

**AN ARCHAEOLOGICAL EVALUATION AT
BISHOP MIDDLEHAM QUARRY (WESTERN EXTENSION),
BISHOP MIDDLEHAM, NEAR SEDGEFIELD,
COUNTY DURHAM**

JANUARY 2014

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DOCUMENT VERIFICATION

BISHOP MIDDLEHAM QUARRY (WESTERN EXTENSION), BISHOP MIDDLEHAM, NEAR SEDGFIELD, COUNTY DURHAM

ARCHAEOLOGICAL EVALUATION REPORT

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**An Archaeological Evaluation at Bishop Middleham Quarry (Western Extension),
Bishop Middleham, Near Sedgefield, County Durham**

Central National Grid Reference: NZ 3260 3255

Site Code: BMD 13



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1. NON-TECHNICAL SUMMARY

- 1.1 An archaeological trial trenching evaluation was undertaken by Pre-Construct Archaeology ahead of a proposed western extension to Bishop Middleham Quarry, near Sedgfield, County Durham. The fieldwork was undertaken October-November 2013. RP Wood Planning Consultancy commissioned the work on behalf of the quarry operator, Thompsons of Prudhoe.
- 1.2 Bishop Middleham Quarry lies to the north of the village of Bishop Middleham, c. 4 km north-west of Sedgfield and c. 12 km south-east of Durham City. It lies within a corridor of agricultural land defined to the west by the A1 (M) and to the east by the A177. The proposed western extension would see mineral extraction taking place in a phased manner (Phase 1 being the first) before subsequent restoration of the land. The extension will take place in fields immediately adjacent to and west of the existing workings. The Phase 1 area comprises the majority of a large irregular-shaped arable field, at central National Grid Reference NZ 3260 3255, which covers c. 5.5 ha. Bounding the Phase 1 area at its north-western corner, and lying adjacent to the A1 (M), is a roughly triangular field, the southernmost portion of which, covering less than 1 ha, is proposed for materials storage.
- 1.3 A phased scheme of archaeological work is being undertaken ahead of the proposed quarry extension. The archaeological potential of the site stems, for the most part, from the presence of known later prehistoric and Roman activity within the wider area, including the course of the Roman road, known as Cade's Road. Following a historic environment desk-based assessment undertaken in 2012, a geophysical survey was undertaken in 2013 as an initial non-invasive element of fieldwork to determine the archaeological potential of the Phase 1 area. The geophysical survey identified numerous responses in the Phase 1 area, including a number which were strongly suggestive of archaeological features. The most prominent anomaly was a curvilinear feature which crossed the southern part of the Phase 1 area on a broadly west-east alignment, with other potentially related features to its north, represented by two interconnected sub-circular anomalies and a separate ring-like anomaly. On the basis of their form, it was considered that these anomalies were most likely to represent archaeological features of late prehistoric date. Several linear anomalies corresponded closely with field boundaries depicted on 19th-century and later mapping.
- 1.4 Following on from the geophysical survey a Written Scheme of Investigation for a second phase of archaeological evaluation by trial trenching was compiled by PCA and approved by a Senior Archaeologist at Durham County Council. The trial trenching aimed to clarify the archaeological potential of the site and comprised 23 trenches, sited to investigate a variety of geophysical anomalies, as well as 'judgement' trenches sited in areas where no geophysical responses were present. Four trenches (Trenches 1, 2, 5 and 8) were located in the proposed storage area and the remainder were located across the Phase 1 area.
- 1.5 In summary, the trial trenching revealed the presence of significant archaeological features of probable later prehistoric origin in the northern extent of the Phase 1 area (Trenches 3 and 4) and the central and southern portion of the Phase 1 area (Trenches 12, 15, 16, 18 and 21). No archaeological features of significance were encountered in trenches located in the storage area.

- 1.6 At the northern extent of the Phase 1 area, in Trenches 3 and 4, various discrete and linear features were recorded. Several features recorded within the central part of Trench 3 were partially exposed within the limits of excavation, comprising two possible pits and two features which may represent the terminals of linear features. Towards the south end of the trench was a shallow ditch aligned approximately west-east which was likely the cause of a linear geophysical response. Features of possible prehistoric date in Trench 4 comprised two small pits or postholes and a west-east aligned linear feature, again likely the cause of a linear geophysical response.
- 1.7 In the central western part of the Phase 1 area, in Trench 12, two parallel roughly west-east aligned shallow ditches corresponded to two linear geophysical responses. At the south end of Trench 12 was a narrow rectilinear feature which may represent the north-western corner of an enclosure or structure.
- 1.8 The prominent curvilinear geophysical response running in a broadly west-east alignment across the southern part of the Phase 1 area was targeted by Trenches 16, 18 and 21. A ditch recorded in each trench was the likely cause of the response; initially this was U-shaped but had infilled and then been re-cut as a more substantial feature, with a V-shaped profile. Two worked flints recovered from the ditch re-cut in Trenches 16 and 21 are broadly of Mesolithic or Early Neolithic date; they are, however, considered to be residual in context. Nevertheless, the feature is interpreted as likely representing a boundary ditch of later prehistoric origin.
- 1.9 Trench 15 was sited to investigate the ring-like and sub-circular geophysical responses towards the south-western site boundary. The trench intersected the ring-like anomaly in two places, each revealing a V-shaped ditch, cut into the limestone bedrock. No artefactual material was recovered, but charred plant remains recovered from bulk samples are typical of later prehistoric contexts in the region. The function of this small ring ditch - internal diameter c. 3.80m and external dimension c. 6m - is uncertain. To the west, three ditches were recorded, which may represent what appeared to be two closely related sub-circular enclosures identified by the geophysical survey. The easternmost element comprised two intercutting ditches and the western element comprised a single ditch. The profiles of all the features generally had steep sloping sides and a U-shaped base, with a similar sequence of fills recorded in each case. Although the function of these ditches cannot be definitively interpreted, they are considered – based on the combined results of the trenching and geophysical survey - to represent elements of two intercutting enclosures of probable late prehistoric date.
- 1.10 A distinct pattern of roughly north-south aligned geophysical anomalies identified across the Phase 1 area was considered likely to represent plough furrows. Corresponding north-south aligned features, with broad shallow U-shaped profiles, were recorded within Trenches 1, 5, 13, 20, 22 and 23. Additional features, comprising a north-south aligned ditch, recorded in both Trenches 11 and 15, and a west-east aligned ditch, recorded in both Trenches 16 and 18, represent former field boundaries depicted on historic mapping.

2. INTRODUCTION

2.1 General Background

- 2.1.1 This report describes the methodology and results of an archaeological evaluation undertaken by Pre-Construct Archaeology Limited (PCA) October 16–November 1 at Bishop Middleham Quarry (Western Extension), near Sedgfield, County Durham. The site is located within a block of agricultural land situated to the east of the existing quarry and is defined to the west by the A1 (M) (Figure 1). The evaluation was commissioned by RP Wood Planning Consultancy on behalf of the quarry operator, W. & M. Thompson (Quarries) Limited (Thompsons of Prudhoe, the Client).
- 2.1.2 A phased programme of archaeological work is taking place in advance of the proposed quarry extension, as required by Durham County Council's Heritage, Landscape and Design Team, the body which provides development control with regard to the historic environment in County Durham. The proposals would see mineral extraction taking place in a phased manner (the first being Phase 1) before subsequent restoration of the land. The Phase 1 area comprises the majority of a large irregular-shaped arable field, c. 5.5 ha in size (Figure 2). Bounding the Phase 1 area at its north-western corner, and lying adjacent to the A1 (M), is a roughly triangular field covering less than 1 ha, the southernmost portion of which is proposed for materials storage.
- 2.1.3 An historic environment desk-based assessment (DBA) of the site undertaken in 2012 established that there was a high potential for archaeological remains of the late prehistoric to Roman period at the site, as well as some potential for evidence of medieval and post-medieval agricultural activity (PCA 2012). A geophysical survey undertaken in 2013 comprised an initial non-invasive phase of archaeological evaluation. This work identified numerous geophysical responses in the Phase 1 area, while the proposed storage area could not be surveyed due to vegetation cover. While the majority of the anomalies were interpreted as probably relating to agricultural practice/features, a number were strongly suggestive of archaeological features, including some which were considered most likely to represent later prehistoric activity (PCA/PSI 2013). Accordingly, these responses required testing by trial trenching, as the next component of the overall archaeological evaluation.
- 2.1.4 The trial trenching comprised the investigation of 23 trenches located across the Phase 1 and storage areas (on Figure 2 the trench locations overlie the 'greyscale' plot from the geophysical survey). A Project Design, incorporating a Written Scheme of Investigation (WSI), detailing the work to be carried out was approved by a Senior Archaeologist at the Heritage, Landscape and Design Team in advance of the fieldwork (PCA 2013). The aim of the evaluation was to identify and record any archaeological remains within the Phase 1 and storage areas and, therefore, determine the necessity for and scope of any further archaeological mitigation ahead of the proposed quarry extension.

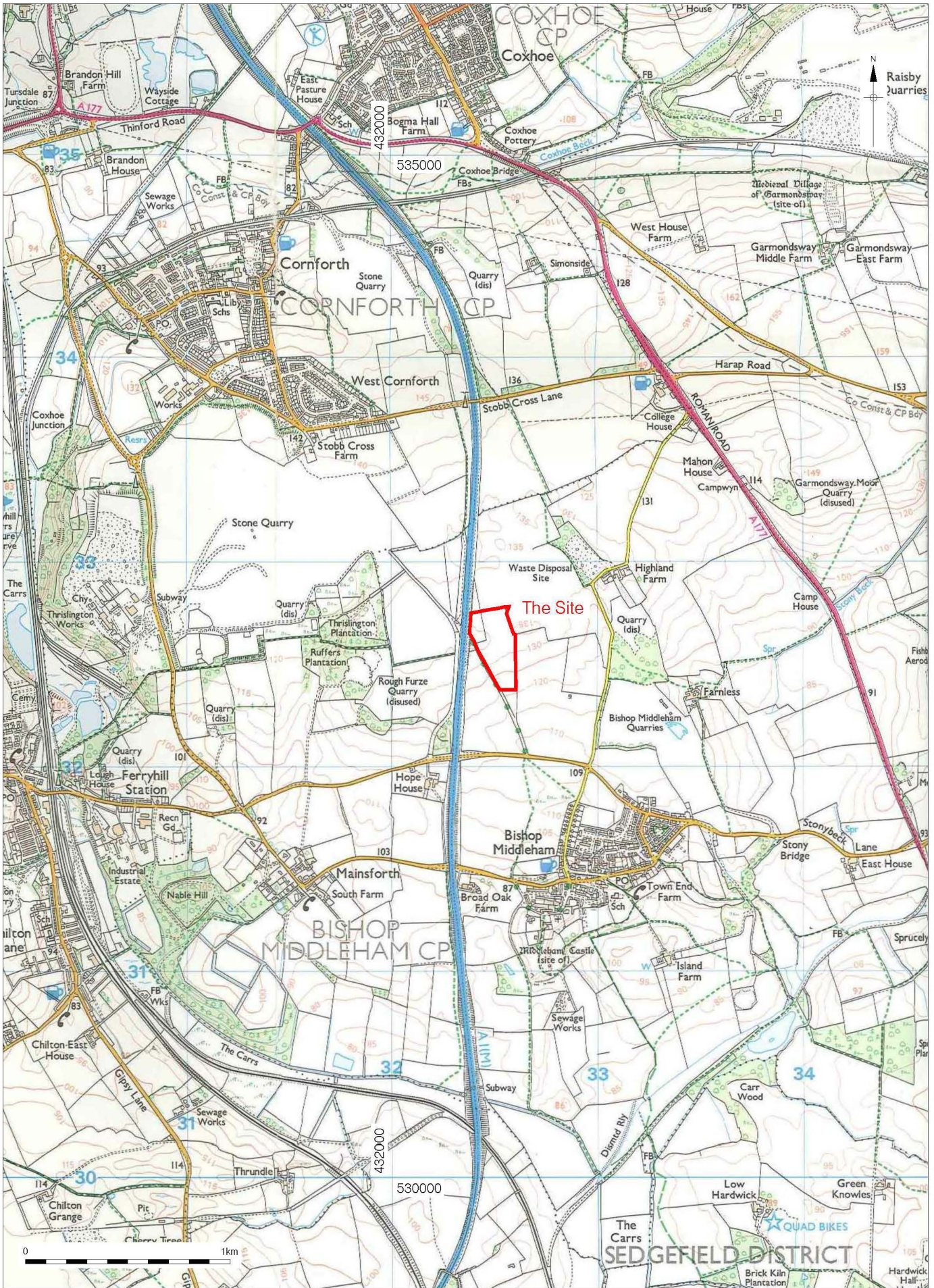
- 2.1.5 The completed Site Archive, is currently held at the Northern Office of PCA and the retained element, comprising the written, drawn and photographic records, as well as a small assemblage of artefactual material, will be deposited at the Bowes Museum, Barnard Castle, County Durham, under the site code BMD 13.
- 2.1.6 The Online Access to the Index of Archaeological Investigations (OASIS) reference number for the project is: preconst1-169655.

2.2 Site Location and Description

- 2.2.1 The village of Bishop Middleham lies c. 12 km south-east of Durham City and c. 4 km north-west of Sedgfield. Bishop Middleham Quarry lies to the north of the village, extending from Stonybeck Lane, which runs along the northern margin of the village, northwards for c. 1.2 km to an isolated farmstead, Highland Farm. Another farmstead, Farnless Farm, lies immediately to the east of the quarry (Figure 1).
- 2.2.2 Bishop Middleham Quarry lies in a corridor of agricultural land defined to the west by the north-south aligned A1 (M) and narrowing to the north due to the SE-NW alignment of the A177, which bounds the land corridor to the east. The proposed extension lies to the west of the current workings, operated by the Client. The Phase 1 area comprises the majority of a large irregular-shaped field and measures a maximum of 400m north-south by 200m east-west, covering c. 5.5 ha, at central National Grid Reference NZ 3260 3255 (Figure 2).
- 2.2.3 At the time of the evaluation the field which, for the most part, lies within the Phase 1 area was in arable use and had been recently ploughed. To the south lies the remainder of the same field, this portion lying outside the boundary of the Phase 1 area. The Phase 1 area is bounded to the south-west by an access track and to the east by another large arable field. Bounding the Phase 1 area at its north-western corner, and lying adjacent to the A1 (M), is a roughly triangular field. The southernmost portion of this field is the proposed materials storage area, measuring a maximum of 150m north-south by 70m east-west and covering just under 1 ha. At the time of the evaluation this field was covered with rough grassland. To the north of the Phase 1 and storage areas lies another mineral working, arable fields until recent times.

2.3 Geology and Topography

- 2.3.1 The solid geology of the Bishop Middleham area is made up of Middle Magnesian Limestone of the Permian period, now known as the Ford Formation (*British Geological Survey website*). Later glacial activity, in particular the retreat of the last major ice sheet, left a marked escarpment and plateau in the eastern part of County Durham. This 'East Durham Plateau' is characterised by a thin cover of glacial drift deposits, predominantly boulder clay, overlying the Magnesian Limestone, although in some areas bedrock does have surface exposure (*Natural England website*). Such limestone, generally referred to as 'dolomite' (*i.e.* Calcium Magnesium Carbonate), has been for many years the main source of dolomitic rock in Britain, for brick making, aggregate for road-building and other construction purposes, as well as for agricultural lime.



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Figure 1
Site Location
1:25,000 at A4



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Figure 2
 Trench locations and geophysical survey results
 1:2,500 at A4

2.3.2 From its elevated situation, at c. 135m OD, the site overlooks the village of Bishop Middleham from the north. The village itself, situated at c. 100m OD, overlooks the River Skerne, a tributary of the River Tees. The most elevated part of the site, at c. 135m OD, is to the north-west, where the Phase 1 area meets the storage area. Ground level across the northernmost portion of the Phase 1 area and the storage area falls away slightly to the north. The southernmost portion of the Phase 1 area occupies ground sloping away to the SSE, towards Bishop Middleham. At the southern boundary of the Phase 1 area, which does not correspond with any current physical boundary, ground level lies at c. 120m OD.

2.4 Planning Background

2.4.1 Planning permission for the extraction of limestone and reinstatement by infilling with waste at Bishop Middleham Quarry was granted in 1983. The Local Planning Authority (LPA) and Minerals Planning Authority (MPA) is Durham County Council. An application for an extension to the north-west of the original quarry was granted on appeal in 1997 and a subsequent permission to alter the phasing for both mineral extraction and landfill operations was granted in 2003. At that stage mineral extraction was required to cease by 2009 and the site restored by 2021.

2.4.2 In 2007, the Client advised the MPA, that it would not be possible to meet the timetable for the completion of mineral extraction and therefore sought formal variation of the existing planning conditions. Thus, in May 2007, a minerals planning application (7/2007/0388) was submitted to vary certain conditions of planning permission T/APP/H1345/96/267255/P5 as amended by planning permissions 7/98/58CM and 7/2003/0045CM in order to extend the date for completion of extraction to 31 December 2015, as well as revise the method of extraction and the phasing for subsequent landfill operations.

2.4.3 The trial trenching evaluation was required, as part of the planning process, to inform relevant parties, of the character, date, extent and degree of survival of archaeological remains at the site. The main aim was to provide results which should inform a decision regarding further archaeological mitigation measures.

2.4.4 The archaeological potential of the site was first established by the aforementioned historic environment desk-based assessment undertaken in 2012. An initial non-invasive phase of archaeological evaluation, comprising geophysical survey, was undertaken in 2013 by PSI, co-ordinated by PCA. This informed the Project Design and WSI for the trial trenching, which was approved by a Senior Archaeologist of the County Council's Heritage, Landscape and Design Team.

2.4.5 The requirement to undertake the archaeological work in association with the proposed development is in line with planning policy at a national level, as set out in the *National Planning Policy Framework* (NPPF) (DCLG 2012). The NPPF came into effect in 2012, replacing *Planning Policy Statement 5: 'Planning for the Historic Environment'* (PPS5) (DCLG 2010), to provide updated guidance for LPAs, property owners, developers and others on the conservation and investigation of the historic environment.

2.4.6 Heritage assets - those parts of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest - remain a key concept of the NPPF, retained from PPS5. Despite the deletion of PPS5, the *PPS5: Historic Environment Planning Practice Guide* (DCLG (revised) 2012), remains a valid, UK Government-endorsed, document. Chapter 12 '*Conserving and enhancing the historic environment*' of the NPPF describes, in paragraph 126, how LPAs should '*...set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment*' and details, in paragraph 128, that '*In determining applications, LPAs should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the relevant [Historic Environment Record] HER should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, LPAs should require developers to submit an appropriate desk-based assessment and where necessary [the results of] a field evaluation*'.

2.4.7 At a local level, all existing policies from *The County Durham Minerals Local Plan* (2000) were 'saved' as result of the Planning and Compulsory Purchase Act 2004 until 27 September 2007. Since 28 September 2007 certain policies have become out of date, or are 'not saved'. The remaining saved policies, as set out in *The County Durham Minerals Local Plan Saved and Expired Policies* will continue to apply until replacement by new Local Development Framework policies in the emerging document *The County Durham Plan*. Three 'saved' policies relate to archaeology:

- *Policy M31. Archaeological Field Evaluations* – Where there is reason to believe that important archaeological remains may exist within or in the vicinity of the site of a proposed mineral development, developers will be required to provide an archaeological field evaluation prior to the determination of the planning application.
- *Policy M32. Archaeological Remains* – Where nationally important archaeological remains, whether scheduled or not and their settings are affected by a proposed mineral development there will be a presumption in favour of their preservation in situ. Proposals for mineral development that would have significant adverse effect on regionally important remains will only be permitted where: a) no other suitable locations are available; or b) where there is an overriding need for mineral which outweighs the requirement for physical preservation.
- *Policy M33. Recording of Archaeological Remains* – Where the preservation of archaeological remains in situ is not appropriate, planning permission will not be granted unless satisfactory provision has been made for the excavation and recording of the remains

2.5 Archaeological and Historical Background

- 2.5.1 The DBA established that no designated or non-designated heritage assets were present at the site or in its immediate vicinity (PCA 2012). However, the overall extension site has never been previously developed and the assessment concluded that it had: moderate to high potential for later prehistoric archaeological remains, based on previously recorded evidence of later prehistoric exploitation in the area; low to moderate potential for Roman remains and; high potential for archaeological remains related to medieval and post-medieval agricultural usage of the site.
- 2.5.2 The first evidence for occupation in the Bishop Middleham area dates to the Neolithic period or Bronze Age. A small number of flint tools, have been found in the area, including an arrowhead and scrapers, all recovered on farmland to the east of Farnless Farm, which lies to the immediate east of the quarry.
- 2.5.3 The skeletal remains of at least six people were found in a small cave in the southern part of the quarry area in 1932 and objects found in association with the remains were of Late Bronze Age or Early Iron Age date. A small glass bead found in the southern part of Bishop Middleham village is probably of Early or Middle Iron Age date. A fragment of hand-made pottery found near Farnless Farm is thought likely to be of Iron Age date and potentially represents settlement activity of the period in the area.
- 2.5.4 More conclusive evidence of prehistoric settlement has been recorded beyond the A1 (M), less than 1 km to the west of the site, but at a very similar topographic location. A geophysical survey in 2003 examined cropmark features prior to a proposed extension of Thrislington Quarry. A subsequent archaeological evaluation identified a prehistoric ditched enclosure with internal features. Several linear ditches of prehistoric date were also recorded as well as a large medieval pit. This activity demonstrated the undoubted potential for prehistoric archaeological remains within the areas proposed for the Bishop Middleham quarry extension.
- 2.5.5 The Bishop Middleham area has undoubted potential for Roman period remains. Cade's Road, the Roman road from Great Stainton to Chester-le-Street, is postulated as running on a roughly SE-NW alignment only c. 0.5 km to the east of Bishop Middleham Quarry, slightly to the west of the A177, which probably follows its line further north, up to Coxhoe. Finds of Roman material in and around Bishop Middleham are not uncommon. The farmstead at Farnless was the site of the discovery of the head of a small bronze statue probably representing a Roman god. A Roman brooch was recovered in the Bishop Middleham area in 1997 and the fragmentary remains of four copper-alloy pans were recovered from a field to the south of the village.
- 2.5.6 While Bishop Middleham, and more specifically Bishop Middleham Quarry to the north of the village, certainly lay close to an important Roman communication route, no certain evidence for buildings of the period has yet been found in the area. While a tentative identification of a Roman building has been made from aerial photographic evidence, in the area crossed by Cade's Road to the east of the quarry, this is unconfirmed. Roadside settlement is certainly possible along Cade's Road, as evidenced by the extensive remains identified by geophysical survey at Hardwick Hall, Sedgely, c. 3.5 km south of the site.

