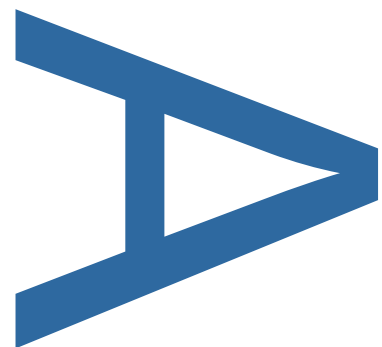
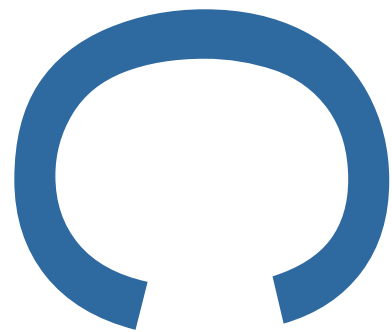


**LAND AT  
FOXLOW FARM,  
BUXTON,  
DERBYSHIRE:**

**REPORT ON AN  
ARCHAEOLOGICAL STRIP, MAP  
& RECORD INVESTIGATION**

**PCA Report Number: R13641**

**April 2019**



**PRE-CONSTRUCT ARCHAEOLOGY LTD**

DOCUMENT VERIFICATION

LAND AT FOXLOW FARM,  
BUXTON, DERBYSHIRE:

REPORT ON AN  
ARCHAEOLOGICAL STRIP, MAP & RECORD  
INVESTIGATION

Quality Control

Pre-Construct Archaeology Ltd	
Project Number	K5395
Report Number	R13641

	Name & Title	Date
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Revision No.	Date	Checked	Approved
1	16/04/2019	Gary Taylor	Gary Taylor
2	15/07/2019	Gary Taylor	Gary Taylor

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## Land at Foxlow Farm, Buxton, Derbyshire:

### An Archaeological Strip, Map and Record Investigation

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**Site Code:** FFBD18

**Local Planning Authority:** High Peak Borough Council

**Museum Accession Number:** TBC

**Planning Application:** HPK/2013/0603

**Central National Grid Reference:** SK 0677 7175

**Written and Researched by:** Andrew Failes

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March 2019



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SUMMARY .....	3
1 INTRODUCTION.....	4
1.1 GENERAL BACKGROUND .....	4
1.2 PLANNING BACKGROUND .....	4
1.3 SITE LOCATION AND DESCRIPTION .....	4
1.4 TOPOGRAPHY AND GEOLOGY .....	4
1.5 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND .....	5
2 PROJECT AIMS AND RESEARCH OBJECTIVES .....	7
2.1 PROJECT AIMS.....	7
2.2 RESEARCH OBJECTIVES.....	8
3 METHODOLOGY.....	8
3.1 FIELDWORK METHODOLOGY .....	8
3.2 POST-FIELDWORK METHODOLOGY .....	10
4 RESULTS.....	11
4.1 PHASE 1: NATURAL SUB-STRATUM.....	11
4.2 PHASE 2: MEDIEVAL.....	11
4.3 PHASE 3: LATE MEDIEVAL TO POST-MEDIEVAL .....	12
4.4 PHASE 4: UNDATED.....	13
4.5 Phase 5: MODERN .....	13
5 DISCUSSION .....	13
5.1 PHASE 1: NATURAL SUB-STRATUM.....	13
5.2 PHASE 2: MEDIEVAL.....	13
5.3 PHASE 3: LATE MEDIEVAL TO POST-MEDIEVAL .....	13
5.4 PHASE 4: UNDATED.....	16
5.5 PHASE 5: MODERN .....	16
5.6 SUMMARY OF OSL DATING RESULTS .....	16
5.7 SUMMARY OF ENVIRONMENTAL SAMPLING RESULTS .....	17
6 CONCLUSION .....	18
6.1 SUMMARY OF PROJECT DATA IN THE CONTEXT OF THE WIDER LANDSCAPE AND PREVIOUS INVESTIGATIONS.....	18
6.2 SIGNIFICANCE OF RESULTS.....	19
7 ACKNOWLEDGEMENTS .....	20
8 BIBLIOGRAPHY .....	20
8.1 WRITTEN SOURCES .....	20



8.2 WEBSITES .....	21
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LIST OF FIGURES

FIGURE 1: SITE LOCATION .....	22
FIGURE 2: DETAILED SITE LOCATION .....	23
FIGURE 3: SITE PLAN .....	24
FIGURE 4: SECTIONS .....	25
FIGURE 5: SECTIONS .....	26
FIGURE 6: PREVIOUS EXCAVATIONS .....	27
FIGURE 7: OSL SAMPLE LOCATIONS.....	28

LIST OF APPENDICES

APPENDIX 1: SITE PHOTOGRAPHS .....	29
APPENDIX 2: CONTEXT SUMMARY .....	33
APPENDIX 3: OSL DATING REPORT .....	40
APPENDIX 4: ENVIRONMENTAL ARCHAEOLOGY REPORT .....	47
APPENDIX 5: OASIS REPORT .....	49

## SUMMARY

*Pre-Construct Archaeology were commissioned by CgMs Consulting Ltd. to undertake an archaeological excavation on land at Foxlow Farm, Harpur Hill, Buxton, Derbyshire. The investigation was carried out between the 22<sup>nd</sup> January to the 8<sup>th</sup> February 2018. A previous archaeological evaluation carried out on the site had recovered ditches, a probable limestone wall footing and a gravel surface directly below an extant drystone field boundary wall. Although no dating evidence was recovered, these were likely to be a series of field boundaries dating from the post-Medieval period with the gravel surface beneath the extant wall probably being relatively recent. A targeted excavation was requested in an attempt to further characterise and clarify the dating of these discoveries.*

*The excavation further characterized the features uncovered during the evaluation, although no further evidence of settlement activity of any date was revealed. No dateable artefacts or organic remains were recovered. However, samples were taken of targeted deposits and fills in order to provide material for scientific (Optical Stimulated Luminescence) testing. This dating indicated that one of the ditches was medieval, probably 11<sup>th</sup>-12<sup>th</sup> century in origin and largely infilled by the later 13<sup>th</sup> century, and others were late medieval to early post-medieval, 15<sup>th</sup>-16<sup>th</sup> century*

*Further evidence of probable post-medieval activity was identified in the form of two linear ditches or gullies and a post-hole.*

## **1 INTRODUCTION**

### **1.1 GENERAL BACKGROUND**

1.1.1 Pre-Construct Archaeology Ltd (hereafter PCA) was commissioned by CgMs Consulting Ltd (CgMs) to undertake an archaeological Strip, Map and Record investigation on land at Foxlow Farm, Harpur Hill, Buxton, Derbyshire, centred on NGR SK 0677 7175, hereafter referred to as 'the Site' (Figs 1 and 2).

1.1.2 The archaeological works were carried out over from 22<sup>nd</sup> January – 8<sup>th</sup> February 2018

### **1.2 PLANNING BACKGROUND**

1.2.1 Planning consent (HPK/2013/0603) was granted by High Peak Borough Council (HPBC) for a proposed mixed use development of land at Foxlow Farm. As a condition of planning consent, the Historic Environment Adviser (HEA), advisers to the Local Planning Authority, requested that prior to any development an archaeological evaluation be conducted to determine the potential of heritage assets surviving on the Site.

1.2.2 An archaeological evaluation was undertaken by PCA (Taylor and Hilton 2017) in accordance with a Written Scheme of Investigation (WSI), produced by Myk Filtcroft of CgMs Consulting Ltd (CgMs, 2017). A brief for further exploratory work was issued by the HEA based on the results of the evaluation.

1.2.3 The further archaeological work requested by the HEA consisted of the archaeological excavation and recording of one area (Fig 2) encompassing one trench (Trench 10) from the prior evaluation, in which features of potential archaeological significance and slight dating evidence were recovered.

1.2.4 The additional archaeological works conformed to a second WSI produced by CgMs (CgMs 2018) which outlined strategy and methodology for the project

### **1.3 SITE LOCATION AND DESCRIPTION**

1.3.1 The development site comprises an area of approximately 34 hectares located on the northern limits of Harpur Hill village, some 2km east of Buxton town centre (Fig 1) on the southwestern side of Ashbourne Road. The specific investigation site is located about 60m south of the road immediately northwest of the track from the highway to the buildings of Foxlow Farm (Fig 2). A rectangular block aligned parallel with Ashbourne Road, the investigation site straddles a drystone field boundary wall (Fig 3), part of which was taken down to facilitate the investigation. The overall Site is bounded by residential properties to the north and west, by Ashbourne Road to the east, and by open farmland to the south.

### **1.4 TOPOGRAPHY AND GEOLOGY**

1.4.1 The Site is relatively level with a slight gradient which slopes down gradually southwest to northeast towards Ashbourne Road at 340m above Ordnance Datum (aOD).

- 1.4.2 The underlying bedrock geology of the area is mapped as Limestone of the Bee Low Limestone Formation, laid down in the Carboniferous Period (BGS 2018).

## 1.5 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

### General

- 1.5.1 As a remit of the brief for the mitigation works, CgMs conducted a search of the National Heritage List for England, the Derbyshire Historic Environment Record (DHER), historical mapping and aerial photographs viewed at Historic England's Aerial Photographic Archive for inclusion in a previous desk-based study (CgMs 2013). The results of that research along with other previous work are presented here. Record numbers for DHER entries are presented in **bold**.

### Prehistoric (Pre – AD43)

- 1.5.2 The earliest remains within the study area are represented by a Mesolithic flint scatter recorded during excavations on Fox Low, a little to the southeast of the site (**31109**). Other prehistoric stone and metalwork implements, including two polished stone axes, have been found in the vicinity of the site (**2809**). Additionally, several Bronze Age barrows have been identified close by, including a scheduled barrow located to the south of the site at the highest point of Fox Low (**2822**). A second possible barrow is recorded to the southwest of the Site (**31103**).

### Romano-British (AD43 – AD410)

- 1.5.3 The putative line of the Roman road from Buxton to Carsington/Derby passes northwest to southeast through the eastern part of the site running parallel to Ashbourne Road (**7158 & 9930**) (Fig 6). It has been recorded as a possible earthwork in a number of places within the site (**2855, 2856, 2857, 2859 & 88260**). However, this earthwork is actually considered more likely to be the remains of a post-medieval track with the Roman road itself being along the line of Ashbourne Road at the eastern boundary of the site. Geophysical surveys failed to reveal any anomalies that could be interpreted as surviving elements of the road.

- 1.5.4 At Staden Hill, c. 400m to the northeast of the site, remains of a Roman settlement have been identified (**31118**). This represents an extensive probable multi-phased site. Parts of the complex consist entirely of field enclosures with possible dwellings elsewhere. An excavation undertaken in 1981 revealed a Romano-British building. The settlement was occupied in the first half of the second century AD and probably developed in response to the Roman military and civil occupation.

### Anglo-Saxon (AD410 – AD1066)

- 1.5.5 Two barrows, one of which contained an inhumation of Saxon date (**2821**), are located c. 500m southwest of the site. However, no other evidence of Saxon activity was identified by the desk-based assessment.

### **Medieval (AD1066 – AD1540)**

- 1.5.6 Although the shrunken settlement of Staden Manor, and associated earthworks (8813), are located c. 500m northeast of the site, it is likely that the proposed development area was within countryside during the medieval period. Geophysical survey recorded traces of ridge and furrow, indicating the area was probably arable land during the medieval period, but no evidence for any medieval occupation remains.

### **Post-Medieval (AD1540 – AD1900)**

- 1.5.7 Various predominantly industrial features of post-medieval date, including railways and brick kilns, are located in proximity to, but not on, the proposed development area. Several thermoremanent features identified by the initial geophysical survey were interpreted as possible lime kilns (Stratascan 2013). However, subsequent geophysical re-survey of the area considered that the anomalies were not of archaeological origin but reflected natural responses associated with topography and geology, as well as agricultural and modern land use (Magnitude Surveys 2017).
- 1.5.8 Historic mapping shows the site as comprising rectangular and sub-rectangular fields, probably dating from the time of parliamentary enclosure during the post-medieval period. Later maps indicate the site has remained essentially unchanged since the late 19th century.

### **Modern (AD1900 – present)**

- 1.5.9 The OS maps from 1879 to 1986 indicate that the layout of fields on the site has remained unchanged since the late 19th century. All these maps show an earthwork bank labelled Roman road running parallel to Ashbourne Road, 55m from the eastern boundary of the site. They also show a parish boundary immediately adjacent on the northeast side of the earthwork labelled Roman road.

