

# LOWER BROCKHOLES QUARRY, PRESTON, LANCASHIRE



## ARCHAEOLOGICAL EXCAVATION INTERIM REPORT CP. No: 994/09 05/05/2010

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## *Quality Assurance*

This report covers works as outlined in the brief for the above-named project as issued by the relevant authority, and as outlined in the agreed programme of works. Any deviation to the programme of works has been agreed by all parties. The works have been carried out according to the guidelines set out in the Institute for Archaeologists (IfA) Standards, Policy Statements and Codes of Conduct. The report has been prepared in keeping with the guidance set out by North Pennines Archaeology Ltd on the preparation of reports.

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## SUMMARY

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North Pennines Archaeology Ltd were commissioned by Historic Environment Consultancy, on behalf of their clients Hargreaves Quarries North West Ltd, to undertake an archaeological excavation at Lower Brockholes Quarry, Preston, Lancashire (NGR SD 5780 3030). An Archaeological Watching Brief that had previously been undertaken by Oxford Archaeology North during topsoil-stripping operations in the Phase 3 Area identified a number of Late Neolithic / Early Bronze Age features within the development area which would be impacted on by the extraction. As a result, Doug Moir, Planning Officer (Archaeology) of Lancashire County Archaeology Service, required that a programme of archaeological excavation would be undertaken.

NPAL was contracted to undertake the Archaeological Excavation in the Phase 3 Area of the quarry, and Phase 2 Area. All works in the Phase 1 Area and the Watching Brief in the Phase 2 Area had previously been undertaken by Oxford Archaeology North.

The Archaeological Excavation was undertaken over fifteen days between the 7<sup>th</sup> and 25<sup>th</sup> September 2009 and recorded a number of features in both the Phase 2 and Phase 3 Areas. Three securely-dated prehistoric features were noted in the Phase 3 (OAN) area and one in the Phase 2 area. In addition to these there were a further 13 undated features that may have been of a similar Late Neolithic / Early Bronze Age date. The remains of an apparent field system in the Phase 3 Area appeared to post-date the Late Neolithic / Early Bronze Age activity, whilst post-medieval and modern drainage features were noted in both areas.

## ACKNOWLEDGEMENTS

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North Pennines Archaeology Ltd would like to thank Peter Wardle of The Historic Environment Consultancy, for commissioning the project, and for all assistance throughout the work. NPA Ltd would also like to thank Doug Moir, Planning Officer (Archaeology) Lancashire County Archaeology Service and Sue Stallibrass, English Heritage Regional Scientific Advisor, for all their advice. North Pennines Archaeology Ltd would also like to extend their thanks to Keith Bond of Hargreaves North West and all staff at the site for their help during this project.

The archaeological excavation was undertaken by Nigel Cavanagh, Helen Noakes, Tony Liddell, Kevin Mounsey, Sue Thompson, Claire Casey, Joe Doran, Anna Heldgren, Kier Strickland, Holly Smith, Joanne Wilkinson and Sabrina Gillman. The report was written by Nigel Cavanagh and the drawings were produced by Helen Noakes and Nigel Cavanagh. The project was managed by Matt Town, Project Manager for NPA Ltd. The report was edited by Matt Town, Project Manager for NPA Ltd.

## 1 INTRODUCTION

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### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 In September 2009, North Pennines Archaeology were invited by The Historic Environment Consultancy on behalf of their clients, Hargreaves North West Ltd, to undertake an Archaeological Excavation at Lower Brockholes Quarry, Preston, Lancashire (NGR SD 5780 3030; Figure 1), in advance of the commencement of quarrying operations in the Phase 2 and 3 Areas of the site. An Archaeological Watching Brief that had previously been undertaken by Oxford Archaeology North during topsoil-stripping operations in the Phase 3 Area identified a number of Late Neolithic / Early Bronze Age features within the development area that would be impacted by the quarry. As a result, Doug Moir, Planning Officer (Archaeology) of Lancashire County Archaeology Service, required that archaeological excavation be undertaken. This is in line with government advice as set out in the DoE Planning Policy Guidance on Archaeology and Planning (PPG 16).
- 1.1.2 All stages of the archaeological work were undertaken following accepted best practice, and were consistent with a Project Design that was prepared by North Pennines Archaeology Ltd (Town 2009) to a specification provided by The Historic Environment Consultancy.
- 1.1.3 This report outlines the excavation works undertaken on-site, the subsequent programme of post-fieldwork analysis, and the results of this scheme of archaeological works.

## 2 METHODOLOGY

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### 2.1 PROJECT DESIGN

2.1.1 A project design was submitted by North Pennines Archaeology Ltd in response to a request by The Historic Environment Consultancy for an archaeological excavation of the study area. Following acceptance of the project design by Doug Moir, Planning Officer (Archaeology) of Lancashire County Archaeology Service, North Pennines Archaeology Ltd was commissioned by the client to undertake the work. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute for Archaeologists (IfA), and generally accepted best practice.

### 2.2 THE ARCHAEOLOGICAL EXCAVATION

2.2.1 The aims and principal methodology of the archaeological excavation can be summarised as follows:

- *to establish the nature and extent of archaeological remains within the development areas and to preserve them by record;*
- *to accurately tie the results of the excavation into the National Grid at an appropriate scale, with any archaeological deposits and features adequately levelled;*
- *to sample environmental deposits encountered as required, in line with English Heritage (2002) guidelines;*
- *to produce a photographic record of all contexts using colour digital, 35mm colour slide and monochrome formats, each photograph including a graduated metric scale;*
- *to recover artefactual material, especially that useful of dating purposes;*
- *to produce a site archive in accordance with MAP2 (English Heritage 1991) and MoRPHE standards (English Heritage 2006).*

2.2.2 Archaeological excavations were undertaken in two adjacent parts of the quarry which corresponded to the Phase 2 and Phase 3 Areas. The areas to excavate were of a curvilinear area measuring 40m x 160m, the footprint of which was thought to correspond to the line of a sub-surface sandbar that had been identified previously (Gearey and Tetlow 2006). The Phase 3 Area lay immediately to the south of the Phase 2 Area and work here focused upon the cleaning, excavation and recording of a number of features within a 16m x 100m area that had previously been exposed during a Watching

Brief conducted by Oxford Archaeology North on an area of the same sand bar.

### 2.3 *THE ARCHIVE*

- 2.3.1 A full professional archive has been compiled in accordance with the specification, and in line with current UKIC (1990) and English Heritage Guidelines (1991) and according to the Archaeological Archives Forum recommendations (Brown 2007). The archive will be deposited within an appropriate museum, with copies of the report sent to the County Historic Environment Record at Preston, available upon request. The archive can be accessed under the unique project identifier LBQ-A, CP 994/09.
- 2.3.2 Details of the results of this project will be made available by North Pennines Archaeology, on OASIS.

### 3 BACKGROUND

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#### 3.1 LOCATION AND GEOLOGICAL CONTEXT

- 3.1.1 Lower Brockholes Quarry lies approximately 500m to the east of the Ribbleton Hall area of Preston and is situated immediately to the west of the M6 motorway and to the north of the A59 Preston to Skipton road at NGR SD 5780 3030 (Fig.1 ). The site covers an area of approximately 24.4 Ha and is bounded to the east by the M6, to the north and west by agricultural land and to the south by the River Ribble. The central and eastern part of the site consists, at the time of the excavation of open quarry workings and a processing plant, whilst the remainder of the site is occupied by rough pasture. The Phase 2 and 3 Areas lie within the existing quarry boundary, to the west and north-west of the existing open workings.
- 3.1.2 The geology of the site comprises riverine sands and gravels which overlie Bunter sandstone (British Geological Survey North Sheet, Third Edition 1979).

