ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

on behalf of
Miller Homes

Hurworth North Darlington

post-excavation analysis

report 5360
July 2021

Durham University

Contents

Photographs

Figures

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1. Summary

The project

1.1 This report presents the results of an analysis of an archaeological excavation conducted for a development at Roundhill Road, Hurworth, County Durham. Following post-excavation assessment, radiocarbon dating and further artefactual and palaeoenvironmental analysis was conducted. The results of the assessment and analysis have been incorporated into this report.

1.2 The works were commissioned by Miller Homes and conducted by Archaeological Services Durham University.

Results

1.3 The remains at Hurworth comprise the north-western part of a large settlement. This probably originated as an unenclosed settlement in the Iron Age period. By the end of the 2nd century AD this had developed into a Roman farmstead, comprising intercutting enclosure ditches and associated gullies, pits and postholes. Several stone buildings were constructed on the site after some of the enclosure ditches had fallen out of use, though the remains of these were very fragmentary. These were probably built by the late 4th century. The site is typical of Roman agricultural settlements across the region.

1.4 The finds assemblage from the site included pottery, ceramic building material, animal bone, iron, lithics, glass, fired clay, industrial residues and lead. The pottery dated from the 2nd to the 4th century, most of which could be dated to after 270 AD. Around 40% was local traditional wares, which is characteristic of sites of this type. A high status building was probably located in the vicinity, indicated by the CBM found on the site.

1.5 The palaeoenvironmental data indicates that crop cultivation focussed on spelt wheat and 6-row hulled barley, with small amounts of crop-processing debris present in most of the samples. The plant remains, pollen and insects recovered from a waterlogged former watercourse deposit indicated a meadow/grassland environment in the surrounding area and the watercourse was probably used as a waterhole for livestock. Lowland heath was also present in the wider landscape, which would have been exploited for construction material, fodder and fuel. The palaeoenvironmental evidence is typical of Late Iron Age and Romano-British settlements in the north-east.

1.6 The results will be integrated within the forthcoming analysis report for the larger adjacent excavation of the southern part of the settlement to the south.

2. Project background

Location (Figure 1)

2.1 The site was located north of the village of Hurworth-on-Tees, south of Darlington (NGR centre: NZ 3057 1087). It covered an area of approximately 0.36 ha. To the south was a construction site and to the north was agricultural land. The site was bounded to the east by the Cree Beck and to the west by Roundhill Road, with agricultural land beyond in both directions.

Development

2.2 The development is residential.

Objective

2.3 The objective of the scheme of works was to analyse the data produced from the excavation, so that a coherent narrative for the site could be produced, set within its regional context.

Research Objectives

2.4 The regional research framework (Petts & Gerrard 2006) contains an agenda for archaeological research in the region, which is incorporated into regional planning policy implementation with respect to archaeology. In this instance, the scheme of works was designed to address the following specific research priorities:

Late Bronze Age and Iron Age
Iii: Settlement

Roman
Riv: Native and civilian life

Specification

2.5 The works have been undertaken in accordance with an Updated Project Design produced by Archaeological Services in the post-excavation assessment report.

Dates

2.6 Fieldwork was undertaken between 26th September and 9th November 2018. This report was prepared for July 2021.

Personnel

2.7 Fieldwork was conducted by Hilly Andrews, Jamie Armstrong, Meghan McCarthy, Adam Mead, Jenny Richards, Rachel Wells, Hannah Woodrow and Matthew Claydon (site manager). This report was prepared by Rebekah Walsh, with illustrations by David Graham. Specialist reporting was conducted by Dr Anwen Caffell (human remains), Alex Croom (IA/Roman pottery and CBM), Dr Stephen Davis (insects), Dr Helen Drinkall (lithics), Vicky Garlick (X-radiography and conservation investigation), Dr Louisa Gidney (animal bone), Jennifer Jones (other artefacts), Dr Suzi Richer (pollen) and Dr Ed Treasure (plant macrofossils and charcoal). Sample processing was undertaken by Laura Watson, Ben Matus and Jonathan Goldberg-Booth. The Project Manager was Matthew Claydon.

Archive/OASIS

2.8 The site code is **HUR18**, for **HUR**worth Roundhill Road 20**18**. The archive is currently held by Archaeological Services Durham University and will be transferred to the County Durham Archaeological Archives following completion of post-excavation works for the adjacent Hurworth site. The palaeoenvironmental residues were discarded following examination. The flots and charred and waterlogged plant remains will be retained at Archaeological Services Durham University. Archaeological Services Durham University is registered with the **O**nline **A**cces**S** to the **I**ndex of archaeological investigation**S** project (**OASIS**). The OASIS ID number for this project is **archaeol3-420144**.

Acknowledgements

2.9 Archaeological Services Durham University is grateful for the assistance of Hughes Bros Construction Ltd in facilitating this scheme of works.

3. Landuse, topography and geology

3.1 At the time of the excavation, the development area comprised part of a field of arable land. Trees across the central part of the field indicated a former field boundary.

3.2 The site was predominantly level with a mean elevation of approximately 35m OD, with a slight slope down to the beck. The Cree Beck flows south along the eastern boundary.

3.3 The underlying solid geology of the area comprises Triassic and Permian strata of sandstone of the Sherwood Sandstone Group, overlain by river terrace deposits of sand and gravel (British Geological Survey 2021).

4. Previous archaeological works

4.1 An archaeological desk-based assessment has been conducted, centred on an area of open ground to the immediate south of the present site (Archaeological Services 2016a).

4.2 Geophysical surveys and archaeological evaluation have been conducted on the site (Archaeological Services 2017; 2018a) and on land to the immediate south and south-west (Archaeological Services 2016b; 2016c). A large excavation was also conducted on land to the south (Archaeological Services 2020a).

4.3 Following the results of the archaeological evaluation, an excavation was conducted (Archaeological Services 2019a). This identified the remains of part of a Roman settlement, comprising enclosure ditches around pits, gullies, postholes and walls. The excavation to the south indicated that these remains were the north-western part of a much larger settlement, which also had evidence of roundhouses, characteristic of the Iron Age. Further evidence of this earlier occupation was identified on this site.

5. The excavation

Introduction

5.1 The area of excavation comprised a roughly rectangular parcel of land 72.5m by 63.5m (max) in the south-east corner of the field, with a 5m-wide strip extending 72.5m north from the north-west corner (Figures 1, 2). The trench was excavated using a machine equipped with a toothless ditching bucket under constant archaeological supervision. A trench plan and sections are shown on Figures 3-6. Context data is summarised in Table 1.1.

5.2 Natural subsoil, a yellow clay with areas of sand and gravel [2=2003], was identified at a depth of approximately 0.4m below the ground surface (31.4m-32m OD). A shallow depression [F42: over 1m long, 0.5m wide, 0.1m deep] was identified in trench 4 of the evaluation, in the western part of the site, which was not subject to further excavation. This was filled by a brown sandy gravel [41], from which no palaeoenvironmental evidence of settlement was recovered. This indicates that this feature may have been geological in origin.

Phase 1 – Iron Age (Figure 3)

5.3 In the south-eastern part of the excavation were features that may relate to early timber structures on the site, possibly dating to the Iron Age. These comprised small pits, postholes and gullies. Most of these features were discreet, but where stratigraphic relationships could be established these features were the earlier.

Curvilinear gullies

5.4 A truncated curvilinear gully [F2078: 3m by 0.1m, 50mm deep] was recorded near the centre of the trench. This was filled by a grey sandy clay [2077] and truncated by a later ditch. Around 14m to the north of gully [F2078] was another similar curvilinear gully [F2056=F46: 4m long by 0.45m wide, 0.1m deep], filled with a grey sandy clay [2055=45]. Again, this was cut by a later ditch. These may be the very fragmentary remains of roundhouses.

Postholes

5.5 Along the eastern part of the southern trench edge, five postholes were recorded on a broadly east/west alignment. At the eastern end was an oval posthole [F2005: 0.7m by 0.6m, 0.15m deep] filled with a grey silty clay [2004]. To the west of this was another oval posthole [F2187: 0.8m by 0.3m, 0.15m deep] filled with a brown sandy clayey silt [2186]. Further to the west was a round posthole [F2194: 0.4m in diameter, 0.2m deep] with steep sides and a flat base (Photo 1). It was filled with a grey-brown sandy silty clay [2193]. Next in the alignment was an oval posthole [F2185: 0.4m by 0.25m, 0.15m deep], also filled with a grey-brown sandy silty clay [2184]. The westernmost posthole [F2197: 0.5m in diameter, 0.25m deep] was oval in plan, with steep sides and a flat base. Again this was filled with a grey-brown sandy silty clay [2196].

5.6 Immediately north of postholes [F2194] and [F2185] was a short linear gully [F2175: 3.7m long by 0.35m wide, 0.1m deep] filled with a grey-brown sandy silty clay [2174]. On the northern side of this was another posthole [F2173: 0.6m by 0.45m, 0.1m deep], also filled with a grey-brown sandy silty clay [2172]. These six postholes and the gully may be associated.

5.7 To the north of concentric gullies [F2083] and [F2154] was a cluster of 17 probable postholes, which may relate to a timber structure or structures, although no coherent pattern could be determined. The postholes [F2007; F2009; F2014; F2017; F2025=F8; F2030; F2046; F2052; F2070; F2072; F2074; F2088; F2090; F2105; F2107; F2109; F2150] were all broadly round and similar in size, ranging from 0.25m to 0.6m in length and width and 50mm to 0.2m in depth. All were filled with a grey-brown silty clay [2006; 2008; 2013; 2016; 2024=7; 2029; 2045; 2051; 2071; 2073; 2087; 2089; 2104; 2106; 2108; 2149] with the exception of posthole [F2070] which was filled with a grey clay with pinkish patches [2069]. Posthole [F2017] had a secondary fill of dark grey silty clay containing charcoal [2015], possibly indicating a post was burnt *in situ*. Limited evidence of smithing was found in the palaeoenvironmental sample from this posthole; a charred barley grain from [2015] provided a radiocarbon date of 50 cal BC-120 cal AD. This posthole had also been recut on the northern side [F2021], possibly to remove the post. The recut was filled with a grey-brown silty clay [2020]. Posthole [F2088] truncated posthole [F2090] (Photo 2). Full dimensions of these features can be seen in Table 1.2.

5.8 To the west of curvilinear gully [F2078] was a pit [F2023: 0.9m by 0.7m, 0.3m deep]. This was primarily filled with a dark grey-brown clay loam [2086: 0.1m deep]. This was overlain by a series of laminated lenses of black charcoal-rich silty loam and light yellow-brown silt [2022: 0.2m deep]. Further evidence of smithing was recorded in the palaeoenvironmental sample from this feature. Pit [F2023] was cut on the northern side by a smaller pit [F2085: 0.7m by 0.5m, 0.15m deep] filled with a dark grey-brown silty clay [2084]. To the south of this was a circular posthole [F2221: 0.2m in diameter, 0.25m deep]. It was filled with a black clayey sandy silt [2220] (Photo 3).

5.9 Almost 4m to the north of curvilinear gully [F2078] was a circular posthole [F2076: 0.35m in diameter, 0.15m deep]. This was primarily filled with an orange-brown stony sandy clay [2079: 50mm deep], overlain by a black charcoal-rich silty clay [2075: 0.1m deep] (Photo 4), similar to the charcoal-rich lenses within pit [F2023]. Another posthole [F2066: 0.25m in diameter, 0.1m deep], also filled with black charcoal-rich silty clay [2065], was recorded just over 6m to the north-east of posthole [F2076].

Phase 2 – Roman (Figure 4)

5.10 The majority of the features on the site probably relate to a Romano-British settlement that replaced the earlier features discussed above. These took the form of enclosure ditches, possible walls, gullies and pits, along with a single human burial and the silted up remains of a watercourse.

Land boundaries/enclosure ditches

5.11 A large ditch [F2099=F22: over 48.53m long, 2.4m wide, 1m deep] was recorded, aligned east/west across the northern part of the trench (Photo 5). The ditch was V-shaped in profile, with a primary fill of a mixed grey clay and yellow sand [2098: 0.1m deep]. Overlying this was a dark grey silty clay [2097: 0.3m deep], charcoal from which produced a radiocarbon date of 230-380 cal AD. Immediately above this was a mottled grey and orange-brown sandy clay [2096: 0.3m deep], with a grey-brown silty clay loam [2095=21: 0.3m deep] forming the uppermost fill of the ditch. This ditch truncated the earlier curvilinear gully [F2056].

5.12 Ditch [F2099] was cut by a roughly north/south aligned ditch [F2115=F2136=F2147=F30: over 54.22m long, 0.7m to 1.35m wide, 0.2m to 0.4m deep] which extended almost the entire length of the trench, petering out at the north end, but continuing beyond the edge of excavation to the south. It was filled with a mottled grey and orange-brown sandy clay [2114=2146=29], except at the northern end where it was filled with a very dark grey silty clay [2135], overlain by a grey-brown clay loam [2134]. It was recut down the west side [F2131=F2145: 0.5m wide, 0.15m deep]; the recut was filled with a dark orange-brown clayey silt [2130=2144].

5.13 A small gully [F2158: 1.78m long by 0.45m wide, 0.1m deep] was recorded in the south-western corner of the trench, aligned roughly east/west and filled with a grey-brown sandy silty clay [2157]. The western end of the gully was cut by a small ditch [F2156: over 6.25m long, 0.75m wide, 0.25m deep] on the same alignment, filled with a mottled grey and orange-brown sandy silty clay [2155]. This may have been a recut or extension of the earlier gully and extended beyond the edge of excavation to the west. It terminated in a rounded end where it intersected with gully [F2158].

5.14 A ditch was recorded in the south-western part of the trench, approximately 17m west of ditch [F2115], on a parallel north/south alignment. This ditch [F2162: 1.6m wide, 0.4m deep] extended over 17m into the trench from the south before ending with a rounded terminal. It was filled with a grey-brown silty clay [2161] (Photo 6). This ditch truncated the eastern end of gully [F2158].

5.15 Another north/south aligned ditch [F2171=F44: over 69.52m long, 1.5m wide, 0.2m deep] was recorded in the north-western part of the trench, on roughly the same alignment as ditch [F2162]. This ditch was specifically targeted by the long northern trench extension, though the northern extent was not identified; it was truncated by later features to the south. Ditch [F2171] was filled by a light brown silty sand [2170=43].

5.16 Several larger, deeper ditches were identified that probably relate to enclosure. Most of these ditches were aligned north/south or east/west and some were later modified when they were recut.

5.17 The earliest of these ditches was a substantial north/south aligned ditch [F2118=F40: 2.5m wide. 1.1m deep], extending 19m into the excavation from the centre of the southern edge and terminating with a rounded end (Photo 7). The ditch had a U-shaped profile. A slumping deposit of yellow-grey gravelly clay [39: 0.16m deep] was recorded along the eastern edge, though the main primary fill of the ditch was a black sandy silty clay [2117: 0.5m deep], with inclusion of small fragments of red sandstone. This was overlain by either a grey silty clay [38: 0.13m deep] or a laminate deposit of orange sand and black sandy silty clay [2116: 0.3m deep], which could reflect waterborne deposits from episodes of flooding.

5.18 Ditch [F2118] was later recut along the western side and extended northwards for a further 15.7m, before turning 90° eastwards to form a corner, which enclosed the south-eastern part of the site. The east/west portion of the ditch measured 29.8m long. This recut ditch [F2081=F2103=F2201=F4=F53: 1.1m to 2m wide, 0.8m deep] was primarily filled by a yellow-grey gravel [37: 0.12m deep], though this was only present in the southern part of the ditch, overlain by a grey sandy silt [3: 0.43m]. The remainder of the ditch was filled with a black sandy clayey silt [2102] in the centre

and an orange-brown silty clay to the north [2200] and east [2080=52] (Photo 7). A charred wheat grain from deposit [2102] provided a radiocarbon date of 210-350 cal AD.

5.19 Ditch [F2118] was recut again [F2101=F2121=F2199=F2210=F2223=F14=F28: 1.5m to 2m wide, 0.4m to 0.8m deep], this time incorporating an east/west ditch around 12m south of the initial recut [F2081], possibly replacing it. This east/west portion of the ditch was over 29m long, extending beyond the edge of the trench to the east. This recut also cut the north/south part of recut ditch [F2081], extending a further 5.8m northwards from the corner of ditch [F2081]. This final phase of the enclosure was filled with a dark grey-brown silty clay loam [2100=2198] in the south (Photo 7), an orange-brown silty clay [2222=27] to the north and a grey-brown clayey silt [2120=2209=13] to the east, overlain by a brown sandy clay loam [2119]. This recut truncated the southern end of the Phase 1 curvilinear gully [F2078]. Near the north-eastern extent of recut [F2101], a narrow gully [F2216: 0.4m wide, 0.25m deep] was recorded at the base of the ditch. The full extent of this was unclear as it was only visible in one small section. The gully was steep-sided with a flattish base and was filled with a dark grey clayey sandy silt [2211]. A radiocarbon date of 160 cal BC-20 cal AD was obtained from a fragment of birch charcoal from this deposit. However, this is likely to be residual material as the pottery recovered from the feature indicates a later date of the 2nd to 4th century. This gully may have been structural, supporting upright posts for a timber wall, but no similar features were identified elsewhere.

5.20 A slightly curved ditch extended roughly north/south through the centre of the trench, and exhibited several recuts. The earliest phase of this feature [F2143: 1.4m wide, 0.6m deep] was located at the southern end, filled with an orange-brown clay [2140]. This had been recut centrally [F2142: 0.6m wide, 0.35m deep] and filled with a stony dark grey silty clay [2141]. This was again recut [F2054=F2111=F2123=F2133 =F2139=F32: 52.58m long, 1m wide, 0.4m deep] and mainly filled with a dark grey silty clay [2053=2110=2122=2138=31], except at the north end where it had a fill of black silty clay [2132] overlain by a mottled black and orange-brown silty loam [2137]. This final cut was the only phase evident in the central and northern part of the ditch.

5.21 Immediately to the west of the southern end of ditch [F2143], and slightly truncating it, was a short ditch [F2129: 7.2m long by 1m wide, 0.3m deep], aligned roughly north/south and filled with a grey-brown silty clay [2128]. Another similar ditch [F2204: over 2.98m long by 1.25m wide, 0.2m deep] was located just 5.25m to the south, on the same alignment. This continued beyond the southern edge of excavation and was filled by a grey-brown sandy silty clay [2203].

5.22 In the north-east corner of the site two parallel ditches were recorded, aligned north-east/south-west. The ditches extended beyond the northern limit of the trench, and were truncated by later ditches to the south. The western ditch [F2189: over 10.27m long, 1.2m wide, 0.1m deep] was filled with a mottled grey-brown clayey loam [2188]. The eastern ditch [F2192: over 11.46m long, 2m wide, 0.35m deep] was filled with a grey silty clay [2191], overlain by a brown sandy clay loam [2190].

Burial

5.23 An inhumation burial (SK1) was identified within ditch [F2192]. The upper legs, torso and parts of the arms survived in poor condition, sufficient only to establish that the skeleton was articulated and laid supine (Photo 8). No grave cut was evident, but it is probable that the ditch fill had been dug out for the burial and then backfilled, resulting in an unidentifiable cut [F2062]. The dark grey-brown sandy clay [2061] (indistinguishable from the ditch fill) from around the skeleton was assumed to be grave fill and sampled accordingly.

Possible roundhouse

5.24 Two broadly concentric curvilinear gullies were identified in the south-eastern corner of the site. The outer gully [F2083: 5m by 0.2m, 50mm deep] was filled with a grey-brown sandy silty clay [2082]. A radiocarbon date of 210-350 cal AD was obtained from a grain from this deposit. The inner gully [F2154: 5.5m by 0.35m, 0.1m deep] was filled with a dark grey-brown sandy clay [2153]. Although ephemeral, it is possible these are the remains of a roundhouse.

Walls

5.25 Near the south-eastern corner of the excavation, the foundations of a stone wall [F2011: 7.2m long by 0.4m wide, 0.2m high] were recorded, aligned east/west (Photo 9). The wall comprised two stretches of stonework, each a single course of small to medium roughly hewn red sandstone blocks; no bonding material was evident. The stones lay within a shallow construction cut [F2012: 0.1m deep] that was backfilled with a dark grey-brown sandy silty loam [2031], though this was only visible on the western part of the wall. The wall was narrow and unlikely to bear much weight. The western end of the wall truncated a shallow pit [F2027: 1m by 0.85m, 0.25m deep], which was filled with a grey-brown sandy silty loam [2026]. This pit cut through a deposit of orange-brown sand [2028], a variation in the natural subsoil. Wall [F2011] also truncated a Phase 1 posthole [F2021].

5.26 Approximately 5m to the north of wall [F2011], the recut ditch [F2101] was cut by evidence for parallel stone structures. The northern edge of the ditch was cut by a possible construction trench [F2214=F2219: 2.5m long by 1m wide, 0.3m deep], filled with a mixed deposit of grey-brown clayey and large cobbles [2213=2218], into which a further cobble deposit [F2217] was set. Partially overlying this, along the centre of ditch [F2101], was a spread of red sandstone [2212: 4m long by 1.7m wide, 0.15m deep]. Along the southern edge of ditch [F2101] was a further deposit of large cobbles [F2215], embedded into the uppermost fill of the ditch. These stone features may relate to each other, and to wall [F2011].

5.27 Concentrations of red sandstone were also recorded embedded into the upper fills of ditches [F2054] and [F2081]. These deposits, [F2113] (Photo 10) and [F2112] respectively, are potentially the foundations for stone structures.

Other features

5.28 Two linear gullies were recorded along the southern edge of the trench. The eastern gully [F2206: over 16m long by 0.3m wide, 50mm deep] was filled with an orange-grey/brown sandy silty clay [2205] (Photo 11). It was aligned east/west, turning south beyond the area of excavation at the western end. It truncated ditches [F2115] and [F2204]. The second gully [F2208: 5.5m long by 0.4m wide, 0.05m deep], to the

west, was filled with a dark grey-brown sandy silty clay [2207]. This was on the same alignment as gully [F2206], and truncated the western edge of ditch [F2118].