- 2.5.7 Apart from four Saxon coins found to the east of Farnless Farm, along the postulated line of the Roman road, there is little other evidence for Anglo-Saxon activity in the Bishop Middleham area. However, as Middleham is an Old English name for 'middle settlement or farm' it is possible that there was some kind of occupation in the area by the 9th or 10th century.
- 2.5.8 In 1146, Osbert, the nephew of Bishop Flambard, gave the Church of Middleham to the Prior and Convent at Durham, and this is the first recorded mention of the village. The Boldon Book of 1183, a survey of all the land owned by the Bishop of Durham, records that there were some 32 households in the village. Middleham Castle was one of the principal residences of the Bishops of Durham until the end of the 14th century. By the late 14th century the Bishops of Durham appear to have no longer used the place as a residence and the buildings and land were let out. The site now survives only as earthwork remains. St. Michael's Church in the village was built in the 13th century.
- 2.5.9 Throughout the post-medieval period, Bishop Middleham mainly supported itself by farming, though there was some coal-mining and the line of a colliery waggonway of 19th-century date, possibly earlier, is preserved in the route of Stonybeck Lane to the north of the village; this ran westwards to Ferryhill and eastwards to Fishburn. Quarrying of limestone has been undertaken in the area for centuries. The Ordnance Survey 1st edition map from the mid 19th century shows small quarries around Highland House, the dwelling that is now the core of the farm immediately to the north of Bishop Middleham Quarry.

Previous archaeological work at the site

- 2.5.10 An archaeological watching brief was undertaken in 2010 during topsoil stripping across a previous extension area (Phase 6) of the quarry. A rough cobble trackway was revealed running west-east across the monitored area, but finds recovered from the feature suggest a late post-medieval date. No other archaeological remains of note were encountered. The historic environment assessment should be consulted for further details.
- 2.5.11 The initial phase of archaeological evaluation undertaken in association with the current proposal comprised geophysical survey of the Phase 1 area. Figures 2 and 13 of this report incorporate the greyscale plot and interpretation of the results, respectively; full details of that non-invasive component of the overall project are set out in a separate report (PCA/PSI 2013). In sum, the survey identified numerous responses in the Phase 1 area, the majority of which were interpreted as probably relating to agricultural practice/features, including ridge and furrow, modern material/objects or geological/pedological variations. However, a number of anomalies were strongly suggestive of archaeological features, the most prominent being what appeared to be a curvilinear feature which crossed the southern part of the Phase 1 area on a broadly west-east alignment, with other potentially related features to its north, represented by two interconnected sub-circular anomalies and a separate ring-like anomaly. On the basis of their form, it was considered that these anomalies were most likely to represent archaeological features of late prehistoric date. Several linear anomalies corresponded closely with field boundaries depicted on 19th-century and later mapping.

3. PROJECT AIMS AND RESEARCH OBJECTIVES

3.1 Project Aims

- 3.1.1 The project is 'threat-led' with potential to disturb or destroy important sub-surface archaeological remains, if present. Therefore, the broad aim of the project was to inform the Minerals Planning Authority, advised by Durham County Council's Heritage, Landscape and Design Team, and the Client, advised by RP Wood Planning, regarding the character, date, extent and degree of survival of archaeological remains at the site. The results will be used to inform decisions regarding, firstly, further archaeological mitigation measures for the Phase 1 and storage areas, and secondly, future archaeological evaluation of the adjacent Phase 2 and Phase 3 areas.
- 3.1.2 Following the geophysical survey undertaken in June 2013 as an initial non-invasive phase of archaeological evaluation of the Phase 1 area, trial trenching was selected as the next most appropriate investigative tool to test the archaeological potential of the site. The trenches were sited either to investigate geophysical responses or as 'judgement' trenches in areas where no geophysical responses were present.
- 3.1.3 Additional aims of the project were:
- to compile a Site Archive consisting of all site and project documentary and photographic records, as well as all artefactual and palaeoenvironmental material recovered;
 - to compile a report that contains an assessment of the nature and significance of all data categories, stratigraphic, artefactual, *etc.*

3.2 Research Objectives

- 3.2.1 Archaeological work at the western extension site provides potential opportunities to address key research objectives as set out in *Shared Visions: The North East Regional Research Framework for the Historic Environment* (NERRF) (Petts and Gerrard, 2006). The NERRF highlights the importance of research as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past so that all elements of commercial archaeological work can be related to wider regional and national priorities for the study of archaeology and the historic environment.
- 3.2.2 The site is considered to have the potential to provide a contribution to several 'Key Research Themes' in the NERRF 'Research Agenda and Strategy' for the Bronze Age and Iron Age:
- I1. Chronology;
 - I2. Changing landscapes;
 - I3. Settlement function;
 - I4. Social organisation and identity;
 - I5. Material culture.

4. ARCHAEOLOGICAL METHODOLOGY

4.1 Fieldwork

4.1.1 The trial trenching evaluation was undertaken 16 October - 1 November 2013. All fieldwork was undertaken in accordance with the relevant standard and guidance document of the Institute for Archaeologists (IfA) (IfA 2009). PCA is an IfA-Registered Organisation. The evaluation was undertaken according to the aforementioned Project Design which should be consulted for full details of methodologies employed regarding archaeological excavation, recording and sampling (PCA 2013). PCA's standard manual for fieldwork procedures was also adhered to (PCA 2009).

4.1.2 Trial trenching was considered as the most appropriate investigative tool to test the archaeological potential of the site, following on from the earlier geophysical survey.

4.1.3 Twenty-three evaluation trenches were located across the Phase 1 and storage areas (Figure 2). The trenches were positioned in order to achieve a representative sample of these areas, comprising a 4% sample of the storage area (which was not subject to geophysical survey as the ground conditions were unsuitable) and a 2.6% sample of the Phase 1 area. All trenches measured either 50m or 30m in length and were approximately 1.70m wide. Ten trenches were located as 'judgement' trenches either where no geophysical data was present or where no geophysical response was apparent; the remaining 13 trenches were sited to test geophysical anomalies interpreted as either possible or probable archaeological features. The geophysical anomalies considered most likely to be of archaeological origin are labelled (A-J) on Figure 2.

4.1.4 A summary of the rationale for the siting of each evaluation trench is set out below:

- Trench 1 (30m x 1.70m) - judgement trench in storage area.
- Trench 2 (50m x 1.70m) - judgement trench in storage area.
- Trench 3 (50m x 1.70m) - geophysical anomaly 'I', 'possible archaeological feature', Phase 1 area, northern extent.
- Trench 4 (50m x 1.70m) - geophysical anomalies 'J', 'possible sub-surface feature', and 'I', 'possible archaeological feature', Phase 1 area, northern extent.
- Trench 5 (50m x 1.70m) - judgement trench in storage area.
- Trench 6 (50m x 1.70m) - judgement trench in Phase 1 area, northern extent
- Trench 7 (50m x 1.70m) - geophysical anomaly 'H', 'possible geological/pedological variation or archaeological feature', Phase 1 area, northern extent.
- Trench 8 (50m x 1.70m) - judgement trench in storage area.
- Trench 9 (50m x 1.70m) - geophysical anomaly 'G', 'possible archaeological feature', Phase 1 area, central portion.
- Trench 10 (30m x 1.70m) - geophysical anomaly 'G', 'possible archaeological feature', Phase 1 area, central portion.

- Trench 11 (50m x 1.70m) - geophysical anomaly 'F', 'possible sub-surface features', Phase 1 area, central portion.
- Trench 12 (30m x 1.70m) - geophysical anomalies 'C' and 'D', 'possible sub-surface features', Phase 1 area, central portion.
- Trench 13 (50m x 1.70m) - geophysical anomalies 'C', 'possible sub-surface feature' & 'E', 'possible archaeological feature', Phase 1 area, central portion.
- Trench 14 (50m x 1.70m) - geophysical anomalies 'C', 'possible sub-surface feature', Phase 1 area, central portion.
- Trench 15 (30m x 1.70m) - geophysical anomaly 'B', 'probable archaeological feature', Phase 1 area, central portion.
- Trench 16 (30m x 1.70m) - geophysical anomaly 'A', 'probable archaeological feature', Phase 1 area, southern extent.
- Trench 17 (30m x 1.70m) - judgement trench in Phase 1 area, central portion.
- Trench 18 (30m x 1.70m) - geophysical anomaly 'A', 'probable archaeological feature', Phase 1 area, southern extent.
- Trench 19 (30m x 1.70m) - geophysical anomaly, 'possible sub-surface feature', Phase 1 area, central portion.
- Trench 20 (30m x 1.70m) - geophysical anomaly, 'possible sub-surface feature', Phase 1 area, southern extent.
- Trench 21 (30m x 1.70m) - geophysical anomaly 'A', 'probable archaeological feature', Phase 1 area, southern extent.
- Trench 22 (50m x 1.70m) - judgement trench in Phase 1 area, southern extent.
- Trench 23 (30m x 1.70m) - judgement trench in Phase 1 area, southern extent.

4.1.5 All trenches were set-out by PCA using a Leica iCON gps 60 Global Navigation Satellite System (GNSS), with pre-programmed co-ordinate data determined by an office-based CAD operative. The instrument provides corrected Ordnance Survey co-ordinates in real time, to an accuracy of 1cm.

4.1.6 All trenches were mechanically-excavated by a wheeled back-acting 'JCB' excavator with toothless ditching bucket under archaeological supervision. The trenches were excavated to the top of the first significant archaeological horizon, or the clearly defined top of the natural sub-stratum, whichever was reached first. All potential archaeological features were identified and marked with sprayline at the time of machine clearance of overburden.

4.1.7 Hand cleaning was undertaken in trenches where archaeological features were identified. All potential features were subject to partial or complete excavation within the trenches with photography and archaeological recording taking place at appropriate stages in the process. All trenches were recorded to some degree, irrespective of whether or not they contained archaeological features.

4.1.8 Where archaeological remains were encountered, they were examined in plan and recorded using the 'single context recording' method using the *pro forma* 'Trench Recording Sheet' and 'Context Recording Sheet'. Relevant scale drawings were made and a photographic record was compiled. A selection of digital photographs from the evaluation is included as Appendix 6 to this report.

4.2 Post-excavation

4.2.1 The stratigraphic data for the project is represented by the written, drawn and photographic records. A total of 138 archaeological contexts were defined during the work (Appendix 2). Post-excavation work involved checking and collating site records, grouping contexts and phasing the stratigraphic data (Appendix 1). A written summary of the archaeological sequence was then compiled, as described below in Section 5.

4.2.2 The artefactual material recovered from the site comprised a small assemblage of flint and pottery. This material was cleaned, marked, conserved, bagged, packaged, boxed and stored as appropriate and in accordance with recognised guidelines (UKIC 1983; Watkinson and Neal 2001). Specialist identification or assessment of the material was undertaken (Appendices 3 and 4). No other categories of inorganic artefactual material were represented.

4.2.3 The palaeoenvironmental sampling strategy of the project was to recover bulk samples where appropriate, from well-dated stratified deposits covering the main periods or phases of occupation and the range of feature types represented, with specific reference to the objectives of the evaluation. To this end, nine bulk samples were recovered, six of which were assessed. The results of assessment are given in Appendix 5.

4.2.4 The complete Site Archive, in this case comprising written, drawn and photographic records (including all material generated electronically during post-excavation) along with the small assemblage of artefactual material, will be packaged for long-term curation. In preparing the Site Archive for deposition, all relevant standards and guidelines documents referenced in the Archaeological Archives Forum guidelines document (Brown 2007) will be adhered to, in particular a well-established United Kingdom Institute for Conservation (UKIC) document (Walker 1990) and the IfA standard and guidance document on archaeological archives (IfA 2008). The depositional requirements of the body to which the Site Archive will be ultimately transferred will be met in full.

5. RESULTS: THE ARCHAEOLOGICAL SEQUENCE

During the evaluation, separate stratigraphic entities were assigned unique and individual 'context' numbers, which are indicated in the following text as, for example [1/23], with the first number representing the trench number. The archaeological sequence has been assigned to broad phases on a site-wide basis. Interpretation has been added to the data, where possible, and the phases have been correlated with recognised historical and geological periods, again where possible.

5.1 Phase 1: Natural Sub-stratum

5.2.1 Phase 1 represents natural geological material exposed within the base of each of the 23 evaluation trenches. The earliest deposit to be recorded was limestone bedrock (Phase 1.1), [4/14], [7/2], [8/3], [9/3], [10/3], [11/4], [12/8], [13/4], [14/3], [15/3], [16/9], [17/2], [19/3] and [21/6], exposed within the base of Trenches 4, 7-17, 19 and 21, respectively (similar format followed hereafter without trench numbers listed), this being the material to be quarried.

5.2.2 In four trenches limestone bedrock was overlain either entirely or partially by 'boulder clay' (Phase 1.2), [4/3], [8/2], [18/6], [19/2]. Elsewhere, the boulder clay comprised the basal deposit in nine trenches [1/5], [2/3], [3/3], [5/4], [6/3], [18/6], [20/3], [22/2] and [23/2], and the bedrock was not exposed. Boulder clay generally comprised firm, pinkish brown silty clay, with the exception of Trench 3 where it comprised yellowish brown sand in the northern part of the trench. Boulder clay was not present within Trenches 7, 9, 10-17 or 19; these trenches were located across the higher central part of the site where glacial drift material, which may have been relatively thin, may have been removed by ploughing.

5.2.3 The maximum height recorded for either limestone bedrock or overlying boulder clay was c. 134.67m OD in Trench 6, in the north-western part of the Phase 1 area, and the minimum recorded height was c. 121.28m OD in Trench 22, the southernmost trench. These values broadly reflect the natural topography of the area investigated, with a gradual slope down from north to south. The northernmost part of the area investigated also sloped down to the north, and the natural boulder clay within Trench 3 was recorded at a height of 132.10m, reflecting this sloping topography.

5.2.4 The depth at which the limestone bedrock or natural boulder clay was encountered below existing ground level varied across the site. It ranged from a minimum of 0.28m in Trench 19, adjacent to the eastern boundary in the southern portion of the Phase 1 area, where topsoil directly overlay the limestone bedrock, to a maximum of 1.10m in Trench 3, this in the north-westernmost part of the Phase 1 area, where a substantial thickness of a probable colluvial deposit (see Phase 3) overlay the boulder clay. This variation broadly reflects the natural topography with ground level sloping down to the north in the northernmost portion of the area under investigation.

5.2 Phase 2: Prehistoric and Undated

5.2.1 Phase 2 represents possible later prehistoric activity, along with several undated, but potentially related, features recorded in the northern extent of the Phase 1 area (Trenches 3 and 4) and the central and southern portion of the Phase 1 area (Trenches 12, 15, 16, 18 and 21).

- 5.2.2 Trench 3 was positioned in the north-western extent of the Phase 1 area to test parts of two linear geophysical anomalies (anomalies I and J) that ran intermittently approximately west-east across the northern extent of the site, along with a large discrete anomaly at the northern end of the trench (Figures 2 and 13). No archaeological feature was encountered to account for anomaly I or the large discrete anomaly, and these may have been caused by geological or pedological variation. However, a linear feature, [3/5], revealed in the southern part of the trench may account for the portion of linear anomaly J recorded at this location (Figure 3). Four features were also recorded in the central part of the trench, all cut into the boulder clay substratum, [3/3]. These comprised two discrete features, [3/7] and [3/9], and two possible terminals of linear features, [3/11] and [3/13] (Figure 3). The maximum height recorded on any of these features was 133.78m OD.
- 5.2.3 An ENE-WSW aligned linear feature, [3/5], was recorded towards the southern end of Trench 3. It had a shallow U-shaped profile and measured 0.78m wide by 0.11m deep (Section 1, Figure 11). No dateable artefactual material was recovered from its single clayey silt fill, [3/4]. This feature has been interpreted as a boundary ditch and is on a similar alignment to linear feature, [4/7], recorded in Trench 4, which potentially represents a continuation of this boundary eastwards, although this feature was not detected by geophysical survey beyond the vicinity of Trench 3.
- 5.2.4 Two discrete features, [3/7] and [3/9], were partially exposed within the central portion of Trench 3, both located adjacent to the western edge of the trench. The southernmost feature, [3/7], measured 0.66m north-south by at least 0.25m east-west and was 0.23m deep (Section 3, Figure 11). Located immediately to the north of feature [3/7] was feature [3/9], which measured 0.88m north-south by at least 0.46m east-west and was up to 0.34m deep (Section 3, Figure 11). Both features contained a single mid greyish brown sandy silt fill, [3/6] and [3/8], respectively, with small flecks of degraded ceramic building material recorded in fill [3/8]. Both features may represent either terminals of linear features or alternatively pits, with the latter interpretation preferred.
- 5.2.5 Two other features, [3/11] and [3/13], were also partially exposed within the central portion of Trench 3; revealed adjacent to the eastern limit of excavation, it is possible that these represent the terminals of linear features which continued to the east beyond the limit of Trench 3. Feature [3/11], recorded for a maximum distance of 0.75m, NE-SW aligned, was linear, continuing to the north-east beyond the limit of excavation, with a rounded terminal to the south-west. It was up to 0.49m wide and 0.14m deep (Section 2, Figure 11). Located c. 1m to the north of feature [3/11] was feature [3/13], this recorded for a maximum distance of 1.23m NW-SE, continuing to the south-west with an irregular rounded terminal to the north-west. It was up to 0.86m wide and 0.27m deep (Section 4, Figure 11). Given the limited degree of exposure of both features, definite interpretation is impossible, but both features have been provisionally interpreted as possible gully terminals. The northernmost feature, [3/11], had an irregular stepped profile and, therefore, could alternatively represent a natural feature, such as a tree throw. Both features contained a single clayey sandy silt fill, [3/10] and [3/12], respectively, and neither yielded artefactual material.

- 5.2.6 Trench 4 was positioned in the north-eastern corner of the Phase 1 area to investigate parts of two linear geophysical anomalies (anomalies I and J) that both ran intermittently roughly west-east across the northern extent of the site (Figures 2 and 13). To this end, no archaeological features were recorded to account for the anomalies, which may have been caused by the underlying geology. A narrow void in the limestone bedrock which, in its upper part, was filled with ploughsoil (see layer [4/13], Phase 7 below) crossed the trench in the vicinity of linear anomaly I, towards the central part of the trench. Three features were recorded within the southern half of Trench 4, all cut into the natural boulder clay sub-stratum. These comprised an east-west linear feature, [4/7], and two oval discrete features, [4/9] and [4/11] (Figure 4). The maximum height recorded on any of these features was 133.44m OD.
- 5.2.7 An ENE-SSW aligned feature, [4/7], ran across the southern-eastern extent of Trench 4 and was exposed for a maximum distance of 1.70m. It was up to 0.40m wide and c. 0.12m deep with a shallow U-shaped profile (Section 15, Figure 12). No dateable artefactual material was recovered from its single silty clay fill, [4/8]. This feature is interpreted as a boundary ditch and may represent the continuation of ditch [3/5], recorded in Trench 3 to the west. If this was the case, then the excavated evidence, along with the geophysical survey results, demonstrates that the boundary extended for at least 70m.
- 5.2.8 Two broadly oval discrete features, [4/9] and [4/11], were recorded within the southern and central portions of Trench 4, respectively. The southernmost, [4/9], measured 0.40m NW-SE by 0.25m NE-SW and was 0.12m deep, with a shallow U-shaped profile (Section 16, Figure 12). No dateable artefactual material was recovered from its single sandy silty clay fill, [4/10]. This feature is interpreted as a possible posthole or small pit.
- 5.2.9 Located c. 9.30m north of possible posthole [4/9], within the central portion of Trench 4, was an oval feature, [4/11], which measured 0.74m NW-SE by 0.40m NE-SW and was up to 0.12m deep, with a U-shaped profile with flat base (Section 17, Figure 12). Its single sandy silty clay fill, [4/12], yielded no artefactual material and the feature is tentatively interpreted as a small pit.
- 5.2.10 Trench 12 was positioned in the central portion of the Phase 1 area to investigate parts of two parallel, linear geophysical anomalies (anomaly D) and a further geophysical anomaly to the south (anomaly C) that ran ENE-WSW across the central portion of the site (Figures 2 and 13). At the northern portion of the trench, two parallel ENE-WSW aligned linear features, [12/3] and [12/5], were recorded that correspond with anomaly D (Figure 6). No archaeological features were recorded that would account for anomaly C. However, an 'L-shaped' linear feature, [12/7], was recorded at the southern extent of the trench (Figure 6). All features recorded in Trench 4 cut into the limestone bedrock.
- 5.2.11 The ENE-WSW aligned linear features were recorded, c. 1.80m apart, crossing the full width of the trench, therefore exposed for a maximum distance of 1.70m. The northernmost, feature [12/3], measured 0.63m wide and 0.14m deep and the southernmost, feature [12/5], measured 0.84m wide and was 0.16m deep, with the profiles of both features generally being shallow U-shaped. The maximum height at which these features were encountered was 133.62m OD. Both contained a single sandy silt fill, [12/2] and [12/4], respectively, which yielded no artefactual material in each case. Both features are interpreted as boundary gullies of unknown date and could potentially be contemporary with other similarly-aligned boundary features recorded within the northern portion of the site in Trenches 3 and 4.