#### 3.2 HISTORICAL CONTEXT

- 3.2.1 *Introduction:* this historical background is compiled mostly from secondary sources, and is intended only as a brief summary of historical developments specific to the study area.
- 3.2.2 *Palaeoenvironmental Evidence:* a geological survey of the site (Geary and Tetlow 2006) shows it to consist of subsurface sediments of sands and gravels, overlain by sands and silts, which were deposited as a result of glacial and riverine landscape processes before the River Ribble stabilised in its current channel. The sub-fossil remains of insects and pollen indicate that in the period circa 4000 years bp (before the present), the landscape was characterised by braided, meandering lowland river channels interspersed with marshland and peat. Away from the immediate riverside environs, the landscape consisted of mixed woodland.
- 3.2.3 *Neolithic:* evidence of Neolithic activity in the region comes mainly from lithic scatters, with distribution patterns indicating the exploitation of river valley bottom sites (OAN 2006). At Bonds Farm, Pilling Moss, for example, excavations yielded a series of post and stake holes that have been interpreted as the remains of a transient camp (*ibid*). The evidence for lowland settlement in general remains scanty, although the palaeoenvironmental evidence indicates that the primary forest cover was being cleared in small-scale episodes for cultivation from the Neolithic

period onwards (Barrowclough 2008). This pattern of woodland clearance continued into the Bronze Age (OAN 2006).

### 3.3 *PREVIOUS WORK*

- 3.3.1 An Archaeological Watching Brief was conducted by Oxford Archaeology North during topsoil and subsoil stripping operations in the Phase 3 Area of the quarry. A number of linear features were uncovered, together with a series of pit-like features. Fragments of Late Neolithic/Early Bronze Age pottery and a single struck flint were recovered during the Watching Brief, suggesting that some or possibly all of the features were of that date.

## 4 ARCHAEOLOGICAL EXCAVATION

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### 4.1 INTRODUCTION

- 4.1.1 The archaeological excavation consisted of two main elements. The first involved the cleaning, excavation and recording of a series of archaeological features that had previously been identified by Oxford Archaeology North during topsoil stripping operations in the Phase 3 area of the quarry. The second involved the cleaning, excavation and recording of features in what was thought to be a sand bar the Phase 2 area of the quarry (Figure 2).
- 4.1.2 The Phase 3 area was situated close to the existing western boundary of the quarry and consisted of a rectangular area that measured approximately 100m x 22m.
- 4.1.3 Work in the Phase 3 area concentrated upon the excavation and recording of a number of features that had been previously identified by Oxford Archaeology North. In accordance with the Project Design approved by Historical Environment Consultancy, additional archaeological cleaning of the previously stripped area was confined to the immediate vicinity of features that had already been identified by Oxford Archaeology North. All the features marked on the OAN survey of the area were identified and investigated. One additional feature was identified.
- 4.1.4 The Phase 2 excavation area measured 135m x 48m and was situated in the northern part of the quarry. The excavation area was sited on the projected alignment of the sand bar identified in the Phase 3 area to the south. In the event, topsoil stripping in this area revealed not one but three sand bars which were separated by silty clay deposits. These were all situated to the east of the sand bar identified in the Phase 2 area, which was found to continue in a north-westerly direction and evidently extended beyond the western quarry boundary. The prehistoric landscape was thus one of complex braided river channels, islets and marshes. Relatively few features were identified in the excavation area, reflecting the complex nature of the prehistoric terrain.
- 4.1.5 A number of features that were investigated in both areas appeared to be of natural origin. The main criteria for this interpretation were the lack of any archaeological form or function evident in the morphology of the feature, the lack of any identifiable cut to the feature, and sterile fills or deposits with no obvious archaeological origin, finds or diagnostic residues.
- 4.1.6 Two distinct types of archaeological features were encountered during the excavation. Firstly, an apparent pit group of circular, sub-circular and

elongated features and secondly, a series of linear features which ran on a broad east to west alignment.

#### 4.2 *LATE NEOLITHIC / EARLY BRONZE AGE FEATURES*

4.2.1 Two pits were identified that contained Late Neolithic / Early Bronze Age pottery (contexts 102 and 104). The two features were located close to one another near to the western boundary of the site.

4.2.2 [102] had a shallow concave profile, a diameter of 0.86m and a depth of 0.14m. The basal fill (124) consisted of sandy clay silt, whilst the silty sand upper fill (103) contained a single sherd of Late Neolithic / Early Bronze Age pottery. Both deposits contained fragments of charcoal that was sampled for radiocarbon dating.

4.2.3 [104] was situated approximately 2m to the south of [102]. The feature was circular in plan, with a steeply-sloping V-shaped profile, with a slight break of slope evident on the eastern side. The basal fill (109) consisted of clayey sand and contained several small sherds of Late Neolithic / Early Bronze Age pottery. The upper sandy clay fill (105) contained sherds of Late Neolithic Grooved Ware pottery and a chert flake. Both deposits contained fragments of charcoal that was sampled for radiocarbon dating.

4.2.4 An isolated posthole [139] was situated approximately 15m to the north-east of [102]. It had a vertical-sided, concave-based profile and was 0.07m deep (12.85m AOD), with a diameter of 0.20m. A single fragment of flint (SF 2) was recovered from the silty clay fill (140).

4.2.5 A single pit in the Phase 2 excavation area [244] yielded dateable finds. [244] was of a somewhat irregular plan and was 2.95m long, 1.60m wide and 0.21m deep, with a steeply-sloping profile and a flat base. The silty clay fill (202) contained large quantities of ash and charcoal and yielded two worked pieces of chert and a worked flint.



*Plate 1: Pit [102]. Facing North.*



*Plate 2: Pit [104]. Facing South.*

### 4.3 *UNDATED FEATURES*

- 4.3.1 The majority of the excavated features produced no dateable finds evidence, with the result that is difficult to assign them to a particular archaeological epoch. However, the likelihood is that the majority of the following pit-like features were of a similar broad Late Neolithic / Early Bronze Age date to those described above which produced finds. This deduction is largely based upon the similar morphology of the features and their fills.
- 4.3.2 An isolated posthole [122] was situated approximately 10m to the north-east of [102]. This feature had been half-sectioned by Oxford Archaeology North. It had a vertical sided, concave based profile and was 0.16m deep (12.97m AOD), with a diameter of 0.35m.
- 4.3.3 A small pit [131] of sub-oval plan was located approximately 5m to the north east of [112]. [131] was 0.55m long, 0.43m wide and 0.21m deep (12.80m AOD). The feature had a moderately-sloping bowl-shaped profile and was filled by a single deposit of silty clay (132).
- 4.3.4 A large irregularly-shaped feature [133] was situated 5m to the north-west of [122]. [133] was aligned north-to-south and was 4.40m long and 0.85m wide. The edges of the feature ranged from gently-sloping to vertical and were extremely irregular in plan, whilst the base was flat. The feature was extremely shallow (0.09m) and may have been of natural origin.
- 4.3.5 A sub-oval pit cut [141] was located centrally in the northern part of the excavation area. [141] had a stepped moderately-sloping profile and a flat base. The feature was 1.60m long, 1.05m wide and 0.25m deep (12.58m AOD). The basal fill (142) consisted of a silty clay deposit that contained flecks of charcoal. The upper fill (160) consisted of a compact burnt orange clay.
- 4.3.6 [167] was situated in the southern part of the area and was of an irregular plan that measured 0.47m x 0.34m. It was 0.30m deep, with a steeply-sloping profile and a concave base. The basal fill (145) was clay, whilst the upper fill (168) was a silty sand that contained flecks of charcoal.
- 4.3.7 [155] was of elongated sub-oval plan and measured 1.62m x 0.70m x 0.20m deep. It had a gently to moderately-sloping profile with a flat base. The basal fill (157) consisted of re-deposited burnt clay that included occasional fragments of charcoal, whilst the upper fill (156) was similar, but with a higher concentration of charcoal.
- 4.3.8 [176] was an irregular sub-oval shape in plan, with a steep sided profile and concave base. The feature measured 0.50m x 0.20m x 0.40m deep and was filled by silty sand (177) that contained flecks of charcoal.