5.29 To the north of the eastern end of gully [F2206] were two pits. The western pit [F2169: 2m by 0.65m, 0.4m deep] was roughly oval in shape and filled with a series of distinct burnt deposits (Photo 12). The primary fill was a grey-brown silty clay [2168: 0.1m deep]; a radiocarbon date of 120-240 cal AD was obtained from charred grains from this deposit. Over this was a black charcoal-rich silt [2167: 50mm deep], from which a radiocarbon date of 130-330 cal AD was obtained from a charred spelt spikelet. This was overlain by a burnt grey silty clay [2166: 50mm deep], with another layer of black charcoal-rich silt [2165: 50mm deep] above it. Immediately above this was a red and white burnt clay [2164: 70mm deep], with a brown-grey silty clay [2163: 0.19m deep] forming the uppermost fill of the pit. The palaeoenvironmental data indicates that this pit may have been used as an oven or corn-drier. The eastern pit [F2160: 1.25m by 1m, 0.3m deep] was again oval in shape and filled with a dark grey-brown silty clay [2159]. To the east of these was a shallow depression [F2178: 4m by 1m, 0.1m deep], which may have been the truncated base of another pit. This was filled with a stony grey-brown clayey silt [2176].

5.30 Just over 8m north of pit [F2169] was a teardrop-shaped posthole [F2019: 0.91m by 0.45m, 0.1m deep]. This was filled by a dark brown silty loam fill [2018] from which several fragments of burnt animal bone were recovered. This is thought to reflect a deliberate act of deposition, perhaps the remains of a specific meal. A radiocarbon date of 120-320 cal AD was recovered from a charred radish pod in this deposit.

5.31 Approximately 7m north-east of posthole [F2019] was a circular pit [F48: 0.75m in diameter, 0.3m deep]. This was filled with a grey sandy silt [47], from which 4th-century pottery was recovered. Around 3m north-east of pit [F48], at the eastern end of wall [F2011] was a shallow pit [F2041=F2043: 1m by 2m, 0.1m deep], filled with an orange-brown sandy clay [2040=2042]. This was cut on the northern side by another shallow pit [F2039: 1m in diameter, 0.1m deep] containing a dark grey-brown sandy clay [2038]. At the base of this were three postholes [F2033; F2035; F2037], each also filled with a dark grey-brown sandy clay [2032; 2034; 2036].

5.32 Immediately to the north of pit [F2041] was an east/west gully [F2092=F12: over 6m long, 0.3m wide, 0.1m deep], filled with a grey-brown sandy silty loam [2091=11]. Around 2m north of this, a circular pit [F2226: 2m in diameter, 0.3m deep] cut the northern edge of ditch [F2101]. A cobble deposit [F2225] was present at the base of the pit, which may be a continuation of those seen in the ditch (see 5.26). The remainder of the pit was filled with a grey-brown sandy silty clay [2224] (Photo 13).

5.33 Just over 2m north of pit [F2226] was another pit [F2094: 3.7m by 1.2m, 0.12m deep]. This was an elongated oval in shape and was filled with a dark grey/black silty clay loam [2093].

5.34 In the north of the trench, immediately north-east of the Phase 1 curvilinear gully [F2056], was a north/south aligned gully [F2125: 8.3m long by 0.5m wide, 0.35m deep]. This truncated ditch [F2099] and was filled by a yellow-grey-brown sandy clay [2124]. To the north of gully [F2125] were three intercutting ovoid pits. Both the northern pit [F2058: 1.8m by 0.8m, 0.1m deep] and the southern pit [F2064: 1.75m by 0.93m, 0.1m deep] were filled with a mottled grey-brown and orange-brown

sandy silty clay [2057; 2063]. Both were cut by a central pit [F2060: 1.55m by 0.8m, 0.1m deep], which was filled with a grey-brown sandy silty clay [2059].

Watercourse

5.35 In the north-eastern corner of the trench was a large, deep feature [F2068=F50: over 45m long, over 12m wide, 0.8m deep], which extended north and east beyond the excavated area. It had a primary fill of black clayey silt [2195=49: 0.35m deep], an alluvial deposit. A charred barley grain recovered from this returned a radiocarbon date of 80-240 cal AD. This was overlain by a grey-brown silty clay [2067=51]. The size and nature of this feature suggests that it is an earlier course of the adjacent Cree Beck, the deposits of which have built up over a long period of time. This is supported by the 1st- to 3rd-century radiocarbon date, and the fact that the feature overlies ditches [F2099] and [F2081]. Examination of the tithe plan of 1839 suggests that this may have been the original line of the Cree Beck, and that it has shifted in the time elapsed since (Figure 7).

Phase 3 – post-medieval and modern (Figure 4)

5.36 This phase comprises the post-medieval and modern activity on the site, which relates to agricultural activity.

5.37 Across the north of the excavation area was a linear ditch [F2183=F26: over 50m long, 1.25m wide, 0.45m deep], aligned roughly east/west. This was primarily filled with a brown sandy clay [2182: 0.3m deep] and overlain by a dark grey-brown sandy clay loam [2181=25: 0.15m deep]. This is the remains of a former field boundary shown on 19th-century Ordnance Survey maps (Figure 7). The field boundary was truncated by on a slightly more oblique angle by a wide drain [F2180: over 54m long, 1.25m wide, 0.4m deep]. A clay field drain, intermittently concealed within a brick culvert, had been installed along the length of the cut, which had then been backfilled with a brown silty clayey sand [2179]. The upper fill [2067] of the watercourse [F2068] appeared to overly the field boundary, indicating that this deposit had built up over a long period of time. It also suggests that the shift in the alignment of the Cree Beck occurred sometime in the 19th century, which is supported by the historic mapping, as discussed above (see 5.35). The field drain post-dates the shift, as the ceramic drain was recorded cutting the upper deposit [2067] of the watercourse.

5.38 Furrows, the remains of medieval or post-medieval ploughing, were recorded throughout the trench, cutting into the natural subsoil and truncating many of the archaeological features. The furrows [F2048=F2152] were typically 1.5m wide and 0.05m deep and were filled with a grey-brown sandy silty loam [2047=2151]. The furrows were differently aligned on either side of the field boundary [F2183]. They were aligned north/south in the southern part of the trench [F2048], and east/west in the northern part [F2152].

5.39 Across the whole trench was a layer of dark orange-brown clay loam subsoil [2002=2010: 0.1m to 0.4m deep]. Above this was a dark brown clay loam topsoil [1=2001: 0.2m to 0.3m deep].

6. The artefacts

Pottery analysis

Introduction

6.1 The assemblage consists of 116 sherds weighing 1835g. The pottery was quantified in its fabric categories by weight, sherd count and estimated vessel equivalents (EVEs, i.e. percentages or surviving rim diameters) and the fabrics identified visually to magnifications of up to X10 using a hand lens. For fabrics of the common, widely-traded wares, references are made to the National Roman Fabric Reference Collection (NRFRC = Tomber and Dore 1998) (Table 1.3).

Results - fabrics

Local traditional wares

6.2 These wares were made from the late Bronze Age until the Roman period. The fabrics are grouped by the type of temper used rather than by their source, since the vessels were made in numerous locations, generally close to where they would be used. They are all handmade and thick-walled (*c.*12mm), with the temper often projecting from the surface.

6.3 Fabric group 1.1: dolerite-tempered
While this fabric often has dolerite inclusions up to 12mm across, creating rough surfaces, the sherds in this assemblage only have sparse temper up to *c.*5mm across, with comparatively smooth surfaces.

6.4 Fabric group 2: granitic-tempered (cf Ingleby Barwick fabric P01: Evans and Mills 2013, 72)
Black fabric, with patchy oxidised surfaces, with ill-sorted granitic inclusions up to 8mm across. Some inclusions, including black biotite, have very flat surfaces that catch the light (up to 4mm across). At Ingleby Barwick granitic-tempered wares, although from a late Iron Age tradition, were mainly in use from the 2nd to the 4th centuries (Evans and Mills 2013, 64, 85).

6.5 Fabric group 3.2: dolerite- and quartz-tempered
This example is hard, mid-grey with patchy oxidised exterior. Sparse dolerite temper up to 11mm across and quartz temper up to 5mm across.

6.6 Fabric group 4.1: quartz-tempered
Black fabric, brown exterior and slightly oxidised interior surface, with occasional angular transparent quartz inclusions up to 5mm across and less common black biotite inclusions up to 2mm across.

6.7 Fabric group 5.2: pebble-tempered
Dark grey fabric, with angular grey stone fragments that are not dolerite up to 5mm across, and quartz inclusions that are generally smaller. This example is unusually hard.

Handmade quartz-tempered

6.8 Handmade micaceous dark grey or black fabric, sometimes with patchy oxidised surfaces and a hackly break. Plentiful rounded or sub-angular colourless or pink quartz inclusions usually about 1mm across; occasionally larger inclusions where the quartz crystals are still cemented together, but no very large inclusions. There was a regional tradition for using locally-produced gritted wares in some quantity

throughout the Roman period (Evans and Mills 2013, 85, 91). This ware is represented by a minimum of two vessels, one of which was found unstratified (Figures 8.3 and 8.5).

Grey ware with pale core

6.9 Very light grey fabric, with mottled and patchy mid to dark grey surfaces, very characteristic of 2nd-century grey wares. The assemblage has a single cooking pot with an everted rim without a shoulder.

Grey ware, Catterick fabric R8A (Bell 2002, 81)

6.10 Hard, mid-grey fabric with abundant fine quartz inclusions creating pimply surfaces. At Catterick it was used only for lid-seated or near lid-seated cooking pots and was considered to be a variant of a local gritted ware; it first appears in 3rd-century contexts. There are three sherds in the Hurworth assemblage, including a cooking pot with a hooked straight everted rim (cf Evans 2002, 264, probably dating towards the mid-3rd century, fig. 134, no. G7.20; Bell and Evans 2002, fig. 134, nos J11.2-3).

Grey ware, Ingleby Barwick fabric R12 (Evans and Mills 2013, 72)

6.11 Highly fired sandy grey ware, with fine inclusions. Represented by a single sherd.

Reduced ware, Ingleby Barwick fabric R11 (Evans and Mills 2013, 72)

6.12 A sandy black fabric with white margins. Represented by a single platter.

East Yorkshire grey ware

6.13 Hard micaceous, mid-grey fabric from one of the 3rd-century East Yorkshire industries such as those round Holme on Spalding Moor. Represented by a single vessel (Figure 8.4).

Continental white

6.14 Hard white fabric with plentiful fine black and white quartz inclusions, producing a slightly pimply surface. Dark grey fire cloud on exterior. Represented by a single sherd, possibly a flagon.

Sandy grey wares

6.15 Sandy, mid- to dark grey wares with pale grey or buff core, sometimes shading to a darker grey or brown towards the exterior surface. May come from a number of sources.

Catalogue

Local traditional wares

6.16 Context [2211] Figure 8.9. Jar with slightly thickened everted rim (cf Evans 1995, fig. 5.4, type Ei), or an upright, square rim (cf Faverdale: Gerrard 2012, fig. 52, no. 22). Patchy oxidised surfaces with some sooting on interior of rim. LTW 1.1.

6.17 Context [2053] Figure 8.3. Bowl with expanded rim with wide groove on upper surface. This type of rim was also used on jars, but the sit of the sherd as it survives suggests this is a bowl (cf West Brunton: Hodgson *et al.* 2012, fig. 84, no. 22). There is sooting or organic remains under the rim on the exterior, and sooting with a clearly defined edge on the outer side of the top of the rim. There is also a patch of sooting/residue on the interior. LTW 2, black fabric, patchy brown and orange on exterior and bright orange on interior.

Other wares

6.18 Context [2211] Figure 8.8. Beaker or small jar with an upright everted rim. Handmade quartz-tempered.

6.19 Context [2100] Figure 8.4. Lug-handled jar, with looped and vertical line decoration. Hard, micaceous grey fabric, with slightly buff margins. The form probably first appeared in the mid-3rd century. East Yorkshire grey ware.

6.20 Context [2211] Figure 8.7. Cooking pot with cupped rim. Oxidised patches on exterior, and oxidised interior surface below the rim. Faint vertical smoothing marks. (cf Ingleby Barwick: Evans and Mills 2013, fig. 4.3, d; 89, from a late 2nd- or 3rd-century context). Handmade quartz-tempered.

6.21 Context [2102] Figure 8.6. Large cooking pot. Little of the decoration survives, but there is a faint line above the lattice. DOR BB 1, *c.*250 AD onwards.

6.22 U/S Figure 8.5. Probable wide-mouthed bowl with Huntcliff-type rim. (cf Monaghan 1997, fig. 397, no. 3957). HUN CG, 360 AD onwards.

6.23 Context [2198] Figure 8.2. Plain-rimmed dish with external groove. There are the remains of a black shiny residue on the interior and heavy sooting on the exterior and within the groove. Burnt fabric, but possibly CRAM RE, 270 AD onwards.

6.24 Context [2209] Figure 8.1. *Mortarium*, Corder and Birley 1937 type 6. CRAM WH, 270 AD onwards.

Discussion

Chronology

6.25 While there is a very small quantity of 2nd-century material, the pottery from the site generally dates to the 3rd century or later. Between 70% (by weight) and 77% (by sherd count) comes from contexts dating to after *c.*270 AD, although the quantity of Crambeck ware and, in particular, calcite-gritted ware (the most common wares in use after this date) was relatively low. Together they make up between 3.5% (by sherd count) and 6.9% (by weight) of the whole assemblage. This may indicate that use of the site was mainly in the late 3rd or early 4th century, but the assemblage is small and may not be fully representative of the site. The unstratified cooking pot with the Huntcliff-type rim shows that some level of activity continued until at least *c.*360 AD.

Supply

6.26 The assemblage is dominated by coarse wares, which make up 95% of the pottery by sherd count. There were no amphorae sherds, although this is a small assemblage and amphorae are generally rare at rural sites in the region (Evans and Mills 2013, 84). Samian, *mortaria* and fine wares were all represented by two sherds each. The samian sherds came from the base of a form 18/31 dish and the base of an unidentifiable bowl or dish. The *mortaria* consisted of a rim in Crambeck white ware (Figure 8.1), and a scrap from a 2nd-century white ware vessel. The fine wares are a rim and base sherd of thick-walled Lower Nene Valley colour-coated ware from context [2198]. The rim has a funnel neck and rounded rim, flattened on the interior and the base comes from an enclosed coarse ware form; both have a dark brown colour coat.

6.27 The range of fabrics present (Table 1.3) shows that the pottery was supplied from a large number of sources. Most, however, are represented by only a few sherds and the most common type of Roman traded ware was BB1 (30% of all pottery by sherd count). The locally produced handmade wares make up between 37% (by sherd count) and 45% (by weight) of the assemblage. Although there was a general increased use of gritted wares from the later 3rd century in the north, locally there was a tradition for using it in quantity from at least the 2nd century, despite clear access to other traded wares. At the settlement at Faverdale, mainly 2nd-century in date, local hand-made pottery, including some 'Romanized' forms, made up roughly 50% of the assemblage (Gerrard 2012, 77) and at Ingleby Barwick, where occupation lasted into the early 5th century, they made up at least 27% (Evans and Mills 2013, 85).

Vessel use

6.28 The scrap of *mortarium* rim from context [2095] has a clear line of sooting along the outer edge. The use of *mortaria* on fires seems to have been a particularly common practice on northern rural sites and it has been suggested that on these sites they were often used in a similar way to standard bowls or dishes (Mills 2015, 270, 278). Approximately 55% of the vessels by EVEs are cooking pots; this is typical for both rural sites and for later Roman assemblages. There was no evidence for repair of vessels.

Human remains analysis

Introduction

6.29 A human skeleton was present in ditch [F2192]. This ditch was 2m wide and 0.35m deep, and as the grave cut for the skeleton could not be discerned it is assumed that the grave was dug into the fill of the ditch and then backfilled. Two attempts were made to obtain a radiocarbon date for the skeleton, but unfortunately neither attempt was successful. It is likely that the skeleton dates to the Roman period, but it could be post-Roman in date.

Methods

6.30 The skeletal remains were analysed in full. The state of preservation was recorded through examining the completeness (expressed as a percentage) and condition. Surface preservation was assessed using the seven-category grading system defined by McKinley (2004; 2017), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no erosion of the bone surfaces with clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone shape. The amount of fragmentation evident was assessed subjectively, and categories of fragmentation ranged from minimal (indicating little or no fragmentation of the bones) to extreme (indicating extensive breaking of most bones into multiple small pieces).

6.31 An attempt was made to estimate age-at-death and sex where preservation allowed. Age was determined using standard methods specified in Cox (2000). Assessment of sex can only be carried out reliably in adult individuals, determined though examination of the shape of the pelvis and skull (cranium and mandible), supplemented with measurements of certain bones, as described in Mays and Cox (2000). Measurements were taken where possible and finally, the skeleton was examined for any evidence of disease or trauma; any lesions noted were described

and a differential diagnosis was attempted (Roberts and Manchester 2005; Ortner 2003).

Results

6.32 A summary of the data is presented in **Error! Reference source not found.**.4, and a detailed catalogue is provided in Appendix 3.

Preservation

6.33 The skeleton was incomplete, consisting of part of the torso (rib shaft fragments and part of two lumbar vertebrae from the base of the spine), part of both forearms, three finger bones (unsided), part of the pelvis and the upper legs. The bone was extremely fragmented, fragile and crumbly, and it had suffered a considerable amount of surface erosion resulting in loss of detail. It was evident that much of the bone had been held together by the soil *in situ*.

Minimum Number of Individuals

6.34 The minimum number of individuals represented by the remains was one, as there was no duplication of bone elements.

Assessment of age-at-death

6.35 The individual was an adult based on the fact the proximal femur, acetabulum, and a hand phalanx had completed development. Unfortunately, none of the parts of the skeleton required for a more precise age estimate had survived.

Sex estimation

6.36 Skeleton 1 was probably male, based on the presence of a narrow greater sciatic notch (
Photo 14:), absence of the composite arch, and probable absence of a preauricular sulcus.

Metric analysis and non-metric traits

6.37 The femora were well-enough preserved to calculate the platymeric index. Both femora fell into the platymeric range, indicating flattening of the proximal femur: the right femur had an index of 71.07 and the left femur had an index of 69.66. Unfortunately, the skeleton was too incomplete and poorly preserved to observe whether most non-metric traits were present or absent.

Pathological conditions

6.38 Both femora had short, blunt ridges of bone 20mm-30mm long on their posterior midshafts, projecting ~3mm from the medial lip of the linea aspera at the insertion of either the *adductor magnus* muscle or *adductor longus* muscle (Photo 15:). These muscles act to adduct the thigh, pulling the leg back towards the midline of the body. It is possible the short ridges resulted from an injury to these muscles leading to ossification at their attachment site. These muscles are typically injured when suddenly accelerating when running, kicking, or making rapid changes in direction, and in modern populations these injuries are often associated with playing sport (Serner *et al.* 2019; Eckard *et al.* 2017). Indeed, strains of the adductor muscles are one of the most common muscle strain injuries experienced by modern athletes (Elattar *et al.* 2016). Symptoms include pain and tenderness in the groin, and although these injuries typically heal well following rest and gradual return to activity there is a risk of decreased range of movement and loss of strength (*ibid.*).

Funerary practices

6.39 Skeleton 1 (adult male?) was buried lying supine with head to the west and legs extended in the fill of the easternmost of two parallel ditches. His right arm was parallel with his torso, with his right hand next to his right hip, but the position of his left arm and hand was unclear due to the poor preservation. A highly corroded iron object found with the skeleton during cleaning was possibly a buckle measuring around 24mm x 11mm, which might indicate the body was buried clothed (Jennifer Jones, *pers. comm.*).

Discussion

6.40 The human skeleton recovered from Hurworth was incomplete, largely due to the extremely poor preservation causing considerable fragmentation and surface erosion of the bones. Much of the fragile bone had disintegrated and the surviving parts were partially held together by soil. Despite the condition of the skeleton limiting the information that could be gained during the osteological analysis, it was possible to determine the skeleton was that of an adult probable male, and that he had potentially experienced healed muscle-strain injuries in his legs often associated with intensive physical activity (Elattar *et al.* 2016).

6.41 Unfortunately, the condition of the skeleton also prevented successful radiocarbon dating, which makes it impossible to fully contextualise this individual. Given that much of the settlement evidence in the immediate vicinity dated to the 2nd to 4th centuries AD, and that the skeleton had been buried in the backfill of the ditch, it seems most likely the skeleton is of Roman date. Inhumation was the predominant burial rite in the later Roman period (Smith *et a*l. 2018; Philpott 1991, 226), so it is possibly more likely the skeleton is of later Roman date, although inhumation burials certainly do occur in the earlier Roman period (Pearce 2008; Smith *et al*. 2018).

6.42 Burials within ditches associated with settlements and enclosures do occur with relative frequency at rural sites in the Roman period (Cleary 2000, 137-138). Smith *et al*. (2018, 231) have noted that 61% of rural sites with evidence for formal internment contained individual or small numbers of burials, frequently within or aligned with ditches. Such burials tended to be more commonly seen at farmsteads and villas, rather than nucleated settlements (*ibid.*, 235). For example, one of the four Iron Age or Roman burials at the farm settlement at Faverdale to the north of Darlington was that of an unsexed adult who had been buried within a boundary ditch (Proctor 2012). Further afield, nine individuals dating to the early and later Roman period were buried among rural settlement activity at Yapham Lane, Pocklington, including four adult males (who all dated to the later Roman period) and five non-adults; eight of these individuals (including all four adult males) were buried in the fills of ditches (Loeffelmann *et al.* 2019). It is possible that burial within ditches is associated with the liminal status of the dead, with burials either reinforcing the boundary or acting to constrain the influence of the dead (Cleary 2000, 137-138). Smith *et al*. (2018, 231) have indicated it is likely particular individuals were selected for burial in these locations, either to "*reinforce territorial boundaries in terms of land tenure and ownership, or for more cosmological reasons connected with the agricultural cycle*".