- 5.2.12 Towards the southern end of Trench 12 a narrow curvilinear feature, [12/7], was exposed for a maximum distance of c. 4m, aligned roughly north-south, continuing to the south beyond the limit of excavation; to the north it had a return, roughly to the west, recorded for a distance of c. 2m, continuing to the west beyond the limit of excavation. It measured up to 0.20m wide and 0.12m deep and had a U-shaped profile. The maximum height recorded for this feature was 132.48m OD. This feature is interpreted as a gully or fenceline and may have formed the corner of an enclosure or structure. No dateable artefactual material was recovered from its single clayey silty sand fill, [12/6].
- 5.2.13 At the eastern end of Trench 15, where the trench targeted two portions of a distinct circular geophysical anomaly (part of anomaly complex B), two corresponding ditches, [15/16] and [15/21], were recorded extending across the trench for a maximum distance of 1.70m and cut into the limestone bedrock (Figure 7). The easternmost ditch, [15/21], was 1.20m wide by 0.78m deep and had steeply-sloping sides with a U-shaped base (Section 11, Figure 12; Plate 2). Its primary fill, [15/22], comprised clayey silt and fine degraded limestone up to 0.26m thick and its upper fill, [15/23], comprised clayey silt with limestone inclusions, up to 0.57m thick. The westernmost ditch, [15/16], was 1.20m wide by 0.83m deep with steeply-sloping, slightly convex, sides and a U-shaped base (Section 10, Figure 11; Plate 3). This had a similar sequence of fills, with its primary fill, [15/7], comprising clayey silt and fine degraded limestone, up to 0.20m thick, and its upper fill, [15/8], comprising clayey silt with limestone inclusions, up to 0.80m thick. Both primary fills contained quantities of fine degraded limestone indicating natural silting-up with the upper fills containing larger fragments of limestone, suggesting deliberate backfilling.
- 5.2.14 Combination of the geophysical survey and archaeological results strongly indicates that two parts of a circular feature, represented by ditches [15/16] and [15/21], were recorded in the eastern half of Trench 15; if so, the internal diameter of this 'ring ditch' is c. 3.80m and its external dimension is c. 6m. No dateable artefactual material was recovered from any of the excavated fills, however, a bulk sample {9} of upper fill [15/23] produced a small assemblage of charred plant macrofossils and the range of species present is consistent with assemblages from late prehistoric (Late Bronze Age and Iron Age) sites in the region (Appendix 5). Charcoal fragments recovered from this sample and also from sample {8} taken from upper fill [15/8] were identified as birch, hazel and oak. The function of the ring ditch is uncertain; due to its small size it is unlikely to represent a barrow or structure.
- 5.2.15 At a distance of c. 4m to the west of the ring ditch in Trench 15 was what appeared to be a curvilinear ditch, [15/9], aligned roughly north-south (Figure 7). It was 2.40m wide and 0.64m deep and had an irregular-stepped profile with a flat base (Sections 12 and 13, Figure 12; Plate 5). The 80mm thick primary fill, [15/10], comprised clayey silt and degraded limestone and this was overlain by a 0.15m thick silty clay fill, [15/11]. The uppermost clayey silt fill, [15/24], was up to 0.45m thick and a bulk sample {7} taken from this was submitted for assessment (Appendix 5). No artefactual material was recovered from its fills but, as with the ring ditch to the east, the plant macrofossils present are consistent with those found on late prehistoric sites in the region. This ditch is assumed to represent the easternmost component of what appeared to be two closely-related curvilinear enclosures detected by the geophysical survey (part of anomaly complex B).

- 5.2.16 Ditch [15/9] had been cut through by another ditch, [15/12], also probably curvilinear and approximately NW-SE aligned (Figure 7). This feature was 1.43m wide and 0.60m deep, with stepped sides and a narrow U-shaped base (Sections 12 and 13, Figure 12; Plate 5). The 70mm thick primary fill, [15/13], comprised clayey silt and fine degraded limestone, overlain by a 0.37m thick clayey silt fill, [15/14], with large stone inclusions. The uppermost fill, [15/15], comprised clayey silt with stone inclusions, up to 0.28m thick. No artefactual material was recovered from any of the fills. As with the earlier ditch, the primary fill contained fine degraded limestone, more indicative of natural silting, while fragmented limestone in the upper fills was suggestive of deliberate backfilling. This ditch is assumed to be the cause of another component of the two closely-related curvilinear enclosures detected by geophysical survey (part of anomaly complex B).
- 5.2.17 Another linear ditch, [15/4], was revealed c. 9m to the west of intercutting ditches [15/12] and [15/9], this roughly north-south aligned and evidently the cause of the westernmost component of the two closely-related curvilinear enclosures detected by geophysics. Ditch [15/4] was 1.14m wide and 0.74m deep and had steeply-sloping, slightly irregular sides with a wide U-shaped base (Section 8, Figure 11; Plate 4). Its primary fill, [15/5], comprised silty clay and fine degraded limestone, up to 0.17m thick. Its upper c. 0.57m thick fill, [15/6], comprised clayey silt and frequent fragments of limestone. No artefactual material was recovered from either fill.
- 5.2.18 The geophysical survey results indicate that this part of the site contains two closely-related curvilinear enclosures (the westernmost elements of anomaly complex B). Intercutting ditches [15/9] and [15/12], recorded in the central part of Trench 15 suggest two phases of activity, with ditch [15/9] likely representing the easternmost side of the earlier enclosure and ditches [15/4] and [15/12] likely representing the westernmost and easternmost sides, respectively, of the later component of the complex. Assuming this to be the case, the internal diameter of the later enclosure is c. 9.50m.
- 5.2.19 Trenches 16, 18 and 21 were positioned to investigate a curvilinear geophysical response (anomaly A) that ran roughly west-east across the western side of the site, turning to the south-east beyond Trench 16 (Figures 2 and 13). Within each of these trenches, a similarly-aligned ditch, [16/7] and [18/8], and associated re-cuts, [16/3], [18/5] and [21/3], were recorded, cutting into either the natural boulder clay or limestone bedrock. The maximum recorded height on any of the ditches was 129.24m OD in Trench 16.
- 5.2.20 Towards the northern end of Trench 16, a west-east aligned ditch, [16/7], was recorded cutting into bedrock (Figure 8). It was at least 0.62m wide - its full width was not seen due to truncation by a re-cut - and was 0.28m deep (Section 5, Figure 11; Plates 7 and 8). Its single fill, [16/6], comprised sandy clayey silt. A bulk sample {5} of this deposit was largely unproductive (Appendix 5). The northern edge of ditch [16/7] had largely been truncated by a similarly aligned re-cut, [16/3]. This was 2.24m wide by up to 0.94m deep and had a V-shaped profile (Section 5, Figure 11; Plates 7 and 8). A flint blade (SF2) of Late Mesolithic or Early Neolithic date was recovered its single clayey silt fill, [16/2]; this is considered probably residual in context, since the form of the feature is more suggestive of a later prehistoric origin. Furthermore, a Late Bronze Age or Iron Age date is indicated by a bulk sample {4} collected from fill [16/2], which produced a range of plant macrofossils consistent with sites of this period in the region (Appendix 5).

- 5.2.21 In Trench 18, a shallow NW-SE aligned ditch, [18/8], was recorded cutting into the boulder clay sub-stratum, [18/6] (Figure 9). It was at least 1.02m wide, but again its full width was not ascertained due to a re-cut. The maximum surviving depth was 0.18m and it had an irregular shallow U-shaped profile (Section 7, Figure 11; Plate 9). Its single sandy clayey silt fill, [18/7], yielded no artefactual material. The south-western edge of ditch [18/8] had been truncated by a similarly NW-SE aligned re-cut, [18/5], which measured 3.34m wide by 0.96m deep and had a V-shaped profile with a steeply-sloping south-western side and a stepped north-eastern side (Section 7, Figure 11; Plate 9). Its single clayey silt fill, [18/4], yielded no artefactual material
- 5.2.22 To the east, in Trench 21 the limestone bedrock was cut into by a NW-SE aligned ditch, [21/3], (Figure 10; Plate 11). It measured 2.30m wide by 0.96m deep and had a broadly V-shaped profile with flat base (Section 6, Figure 11; Plate 10). Its primary fill, [21/5], up to 70mm thick, comprised degraded limestone, overlain by a 0.50m thick silty clay fill, [21/4], with inclusions of medium to large limestone fragments. A bulk sample {1} taken from this deposit was unproductive in terms of charred plant macrofossils (Appendix 5), but a single small scrap of pottery was recovered; dating cannot be certain due to its small size but the fabric is indicative of later prehistoric ceramics from the region. A single flint flake (SF1) was also recovered from this deposit; this was not particularly diagnostic and could date from the Late Mesolithic through to the Early Bronze Age period and hence is likely to be residual in context. The upper fill, [21/2], comprised clayey silt with inclusions of limestone, up to c. 0.40m thick. The primary fill, [21/5], contained quantities of fine degraded limestone indicative of natural silting with the upper fills, [21/4] and [21/2], both containing fragmented limestone, suggesting that the ditch may have been deliberately backfilled.

5.3 Phase 3: Colluvium

- 5.3.1 In Trenches 3 and 4, at the northern end of the Phase 1 area, the features assigned to Phase 2 and the boulder clay sub-stratum were overlain by sterile clayey silt deposits, [3/2] and [4/2], respectively, which can be confidently equated. The thickness of the material varied from up to 0.66m in the northern portion of Trench 3, this petering out towards the centre of the trench, to 0.10m in Trench 4. It was encountered at maximum and minimum heights of 133.14m OD in Trench 4 and 132.80m OD in Trench 3, respectively. This material has been interpreted as being of colluvial origin ('hillwash'), and presumably accumulated due to the natural topography, with the ground sloping away to the north in the northernmost part of the Phase 1 area.

5.4 Phase 4: Sub-soil

- 5.4.1 Sub-soil, [1/4], [2/2], [6/2], [9/2], [10/2], [11/5], [14/2], [15/2], [16/8], [20/2], was recorded in Trenches 1, 2, 6, 9-11, 14-16 and 20 and at most locations directly overlay either natural boulder clay or limestone bedrock, the exception being Trenches 15 and 16 where it overlay Phase 2 features. The sub-soil generally comprised firm clayey silt, with a maximum recorded thickness of 0.25m, this in Trench 10 (Plate 12), and a minimum thickness was 50mm, recorded in Trench 14.

5.5 Phase 5: Medieval

- 5.5.1 Phase 5 represents agricultural activity of probable medieval date. The geophysical survey identified a series of north-south aligned linear anomalies that have been interpreted as plough furrows (Figures 2 and 13). No upstanding earthworks were evident at the site, so that all traces of medieval and early post-medieval ridge and furrow ploughing are presumed to have been removed by later post-medieval and modern cultivation. All features assigned to this phase have been interpreted as plough furrows, with features recorded in six trenches (Trenches 1, 5, 13, 20, 22, 23) (Figure 13).
- 5.5.2 In general, all plough furrows had broad, shallow U-shaped profiles and measured up to 2.50m wide by at least 0.20m deep. Within the storage area, furrows were recorded in Trenches 1 and 5, [1/3] and [5/3], and within the Phase 1 area, furrows were recorded in Trenches 13, 20, 22 and 23, [13/3], [20/5], [22/4] and [23/4], all located in the southern half of the area.
- 5.5.3 The fills of the plough furrows generally comprised firm clayey silts, [1/2], [5/2], [13/2], [20/4], [22/3], [23/3], from which no artefactual material was recovered. In general, the furrows recorded in the trenches (and those identified by geophysical survey) were spaced c. 9m to 10m apart (from the mid-points of adjacent furrows). Such spacing is generally considered typical of the broad ridge and furrow system of the medieval period.

5.6 Phase 6: Post-medieval

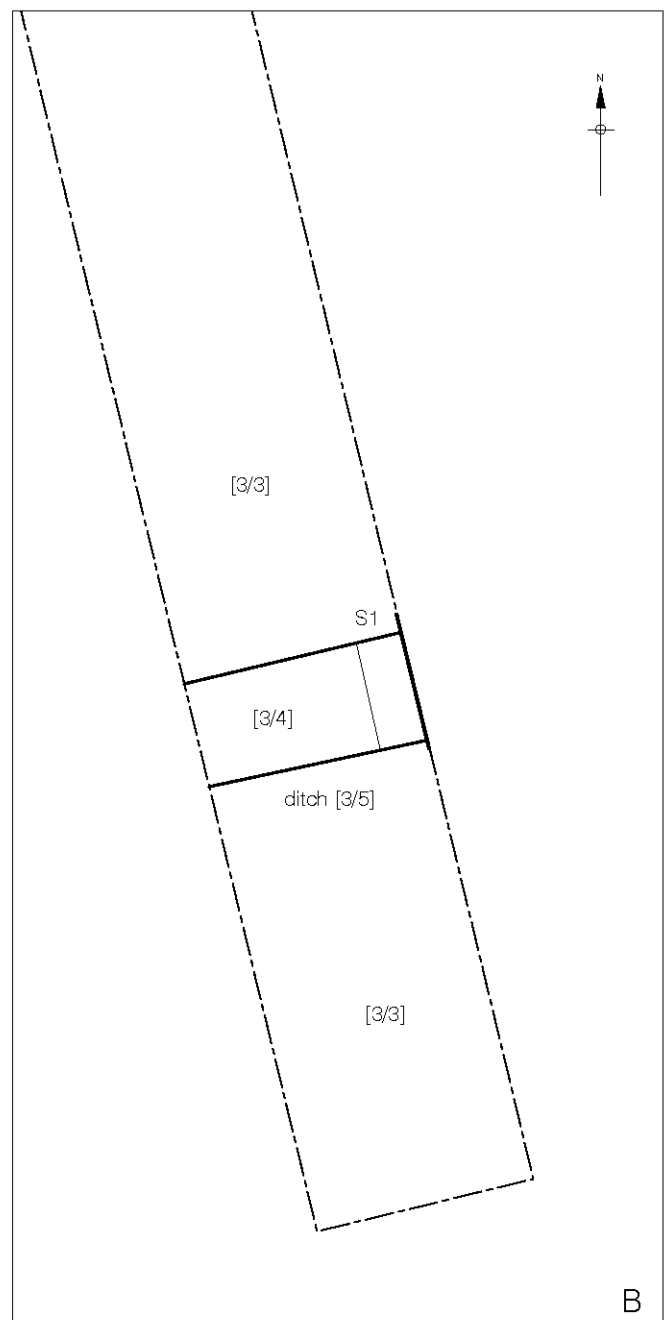
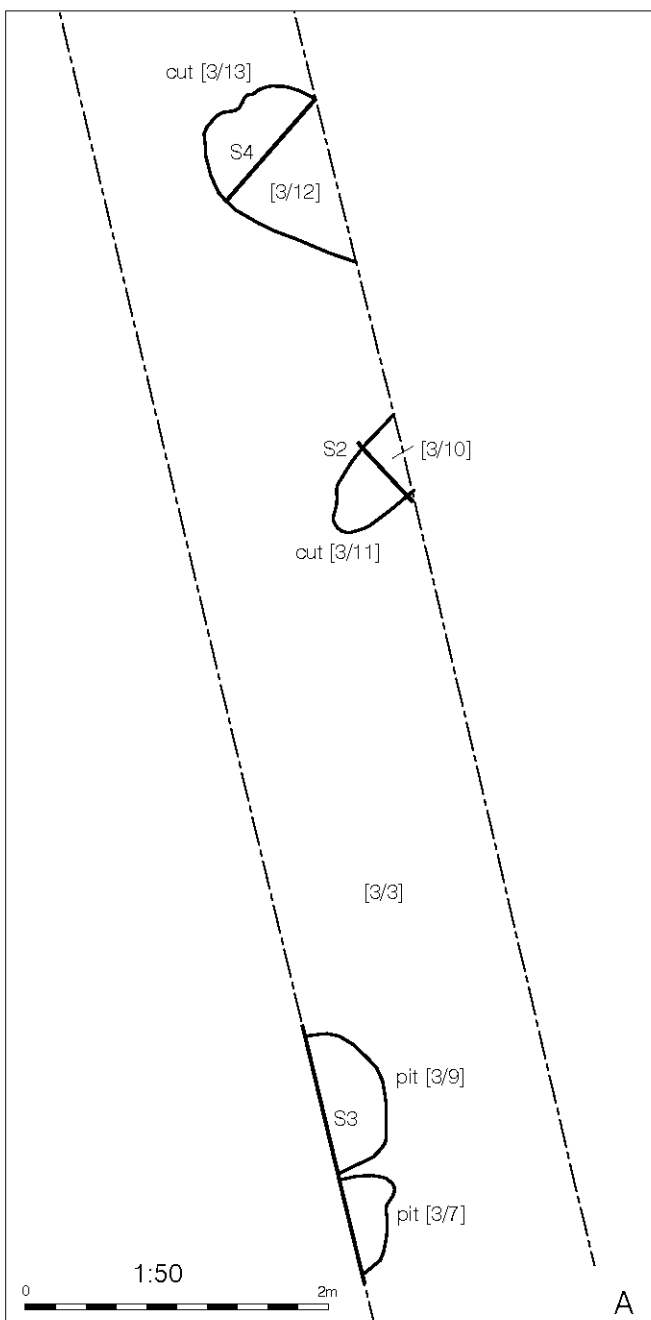
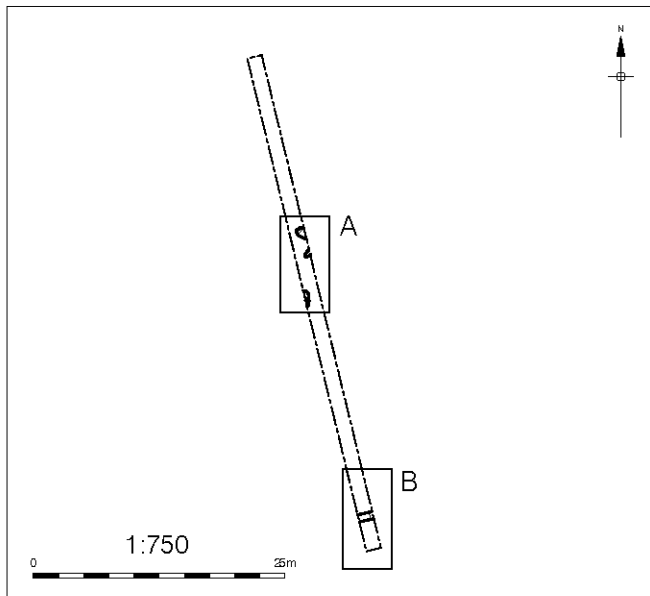
- 5.6.1 Trench 11 was positioned close to the western boundary of the Phase 1 area, to the south of the storage area, to investigate a curvilinear geophysical response and a north-south aligned linear response (anomaly complex F; Figures 2 and 13) along with numerous small discrete anomalies. A further geophysical anomaly interpreted as a 'probable infilled field boundary field' was also identified; this located in the eastern half of the trench. No archaeological features were recorded that would account for anomaly F or the discrete anomalies. However, towards the eastern end of the trench a NNW-SSE aligned ditch, [11/3], was recorded cutting into the bedrock and this would account for the geophysical response interpreted as a possible field boundary. The ditch measured 1.54m wide by up to 0.28m deep and had a shallow U-shaped profile with a stepped north-eastern side (Section 18, Figure 12; Plate 6). A large sherd of early post-medieval pottery, of 17th- or possibly 18th-century date, was recovered from its single clayey silt fill, [11/2] (Appendix 3).
- 5.6.2 To the south, in the central portion of Trench 15, a further element of the same north-south aligned boundary ditch, [15/7], was recorded truncating the sub-soil. It measured 2.06m wide by up to 0.36m deep and had an irregular shallow U-shaped profile (Section 9, Figure 12). No artefactual material was recovered from its single clayey silt fill, [15/8].
- 5.6.3 The boundary ditch recorded in Trenches 11 and 15 continues the line of the hedgerow boundary to the north (the eastern boundary of the storage area). The 1839 Tithe map shows that, at that date, the large field in which the Phase 1 area lies was divided into four smaller fields. The boundary ditch recorded in these trenches, over a distance of 65m, represents the eastern boundary of a small triangular field (Field 30) bounded to the west by the track and to the north by the storage area field. Ordnance Survey maps demonstrate that this field layout survived until as recently as the 1940s.