- 4.3.9 An apparent curvilinear gully [161] was identified in the eastern part of the excavation area. [161] was 3.05m long and 0.44m wide, with a depth of 0.10m (12.89m AOD). It had a gently-sloping, concave-based profile and was filled by a clay deposit that included fragments of charcoal (162).
- 4.3.10 A large irregular-shaped feature [250] was situated 5.30m to the south-east of [244]. [250] was 2.40m long, 1.3m wide and 0.26m deep, with a gently-sloping, irregular profile. The silty clay basal fill (254) contained flecks of charcoal, whilst the upper fill (251) consisted of clay silt that contained considerable quantities of charcoal.
- 4.3.11 An elongated pit feature [201] was located in the southern part of the Phase 2 area. [201] was 3.40m long and was aligned from east to west. It was 0.70m wide, with a moderately-sloping concave profile that was 0.30m deep (12.68m AOD). The sandy clay fill (200) contained flecks of charcoal.
- 4.3.12 [211] was situated 2.60m to the north of [201] and was of sub-oval plan. The feature was 3.22m long and 1.70m wide, with a gradual to steeply-sloping profile and a concave base. [211] was 0.22m deep and was filled by a sterile sand deposit (212).
- 4.3.13 [207] was situated 10m to the south-west of [205] and consisted of a 0.15m deep flat-based depression, with a diameter of 1.90m. This apparent feature was filled by a silty clay deposit (208) that contained occasional flecks of charcoal.
- 4.3.14 [213] was situated 0.20m to the north of [207] and had a diameter of 0.25m. The feature had a 0.11m deep bowl-shaped profile and was filled by silty clay that contained fragments of charcoal (214).
- 4.3.15 A small sub-oval pit [209] was located 6.40m to the north of [207]. This feature was 1.20m long and 0.50m wide, with a shallow flat-based profile. The silty sand fill (210) contained quantities of charcoal.

#### 4.4 *POST-MEDIEVAL FIELD SYSTEM*

- 4.4.1 The Phase 3 Area excavation revealed elements of an apparent field system, which consisted of four parallel linear features that ran on a broad south-west to north-east alignment, together with a fifth that ran from north-west to south-east. The system appeared to continue into the Phase 2 Area, where similar features were noted. No finds were recovered from the fills of the ditches, with the result that the system as a whole remains undated. However, given that palaeoecological research (Geary and Tetlow 2006) indicates that the area was a liminal marshland river bank environment during the Bronze Age, it is unlikely that the ditch system dates to this period.

- 4.4.2 Ditch [186] was the most southerly of the linear features and was located close to the southern boundary of the excavation area. Two segments, [184] and [187], were excavated across the feature, which proved to be a 0.80m wide gully or ditch. The feature was relatively shallow, with a maximum depth of 0.22m (12.60m AOD). Both segments had steeply-sloping, flat-based profiles, whilst [187] had a pronounced shallow lip running along its northern edge. Both segments were filled by deposits of sterile sandy clay, (185) and (188) respectively.
- 4.4.3 Ditch [148] was situated approximately 6m to the north of [186]. Two segments [154] and [174], were excavated across the feature. [154] was 0.18m wide and 0.15m deep, with a steeply-sloping U-shaped profile. [174] was 0.15m wide and 0.12m deep, with a pronounced V-shaped profile. Both were filled by silty sand (173) and (175) respectively.
- 4.4.4 Ditch [108] was situated 15m to the north of [148] and again ran on a similar alignment. Three segments [116], [118] and [120] were excavated across this feature. [116] was excavated in the eastern part of the feature, which proved to be 0.42m wide and 0.008m deep, with a shallow bowl-shaped profile. [118] was placed centrally and was 1.0m wide and 0.40m deep, with a gently-sloping concave-based profile. The western segment [120] had a steeply-sloping, concave-based profile with a depth of 0.53m and a width of 0.85m. All three segments were filled by sterile silty sand (117, (119) and (121) respectively.
- 4.4.5 Ditch [106] was situated approximately 28m to the north of [108] and again ran on a south-west to north-east alignment. Three segments [110], [112] and [114] were excavated across the ditch. The easternmost segment [114] was 0.76m wide and 0.21m deep (12.87m AOD), with a steep-sided, concave-based profile. The silty clay fill (115) contained occasional flecks of charcoal.
- 4.4.6 [110] and [112] had both been excavated by Oxford Archaeology North and were open at the commencement of the current phase of work. The work thus involved re-cleaning and recording these features. [112] was situated centrally and had a similar profile to [114]. It was 0.67m wide and 0.20m deep. The fill (113) was identical to (115). [114] was situated at the western end of [106] and had a more irregular, stepped profile that was 0.98m wide and 0.43m deep (12.76m AOD). The fill deposit (111) consisted of sandy silt that contained flecks of charcoal.
- 4.4.7 Ditch [107] was situated to the north of [106] and ran on a north-west to south-east alignment. It was clear that the south-eastern end of the feature originally intersected with the north-western end of [106]. However, subsequent hand-cleaning of the area demonstrated that modern machine

truncation had completely removed evidence of both features at the point of the apparent intersection.

- 4.4.8 Three segments [125], [127] and [129], were excavated across [107]. [125] was excavated at the north-western end of the feature, revealing a steeply-sloping V-shaped profile with a break of slope running along on the northern edge. The ditch at this point was 1.20m wide and 0.46m deep (12.67m AOD).
- 4.4.9 [127] was located in the centre of [107] and had a steeply-sloping V-shaped profile on the southern edge, with a more gently-sloping profile on the northern edge. Here, the ditch was 0.70m wide and was 0.21m deep (12.89m AOD).
- 4.4.10 [129] was excavated at the south-eastern end of [107]. At this location the ditch exhibited a steeply-sloping southern edge, a more gradual-sloping profile on the northern edge and a flat base. [129] was 0.87m wide and 0.20m deep (12.78m AOD).
- 4.4.11 All three excavated segments were filled by sterile silty sand (126), (128) and (130) respectively.



*Plate 3: Ditch [108], Facing south-west*



*Plate 4: Ditch [106]. Facing west.*

- 4.4.12 A segment [204] was excavated across a north to south-aligned field ditch. [204] was 0.65m wide and 0.17m deep, with a moderately-sloping profile and a flat base. It was filled by a humic clay sand deposit (203) that was very similar in appearance to the stripped topsoil.
- 4.4.13 A segment [215] was excavated across a second north to south-aligned field ditch which ran parallel to [204]. This showed it to be 0.43m wide and 0.16m deep, with a gently-sloping bowl-shaped profile. The feature was filled by a silty clay deposit (216) that was very similar to the stripped topsoil.
- 4.4.14 A segment [218] was excavated across an east to west-aligned ditch that intersected with [215]. [218] was 0.90m wide, with a moderate to steeply-sloping profile and a concave base. The feature was 0.20m deep and was filled by a humic silty sand (217) that was similar to the topsoil.
- 4.4.15 A further north to south field ditch ran along the western boundary of the excavation area. A segment across this feature [227] showed it to have a gently-sloping, concave-based profile that was 0.75m wide and 0.14m deep. It was filled by a deposit of silty sand (228).
- 4.4.16 Ditch [227] intersected with an east-to west-aligned field ditch. A segment through this feature [230] showed it to have a moderately-sloping, concave-

based profile that was 0.50m wide and 0.15m deep. It was filled by a deposit of sandy silt (231) similar to (228).