6.43 A west/east orientation (as observed at Hurworth) is often associated with Roman period burials, especially those in larger organised cemeteries near urban and military centres, but does occur also in rural burials of the period (O'Brien 1999, 5).

For example, a young child at Cowpen Bewley, Stockton-on-Tees was buried with their head to the west in a stone-lined cist at the corner of a large enclosure (Archaeological Services 2020b), and a mix of east/west and north/south burials was observed at Ingleby Barwick, Stockton-on-Tees (Willis & Carne 2013) and at Faverdale, Darlington (Proctor 2012). Likewise, burial in an extended supine position (as at Hurworth) is also common in the Roman period (Smith *et al*. 2018). All 12 of the later Roman adults buried in graves among the rural settlement at Wattle Syke, West Yorkshire were placed in an extended supine position, with arms in varied positions including with hands placed next to the hips (Martin *et al.* 2013). The unsexed adult buried in a ditch at Faverdale, Darlington was also supine (Proctor 2012), as were three of the burials at Ingleby Barwick where burial position could be determined (Willis & Carne 2013), and the four adult males buried in ditches at Yapham Lane, Pocklington (Loeffelmann *et al.* 2019). However, the leg positions of the latter varied, including one with legs extended and parallel, one with legs extended and crossed at the shins, one with legs slightly flexed and with knees possibly raised, and one young male who had been buried in a 'frog-leg' position, with knees out to the sides and soles of the feet together.

6.44 A small iron object, possibly a buckle, was associated with the Hurworth individual, which could suggest this person had been buried clothed. Grave goods become less frequent in the later Roman period, especially in the north-east of England where around 17% of rural burials were afforded grave goods (Smith *et al*. 2018). Buckles were not among the individual grave goods recorded by Smith *et al*. (2018, 226, Table 6.4), but could potentially have been among the items classified as 'other personal object', which were present in 55 rural burials, including two from the north-east. However, buckles were among belt fittings observed with six of the 15 Roman adult individuals buried in the small cemetery at Hollow Banks Quarry, Scorton, North Yorkshire, near the Roman town and fort at Catterick (Eckardt *et al*. 2015). Most had been buried within wooden coffins in an extended and supine position, with arms folded over the abdomen or either side of the body, although orientation varied. Five individuals (four males and one unsexed adult) appeared to have been wearing a belt, while the sixth (an unsexed adult) had a belt (possibly no longer fully functional) placed at their feet; four of these individuals were also buried with crossbow brooches (*ibid*.). Eckardt *et al*. (2015) note that belts are not commonly found in Romano-British burials, but when they do occur, they are considered a symbol of power associated with high status male burials associated with the Roman military. The fact that five of the burials appeared to have been buried clothed was suggested as a possible indicator of non-local traditions, and isotopic analysis confirmed that at least four of these individuals had migrated to the area, although it was not always possible to determine whether they were from other parts of Britain or parts of Europe (*ibid*.). The Hurworth individual was probably male but had been buried in a ditch rather than a formal cemetery, and lacked any other evidence for grave goods or presence of a coffin (though preservation was poor). The identification of the iron object as a buckle was not certain due to the level of corrosion, and its position in the grave was unclear as it was identified during cleaning of the bone post excavation. Furthermore, given the inability to radiocarbon date the skeleton, the Roman date of the burial is also not definite (see below). Therefore, a considerable amount of caution should be exercised in drawing too many conclusions from the rather limited evidence recovered.

6.45 While it seems likely that the burial dates to the Roman period given the date of the settlement evidence, a post-Roman date cannot be excluded. An unsexed adult dated to 433-593 cal AD was excavated at Cowpen Bewley, Stockton-on-Tees, and the location of the grave within the upper fill of the easternmost of two parallel ditches interpreted as a droveway (Archaeological Services 2020b) shares some parallels with the location of the burial at Hurworth. However, while the burial at Cowpen Bewley was also aligned west/east, the body was lying on its right side with legs tightly flexed and lacked apparent grave goods. Post-Roman burials observed at other Roman settlement sites include a flexed burial of a mature adult male dating to the 6th to 7th century AD at Wattle Syke, West Yorkshire, located in the backfill of a Roman building (Martin *et al.* 2013), and Bainesse Site 46, Catterick, North Yorkshire, where late Roman burials within a field system associated with the roadside settlement likely continued into the early 5th century AD (Wilson 2002). Bayliss (2002) noted it was likely that at least one of the burials post-dated AD 410.

6.46 The evidence for burial at Hurworth provides some limited evidence for burial practice in the Romano-British period in an area where such evidence is fairly sparse (Smith *et al*. 2018).

Animal bone analysis

Results

6.47 A very small assemblage of poorly preserved faunal remains was recovered from Romano-British contexts, mostly ditch fills. Among the hand-recovered finds only nine cattle or cattle-size fragments and three sheep/goat fragments were identifiable. With one exception, there were no hand recovered finds of bone from the sampled contexts which produced faunal remains. Pig was identified in the finds from the samples, as well as sheep/goat and cattle.

6.48 The sample of posthole fill [2018] produced the most interesting find, a concentration of burnt sheep/goat fragments. The remains include tooth enamel, rib fragments and parts of the feet, probably with articulating toes as there are fragments of proximal metacarpal, proximal and distal metatarsal, sesamoids and first phalanges. One rib with a fused epiphysis on the capitulum suggests that an adult animal is represented. There appears to have been deliberate selection of body parts for burning and deposition in one event.

Discussion

6.49 Similar deposits to posthole fill [2018], of burnt sheep bones in pit or ditch fills, have been encountered on other Romano-British sites in northern England, ranging from Rudston villa in East Yorkshire (Chaplin and Barnetson 1980, 155-6) to Maryport fort in Cumbria (Gidney 2020, 54-7). The present find is complemented by another from the site excavated immediately to the south (Archaeological Services 2020a), which demonstrates that this practice was not confined to elite sites or rural sites in East Yorkshire, such as Pocklington (Archaeological Services 2019b).

6.50 A widespread cultural practice is indicated, with remains from specific meals needing to be disposed of separately from mundane household rubbish and beyond the reach of scavenging dogs. A sacrificial meal, akin to the Passover lamb, might be envisaged.

Ceramic building materials analysis

Results

6.51 The assemblage consists of 11 fragments of ceramic building material and 10 scraps (Table 1.5).

6.52 The assemblage contains tiles in two distinct fabrics; a standard, sandy orange fabric (6 fragments) and one, often pale orange, with additional opaque white inclusions (5 fragments). The quantity of inclusions varies, but can be plentiful, and range from 0.5mm to 4mm across. The largest fragment of flue tile (standard fabric) has very roughly executed lattice keying using a comb 40mm wide but with only four teeth, context [2002]. There is a single fragment from a chimney pot/ventilator or finial from context [2100], made in a fine version of the fabric with white inclusions. It is very fragmentary but has the remains of a circular or arched opening with a projecting thick flange above it and a small hole (D: 5mm) pushed through the wall *ante-cocturam*.

6.53 Despite the small size of the group, the tiles indicate the presence of a building of some pretensions in the area with at least one heated room, potentially baths. It is possible that rural sites in the region used ceramic building material principally for heated structures rather than for general roofing – the villa complex at Ingleby Barwick had stone and organic roof coverings rather than ceramic, and the villa at Dalton-on-Tees primarily used stone roof tiles despite having box tiles from a heating system, while flue tiles made up 58% of identified tiles from the settlement at Faverdale (Hunter and McLaren 2013, 128; Sudds 2012, 117, and calculated from table 18). None of the other local sites have produced an example of a chimney pot, although examples of a different design (thin-walled with pie-crust flanges) were used on buildings in the *vicus* at Piercebridge (Croom *et al.* 2008, D9.180-1).

Iron objects analysis

Results

6.54 A small and highly corroded iron object, SF1, was found during work on the human remains, SK1. It was recovered from approximately the left arm/torso region, context [2061]. The object was X-radiographed (XR) in several views, but could not be defined clearly. It appears to be a distorted, circular to oval shape, *c*.24mm long x *c*.11mm wide max and may be a small buckle, as one XR view suggests the presence of a buckle pin at one end (Photo 16).

6.55 The object was considered to be too highly corroded for any investigative conservation/corrosion removal to add to its identification without jeopardising its survival. In addition, the quality and colour of the overlying iron corrosion products, which completely encase it, strongly suggest mineralised leather, though no surviving structure could be seen under X20 magnification.

6.56 A further seven fragmentary and incomplete iron objects were found in four contexts, five of them parts of nails. Extremely corroded nail fragments (3) came from the sample residue from pit context [2164] and another very highly corroded nail fragment, with tiny pieces of unburnt coal adhering, came from posthole fill context [2015]. These examples could be Roman. A brad-type part nail with a narrow head 12mm wide was found in topsoil [2001].

6.57 An undateable, highly corroded bar fragment 45mm long x 22mm wide, with both short ends broken also came from topsoil [2001]. A rather more solid part object, rectangular in section 89mm x 32mm x 11mm thick came from subsoil [2002]. This may be a tool fragment, as the X-radiograph shows a broken integral handle or tang. Likely to br post-medieval to modern.

Discussion

6.58 The iron fragment that was found closely associated with the human remains may have formed part of the person's clothing or accessories at interment, suggesting that he was clothed when buried.

Lithics

Summary

6.59 Two pieces were recovered but only one of these, a retouched flake from context [2047], is worked. Although the piece is not diagnostic, it probably dates to somewhere between the Mesolithic to the early Bronze Age.

Results

6.60 A small retouched flake was recovered from context [2047], a furrow. The flake is non cortical, on brown flint, with a feather termination and marginal butt. There are two removals on the dorsal as well as a surface which is natural and more weathered. The left dorsal edge displays very fine, non-invasive retouch forming a small notch or hook. The piece is not diagnostic in terms of a date, but given its size and the delicacy of retouch, as well as some evidence of platform preparation, it is more likely to be of an earlier date, perhaps Mesolithic to early Bronze Age (L = 16.77mm, W = 9.45mm, Th = 3.76mm).

6.61 The other piece is an almost fully cortical chunk of flint from ditch fill [2200]. One surface which could be classed as the ventral is certainly natural. The other is equally rough but there is one removal with a visible negative bulb of percussion. This could be evidence of working but given that the rest of the piece is completely natural and of poor quality the removal of such a small flake does not make technological sense. It is more likely that the removal is the result of plough damage or some form of impact in the soil.

Discussion

6.62 The retouched flake is in fresh condition and suggests limited post-depositional movement, but on its own it does not give much information about activities at the site. It was most likely discarded as people travelled through the landscape during the earlier prehistoric period.

Glass

Results

6.63 Two very small pieces of glass were recovered from the residues of gully fill context [2211] and grave fill context [2061]. The flake from [2211] is an unweathered, bright green modern body sherd. The tiny (6mm x 5mm x 0.6mm thick) fragment from [2061] is a thin body sherd of unweathered colourless glass. This is too small for any identification as to original form, but it may possibly be part of a glass vessel which was included in the burial from this context.

Heat-affected stones

Results

6.64 Fifteen pieces of heat-affected or heat-cracked stone came from 8 posthole, pit, furrow and watercourse contexts [2004], [2047], [2075], [2164], [2165], [2167], [2195] & [2220]. Most are shattered fragments of water-rounded pebbles and small boulders, but a few are more angular stones. Some pebbles from [2165] & [2167] are too small to have been used effectively in, for example, cooking and may derive from the vicinity of a hearth or from a conflagration.

6.65 Stones were heated and used extensively in the past to heat water, to cook food and also in aspects of industrial and craft activity. Undateable alone, their presence confirms occupation and/or industrial, craft and domestic activity in the area.

Fired clay

Results

6.66 A small quantity (*c.*30g wt) of fragments of abraded fired clay or daub were recovered from the residues of 5 contexts, a posthole [2018], a pit [2022], a furrow [2047], a ditch [2102] and a gully [2211]. None can be dated or identified to origin. An extremely small but hard-fired brick/tile flake from the residue of posthole [2220] is likely to be post-medieval to modern in date.

Lead object

Results

6.67 Topsoil [2001] had an irregularly-shaped piece of moderately corroded lead 57mm x 43mm x 8mm thick. Its edges and one face show evidence of cutting. Undateable.

Industrial and fuel residues

Results

6.68 Scant evidence of ironworking was produced, with just one dense fragment of indeterminate ironworking slag hand-recovered from ditch context [2198]. Very small quantities of hammerscale (<25g wt) were recovered from the sample residues from contexts [2015], [2022], [2077], [2170] & [2220], with most found in pit context [2022] and posthole context [2015]. These finds are undateable in themselves, but do suggest that a limited amount of ironworking (possibly episodic smithing) was being carried out on site.

6.69 A small piece of fuel ash slag – the inorganic residue from the reaction of burnt fuels with stone or earth – came from pit context [2167]. Small, unidentified fragments (<15g wt) of a burnt, calcium-rich material were found in the sample residue from pit context [2164]. The residue from posthole context [2220] had some small, worn lumps (*c.*30g wt) of finely layered ash, soil and clay-like material, which may be the abraded remains of a floor or working surface. Undateable.

Conservation

Results

6.70 The trays of fragile human bone plus soil were digitally X-radiographed using a GE Medical MPX X-ray source. The images produced by the Konica Minolta Aero digital reader were each printed out at A3 size, to be used against the actual bone/soil fragments when the human bone analysis was carried out. In this way, information that was not visible from the bone in its uncleaned state, was made available to the

specialist to allow an assessment to be made of the condition and potential of the fragmentary and very fragile remains.

7. The palaeoenvironmental evidence

Introduction

7.1 A palaeoenvironmental assessment was undertaken on 33 samples from the evaluation and excavation phases (Archaeological Services 2018a; 2019a). Features sampled include large enclosure ditches, a former watercourse and various other deposits (e.g. pits, gullies, postholes) associated with a large Romano-British rural settlement (*c*.2nd to 4th centuries). Limited evidence for an earlier phase of activity in the Late Iron Age/early Romano-British period was identified. The excavated area forms the northern edge of a significantly larger Romano-British settlement and analysis of this palaeoenvironmental data is ongoing (Archaeological Services 2020a; forthcoming).

7.2 This report presents updated results from the palaeoenvironmental assessments, together with further analysis of plant macroremains from selected samples. Pollen and insect analysis have been undertaken on a former watercourse.

7.3 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010).

Pollen analysis

Methods

7.4 One 2ml subsample was extracted from watercourse deposit [2195]. The subsample was submitted to the laboratories at Quaternary Scientific (QUEST), University of Reading for chemical preparation. The pollen was extracted as follows (1) sampling a standard volume of sediment (1ml); (2) adding two tablets of the exotic clubmoss *Lycopodium clavatum* spores to provide a measure of pollen concentration in each subsample; (3) deflocculation of the subsample in 1% Sodium pyrophosphate; (4) sieving of the subsample to remove coarse mineral and organic fractions (>125μm); (5) acetolysis; (6) removal of finer minerogenic fraction using Sodium polytungstate (specific gravity of 2.0g/cm^3); (7) mounting of the subsample in glycerol jelly. Each stage of the procedure was preceded and followed by thorough subsample cleaning in filtered distilled water.

7.5 An Olympus binocular polarising microscope was used for identification at x400 magnification. The pollen reference manuals by Moore *et al*. (1991) and Beug (2004) were used to aid in pollen identification alongside the author's own reference collection. Nomenclature for pollen follows Beug (2004). Reference photographs and criteria from van Geel *et al*. (2003) were used to aid in the specific identification of NPPs. Types of microscopic charcoal were identified according to Courtney Mustaphi & Pisaric (2014).

7.6 Analysis involved recording pollen grains, spores and non-pollen palynomorphs (NPPs) until a count of 300 total land pollen (TLP) was achieved (Table 1.6).

Results

7.7 The results of the pollen analysis indicate excellent concentrations of pollen, with good preservation of pollen grains (Table 1.6). Some grains were folded, which is suggestive of compaction or the extrusion of water from the sediments (Delcourt & Delcourt 1980).

7.8 The pollen seen in [2195] was dominated by herbaceous taxa, in particular, grasses (Poaceae). Other taxa such as sedges (Cyperaceae), dandelions (*Taraxacum* is included in *Crepis*-type), the pink family (Caryophyllaceae), buttercup (*Ranunculus acris*-type), meadowsweet (*Filipendula*) and crucifers (Brassicaceae) were also present and suggest meadows/grassland. Taxa indicative of disturbed ground included plantains (*Plantago* sp. and *Plantago lanceolata*-type), goosefoot (Chenopodiaceae), nettle (*Urtica*) and common knotgrass (*Polygonum aviculare*-type). One cereal grain was recorded, however it was crumpled and further identification was not possible.

7.9 Tree pollen was sparse, but pollen grains from alder (*Alnus*), birch (*Betula*) and oak (*Quercus robur*-type) were present, suggesting that trees were growing in the wider landscape. However, all three trees are wind-pollinated and prolific pollen producers; therefore, given the low amounts of pollen present, it is likely that the tree pollen originated at a distance from the site.

7.10 Microcharcoal from the burning of wood and leaves/grasses was present.

Discussion

7.11 One sample, from a watercourse feature containing a primary fill of black clayey silt [2195] was examined for pollen and non-pollen palynomorphs. The sample was dominated by pollen indicative of a grassland/meadow environment, such as grasses, buttercup, dandelions and flowers from the pink family. Given the proximity to the Cree Beck it is likely that the wider area consisted of flood meadows. Many of the taxa present are consistent with those found in present day flood meadows (Jefferson & Pinches, nd), and include buttercups, meadowsweet, dandelion, plantains and sedges. The presence of the single cereal pollen grain suggests that cultivation was likely taking place in the wider landscape, and not directly at the site.

7.12 Evidence of disturbed ground from the presence of common knotgrass, plantain, nettle and goosefoot also suggest that the ground had been rucked-up or trampled. It is not possible to tell whether this was by people or animals, but likely activities that would cause this type of disturbance include heavy trampling on paths, or around features in fields such as a waterhole. However, the low number of fungal spores associated with herbivore dung (single occurrences of both *Sordaria* and *Podospora*), suggests that if grazing animals were present, they were there infrequently.

7.13 The presence of microcharcoal suggests that burning took place close to the site, it was composed of a mixture of burning wood, leaves and grasses. With tree pollen being low, it would suggest that trees were growing at some distance from the site or had not reached pollen production. This lack of trees in the landscape would suggest that the microcharcoal had an anthropogenic origin, in that the wood was likely brought into the area for fuel.

Insect analysis

Methods

7.14 A single bulk sample from watercourse deposit [2195] was examined for insect remains using standard methods. The sample was provided ready processed and sieved to 300μm. After rewashing, the flot was processed using a standard paraffin flotation method (Kenward *et al.* 1980). Insect remains were identified using standard reference texts and material held within UCD School of Archaeology. Taxonomy follows that adopted by Lucht (1987) with revisions by Böhme (2005). The computer package BugsCEP (Buckland & Buckland 2006) was utilised to provide correct taxonomic order and ecological information for individual taxa.

7.15 For the purpose of interpretation, insects were assigned to one of the following ecological groupings (modified from Robinson 1981; 1983) using ecological information derived from Koch (1989a; 1989b; 1992): **AD** = arable or disturbed ground taxa; **GR** = Grassland taxa; **PD** = pasture or dung indicators (including indicators of nitrophile weeds); **REF** = refuse taxa; **RI** = Riparian taxa, common in waterside locations; **AQ** = Aquatic taxa; **T** = woodland taxa – see Graph 1.8. Taxa which could not clearly be assigned an ecological grouping were deemed 'unclassified' and not counted in the final sum for percentage calculations. Specific modifications from the original grouping criteria have been made primarily to limit the numbers of 'unclassified' taxa and hence draw the maximum amount of ecological information from the assemblage.

Results

7.16 A moderate assemblage of 66 individuals (including Trichoptera cases) was recorded. This was dominated by two elements: aquatic insects and species characteristic of dung/refuse (Table 1.7; Graph 1.8).

7.17 Of the aquatic species identified there were none characteristic of fast-flowing waters, while the likes of *Helophodus grandis*, *H. brevipalpis* and *Agabus bipustulatus* are very typical species of stagnant or slow-flowing waters including temporary water bodies with surrounding vegetation (Merritt 2006; Hansen 1987). These strongly suggest a backwater environment - not receiving significant input from the faster waters of an active channel.

7.18 A number of species also imply the presence of waterside vegetation. These include the weevil *Notaris acridulus*, typical of reeds and rushes (Lindroth *et al*. 1973), *Gastrophysa viridula* which lives on *Rumex* sp. often on floodplains (Duff 1993) and some waterside carabids such as *Agonum gracile*, *Bembidion assimile* and *Dyschirius globosus*. *A. gracile* is usually typical of very wet ground, including fens and bogs (Holmes *et al.* 1993), while *B. assimile* is generally found at the margins of densely vegetated water bodies (Luff 1998).

7.19 The dung/refuse component of the assemblage includes several species of *Aphodius* dung beetles. These include generalists such as *Aphodius contaminatus* and *A. granarius* as well as two taxa – *A. fimetarius* and *A. ater* - with a preference for cattle dung (Floate & Gill 1998; Landin 1961). Several other taxa indicate damp refuse or mud, especially the staphylinids *Platystethus alutaceaus, P. nitens* and *Anotylus nitidulus*. *P. alutaceus* is usually found in mud at the edge of ponds (Hammond 1971), as is *P. nitens*, although the latter is also recorded from refuse and animal burrows (Koch 1989a). *A. nitidulus* prefers fouler substrates, including flood trash,

manure and carrion (Backlund 1945). Notable by their absence are the group of oxytelline staphylinids typical of very foul conditions (e.g. many *Anotylus* spp.) suggesting decomposing organic matter but mostly relatively clean rather than an anoxic, dung-filled puddle.