### **Previous Work**

- 1.5.10 Prior to this investigation an evaluation (Taylor and Hilton 2017) at the site revealed little archaeological activity and no evidence for a Roman road. Instead, in this area, a sequence of undated ditches (on the same alignment) was revealed and interpreted broadly as instances of a boundary which may have been medieval in origin, as the line appears on a 17<sup>th</sup> century map as a Manorial boundary which likely has its origins in the medieval period.

## **2 PROJECT AIMS AND RESEARCH OBJECTIVES**

### **2.1 PROJECT AIMS**

2.1.1 The archaeological investigations at the site were threat led, since the development had the potential to disturb or destroy significant sub-surface archaeological remains. Specifically, remains of potential archaeological significance were identified in the area of Trench 10 by the previous evaluation.

2.1.2 The HEA, as advisor to the Local Planning Authority, recommended further investigations be undertaken at this focus to preserve the remains by record.

2.1.3 An archaeological Strip, Map and Record investigation was therefore required as part of the planning process and undertaken in the area around Trench 10, immediately southwest of Ashbourne Road on the northern limits of Harpur Hill village at the northwestern edge of the site (Fig 2).

2.1.4 The principle aims of the investigation were:

- to record the heritage assets within the area of investigation prior to their destruction
- to identify, within the constraints of the excavation areas, the date, character, condition and depth of any surviving remains within the Site
- to confirm and map the approximate extent of the remains and where possible their relationship with archaeology recorded during earlier phases of archaeological investigation
- to assess the degree of existing impacts to sub-surface horizons and to document the extent of archaeological survival of buried deposits

2.1.5 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 paleoenvironmental material recovered
- to compile a report that contains an assessment of the nature and significance of all data derived from the investigation

## **2.2 RESEARCH OBJECTIVES**

2.2.1 Specific research objectives to be addressed by the project were formulated with reference to the on-line *East Midlands Historic Environment Research Framework, Interactive Digital Resource*, as well as *The Archaeology of the East Midlands, An Archaeological Resource Assessment and Research Agenda*, Leicester Archaeology Monograph 13, ed. N Cooper (2006) and *East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands*, ed. D. Knight, B. Vyner & C. Allen (2012).

2.2.2 The investigation sought to address the following objectives:

- Establish the nature of the apparent boundary features found within the east of the site, and corresponding with the line of the purported Roman road;
- Determine the extent, true nature, and date of the bank of gravelly material underlying the extant dry-stone wall and the low bank it sits upon;
- Interpret and date the buried wall footing to the west of the extant standing wall;
- Recover datable evidence from the ditch and possible bank deposits. Material for 14C dating should be recovered as appropriate. In instances where no other appropriate datable material is recoverable, there is scope for OSL dating of ditch fills and other appropriate deposits.

## **3 METHODOLOGY**

### **3.1 FIELDWORK METHODOLOGY**

3.1.1 Fieldwork techniques and approaches were set out in a detailed WSI produced by CgMs (CgMs 2018) prior to the investigation. The fieldwork and post-excavation work were carried out in accordance with the relevant ClfA standard and guidance documents (ClfA 2014a). PCA is a ClfA registered organisation (number 23) and operates within the Institute's 'Code of Conduct' (ClfA 2014b).

3.1.2 The archaeological Strip Map and Record Investigation was undertaken across a roughly rectangular-shaped area measuring approximately 43m x 20m (Fig 3). The excavation was set out using a Leica Viva Smart Rover Global Navigation Satellite System (GNSS) The Smart Rover GNSS provides correct Ordnance Survey co-ordinates in real time to an accuracy of 10mm.

3.1.3 A supervising archaeologist monitored the removal of all non-archaeological overburden to the level of the first archaeological horizon. The overburden was removed using a tracked JCB excavator equipped with a flat bladed ditching bucket and was coordinated so that no plant was tracked across areas previously reduced to this level.

- 3.1.4 All visible features were marked with tags as they were exposed by machine excavation. A Leica Smart Rover GNSS was used to map all observed remains and set out baselines for planning. As such, there was no requirement for an overall site grid.
- 3.1.5 Once the archaeological horizon was reached, investigation of archaeological remains was undertaken by hand. Areas where probable and certain archaeological features were identified were cleaned by hand when necessary. Archaeological features and deposits were identified, excavated and recorded in both plan and section where appropriate by trained archaeologists using appropriate hand tools. Investigations were conducted in accordance with the methods set out in PCA's site manual (Taylor and Brown 2009). Written descriptions describing deposits, features and fills were compiled on PCA pro-forma record sheets, while any archaeological finds recovered were bagged and labelled per context for post-excavation analysis.
- 3.1.6 The overall sampling strategy was proportionate to the apparent interest of the archaeology.
- 3.1.7 All relationships between features and deposits were investigated and recorded.
- 3.1.8 A representative sample of discreet, non-burial features were half sectioned where safe to do so and constituted no less than 50% of the whole.
- 3.1.9 For all linear features (e.g. ditches, gullies, paths and tracks) an initial 10% was excavated away from intersections with other feature or deposits in order to obtain secure contexts for samples of material. Excavation slots were at least 1m in width. Where significant patterns of deposition occurred, further excavation took place to investigate these patterns.
- 3.1.10 A full digital photographic record was compiled using SLR cameras, illustrating in both detail and general context, the principle features and finds discovered.
- 3.1.11 Deposits were assessed for their palaeoenvironmental potential in accordance with *Environmental Archaeology; A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-Excavation* (second edition) (English Heritage 2011). Samples were taken from uncontaminated deposits from each feature on the Site.
- 3.1.12 A total of 10 sediment samples were retrieved for dating by Optically Stimulated Luminescence (OSL). This was carried out at the Luminescence Dating Laboratory at the University of Oxford. The results appear in Appendix 3 of this report and are discussed in Sections 4 and 5.
- 3.1.13 A series of 7 bulk environmental samples were also taken. However, and on the instruction of the Historic Environment Advisor, only two of these samples, which had OSL dating, were processed and assessed (Appendix 4).



## **3.2 POST-FIELDWORK METHODOLOGY**

- 3.2.1 Historic England's *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers Guide* (HE 2015) was used as the framework for post-excavation work.
- 3.2.2 The stratigraphic data for the project comprises written, drawn and photographic records. A total of 55 archaeological contexts were defined within the excavation area. Post-excavation work involved checking and collating site records, and phasing the stratigraphic data (Appendix 1). A written summary of the results of all data categories appears in Section 4 of this report.
- 3.2.3 No artefacts were recovered during the investigation. However, a number of OSL dates for a selection of deposits were produced and are discussed with regards to chronological sequencing of the site in Section 4.
- 3.2.4 Two bulk environmental samples were taken for assessment. However, no artefacts or ecofacts were noted in these.
- 3.2.5 No other categories of organic or inorganic artefactual material were represented. None of the material recovered during the evaluation required specialist stabilisation or an assessment of its potential for conservation research.
- 3.2.6 The complete site archive will be packaged for long-term storage and curation. In preparing the site archive for deposition, all relevant standards and guidelines documents referenced in the *Archaeological Archives Forum guidelines document* (Brown 2011), the *United Kingdom Institute for Conservation (UKIC) document* (Walker 1990), and the relevant ClfA publication (ClfA 2014c) will be adhered to.

## 4 RESULTS

*During the investigation unique 'context numbers' were assigned to each distinguishable depositional event and are indicated in the following text as, for example, (101) for deposits and [102] for cuts. The archaeological sequence is described by placing stratigraphic sequences within broad phases, assigned on a site-wide basis. Features with multiple cut numbers were assigned group numbers, which appear in the following text as, for example, (GP1). Group numbers and their corresponding cut numbers are listed in Table 1 below.*

*It should be noted that OSL dates from sediments will use the dating convention BP (before present). However, in this case 'present' is the year 2018, rather than the standard 1<sup>st</sup> of January 1950 used to report radiocarbon dates.*

Table 1: Feature group numbers

Feature Group Number	Cut numbers
GP1	[107, 109, 111, 113]
GP2	[115, 117, 119, 121]
GP3	[137, 128, 143]
GP4	[124, 145, 154, 152]
GP5	[139, 148, 134, 130]
GP6	[141, 150, 132]

### 4.1 PHASE 1: NATURAL SUB-STRATUM

4.1.1 Natural deposits were encountered at a depth of approximately 341.33m OD. The natural substrate consisted of compacted mid to dark brown clayey silt and limestone fragments (103). This was overlain by a possible subsoil or colluvial deposit of friable mid brown clayey silt (102), containing frequent limestone fragments.

### 4.2 PHASE 2: MEDIEVAL

4.2.1 Ditch (GP5) cut through deposit (102) and extended in length through the area of excavation on a northwest-southeast alignment. It had moderately steep sides breaking gradually to a concave base. The ditch was filled with firm, mid to dark greyish brown sandy silt (131, 135) with occasional limestone fragments (140, 149). Environmental

sampling of (140) yielded small quantities of charcoal but no artefacts (Appendix 4).

4.2.2 A total of four OSL samples were taken from the fill of this ditch for dating. Samples 05A and 07A (Fig 5) were taken from the base of the ditch and produced dates of 1005 ±60 BP and 845 ±95 BP respectively. Samples 05B and 07B (Fig 5) were taken from near the top of the ditch and produced dates of 780 ±90 BP and 730 ±120 BP (Appendix 3).

### 4.3 PHASE 3: LATE MEDIEVAL TO POST-MEDIEVAL

4.3.1 Lying about 3m northeast of, and broadly parallel to ditch group GP5 was Ditch (GP3). This was recorded in Sections 8, 9 and 13 cutting through the possible subsoil deposit (102) and its full width measured at least 2.85m. It ranged in depth from 0.57 - 1.18m with moderately steep, slightly concave sides and a flat to slightly concave base. It was filled with firm, mid orange brown sandy silt with occasional limestone fragments (129, 144) and mid greyish brown sandy silt (138). Environmental sampling of (129) recorded small amounts of charcoal and a single indeterminate cereal grain, though no artefacts were present (Appendix 4).

4.3.2 A single OSL sample (01B) retrieved from GP3 (Fig 5) produced a date of 555 ±90 BP.

4.3.3 Wall footing trench (GP4) truncated and ran parallel to medieval ditch (GP5) until they diverged slightly at the northern end of the excavation. This wall footing trench (GP4) was oriented on a northwest-southeast alignment and ran alongside another ditch (GP3). While the cut lines between these ditches were very uncertain, the distribution of stone in the fill suggests that ditch (GP3) probably truncates (GP4). Wall footing trench (GP4) had moderately steep sides breaking gradually to a flat base. Its primary fill comprised loose, roughly hewn, unworked limestone fragments (126, 127, 136 & 147) ranging in size from 40mm by 0.7m by 0.4m to 0.3m by 0.2m by 0.2m. These remnants of stone foundation lay within a matrix of firm, mid greyish brown (125, 153 & 155) silty sand and loose mid brown silty sand (146). This trench was overlain by a layer of friable dark sandy silt (101) with stones.

4.3.4 Located just northeast of ditch GP3 was linear feature (GP2) which was cut through possible subsoil deposit (102). This linear feature was oriented on a northwest-southeast and extended over 40m in length, ranging in width from 1.2 - 1.8m and 0.12 - 0.15m in depth, with very shallow concave sides breaking imperceptibly to a slightly concave to flat base. The fill of this feature comprised moderately compact, mid orangey brown silty sand with occasional gravel (116, 118, 120 & 122). This gravel deposit had a drystone wall constructed over top of it which was removed prior to the investigation.

4.3.5 OSL samples (02A, 02B and 03B) from this feature were taken from three different locations (Fig 5) near the base of the cut. These produced dates of 515 ±135 BP, 510 ±495 BP and 475 ±55 BP respectively.

4.3.6

#### **4.4 PHASE 4: UNDATED**

4.4.1 Lying 3-5m northeast of GP2 was feature group (GP1) which was recorded cutting through the natural (103) in the eastern area of the investigation. This feature was a linear, shallow gully or furrow cut with a concave base which extended over 40m on a northwest-southeast alignment through the length of the excavation area. The width of (GP1) varied from 0.71 – 1.02m wide with a depth of c. 80-90mm. F1 was filled with moderately firm to loose mid orangey brown silty sand and gravel and was assigned context numbers (108, 110, 112 & 114).