*Plate 5: Ditch [218] and Field Drain [220]. Facing east.*

#### 4.5 MODERN FEATURES

- 4.5.1 An elongated, irregular-shaped feature was noted in the southern part of the excavation area [149]. The feature was 1.28m long, 0.50m deep and was backfilled by a mixed clayey sand deposit (150) that contained large stones, redeposited clay and buried turf. A single residual flint was recovered from this deposit.
- 4.5.2 A discrete feature was identified in the centre of the site and recorded on the survey by Oxford Archaeology North. Excavation proved this feature to be a vertical-sided post medieval field drain cut [171] that ran in a broad north-to south alignment across the area. [171] contained an unglazed terracotta drain and was backfilled by re-deposited natural sands and clay (172).
- 4.5.3 [218] was cut on its western edge by a 0.30m wide, 1.0m deep vertical-sided drain cut [220] that contained an unglazed terracotta field drain. The drain was backfilled by silty sand (219).

#### 4.6 NATURAL FEATURES

- 4.6.1 A 2m wide east-to-west aligned trench was excavated by machine in the northern part of the excavation area in order to examine a paleo-channel. Excavation was carried out to a maximum depth of 1.20m, at which point

the collapse of the trench sides occurred due to the presence of running sand. The excavation revealed a complex sequence of interleaved sand and sandy clay deposits (188) to (199), the uppermost of which formed the surface into which the archaeological features were cut. A geoarchaeological monolith sample was taken of the deposits.



*Plate 6: Geoarchaeological Investigation Trench. Facing west.*

- 4.6.2 An area of possible burnt deposits and industrial activity had been identified in the north eastern part of the excavation area by Oxford Archaeology North. During the current excavation the English Heritage Regional Scientific Advisor identified the feature as a naturally-formed organic riverine deposit (153).
- 4.6.3 A 1.14m long, 0.53m wide, 0.13m deep feature [158] was located in the northern part of the Phase 3 area. The feature was irregular in both plan and profile. It was filled by sterile clay (159) and probably represented a tree bole. A further natural feature, [169] filled by sterile clay (170), also representing a probable tree bole.
- 4.6.4 An irregular feature [137] was situated to the north of [169]. [137] was of irregular plan and measured 0.45m x 0.28m x 0.16m deep and was again filled with sterile clay (138). The feature probably represented a localised variation in the natural subsoil.

- 4.6.5 A further irregular feature [143] that measured 0.88m x 0.53m x 0.14m deep was situated to the northeast of [137]. [143] was filled by sterile silty clay (144) and was interpreted as a further tree bole.
- 4.6.6 Three further small irregular features were investigated in the southern part of the excavation area [151], [163 and [165]. All three were filled by deposits of sterile sand (152), (164) and (166), and represented natural variations in the natural subsoil.
- 4.6.7 Two small irregular features [178] and [182] were situated to the south of ditch [148]. Both were extremely shallow (0.10 and 0.05m deep respectively). The silty clay fills, (179) and (183) respectively, were completely sterile and the features appeared to be of natural rather than archaeological origin.
- 4.6.8 A final apparent feature was located at the eastern limit of the excavation area. In plan this appeared to represent an east to west-aligned linear feature. However, on excavation it became clear that there was no difference between the apparent fill of the feature and the surrounding natural subsoil, whilst there was no obvious shape form or function to the anomaly itself. The feature was assigned the numbers [180] and (181) and represented a localised variation in the natural subsoil, rather than an archaeological feature.
- 4.6.9 An isolated spread of organic material (235) was noted approximately 10m to the north-east of [244]. The deposit appeared to be filling a natural undulation in the subsoil and probably represented a tree-bole. Similarly, Feature [236]/(237), situated centrally in the excavation area, also consisted of a silty organic deposit occupying an irregular depression and was probably also of natural origin.
- 4.6.10 (206) consisted of a 0.95m long, 0.40m wide sub-oval spread of sandy silt that was mixed with an organic fibrous material. It filled a 0.10m deep irregular depression [205] and probably represented a rotted-out tree bole.
- 4.6.11 An irregular linear feature [221] was noted in the eastern part of the excavation area. It was 1.92m long, 0.67m wide and 0.12 deep, with a gently-sloping profile and flat base. The sandy silt fill (222) contained occasional fragments of wood and the feature was probably of natural origin.
- 4.6.12 [225] was situated close to the southern boundary of the excavation area. This feature was extremely irregular in plan and also exhibited an irregular flat-based profile. The feature measured 0.86m x 0.56m x 0.24m deep and was filled by an organic fibrous silty clay (226). Again, the feature probably

represented a rotted-out tree bole and did not appear to be of man-made origin.

- 4.6.13 A further irregular feature [232] / (233) was situated 1.0m to the west of [225]. This feature proved to be a shallow (0.05m) deep irregular depression filled by organic, fibrous clay silt and represented a rotted-out tree bole, rather than an archaeological feature. Two further spreads of similar material (234) and (235) were also of non-archaeological origin
- 4.6.14 A spread of mixed silty sand and charcoal (229) was noted towards the centre of the excavation area. The spread was 0.73m long and 0.29m wide and did not appear to fill a man-made cut. The deposit was cut to the west by a modern field drain.
- 4.6.15 A sub-oval feature [238] was located to the south of [211]. [238] was 1.40m long, 1.0m wide and 0.26m deep, with an irregular shallow profile. It was filled by silty clay (239) and probably represented a tree bole.
- 4.6.16 An irregular-shaped feature [242] was located in the centre of the site. [242] had a diameter of 0.86m and was 0.15m deep. It had a shallow, gently-sloping irregular profile and was filled by silty sand (243). The feature probably represented a tree bole.
- 4.6.17 A further irregular feature [245] was situated close to the western boundary of the excavation area. [245] measured 0.90m x 0.80m x 0.12m deep and consisted of a shallow depression of irregular profile. It was filled by a deposit of organic silty clay (246). A spread of similar material 5.0m to the south (247) was also of natural origin. (247) was disturbed by an animal burrow [248] / (249).
- 4.6.18 A small sub-oval feature [253] was noted at the eastern limit of the excavation area. This feature measured 1.80m x 0.85m x 0.10m deep and had a shallow concave profile. It contained humic fibrous silty clay similar to that noted in other features of natural origin.

#### 4.7 *DISCUSSION AND CONCLUSION*

- 4.7.1 The archaeological excavation recorded a number of features in both the Phase 2 and Phase 3 Areas. In general terms, however, the density of securely-dated Late Neolithic / Early Bronze Age features was not high, with only three being noted in the Phase 3 (OAN) area and one in the Phase 2 area. In addition to these there were a further thirteen undated features that may have been of a similar Late Neolithic / Early Bronze Age date. The low density of both Late Neolithic / Early Bronze Age features and artefacts may reflect the nature of the Late Neolithic / Early Bronze Age environment, which has been characterised as a low-lying, marshy,

river side (Geary and Tetlow 2006). Such a site may have been an unattractive place for a permanent settlement, but the abundant faunal and floral resources that it contained may have resulted in a pattern of transient and/or seasonal exploitation.

- 4.7.2 If one accepts the landscape model put forward by Geary and Tetlow, it follows that the apparent field ditches identified in the Phase 2 and 3 Areas must be of a considerably later date than the Late Neolithic / Early Bronze Age pits. This is because it would make no sense to attempt to cultivate or drain a marshy riverside site, particularly given the presence of higher, drier ground immediately to the west of the current site. A more likely explanation is that the features represent post-medieval or later drainage ditches, cut to facilitate drainage and aid cultivation in an area that remained prone to waterlogging.