7.20 The wider area includes a mixture of grassland (especially indicated by the Garden Chafer – *Phyllopertha horticola* – Duff 1993) with some woodland present. Two woodland taxa were recovered, the generalist weevil *Polydrusus cervinus* and the scolytid bark beetle *Xyloterus signatus*. This last is characteristic of old woodland pastures where it lives in fungoid wood, especially of oak or beech (Alexander 2002).

Discussion

7.21 This moderate assemblage is consistent with having been derived from a heavily vegetated backwater channel or pool within a partially wooded floodplain environment. Some old trees are likely to have been present, possibly representing a parkland type environment. While there is substantial indication of grazing, most likely by cattle, and stagnant/slow-moving water, there are few indications of intensive agriculture which tends to lead to very foul assemblages. There are also no synanthropic taxa recorded, nor any insects that would be regarded as being of archaeological significance. In particular, there are neither any members of Kenward & Hall's 'House Fauna' nor assemblages characteristic of stable manure (Kenward & Hall 1995; 1997). While the assemblage has some similarities to faunas recovered from wells, the total lack of synanthropic taxa, very foul indicators and mould taxa suggests it is more likely that this represents a natural floodplain depression that functioned as a watering hole for large herbivores.

Plant macroremains and charcoal

Methods

7.22 The bulk samples were manually floated and sieved through a 500μm mesh. To recover additional waterlogged plant remains from watercourse [F2068], a sub-sample (1.5 litres) was washed through a stack of sieves (150μm, 250μm, 500μm, 2mm). Flots were examined at up to x60 magnification using a Leica MZ7.5 stereomicroscope. The residues were examined for additional charred plant remains and charcoal, alongside finds, industrial residues, bone and shell.

7.23 Identification of plant remains and charcoal was undertaken using reference material held in the Palaeoenvironmental Laboratory at Archaeological Services Durham University. Selected charcoal fragments in the >4mm sieve fractions were identified through examination of the transverse, radial and tangential sections at up to x500 magnification using a Leica DM2500 microscope. Charcoal identifications were assisted by the descriptions of Gale & Cutler (2000), Hather (2000) and Schweingruber (1990). Plant remains identifications were compared with seed atlases and manuals (Berggren 1969; Jacomet 2006; Cappers *et al*. 2006). Charred plant remains were quantified by recording diagnostic elements as one where possible (e.g. cereal embryos), or by noting the number of fragments present. Waterlogged plant remains were recorded semi-quantitatively on an abundance scale (1-5): 1 = 1-2; 2 = 3-10; 3 = 11-40; 4 = 41-200; 5 = >200. Charcoal and other material which could not be accurately quantified were recorded on an abundance scale. Plant nomenclature follows Stace (2010) and habitat classifications follow Preston *et al.* (2002).

Results

7.24 Radiocarbon dating results are summarised in Table 1.13. Updated results from the palaeoenvironmental assessments are presented in Table 1.9. Results from full analysis of the charred and waterlogged plant remains for selected samples are presented in Tables 1.10, 1.11 and 1.12.

Watercourse [F2068]

7.25 Sampling of a former watercourse [F2068] produced a well-preserved assemblage of waterlogged plant macroremains (Table 1.10). The assemblage is composed of wild/weed taxa which primarily reflect wet/damp and ruderal habitats.

7.26 Abundant rushes (*Juncus* sp.) and sedges (*Carex* spp.) indicate (seasonally) wet areas along the watercourse edges. This interpretation is supported by the presence of lesser spearwort (*Ranunculus flammula*), blinks (*Montia fontana*) and branched bur-reed (*Sparganium erectum*). Low numbers of duckweeds (*Lemna* sp.), crowfoots (*Ranunculus* subgenus *Batrachium*) and caddis fly larvae (Trichoptera) cases suggest areas of shallow, standing or very slow-moving water. Stonewort (Characeae) oospores are often associated with standing water, although some species grow in seasonally wet/disturbed soils and they have been recorded in areas disturbed through trampling by cattle (Moore 1986; Schubert *et al.* 2018).

7.27 Species characteristic of ruderal (and possibly arable) habitats are well-represented, including henbane (*Hyoscyamus niger*), common nettle (*Urtica dioica*), small nettle (*Urtica urens*), common chickweed (*Stellaria media*), redshank (*Persicaria maculosa*), knotgrass (*Polygonum aviculare*), goosefoots (*Chenopodium* spp.), fumitories (*Fumaria* sp.), wild radish (*Raphanus raphanistrum*), docks (*Rumex* sp.), selfheal (*Prunella vulgaris*), violets (*Viola* sp.) and parsley-pierts (*Aphanes* sp.). Rough, wet grassland is suggested by silverweed (*Potentilla anserina*), cf. tormentil (*Potentilla* cf. *erecta*), buttercups (*Ranunculus* subgenus *Ranunculus*), grasses (Poaceae) and thistles (*Cirsium/Carduus* sp.). A tiny hazel nutshell fragment is the only indication of scrub/woodland. Wood remains are restricted to a few indeterminate scraps.

7.28 Small assemblages of charcoal and charred plant remains were recovered from the watercourse [F2068] during both the evaluation and excavation phases (Tables 1.9 & 1.11). Charcoal is frequent, although generally highly fragmented and selected fragments are identified as ash, alder and birch. Charred plant remains are present in low-densities (<5 items/litre), with evidence for cereal remains (spelt, hulled barley) and arable weeds (scentless mayweed, bromes). Other material present includes heather stems, rhizomes/tubers, a pignut tuber, sedges and heath-grass. A barley grain from [2195] returned a radiocarbon date of 80-240 cal AD (SUERC-96289).

7.29 Three undated intercutting pits [F2058; F2060; F2064] were identified adjacent to watercourse [F2068]. A sample from one of these pits [F2058] produced a small quantity of birch charcoal, heather stems, rhizomes/tubers, monocotyledon stems, wheat grains and wild/weed taxa, including a further record of branched bur-reed.

Pit [F2169]: a corn-drier or oven?

7.30 A large, elongated pit [F2169] with a series of distinctive burnt deposits was partially excavated and sampled. Further analysis was undertaken on the charred plant remain assemblages (Table 1.11) and a summary of the data is presented in Table

1.12. As is outlined below in more detail, this feature is probably a collapsed oven or simple form of corn-drier.

7.31 The upper fills, [2163] and [2165], are largely composed of charred plant remains associated with damp, grassy heathland habitats (e.g. heather stems, heather flowers, rhizomes/tubers, monocotyledon stems, sedges, heath-grass, small grasses, wood-rush, ribwort plantain). Heather stems dominate [2163], whilst the deposit below [2165] contains frequent rhizomes/tubers. This material probably reflects *in situ* charred turf, composed of a vegetative layer [2163] above matted roots [2165].

7.32 This charred 'turf' [2163; 2165] seals a thin (50mm) cereal-rich band [2167] above a more 'mixed' basal deposit [2168]. These lower deposits [2167; 2168] contain high densities of poorly preserved cereal remains and arable weeds, especially [2167]. Wheat/spelt-type grains form 81% of the identifiable grains, alongside some intact spelt spikelets and wheat/spelt chaff (glume bases, spikelet forks). Other cereal species recorded include 6-row hulled barley and trace quantities of rye. Low numbers of detached cereal embryos (sprouts) are noted. Arable weeds recorded include scentless mayweed, stinking chamomile, poppies, wild radish, docks and goosefoots. Charcoal (willow/poplar, cf. blackthorn/plum) and grassy, heathland vegetation (e.g. heather, sedges, heath-grass) form a relatively small component of these lower fills [2167; 2168].

7.33 A spelt spikelet from the cereal-rich band [2167] returned a radiocarbon date of 130-330 cal AD (SUERC-96285) and spelt-type grains from the basal fill [2168] were dated to 120-240 cal AD (SUERC-96530). There is good reason to assume that the cereal remains dated were charred within the same 'event' or that the deposits were formed within a short time period. The two dates were tested for internal consistency (Ward & Wilson 1978). The dates are statistically consistent (T'=1.7; T'5%=3.8; df=1), with a weighted mean of 130-240 cal AD (95.4%).

Enclosure ditches

7.34 A series of large enclosure ditches were identified across the site with evidence for multiple phases of recutting, as is typical of Romano-British rural settlements. Samples were taken from 11 of these features during the evaluation and excavation phases. Pottery recovered from the ditch fills suggests a mid-Romano-British date (*c*.3rd century) for some of these features, and this is supported by radiocarbon dating. A wheat grain (cf. emmer wheat) from the fill [2102] of ditch [F2103] returned a date of 210-350 cal AD (SUERC-96283), whilst willow/poplar charcoal from the fill [2097] of ditch [F2099] returned a date of 230-380 cal AD (SUERC-96284). A fragment of cf. alder charcoal from a gully [2211; F2216] within the base of ditch [F2101] returned a radiocarbon date of 160 cal BC-20 cal AD (SUERC-96290), potentially suggesting that the archaeobotanical assemblage contains residual material.

7.35 The samples consistently produced very low densities of charcoal and charred plant remains, with some features only containing minute indeterminate fragments of charcoal. The assemblages of charred plant remains include small quantities of wild/weed taxa typical of damp, grassy heathland habitats (e.g. heather, rhizomes/tubers, sedges, heath-grass). Crop-processing debris is present in several features, often consisting of poorly preserved cereal remains (spelt, barley) and probable arable weeds (e.g. bromes). The fill [2102] of ditch [F2103] produced cf.

emmer-type grains with a narrow shape and a high, asymmetrical dorsal ridge, although diagnostic chaff to confirm this identification is absent (cf. Jacomet 2006).

Possible timber roundhouses and other features

7.36 A range of other features (pits, postholes, gullies) were sampled across the site, particularly within the south-eastern area of the excavation. Many of these features probably date to the mid-/late Romano-British period, although some Late Iron Age or early Romano-British activity is also present. In particular, features sampled include the fragmentary remains of probable timber roundhouses which are defined by irregular clusters of postholes, pits and curvilinear/eaves-drip gullies. A barley grain from a possible structural posthole [F2017] returned a radiocarbon date of 50 cal BC-120 cal AD (SUERC-96281). Other material dated includes a wild radish pod (130-320 cal AD; SUERC-96282) from posthole [F2019] and a spelt-type grain (210-350 cal AD; SUERC-97655) from a probable roundhouse eaves-drip gully [F2083]. It has not been possible to achieve close dating for most of the isolated features within this south-eastern area and consequently the assemblages are discussed together.

7.37 In general, the samples contain only small quantities of charcoal and charred plant remains, consisting of crop-processing debris (spelt, barley), hazel nutshell and wild/weed taxa (heather stems, rhizomes/tubers, heath-grass, sedges). This range of evidence is directly comparable to the enclosure ditch samples and it is characteristic of background settlement 'noise' throughout the Late Iron Age and Romano-British periods. Fragmented coal and hammerscale is noted in several features and particularly common in posthole [F2017] and pit [F2023], suggesting a relationship to metal-working activity (smithing).

7.38 Some of the features sampled, however, contain notably higher concentrations of charred plant debris typical of damp, grassy heathland habitats. In particular, posthole [F2019] appears to contain the remnants of charred turf/heather. Fragments of vesicular material containing vegetative impressions (cf. burnt turf) are particularly common in the flot. Charcoal is rare, whilst monocotyledon stems, rhizomes/tubers and heather stems are common, including a mixture of small diameter (<2mm) and basal stem fragments. Low numbers of false oat-grass tubers are noted. Propagules of sedges, blinks and heath-grass (caryopses, florets) are particularly common, occurring alongside a range of other species (ribwort plantain, lesser spearwort, docks, redshank/pale persicaria, small grasses). Soil fungus sclerotia (*Cenococcum geophilum*) are present in trace quantities. Other charred remains present include small quantities of crop-processing debris. Nearby features, including pit [F2023] and an isolated posthole [F2066], similarly produced flots composed largely of cf. burnt turf fragments and damp, grassy heathland vegetation (e.g. heather, sedges, heath-grass).

Discussion and synthesis of palaeoenvironmental evidence

Crops

7.39 Spelt wheat and 6-row hulled barley are present across the samples and these were the main crops cultivated during the later prehistoric and Romano-British periods (Hall & Huntley 2007; Lodwick 2017). The occurrence of cf. emmer wheat and rye is unusual for this period, with both crops probably only existing as weed contaminants (cf. Jones & Halstead 1995). Spelt has a high gluten content, making it particularly well-suited to producing bread and other foodstuffs, as well as being used for brewing ale (Dickson 1990). In comparison, 6-row hulled barley has traditionally

been highly valued as animal fodder, although it was also a food crop in this period (Britton & Huntley 2011). Barley is capable of growing in poor conditions and its cultivation alongside spelt would have buffered against risks of crop failure, especially during periods of ecological stress (Halstead 2014).

7.40 There are few indications of marked changes in crop husbandry practices across the later Iron Age/Roman transition in the north-east region. However, by the mid-/late Romano-British period there is a clear increase in the scale of arable production at a national level, with a particular focus on spelt cultivation (Lodwick 2017). Locally, evidence for large-scale cultivation of spelt is seen at nearby sites in the Tees Lowlands such as Cowpen Bewley (Archaeological Services 2020b) and Ingleby Barwick (Huntley 2011). At Hurworth, most deposits contain too few cereal remains to identify this, however the dominance of wheat/spelt-type grains in a mid-Romano-British pit [F2169] would fit with this pattern. Forthcoming analysis of mid- to late Romano-British features in the field to the south at Hurworth suggests that many of the features are similarly dominated by spelt (Archaeological Services 2020a; forthcoming).

Crop husbandry

7.41 The arable weeds recovered are typical of later prehistoric and Romano-British sites in the north-east, including wild radish, docks, brome, oat (probably wild oat), scentless mayweed, docks and goosefoots (Hall & Huntley 2007; Lodwick 2017). Evidence for stinking chamomile and poppies in pit [F2169] is notable since these species appear to be 'new' weeds, first recorded in the north-east around the mid- to late Romano-British period. They were probably introduced alongside rye as weed contaminants of spelt seedcorn (cf. van der Veen 1992). At Ingleby Barwick and Cowpen Bewley, stinking mayweed and poppies were similarly found in association with crop-contaminants (bread wheat, rye) in spelt-rich samples associated with corn-driers (Huntley 2011; Archaeological Services 2020b). A further record of stinking mayweed comes from a Romano-British corn-drier at nearby Rockliffe Park (Johnson 2009).

7.42 The arable weed flora is consistent with cultivation in the local area, reflecting use of the fertile and relatively free draining soils which would have existed in areas adjacent to the watercourse (now the Cree Beck) and River Tees. Wild radish is frequently associated with the cultivation of light, moist and slightly acidic soils (McKerracher 2019). In comparison, stinking chamomile is characteristic of heavier clay soils, however, on lighter soils it is replaced by scentless mayweed and this is the more abundant species here (Kay 1971; 1994). Other species present (e.g. sedges, heath-grass, sheep's sorrel) could also have been arable weeds of damp and acidic areas (e.g. Hillman 1991), although these remains are probably instead associated with the burning of turves/heather as fuel (Hall & Huntley 2007; see below).

7.43 The low-densities of cereal remains and arable weeds present across most of the features sampled are characteristic of background settlement noise. This material derives from the routine processing of cereals for domestic use, notably the de-husking of spelt wheat (Stevens 2003). Once spelt is harvested, threshing breaks the ears into spikelets (two grains tightly enclosed in chaff). Further processing (de-husking) is then required to release the grain (Hillman 1984). Spelt is traditionally stored in the spikelet to provide protection from damage (e.g. insects) and de-

husking can then be undertaken at a later date depending on labour availability or where wet summers hinder processing. These by-products of spelt de-husking would later be reworked into features such as pits and ditches where they become mixed with other sources of material such as fuel waste, stable manure, industrial residues and other sources of occupation debris.

A corn-drying kiln or oven?

7.44 The sequence of burnt deposits in pit [F2169] suggest that this feature is a collapsed oven or corn-drier with a turf superstructure. Charred remnants of turves composed of heathy vegetation [2163; 2165] sealed a thin cereal-rich band [2167] above a 'mixed' basal fill [2168]. Turves were commonly used in the superstructures of ovens and corn-drying kilns during the later/post-medieval periods, and probably also during the Romano-British period; regular use would have resulted in inadvertent burning/charring of the structure (Ellis 2002; 2017; cf. Huntley 2011). Skill was required in drying crops using kilns/ovens since destructive fires were a relatively frequent occurrence. Turves also provided a good fuel source in these structures since they produce few sparks which could accidentally ignite the crop (Hillman 1982).

7.45 The cereal-rich deposits [2167; 2168] are indicative of a crop inadvertently charred during drying or parching, perhaps on the verge of spoiling given the presence of detached embryos (sprouts). This could have been a mixture of clean grain and spikelets; chaff is likely to be significantly under-represented in poorly preserved deposits such as this (Boardman & Jones 1990). Corn-drying kilns are a common feature of mid-/late Romano-British sites and thought to reflect an expansion in arable agriculture (Allen & Lodwick 2017). They range in form from the classic T-shaped kilns to simple 'bowls' attached to flues, comparable to the example discussed here (Lodwick 2017). Corn-driers have been identified in the field to the south at Hurworth, and at a small number of other sites in the Tees Lowlands including Rockliffe Park, Ingleby Barwick and Cowpen Bewley (Johnson 2009; Huntley 2011; Archaeological Services 2020a; 2020b).

Watercourse [F2068] – a livestock watering hole

7.46 Direct information on the local environment in the early/mid-Romano-British period is provided by the assemblage of waterlogged plant remains from watercourse [F2068]. The plant remains reflect vegetation growing *in situ* and the soil seed-bank, with some material possibly moved short distances via water transport (Cappers 1993). The watercourse contained shallow, standing (or very slow moving) water bordered by a wet/damp habitat composed of rushes, sedges and rough grassland. Ruderal (nitrophilous) species suggest anthropogenic disturbance, probably related to livestock trampling and dung deposition. This interpretation is supported by insect remains which indicate stagnant/slow-moving water in a floodplain environment with evidence for grazing, probably by cattle (see paragraph 7.21). Similarly, pollen analysis indicates a largely unwooded, meadow/grassland environment with evidence for disturbed ground (see paragraphs 7.11-12).

7.47 Taken together, analysis of plant macroremains, insects and pollen provides strong evidence for use of the feature as a waterhole for livestock. Waterholes are a common feature of Romano-British rural settlements, and similar evidence has been recovered from nearby Faverdale (Proctor 2012) and other settlements in north Yorkshire (e.g. Daniel 2019; Powell *et al.* 2020).

The local environment and rural economy

7.48 The wider landscape around the settlement and rural economy can be examined through the assemblages of charcoal and charred plant remains recovered. Charred plant debris characteristic of damp, grassy heathland habitats occurs across the features sampled, irrespective of their phasing or date. This material typically consists of heather stems, rhizomes/tubers and propagules of sedges, heath-grass, blinks and ribwort plantain, alongside small quantities of charcoal (birch, alder, willow/poplar, oak). Heath-grass is represented by both caryopses and florets which are closely comparable to cleistogamous florets which form at the base of the culm (cf. Chater 2007). Other wild/weed taxa probably also originating from damp grassland or heathland habitats are lesser spearwort, wood-rushes, small grasses, sheep's sorrel and tubers of false oat-grass and pignut (Hall 2003). In some cases, this material occurs alongside cf. burnt turf fragments.

7.49 This range of charred plant remains can be best interpreted as deriving from turves/heather cut from areas of 'rough' heath as sources of construction material (e.g. roofing, ovens), fodder and fuel (Hall 2003). Heather was traditionally cut in the form of turves or sods, incorporating surrounding vegetation and a layer of matted root material immediately below the soil surface, whilst turves *sensu stricto* were cut from lower depths (Warde & Williamson 2014).

7.50 Later prehistoric and Romano-British sites across the north-east routinely produce charred plant debris associated with damp, grassy heathland habitats (Hall & Huntley 2007). Locally, this is seen at several sites in the Tees Lowlands including Thorpe Thewles (van der Veen 1987), Newton Bewley (Archaeological Services 2000), Catcote (Huntley 1989), Ingleby Barwick (Huntley 2011), Teesside to Saltend Pipeline (Neal 2000), Red Hall (Archaeological Services 2018b), Rockliffe Park (Johnson 2009) and Faverdale (O'Brien 2012). The samples from Hurworth provide particularly strong evidence that turves/heather were being used as a fuel source, probably alongside small quantities of wood and coal. Evidence for hammerscale in several samples suggests some fuel debris is linked to metal-working activity. The use of turves/heather as fuel may partly have been in response to a decline in the availability of woodland, possibly in attempt to conserve or manage remaining supplies.

7.51 This characteristic range of charred plant debris would have become widely dispersed across settlements due to the discard of ashes/fuel debris from the routine burning of turves/heather. Ashes have also traditionally been valued as a flooring material in animal byres, later becoming incorporated with other 'midden material' for use as a fertiliser in fields (cf. Milek 2012). This may account for the occurrence of this charred plant debris as 'background noise' across settlements and within enclosure ditches.

7.52 Pollen diagrams across the Tyne-Tees region point to widespread woodland clearance during the later prehistoric period, with little evidence to suggest that woodland levels fluctuated significantly during the Romano-British period (Fenton-Thomas 1992; Dark 1999). On-site pollen records from Romano-British rural settlements in the Tees Lowlands such as Faverdale and Ingleby Barwick suggest that landscapes around rural settlements were predominately open, comprising patchworks of woodland, heath, grassland (pasture) and arable areas (Ranner 2011; Langdon & Scaife 2012). The pollen evidence from Hurworth indicates an open

environment of meadows/grassland, probably with some woodland in the wider landscape (see paragraph 7.11). A partially wooded, meadow floodplain environment is also suggested by insect remains (see paragraph 7.21).

7.53 Woodland clearance has contributed significantly to the development of lowland heath across northern Europe, especially during the later/post-medieval periods, and these biodiverse habitats are recognised as 'cultural landscapes' (Groves *et al.* 2012). Archaeobotanical evidence from later prehistoric and Romano-British settlements in the north-east suggests that there was potentially an earlier, smaller-scale expansion in lowland heath around this period; this is now a rare and protected habitat in the Tees Lowlands (Brodin 2001).