4.4.2 On the opposite, southwestern part of the investigation area, linear cut (GP6) truncated deposit (102) and was oriented on a northwest-southeast alignment, extending 28.5m in length into the excavation area, terminating to the northwest. It ranged from 0.7 – 1m wide by 40mm - 0.4m deep. It had shallow to moderately steep concave sides breaking imperceptibly to a concave base. GP6 was filled with firm to loose silty sand ranging in colour from mid brown (133), mid brown with yellow mottle (151) and mid orangey brown (141).

#### **4.5 Phase 5: MODERN**

4.5.1 At the northeastern corner of the site was a sub-circular to square posthole [106] with a dark brown clayey silt fill (103). This was not excavated as it was considered modern.

### **5 DISCUSSION**

#### **5.1 PHASE 1: NATURAL SUB-STRATUM**

5.1.1 The natural sub-stratum at the site comprised clay and limestone fragments. These clays were probably formed naturally by weathering and decay of the underlying limestone bedrock. This was overlain by what was tentatively identified as a 'subsoil deposit' by the excavators. However, the previous evaluation identified what is probably the same deposit, as colluvium and it is probably the case that deposit (102) in this investigation is the same as colluvium deposit (1002) identified in Trench 10 of the previous evaluation.

#### **5.2 PHASE 2: MEDIEVAL**

5.2.1 A single medieval ditch (GP5) extended through the site on a northwest to southeast alignment, truncated by a later wall foundation trench. OSL dating of the sediments at the base of the ditch range from 1013 ±60 AD to 1173 ±95 AD placing it in the High Medieval Period, or just prior. At the top of the ditch, the sediments produced dates of 1238 ±90 AD and 1288 ±120 AD. This suggests that the ditch was open near the beginning of the High Medieval Period and silted up gradually over the next century or so.

#### **5.3 PHASE 3: LATE MEDIEVAL TO POST-MEDIEVAL**

5.3.1 An OSL date of 1463 ±90 AD was obtained for ditch GP3 which ran parallel to the

medieval ditch. This ditch was recorded previously in evaluation Trench 10 where it was assigned context number [1017] and had a maximum width of 3.5m. Although the fill of this ditch produced a probable late medieval date, the upper end of the error calculations could place it at the beginning of the post-medieval period.

5.3.2 Medieval ditch GP5 was cut by a later ditch which contained the remains of a stone wall foundation (GP4). This foundation trench was perhaps truncated by the late medieval to early post-medieval ditch (GP3). The dating and stratigraphic sequence of these features perhaps suggests that the foundation trench existed between the late medieval and early post-medieval period. Its location suggests it replaced the former medieval boundary ditch.

5.3.3 A second parallel shallow linear feature (GP2) produced three late medieval to early post-medieval dates (16<sup>th</sup> century), although one of these dates is questionable due to a high margin of error ( $\pm 485$  years). This may have been the result of inadvertent exposure to daylight during sampling or mixing of sediments from bioturbation or anthropogenic disturbance. This shallow linear feature had a gravel spread at the top. This may represent a trackway, though the extant stone field wall was constructed directly upon this gravel and it perhaps more likely represents the foundation of that drystone boundary, the remains of which were removed prior to excavation but can be seen in Plates 1 and 2.

5.3.4 The dating and location immediately northeast of the medieval ditch suggests this boundary wall represents the parish boundary observed on 19<sup>th</sup> century maps. This field boundary wall probably represents the latest in a sequence of boundaries, mostly defined by ditches, originating in the medieval period and being re-dug and established various times throughout the medieval period to present day. In the post-medieval period the boundary may have been associated with enclosure.

5.3.5 The location and line of the medieval ditch (GP5), stone wall foundation trench (GP4) and Late Medieval to Early Post-Medieval ditch GP3, coincide with an earthwork bank recorded as being immediately southwest of the present field boundary wall (a section of which was removed in the area under investigation at the commencement of the archaeological works) on maps dating from at least as early as 1878. On the 19<sup>th</sup> century and subsequent maps, this earthwork is labelled as a Roman road. The placement of these features immediately southwest of the present extant wall suggests that the bank depicted on these maps likely represents the remains of the former wall and the banks of the medieval to post-medieval ditches. The line also appears to be depicted on a map of 1614 (Guilbert and Challis 1993), though it is unclear as to whether this represents the medieval ditch, the wall, or the present extant field boundary wall. However, on the 17<sup>th</sup> century map it appears to represent the outer boundary of Harlington Manor labelled 'this wall is ye bounds of ye manor' (Guilbert and Challis 1993, 58) suggesting a medieval origin for the boundary which coincides with the OSL dates retrieved from the ditch fill

sediments.

- 5.3.6 It should also be noted that on 19<sup>th</sup> century maps, the civil parish boundary follows the line of the present field boundary wall, which has a late medieval to early post-medieval date and likely represents the same boundary as the medieval ditch and subsequent medieval wall. Parish boundaries often derive from land holdings of Middle Saxon date or earlier and it may be the case that the medieval boundary ditch has an earlier Saxon antecedent. However, there was no sign of this in the excavation.
- 5.3.7 Previous investigations across this earthwork, further to the north at Foxlow Grange (Fig 6), identified lengths of what was interpreted as stone revetment on the eastern side of what is probably the medieval ditch identified in this investigation (Wroe 1982, 67-8; Guilbert and Challis 1993, 52-5). It seems probable that this is erroneous, as this investigation and the previous evaluation (Taylor and Hilton 2017) show a clear foundation cut which contains limestone blocks and fragments (probably interpreted previously as revetment), truncating the medieval ditch to the southwest. As such, the limestone blocks represent the remains of a wall rather than revetment. Wroe (1982) described the limestone revetment as forming a kerb of a Roman Road. However, the evidence for a Roman Road in this area is extremely limited. No flanking ditches exist and the proposed revetment 'kerb' is almost certainly the remains of a limestone wall foundation trench of a later date than the medieval ditch which it truncates. The line of the earthwork bank, which had generally been regarded as the agger of a Roman Road, previous to strong objections by Guilbert and Challis (1993), coincides with the wall foundation trench and ditches of medieval and post-medieval date. As such, the earthwork almost certainly represents the bank material of these later features. No traces of metalled road surface were identified during earlier investigations (Wroe 1982, 67-8; Wilson 1975, 242) along the route of the 'Roman Road', other than a scanty account at the beginning of the century (Tristram 1916, 99) which is unreliable. A gravel spread was identified in this investigation and the previous evaluation. However, OSL dating from ditch GP2, which was recorded directly underneath the gravel, produced Late Medieval to Early Post-Medieval dates. This provides conclusive evidence that the gravel spread does not represent remnants of metalled surface or agger of a Roman Road.
- 5.3.8 Guilbert and Challis (1993, 58-9) suggest that the most acceptable course for the Roman Road is on the line of the modern A515 (Ashbourne Road) which runs parallel and c. 50m to the east of the earthwork bank (Fig 6). It is curious that the manorial/parish boundary runs parallel and offset from the Roman Road rather than following it. However, there are other examples of early medieval boundaries running close and parallel to Roman Roads. For example, in Kent, Pollard and Aldridge (2008, 301-4) have identified a stretch of a hundred boundary (which may be an earlier 'lathe' boundary) that runs close and parallel to the north-to-south running Roman Road between the stone paved ford at Iden Green (the meeting point of three hundreds) and a Roman settlement within the grounds of

Benendren School. The northern half of this stretch is particularly similar in terms of distance between the Roman Road and the early medieval boundary running parallel and to the west of the Road.

5.3.9 This is part of a larger section of Roman Road that runs from Rochester to iron working sites near Hastings. To the north of the school there is a junction with a second Roman Road oriented eastwards towards Ashford. The same phenomena occurs on a stretch of this road between Goddard’s Green and a Boundary stone at Pump Lane (Pollard and Aldridge 2008, 301-4), where a hundred, or possible lathe boundary, appears to run roughly parallel and close to the line of a Roman Road, (although in this case the exact line of the road is uncertain).

5.3.10 The results of this excavation and the previous evaluation (Taylor and Hilton 2017) produced no evidence to demonstrate the presence of the Roman road west of the A51. The programme of OSL dating confirms that the absence of evidence in this case, is evidence of absence, as the deposits once considered to make up the agger of the road, are in fact Late Medieval to Post-Medieval in date. This raises an interesting question with regards to why the boundary was moved from the line of the road? Of course, there could be myriad reasons for this and we know that this same phenomena occurs in other places. Perhaps the physical traces of the Roman Road disappeared in the landscape yet the route continued to be used and drifted to the west through time.

**5.4 PHASE 4: UNDATED**

5.4.1 Shallow ditches to the northeast and southwest of the medieval ditch and extant boundary wall were identified but yielded no dateable material. These ditches respect the alignment of the medieval to post-medieval boundary and are in fairly close proximity. It may be the case that these represent instances of the same boundary re-dug at different times.

**5.5 PHASE 5: MODERN**

5.5.1 A sub-circular modern post-hole was the only discrete feature observed at the site.

**5.6 SUMMARY OF OSL DATING RESULTS**

A summary of the results from OSL dating of the ditches is provided in Table 2 below.

*Table 2: OSL dating results for feature groups*

Feature Group No:	Sample No:	Date Range (AD)	Century
GP1	No samples taken		
GP2	02A	1368-1638	Late 15 <sup>th</sup> to 16 <sup>th</sup> Century
	02B	Discarded (error too large)	
	03B	1488-1598	
GP3	01B	1373-1553	Late 14 <sup>th</sup> to Mid 16 <sup>th</sup> Century
GP4	No samples taken		
GP5 (Base)	05A	953-1073	Mid 10 <sup>th</sup> to Mid 13 <sup>th</sup> Century
	07A	1078-1268	



GP5 (Top of fill)	05B	1148-1328	Late 12 <sup>th</sup> to Early 14 <sup>th</sup> Century
	07B	1168-1408	
GP6	No samples taken		
	04A	1813-1853	Early to Mid 19 <sup>th</sup> Century
	04B	1793-1863	

5.6.1 Samples 04A and 04B produced very late dates. However, these samples were not taken from a secure ditch fill, rather, they were retrieved from a deposit located between ditches GP3 and GP4. On reviewing the photographic record, it appears these were taken higher in section than planned at the southern baulk of the excavation and that the sampled deposit was disturbed, containing a significant amount of topsoil, which could account for the late dates.

5.6.2 There is some disparity between samples 05A and 07A which were taken from near the base of GP5. However, these were taken from different sections and the disparity can probably be accounted for by them being taken at slightly different depths. The later dates from 07A probably occur because this was taken slightly higher up in section than 05A. As such, an earlier date in this range, roughly Late 10<sup>th</sup> to 11<sup>th</sup> Century, is probably correct for the base of this ditch.

## 5.7 SUMMARY OF ENVIRONMENTAL SAMPLING RESULTS

5.7.1 A total of two bulk samples were processed from ditches GP3 and GP5 respectively

*Table 3: Bulk sample information*

Sample	Ditch	Context No:	Date
1	GP3	129	Late 14 <sup>th</sup> to Mid 16 <sup>th</sup> Century
6	GP5	140	Late 10 <sup>th</sup> to 11 <sup>th</sup> Century

5.7.2 Assemblages from both samples were limited in composition, containing some charcoal/charred wood fragments, pieces of iron pan, vitreous concretions, small pieces of coal, severely abraded bone fragments and an indeterminate and poorly preserved cereal grain from sample 1.

5.7.3 The assemblages were too sparse for any specific interpretation of remains beyond the suggestion that activities using very high temperature combustion may have been occurring in the area.



## **6 CONCLUSION**

### **6.1 SUMMARY OF PROJECT DATA IN THE CONTEXT OF THE WIDER LANDSCAPE AND PREVIOUS INVESTIGATIONS**

- 6.1.1 The previous evaluation revealed a sequence of ditches along with the remnants of a drystone wall along the north-eastern part of the site. No dateable evidence was recovered from the ditches during the evaluation. However, they were all in close proximity to each other on the same northwest-southeast orientation, with their location coinciding with the line of an earthwork bank recorded immediately southwest of the present field boundary wall on maps dating at least as early as 1878. This 19<sup>th</sup> century map and subsequent maps, label this bank as a Roman road and the line has been proposed to represent 'The Street', a Roman road from Buxton to Carsington (Wroe 1982, 54-6).
- 6.1.2 Previous investigations to the north of the present site at Foxlow Grange suggested this road was of two phases, one of sandy clay and a later phase with a revetment kerb of limestone blocks, although no metaling survived (Wroe 1982, 67-8). However, more recent investigations along the line of the earthwork in the same area recorded no traces of metaling and considered the ditches to represent a major land boundary perhaps constructed prior to the 17<sup>th</sup> century, serving as an administrative or tenurial boundary originating in the medieval period (Guilbert and Challis 1993, 48; 59).
- 6.1.3 The previous evaluation (Taylor and Hilton 2017) confirmed the absence of a Roman road along this line and indicated that the foundation trench for a stone wall cut an earlier ditch. The sequence of ditches and wall remnants in this area was interpreted to represent a series of field boundaries which remained undated. However, as the line appears on a 1614 map as the outer bounds of Harlington Manor it was thought probable that either the extant wall or one of the ditches was of medieval origin.
- 6.1.4 The present investigation sought to gain more data from these features through an archaeological Strip, Map and Record investigation alongside a programme of OSL dating. The investigation confirmed the results of the previous investigation in that no evidence for a Roman road was encountered. The ditches identified previously were revealed alongside two others which were also in close proximity along the same northwest-southeast alignment.

