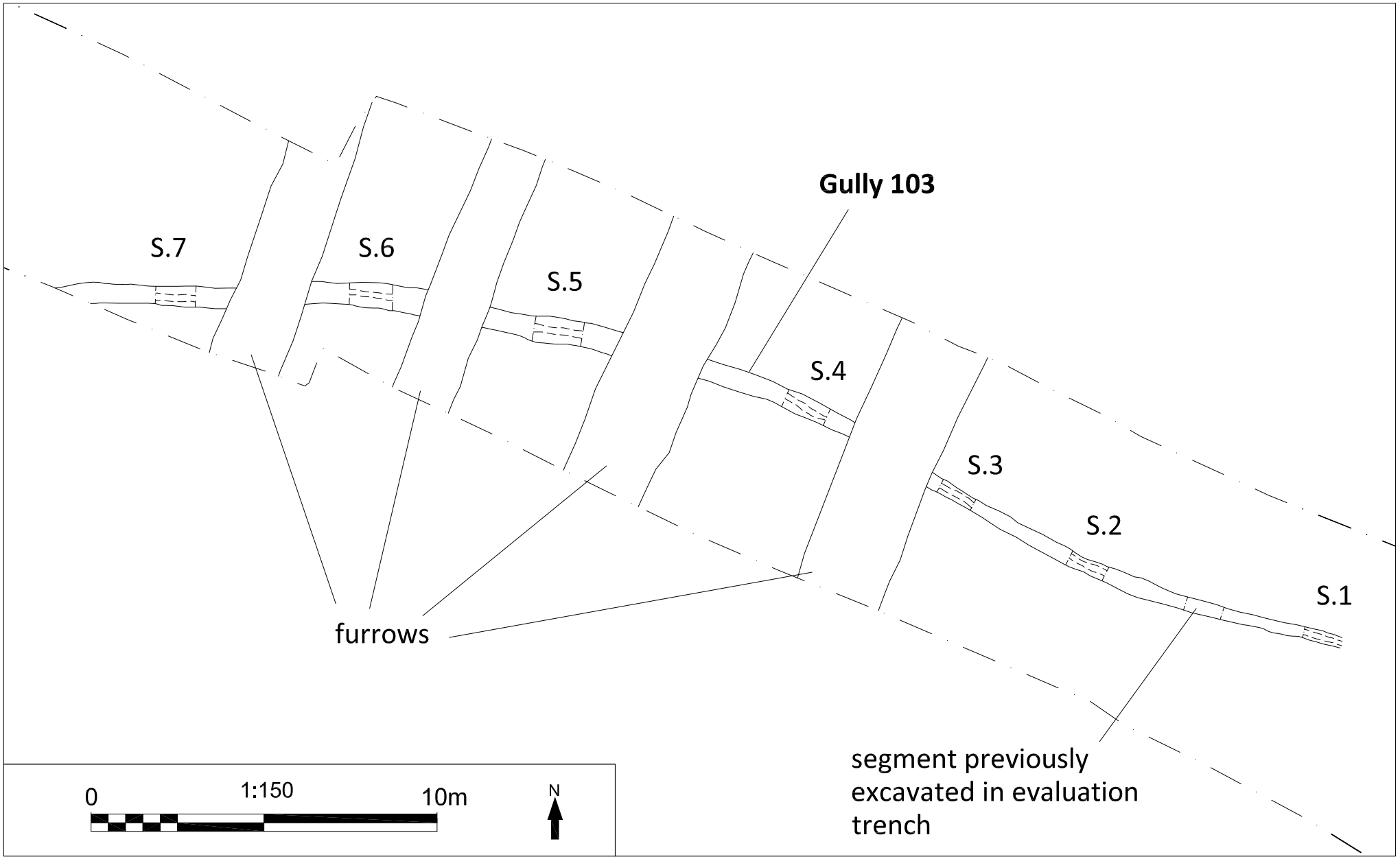



Figure 4: Gully 103 and excavated segments

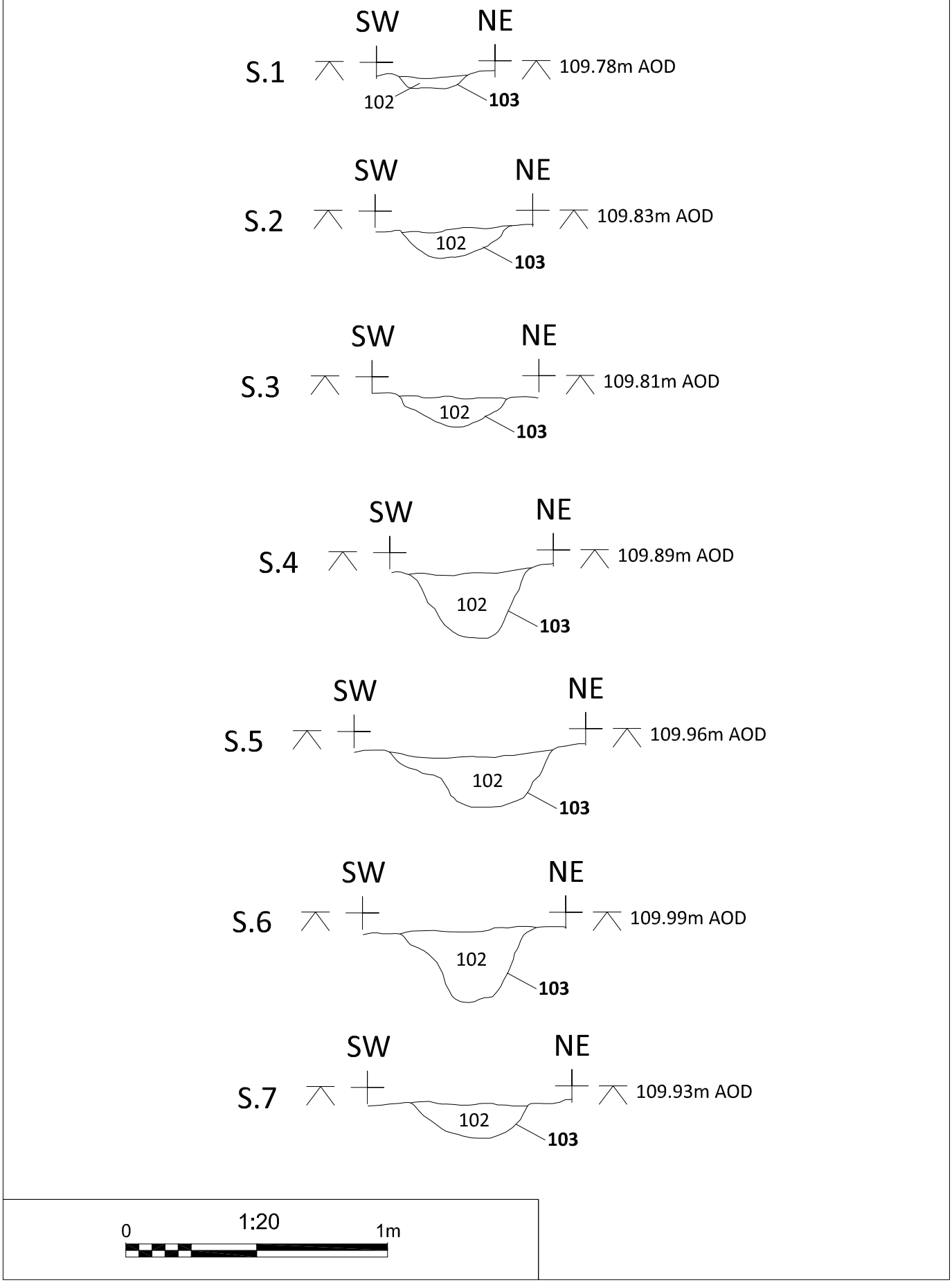



Figure 5: Sections excavated through **Gully 103**

Plate 1: Excavation area looking east-south-east

Plate 2: Gully 103 looking east

Plate 3 Gully 103 Section 1 looking west

Plate 4 Gully 103 Section 2 looking east

Plate 5 Gully 103 Section 3 looking east

Plate 6 Gully 103 Section 4 looking west

Plate 7 Gully 103 Section 5 looking east

Plate 8 Gully 103  Section 6 looking east

Plate 9 Gully 103 Section 6 looking east

Plate 10 Gully 103 Section 7 looking east