8. Radiocarbon dating

8.1 AMS radiocarbon dating and calibration were carried out by the Scottish Universities Environmental Research Centre (SUERC), East Kilbride, Scotland. The charred macrofossil material selected for nine individual dates provided adequate carbon for accurate measurement in each case, and analyses proceeded normally. Two samples of human bone did not contain sufficient carbon to provide a date. Sample information and results are summarised in Table 1.13, and details of the results and calibrations are presented in Appendix 4.

9. Conclusions

Introduction

9.1 The remains excavated on the site are part of a Roman settlement, dating to the 2nd to 4th century. This mainly comprised large enclosure ditches, within which were pits, gullies, postholes and possible wall foundations. Previous archaeological investigations in the field immediately to the south indicate that these remains form the north-western part of a much larger settlement. Evidence of earlier activity was identified on both sites, probably dating to the Iron Age, which suggests a previous phase of occupation.

Phase 1 – possible Iron Age

9.2 Two curvilinear gullies were identified in the eastern part of the site, which may be the remains of roundhouses, though these had been heavily truncated by later enclosure ditches. In the south-east corner of the trench were two distinct clusters of postholes. The structural purpose of the northern cluster was unclear, as no clear shape or alignment could be identified; a radiocarbon date of 50 cal BC-120 cal AD was obtained from a posthole in the northern group. The southern cluster formed a straight line with another posthole and a gully directly to the north that may have been associated. These were located close to the southern edge of the trench and there may have been further associated features beyond the limits of the excavation. Several other small pits and postholes probably dating to this phase were scattered across the site. Two features contained limited evidence for smithing occurring on the site.

Phase 2 – Roman

9.3 The main features of the Roman settlement on the site were a series of enclosure ditches. Many of these showed evidence of recutting and realignment, with most truncating at least one other ditch. This indicates that there were several phases of

enclosure during the lifetime of the settlement. Two concentric gullies were recorded, one of which was radiocarbon dated to 210-350 cal AD. These may be the ephemeral remains of a roundhouse. Several small pits and gullies were identified across the site, though generally the purpose of these features was unclear. However, palaeoenvironmental analysis indicates that one of these pits may have been an oven or corn-drier. Six radiocarbon dates were produced from these features, five of which dated to between 120-380 cal AD. The final date was 160 cal BC-20 cal AD from a gully cut by an enclosure ditch, though pottery from the same feature suggested a Roman date so this result is likely to be erroneous due to residual charcoal. Pottery dating from the 2nd to 4th centuries was recovered from these features, with most dating to the late 3rd century onwards.

9.4 Spreads of red sandstone were recorded in four areas, which may be the fragmentary remains of wall foundations. One of these truncated several earlier pits and postholes, with the remainder constructed over the upper fills of enclosure ditches, signalling a shift in the type of occupation in this area of the settlement. One of the potential foundations had associated cobble deposits, though again these were very fragmentary.

9.5 Human remains were recovered from one of the ditch fills in the north-eastern corner of the site. Preservation of the bones was very poor which limited the information that could be gained from the analysis. However, it was possible to discern that the skeleton was that of an adult, probably male, who had possibly experienced muscle-strain injuries his legs during his lifetime. These kinds of injuries are often associated with intensive physical activity. Radiocarbon dating was unsuccessful, but it is likely that the remains were Roman in date.

9.6 Deposits relating to a silted-up watercourse were recorded in the north-eastern corner of the site. A radiocarbon date of 80-240 cal BC was obtained from the lower, waterlogged deposit. Analysis of plant remains, pollen and insects from this deposit suggests that it was used as a waterhole for grazing livestock. The upper deposit overlay a Phase 3 feature, indicating that the watercourse had silted up over a long period of time, and is discussed further below.

Phase 3 – post-medieval and modern

9.7 A field boundary was recorded on an east/west alignment across the northern part of the site, truncating several of the Roman enclosures. This is visible on the 1839 tithe map and as a line of trees on the 1st edition Ordnance Survey (OS) map of 1855 (Figure 7); it appears as a full boundary once more on the 3rd edition OS map of 1914.

9.8 The field boundary was overlain by the upper deposit of the silted-up watercourse, which represents the former line of the Cree Beck, which bounded the eastern edge of the site. Historic mapping illustrates a clear shift in the course of the beck between 1839 and 1855 (Figure 7), which shows that the upper silting deposit is post-medieval in date. Both this deposit and the field boundary had been truncated by a substantial drain.

9.9 The results of the excavation and post-excavation analysis enabled the establishing of a site chronology for the transition from the Iron Age to the Roman period, with particular reference to the economy and changes in land use with the introduction

of enclosures. These are key research themes in the North-East Regional Research Framework (Petts & Gerrard 2006); this research covered priorities across the Iron Age and Roman periods.

Larger settlement

9.10 The remains found on the site were part of a larger settlement that extended into the field to the south. This site (referred to here as Hurworth South) was excavated in 2018 (Archaeological Services 2020a) and post-excavation analysis is currently ongoing (Archaeological Services forthcoming).

9.11 At Hurworth South, several roundhouses were recorded, providing evidence of Iron Age occupation; these roundhouses may have been part of the same settlement as the Phase 1 potential roundhouses and structural postholes recorded on the current site.

9.12 The Roman settlement recorded at Hurworth South was extensive, consisting of a complicated arrangement of intercutting enclosure ditches, interspersed with pits, postholes and gullies, as seen on this site. Some of the ditches recorded here can clearly be identified extending into the field to the south, demonstrating that they are part of the same enclosure system. Stone structures, including a rectangular building that was probably a barn, were recorded, along with a stone-lined well, a kiln and several ovens or corn-driers. These were all constructed out of red sandstone, with many of the walls overlying the upper fills of the enclosure ditches, as was also seen at this site. Burials, including cremations, were also identified.

9.13 An earlier phase of probable Iron Age occupation was identified at both sites, prior to its redevelopment as a rural Roman settlement.

Regional context

9.14 Proctor (2012, 11) writes that "*rural settlement patterns in the Roman period in the Tees lowlands comprised complex and extensive field systems associated with a small number of larger settlements, alongside localised networks of fields around neighbouring small settlements*". It is clear from the evidence discussed above that Hurworth fits neatly into this category. In recent years, a growing number of similar settlements have been identified across the region that are directly comparable with the settlement identified at Hurworth. These include the nearby sites of Rockliffe Park, 1.8km south of the site (Johnson 2009), Dalton-on-Tees, *c.*2.8km to the south-west (Brown 1999; 2000; Stobbs 2001) and Faverdale, located 7.3km north-west of Hurworth (Proctor 2012), as well as those further afield at Ingleby Barwick (Willis & Carne 2013) and Cowpen Bewley (Walsh & Platell 2021), 13.6km and 22.5km north-east of the site respectively (see Figures 9 & 10).

9.15 As seen at Hurworth, several of the sites listed above had Iron Age origins. Evidence of truncated roundhouses was recorded at Faverdale (Proctor 2012, 24), along with local traditional ware pottery that was not closely datable (*ibid*., 36). It was thought that these features reflected the remains of a 1st-century AD unenclosed settlement that developed straight into a 2nd-century farmstead (*ibid*., 36, 165). A possible roundhouse was also identified at Quarry Farm, Ingleby Barwick (Willis & Carne 2013, 29) and it was thought that further Iron Age occupation could have extended beyond the limits of the excavation (*ibid*., 168). At Saltholme, Cowpen Bewley, several pits were radiocarbon dated to the Iron Age; although the evidence here was

more sporadic, it was suggestive of occupation of this period in the immediate vicinity (Walsh & Platell 2021, 8, 11). No clear evidence of an earlier phase of occupation was recorded at Rockliffe Park or Dalton-on-Tees, though these sites were less extensively excavated, which could be a factor. Proctor (2012, 13, 69) suggests that occupation at many Iron Age sites continued into the Roman period, with a change of land use noticeable at many, possibly indicating a more organised agricultural purpose, perhaps to supply the military posted in the region. This may have been the case at Hurworth, with the Roman fort at Piercebridge located just 10km to the north-west of the site.

9.16 The enclosures at Hurworth were radiocarbon dated to between 120 and 380 cal AD, during which time there were several phases of recutting and realignment. This seems to follow a regional pattern evident at several of the other sites, which were similarly dated to the 2nd/3rd to 4th/5th centuries AD (Figure 10). Complicated enclosure systems displaying several phases of organisation were prominent features of the landscape at Faverdale (Proctor 2012, 39), Rockliffe Park (Johnson 2009, 11-12), Cowpen Bewley (Walsh & Platell 2021, 9) and Ingleby Barwick (Willis & Carne 2013, 33-51). Ditches were also visible on a magnetometer survey at Dalton-on-Tees, though here excavation was mainly focused on the buildings so interpretation was necessarily limited (Brown 1999). As at Hurworth, gullies, pits and postholes were recorded alongside these enclosure systems, which may have been related to the use of the enclosures, though in most cases this could not be determined. As most of these sites were only in use for 2 or 3 centuries, it seems likely that the sub-phases of the enclosures were fairly short-lived, with reorganisation of the land management systems happening on a fairly regularly basis.

9.17 At both Faverdale and Dalton-on-Tees, remains of stone buildings were identified constructed over the top of backfilled ditches (Proctor 2012, 72; Brown 1999, 10), though in both cases it is likely that some of the enclosure ditches were still in use. This is also likely to have been the case at Hurworth, where possible stone wall foundations were recorded over the upper fills of several of the ditches. It is thought that these buildings probably had an agricultural use so some form of land management would still have been ongoing on the site.

9.18 A burial was recorded at Hurworth, cut into the fill of an enclosure ditch. Unfortunately radiocarbon dating on these remains was unsuccessful, but the occurrence of human burials on Roman sites of this type is well-recorded, so it has been presumed to be roughly contemporary with the latest phase of Roman occupation (after the particular ditch it was found in had fallen out of use). Burials of this kind are also recorded at Cowpen Bewley (Walsh & Platell 2021, 8-11), Faverdale (Proctor 2012, 67) and Ingleby Barwick (Willis & Carne 2013, 42-52), often inserted into other features like ditches and corn-driers.

9.19 Locally produced pottery formed *c*.40% of the assemblage from Hurworth. Similarly, much of the pottery found at Dalton-on-Tees was of local traditional ware (Brown 1999, 12; Stobbs 2001, 17), as was 50% of the assemblage at Faverdale (Gerrard 2012, 77) and at least 27% at Ingleby Barwick (Evans & Mills 2013, 85). It is an acknowledged trend that the use of these wares increased in the later 3rd century in the north of England, but it has also been established that this kind of pottery was

used in bulk from at least the 2nd century at a more regional scale, which correlates with the dates of all of these sites.

9.20 Although only a small amount of ceramic building material was recovered from the site at Hurworth, it was enough to suggest the presence of a high status building in the immediate vicinity, with at least one heated room. This was also the case at Rockliffe Park, where a copper dish was found (Johnson 2009, 24) and at Cowpen Bewley, which produced fittings from a passenger vehicle and a *tegula* fragment (Walsh & Platell 2021, 11). Although no substantial building remains were identified by these excavation works, the finds are indicative of a villa-type building in the vicinity, associated with the enclosure systems. Villa buildings were recorded at both Ingleby Barwick (Willis & Carne 2013, 32) and Dalton-on-Tees (Brown 1999, 10), with a probable bathhouse located at Faverdale (Proctor 2012, 168), providing clearer examples of a standard Roman farmstead, where a villa complex would have been surrounded by an enclosure system and associated buildings, demonstrative of an economy based on agriculture.

9.21 The palaeoenvironmental assemblage is typical of late prehistoric and Romano-British sites across the north-east including Rockliffe Park (Johnson 2009), Faverdale (O'Brien 2012) and Ingleby Barwick (Huntley 2011). The pollen records from the site indicate that the surrounding area was open meadows or grassland, probably with woodland and floodplains in the vicinity. This kind of landscape was also suggested by the data from Faverdale and Ingleby Barwick (Langdon & Scaife 2012; Ranner 2011), suggesting that this these locations were deliberately selected to exploit the surrounding environment.

9.22 Other similarities are evident between the larger Hurworth settlement as a whole and the sites shown on Figure 9. At Hurworth South, several ovens or stone-built corn-driers were identified, along with a large rectangular building, a well and further burials, features that were also recorded at the other sites in the region. Once post-excavation analysis is complete on the excavation to the south, the Hurworth settlement can be placed more firmly into its regional context (Archaeological Services forthcoming).

Summary

9.23 Occupation at Hurworth probably began as an unenclosed Iron Age settlement before developing into a farmstead at some point in the 2nd century AD. This comprised a complex series of enclosure ditches, with some associated gullies, pits and postholes that may have related to the use of the enclosures. Stone buildings were constructed across the site after some of the ditches had fallen out of use, probably in the late 4th century. These remains formed the north-western part of a much larger settlement, which collectively is part of an emerging pattern of rural agricultural settlements of this period in the region.

9.24 The pottery assemblage from the site dated from the 2nd to the 4th century, with *c.*70% of the sherds dating to after 270 AD. Around 40% of the assemblage consisted of local traditional wares, which is common for sites of this type. Ceramic building material from the site was indicative of a high status building in the vicinity. Further artefacts recovered comprised small amounts of animal bone, including a specific deposition of sheep/goat remains, iron, lithics, glass, fired clay, industrial residues and lead.

9.25 The palaeoenvironmental evidence recovered is characteristic of a Late Iron Age and Romano-British settlement in the north-east. Spelt wheat and 6-row hulled barley were the main crops cultivated, with most samples containing low densities of crop-processing debris. One mid-Roman feature produced a large assemblage of spelt, together with crop-contaminants (rye, barley) and 'new' arable weeds (stinking chamomile, poppies). Plant macroremains, insects and pollen recovered from a former watercourse indicate a damp meadow/grassland environment with evidence for disturbance, probably related to use of the feature as a waterhole for livestock. Within the wider landscape, areas of lowland heath were important components of rural economies and exploited as sources of construction material, fodder and fuel.

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Appendix 1: Data tables

Table 1.1: Context data

The • symbols in the columns at the right indicate the presence of artefacts of the following types: P pottery, B bone, M metals, F flint, I industrial residues, G glass, CB ceramic building material, C fired clay.

No	Area	Description	P	B	M	F	I	G	T	C	CB
1	T1-19	Topsoil									
2	T1-19	Natural subsoil									
3	T9	Upper fill of recut ditch [F4]	•								•
F4	T9	Recut of ditch [F40] S/A recut ditch [F2081]									
5	-	VOID									
6	-	VOID									
7	T11	Fill of posthole [F8] S/A posthole fill [2024]									
F8	T11	Cut of posthole S/A posthole [F2025]									
9	-	VOID									
10	-	VOID									
11	T11	Fill of gully [F12] S/A gully fill [2091]									
F12	T11	Cut of gully S/A gully [F2092]									
13	T11	Fill of recut ditch [F14] S/A ditch fill [2120]									
F14	T11	Later recut of ditch [F2118] S/A recut ditch [F2101]									
15	-	VOID									
16	-	VOID									
17	-	VOID									
18	-	VOID									
19	-	VOID									
20	-	VOID									
21	T11	Fill of ditch [F22] S/A ditch fill [2095]									
F22	T11	Cut of ditch S/A ditch [F2099]									
23	-	VOID									
24	-	VOID									
25	T11	Upper fill of field boundary [F26] S/A field boundary fill [2181]									
F26	T11	Cut of field boundary S/A field boundary [F2183]									
27	T10	Fill of recut ditch [F28] S/A ditch fill [2222]									
F28	T10	Later recut of ditch [F2118] S/A recut ditch [F2101]									
29	T10	Fill of ditch [F30] S/A ditch fill [2114]									
F30	T10	Cut of ditch S/A ditch [F2115]									
31	T10	Fill of recut ditch [F32] S/A ditch fill [2053]									
F32	T10	Recut of ditch [F2142] S/A recut ditch [F2054]									
33	-	VOID									
34	-	VOID									
35	-	VOID									
36	-	VOID									
37	T9	Lower fill of recut ditch [F4]									
38	T9	Fill of ditch [F40]	•								
39	T9	Fill of ditch [F40]									
F40	T9	Cut of ditch S/A ditch [F2118]									
41	T4	Fill of probable natural depression [F42]									
F42	T4	Cut of probable natural depression									
43	T14	Fill of ditch [F44] S/A ditch fill [2170]									
F44	T14	Cut of ditch S/A ditch [F2171]									
45	T10	Fill of curvilinear gully [F46] S/A gully fill [2055]									

No	Area	Description	P	B	M	F	I	G	T	C	CB
F46	T10	Cut of curvilinear gully S/A curvilinear gully [F2056]									
47	T11	Fill of pit [F48]	•	•							
F48	T11	Cut of pit									
49	T10	Lower fill of watercourse [F50] S/A watercourse fill [2195]									
F50	T10	Cut of watercourse S/A watercourse [F2068]									
51	T10	Upper fill of watercourse [F50] S/A watercourse fill [2067]									
52	T11	Upper fill ditch [F53] S/A ditch fill [2080]									
F53	T11	Cut of ditch S/A recut ditch [F2081]									
2001	Exc	Topsoil			•						
2002	Exc	Subsoil			•				•		
2003	Exc	Natural subsoil									
2004	Exc	Fill of posthole [F2005]	•	•							
F2005	Exc	Cut of posthole									
2006	Exc	Fill of posthole [F2007]									
F2007	Exc	Cut of posthole									
2008	Exc	Fill of posthole [F2009]									
F2009	Exc	Cut of posthole									
2010	Exc	Subsoil overlying wall [F2011]	•								
F2011	Exc	Stone wall foundation									
F2012	Exc	Construction cut for wall [F2011]									
2013	Exc	Fill of posthole [F2014]									
F2014	Exc	Cut of posthole									
2015	Exc	Upper fill of posthole [F2017]	•		•		•				
2016	Exc	Lower fill of posthole [F2017]									
F2017	Exc	Cut of posthole									
2018	Exc	Fill of posthole [F2019]		•						•	
F2019	Exc	Cut of posthole									
2020	Exc	Fill of recut posthole [F2021]									
F2021	Exc	Recut of posthole [F2017]									
2022	Exc	Upper laminated fill of pit [F2023]	•				•			•	
F2023	Exc	Cut of pit									
2024	Exc	Fill of posthole [F2025]									
F2025	Exc	Cut of posthole									
2026	Exc	Fill of pit [F2027]									
F2027	Exc	Cut of pit									
2028	Exc	Deposit below pit [F2027]									
2029	Exc	Fill of posthole [F2030]									
F2030	Exc	Cut of posthole									
2031	Exc	Fill of construction cut [F2012]									
2032	Exc	Fill of posthole [F2033]									
F2033	Exc	Cut of posthole									
2034	Exc	Fill of posthole [F2035]									
F2035	Exc	Cut of posthole									
2036	Exc	Fill of posthole [F2037]									
F2037	Exc	Cut of posthole									
2038	Exc	Fill of pit [F2039]									
F2039	Exc	Cut of pit									
2040	Exc	Fill of pit [F2041]									
F2041	Exc	Cut of pit									
2042	Exc	Fill of pit [F2043] S/A pit fill [2040]									
F2043	Exc	Cut of pit S/A pit [F2041]									
2044	-	VOID									
2045	Exc	Fill of posthole [F2046]									
F2046	Exc	Cut of posthole									
2047	Exc	Fill of north/south furrows [F2048]		•		•			•	•	
F2048	Exc	Cut of north/south furrows									
2049	-	VOID									

No	Area	Description	P	B	M	F	I	G	T	C	CB
2050	-	VOID									
2051	Exc	Fill of posthole [F2052]									
F2052	Exc	Cut of posthole									
2053	Exc	Fill of recut ditch [F2054]	•								
F2054	Exc	Recut of ditch [F2142]									
2055	Exc	Fill of gully [F2056]									
F2056	Exc	Cut of gully									
2057	Exc	Fill of pit [F2058]									
F2058	Exc	Cut of pit									
2059	Exc	Fill of pit [F2060]									
F2060	Exc	Cut of pit									
2061	Exc	Fill of grave cut [F2062] (SK1)	•	•				•			
F2062	Exc	Grave cut (SK1)									
2063	Exc	Fill of pit [F2064]									
F2064	Exc	Cut of pit									
2065	Exc	Burnt fill of posthole [F2066]									
F2066	Exc	Cut of posthole									
2067	Exc	Upper fill of watercourse [F2068]									
F2068	Exc	Cut of watercourse									
2069	Exc	Fill of posthole [F2070]									
F2070	Exc	Cut of posthole									
2071	Exc	Fill of posthole [F2072]									
F2072	Exc	Cut of posthole									
2073	Exc	Fill of posthole [F2074]									
F2074	Exc	Cut of posthole									
2075	Exc	Burnt upper fill of posthole [F2076]									
F2076	Exc	Cut of posthole									
2077	Exc	Fill of curvilinear gully [F2078]					•				
F2078	Exc	Cut of curvilinear gully									
2079	Exc	Lower fill of posthole [F2076]									
2080	Exc	Fill of recut ditch [F2081]									
F2081	Exc	Recut of ditch [F2118]									
2082	Exc	Fill of curvilinear gully [F2083]									
F2083	Exc	Cut of curvilinear gully									
2084	Exc	Fill of pit [F2085]									
F2085	Exc	Cut of pit									
2086	Exc	Lower fill of pit [F2023]									
2087	Exc	Fill of posthole [F2088]									
F2088	Exc	Cut of posthole									
2089	Exc	Fill of posthole [F2090]									
F2090	Exc	Cut of posthole									
2091	Exc	Fill of gully [F2092]	•								
F2092	Exc	Cut of gully									
2093	Exc	Fill of elongated pit [F2094]									
F2094	Exc	Cut of elongated pit									
2095	Exc	Upper fill of ditch [F2099]	•	•					•		
2096	Exc	Fill of ditch [F2099]		•							
2097	Exc	Fill of ditch [F2099]		•					•		
2098	Exc	Lower fill of ditch [F2099]									
F2099	Exc	Cut of ditch									
2100	Exc	Fill of recut ditch [F2101]	•						•		
F2101	Exc	Later recut of ditch [F2118]									
2102	Exc	Fill of recut ditch [F2103]	•	•						•	
F2103	Exc	Recut of ditch [F2118] S/A recut ditch [F2081]									
2104	Exc	Fill of posthole [F2105]									
F2105	Exc	Cut of posthole									
2106	Exc	Fill of posthole [F2107]									
F2107	Exc	Cut of posthole									
2108	Exc	Fill of posthole [F2108]									
F2109	Exc	Cut of posthole									