- 6.1.5 OSL dating of the ditch (GP5) alongside the foundation trench (GP4) of a stone wall produced a medieval date for the boundary. The foundation trench appeared to cut this ditch as well as being cut by a late medieval to early post-medieval ditch (GP3). This sequence alongside the radiometric and relative dating of the two features suggests that the medieval ditch, or the stone wall whose foundation trench probably replaced the ditch, probably represent the manorial boundary depicted on the 17<sup>th</sup> century map. Its placement immediately southwest of the post-medieval boundary suggests that the remains of the stone wall, or perhaps the bank of the ditch, represent the earthwork seen on 19<sup>th</sup> century maps labelled as a Roman road. The parish boundary on 19<sup>th</sup> century and subsequent maps, located northeast of the earthwork bank is represented by the remains of the extant drystone wall which was constructed over a shallow ditch of late medieval to early post-medieval date. As such it may be that the medieval ditch has an earlier antecedent as parish boundaries often follow such administrative divisions derived from Middle Saxon or earlier land holdings.
- 6.1.6 OSL dating of a ditch (GP3) located on the same northwest-southeast alignment, between the ditch for the extant drystone wall and the medieval wall foundation cut, gave a late medieval to very early post-medieval date. It may be the case that this represents an earlier incarnation of the current late medieval to post-medieval boundary. The dating suggests this could have occurred between the two medieval boundaries and present probable post-medieval boundary. This interpretation is in line with that proposed in the previous evaluation which suggested that the ditches represent a broad sequence of the same boundary being re-dug and demarcated through time.
- 6.1.7 Finally, OSL dating of ditch [GP2], located underneath the extent drystone wall field boundary, as well as underneath what has previously been considered the agger of the Roman Road and a gravel spread which might be misinterpreted as a metalled surface, has given Late Medieval to Post-Medieval dates. Providing unambiguous evidence that the Roman Road 'The Street' is not present here and that the earthwork represents a boundary of Medieval to later date.
- 6.1.8 Shallow ditches (GP1 and GP6) to either side of the four dateable ditches, which were not observed in the previous evaluation produced no artefactual material and no samples were retrieved for dating. However, these features respect the same northwest-southeast alignment as the other ditches and could possibly represent earlier instances of this boundary.

## 6.2 SIGNIFICANCE OF RESULTS

The aims and research objectives of the investigation were largely fulfilled in that the heritage assets at the site were recorded and further data regarding their date, character and significance were obtained, allowing the features to be interpreted in their wider landscape context. The sequence of ditches identified in the previous evaluation was

exposed and a further two ditches were identified. The present investigation largely confirmed the interpretations given in the previous evaluation and strengthened these through a programme of OSL dating which produced radiometric dates for three of ditches and a relative date for a fourth. The excavation confirmed the lack of physical evidence for the Roman Road 'The Street' and the programme of OSL dating provided conclusive evidence that the road does not exist in this area by dating features and deposits underneath the earthwork bank (agger) to the Late Medieval to Post-Medieval periods.

## **7 ACKNOWLEDGEMENTS**

Pre-Construct Archaeology Ltd would like to thank CgMs consulting for commissioning the work. Additional thanks go to Steve Baker, the Derbyshire Planning Archaeologist, for monitoring the site. Gary Taylor of PCA Newark managed the site and edited the report.

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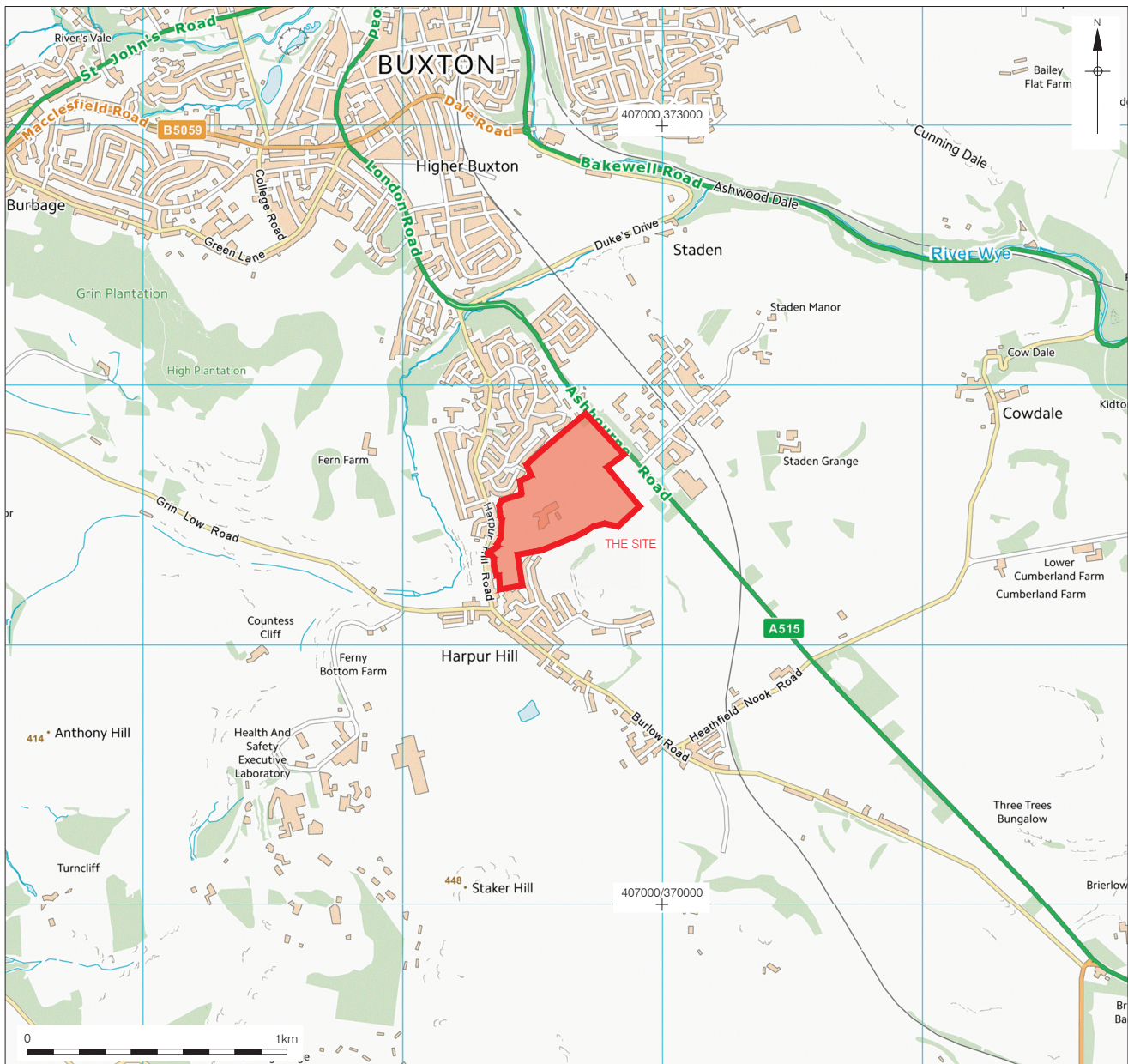
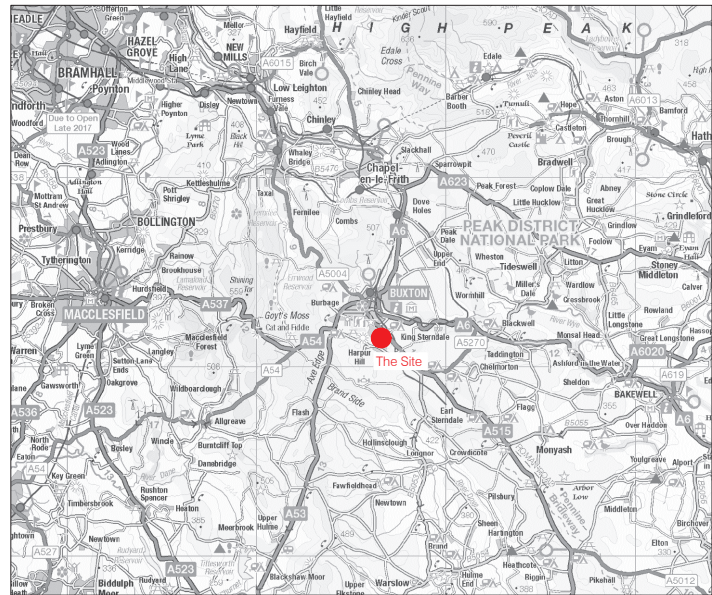
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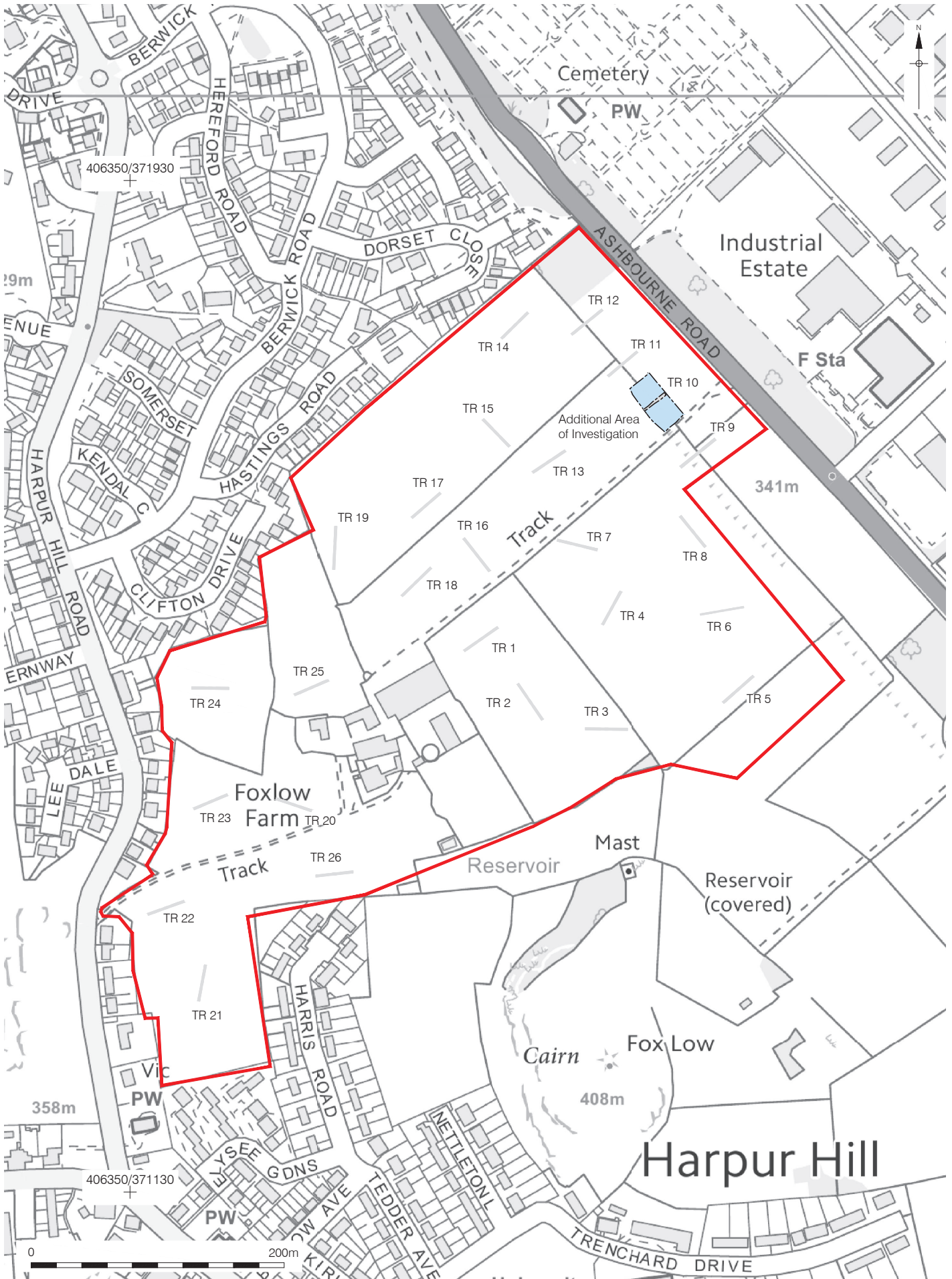