## 5 FINDS

### 5.1 FINDS ASSESSMENT

5.1.1 A total of 59 finds from 9 different contexts were recovered during the archaeological excavation. These included 45 sherds of Late Neolithic / Early Bronze Age pottery from stratified contexts.

5.1.2 The finds were cleaned and packaged according to standard guidelines, and recorded under the supervision of Frank Giecco (NPA Ltd Technical Director).

Context	Area	Material	Quantity	Weight (kg)	Period
103	1	Flint	1	0.002	Late Neolithic / Early Bronze Age
103	1	Pottery	2	0.003	Late Neolithic / Early Bronze Age
105	1	Pottery	34	0.154	Late Neolithic / Early Bronze Age
105	1	Flint/Chert	2	0.038	Late Neolithic / Early Bronze Age
109	1	Chert	1	0.034	Late Neolithic / Early Bronze Age
109	1	Pottery	3	0.008	Late Neolithic / Early Bronze Age
140	1	Flint	1	0.001	Late Neolithic / Early Bronze Age
181	1	Flint	1	0.008	Late Neolithic / Early Bronze Age
185	1	Chert	1	0.005	Late Neolithic / Early Bronze Age
162	1	Pottery	1	0.001	Late Neolithic / Early Bronze Age
202	2	Chert	4	0.031	Late Neolithic / Early Bronze Age
231	2	Pottery	10	0.009	Post-medieval
Unstrat		Pottery	1	0.015	Post-medieval
Unstrat		Flint	2	0.005	Late Neolithic / Early Bronze Age

Table 1: Finds Table of Artefacts Recovered from the Excavation.

## 5.2 *LATE NEOLITHIC / EARLY BRONZE AGE POTTERY*

- 5.2.1 In total 45 fragments of prehistoric ceramic vessels were recovered; these represented Beaker and Grooved Ware vessels of late Neolithic/Early Bronze Age date (Wardle *pers. comm.*). Specialist analysis of the pottery will be undertaken for inclusion in the final Publication Report.

## 5.3 *POST-MEDIEVAL CERAMIC VESSELS*

- 5.3.1 A total of 11 sherds of post-medieval pottery were recovered during the excavation. These consisted of transfer printed Whitewares, brown-glazed earthenwares and modern ceramics. The material dated to the 19<sup>th</sup> century was of minimal archaeological interest.

## 5.4 *FLINT AND CHERT*

- 5.4.1 A total of 14 struck flint and chert artefacts were recovered during the excavation. Specialist analysis of this material will be undertaken for inclusion in the final Publication Report.

## 6 ENVIRONMENTAL ANALYSES

### 6.1 INTRODUCTION

6.1.1 During the excavation 54 contexts were considered for environmental sampling. Each sample was recovered from stratified deposits.

6.1.2 The contents of the samples are listed below in Table 2.

Sample Number	Context Number	Sample Size (Litres)	Type	Date
7	103	10		Late Neolithic/ Early Bronze Age
1	105	20	Pit Fill	Late Neolithic/ Early Bronze Age
2	109	20		Late Neolithic/ Early Bronze Age
3	115	20		Post Medieval
5	117	20		Post Medieval
4	119	20		Post Medieval
6	121	20		Post Medieval
9	123	20		Undated
8	124	10		Post Medieval
10	126	20		Post Medieval
11	128	20		Post Medieval
12	130	20		Post Medieval
13	132	20		Undated
19	134	40		Undated
17	138	20		Natural
16	140	20		Late Neolithic/ Early Bronze Age
18	142	20		Undated
20	144	20		Natural
25	145	20		Undated
52	150	20		Modern
49	153	20		Organic riverine dep
22	156	20		Undated
23	157	20		Undated
21	159	20		Natural
14	160	20		Undated
24	162	20		Undated
26	168	20		Undated
50	173	20		Post med
51	175	20		Post Med
53	185	20		Post Med
54	188	20		Post Medieval
46	200	20		Undated
45	202	20		LNEBA
40	206	10		Natural
48	208	10		Undated

Sample Number	Context Number	Sample Size (Litres)	Type	Date
42	212	20		Undated
27	214	20		Undated
39	216	20		Post med
38	222	20		Natural
29	226	20		Natural
37	228	20		Post Medieval
30	229	10		Natural
43	231	20		Post Medieval
31	232	10		Natural
47	237	10		Natural
41	239	20		Natural
34	246	20		Natural
36	249	10		Natural
33	251	20		Undated

*Table 2: Details of samples and contexts*

## 6.2 ASSESSMENT RESULTS

- 6.2.1 An assessment report of the environmental samples will be prepared for inclusion in the Publication Report.

## 6.3 DATING

- 6.3.1 A total of four samples were taken from secure contexts for C14 dating. Analyses of these will be undertaken and included in the Publication Report.

## 6.4 VERTEBRATE BONE

- 6.4.1 No vertebrate bone was recovered from any of the samples or by hand during the excavation.

## 7 CONCLUSIONS

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### 7.1 CONCLUSIONS

- 7.1.1 Excavations at Lower Brockholes Quarry provided limited evidence of late Neolithic/Early Bronze Age activity in the Ribble Valley. These results are nevertheless highly significant given the paucity of evidence regarding occupation or settlement sites of this period within the region. For this reason, it is to be hoped that future archaeological work within the quarry or its environs will allow the nature and extent of this Late Neolithic / Early Bronze Age activity to be further clarified.

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## APPENDIX 1: CONTEXT TABLE

Context Number	Context Type	Description	Phase
100	Deposit	Topsoil	N/A
101	Deposit	Natural	N/A
102	Cut	Pit filled by 103 and 124	Late Neolithic/ Early Bronze Age
103	Deposit	Basal fill of 102	Late Neolithic/ Early Bronze Age
104	Cut	Pit filled by 105 and 109	Late Neolithic/ Early Bronze Age
105	Deposit	Upper fill of 104	Late Neolithic/ Early Bronze Age
106	Cut	Linear feature master no.	Post-Medieval
107	Cut	Linear feature master no.	Post-Medieval
108	Cut	Linear feature master no.	Post-Medieval
109	Deposit	Basal fill of 104	Late Neolithic/ Early Bronze Age
110	Cut	Ditch segment part of 106	Post-Medieval
111	Deposit	Fill of 110	Post-Medieval
112	Cut	Ditch segment part of 106	Post-Medieval
113	Deposit	Fill of 112	Post-Medieval
114	Cut	Ditch segment part of 106	Post-Medieval
115	Deposit	Fill of 114	Post-Medieval
116	Cut	Ditch segment part of 108	Post-Medieval
117	Deposit	Fill of 116	Post-Medieval
118	Cut	Ditch segment part of 108	Post-Medieval
119	Deposit	Fill of 118	Post-Medieval
120	Cut	Ditch segment part of 108	Post-Medieval
121	Deposit	Fill of 120	Post-Medieval
122	Cut	Posthole filled by 123	Undated
123	Deposit	Fill of 122	Undated
124	Deposit	Basal fill of 102	Post-Medieval
125	Cut	Ditch segment part of 107	Post-Medieval
126	Deposit	Fill of 125	Post-Medieval
127	Cut	Ditch segment part of 107	Post-Medieval
128	Deposit	Fill of 127	Post-Medieval
129	Cut	Ditch segment part of 107	Post-Medieval
130	Deposit	Fill of 129	Post-Medieval
131	Cut	Pit filled by 132	Undated
132	Deposit	Fill of 131	Undated
133	Cut	Irregular feature filled by 134	Undated
134	Deposit	Fill of 133	Undated
135	N/A	Number not assigned	N/A
136	N/A	Number not assigned	N/A
137	Cut	Feature filled by 138	Natural
138	Deposit	Fill of 137	Natural
139	Cut	Posthole filled by 140	Late Neolithic/ Early Bronze Age
140	Deposit	Fill of 139	Late Neolithic/ Early Bronze Age
141	Cut	Pit filled by 142 and 160	Undated
142	Deposit	Basal fill of 141	Undated
143	Cut	Tree bole filled by 144	Natural
144	Deposit	Fill of 143	Natural
145	Deposit	Basal fill of 167	Undated
146	N/A	Number not assigned	N/A
147	N/A	Number not assigned	N/A
148	Cut	Linear feature master no.	Post-Medieval
149	Cut	Pit filled by 150	Modern