No	Area	Description	P	B	M	F	I	G	T	C	CB
2110	Exc	Fill of recut ditch [F2111] S/A ditch fill [2053]									
F2111	Exc	Recut of ditch [F2142] S/A recut ditch [F2054]									
F2112	Exc	Possible wall foundation									
F2113	Exc	Possible wall foundation									
2114	Exc	Fill of ditch [F2115]	•								
F2115	Exc	Cut of ditch									
2116	Exc	Fill of ditch [F2118]									
2117	Exc	Lower fill of ditch [F2118]									
F2118	Exc	Cut of ditch									
2119	Exc	Upper fill of recut ditch [F2121]	•								
2120	Exc	Lower fill of recut ditch [F2121]									
F2121	Exc	Later recut of ditch [F2118] S/A recut ditch [F2101]									
2122	Exc	Fill of recut ditch [F2123] S/A ditch fill [2053]									
F2123	Exc	Recut of ditch [F2142] S/A recut ditch [F2054]									
2124	Exc	Fill of gully [F2125]									
F2125	Exc	Cut of gully									
2126	-	VOID									
2127	-	VOID									
2128	Exc	Fill of ditch [F2129]									
F2129	Exc	Cut of ditch									
2130	Exc	Fill of ditch recut [F2131]									
F2131	Exc	Recut of ditch [F2115]									
2132	Exc	Fill of recut ditch [F2133]		•							
F2133	Exc	Recut of ditch [F2142] S/A recut ditch [F2054]									
2134	Exc	Fill of ditch [F2136]									
2135	Exc	Lower fill of ditch [F2136]									
F2136	Exc	Cut of ditch S/A ditch [F2115]									
2137	Exc	Upper fill of recut ditch [F2133]									
2138	Exc	Fill of recut ditch [F2139] S/A ditch fill [2053]									
F2139	Exc	Recut of ditch [F2142] S/A recut ditch [F2054]									
2140	Exc	Fill of ditch [F2143]									
2141	Exc	Fill of recut ditch [F2142]									
F2142	Exc	Recut of ditch [F2143]									
F2143	Exc	Cut of ditch									
2144	Exc	Fill of ditch recut [F2145] S/A ditch fill [2130]									
F2145	Exc	Recut of ditch [F2115] S/ recut ditch [F2131]									
2146	Exc	Fill of ditch [F2147] S/A ditch fill [2114]									
F2147	Exc	Cut of ditch S/A ditch [F2115]									
2148	-	VOID									
2149	Exc	Fill of posthole [F2150]									
F2150	Exc	Cut of posthole									
2151	Exc	Fill of east/west furrows [F2152]									
F2152	Exc	Cut of east/west furrows									
2153	Exc	Fill of curvilinear gully [F2154]									
F2154	Exc	Cut of curvilinear gully									
2155	Exc	Fill of ditch [F2156]									
F2156	Exc	Cut of ditch									
2157	Exc	Fill of gully [F2158]									
F2158	Exc	Cut of gully									
2159	Exc	Fill of pit [F2160]	•								
F2160	Exc	Cut of pit									

No	Area	Description	P	B	M	F	I	G	T	C	CB
2161	Exc	Fill of ditch [F2162]									
F2162	Exc	Cut of ditch									
2163	Exc	Upper fill of pit [F2169]	•								
2164	Exc	Fill of pit [F2169]	•		•						
2165	Exc	Fill of pit [F2169]	•								
2166	Exc	Fill of pit [F2169]									
2167	Exc	Fill of pit [F2169]									
2168	Exc	Lower fill of pit [F2169]		•							
F2169	Exc	Cut of pit									
2170	Exc	Fill of ditch [F2171]					•				
F2171	Exc	Cut of ditch									
2172	Exc	Fill of posthole [F2173]									
F2173	Exc	Cut of posthole									
2174	Exc	Fill of gully [F2175]									
F2175	Exc	Cut of gully									
2176	Exc	Fill of possible pit/depression [F2178]	•	•							
2177	-	VOID									
F2178	Exc	Cut of possible pit/depression									
2179	Exc	Fill of drain [F2180]									
F2180	Exc	Cut of drain									
2181	Exc	Upper fill of field boundary [F2183]									
2182	Exc	Lower fill of field boundary [F2183]									
F2183	Exc	Cut of field boundary									
2184	Exc	Fill of posthole [F2185]									
F2185	Exc	Cut of posthole									
2186	Exc	Fill of posthole [F2187]									
F2187	Exc	Cut of posthole									
2188	Exc	Fill of ditch [F2189]									
F2189	Exc	Cut of ditch									
2190	Exc	Upper fill of ditch [F2192]									
2191	Exc	Lower fill of ditch [F2192]									
F2192	Exc	Cut of ditch									
2193	Exc	Fill of posthole [F2194]									
F2194	Exc	Cut of posthole									
2195	Exc	Lower fill of watercourse [F2068]	•	•							
2196	Exc	Fill of posthole [F2197]									
F2197	Exc	Cut of posthole									
2198	Exc	Fill of recut ditch [F2199] S/A ditch fill [2100]	•	•					•		
F2199	Exc	Later recut of ditch [F2118] S/A recut ditch [F2101]									
2200	Exc	Fill of recut ditch [F2201]		•		•					
F2201	Exc	Recut of ditch [F2118] S/A recut ditch [F2081]									
2202	-	VOID									
2203	Exc	Fill of ditch [F2204]									
F2204	Exc	Cut of ditch									
2205	Exc	Fill of gully [F2206]							•		
F2206	Exc	Cut of gully									
2207	Exc	Fill of gully [F2208]									
F2208	Exc	Cut of gully									
2209	Exc	Fill of recut ditch [F2210] S/A ditch fill [2120]	•	•					•		
F2210	Exc	Later recut of ditch [F2118] S/A recut ditch [F2101]									
2211	Exc	Fill of gully [F2216]	•	•				•		•	
2212	Exc	Sandstone spread overlying cobbles [F2217]									
2213	Exc	Stone deposit within cut [F2214]									
F2214	Exc	Construction cut for stone deposit [2213]									
F2215	Exc	Cobble deposit									

No	Area	Description	P	B	M	F	I	G	T	C	CB
F2216	Exc	Cut of gully									
F2217	Exc	Cobble deposit									
2218	Exc	Stone deposit within cut [F2219] S/A deposit [2213]									
F2219	Exc	Construction cut for stone deposit [F2218] S/A construction cut [F2214]									
2220	Exc	Fill of posthole [F2221]					•				
F2221	Exc	Cut of posthole									
2222	Exc	Fill of recut ditch [F2223]									
F2223	Exc	Later recut of ditch [F2118] S/A recut ditch [F2101]									
2224	Exc	Fill of pit [F2226]									
F2225	Exc	Cobble deposit in pit [F2226]									
F2226	Exc	Cut of pit									

Table 1.2: Details of Phase 1 postholes

Feature no.	Fill no.	Shape	Length	Width	Depth	Description of fill
F2007	2006	Oval	0.37m	0.18m	0.1m	Grey-brown silty clay
F2009	2008	Sub-circular	0.43m	0.38m	0.1m	Grey-brown silty clay
F2014	2013	Circular	0.3m	0.29m	50mm	Grey-brown silty clay
F2017	2015; 2016	Oval	0.62m	0.4m	0.28m (0.2m/80mm)	Grey silty clay; grey-brown silty clay
F2025=F8	2024=7	Sub-circular	0.42m	0.38m	80mm	Grey-brown silty clay
F2030	2029	Circular	0.4m	0.4m	80mm	Grey-brown silty clay
F2046	2045	Sub-circular	0.61m	0.53m	70mm	Grey-brown silty clay
F2052	2051	Sub-circular	0.54m	0.45m	0.1m	Grey-brown silty clay
F2070	2069	Sub-circular	0.61m	0.57m	40mm	Grey-brown silty clay
F2072	2071	Circular	0.52m	0.51m	60mm	Grey clay with pink patches
F2074	2073	Circular	0.66m	0.66m	90mm	Grey-brown silty clay
F2088	2087	Oval	0.69m	0.6m	0.19m	Grey-brown silty clay
F2090	2089	Unclear due to truncation	0.4m	Over 0.15m	0.1m	Grey-brown silty clay
F2105	2104	Oval	0.43m	0.34m	0.17m	Grey-brown silty clay
F2107	2106	Oval	0.33m	0.28m	0.22m	Grey-brown silty clay
F2109	2108	Oval	0.36m	0.24m	0.16m	Grey-brown silty clay
F2150	2149	Teardrop	0.77m	0.63m	50mm	Grey-brown silty clay

Table 1.3: The pottery assemblage by fabric, shown as a percentage

Fabric	NRFRC	Wt (g)	No	EVE
Samian		2.2	1.7	
Mortarium				
Crambeck white	CRA WH	1.8	0.9	3
Unclassified		0.4	0.9	1.9
Fine wares				
Lower Nene Valley	LNV CC	1.4	1.7	3.8
Regional handmade wares				
Local traditional group 1.1		2.6	1.7	3
Local traditional group 2		4	0.9	1.9
Local traditional group 3.2		9.2	2.6	
Local traditional group 4.1		3.8	7.8	
Local traditional group 5.2		1.2	1.7	
Quartz-gritted		23.9	22.4	23.4
Calcite-gritted	HUN CG	3.8	1.7	4.7
Coarse wares				
Grey ware with pale core		1.4	1.7	7.1
South-east Dorset black burnished 1	DOR BB 1	26	30.2	28.8
BB2	BB 2	0.3	1.7	
Grey ware (fabric R8A)		0.8	2.6	1.9
Grey ware (fabric R12)		2.9	2.6	
Reduced ware (fabric R11)		0.5	0.9	1.1
East Yorkshire grey		2.7	1.7	9.1
Crambeck reduced	CRA RE	1.3	0.9	2.5
Continental white		4.7	0.9	
Sandy reduced wares		2.8	4.3	9.3
Unclassified oxidised wares		0.9	5.2	
Unclassified reduced wares		1.5	3.4	
Total		**1835**	**116**	**364**

Key
NRFRC = National Roman Fabric Reference Collection code (Tomber and Dore 1998)
Descriptions for the widely traded fabrics with National Reference Collection codes in Table 1.3 can be found in Tomber and Dore 1998, available at: http://romanpotterystudy.org.uk/nrfrc/base/. Other fabrics are described above, or within the pottery catalogue.

Table 1.4: Summary of osteological and palaeopathological results

Sk No	Preservation*			Age Group	Age	Sex	Stature (cm)	Dental Disease	Skeletal Pathology
	SP	F	C						
1	5	ext	10-20%	A	18+	M?	-	-	Rugged muscle attachments on both femora, possible soft tissue trauma

* SP = Surface Preservation, grades according to McKinley (2004; 2017); F = Fragmentation (minimal, slight, moderate, severe, extreme); C = Completeness.

Table 1.5: The assemblage by tile type

Tile type	No
Roofing tiles	
Tegulae	1
Imbrices	3
Ventilator	1
Wall/flooring tiles	
Flue	4
Uncertain	2
Total	**11**

Table 1.6: Pollen analysis, fill [2195] of watercourse [F2068]

Species/Other	Count
Trees	
Alnus	4
Betula	2
Quercus robur-type	2
Shrubs	
Corylus avellana	6
Salix	2
Heaths	
Calluna vulgaris	1
Empetrum	2
Herbs	
Poaceae undiff.	172
Cerealia-type	1
Cyperaceae	6
Brassicaceae	9
Crepis-type	39
Chenopodiaceae	8
Carophyllaceae	5
Filipendula	1
Matricaria-type	7
Plantago sp.	18
Plantago lanceolata-type	2
Ranunculus acris-type	1
Urticaceae	1
Rumex acetosa-type	2
Succisa-type	2
Scabiosa-type	1
Polygonum aviculare-type	18
Spores	
Polypodium	3
NPPS	
Podospora-type	1
Sordaria-type	1
Microcharcoal	
Microcharcoal: wood	70
Microcharcoal: leaf/grass	20
Exotic marker counted	90
Total Land Pollen	312
Unidentifiable: folded	32
Concentration	Good
Preservation	Good

Table 1.7: Insect analysis, fill [2195] of watercourse [F2068]

Species	MNI
Carabidae	
Dyschirius globosus (Hbst.)	1
Bembidion lampros (Hbst.)	1
Bembidion assimile Gyll.	1
Pterostichus sp.	1
Agonum gracile Sturm	1
Haliplidae	
Haliplus sp.	1
Dytiscidae	
Agabus bipustulatus (L.)	2
Agabus/Ilybius sp.	1
Colymbetes fuscus (L.)	1
Hydraenidae	
Hydraena riparia Kug.	1
Ochthebius sp.	3
Limnebius truncatellus (Thun.)	1
Hydrophilidae	
Helophorus grandis Ill.	2
Helophorus brevipalpis Bedel	4
Cercyon melanocephalus (L.)	1
Cercyon analis (Payk.)	1
Cercyon sp.	1
Hydrobius fuscipes (L.)	2
Silphidae	
Silphidae indet.	2
Staphylinidae	
Anotylus nitidulus (Grav.)	1
Platystethus alutaceus Thoms.	1
Platystethus nitens (Sahl.)	2
Stenus sp.	1
Philonthus sp.	1
Quedius sp.	1
Aleocharinae indet.	2
Elateridae	
Agriotes obscurus (L.)	1
Dascillidae	
Dascillus cervinus (L.)	1
Dryopidae	
Dryops sp.	1
Geotrupidae	
Geotrupes sp.	1
Scarabaeidae	
Aphodius contaminatus (Hbst.)	4
Aphodius fimetarius (L.)	1
Aphodius ater (Deg.)	3
Aphodius granarius (L.)	3
Aphodius sp.	3
Phyllopertha horticola (L.)	2
Chrysomelidae	
Gastrophysa viridula (Deg.)	1
Longitarsus sp.	1
Scolytidae	
Xyloterus signatus (F.)	1
Curculionidae	
Polydrusus cervinus (L.)	1
Notaris acridulus (L.)	1
Ceutorhynchus sp.	1
Trichoptera indet.	3

Graph 1.8: Pie chart showing ecological categories present within the insect assemblage. AD = Arable/disturbed; GR = Grassland; PD = Pasture/dung; REF = Refuse; T = Trees/woodland; RI = Riparian; WS = Slow water; AQ = Aquatics.

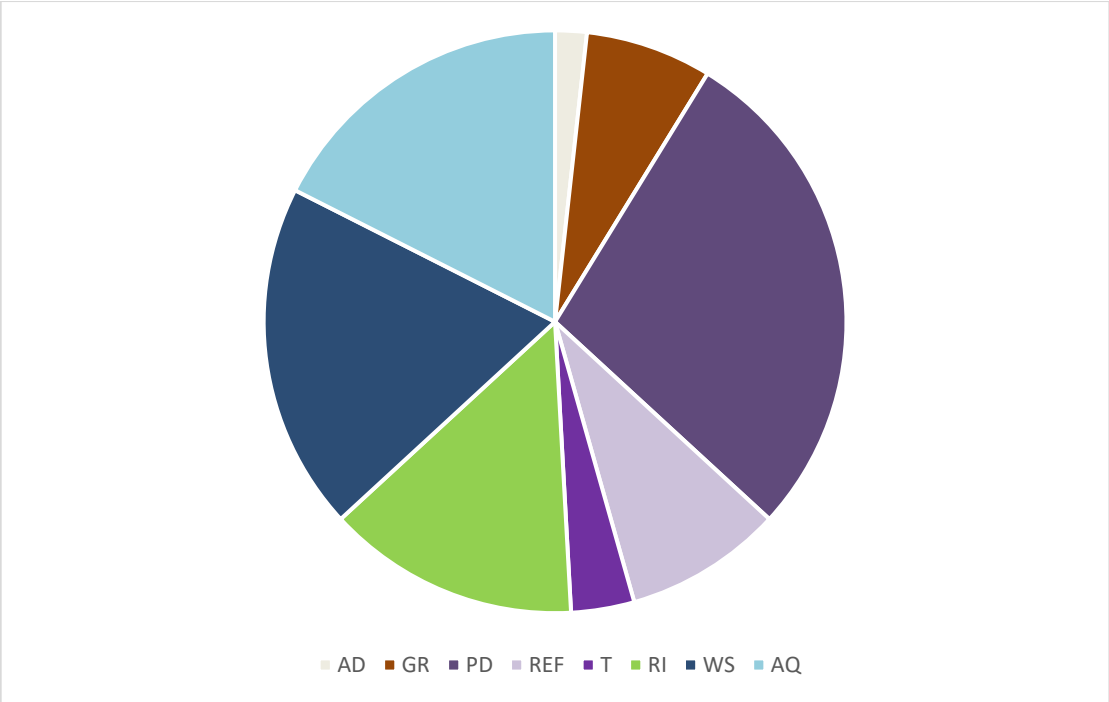


Table 1.9: Updated results from the palaeoenvironmental assessments, excluding analysed samples (evaluation and excavation phase)

Area	Sample	Context	Feature	Feature type	Volume processed (l)	Flot volume (ml)	Rank	Notes
Exc	1	2004	F2005	Posthole	21	10	*	Charcoal occasional, poor condition (birch). Trace of heather twigs, rare rhizomes/tubers. Other charred plant remains absent. Pottery LTW IA+
Exc	2	2015	F2017	Posthole	9.5	60	*	Charcoal rare, some insect degradation (alder, birch, oak, hawthorn group). Rare heather stems, rhizomes/tubers and monocotyledon stems. Low numbers of charred plant remains: indet cereal grains, hulled barley grain (cf. twisted), wild/weed taxa (grasses). Coal common, some fragmented clinker/cinder. Hammerscale common. C14 date on barley grain: 50 cal BC-120 cal AD. Pottery ?LTW IA+
Exc	3	2018	F2019	Posthole	17	200	***	Charcoal occasional (roundwood - hawthorn group) Frequent heather stems (mainly small diameter) and monocotyledon stems, large number of tubers/rhizomes (small grass-type + herbaceous), some false oat-grass tubers/basal culm nodes), monocot stems. Trace of cereal remains (spelt-type grain, spelt chaff) and ?arable weeds (cleavers, wild radish). Other wild/weed taxa common: mainly heath-grass (>20, inc. caryopses and florets), sedges (>50, mix of species) and blinks (>20), small/medium grasses, docks, lesser spearwort, pale persicaria/redshank, leaf buds. Trace of charred *Cenococcum* soil fungus sclerotia. Probable burnt turf fragments (up to 10mm), with vegetative impressions. Trace of coal. Some modern roots. Burnt/calcined animal bone. Turf burning for fuel? C14 date on wild radish pod: 120-320 cal AD.
Exc	4	2022	F2023	Pit	16	25	*	Charcoal rare (oak roundwood, willow/poplar roundwood, hazel stemwood with insect degradation). Small quantities of heather stems, occasional monocotyledon stems and rhizomes/tubers. Trace of cereal remains (indet grain, barley grain, spelt chaff, indet cereal grain and barley grain). Moderate number of charred wild/weed taxa, mainly heath-grass (>60, inc. caryopses and florets) and sedges (>20, mix of species), alongside and ribwort plantain, blinks, small grasses). Coal rare. Hammerscale common. Pottery ?LTW IA+
Exc	5	2047	F2048	Furrow	17	45	*	Some charcoal (oak roundwood). Small quantities of heather stems, rhizomes/tubers. Poorly preserved cereal grains (wheat), wild/weed taxa (redshank). Modern roots. Medieval furrow?