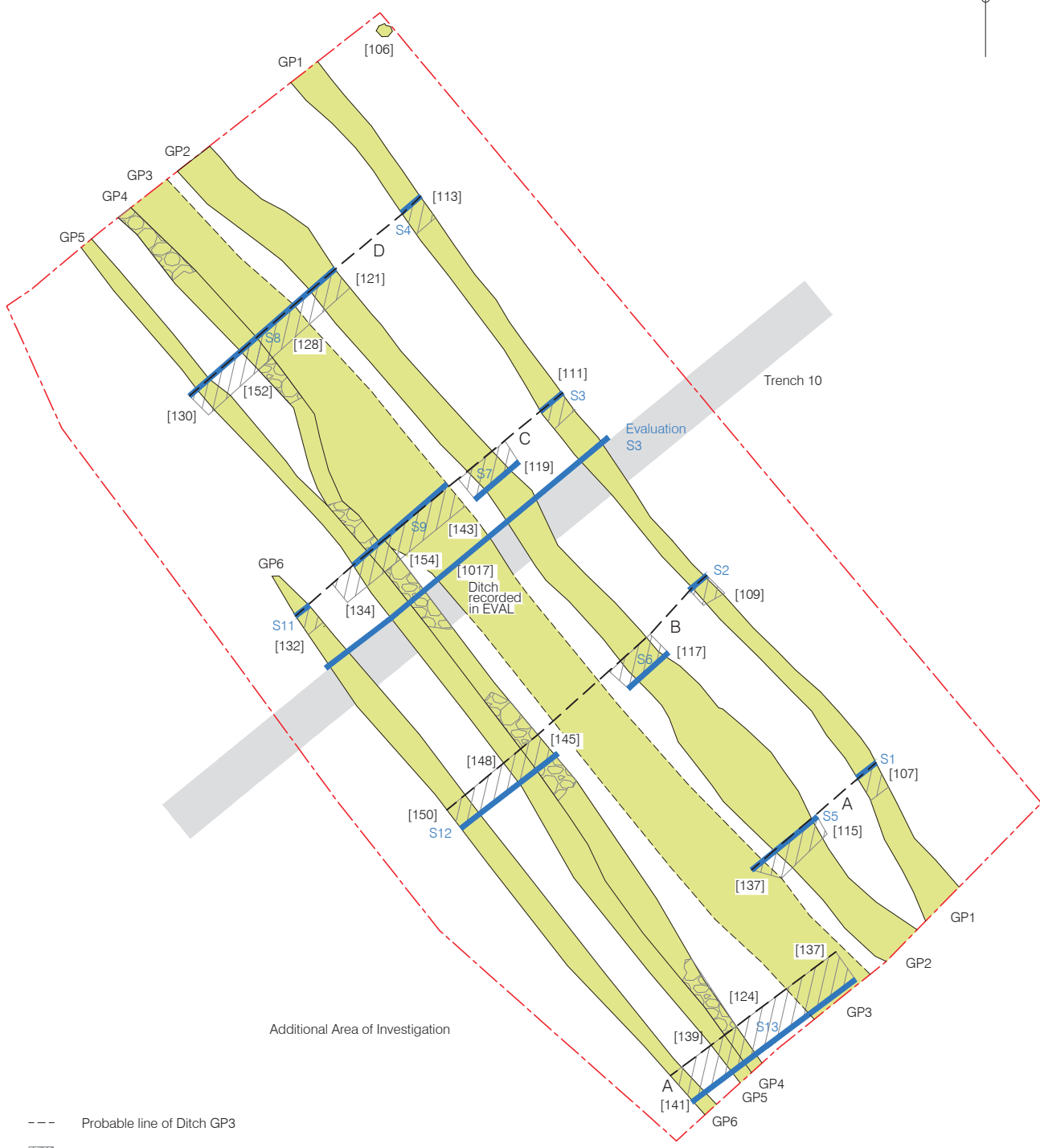


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 28/06/18 MS

Figure 1  
 Site Location  
 1:2,000,000; 400,000 & 25,000 at A4











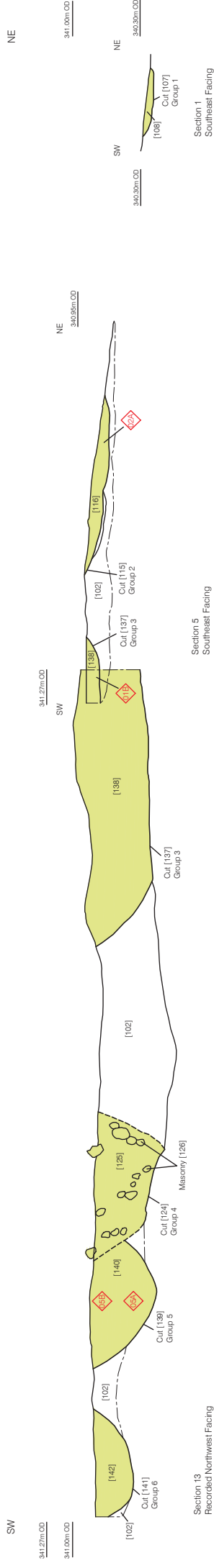
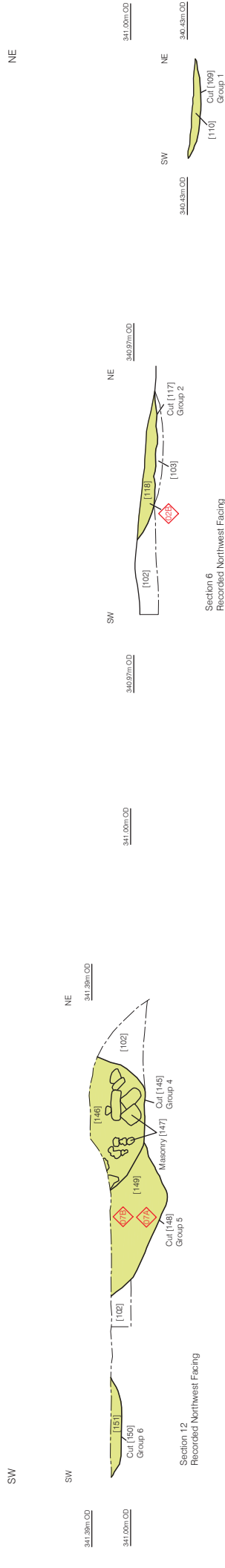
- Probable line of Ditch GP3
-  Remnants of Stone Foundation
-  Archaeological Feature
-  Excavated Slot
-  Evaluation Trench
- Line of composite section (Figures 4 and 5)



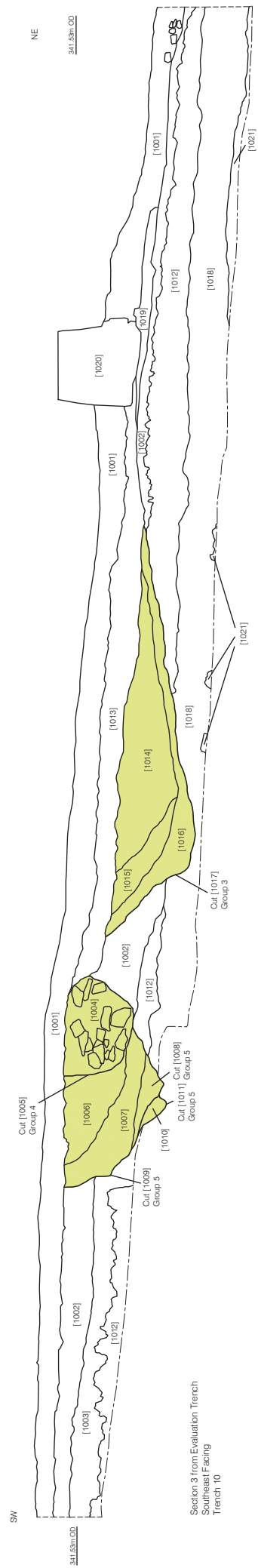
Figure 3  
Trench Plan  
1:250 at A4



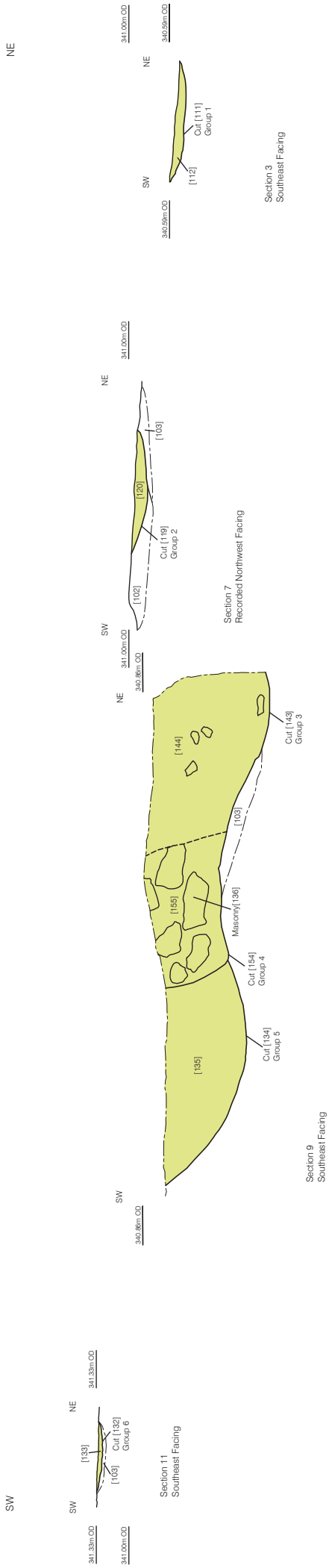
Composite section A: Section 13 (mirrored), Section 5, and Section 1 Southeast Facing



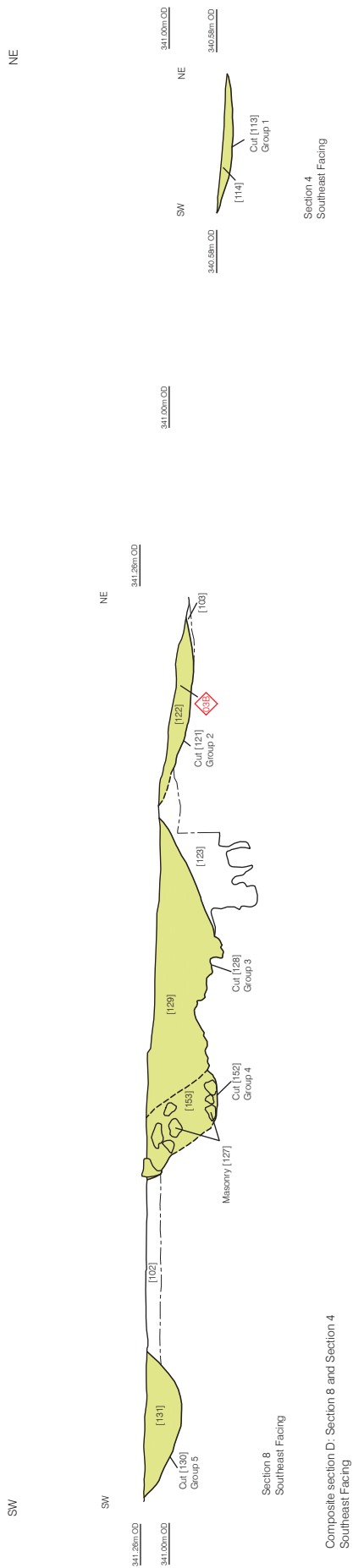
Composite section B: Section 12 (mirrored), Section 6 (mirrored) and Section 2 Southeast Facing