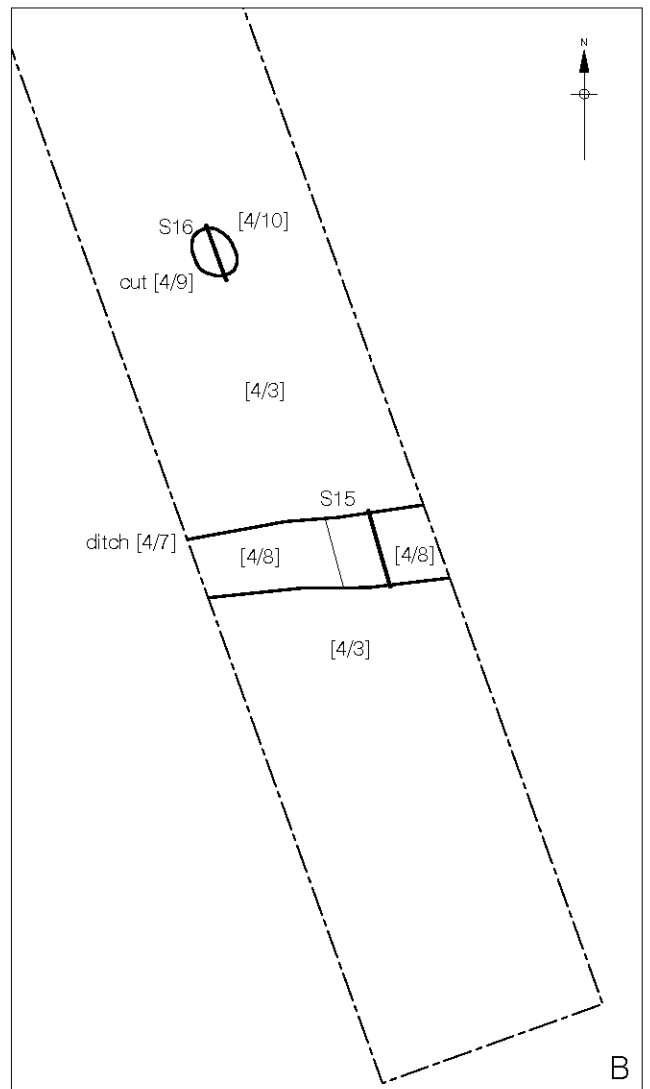
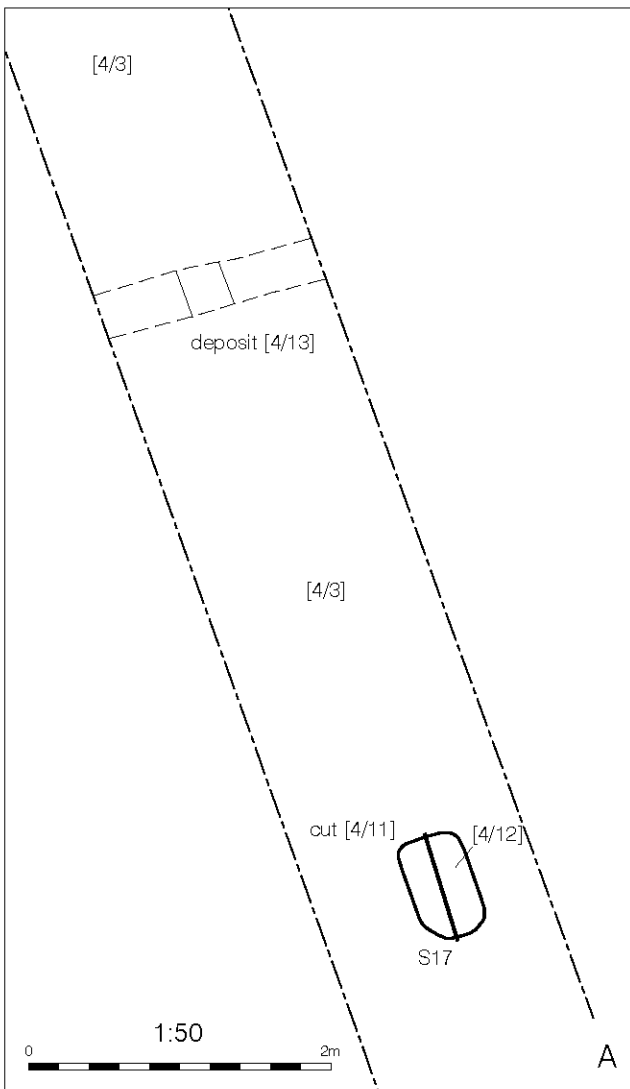
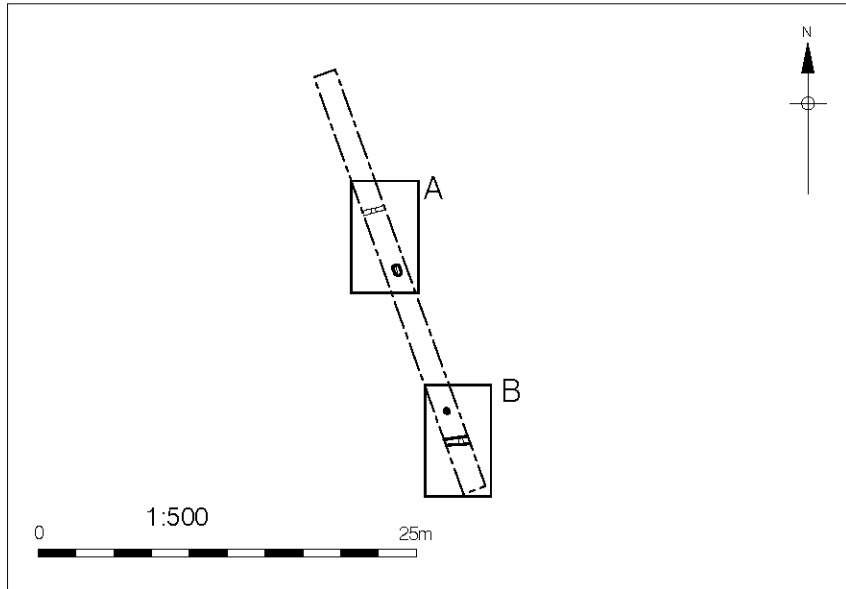
- 5.6.4 An east-west aligned linear geophysical anomaly interpreted as a 'probable infilled field boundary' was identified in the southern portion of the Phase 1 area; the southern end of Trench 16 and the central portion of Trench 18 intersected with this response (Figures 2 and 13). In both trenches, a shallow linear feature was recorded that would account for the response. In Trench 16 a west-east aligned ditch, [16/5], truncated the sub-soil and this measured 1.80m wide by up to 0.15m deep (Figure 8). Its single fill, [16/4], comprised clayey silt, this yielded an iron horseshoe of probable 19th- or early 20th-century date (not retained).
- 5.6.5 In Trench 18, c. 40m to the east, ditch [18/3] represents a further element of the same west-east aligned boundary. This truncated the upper fill of Phase 2 ditch [18/5]. It was up to 1.76m wide, up to 80mm deep and had a very shallow U-shaped profile (Figure 9 and Section 7, Figure 11). No artefactual material was recovered from its single clayey silt fill, [18/2].
- 5.6.6 The 1839 Tithe map shows that the ditch recorded in Trenches 16 and 18 almost certainly represents the west-east field boundary separating Fields 28 and 29, as depicted on that map. As mentioned above, the mid 19th-century field layout at the site was largely retained in the landscape until the 1940s.
- 5.6.7 Trench 7 was positioned in the northern portion of the Phase 1 area to investigate part of a group of substantial discrete geophysical responses (anomaly H; Figures 2 and 13). A substantial feature, [7/4], which extended across the central portion of the trench, would appear to account for the responses. This measured c. 9.70m wide by at least 0.80m deep (Figure 13). Its single fill, [7/3], comprised silty clay with frequent loosely compacted medium to large fragments of sandstone, these components largely concentrated in the western part of the feature. Artefactual material, including fragments of brick, tile, glass and bone, was observed in this deposit. Based on its substantial size, this feature is interpreted as a quarry pit for the extraction of limestone, which was backfilled, with a combination of domestic waste and stone rubble, probably sometime during the late 19th or early 20th century. Further substantial geophysical responses identified to the north and west of Trench 7 are also considered likely to represent similar late post-medieval or early modern era quarry pits.

5.7 Phase 7: Modern

- 5.7.1 In the central portion of Trench 4, a c. 0.20m thick silty clay deposit, [4/13], was recorded partly infilling a west-east aligned void that crossed the width of the trench. Only 0.20m wide this 'feature' appeared to be in excess of 4m deep (Figure 4). The deposit which partly infilled it was similar in composition to that of the overlying ploughsoil, suggesting that the void had appeared as a fracture in the bedrock as a fairly recent event.
- 5.7.2 Topsoil/ploughsoil forming the existing ground surface across the site was recorded in all 23 trenches, [1/1], [2/1], [3/1], [4/1], [5/1], [6/1], [7/1] [8/1], [9/1], [10/1], [11/1], [12/1], [13/1], [14/1], [15/1], [16/1], [17/1], [18/1], [19/1], [20/1], [22/1], [22/1], [23/1]. It generally comprised friable, dark grey clayey silt and the maximum thickness recorded for any deposit was 0.40m, in Trench 3, and the minimum was 0.28m, in Trench 19. The maximum and minimum heights recorded were 135.84m OD, in Trench 8, and 123.76m OD, in Trench 22, respectively.

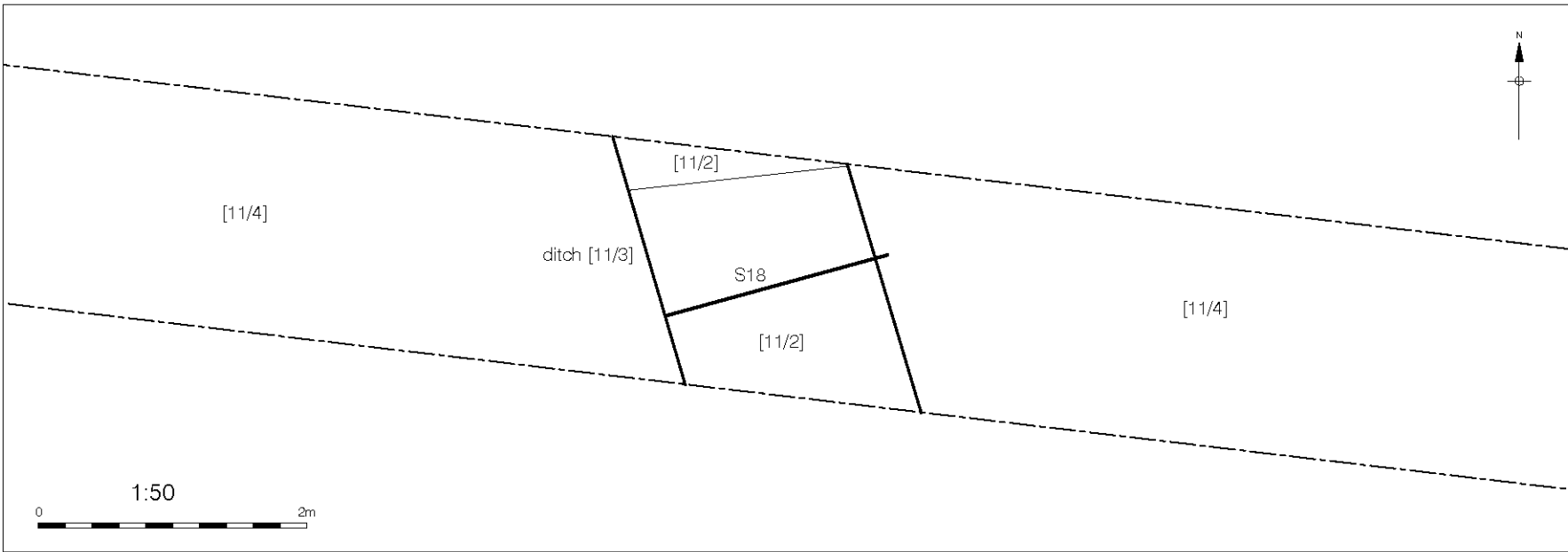
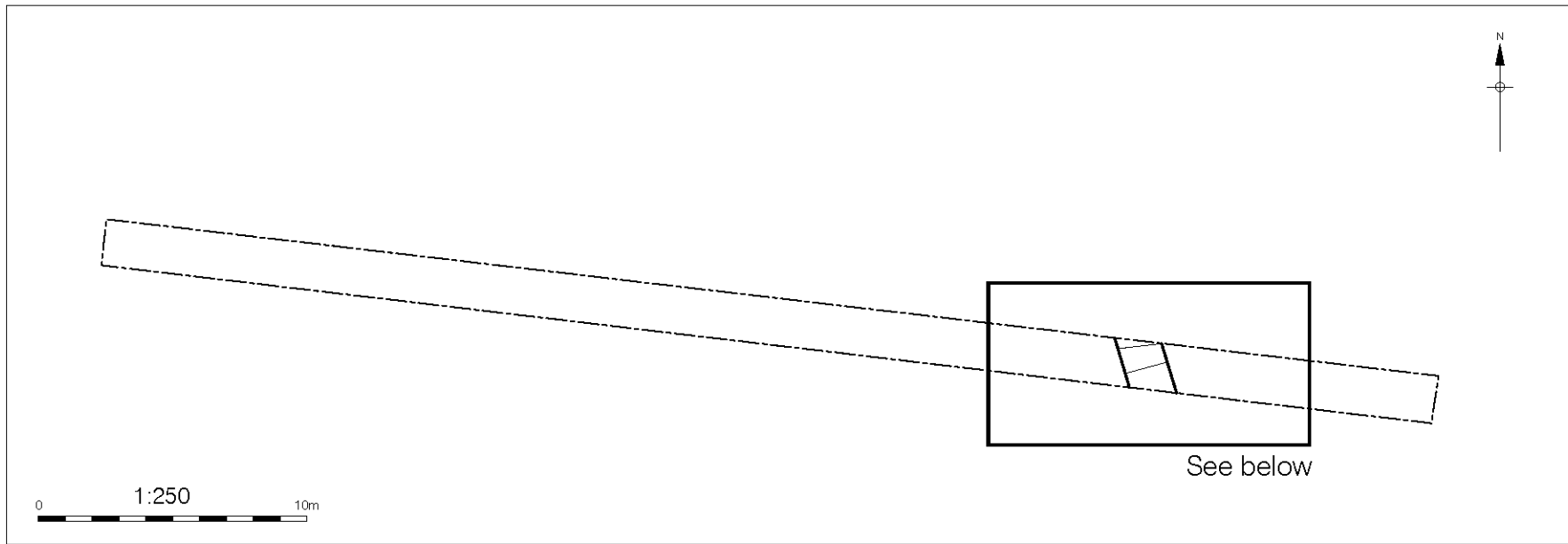
5.7.3 Four struck flints were recovered from ploughsoil at the site during the evaluation, either during cleaning within trenches or as surface finds. These comprised a broken end scraper, a broken blade, a burnt flake fragment and a platform-edge trimming flake. None of the pieces were chronologically diagnostic and could date from the Mesolithic to Early Bronze Age periods (Appendix 4).

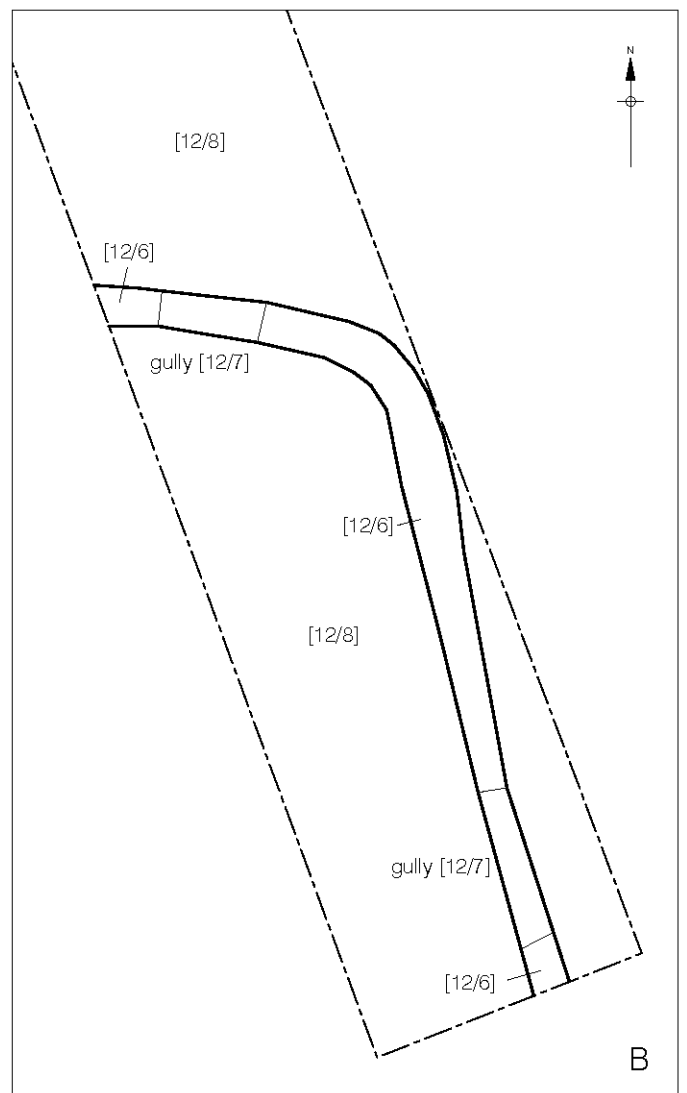
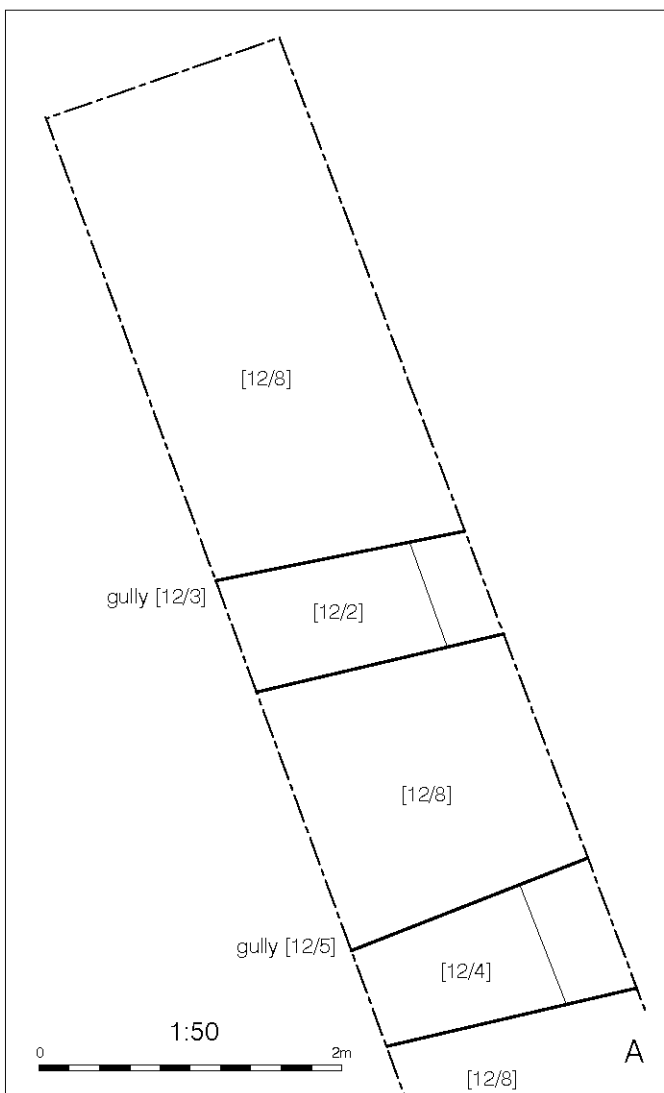
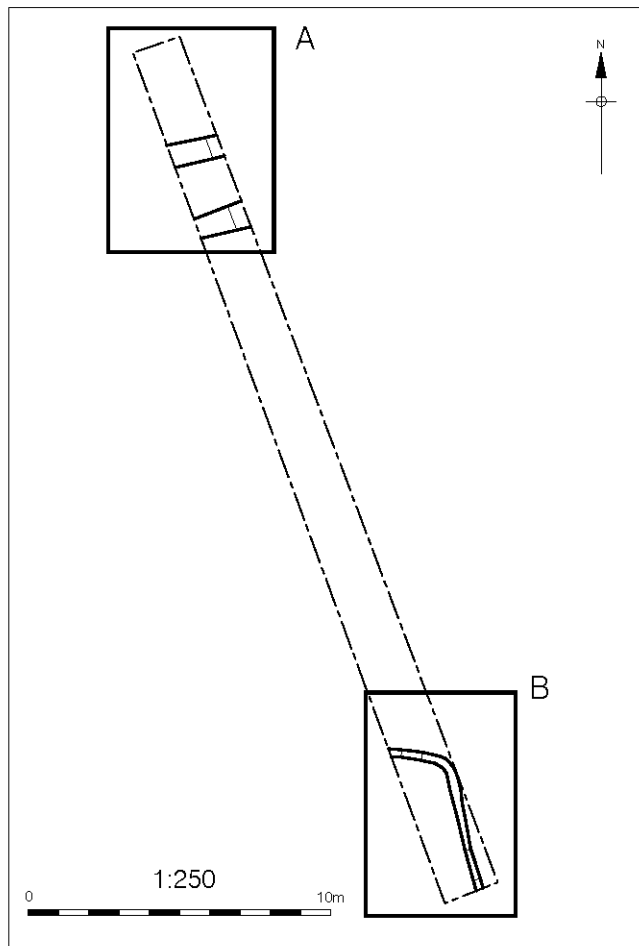




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Figure 4
Trench 4
1:500 and 1:50 at A4