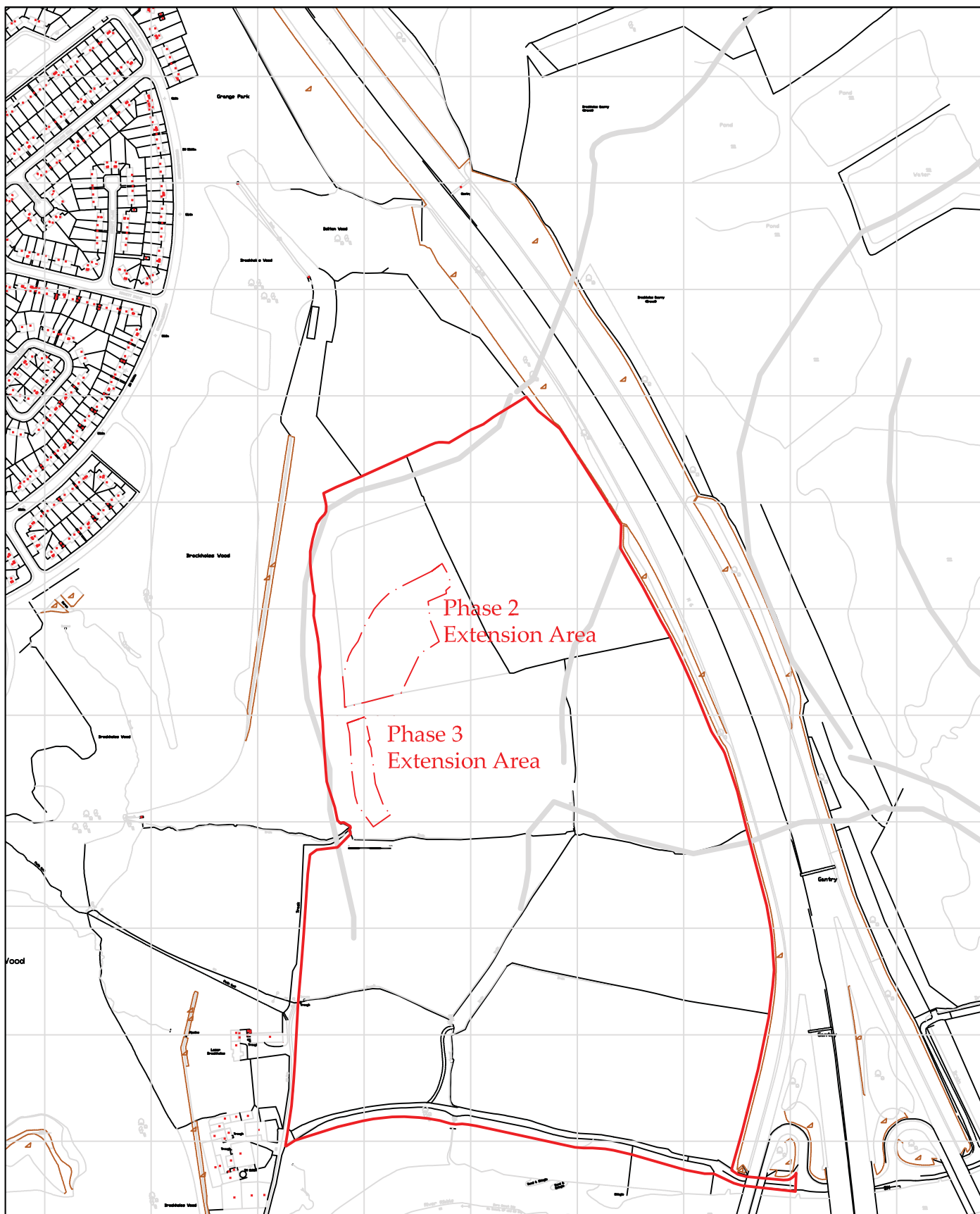
Context Number	Context Type	Description	Phase
150	Deposit	Fill of 149	Modern
151	Cut	Natural feature filled by 152	Natural
152	Deposit	Fill of 151	Natural
153	Deposit	Natural organic riverine deposit	Natural
154	Cut	Ditch segment part of 148	Post-medieval
155	Cut	Pit filled by 156 and 157	Undated
156	Deposit	Upper fill of 155	Undated
157	Deposit	Basal fill of 155	Undated
158	Cut	Tree bole filled by 159	Natural
159	Deposit	Fill of 158	Natural
160	Deposit	Upper fill of 141	Undated
161	Cut	Curvilinear feature filled by 162	Undated
162	Deposit	Fill of 161	Undated
163	N/A	Natural feature filled by 164	Natural
164	N/A	Fill of 163	Natural
165	N/A	Natural feature filled by 166	Natural
166	N/A	Fill of 165	Natural
167	Cut	Pit filled by 168 and 145	Undated
168	Deposit	Upper fill of 167	Undated
169	Cut	Tree bole filled by 170	Natural
170	Deposit	Fill of 169	Natural
171	Cut	Land drain filled by 172	Modern
172	Deposit	Fill of 171	Modern
173	Deposit	Fill of 154	Post-medieval
174	Cut	Ditch segment part of 148	Post-Medieval
175	Deposit	Fill of 174	Post-Medieval
176	Cut	Filled by 177	Undated
177	Deposit	Fill of 176	Undated
178	Cut	Natural feature filled by 179	Natural
179	Deposit	Fill of 178	Natural
180	Cut	Natural feature filled by 181	Natural
181	Deposit	Fill of 180	Natural
182	Cut	Natural feature filled by 183	Natural
183	Deposit	Fill of 182	Natural
184	Cut	Ditch segment part of 186	Post-Medieval
185	Deposit	Fill of 184	Post-Medieval
186	Cut	Linear feature master no.	Post-Medieval
187	Cut	Ditch segment part of 186	Post-Medieval
188	Deposit	Fill of 187	Post-Medieval
189	Deposit	Natural sand	Natural
190	Deposit	Natural sand	Natural
191	Deposit	Natural sand	Natural
192	Deposit	Natural sand	Natural
193	Deposit	Natural clay	Natural
194	Deposit	Natural sand	Natural
195	Deposit	Natural clay	Natural
196	Deposit	Natural clay	Natural
197	Deposit	Natural clay	Natural
198	Deposit	Natural sand	Natural
199	Deposit	Natural clay	Natural
200	Deposit	Fill of 201	Undated
201	Cut	Pit filled by 200	Undated
202	Deposit	Fill of 244	Late Neolithic/ Early Bronze Age
203	Deposit	Fill of 204	Post-Medieval