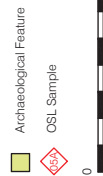


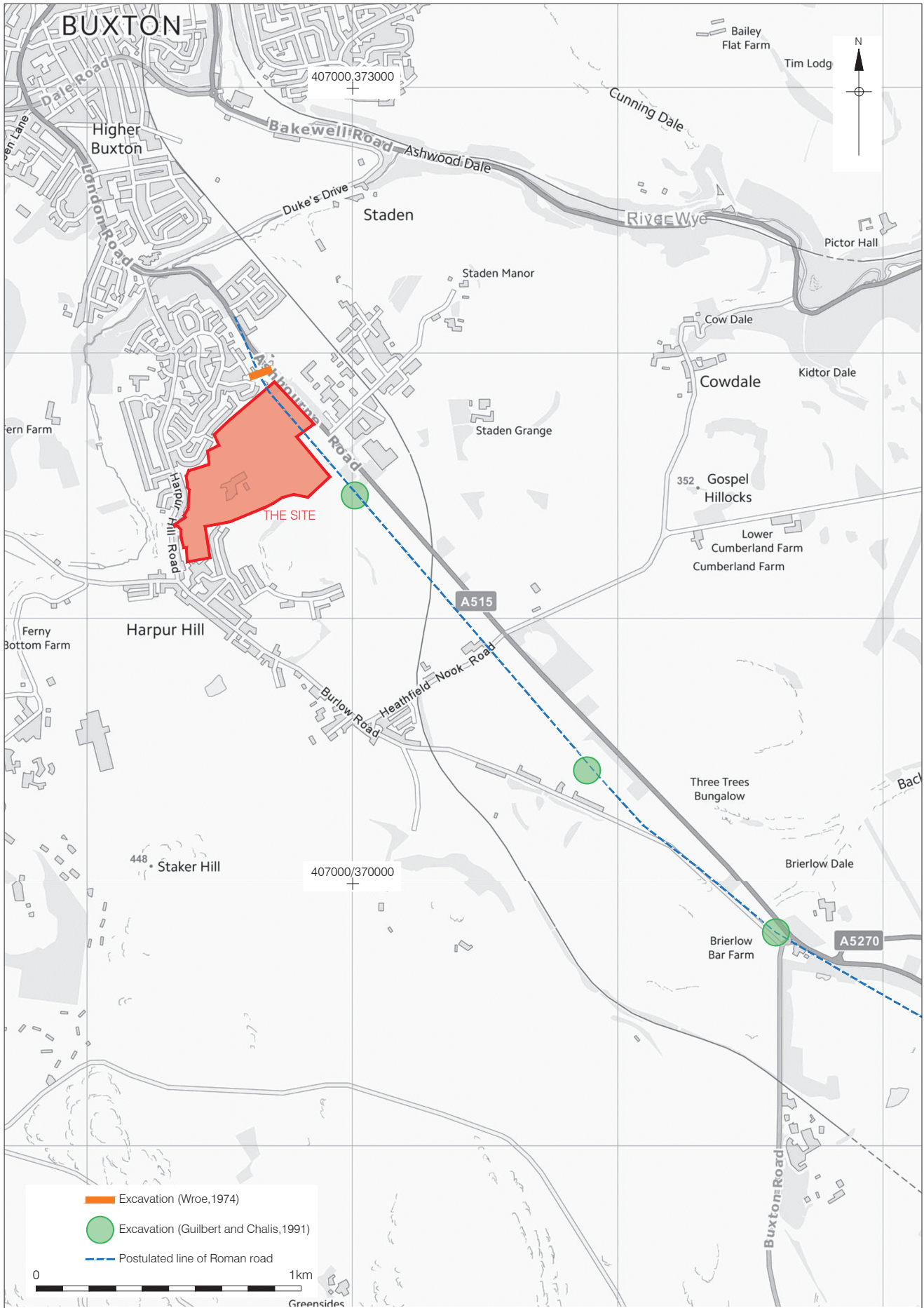


Composite section C: Section 11, Section 9, Section 7 (mirrored) and Section 3 Southeast Facing



Composite section D: Section 8 and Section 4 Southeast Facing





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Figure 6  
 Previous Excavations  
 1:20,000 at A4



- OSL Sample
- Probable line of Ditch F3
- Archaeological Feature
- Excavated Slot
- Evaluation Trench



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03/04/19 DV

Figure 7  
OSL Sample Location  
1:250 at A4



## APPENDIX 1: SITE PHOTOGRAPHS



Plate 1: Shot of site looking northwest



Plate 2: Shot of site looking southeast showing extant drystone wall





Plate 3: Section 2, shallow ditch [GP1], looking northwest

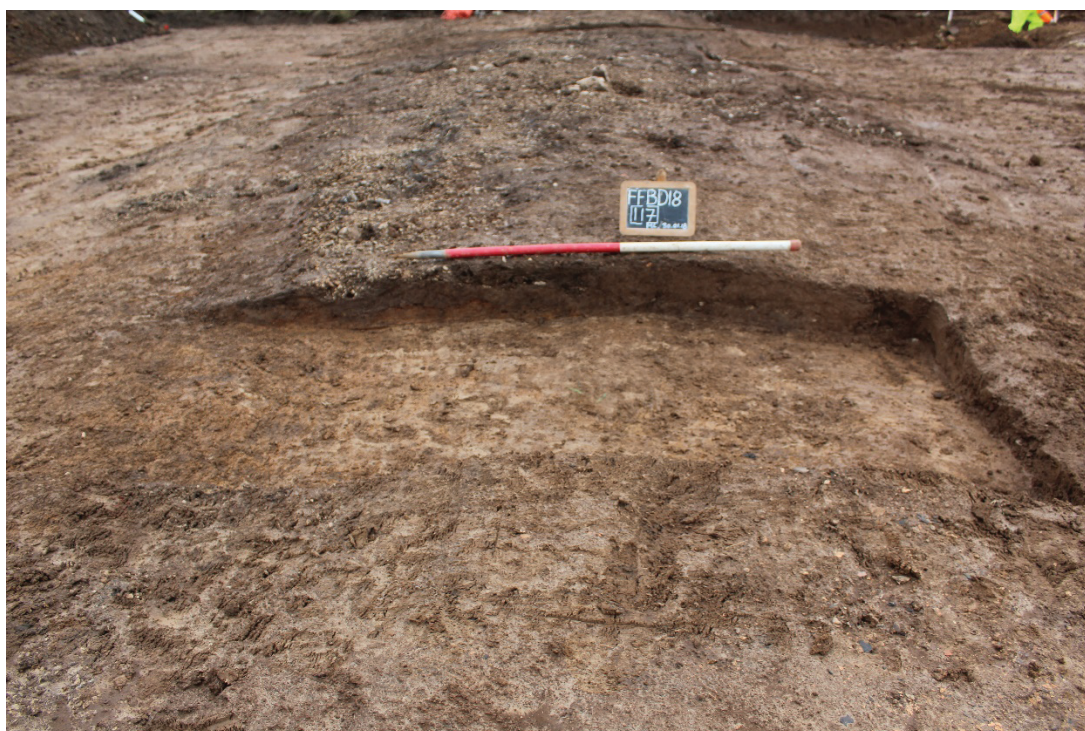


Plate 4: Section 6, present drystone wall construction cut [GP2] showing gravel fill which drystone wall is constructed upon





Plate 5: Ditch [GP3], Section 7, looking southeast (previous evaluation trench cuts across the feature in the background)



Plate 6: Wall foundation trench [GP4] exposed, looking northwest





Plate 7: Section 12, wall foundation trench [GP4] on left, truncating medieval ditch [GP5]



Plate 8: Section 11, shallow linear feature [GP6], looking northwest

## APPENDIX 2: CONTEXT SUMMARY

Context	Category	Description			Interpretation	Dimensions (m)	Above	Below
		Colour	Texture	Inclusions				
101	Layer	Dark brown	Sandy silt	Occasional pebbles	Topsoil	0.2	102	-
102	Layer	Mid greyish brown	Sandy silt	Occasional pebbles	Subsoil	0.15	103	101
103	Deposit	Light grey-yellow	Silty clay	-	Natural	>0.1	-	102
104	Cut	Linear feature under wall – possible gravel track way			Gravel track way	>40 x 1 x 0.1	103	
105	Cut	Linear in plan, very shallow, disappears in places			Stone-filled ditch/field boundary	>40 x 0.7 x 0.1	103	
	Cut	Sub-circular in plan			Possible tree throw	c. 0.5m diameter	103	



106									
107	Cut	Linear shape in plan, shallow sides and concave base	Field boundary or furrow	>40 x 0.7 x 0.1	103	108			
108	Fill	Mid orangey brown Occasional gravel, concentrated at top of context	Fill of [107]	1 x 0.7 x 0.1	107	102			
109	Cut	Linear shape in plan, shallow sides and concave base	Field boundary or furrow	>40 x 1 x 0.12	103	110			
110	Fill	Mid orangey brown Occasional gravel, concentrated at top of context	Fill of [109]	1 x 1 x 0.12	109	102			
111	Cut	Linear shape in plan, shallow sides and concave base	Field boundary or furrow	>40 x 1.2 x 0.16	103	112			
112	Fill	Mid orangey brown Occasional gravel, concentrated at top of context	Fill of [111]	1 x 1.2 x 0.16	111	102			
113	Cut	Linear shape in plan, shallow sides and concave base	Field boundary or furrow	>40 x 1.2 x 0.14	103	114			

114	Fill	Mid orangey brown	Silty sand	Occasional gravel, concentrated at top of context	Fill of [113]	1 x 1.2 x 0.14	113	102
115	Cut	Linear in plan, shallow sides and concave base.			Possible droveway	>40 x 1.8 x 0.15	103	116
116	Fill	Mid orangey brown	Silty sand	Areas of dense gravel at top of context	Fill of [115]	>1 x 1.8 x 0.15	115	102
117	Cut	Linear in plan, shallow sides and concave base.			Possible droveway	>40 x 1.4 x 0.12	103	118
118	Fill	Mid orangey brown	Silty sand	Areas of dense gravel at top of context	Fill of [117]	>1 x 1.4 x 0.12	117	102
119	Cut	Linear in plan, shallow sides and concave base.			Possible droveway	>40 x 1.2 x 0.15	103	120
120	Fill	Mid orangey brown	Silty sand	Areas of dense gravel at top of context	Fill of [119]	>1 x 1.2 x 0.15	119	102
121	Cut	Linear in plan, shallow sides and concave base.			Possible droveway	>40 x 1.6 x 0.15	103	122

122	Fill	Mid orangey brown	Silty sand	Areas of dense gravel at top of context	Fill of [121]	>1 x 1.6 x 0.15	121	102
123	Deposit	Limestone pieces, of irregular shape, weathered, in an irregular arrangement			Weathered limestone outcrop – natural feature	>1 x >2.5 x >0.5	103	103
124	Cut	Linear in plan, steep sides and concave base			Cut for wall footing	>40 x 0.6 x 0.54	138/140	125
125	Fill	Mid greyish brown	Sandy silt	-	Fill of [124]	>1 x 0.6 x 0.54	126	102
126	Structure	Limestones, average size 0.3m x 0.3m x 0.15m, arranged as a wall footing. Linear in plan.			Wall footing	>40 x 0.6 x 0.4	124	125
127	Structure	Limestones, average size 0.3m x 0.3m x 0.15m, arranged as a wall footing. Linear in plan.			Wall footing	>10 x 0.5 x 0.4	152	153
128	Cut	Cut, visible in section only, moderate sides and concave base.			Field boundary ditch	>1 x >2.5 x 0.7	103	129
129	Fill	Mid orangey brown	Sandy silt	Occasional limestone	Mid orangey brown	>1 x >2.5 x 0.7	128	102
130	Cut	Linear in plan, moderate sides and a concave base. Contains a single homogenous fill			Ditch	>40 x 1.3 x 0.34	103	131

131	Fill	Mid to dark greyish brown	Sandy silt	Occasional limestone fragments	Fill of ditch	>1 x 1.3 x 0.34	130	102
132	Cut	Linear in plan but meanders a little. Very shallow, disappears in places. Very shallow sides; concave/irregular base.			Ditch or hedgerow	>40 x 0.7 x 0.05	103	133
133	Fill	Mid orange-brown	Sandy silt	-	Fill of [132]	>1 x 0.7 x 0.05	132	102
134	Cut	Linear in plan, moderate sides and a concave base			Ditch	>40 x >1.15 x 0.4	103	135
135	Fill	Mid to dark greyish brown	Sandy silt	Occasional limestone fragments	Fill of ditch [134]	>1 x >1.15 x 0.4	134	102
136	Structure	Limestones, average size 0.3m x 0.3m x 0.15m, arranged as a wall footing. Linear in plan.			Wall footing	>40 x 0.7 x 0.4	154	155
137	Cut	Linear in plan, steep sides and concave base			Cut for wall footing	>40 x 0.6 x 0.54	135	
138	Fill	Mid greyish brown	Sandy silt	-	Fill of [137]	>1 x 0.6 x 0.54	137	
139	Cut	Linear in plan, moderate sides and concave base			Ditch	>1 x >1 x 0.6	103	140