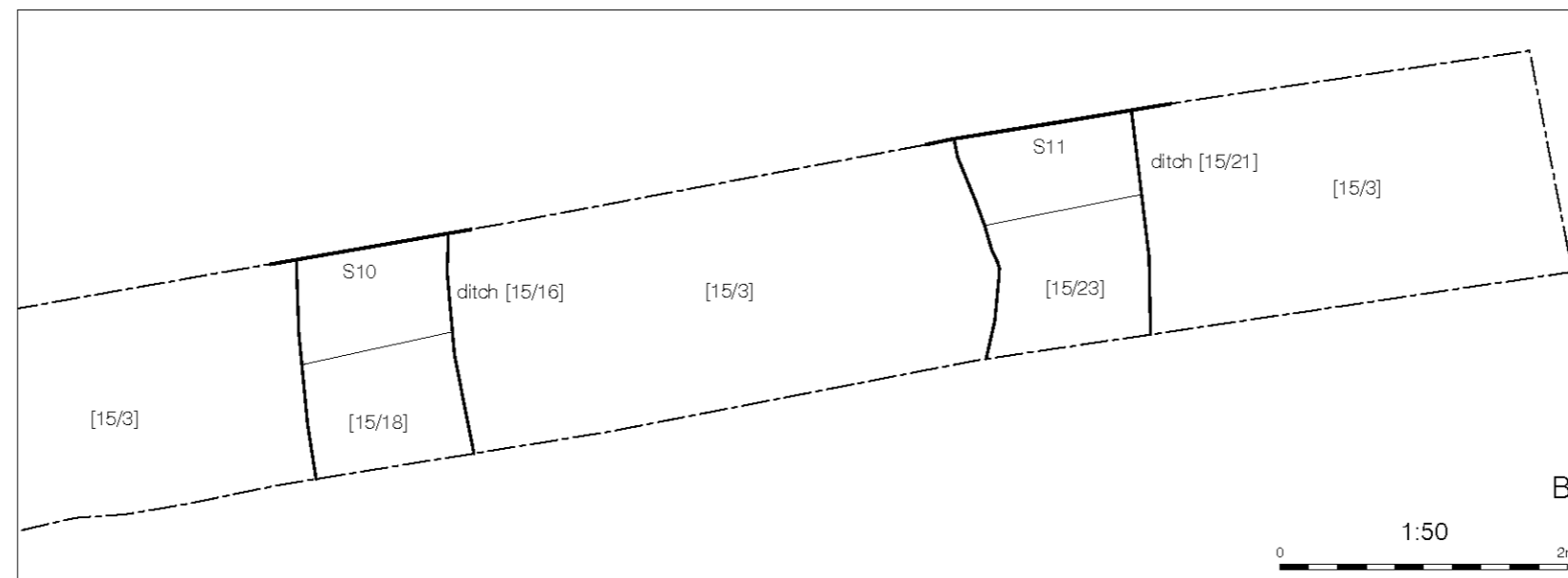
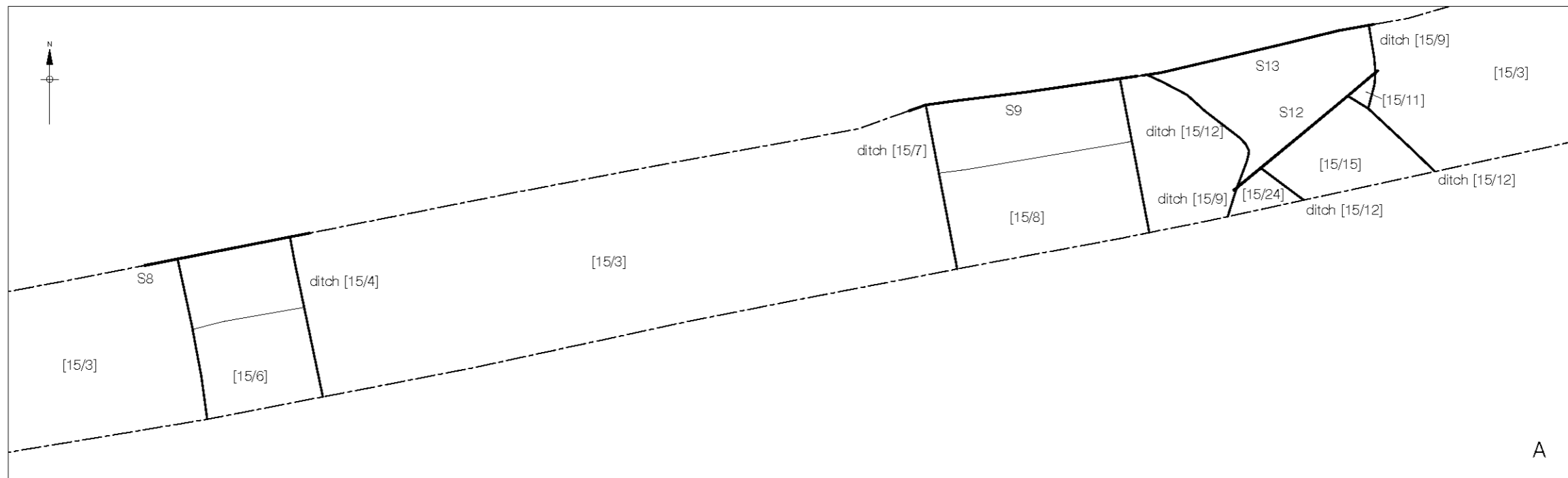
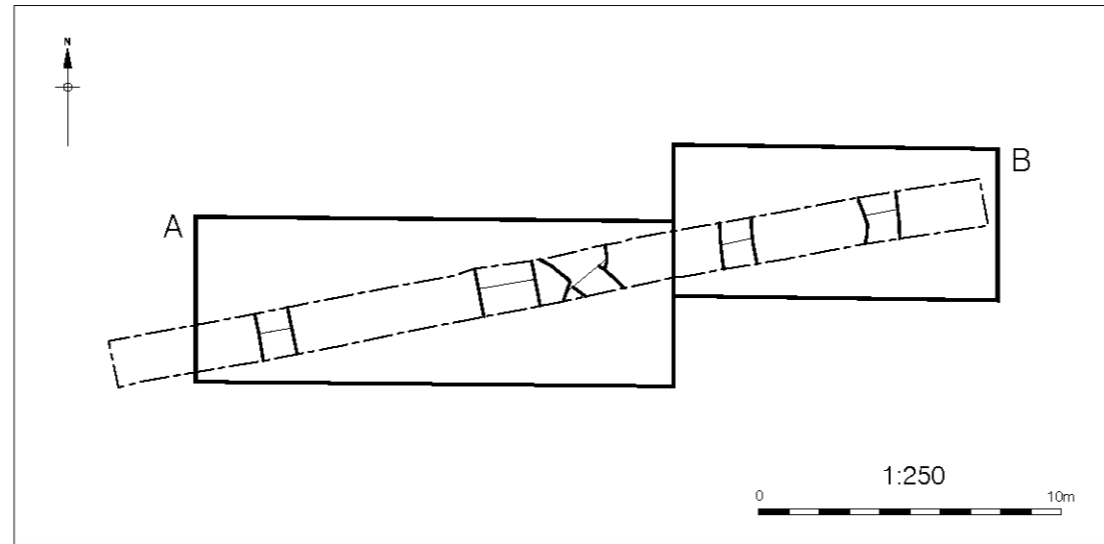


Figure 7
Trench 15
1:250 and 1:50 at A3

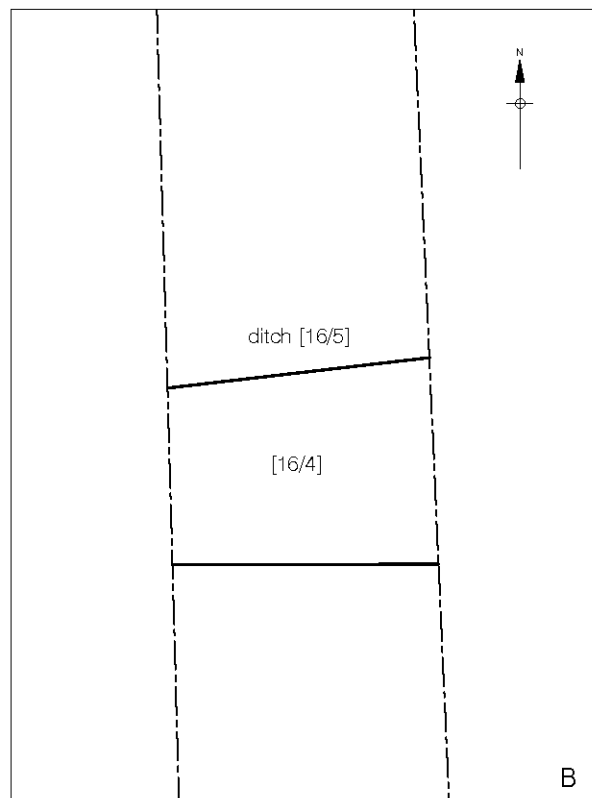
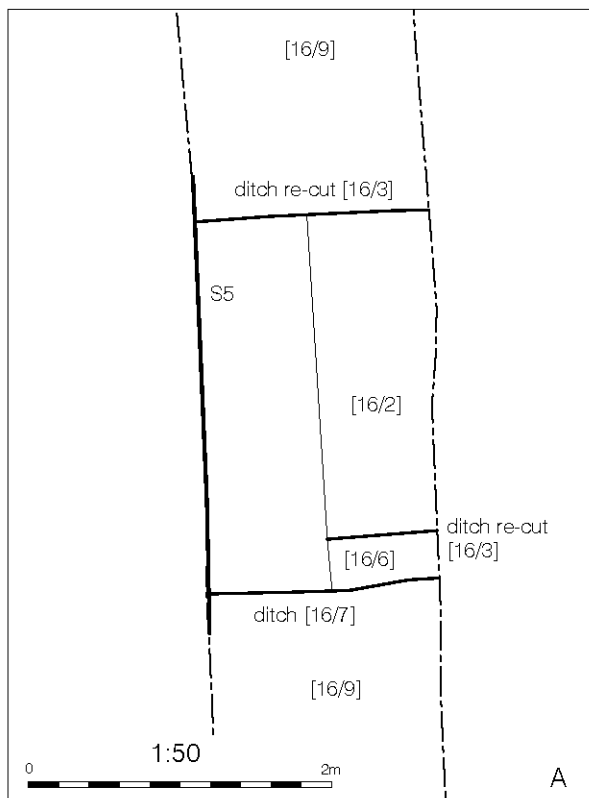
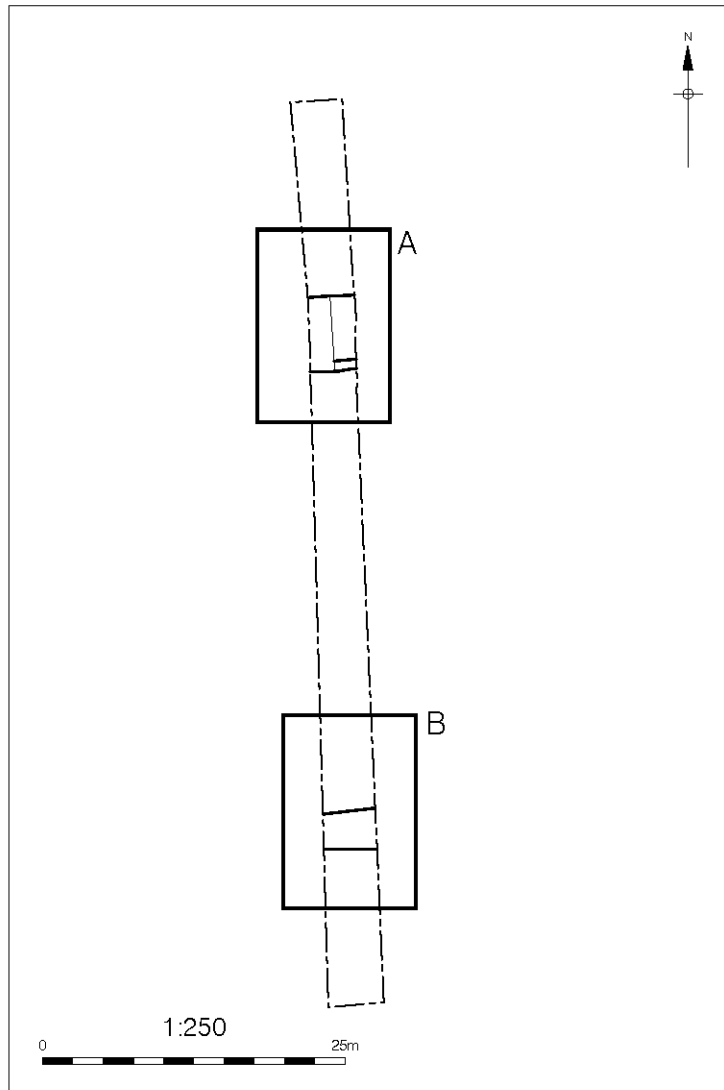


Figure 8
Trench 16
1:250 and 1:50 at A4

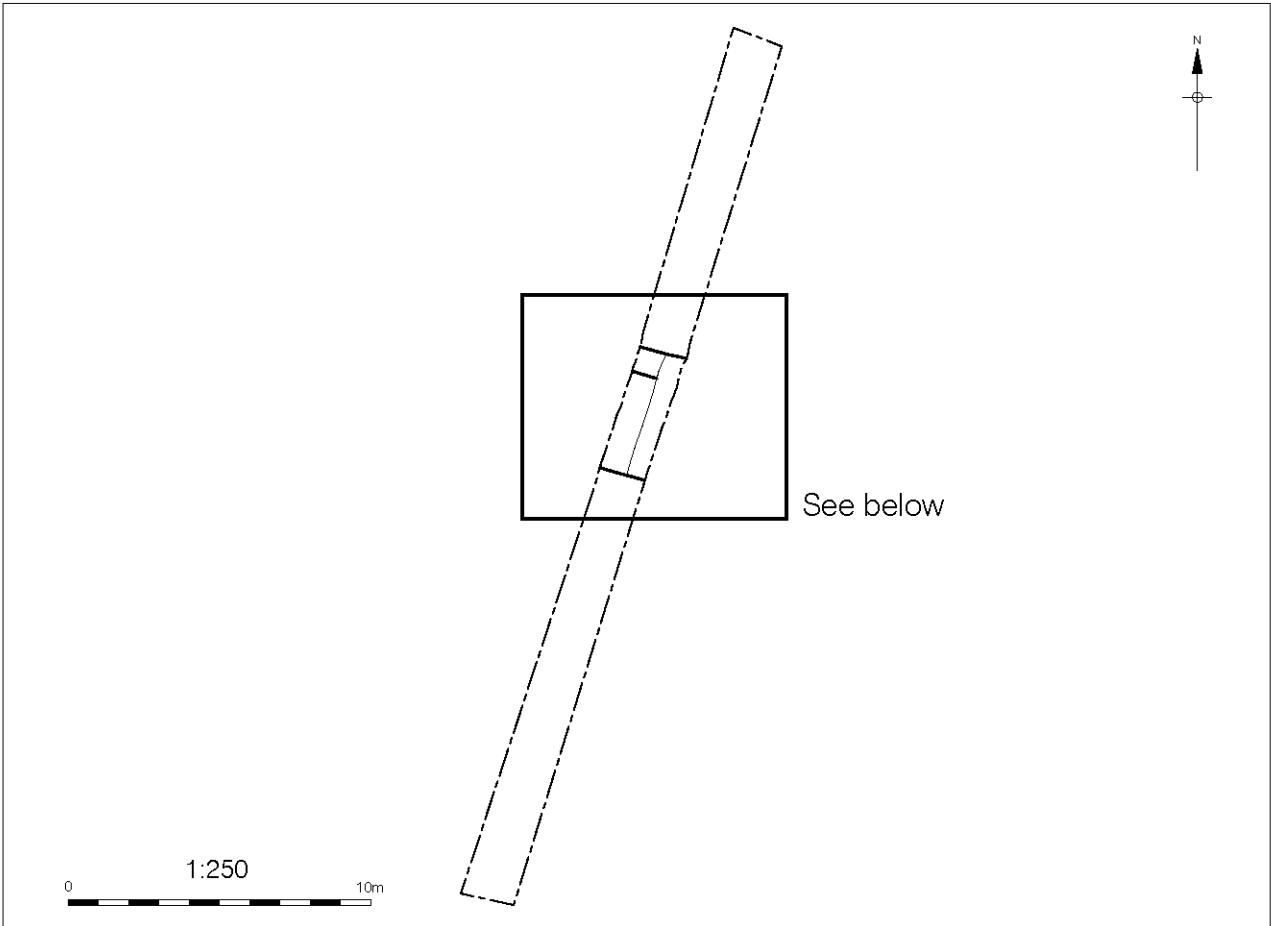
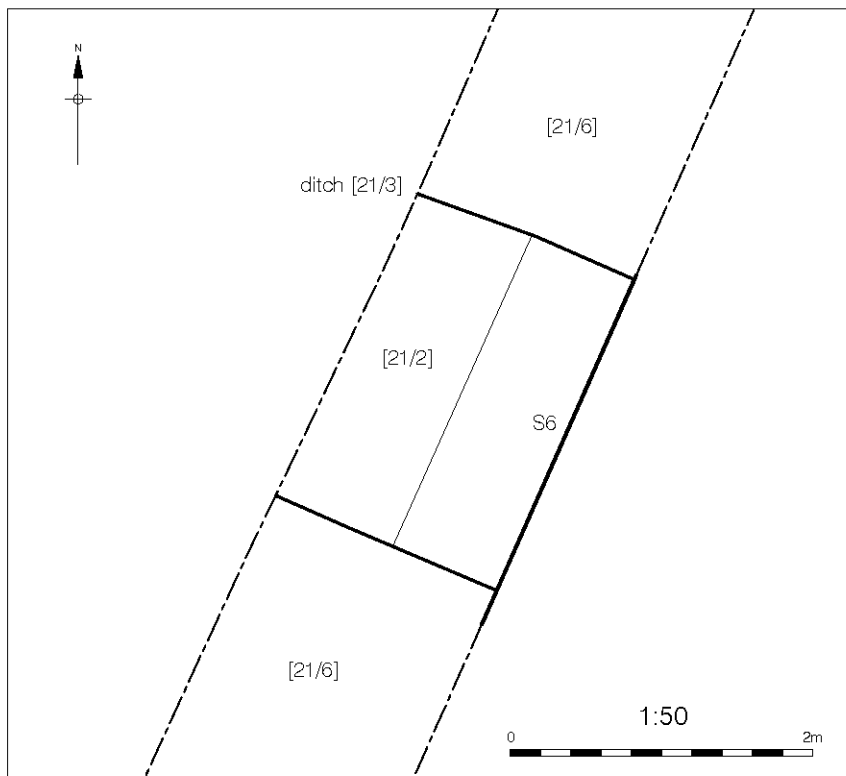
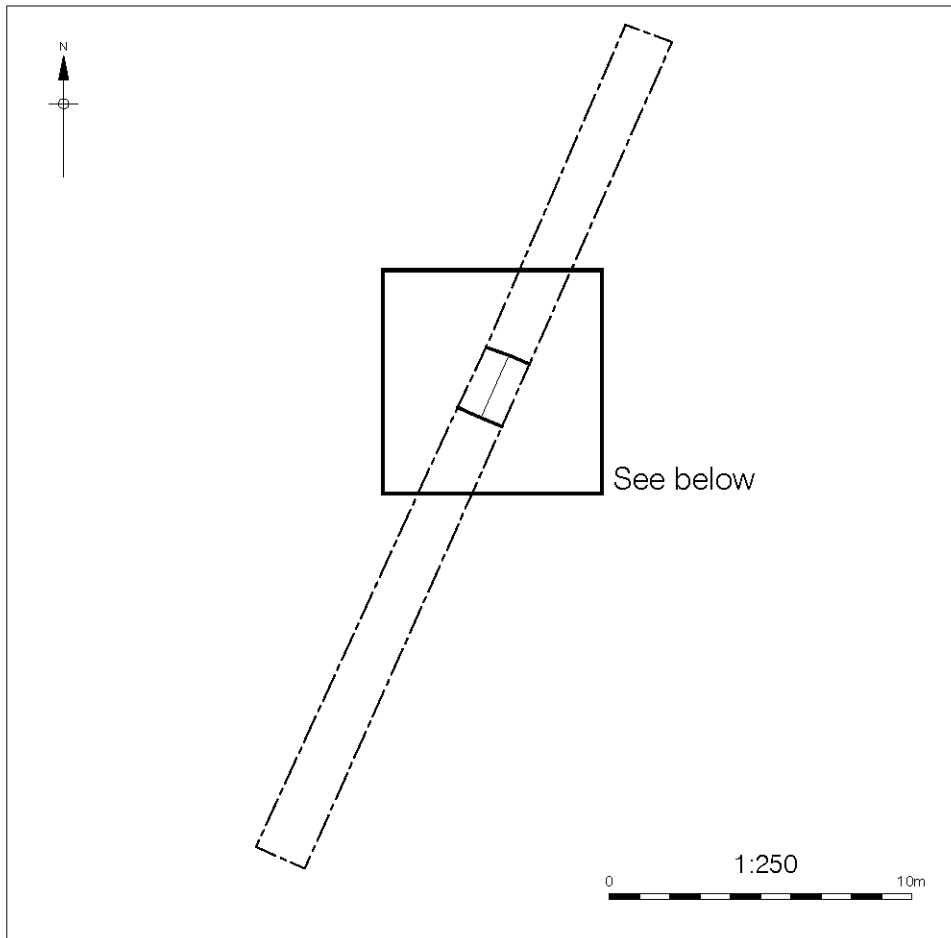
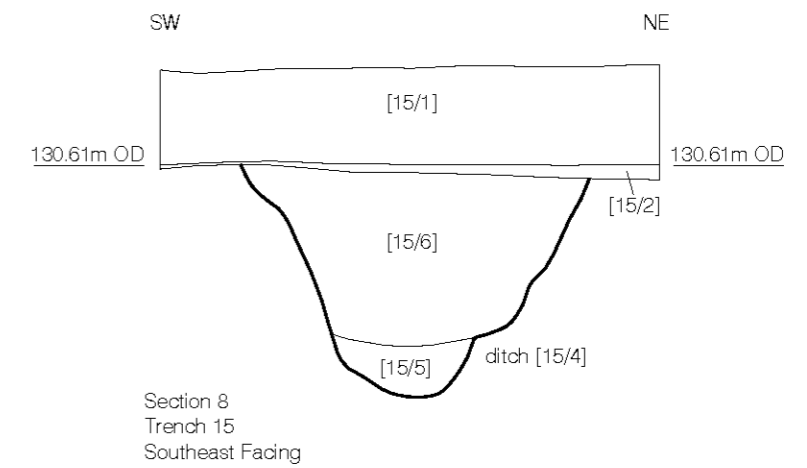
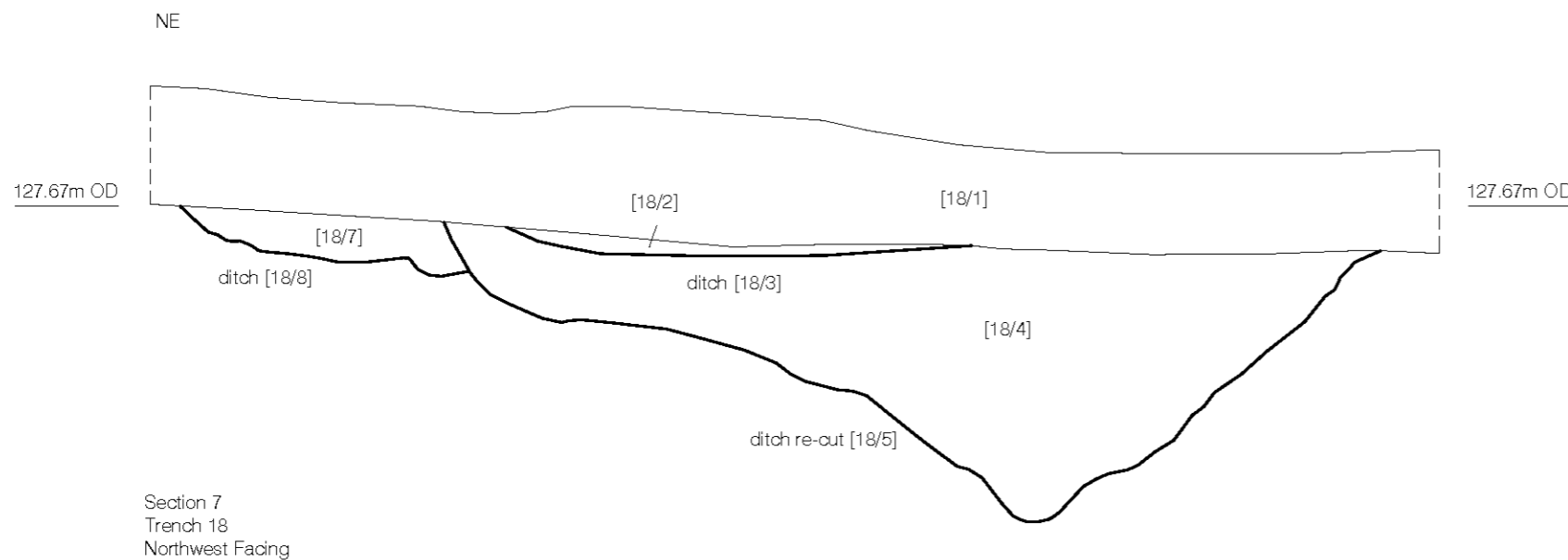
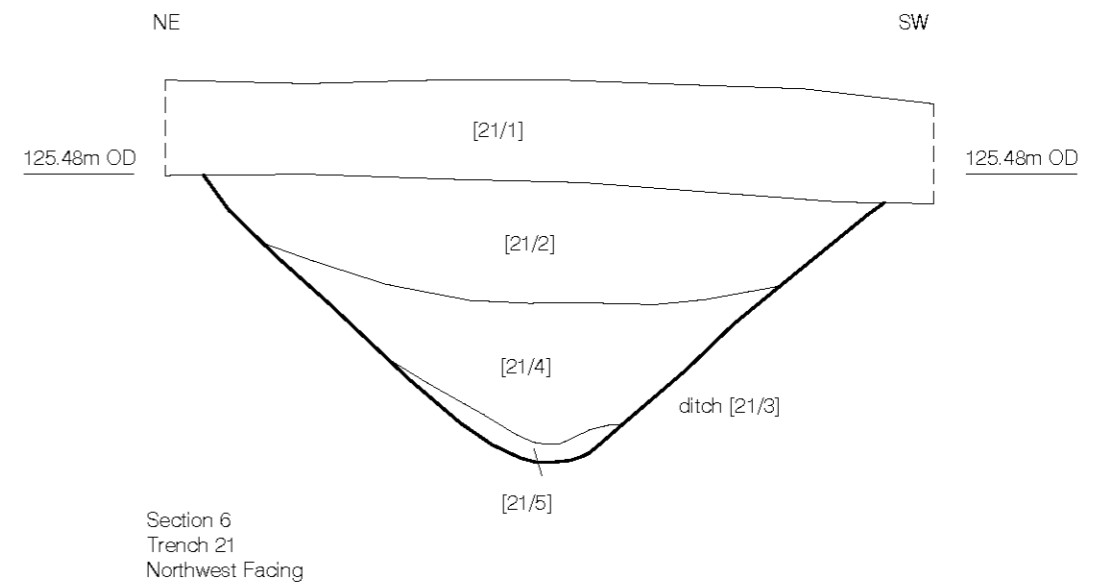
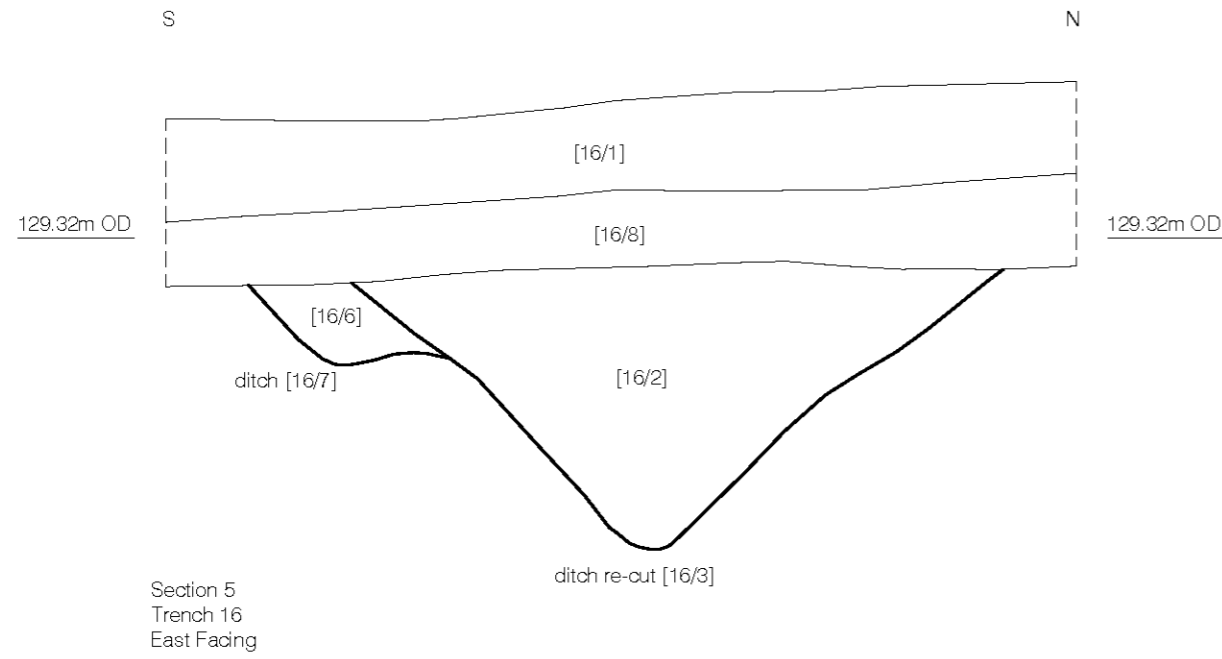
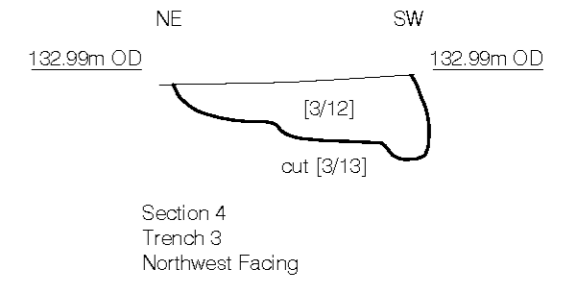
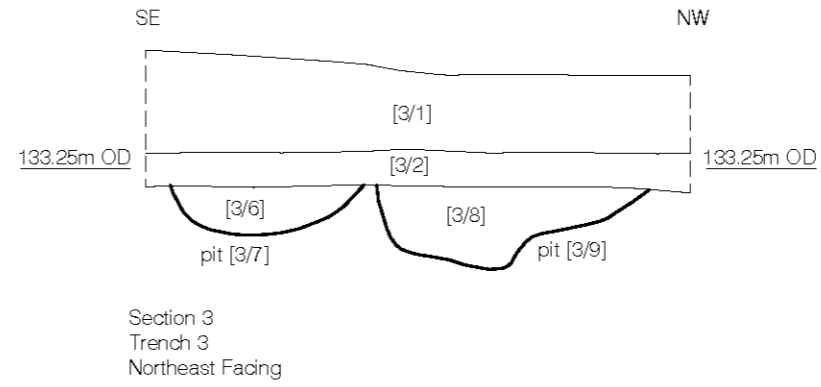
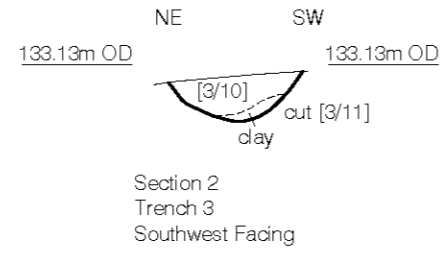
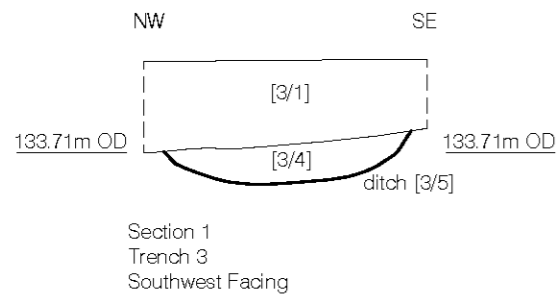