Area	Sample	Context	Feature	Feature type	Volume processed (l)	Flot volume (ml)	Rank	Notes
Exc	6	2057	F2058	Pit	19	50	*	Charcoal rare (birch roundwood). Small quantities of heather stems, rhizomes/tubers, monocotyledon stems. Low numbers of charred plant macrofossils. Cereal grains (wheat), wild/weed taxa (heath-grass, branched bur-reed). Modern roots common.
Exc	7	2061	SK1	Human burial	17	10	*	Flecks of charcoal, charred plant remains absent. Few small fragments of coal. C14 dates failed.
Exc	8	2065	F2066	Posthole	2	5	*	Trace of fragmented charcoal. Small quantities of heather stems, rhizomes/tubers. Low numbers of cereal grains (indet, spelt-type), ?arable weeds (large brome/oat-sized grasses), other wild/weed taxa (heath-grass). Flot primarily composed of fragmented cf. burnt turf. Fired clay fragments in residue.
Exc	9	2075	F2076	Posthole	4	10	*	Trace of fragmented charcoal. Small quantities of charred monocotyledon stems and rhizomes/tubers. Spelt-type wheat grain, ?arable weeds (brome), other wild/weed taxa (heath-grass, sedge, goosefoots).
Exc	10	2077	F2078	Gully	5	10	*	Charcoal (radially fractured oak slivers). Trace of charred rhizomes/tubers. Wheat grain, tiny hazelnut shell fragment, wild/weed taxa (heath-grass, grasses). Flot primarily composed of fragmented coal, some clinker/cinder. Trace of hammerscale.
Exc	11	2082	F2083	Gully	4	5	*	Trace of highly fragmented charcoal. Trace of rhizomes/tubers. Indet cereal grain, spelt-type grain. C14 date on spelt-type grain: 210-350 cal AD.
Exc	12	2102	F2103	Ditch	17.5	160	*	Charcoal rare (oak, hazel). Occasional heather stems (inc. >2mm fragments), rhizomes/tubers. Hulled barley grain, wheat grains (inc. cf emmer-type), wild/weed taxa (heath-grass, grasses, docks, vetch). C14 date on emmer-type grain: 210-350 cal AD. Pottery C3.
Exc	13	2097	F2099	Ditch	8	30	*	Charcoal rare (oak roundwood, willow/poplar). Rhizomes/tubers. Indet cereal grain, sedge. C14 date on willow/poplar charcoal: 230-380 cal AD.
Exc	14	2098	F2099	Ditch	2	5	*	Flecks of charcoal. Charred plant remains absent.
Exc	15	2114	F2115	Ditch	10	15	*	Charcoal occasional (all oak). Rhizomes/tubers rare, indet cereal grain, glume wheat rachis frag, wild/weed taxa (heath-grass, large oat/brome-sized grass, indet seeds). Fragmented coal occasional. Pottery LTW IA+

Area	Sample	Context	Feature	Feature type	Volume processed (l)	Flot volume (ml)	Rank	Notes
Exc	20	2170	F2171	Ditch	15	10	*	Flecks of charcoal. No charred plant macrofossils. Modern roots common. Trace of hammerscale.
Exc	22	2211	F2216	Gully	13.5	20	*	Charcoal rare (oak, cf. alder, cherries - cf. blackthorn). Trace of rhizomes/tubers. Indet cereal grain, wheat grain, wild/weed taxa (heath-grass, knotgrass, sedges, goosefoots). C14 date on cf. alder charcoal: 160 cal BC - 20 cal AD (charcoal prob residual, pottery 3C+).
Exc	23	2220	F2221	Posthole	5	15	**	Charcoal occasional (radially fractured oak slivers). Rhizomes/tubers rare. Indet cereal grains, 6-row hulled barley grain (twisted), barley rachis, ?arable weeds (few bromes, vetch), other wild/weed taxa (small grasses, heath-grass). Coal rare. Trace of hammerscale. Modern roots common.
Exc	24	2008	F2009	Posthole	3.5	10	*	Flecks of charcoal. Trace/small quantities of heather stems and rhizomes/tubers. Indet cereal grains, spelt wheat chaff (glume bases, spikelet fork), bromes, large grasses. Coal rare.
T9	Ev 1	3	F4	Ditch	20	60	*	Charcoal occasional (birch, hazel, ash, cherries). Occasional heather stems, rhizomes/tubers. Indet cereal grain, spelt-type grain, wild/weed taxa (small grasses, heath-grass). Rare fragmented coal and clinker/cinder. Pottery 4C?
T9	Ev 2	38	F40	Ditch	18	50	*	Charcoal occasional (birch, ash). Occasional charred heather twigs, rare rhizomes/tubers. Spelt-type grains, small grass. Trace of fragmented coal and clinker/cinder. Pottery 4C.
T4	Ev 3	41	F42	Natural depression?	5	30	*	Trace of charcoal (cherries), heather stems and rhizomes/tubers. Other charred plant remains absent.
T14	Ev 4	43	F44	Ditch	18	50	*	Trace of charcoal (oak) and rhizomes/tubers. Charred grass caryopsis. Occasional fragmented coal and clinker/cinder.
T10	Ev 5	45	F46	Gully	17	40	*	Charcoal rare (oak). Occasional rhizomes/tubers. Indet grains, hulled barley grain, spelt-type grain, ?arable weeds (black-bindweed, knotgrass), other wild/weed taxa (heath-grass). Occasional fragmented coal and clinker/cinder.

Area	Sample	Context	Feature	Feature type	Volume processed (l)	Flot volume (ml)	Rank	Notes
T11	Ev 6	47	F48	Pit	9	50	*	Charcoal rare (oak, cherries). Heather stems rare, rhizomes/tubers rare. Hazel nutshell fragment, small grass. Trace of coal, clinker/cinder. Pottery 4C.
T10	Ev 7	49	F50	Watercourse	20	50	**	Charocal rare (birch). Trace of rhizomes/tubers. Indet cereal grains, barley grains (inc. hulled), barley rachises, spelt-type grains, ?arable weeds (scentless mayweed). Occasional fragmented coal, clinker/cinder.
T10	Ev 8	49	F50	Watercourse	9	40	**	Charcoal rare (ash, oak). Rare charred rhizomes/tubers. Indet grain, barley grains (inc. hulled), barley rachises, spelt-type grains, spelt glume bases, ?arable weeds (bromes), other wild/weed taxa (heath-grass, small grasses). Rare fragmented coal and clinker/cinder.
T11	Ev 9	52	F53	Ditch	8	40	*	Charcoal rare (oak). Rare heather stems, rhizomes/tubers. Spelt glume bases, wild/weed taxa (heath-grass). Rare fragmented coal, clinker/cinder.

[Rank: *: low; **: medium; ***: high; ****: very high potential to provide further palaeoenvironmental information; sample numbers prefixed with 'Ev' are from the evaluation phase].

Table 1.10: Waterlogged (uncharred) plant remains, watercourse [F2068]

Sample		**21**
Context		**2195**
Feature		**F2068**
Feature type		**W**
Volume processed (l)		1.5
Flot matrix		
Caddis fly (unch.)	larval case	(+)
Charcoal		+
Charred plant remains		+
Coal		(+)
Vegetative material (unch.)		++
Wood (unch.)	indet	(+)
Waterlogged/uncharred remains (abundance)		
(a) *Fumaria* sp (Fumitories)	seed	2
(a) *Raphanus raphanistrum* (Wild Radish)	pod	1
(a) *Urtica urens* (Small Nettle)	achene	2
(g) *Potentilla anserina* (Silverweed)	achene	1
(h) *Rumex acetosella* (Sheep's Sorrel)	nutlet	1
(q) Characeae undiff. (Stonewort family)	oospore	2
(q) *Lemna* sp (Duckweeds)	fruit	1
(q) *Ranunculus* subgenus *Batrachium* (Crowfoots)	achene	1
(r) *Aphanes* sp (Parsley-pierts)	seed	2
(r) *Hyoscyamus niger* (Henbane)	seed	4
(r) *Persicaria maculosa* (Redshank)	nutlet	3
(r) *Polygonum aviculare* (Knotgrass)	nutlet	1
(r) *Stellaria media* (Common Chickweed)	seed	2
(r) *Urtica dioica* (Common Nettle)	achene	3
(t) *Corylus avellana* (Hazel)	nutshell frag.	1
(w) *Carex* sp (Sedges)	biconvex nutlet	2
(w) *Carex* sp (Sedges)	trigonous nutlet	4
(w) *Carex* cf. *riparia* (cf. Greater pond-sedge)	trigonous nutlet	2
(w) *Juncus* sp (Rushes)	seed	5
(w) *Montia fontana* (Blinks)	seed	1
(w) *Ranunculus flammula* (Lesser Spearwort)	achene	1
(w) *Sparganium erectum* (Branched Bur-reed)	fruitstone	1
(x) *Chenopodium* sp (Goosefoots)	seed	3
(x) *Cirsium / Carduus* sp (Thistles)	achene	2
(x) *Potentilla* cf. *erecta* (cf. Tormentil)	achene	4
(x) Poaceae undiff. (Grass family, small <2mm)	caryopsis	2
(x) Poaceae undiff. (Grass family, medium 2-4mm)	caryopsis	1
(x) *Prunella vulgaris* (Selfheal)	nutlet	1
(x) *Ranunculus* subgenus *Ranunculus* (Buttercup)	achene	4
(x) *Rumex* sp (Docks)	nutlet	1
(x) *Viola* sp (Violets)	seed	1

[a-arable; g-grassland; h-heathland; r-ruderal; q-aquatic; t-tree/shrub; w-wet/damp ground; x-wide niche]
[Semi-quantitative scale (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]
[Waterlogged remains are scored from 1-5 where 1: 1-2; 2: 3-10; 3: 11-40; 4: 41-200; 5: >200]
[W=Watercourse]

Table 1.11: Charred plant remains and charcoal from analysed samples

Sample		**16**	**17**	**18**	**19**	**21**
Context		**2164**	**2165**	**2167**	**2168**	**2195**
Feature		**F2169**	**F2169**	**F2169**	**F2169**	**F2068**
Feature type		**P**	**P**	**P**	**P**	**W**
Volume processed (l)		15.5	6	6	6	9
Volume of flot (ml)		175	15	30	20	100
Residue contents						
Bone (unburnt)	indet. frags	-	-	-	(+)	(+)
Fired clay	small frags	+++	++	-	-	-
Pot		-	-	-	-	(+)
Nails (Fe)		(+)	-	-	-	-
Burnt-cracked stones		-	(+)	+	-	+
Flot matrix						
Roots (modern)		(+)	(+)	(+)	(+)	-
Charcoal		++	(+)	+	(+)	(+)
Clinker / cinder		(+)	(+)	(+)	-	-
Coal		(+)	(+)	(+)	-	-
Fuel ash	semi-vitrified	+	(+)	(+)	-	-
Heather stems (ch)	>2mm diameter	++	-	(+)	(+)	-
Heather stems (ch)	<2mm diameter	+++	+	++	(+)	(+)
Monocot stems (ch)	<2mm diameter	+	-	(+)	-	+
Tuber / rhizome (ch)		+++	+++	+	(+)	++
Charcoal: Tree species (presence)						
Alnus glutinosa (Alder)		-	-	-	-	✓
Betula sp (Birches)		-	-	-	-	✓
Corylus avellana (Hazel)		✓	✓	-	-	-
Fraxinus excelisior (Ash)		-	-	-	✓	-
cf. *Prunus spinosa / domestica* (cf. Blackthorn / plum)		-	-	✓	-	-
Salix / Populus (Willow / poplar)		-	-	-	✓	-
Quercus sp (Oaks)		✓	-	-	-	-
Charred crop remains (total counts)						
(c) Cerealia indeterminate / Poaceae	detached embryo	-	-	6	5	-
(c) Cerealia indeterminate	grain	2	-	127	68	2
(c) Cerealia indeterminate	grain (frag.)	-	-	++	+	-
(c) *Hordeum* sp (Barley species)	rachis	-	-	1	1	-
(c) *Hordeum* sp (Barley species)	grain	1	-	13	6	-
(c) *Hordeum* sp (Hulled barley species)	grain	-	-	12	5	-
(c) *Hordeum* sp (Hulled barley species)	tail/runt grain	-	-	1	-	-
(c) *Hordeum vulgare* (6-row Hulled Barley)	straight grain	-	-	1	-	1
(c) *Hordeum vulgare* (6-row Hulled Barley)	twisted grain	-	-	5	2	1
(c) *Hordeum vulgare* (6-row Hulled Barley)	rachis	-	-	1	-	1
(c) cf. *Secale cereale* (cf. Rye)	grain	-	-	1	-	-
(c) *Secale cereale* (Rye)	rachis	-	-	1	-	-
(c) *Triticum* sp. (Wheat species)	grain	1	-	67	45	-
(c) *Triticum* sp (Glume wheat species)	glume base	1	-	18	7	6
(c) *Triticum* sp (Glume wheat species)	spikelet fork	-	-	-	-	1
(c) *Triticum* sp (Glume wheat species)	rachis frag.	-	-	-	-	5
(c) *Triticum* cf. *spelta* (Spelt-type Wheat)	grain	-	-	43	12	-
(c) *Triticum spelta* (Spelt Wheat)	glume base	-	-	6	-	6
(c) *Triticum spelta* (Spelt Wheat)	spikelet fork	-	-	3	-	-
(c) *Triticum spelta* (Spelt Wheat)	spikelet	-	-	6	-	-
Charred wild/weed taxa (total counts)						
(a) *Anthemis cotula* (Stinking Chamomile)	achene	-	-	1	1	-
(a) *Avena* sp (Oat species)	caryopsis	-	-	1	1	-
(a) *Raphanus raphanistrum* (Wild Radish)	pod (frag.)	-	-	10	-	-
(a) *Raphanus raphanistrum* (Wild Radish)	pod	-	-	12	5	-
(a) *Tripleurospermum inodorum* (Scentless Mayweed)	achene	-	-	88	19	-

Sample		16	17	18	19	21
Context		**2164**	**2165**	**2167**	**2168**	**2195**
Feature		**F2169**	**F2169**	**F2169**	**F2169**	**F2068**
Feature type		**P**	**P**	**P**	**P**	**W**
(g) *Conopodium majus* (Pignut)	tuber	-	-	-	-	1
(h) *Calluna vulgaris* (Heather)	flower buds	++	(+)	+	(+)	-
(h) *Danthonia decumbens* (Heath-grass)	caryopsis	20	12	-	2	2
(h) *Danthonia decumbens* (Heath-grass)	floret	11	3	-	-	-
(h) *Rumex acetosella* (Sheep's Sorrel)	nutlet	-	-	-	1	-
(r) *Persicaria maculosa* (Redshank)	nutlet	-	-	1	-	-
(r) *Plantago lanceolata* (Ribwort Plantain)	seed	2	-	-	-	-
(w) *Carex* spp (Sedges)	biconvex nutlet	6	2	4	3	-
(w) *Carex* spp (Sedges)	trigonous nutlet	30	6	9	8	7
(w) *Montia fontana* (Blinks)	seed	1	-	1	1	-
(x) *Chenopodium* spp (Goosefoots)	seed	-	-	16	2	1
(x) Fabaceae undiff. (Pea family) <2mm	seed	-	-	1	2	-
(x) *Luzula* sp (Wood-rushes)	seed	1	-	1	-	-
(x) *Papaver* sp. (Poppies)	seed	-	-	2	-	-
(x) Poaceae undiff. (Grass family, small <2mm)	caryopsis	4	2	2	-	7
(x) Poaceae undiff. (Grass family, medium 2-4mm)	caryopsis	1	-	3	1	1
(x) Poaceae undiff. (Grass family, large >4mm)	caryopsis	1	-	5	1	1
(x) *Rumex* sp (Docks)	nutlet	-	-	2	-	-
(x) *Vicia/Lathyrus* sp (Vetches/Tares)	seed	-	-	-	1	1
Total number of charred plant remains		82	25	471	199	44
Density of charred plant remains (items/litre)		5	4	79	33	5

[a-arable; c-cultivated; g-grassland; h-heathland; r-ruderal; w-wet/damp ground; x-wide niche]
[Semi-quantitative scale (+): trace; +: rare; ++: occasional; +++: common; ++++: abundant]
[P=Pit; W=Watercourse]

Table 1.12: Summary data, pit [F2169]: relative quantities of charred plant remains and flot matrix

Sample	**16**	**17**	**18**	**19**
Context	**2164**	**2165**	**2167**	**2168**
Feature	**F2169**	**F2169**	**F2169**	**F2169**
Volume processed (l)	15.5	6	6	6
Volume of flot (ml)	175	15	30	20
Flot matrix				
Heather stems	+++	+	++	(+)
Tuber / rhizome	+++	+++	+	(+)
Monocot stems	+	-	(+)	-
Charcoal	++	(+)	+	(+)
Charred crop remains (total count)				
Indet cereal (grain)	2	-	127	68
Wheat (grain)	-	-	67	45
Spelt (grain)*	1	-	55	12
Spelt (chaff)*	-	-	48	7
Barley (grain)	1	-	26	11
Barley (chaff)	-	-	2	1
cf. Rye (grain)	-	-	1	-
Rye (chaff)	-	-	1	-
Wild/weed taxa (total count)				
Arable	-	-	112	26
Ruderal	2	-	1	-
Grassland / heathland / wet / damp	67	23	13	14
Wide niche	7	2	32	7

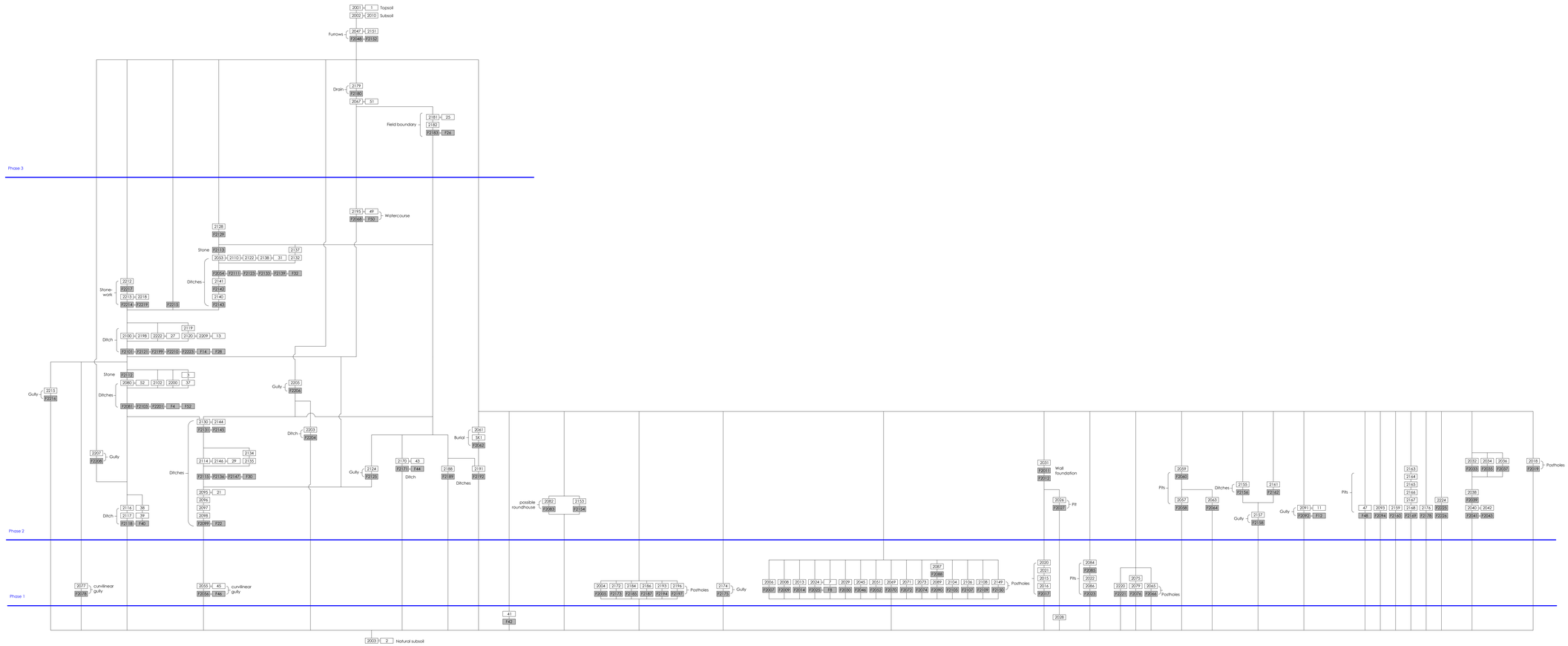
[Spelt chaff includes both (*Triticum* sp.) and spelt (*Triticum spelta*)]
[*spikelets counted as 2 grains and chaff items, spikelet forks counted as 2 chaff items]

Table 1.13: Summary of radiocarbon dating

Laboratory code	Sample	Context	Context description	Material used for C14 dating	$\delta^{13}C$ ‰	C14 Age BP	Calibrated date 68.3% probability	Calibrated date 95.4% probability
SUERC-96281 GU56505	2	2015	Fill [2015] of posthole [F2017]	Charred barley grain	-23.4	1986 ± 27	34 (13.9%) 15 cal BC 6 (54.4%) 67 cal AD	44 cal BC (88.1%) 84 cal AD 96 (7.4%) 116 cal AD
SUERC-96282 GU56506	3	2018	Fill [2018] of posthole [F2019]	Charred wild radish pod (*Raphanus raphanistrum*)	-23.7	1833 ± 27	165 (12.9%) 188 cal AD 202 (55.4%) 246 cal AD	127 (89.6%) 251 cal AD 294 (5.9%) 313 cal AD
SUERC-97655 GU57641	11	2082	Fill [2082] of curvilinear gully [F2083], roundhouse	Charred spelt-type grain	-19.4	1788 ± 26	236 (21.9%) 255 cal AD 285 (46.3%) 325 cal AD	214 (35.7%) 262 cal AD 276 (59.7%) 341 cal AD
SUERC-96283 GU56507	12	2102	Fill [2102] of ditch [F2103]	Charred wheat grain (cf. emmer wheat)	-23.5	1784 ± 27	239 (19.6%) 255 cal AD 285 (48.7%) 325 cal AD	215 (33.0%) 264 cal AD 275 (62.4%) 346 cal AD
SUERC-96284 GU56508	13	2097	Secondary fill [2097] of ditch [F2099]	Willow/poplar charcoal (stemwood, 3 growth rings)	-25.8	1761 ± 27	246 (12.6%) 260 cal AD 279 (55.6%) 337 cal AD	236 (95.4%) 376 cal AD
SUERC-96285 GU56509	18	2167	Secondary fill [2167] of pit [F2169]	Charred spelt spikelet (broken in two)	-23.0	1817 ± 27	210 (55.3%) 250 cal AD 295 (13.0%) 311 cal AD	130 (2.5%) 144 cal AD 155 (68.5%) 258 cal AD 282 (24.4%) 328 cal AD
SUERC-96530 GU56510	19	2168	Primary fill [2168] of pit [F2169]	Charred spelt-type grains (two grains)	-23.7	1863 ± 23	130 (11.9%) 144 cal AD 155 (56.4%) 217 cal AD	125 (95.4%) 235 cal AD
SUERC-96289 GU56511	21	2195	Fill [2195] of former watercourse [F2068]	Charred barley grain (straight grain)	-22.3	1878 ± 27	130 (16.2%) 146 cal AD 153 (52.0%) 206 cal AD	84 (3.2%) 96 cal AD 116 (92.3%) 234 cal AD
SUERC-96290 GU56512	22	2211	Fill [2211] of ditch recut [F2210]	Birch family charcoal (cf. alder)	-26.5	2057 ± 27	103 (53.1%) 34 cal BC 15 cal BC (15.2%) 6 cal AD	155 cal BC (95.4%) 18 cal AD
GU56513	SK1	2061	Human burial in ditch [F2192]	Right femur, unburnt, moderate to poor condition	-	Failed	-	-
GU57248	SK1	2061	Human burial in ditch [F2192]	Right femur, unburnt, moderate to poor condition	-	Failed	-	-