Context Number	Context Type	Description	Phase
204	Cut	Field ditch filled by 203	Post-Medieval
205	Cut	Natural feature filled by 206	N/A
206	Deposit	Fill of 205	N/A
207	Cut	Pit filled by 208	Undated
208	Deposit	Fill of 207	Undated
209	Cut	Pit filled by 210	Undated
210	Deposit	Fill of 209	Undated
211	Cut	Pit filled by 212	Undated
212	Deposit	Fill of 211	Undated
213	Cut	Pit filled by 214	Undated
214	Deposit	Fill of 213	Undated
215	Cut	Field ditch filled by 216	Post-Medieval
216	Deposit	Fill of 215	Post-Medieval
217	Deposit	Fill of 218	Post-Medieval
218	Cut	Field ditch filled by 217	Natural
219	Deposit	Fill of 220	Modern
220	Cut	Field drain	Modern
221	Cut	Natural feature filled by 222	Natural
222	Deposit	Fill of 221	Natural
223	N/A	Number not assigned	N/A
224	N/A	Number not assigned	N/A
225	Cut	Natural feature filled by 226	Natural
226	Deposit	Fill of 225	Natural
227	Cut	Field ditch filled by 228	Post-Medieval
228	Deposit	Fill of 227	Post-Medieval
229	Deposit	Spread	Natural
230	Cut	Field ditch filled by 231	Post-Medieval
231	Deposit	Fill of 230	Post-Medieval
232	Cut	Natural feature filled by 233	Natural
233	Deposit	Fill of 232	Natural
234	Deposit	Spread	Natural
235	Deposit	Spread	Natural
236	Cut	Natural feature filled by 237	Natural
237	Deposit	Fill of 236	Natural
238	Cut	Natural feature filled by 239	Natural
239	Deposit	Fill of 238	Natural
240	N/A	Number not assigned	N/A
241	N/A	Number not assigned	N/A
242	Cut	Feature filled by 243	Natural
243	Deposit	Fill of 242	Natural
244	Cut	Pit filled by 202	Late Neolithic/ Early Bronze Age
245	Cut	Natural feature filled by 246	Natural
246	Deposit	Fill of 245	Natural
247	Deposit	Spread	Natural
248	Cut	Animal burrow filled by 249	Natural
249	Deposit	Fill of 248	Natural
250	Cut	Pit filled by 251 and 254	Undated
251	Deposit	Upper fill of 250	Undated
252	Deposit	Fill of 253	Natural
253	Cut	Natural feature filled by 252	Natural
254	Deposit	Basal fill of 250	Undated

Table 4: List of Contexts issued during the Excavation

## APPENDIX 2 FIGURES

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North Pennines Archaeology Ltd  
2010

PROJECT: Lower Brockholes Quarry  
SCALE: 1:5000 at A4  
REPORT No: CP994  
CLIENT: Hargreaves PLC  
DRAWN BY: NC  
DATE: Feb 2010  
FIGURE: 1

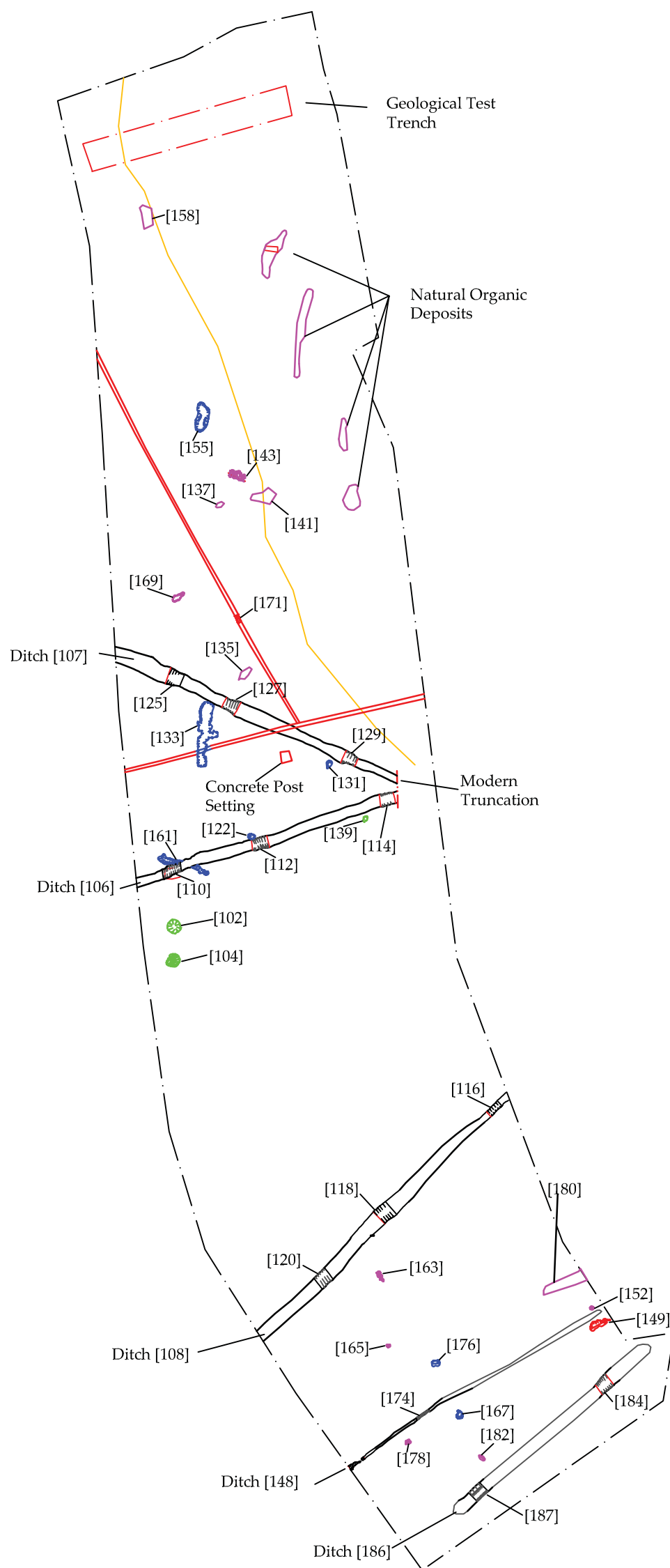
KEY:

- Excavation Area
- Quarry Boundary



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Figure 1 : Site Location



North Pennines Archaeology Ltd  
2010

PROJECT: Lower Brockholes Quarry  
SCALE: 1:350 at A3  
REPORT No: CP994  
CLIENT: Historic Environment Consultancy  
DRAWN BY: NC  
DATE: Feb 2010  
FIGURE: Figure No 2