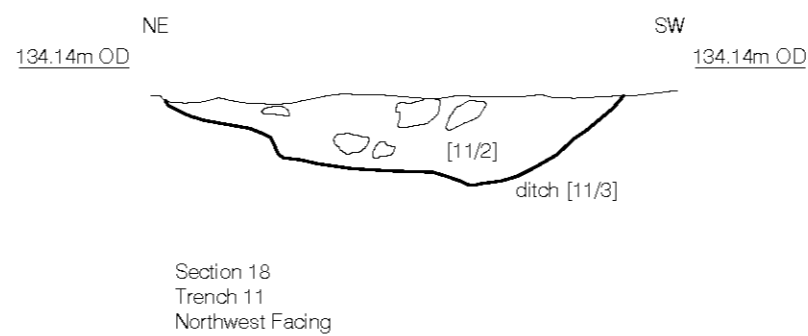
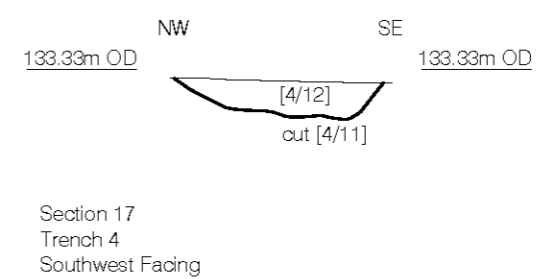
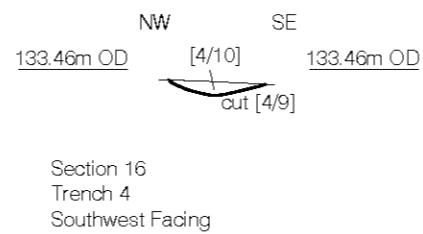
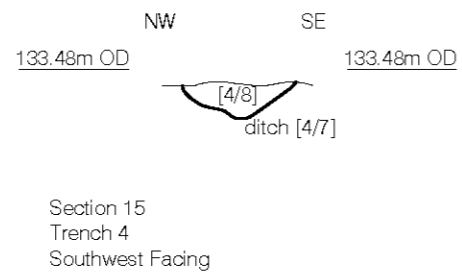
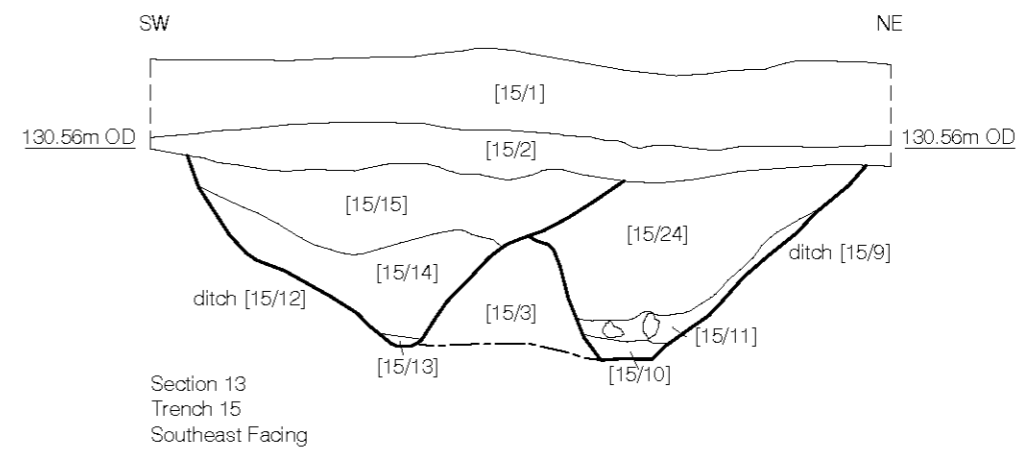
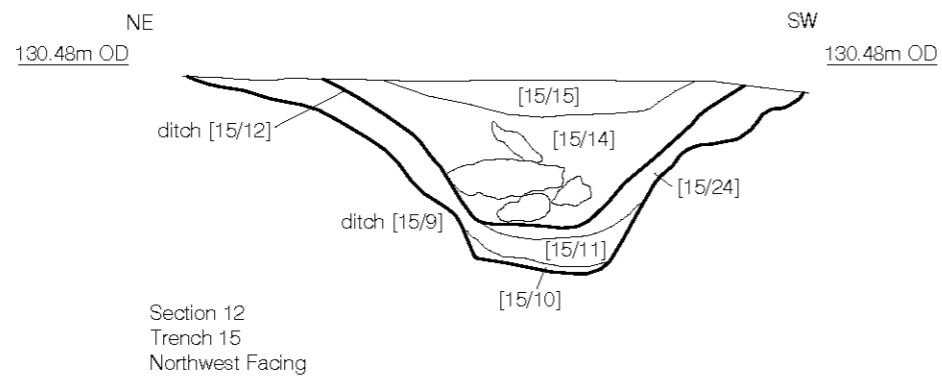
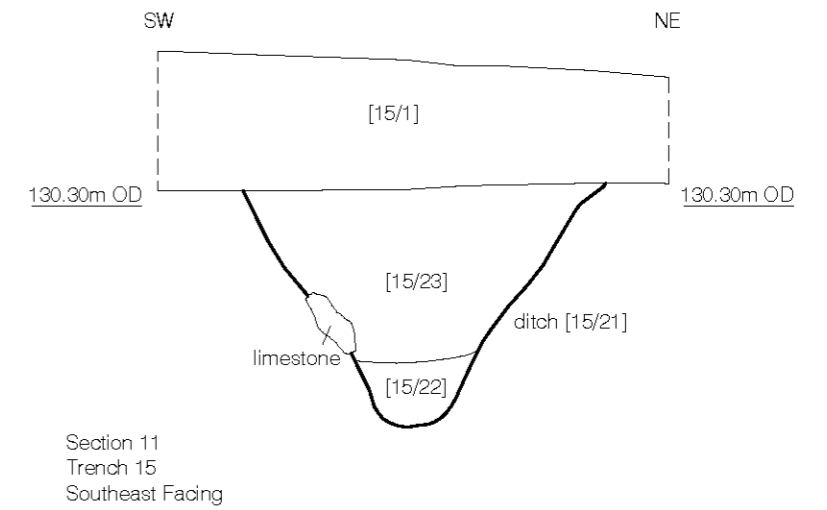
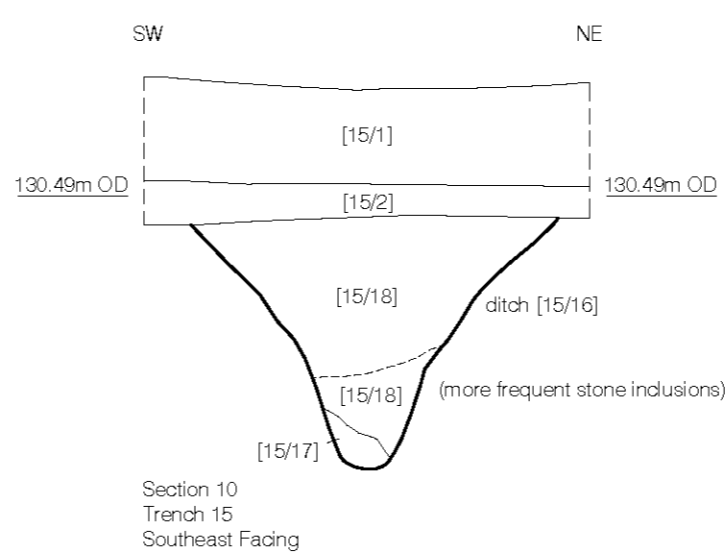
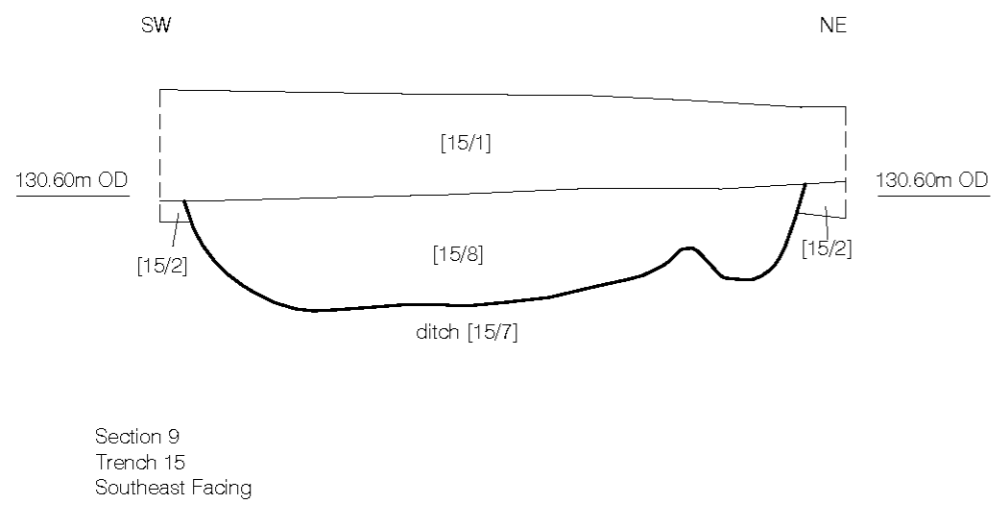
Figure 9
Trench 18
1:250 and 1:50 at A4



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Figure 10
Trench 21
1:250 and 1:50 at A4

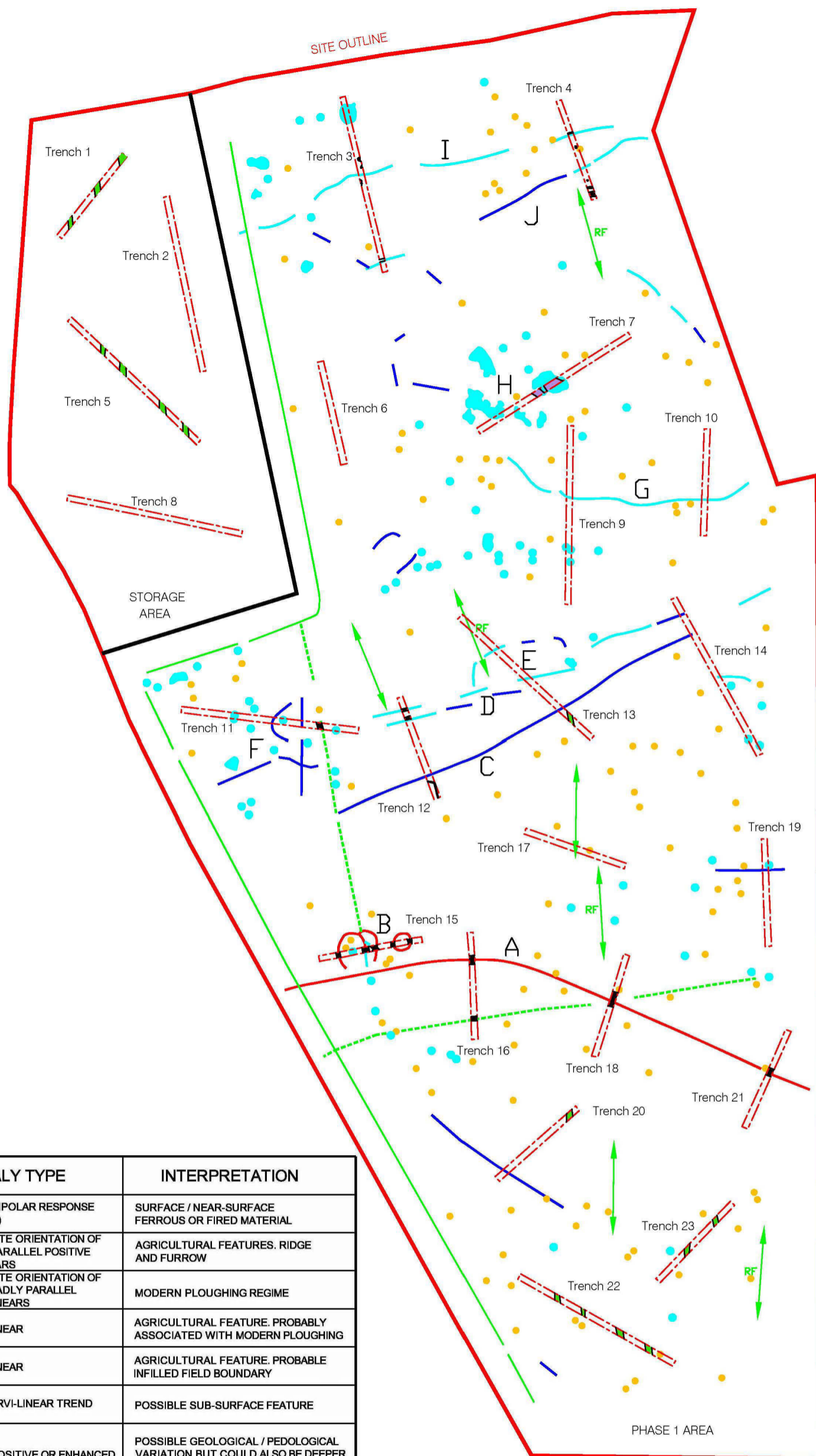




N.B. Section 14 was not drawn on site.