140	Fill	Mid-dark greyish brown	Sandy silt	Occasional limestone fragments	Homogenous fill of ditch [139]	>1 x >1 x 0.6	139	102
141	Cut	Linear in plan, very shallow sides and concave/irregular base. Contained a single homogenous fill.			Cut of boundary ditch/hedgerow/furrow	>30 x 1 x 0.1	103	142
142	Fill	Mid orange-brown	Silty sand	-	Fill of [141]	>1 x 1 x 0.1	141	102
143	Cut	Linear in plan, moderate sides and concave base			Boundary ditch	>1 x >1 x 0.6	103	144
144	Fill	Mid orange-brown	Sandy silt	Occasional limestone fragments	Homogenous fill of ditch [144]	>1 x >1 x 0.6	143	102
145	Cut	Linear in plan, steep sides and concave base.			Cut for wall footing	>40 x 0.6 x 0.54	103	146
146	Fill	Mid greyish brown	Sandy silt	-	Fill of wall footing [145]	>1 x 0.6 x 0.54	147	102
147	Structure	Limestones, average size 0.3m x 0.3m x 0.15m, arranged as a wall footing. Linear in plan.			Wall footing	>40 x 0.6 x 0.4	145	146
148	Cut	Linear in plan, moderate sides and a concave base. Contains a single homogenous fill.			Ditch	>40 x 1.4 x 0.36	103	149

149	Fill	Mid to dark greyish brown	Sandy silt	Occasional limestone fragments	Fill of ditch [148]	>1 x 1.4 x 0.36	148	102
150	Cut	Linear in plan, very shallow and disappears in places. Very shallow sides; concave/irregular base.			Ditch or hedgerow	>30 x 1 x 0.1	103	151
151	Fill	Mid orange-brown	Sandy silt	-	Fill of [150]	>1 x 1 x 0.1	150	102
152	Cut	Cut for wall footing 127			Cut for wall footing 127	>3 x >0.4 x 0.3	103	127
153	Fill	Mid greyish brown	Sandy silt	-	Fill between wall footing stones 127	>1 x 0.4 x 0.3	127	102
154	Cut	Cut for wall footing 136			Cut for wall footing 136	>40 x 0.7 x 0.35	103	136
155	Fill	Mid greyish brown	Sandy silt	-	Fill between wall footing stones 136	>1 x 0.7 x 0.35	136	102
156	Cut	Cut, linear in plan, moderate sides and concave base.			Boundary ditch to the east of wall footing 147	>1 x >0.8 x 0.54	103	157
157	Fill	Mid orange-brown	Sandy silt	-	Fill of [156]	>1 x 0.8 x 0.54	156	102

## **APPENDIX 3: OSL DATING REPORT**

*Report on Optically Stimulated Luminescence (OSL) dating of 10 sediment samples from Foxlow Farm, Buxton, Derbyshire*

*By: Jean-Luc Schwenninger (University of Oxford Luminescence Dating Laboratory)*

### **INTRODUCTION**

This report describes the results of dating by Optically Stimulated Luminescence (OSL) of 10 sediment samples [01B, 02A, 02B, 03B, 04A, 04B, 05A, 05B, 07A, 07B] from the site of Foxlow Farm, Buxton, Derbyshire.

The samples were received on the 14<sup>th</sup> of February 2018 and preliminary results of the findings sent by email by the 23<sup>rd</sup> November 2018.

This report describes the final results and further details pertaining to the analysis of all samples from the site.

### **METHODOLOGY**

The results presented in this report are based on luminescence measurements of sand-sized quartz (180-255 $\mu$ ) extracted from the samples using standard preparation techniques including, wet sieving, HCl (10%) treatment to remove carbonates, HF treatment (48%) to dissolve feldspathic minerals and heavy mineral separation with sodium polytungstate.

Measurements were performed in automated luminescence readers made by Risø (Bøtter-Jensen, 1988, 1997, 2000) and Freiberg instruments (Richter et al 2015) using a SAR post-IR blue/green OSL measurement protocol (Murray and Wintle 2000, Banerjee *et al.* 2001, Wintle and Murray 2006).

Dose rate calculations are based on Aitken (1985) and in the absence of in-situ radioactivity measurements these are derived from the concentrations of radioactive elements (potassium, thorium, rubidium and uranium) within the sediment samples. These were derived from elemental analysis by ICP-MS/AES using a fusion sample preparation technique.

The final OSL age estimate includes an additional 4% systematic error to account for uncertainties in source calibration and measurement reproducibility. Dose rate calculations were obtained using dose rate conversion factors of Guerin et al. (2011) and calculated using the DRAC software (v1.02) developed by Durcan et al. (2015).

The contribution of cosmic radiation to the total dose rate was calculated as a function of latitude, altitude, burial depth and an average overburden density of 1.9gcm<sup>-3</sup> based on data by Prescott and Hutton (1994). Further details pertaining to the OSL dating and dose rate calculations of individual samples can be found in Table 2.

### **RESULTS**

The results of the OSL dating are presented in the table below (Table 1).

**Table 1: Summary of the Optically Stimulated Luminescence (OSL) dating.**

Client code	Lab. code	Burial depth (cm)	Measured water content (%)	Palaeodose (Gy)	Dose rate (Gy/ka)	OSL age estimate (years before 2018)	Calendar age AD
OSL 01B	X7297	69	29.2 [29±5]	1.30 ± 0.20	2.34 ± 0.09	555 ± 90	1373-1553
OSL 02A	X7298	51	28.1 [28±5]	1.17 ± 0.30	2.29 ± 0.09	515 ± 135	1368-1638
OSL 02B	X7299	45	24.1 [24±5]	[1.26 ± 1.21]	2.46 ± 0.09	510 ± 495	1013-2003
OSL 03B	X7300	59	25.8 [25±5]	1.10 ± 0.12	2.31 ± 0.09	475 ± 55	1488-1598
OSL 04A	X7301	66	27.9 [27±5]	0.44 ± 0.05	2.35 ± 0.09	185 ± 20	1813-1853
OSL 04B	X7302	61	28.7 [28±5]	0.45 ± 0.08	2.35 ± 0.09	190 ± 35	1793-1863
OSL 05A	X7303	72	25.6 [26±5]	2.27 ± 0.10	2.26 ± 0.09	1005 ± 60	953-1073
OSL 05B	X7304	48	25.7 [25±5]	1.80 ± 0.20	2.31 ± 0.09	780 ± 90	1148-1328
OSL 07A	X7305	72	26.9 [27±5]	1.90 ± 0.20	2.26 ± 0.08	845 ± 95	1078-1268
OSL 07B	X7306	51	25.7 [26±5]	1.70 ± 0.27	2.33 ± 0.09	730 ± 120	1168-1408

## DISCUSSION

The quartz mineral grains used for the OSL dating generally presented excellent signal characteristics including low thermal transfer, low variability between multiple measurements as well as good recycling and negligible infrared signals indicative of feldspar contamination.

The calculated OSL age estimates presented in Table 1 are based on twelve repeat measurements using a central age model. However, in the case of samples X7298-X7300, a minimum age model was considered to be more appropriate.



The observed overdispersion of the palaeodose distributions varied from 2 to 37% and with the exception of one of the samples (X7299; 02B), does not suggest any serious issues pertaining to partial bleaching of the mineral grains at deposition. This particular sample may have been affected by inadvertent exposure to some daylight during sampling or perhaps mixing as a result of bioturbation or anthropogenic disturbance.

The lack of in situ radioactivity measurements using a field gamma-ray spectrometer to determine the external gamma dose rate is not considered to be critical at this site given that most samples were collected from relatively thick and homogenous bodies of sediment. Furthermore, the concentrations of radioisotopes (K, Th, Rb and U) within the sediment are very consistent and there is little variation between the various samples.

All the samples were characterized by good sensitivity to laboratory induced irradiation and individual measurements on quartz multigrain single aliquots produced excellent growth curves.

The water contents recorded from the sediment contained within the sealed bulk samples and OSL tubes varied between 22% and 29%. These values were considered to be representative of the mean moisture contents experienced by the samples throughout the burial period and as such, rate calculations were based on these values.

In the case of sample X7299, the wider distribution of the multigrain single aliquots suggests that not all the mineral grains may have been fully reset. This is reflected in the large associated error margin of +/- 495 years. If necessary, more advanced single grain measurements could be carried out on this sample in order to improve the dating precision.

Table 1 provides a summary of the sample information and OSL dating results. Further details pertaining to the analysis of individual samples, including dose rate formation are provided in Table 2. The results of the full elemental analysis of the sediment samples by ICP-MS/AES appears in Table 3 which shows the chemical composition of the archaeological contexts.

**Table 2: Details of the OSL dating and radioactivity data**

Sample name Laboratory code	OSL-01B X7297	OSL-02A X7298	OSL02B X7299	OSL-03B X7300	OSL-04A X7301
<b>Palaeodose (Gy)</b>	<b>1.3</b>	<b>1.17</b>	<b>1.26</b>	<b>1.1</b>	<b>0.44</b>
uncertainty	<b>0.2</b>	<b>0.3</b>	<b>1.21</b>	<b>0.12</b>	<b>0.05</b>
<b>Grain size</b>					
Min. grain size (mm)	180	180	180	180	180
Max grain size (mm)	255	255	255	255	255
<b>Measured concentrations</b>					
standard fractional error	0.050	0.050	0.050	0.050	0.050
% K	1.37	1.34	1.44	1.28	1.34
error (%K)	0.07	0.07	0.07	0.06	0.07
Th (ppm)	11	10	10.6	10.3	10.5
error (ppm)	0.55	0.5	0.53	0.51	0.52
U (ppm)	3.4	3.3	3.2	3.3	3.5
error (ppm)	0.17	0.16	0.16	0.16	0.17
<b>Cosmic dose calculations</b>					
Depth (m)	0.69	0.51	0.45	0.59	0.66
error (m)	0.05	0.05	0.05	0.05	0.05
Average overburden density (g.cm <sup>3</sup> )	1.900	1.900	1.900	1.900	1.900
error (g.cm <sup>3</sup> )	0.100	0.100	0.100	0.100	0.100
Latitude (deg.), north positive	53	53	53	53	53
Longitude (deg.), east positive	2	2	2	2	2
Altitude (m above sea-level))	340	340	340	340	340
Cosmic dose rate (Gy/ka)	0.205	0.219	0.224	0.212	0.207
error	0.02	0.022	0.022	0.021	0.021
<b>Moisture content</b>					
Recorded moisture (%)	29	28	24	25	27
error	5	5	5	5	5
<b>Total dose rate, Gy/ka</b>	<b>2.343</b>	<b>2.286</b>	<b>2.459</b>	<b>2.307</b>	<b>2.354</b>
error	0.089	0.087	0.095	0.088	0.09
<b>OSL Age (years before 2018)</b>	<b>555</b>	<b>515</b>	<b>510</b>	<b>475</b>	<b>185</b>
error	<b>90</b>	<b>135</b>	<b>495</b>	<b>55</b>	<b>20</b>