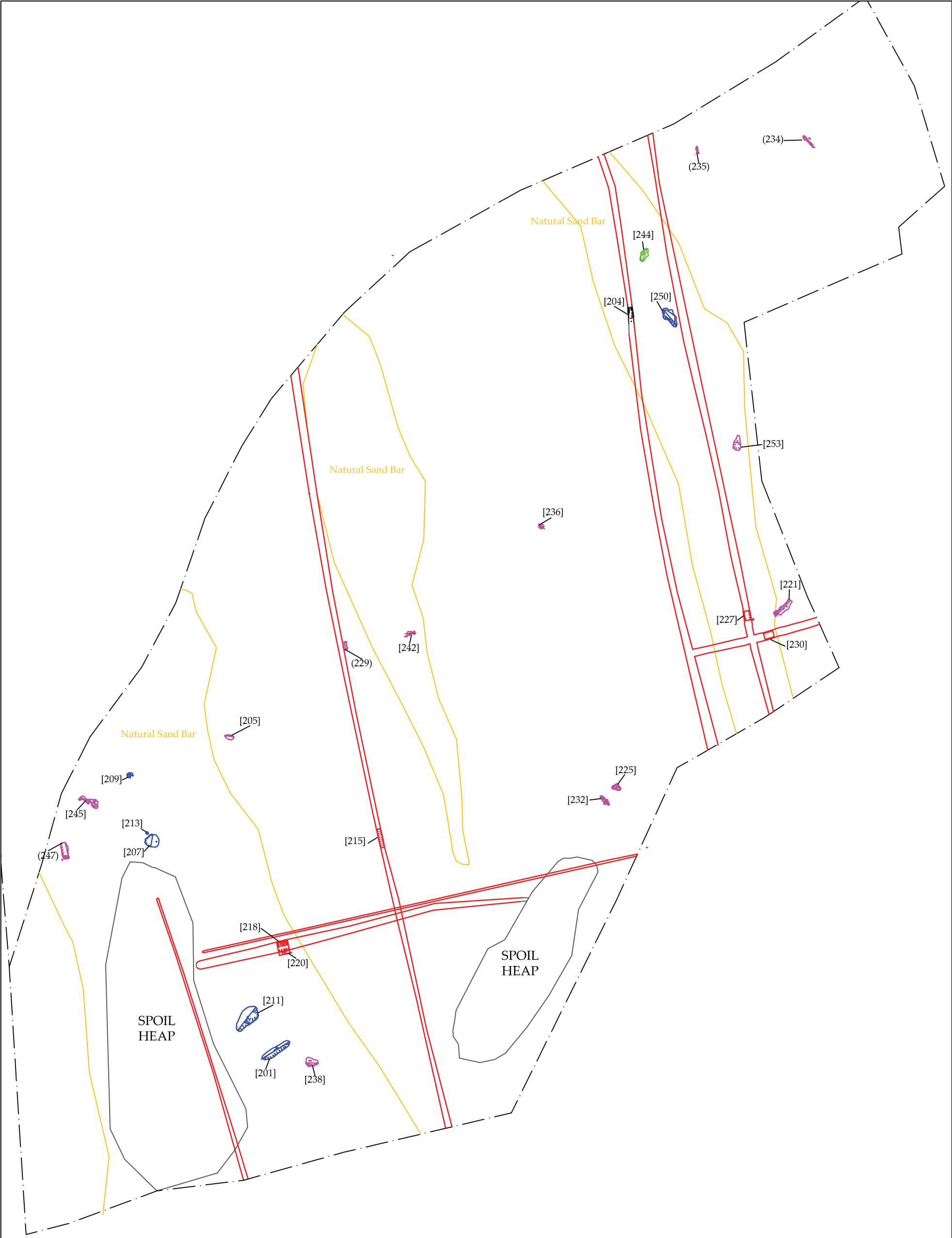
KEY:

- Natural
- Undated
- Prehistoric
- Modern



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Figure 2 : Phase 3 Extension Area Features





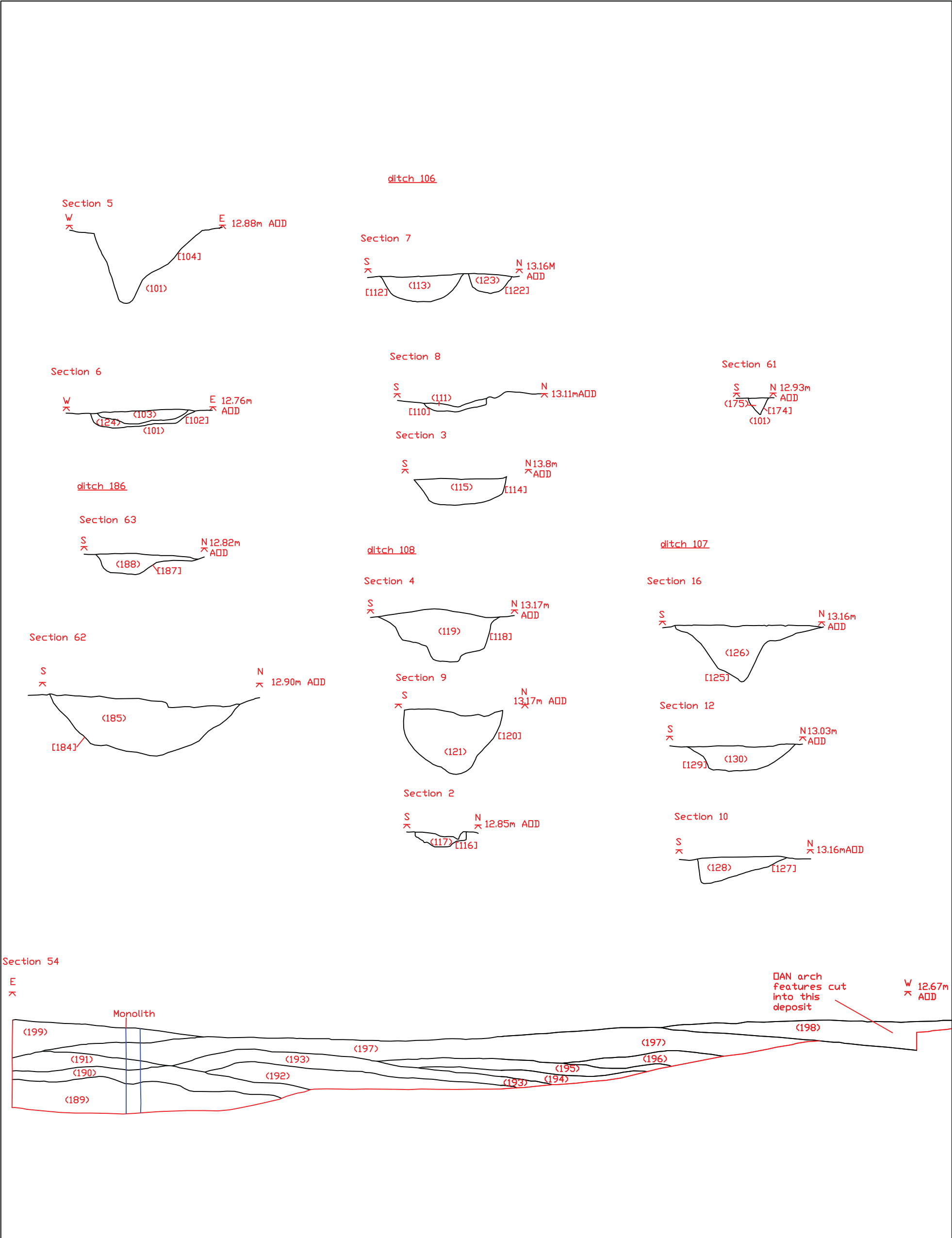
 <p>North Pennines Archaeology Ltd 2010</p>	<p>PROJECT: Lower Brockholes Quarry</p> <p>SCALE: 1:400 at A3</p> <p>REPORT No: CP994</p> <p>CLIENT Historic Environment Consultancy</p> <p>DRAWN BY: NC</p> <p>DATE: Feb 2010</p> <p>FIGURE: Figure No 3</p>	<p>KEY:</p> <div><div></div> Natural</div> <div><div></div> Undated</div> <div><div></div> Prehistoric</div> <div><div></div> Modern</div>	 <div>Reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright. All rights reserved. Licence number 100014732.</div>
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Figure 3: Phase 2 Extension Area Features




 <p>North Pennines Archaeology Ltd 2010</p>	<p>PROJECT: Lower Brockholes Quarry</p> <p>SCALE: 1:30 at A3</p> <p>REPORT No: CP994</p> <p>CLIENT Historic Environment Consultancy</p> <p>DRAWN BY: NC</p> <p>DATE: Feb 2010</p> <p>FIGURE: Figure No 4</p>	<p>KEY:</p> <div><div></div>Deposits</div> <div><div></div>Monolith</div> <div><div></div>Limit of Excavation</div>	
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Figure 4: Sections