0 1m
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Figure 12
Sections 9-13 & 15-18
1:25 at A3



ANOMALY TYPE	INTERPRETATION
ISOLATED DIPOLAR RESPONSE (IRON SPIKE)	SURFACE / NEAR-SURFACE FERROUS OR FIRED MATERIAL
APPROXIMATE ORIENTATION OF BROADLY PARALLEL POSITIVE CURVI-LINEARS	AGRICULTURAL FEATURES. RIDGE AND FURROW
APPROXIMATE ORIENTATION OF WEAK, BROADLY PARALLEL POSITIVE LINEARS	MODERN PLOUGHING REGIME
POSITIVE LINEAR	AGRICULTURAL FEATURE. PROBABLY ASSOCIATED WITH MODERN PLOUGHING
POSITIVE LINEAR	AGRICULTURAL FEATURE. PROBABLE INFILLED FIELD BOUNDARY
LINEAR / CURVI-LINEAR TREND	POSSIBLE SUB-SURFACE FEATURE
ISOLATED POSITIVE OR ENHANCED RESPONSE	POSSIBLE GEOLOGICAL / PEDOLOGICAL VARIATION BUT COULD ALSO BE DEEPER BURIED FERROUS / FIRED MATERIAL OR ARCHAEOLOGICAL FEATURE
POSITIVE OR ENHANCED LINEAR / CURVI-LINEAR	POSSIBLE ARCHAEOLOGICAL FEATURE BUT COULD ALSO BE AGRICULTURAL OR NATURAL IN ORIGIN
POSITIVE OR ENHANCED LINEAR / CURVI-LINEAR	PROBABLE ARCHAEOLOGICAL FEATURE

- Excavated Feature
- Furrow
- Quarry Pit

0 50m
 Geophysical Survey by Phase Site Investigations (2013)
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Figure 13
 Excavated features on geophysical survey interpretation
 1:1,250 at A3

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

6.1.1 Geological deposits and archaeological deposits and features encountered during the evaluation were assigned to seven phases of activity.

Phase 1: Natural sub-stratum

6.1.2 Limestone bedrock and overlying boulder clay drift material were the basal deposits encountered in all 23 trenches. Bedrock was encountered in Trenches 4, 7-17, 19 and 21. The boulder clay sub-stratum was encountered in Trenches 1-6, 8, 18-20, 22 and 23. The level at which natural deposits were recorded reflected the natural topography, with the land sloping away to the south across the southernmost approximately two-thirds of the site and a slope away to the north in the northernmost portion. Boulder clay was generally not present in trenches sited within the higher portion of the site (Trenches 7, 9, 10-17 and 19), presumably having been truncated by ploughing. Bedrock was not exposed in Trenches 1-3, 5 and 6, these located in the north-western corner of the site, and also not within the southern part of the Phase 1 area, in Trenches 18, 20, 22 or 23.

Phase 2: Later prehistoric/undated features

6.1.3 Features which are considered likely to be of late prehistoric origin were recorded within the Phase 1 area, specifically in Trenches 3, 4, 12, 15, 16, 18 and 21.

6.1.4 A group of discrete and linear features were recorded in Trenches 3 and 4, at the northern end of the Phase 1 area. These comprised two possible pits, the terminals of two possible linear features and a shallow ditch in Trench 3 and a possible pit, a possible posthole and a shallow ditch in Trench 4. The ditches recorded at the southern ends of Trenches 3 and 4 are probably parts of the same feature; the excavated evidence, along with the geophysical survey results, demonstrate that this was an extensive ENE-SSW aligned boundary, traced for at least 70m.

6.1.5 In the central, western part of the Phase 1 area, two parallel shallow ditches recorded at the north end of Trench 12 may represent boundary features, while an 'L-shaped' feature at the south end of the trench could represent a gully or fenceline, possibly delimiting the north-western corner of an enclosure or structure.

6.1.6 Trenches 15, 16, 18 and 21 were specifically positioned to test very distinct geophysical responses, including two curvilinear anomalies, a circular anomaly (Trench 15) and an extensive curvilinear anomaly (Trenches 16, 18 and 21). All features recorded in these trenches corresponded closely with targeted geophysical responses. The eastern part of Trench 15 recorded two roughly north-south aligned ditches, c. 1.20m wide and c. 0.80m deep, which are likely to be the cause of parts of the circular anomaly. Based on form and the composition of its fills the overall feature – interpreted as a ring ditch - is considered to be of prehistoric date, with the charred plant macrofossil assemblage recovered from a fill sample consistent with those recovered from other Bronze Age and Iron Age contexts in the region.

- 6.1.7 The function of the ring ditch is uncertain; with an interior diameter of c. 3.80m it is considered too small to represent a barrow or drainage gully surrounding a structure. A possible ring ditch of similar size, c. 4m in diameter, was identified by geophysical survey at Thrislington Quarry immediately to the north of the Phase 1 area (ASDU 2005). However, the response was not targeted during a subsequent evaluation, so comparisons are not possible (ASDU 2007). The only feature of similar form and dimension known to have been excavated in the region is a ring ditch at Faverdale, on the north-western margins of Darlington. This example was located within a densely occupied and extensive settlement of Late Iron Age to early Roman date and was considered likely to be of some symbolic or ritual significance due to the proximity of other features and structured deposits (Proctor 2012, 28).
- 6.1.8 To the west of the ring ditch in Trench 15, three ditches including a single ditch to the west and two intercutting ditches to the east are considered most likely to represent parts of two closely related sub-circular enclosures, as identified on the geophysical survey. The intercutting ditches recorded to the east suggest that at least two phases of enclosure were present; the later, western enclosure had an internal dimension of c. 9m within the trench. In the absence of any artefactual material, and with only a small part of their internal areas exposed, interpretation of these enclosures cannot be certain, but they may have been used for stock control.
- 6.1.9 Parts of an extensive re-cut curvilinear ditch were recorded in Trenches 16, 18 and 21. The original ditch, as recorded in Trenches 16 and 18, was up to c. 1m wide by 0.28m deep while the far more substantial re-cut, recorded in Trenches 16, 18 and 21, was up to c. 3.35m wide by up to c. 0.95m deep. A single ditch recorded in Trench 21 is presumed to represent the re-cut, all traces of the earlier features having been removed. The geophysical survey demonstrated that this ditch extended across the full width of the Phase 1 area on a roughly west-east orientation. The re-cut demonstrates that once the earlier ditch had silted-up, the feature was re-established on the same alignment, indicating that this was a boundary which remained in use for a relatively substantial period of time. As such, the boundary was of some importance to the site users who installed it and broadly points to planned management of the landscape in the later prehistoric period. While the ring ditch and enclosures were located to the north of the boundary, the curving forming of the ditch indicates that contemporary activity could well be present to the south.

Phase 3: Colluvium

- 6.1.10 A hillwash deposit was recorded in Trenches 3 and 4 in the northernmost part of the site; this had presumably accumulated due to the natural topography, with the land sloping away gently to the north at this location.

Phase 4: Sub-soil

- 6.1.11 A sterile sub-soil horizon was recorded in Trenches 1, 2, 6, 9-11, 14-16 and 20. It overlay Phase 2 features in Trenches 15 and 16, further confirming their ancient origin.

Phase 5: Medieval agricultural activity

- 6.1.12 The geophysical survey had identified a site-wide pattern of, roughly north-south aligned, linear but slightly sinuous responses and broadly-spaced, linear plough furrows were recorded in Trenches 1, 5, 13, 20, 22 and 23. The features are derived from the broad ridge and furrow agricultural system typical of the medieval period.

Phase 6: Post-medieval agricultural activity

- 6.1.13 Boundary ditches including a north-south aligned ditch in Trenches 11 and 15 and an east-west aligned ditch in Trenches 16 and 18 were recorded in the central part of the Phase 1 area. These represent defunct field boundaries, present when the Phase 1 area was divided into smaller fields, and are visible on historic mapping from the early 19th century until the mid-20th century. A substantial stone and soil-filled feature recorded in Trench 7 is interpreted as a late post-medieval or early modern quarry feature, for the extraction of limestone.

Phase 7: Ploughsoil/topsoil

- 6.1.14 The existing ground surface of the Phase 1 area was formed by ploughsoil, while that of the storage area was formed by rough grass on topsoil. Ploughsoil/topsoil was up to 0.40m thick.
- 6.1.15 No archaeological features were encountered with Trenches 2, 8 or 6. No geophysical anomalies had been detected in Trench 6, located within the Phase 1 area adjacent to the storage area, and Trenches 2 and 8 were located within the storage area which was not subject to geophysical survey. No archaeological features were recorded within Trenches 9, 10, 14, 17, or 19, all located in the central eastern part of the Phase 1 area. Various linear and discrete geophysical responses recorded within these trenches are, therefore, considered to be of geological or pedological origin.
- 6.1.16 It is concluded that the Phase 2 archaeological features are likely to be of late prehistoric date, although on present evidence it is not possible to determine whether they are of Bronze Age or Iron Age date. These archaeological remains, encountered within the northernmost, central and southern portions of the Phase 1 area are considered to be of medium to low archaeological importance, of significance at a regional to local level.

6.2 Recommendations

- 6.2.1 It is recommended that any preparatory groundworks for the proposed quarry which have the potential to disturb archaeological remains of importance, as recorded by the evaluation within the Phase 1 area, should be preceded by further archaeological investigation in order to mitigate the impact of the quarry extension on heritage assets of archaeological interest.
- 6.2.2 In specific terms, it is recommended that a further phase of investigation should entail archaeological supervision of topsoil stripping within the northernmost, central and southern portions of the Phase 1 area, followed by instrument survey of all archaeological remains exposed, then targeted hand cleaning, sample hand excavation and recording, including photography, and bulk sampling of feature fills and other strata of interest. This 'strip, map and sample' investigation should be designed to address specific research objectives with regard to the date, character, layout and sequence of development of the remains under investigation.

6.2.3 The data collected during the investigation recommended above will initially require a stage of post-excavation 'Assessment', as defined in the English Heritage (2006) document *Management of Research Projects in the Historic Environment*, and the final results of the work may require publication in an appropriate academic outlet.

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8. ACKNOWLEDGEMENTS AND CREDITS

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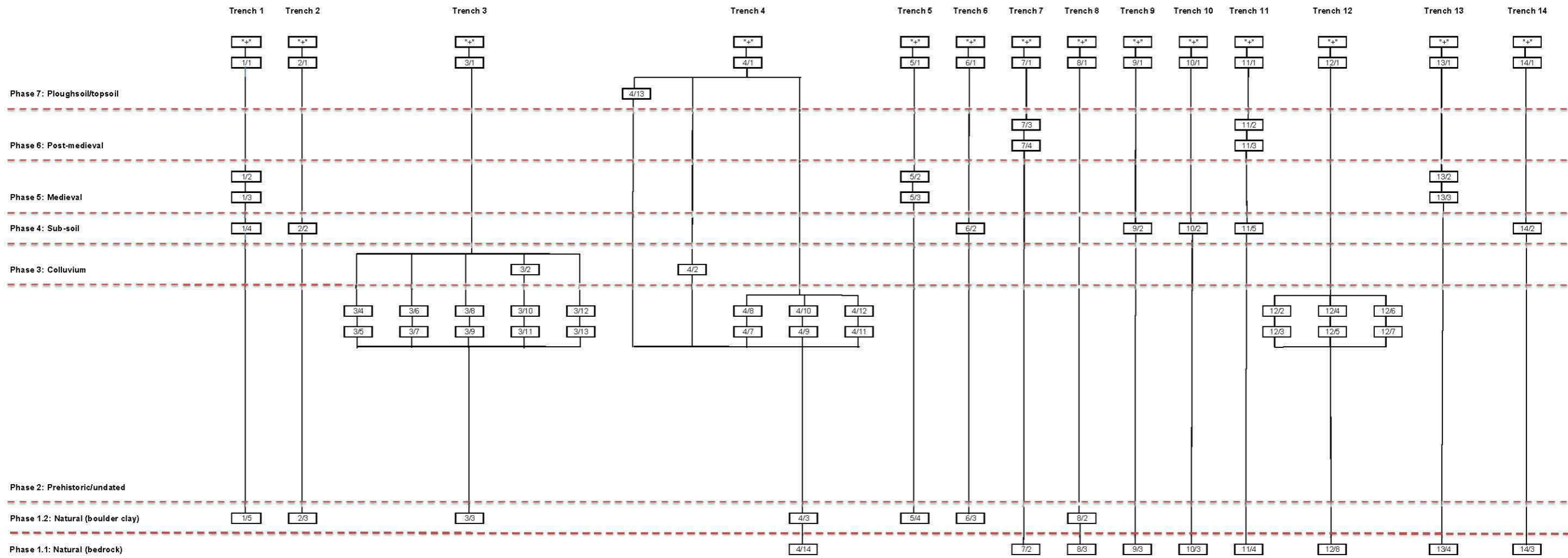
Other Credits

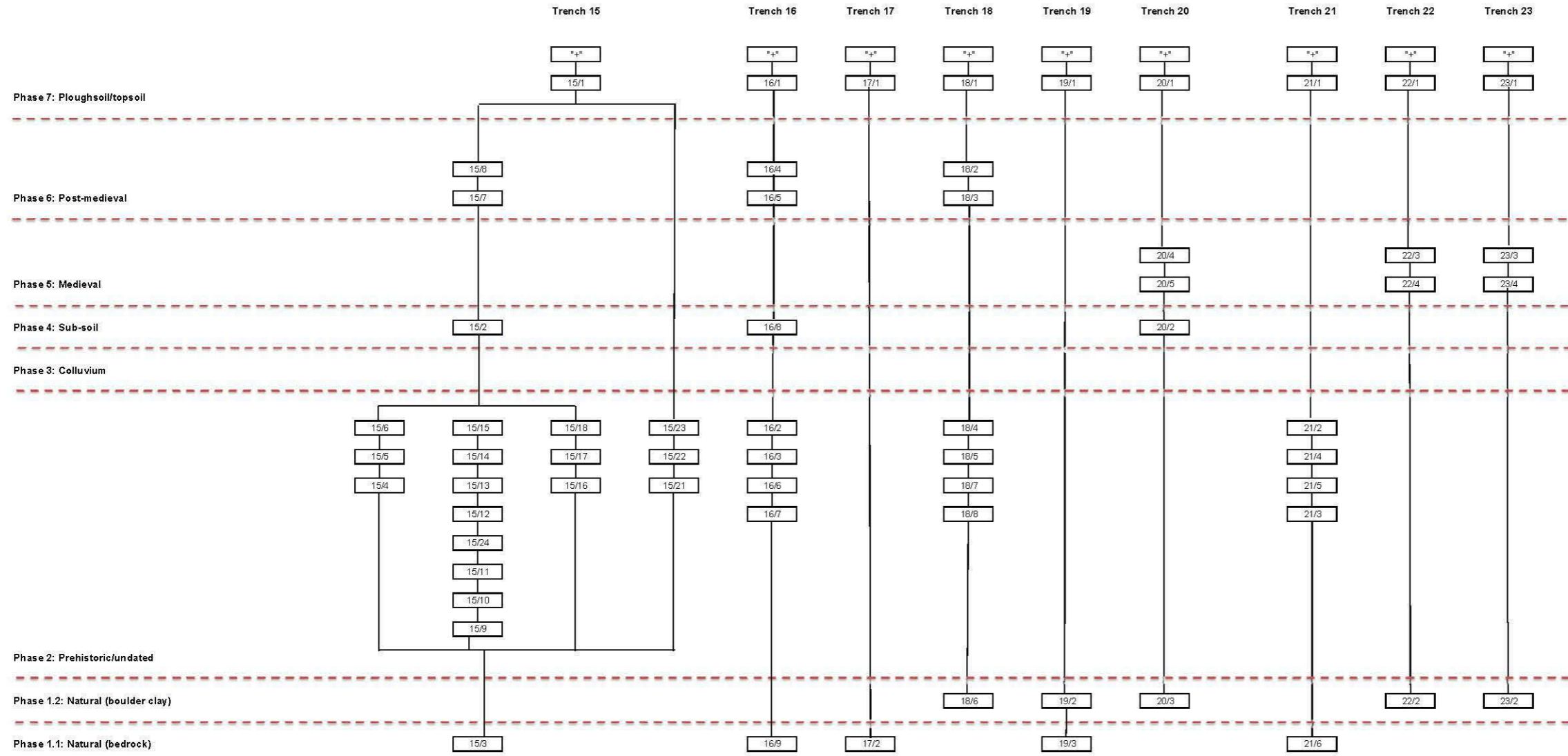
Lithics Assessment: Barry Bishop

Palaeoenvironmental Assessment: Charlotte O'Brien (ASDU)

Pottery Comment: Jenny Vaughan (NCAS)

APPENDIX 1
STRATIGRAPHIC MATRICES





APPENDIX 2
CONTEXT INDEX

BMD 13: CONTEXT INDEX

Context	Trench	Phase	Type 1	Type 2	Interpretation
1/1	1	7	Deposit	Layer	Topsoil in Trench 1
1/2	1	5	Deposit	Fill	Fill of three furrows [1/4]
1/3	1	5	Cut	Linear	Three furrows; filled by [1/3]
1/4	1	4	Deposit	Layer	Sub-soil in Trench 1
1/5	1	1.2	Deposit	Layer	Natural boulder clay in Trench 1
2/1	2	7	Deposit	Layer	Topsoil in Trench 2
2/2	2	4	Deposit	Layer	Sub-soil in Trench 2
2/3	2	1.2	Deposit	Layer	Natural boulder clay in Trench 2
3/1	3	7	Deposit	Layer	Topsoil in Trench 3
3/2	3	3	Deposit	Layer	Colluvium in Trench 3
3/3	3	1.2	Deposit	Layer	Natural boulder clay in Trench 3
3/4	3	2	Deposit	Fill	Fill of ditch [3/5]
3/5	3	2	Cut	Linear	Ditch; filled by [3/4]
3/6	3	2	Deposit	Fill	Fill of feature [3/7]
3/7	3	2	Cut	Discrete	Feature; filled by [3/6]
3/8	3	2	Deposit	Fill	Fill of feature [3/9]
3/9	3	2	Cut	Discrete	Feature; filled by [3/8]
3/10	3	2	Deposit	Fill	Fill of feature [3/11]
3/11	3	2	Cut	Discrete	Feature; filled by [3/10]
3/12	3	2	Deposit	Fill	Fill of feature [3/13]
3/13	3	2	Cut	Discrete	Feature; filled by [3/12]
4/1	4	7	Deposit	Layer	Topsoil in Trench 4
4/2	4	3	Deposit	Layer	Colluvium in Trench 4
4/3	4	1.2	Deposit	Layer	Natural boulder clay in Trench 4
4/4	4	1.2	Deposit	Layer	Natural boulder clay in Trench 4
4/5	4	1.2	Deposit	Layer	Natural boulder clay in Trench 4
4/6	4	1.2	Deposit	Layer	Natural boulder clay in Trench 4
4/7	4	2	Cut	Linear	Ditch; filled by [4/8]
4/8	4	2	Deposit	Fill	Fill of ditch [4/7]
4/9	4	2	Cut	Discrete	Feature; filled by [4/10]
4/10	4	2	Deposit	Fill	Fill of feature [4/9]
4/11	4	2	Cut	Discrete	Feature; filled by [4/12]
4/12	4	2	Deposit	Fill	Fill of feature [4/11]
4/13	4	7	Deposit	Fill	Topsoil infilling void
4/14	4	1.1	Deposit	Layer	Limestone bedrock in Trench 4
5/1	5	7	Deposit	Layer	Topsoil in Trench 5
5/2	5	5	Deposit	Fill	Fill of four furrows [5/2]
5/3	5	5	Cut	Linear	Four furrows; filled by [5/1]
5/4	5	1.2	Deposit	Layer	Natural boulder clay in Trench 5
6/1	6	7	Deposit	Layer	Topsoil in Trench 6
6/2	6	4	Deposit	Layer	Sub-soil in Trench 6
6/3	6	1.2	Deposit	Layer	Natural boulder clay in Trench 6
7/1	7	7	Deposit	Layer	Topsoil in Trench 7
7/2	7	1.1	Deposit	Layer	Limestone bedrock in Trench 7
7/3	7	6	Deposit	Fill	Fill of quarry pit [7/4]
7/4	7	6	Cut	Discrete	Quarry pit; filled by [7/3]
8/1	8	7	Deposit	Layer	Topsoil in Trench 8
8/2	8	1.2	Deposit	Layer	Natural boulder clay in Trench 8
8/3	8	1.1	Deposit	Layer	Limestone bedrock in Trench 8
9/1	9	7	Deposit	Layer	Topsoil in Trench 9
9/2	9	4	Deposit	Layer	Sub-soil in Trench 9
9/3	9	1.1	Deposit	Layer	Limestone bedrock in Trench 9
10/1	10	7	Deposit	Layer	Topsoil in Trench 10
10/2	10	4	Deposit	Layer	Sub-soil in Trench 10
10/3	10	1.1	Deposit	Layer	Limestone bedrock in Trench 10