Table 2 continued

Sample name Laboratory code	OSL-04B X7302	OSL-05A X7303	OSL05B X7304	OSL-07A X7305	OSL-07B X7306
<b>Palaeodose (Gy)</b>	<b>0.45</b>	<b>2.27</b>	<b>1.8</b>	<b>1.9</b>	<b>1.7</b>
uncertainty	<b>0.08</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.27</b>
<b>Grain size</b>					
Min. grain size (mm)	180	180	180	180	180
Max grain size (mm)	255	255	255	255	255
<b>Measured concentrations</b>					
standard fractional error	0.050	0.050	0.050	0.050	0.050
% K	<b>1.34</b>	<b>1.27</b>	<b>1.29</b>	<b>1.17</b>	<b>1.30</b>
error (%K)	0.07	0.06	0.06	0.06	0.07
Th (ppm)	<b>10.8</b>	<b>10.1</b>	<b>10</b>	<b>11.1</b>	<b>10.5</b>
error (ppm)	0.54	0.505	0.5	0.555	0.525
U (ppm)	<b>3.5</b>	<b>3.3</b>	<b>3.3</b>	<b>3.5</b>	<b>3.4</b>
error (ppm)	0.175	0.165	0.165	0.175	0.17
<b>Cosmic dose calculations</b>					
Depth (m)	0.61	0.72	0.48	0.72	0.51
error (m)	0.05	0.05	0.05	0.05	0.05
Average overburden density (g.cm <sup>3</sup> )	1.900	1.900	1.900	1.900	1.900
error (g.cm <sup>3</sup> )	0.100	0.100	0.100	0.100	0.100
Latitude (deg.), north positive	53	53	53	53	53
Longitude (deg.), east positive	2	2	2	2	2
Altitude (m above sea-level))	340	340	340	340	340
Cosmic dose rate (Gy/ka)	0.211	0.203	0.222	0.203	0.219
error	0.021	0.02	0.022	0.02	0.022
<b>Moisture content</b>					
Recorded moisture (%)	28	26	25	27	26
error	5	5	5	5	5
<b>Total dose rate, Gy/ka</b>	<b>2.353</b>	<b>2.261</b>	<b>2.308</b>	<b>2.255</b>	<b>2.335</b>
error	0.09	0.086	0.088	0.085	0.09
<b>Age (years before 2018)</b>	<b>190</b>	<b>1005</b>	<b>780</b>	<b>845</b>	<b>730</b>
error	<b>35</b>	<b>60</b>	<b>90</b>	<b>95</b>	<b>120</b>

**Table 3: Geochemical analysis of the sediment by fusion ICP-MS/AES**

Analyte Symbol	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub> (T)	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	TiO <sub>2</sub>	P <sub>2</sub> O <sub>5</sub>	LOI	Total
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%
Detection Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01
Analysis Method	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP
X7297	73.08	9.18	4.88	0.15	0.74	0.51	0.85	1.65	0.952	0.1	6.53	98.61
X7298	72.44	8.52	4.36	0.083	0.56	0.69	0.82	1.62	0.929	0.12	8.45	98.59
X7299	72.65	8.97	4.43	0.12	0.66	0.58	0.85	1.73	0.904	0.11	7.14	98.14
X7300	72.91	8.72	4.57	0.132	0.67	0.5	0.82	1.54	0.9	0.13	7.17	98.07
X7301	70.28	9.68	4.97	0.14	0.74	0.74	0.78	1.61	0.918	0.13	8.87	98.87
X7302	71.26	9.55	4.99	0.142	0.74	1.33	0.8	1.62	0.946	0.12	9.14	100.7
X7303	73.23	8.66	4.76	0.12	0.65	0.59	0.79	1.53	0.985	0.12	7.77	99.2
X7304	72.55	9.04	4.76	0.108	0.58	0.55	0.81	1.55	0.933	0.1	7.38	98.37
X7305	70.85	8.47	5.16	0.132	0.64	0.76	0.79	1.41	0.985	0.17	9.04	98.41
X7301DOSA	33.88	4.43	4.93	0.068	0.5	27.69	0.43	0.77	0.441	0.14	27.22	100.5

Analyte Symbol	Sc	Be	V	Ba	Sr	Y	Zr	Cr	Co	Ni	Cu	Zn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	1	1	5	3	2	2	4	20	1	20	10	30
Analysis Method	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
X7297	9	1	77	367	72	32	477	260	16	50	30	110
X7298	7	1	76	387	67	27	442	280	10	30	20	70
X7299	8	1	70	437	70	26	459	250	14	30	20	60
X7300	8	1	75	1297	73	28	479	280	14	40	20	80
X7301	9	1	83	372	68	28	401	240	16	40	30	130
X7302	9	1	83	370	70	29	423	290	16	50	40	150
X7303	8	1	77	370	66	29	472	290	12	30	20	60
X7304	8	1	79	365	72	27	544	250	12	30	20	70
X7305	8	1	82	318	70	32	609	270	13	30	20	80
X7301DOSA	5	< 1	50	252	118	15	246	130	6	30	20	60

Analyte Symbol	Ga	Ge	As	Rb	Nb	Mo	Ag	In	Sn	Sb	Cs	La
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	1	1	5	2	1	2	0.5	0.2	1	0.5	0.5	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
X7297	12	1	7	63	10	3	1.3	< 0.2	2	< 0.5	3.7	36.3
X7298	11	1	6	64	10	3	1.2	< 0.2	2	< 0.5	3.4	33
X7299	12	1	6	64	10	3	1.3	< 0.2	1	< 0.5	3.2	33.2
X7300	12	1	7	57	10	3	1.3	< 0.2	2	< 0.5	3.5	33.6
X7301	12	2	8	63	9	3	1.1	< 0.2	2	< 0.5	4.2	34.6
X7302	13	2	15	63	9	3	1.2	< 0.2	3	0.9	4	35
X7303	11	1	6	59	10	3	1.4	< 0.2	2	< 0.5	3.6	33.4
X7304	12	1	5	63	12	3	2.3	< 0.2	< 1	< 0.5	3.5	31.4
X7305	12	2	7	57	11	2	2.6	< 0.2	< 1	< 0.5	3.6	36.9
X7301DOSA	6	< 1	5	30	7	< 2	0.7	< 0.2	2	< 0.5	1.8	17.1

Analyte Symbol	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.05	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
X7297	76.3	8.4	31.1	6.1	1.18	5.5	0.9	5.5	1.2	3.5	0.56	3.6
X7298	66.3	7.31	26.4	5	0.94	4.2	0.8	4.8	1	2.9	0.46	3.2
X7299	66.9	7.34	26.9	4.9	0.97	4.5	0.8	4.6	1	3	0.47	3.1
X7300	69.7	7.7	28.9	5.8	1.1	4.9	0.9	5.1	1.1	3.3	0.48	3.5
X7301	72.9	7.88	29.2	5.6	1.11	5	0.8	5.2	1.1	3.1	0.47	3.3
X7302	73.7	8.09	30.3	5.8	1.13	4.9	0.9	5.3	1.1	3.2	0.5	3.4
X7303	67.5	7.6	27.5	5.1	1.09	4.6	0.8	5.1	1	3.2	0.47	3.3
X7304	64	7.26	25.6	5	0.96	4.6	0.8	4.7	1	3	0.43	3
X7305	73.3	8.24	30.5	6.4	1.11	5.5	0.9	5.5	1.1	3.5	0.57	3.6
X7301DOSA	33.2	3.83	14.4	2.9	0.6	2.5	0.4	2.7	0.5	1.6	0.23	1.5

Analyte Symbol	Lu	Hf	Ta	W	Ti	Pb	Bi	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.04	0.2	0.1	1	0.1	5	0.4	0.1	0.1
Analysis Method	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
X7297	0.56	13	1	1	0.2	104	< 0.4	11	3.4
X7298	0.48	12	1	3	0.3	52	< 0.4	10	3.3
X7299	0.49	12.7	1.1	2	0.3	44	< 0.4	10.6	3.2
X7300	0.55	12.9	1	3	0.3	91	< 0.4	10.3	3.3
X7301	0.49	11.3	1	2	0.3	71	< 0.4	10.5	3.5
X7302	0.52	11.4	1	2	0.5	97	< 0.4	10.8	3.5
X7303	0.51	13.1	1.1	4	0.3	47	< 0.4	10.1	3.3
X7304	0.53	12.6	1	6	0.1	63	< 0.4	10	3.3
X7305	0.55	13	1	< 1	0.2	48	< 0.4	11.1	3.5
X7301DOSA	0.22	6.4	0.5	3	0.1	45	< 0.4	4.8	1.9

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## **APPENDIX 4: ENVIRONMENTAL ARCHAEOLOGY REPORT**

### **AN EVALUATION OF THE CHARRED PLANT MACROFOSSILS AND OTHER REMAINS FROM FOXLOW FARM, BUXTON, DERBYSHIRE (FFBD 18)**

**Val Fryer, Environmental Archaeologist**

**March 2019**

#### **Introduction and method statement**

Excavations at Foxlow Farm were undertaken by Pre-Construct Archaeology. The work recorded a limited number of features of probable medieval date. Samples for the evaluation of the content and preservation of the plant macrofossil assemblages were taken, with the following two being selected for an initial assessment:

Sample 1	Context 129	Dated 14 <sup>th</sup> – 16 <sup>th</sup> century
Sample 6	Context 140	Dated 10 <sup>th</sup> – 11 <sup>th</sup> century

The samples were processed by manual water flotation/washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x16 and the plant macrofossils and other remains noted are listed below in Table 1. All plant remains were charred. Occasional modern roots and arthropod remains were also recorded.

The non-floating residues were collected in a 1mm mesh sieve and sorted when dry. Artefacts/ecofacts were not recorded.

#### **Results**

Both assemblages are small (i.e. <0.1 litres in volume) and extremely limited in composition. Charcoal/charred wood fragments and small pieces of charred root/stem are noted, but the only other plant macrofossil is an indeterminate and very poorly preserved cereal grain within the assemblage from sample 1.

Other remains include pieces of natural ferrous concretion (iron pan), vitreous concretions, small pieces of coal and severely abraded bone fragments.

## **Conclusions**

In summary, the assemblages are too sparse for any specific interpretation of the remains. However, it is suggested that activities using very high temperature combustion may have been occurring somewhere within the vicinity.

<b>Sample No.</b>	<b>1</b>	<b>6</b>	
<b>Context No.</b>	<b>129</b>	<b>140</b>	
Cereal indet. (grain)	x		
Charcoal <2mm	x	x	
Charcoal >2mm	x	xx	<b>Key to Table</b>
Charred root/stem	x	x	x = 1 – 10 specimens
Mineral replaced root channels		x	xx = 11 – 50 specimens
Black porous material	x	x	
Bone	x	x	
Natural ferrous concretions	x	x	
Small coal frags.	x	x	
Vitreous material	x	x	
<b>Sample volume (litres)</b>	<b>40</b>	<b>40</b>	
<b>Volume of flot (litres)</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	
<b>% flot sorted</b>	<b>100%</b>	<b>100%</b>	

Table 1. Charred plant macrofossils and other remains from Foxlow Farm, Buxton, Derbyshire

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**OASIS ID: preconst1-347928**

### Project details

Project name	Strip, map and record investigation on land at Foxlow Farm, Harpur Hill, Buxton, Derbyshire
Short description of the project	Strip, map and record on an area where a Roman road was postulated. Previous evaluation found no conclusive evidence for a road though ditches and a linear gravel spread considered to be post-medieval were revealed. The present investigation examined the remains and obtained OSL dates that indicated the earliest ditch was 11th-12th century, while other ditches and the gravel spread were 15th-16th century.
Project dates	Start: 22-01-2018 End: 08-02-2018
Previous/future work	Yes / No
Any associated project reference codes	FFBD18 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Cultivated Land 1 - Minimal cultivation
Monument type	DITCHES Medieval
Significant Finds	NONE None
Investigation type	""Part Excavation""
Prompt	National Planning Policy Framework - NPPF

### Project location

Country	England
Site location	DERBYSHIRE HIGH PEAK BUXTON Foxlow Farm, Harpur Hill
Study area	900 Square metres
Site coordinates	SK 0677 7175 53.242450945415 -1.898542408178 53 14 32 N 001 53 54 W Point

### Project creators

Name of Organisation	PCA Newark
Project brief originator	CGMS Heritage (part of the RPS Group)
Project design originator	CgMs Heritage
Project director/manager	Gary Taylor
Project supervisor	Mark Williams
Type of sponsor/funding body	Developer

### Project archives

Physical Archive Exists?	No
Digital Archive recipient	Archaeology Data Service
Digital Contents	"Environmental", "Stratigraphic", "Survey", "other"
Digital Media available	"Geophysics", "Images raster / digital photography", "Images vector", "Survey", "Text"
Digital Archive notes	All paper archive scanned and will be stored on ADS.
Paper Archive recipient	PCA
Paper Contents	"Environmental", "Stratigraphic", "Survey", "other"
Paper Media available	"Context sheet", "Correspondence", "Diary", "Map", "Matrices", "Miscellaneous Material", "Photograph", "Plan", "Report", "Section", "Survey "
Paper Archive notes	As all the archive will be digitally stored on ADS, the physical copy of the paper archive will not be retained.

### Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Land at Foxlow Farm, Buxton, Derbyshire: An Archaeological Strip, Map and Record Investigation
Author(s)/Editor(s)	Failes, A.
Other bibliographic details	R13641
Date	2019
Issuer or publisher	PCA Newark
Place of issue or publication	Newark

Description            A4 comb-bound

Entered by            G Taylor (gtaylor@pre-construct.com)

Entered on            30 September 2019

## OASIS:

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