BMD 13: CONTEXT INDEX

11/1	11	7	Deposit	Layer	Topsoil in Trench 11
11/2	11	6	Deposit	Fill	Fill of ditch [11/3]
11/3	11	6	Cut	Linear	Ditch; filled by [11/2]
11/4	11	1.1	Deposit	Layer	Limestone bedrock in Trench 11
11/5	11	4	Deposit	Layer	Sub-soil in Trench 11
12/1	12	7	Deposit	Layer	Topsoil in Trench 12
12/2	12	2	Deposit	Fill	Fill of ditch [12/3]
12/3	12	2	Cut	Linear	Ditch; filled by [12/2]
12/4	12	2	Deposit	Fill	Fill of ditch [12/5]
12/5	12	2	Cut	Linear	Ditch; filled by [12/4]
12/6	12	2	Deposit	Fill	Fill of gully [12/7]
12/7	12	2	Cut	Linear	Gully; filled by [12/6]
12/8	12	1.1	Deposit	Layer	Limestone bedrock in Trench 12
13/1	13	7	Deposit	Layer	Topsoil in Trench 13
13/2	13	5	Deposit	Fill	Fill of furrow [13/3]
13/3	13	5	Cut	Linear	Furrow; filled by [13/2]
13/4	13	1.1	Deposit	Layer	Limestone bedrock in Trench 13
14/1	14	7	Deposit	Layer	Topsoil in Trench 14
14/2	14	4	Deposit	Layer	Sub-soil in Trench 14
14/3	14	1.1	Deposit	Layer	Limestone bedrock in Trench 14
15/1	15	7	Deposit	Layer	Topsoil in Trench 15
15/2	15	4	Deposit	Layer	Sub-soil in Trench 15
15/3	15	1.1	Deposit	Layer	Limestone bedrock in Trench 15
15/4	15	2	Cut	Linear	Ditch; filled by [15/5], [15/6]
15/5	15	2	Deposit	Fill	Fill of ditch [15/4]
15/6	15	2	Deposit	Fill	Fill of ditch [15/4]
15/7	15	6	Cut	Linear	Ditch; filled by [15/8]
15/8	15	6	Deposit	Fill	Fill of ditch [15/7]
15/9	15	2	Cut	Linear	Ditch; filled by [15/10], [15/11]
15/10	15	2	Deposit	Fill	Fill of ditch [15/9]
15/11	15	2	Deposit	Fill	Fill of ditch [15/9]
15/12	15	2	Cut	Linear	Ditch; filled by [15/13], [15/14], [15/15]
15/13	15	2	Deposit	Fill	Fill of ditch [15/12]
15/14	15	2	Deposit	Fill	Fill of ditch [15/12]
15/15	15	2	Deposit	Fill	Fill of ditch [15/12]
15/16	15	2	Cut	Linear	Ditch; filled by [15/17], [15/18]
15/17	15	2	Deposit	Fill	Fill of ditch [15/16]
15/18	15	2	Deposit	Fill	Fill of ditch [15/16]
15/19					<i>number not used</i>
15/20					<i>number not used</i>
15/21	15	2	Cut	Linear	Ditch; filled by [15/22], [15/23]
15/22	15	2	Deposit	Fill	Fill of ditch [15/21]
15/23	15	2	Deposit	Fill	Fill of ditch [15/21]
15/24	15	2	Deposit	Fill	Fill of ditch [15/9]
16/1	16	7	Deposit	Layer	Topsoil in Trench 16
16/2	16	2	Deposit	Fill	Fill of ditch re-cut [16/3]
16/3	16	2	Cut	Linear	Ditch re-cut; filled by [16/2]
16/4	16	6	Deposit	Fill	Fill of ditch [16/5]
16/5	16	6	Cut	Linear	Ditch; filled by [16/4]
16/6	16	2	Deposit	Fill	Fill of ditch [16/7]
16/7	16	2	Cut	Linear	Ditch; filled by [16/6]
16/8	16	4	Deposit	Layer	Sub-soil in Trench 16
16/9	16	1.1	Deposit	Layer	Limestone bedrock in Trench 16
17/1	17	7	Deposit	Layer	Topsoil in Trench 17
17/2	17	1.1	Deposit	Layer	Limestone bedrock in Trench 17
18/1	18	7	Deposit	Layer	Topsoil in Trench 18

BMD 13: CONTEXT INDEX

18/2	18	6	Deposit	Fill	Fill of ditch [18/3]
18/3	18	6	Cut	Linear	Ditch; filled by [18/2]
18/4	18	2	Deposit	Fill	Fill of ditch re-cut [18/5]
18/5	18	2	Cut	Layer	Ditch re-cut; filled by [18/4]
18/6	18	1.2	Deposit	Layer	Natural boulder clay in Trench 18
18/7	18	2	Deposit	Fill	Fill of ditch [18/8]
18/8	18	2	Cut	Linear	Ditch; filled by [18/7]
19/1	19	7	Deposit	Layer	Topsoil in Trench 19
19/2	19	1.2	Deposit	Layer	Natural boulder clay in Trench 19
19/3	19	1.1	Deposit	Layer	Limestone bedrock in Trench 19
20/1	20	7	Deposit	Layer	Topsoil in Trench 20
20/2	20	4	Deposit	Layer	Sub-soil in trench 20
20/3	20	1.2	Deposit	Layer	Natural boulder clay in Trench 20
20/4	20	5	Deposit	Fill	Fill of furrow [20/5]
20/5	20	5	Cut	Linear	Furrow; filled by [20/4]
21/1	21	7	Deposit	Layer	Topsoil in Trench 21
21/2	21	2	Deposit	Fill	Fill of ditch re-cut [21/5]
21/3	21	2	Cut	Linear	Ditch; re-cut filled by [21/2], [21/4], [21/5]
21/4	21	2	Deposit	Fill	Fill of ditch re-cut [21/3]
21/5	21	2	Deposit	Fill	Fill of ditch re-cut [21/3]
21/6	21	1.1	Deposit	Layer	Limestone bedrock in Trench 21
22/1	22	7	Deposit	Layer	Topsoil in Trench 22
22/2	22	1.2	Deposit	Layer	Fill of four furrows [23/4]
22/3	22	5	Deposit	Fill	Four furrows; filled by [23/3]
22/4	22	5	Cut	Linear	Natural boulder clay in Trench 22
23/1	23	7	Deposit	Layer	Topsoil in Trench 23
23/2	23	1.2	Deposit	Layer	Natural boulder clay in Trench 23
23/3	23	5	Deposit	Fill	Fill of two furrows [23/4]
23/4	23	5	Cut	Linear	Two furrows; filled by [23/3]

APPENDIX 3
POTTERY IDENTIFICATION

POTTERY IDENTIFICATION

By: Jenny Vaughan (NCAS)

Trench 11 Context [11/2]

Large sherd (86g) from an open vessel (*i.e.* dish/plate/bowl). Uniformly well fired fabric with no visible inclusions, green glazed. Probably made fairly locally, dates from 17th century, possibly into the 18th century.

**APPENDIX 4
LITHICS ASSESSMENT**

LITHICS ASSESSMENT

By: Barry Bishop

Introduction

The archaeological evaluation at the Bishop Middleham Quarry Western Extension site resulted in the recovery of six struck flints. This report describes the material and assesses its archaeological significance. All metrical descriptions follow the methodology established by Saville (1980).

Description

Unstratified (from ploughsoil)

1. Broken end scraper in an abraded condition. This comprises a flake fragment with fine, almost parallel, steep convex scalar retouch extending around most of distal end. It has recorticated and slightly mineral (Fe?) stained but appears to be made from a translucent grey flint. It measures >19mm long by 20mm wide and is 7mm thick.

2. Broken blade in an abraded condition. This has a shattered striking platform, diffuse bulb of percussion and its distal end is missing. Its dorsal surface is formed from three converging flake scars and c. 10% is covered by thin rough cortex. It has recorticated and is slightly mineral stained. Its original colour cannot be ascertained but it is made from a translucent flint. It measures >17mm long by 8mm wide and is 2mm thick.

3. Burnt flake fragment. This comprises the distal end of a flake with an intensively edge-trimmed striking platform, a visible point of percussion and a diffuse bulb of percussion. Its distal termination is missing although traces of hinging at this end suggest that it might not have been significantly longer. Its dorsal surface is formed by numerous very small flake scars, all struck in the same direction as the flake, and it also retains a very small patch of rough cortex. It is heavily burnt and 'fire crazed'; although its original colour cannot be ascertained it is made from flint. It measures >12mm long by 18mm wide and is 5mm thick.

4. Platform-edge trimming flake in a slightly chipped condition. This consists of a small flake with a wide and edge-trimmed striking platform, diffuse bulb of percussion and a feathered distal termination. Its dorsal surface is formed by a number of small flake scars. It has recorticated and its original colour cannot be ascertained but it appears to be made from a translucent flint. It measures 11mm long by 15mm wide and is 4mm thick.

Context [16.2], Trench 16, SF2

Partially crested prismatic blade in a slightly chipped condition. This is complete and has an abraded striking platform, discretely rounded bulb of percussion and a feathered distal termination. Its dorsal surface is largely composed of three parallel flake scars, all struck in the same direction as the blade, but orthogonal flake scars on the blade's left side near its bulbar end indicates the prior use of cresting. It also retains a small patch of thin rough cortex on its right side near the bulbar end. It has fully recorticated and its original colour cannot be ascertained but it is made of flint. It measures 40mm long by 11mm wide and is 5mm thick.

Context [21.4], Trench 21, SF1

Narrow flake in a chipped condition. This is complete and has an intensively edge-trimmed, almost punctiform, striking platform, discretely rounded bulb of percussion and a feathered distal termination. Its dorsal surface is formed from a single central flake scar with a mix of smooth and thin rough cortex covering the flake's edges. It is made from flint and is opaque and white but it is uncertain whether this is purely due to recortication or if that is also its original colour. It measures 46mm long by 25mm wide and is 6mm thick.

Discussion

All of the struck pieces are made from flint. Due to the effects of recortication the original nature of the flint is masked but the pieces from the ploughsoil appear to comprise 'glassy' translucent flint. In County Durham such flint is present as pebbles and cobbles in both the boulder clays and from coastal beach deposits (Young 1984; Henson 1985); the rough nature of the cortex on some of the pieces suggests these pieces were most likely obtained from the former source. The flake and blade from contexts [16.2] and [21.4] are also recorticated but there are some indications that they are made from an opaque white flint that is more similar to 'Wolds flint'. This is a dense and brittle flint that is found in and around the chalklands of North Yorkshire and Lincolnshire and which was also widely used in this area during prehistory (Young 1987).

None of the pieces is truly chronologically diagnostic; the only retouched piece consists of an incomplete scraper of uncertain date and no cores were recovered. The blades can be dated by their technological attributes to the Mesolithic or Early Neolithic periods, the use of cresting demonstrated by one suggesting the former period is most likely. The other pieces could also be accommodated within a blade-based reduction strategy and could easily be at least broadly contemporary with the blades, but this is less certain and their date range could be extended through to the Early Bronze Age.

Significance and Recommendations

The struck assemblage indicates flint-using activity at the site during the Mesolithic or Early Neolithic periods, although it is too small to indicate the precise chronology or nature of the occupations.

Due to the size of the assemblage no further analytical work is warranted. As it has some potential in contributing to a wider appreciation of landscape use in the area it should be recorded in the Historic Environment Record and a brief description included in any published account of the fieldwork.

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APPENDIX 5
PALAEOENVIRONMENTAL ASSESSMENT

PALAEOENVIRONMENTAL ASSESSMENT

By: **Charlotte O'Brien (ASDU)**

Project Background

This report presents the results of palaeoenvironmental assessment of six bulk samples comprising the fills of ditches and curvilinear features of possible prehistoric origin recorded at the Bishop Middleham Quarry Western Extension site. The works were commissioned by Pre-Construct Archaeology, and conducted by Archaeological Services Durham University (ASDU).

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

Samples were received by ASDU on 21 November 2013. Assessment and report preparation was conducted between 26 November 2013 and 20th January 2014.

Assessment and report preparation was conducted by Dr. Charlotte O'Brien. Sample processing was by Cameron Clegg.

Methods

The bulk samples were manually floated and sieved through a 500µm mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, flint, glass and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification for charred and waterlogged botanical remains using a Leica MZ7.5 stereomicroscope. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at ASDU. Plant nomenclature follows Stace (1997). Habitat classifications follow Preston *et al.* (2002).

Charcoal fragments were identified in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x600 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 Environmental Laboratory at ASDU.

The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts and Gerrard 2006; Hall and Huntley 2007; Huntley 2010). The need for further work to provide evidence of the past utilisation of turves has been highlighted by these frameworks (Hall and Huntley 2007), and this project offers the opportunity to address this research topic.

Results

The samples produced very small flots (2-10ml) which comprised small amounts of coal/coal shale, charcoal and modern roots. In most cases, the charcoal fragments were indeterminate due to their small size, but birch and hazel were identified from context [15/18], and oak was identified from context [15/23], both of which are fills of the ring ditch recorded as cuts [15/16] and [15/21] in Trench 15. A few land snails, charred rhizome/tubers, charred heather twigs and pre-Quaternary trilete megasporangia (which derive from the coal deposits), were present. The only find from the residues was a small fragment of pot in fill [21/4] of ditch [21/3].

Charred plant macrofossils were present in four of the fills, where they occurred in very low numbers. These included false oat-grass tubers [context 16/2, 15/24 and 15/23], ribwort plantain seeds [context 15/23], a hazel nutshell fragment [context 16/2], a grass caryopsis [context 15/23] and buttercup achenes [contexts 15/18 and 15/23]. Although a few uncharred seeds were present in three of the samples, the non-waterlogged nature of the site and the presence of modern roots suggest that these are recent intrusions. Material suitable for radiocarbon dating is available for two of the samples [contexts 15/18 and 15/23]. The results are presented in the table below.

Discussion

The samples provide limited evidence of the resources used in the region during the later prehistoric period due to the low numbers of charred plant remains present. Cereals and other crop plant remains were absent, which may be a product of the small flot size, or may reflect a non-domestic use of the features examined or that domestic/crop processing waste was disposed of away from these features.

The charred remains of tuber/rhizomes, heather twigs, and seeds of ribwort plantain, grasses and buttercups may derive from the use of turves as fuel or structural material such as roofing (Hall 2003). While most of the underground plant remains could not be identified to species, tubers of false oat-grass (*Arrhenatherum elatius* ssp *bulbosum*) were recorded in three of the fills. These tubers are a common occurrence from prehistoric contexts, and in particular have frequently been recorded in Bronze Age cremations, possibly representing the use of turves in the pyre construction (Archaeological Services 2011). However, they have also been recovered from non-cremation deposits, and from a number of sites in Durham which date to the Iron Age, such as Bowburn, Haswell and Pittington Lane (ASDU 2008; 2012ab).

The presence of a single charred hazel nutshell fragment indicates that wild-gathered foods were used at the site. While some sources have suggested that false oat-grass tubers could have been collected for food (Godwin 1975), or may represent the remains of food offerings (Jones 1978), more recent research into potential ancient plant foods regarded *Arrhenatherum* tubers as quite inedible (Mears and Hillman 2007).

The few identifiable charcoal fragments indicate that hazel, birch and oak were available in the local woodland resource and were collected for firewood or structural materials.

The small land snail assemblages are of limited interpretative value. Open calcareous grassland is suggested by the presence of *Vallonia* sp [contexts 21/4, 15/24 and 15/18] and *Pupilla muscorum* (Linnaeus) [contexts 15/24 and 15/18]. The remains of the burrowing snail *Cecilioides acicula* (Müller), present in all of the fills, are almost certainly intrusive and of no interpretative value.

Recommendations

No further analysis is required for these small plant macrofossil assemblages, although further processing of any remaining soil from these fills may enable material suitable for radiocarbon dating or diagnostic remains to be recovered. If available, any further samples not so far assessed which could provide additional relevant data could be examined.

If additional work is undertaken at the site, the results of this assessment should be added to any further palaeoenvironmental data produced. The flots should be retained as part of the physical archive of the site. The residues were discarded following examination.

Archive

The flots should be retained as part of the archive. The charred plant remains will be retained at ASDU.

Sample	1	4	5	7	8	9	
Context	21/4	16/2	16/6	15/24	15/18	15/23	
Feature	ditch	ditch	linear	curvi-linear	ditch	ditch	
Feature number	21/3	16/3	16/7	15/9	15.16	15/21	
Material available for radiocarbon dating	-	-	-	-	□	(□)	
Volume processed (l)	7	8	9	10	7	8	
Volume of flot (m)	2	2	10	4	5	7	
Residue contents							
Pot (number of fragments)	1	-	-	-	-	-	
Flot matrix							
Charcoal	(+)	(+)	(+)	(+)	+	+	
Cinder	-	-	-	-	+	+	
Coal / coal shale	+	+	+	-	+	+	
Heather twigs (charred)	-	-	-	-	(+)	-	
Pre-Quaternary trilete megasporangium	-	-	+	-	-	+	
Roots (modern)	(+)	-	+	+	+	+	
Snails (terrestrial)	+	(+)	+	+	+	+	
Tuber / rhizome (charred)	(+)	(+)	(+)	(+)	(+)	+	
Uncharred seeds	-	-	-	(+)	+	+	
Charred remains (total count)							
(g) <i>Arrhenatherum elatius</i> ssp <i>bulbosum</i> (False Oat-grass)	tuber	-	1	-	-	-	3
(g) <i>Arrhenatherum elatius</i> ssp <i>bulbosum</i> (False Oat-grass)	tuber frag	-	-	-	1	-	1
(r) <i>Plantago lanceolata</i> (Ribwort Plantain)	seed	-	-	-	-	-	4
(t) <i>Corylus avellana</i> (Hazel)	nutshell frag	-	1	-	-	-	-
(x) Poaceae undiff. (Grass family)	<1mm caryopsis	-	-	-	-	-	1
(x) <i>Ranunculus</i> subgenus <i>Ranunculus</i> (Buttercup)	achene	-	-	-	-	1	1

[g-grassland; r-ruderal; t-tree/shrub; x-wide niche. (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant
(□) may be unsuitable for dating due to size or species]

Data from palaeoenvironmental assessment

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APPENDIX 6
PLATES



Plate 1: Trench 15, looking west (scale 1m)



Plate 2: Trench 15, ditch [15/21] in south facing section (scale 1m)



Plate 3: Trench 15, ditch [15/16] in south facing section (scale 1m)



Plate 4: Trench 15, ditch [15/4] in south facing section (scale 1m)

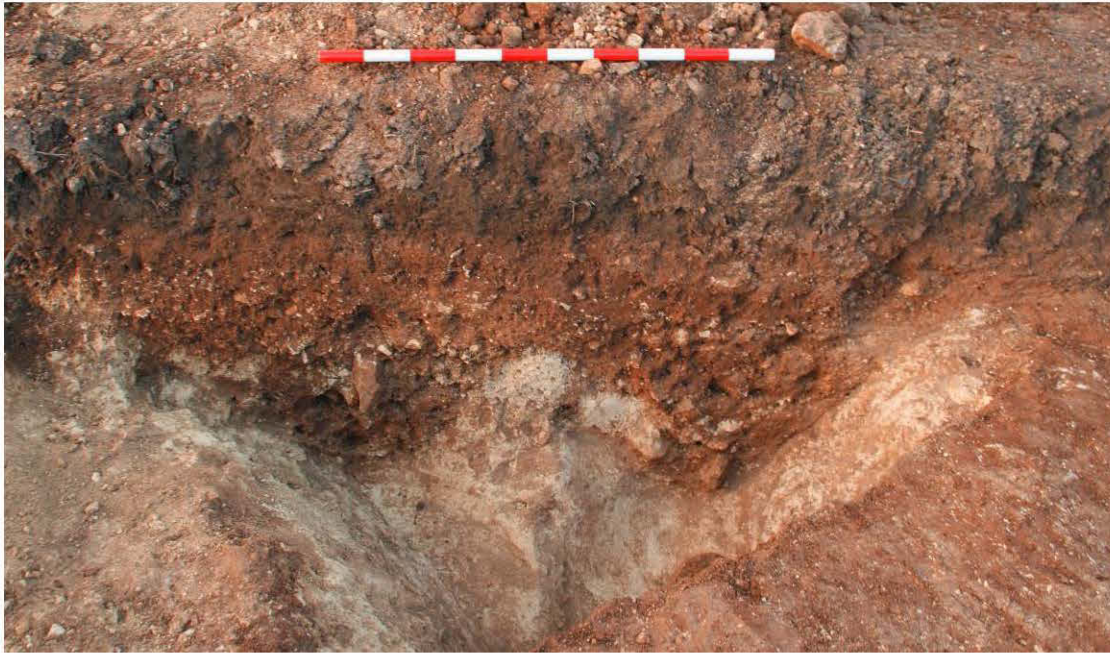


Plate 5: Trench 15, ditches [15/9] and [15/12] in south facing section (scale 1m)



Plate 6: Trench 11, ditch [11/3], looking south-east (scale 1m)



Plate 7: Trench 16, ditch [16/7] and re-cut [16/3] in east facing section (scale 1m)



Plate 8: Trench 16, ditch [16/7] and re-cut [16/3] looking south-east (scale 1m)



Plate 9: Trench 18, ditch [18/8] and re-cut [18/5] in north-west facing section (oblique) (scale 1m)



Plate 10: Trench 21, ditch [21/3] in north-west facing section (scale 1m)



Plate 11: Trench 21, looking SSW (scale 1m)



Plate 12: Trench 10, looking north (scale 1m)

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