[The calibrated age ranges are determined using OxCal4.4.2 (Bronk Ramsey 2020); IntCal20 curve (Reimer *et al.* 2020)]

Appendix 2: Stratigraphic matrix



ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

Hurworth North
Darlington

post-excavation analysis
report 5360

Appendix 2: Matrix

Appendix 3: Catalogue of articulated skeleton

SKELETON 1																
Surface Preservation	Very Poor (Grade 5)															
Fragmentation	Extreme															
Completeness	10-20%															
Bones Present	Lumbar vertebrae (L arch fragments x2); 5 rib shaft fragments (unsided); part distal humerus (unsided); part R arm (radius midshaft); part L arm (proximal half ulna, radius midshaft); part hand (unsided proximal hand phalanx, ?intermediate hand phalanx, and dsital hand phalanx); part L os coxa; R femur shaft; L femur shaft & part proximal end); multiple small unidentifiable fragments															
Age	18+ years (adult)															
Sex	Male?															
Stature	-															
Cranial NMT	-															
Post-Cranial NMT	-															
Pathology	Both femora have similar bony projections on the medial lip of the linea aspera in the mid third of the shaft. In the right femur, this extends ~30 mm superior-inferior, projects 3 mm posteriorly and is fairly blunt and thick, being 2-3 mm wide. In the left femur, it extends 20 mm superior-inferior, projects 3 mm, and is blunt (3-4 mm thick). Potentially soft-tissue trauma.															
Dental Health	0 tooth positions; 0 teeth present															
	Right Dentition								Left Dentition							
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Mandible	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Present	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

KEY:
Present - Tooth presence; AM - ante-mortem tooth loss; PM - post-mortem tooth loss; P - tooth present; P(I) – tooth present but socket absent; P (U) – tooth present but unerupted; P(E) – tooth present and erupting; S – sampled; - - jaw not present
Calculus – dental calculus; F - flecks of calculus; S - slight calculus; M - moderate calculus; H - heavy calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface
DEH - dental enamel hypoplasia; L - lines; G - grooves; P - pits
Caries – dental caries; - S - small lesions; M - moderate lesions; L - large lesions; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface
Wear - dental wear; numbers from 1-8 - slight to severe wear

Appendix 4: Radiocarbon certificates

Scottish Universities Environmental Research Centre
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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96281 (GU56505)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2015
Sample Reference	2
Material	Charred cereal grain : Hordeum sp
$\delta^{13}C$ relative to VPDB	-23.4 ‰
Radiocarbon Age BP	1986 ± 27

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

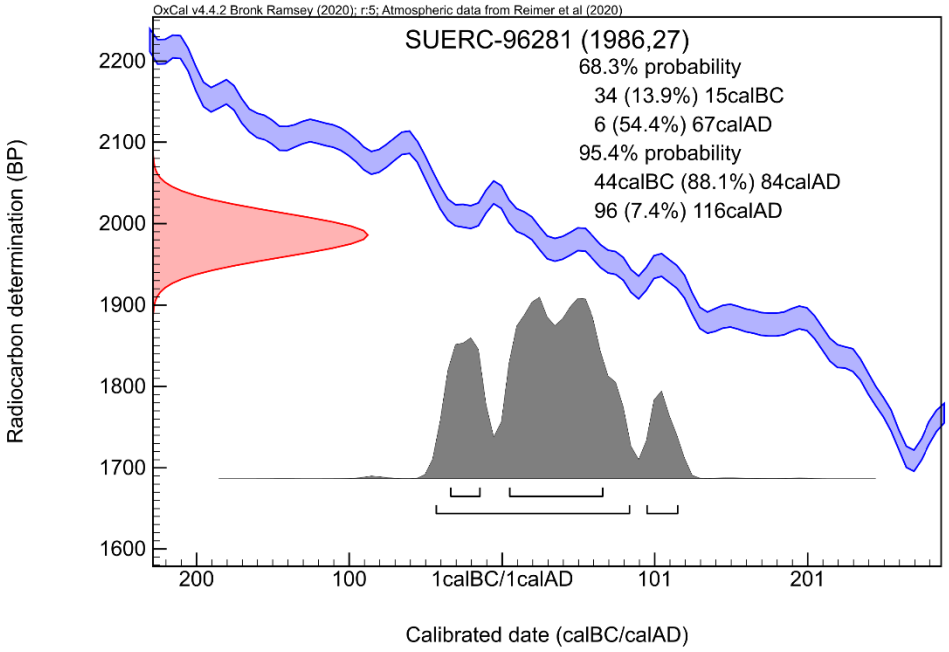
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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

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

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

Checked and signed off by : P. Naysmith



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

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

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

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2020) *Radiocarbon 62(4) pp.725-57*

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96282 (GU56506)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2018
Sample Reference	3
Material	Charred seed pod : Raphanus raphanistrum
$\delta^{13}C$ relative to VPDB	-23.7 ‰
Radiocarbon Age BP	1833 ± 27

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

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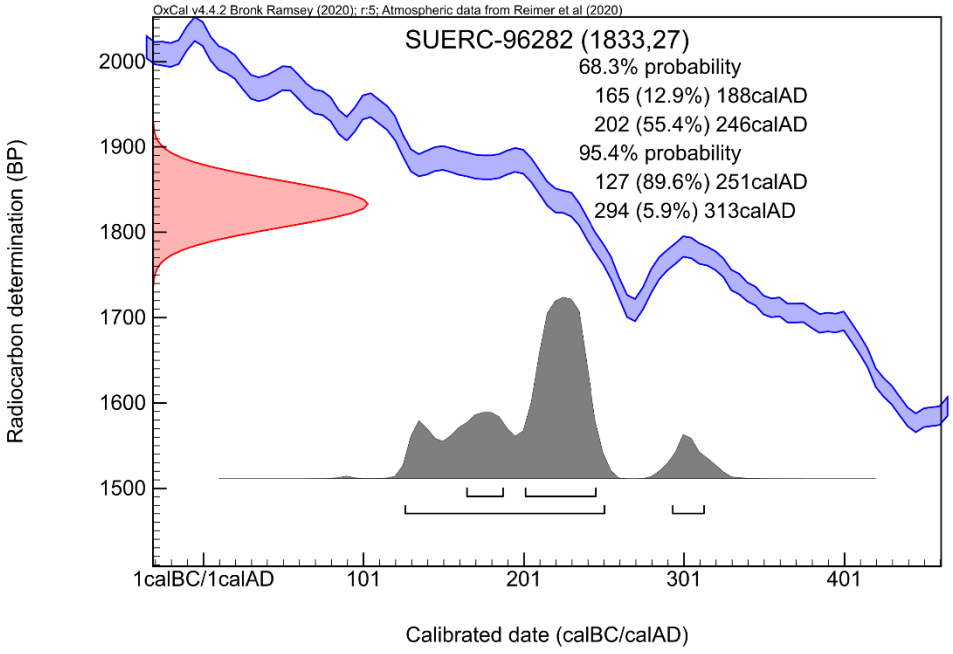
Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Naysmith



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

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

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96283 (GU56507)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2102
Sample Reference	12
Material	Charred cereal grain : Triticum sp
$\delta^{13}C$ relative to VPDB	-23.5 ‰
Radiocarbon Age BP	1784 ± 27

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

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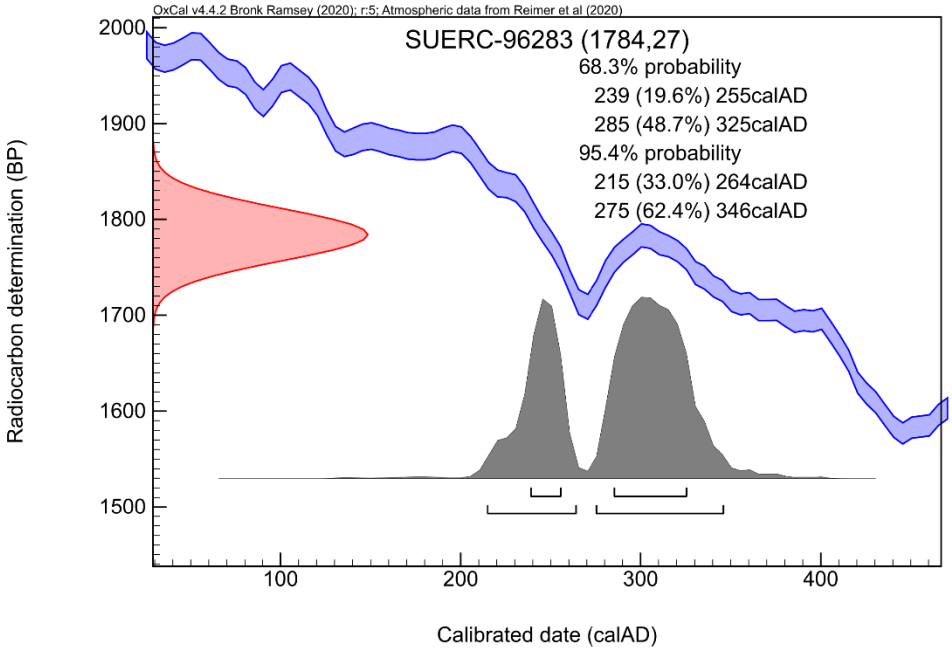
Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Naysmith



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

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

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

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96284 (GU56508)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2097
Sample Reference	13
Material	Charcoal : Salicaceae
$\delta^{13}C$ relative to VPDB	-25.8 ‰
Radiocarbon Age BP	1761 ± 27

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

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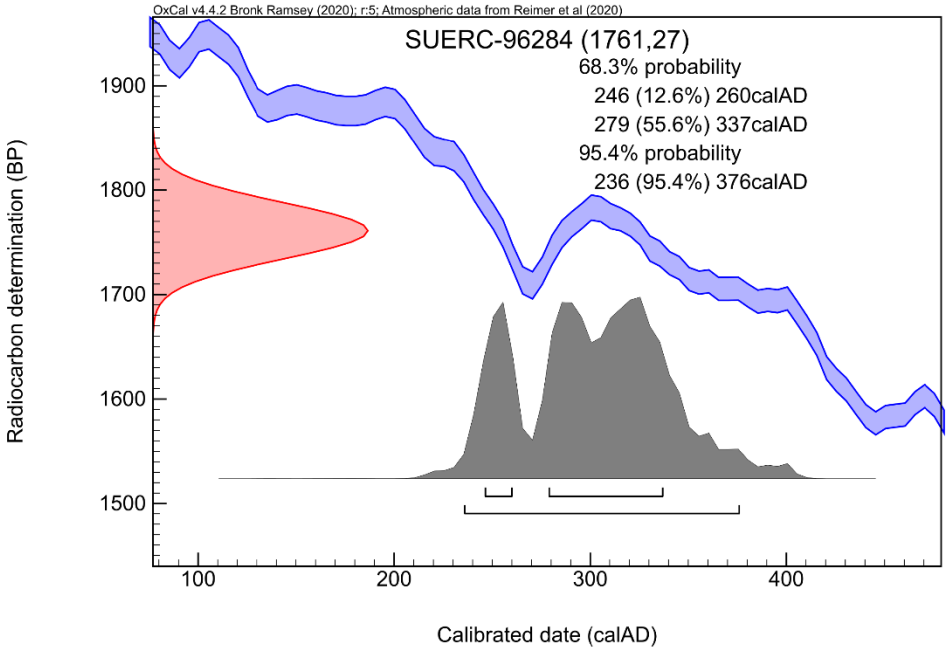

The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

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

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02 February 2021

Laboratory Code	SUERC-96285 (GU56509)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2167
Sample Reference	18
Material	Charred cereal grain : Triticum spelta
$\delta^{13}C$ relative to VPDB	-23.0 ‰
Radiocarbon Age BP	1817 ± 27

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

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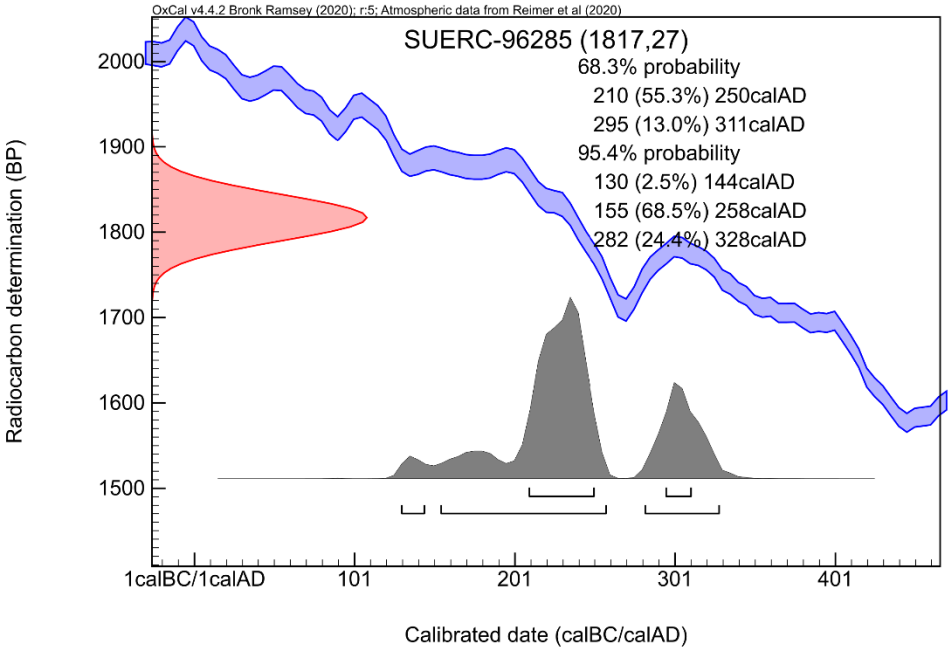
Checked and signed off by : P. Naysmith



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

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

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

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

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96289 (GU56511)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2195
Sample Reference	21
Material	Charred cereal grain : Hordeum sp
$\delta^{13}C$ relative to VPDB	-22.3 ‰
Radiocarbon Age BP	1878 ± 27

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

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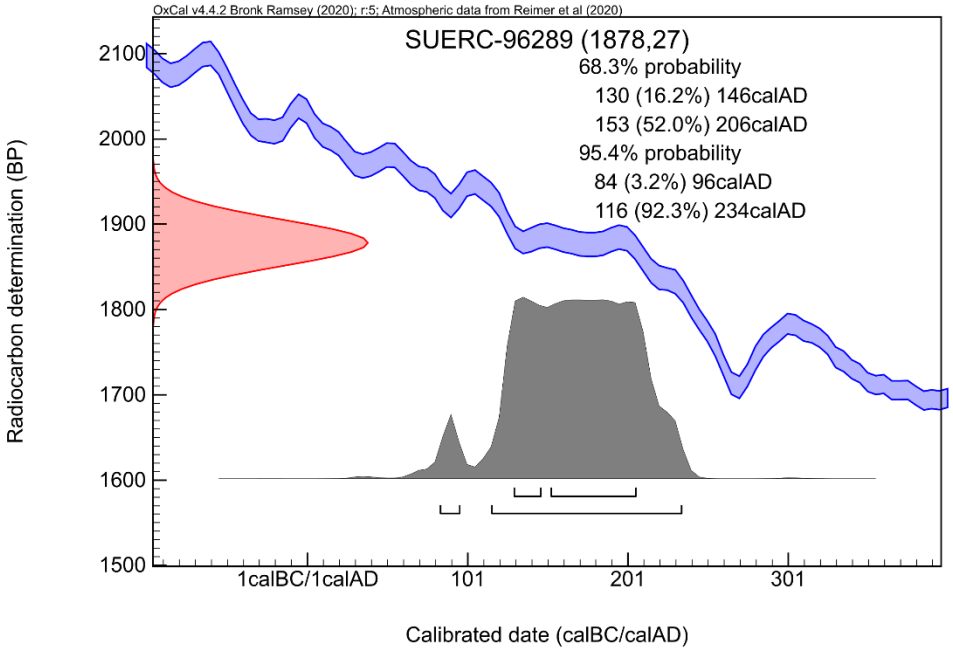
Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Naysmith



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

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

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

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	SUERC-96290 (GU56512)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2211
Sample Reference	22
Material	Charcoal : Betulaceae
$\delta^{13}C$ relative to VPDB	-26.5 ‰
Radiocarbon Age BP	2057 ± 27

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

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

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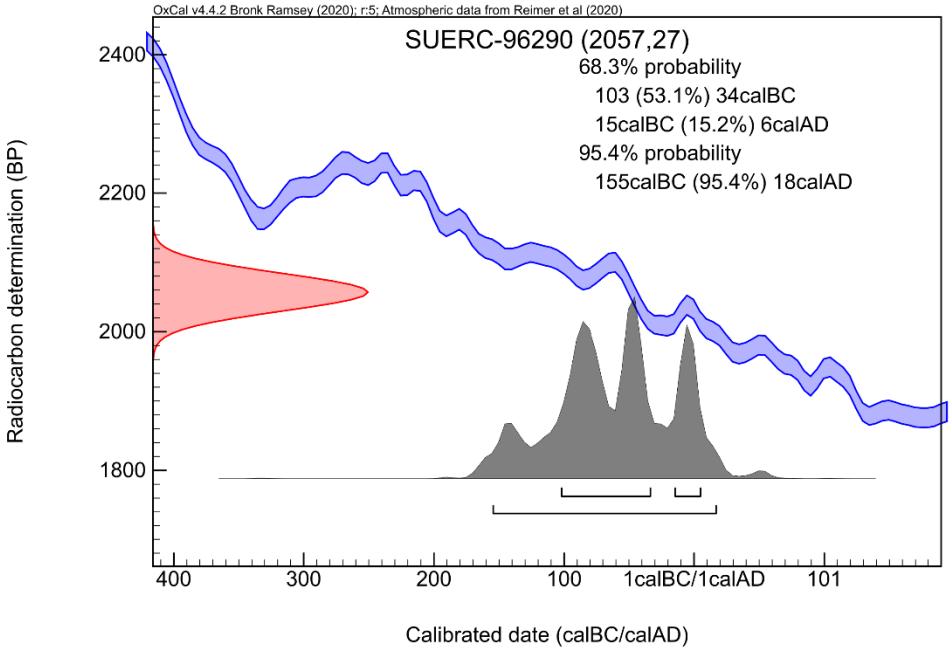

The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

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

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

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

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RADIOCARBON DATING CERTIFICATE
02 February 2021

Laboratory Code	GU56513
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2061
Sample Reference	SK1
Material	Bone : Human
Result	Failed due to insufficient carbon.

N.B. Any questions directed to the laboratory should quote the GU coding given above.

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

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

Checked and signed off by : P. Naysmith

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RADIOCARBON DATING CERTIFICATE
17 February 2021

Laboratory Code	SUERC-96530 (GU56510)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2168
Sample Reference	19
Material	Charred cereal grain : Triticum cf. spelta
$\delta^{13}C$ relative to VPDB	-23.7 ‰
Radiocarbon Age BP	1863 ± 23

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

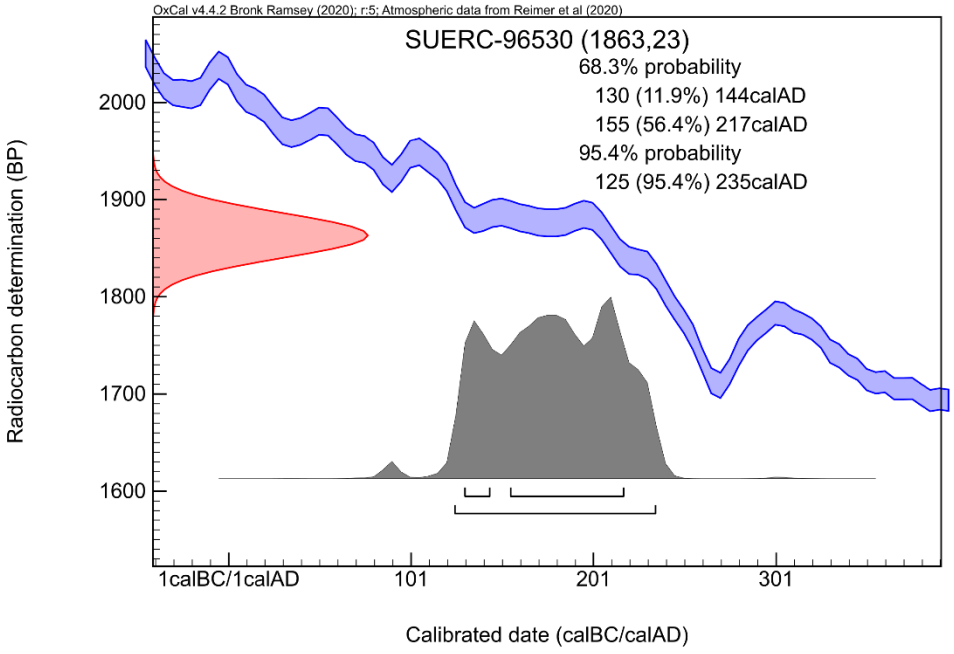
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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

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

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

Checked and signed off by : P. Naysmith



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

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

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

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2020) *Radiocarbon 62(4) pp.725-57*

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RADIOCARBON DATING CERTIFICATE
03 March 2021

Laboratory Code	GU57248
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2061
Sample Reference	SK1
Material	Bone : Human
Result	Failed due to insufficient carbon.

N.B. Any questions directed to the laboratory should quote the GU coding given above.

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

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

Checked and signed off by : P. Naysmith

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RADIOCARBON DATING CERTIFICATE
18 May 2021

Laboratory Code	SUERC-97655 (GU57641)
Submitter	Charlotte O'Brien Archaeological Services Durham University South Road Durham DH1 3LE
Site Reference	Hurworth North, Darlington (HUR18)
Context Reference	2082
Sample Reference	11
Material	Charred cereal grain : Triticum cf spelta
$\delta^{13}C$ relative to VPDB	-19.4 ‰
Radiocarbon Age BP	1788 ± 26

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

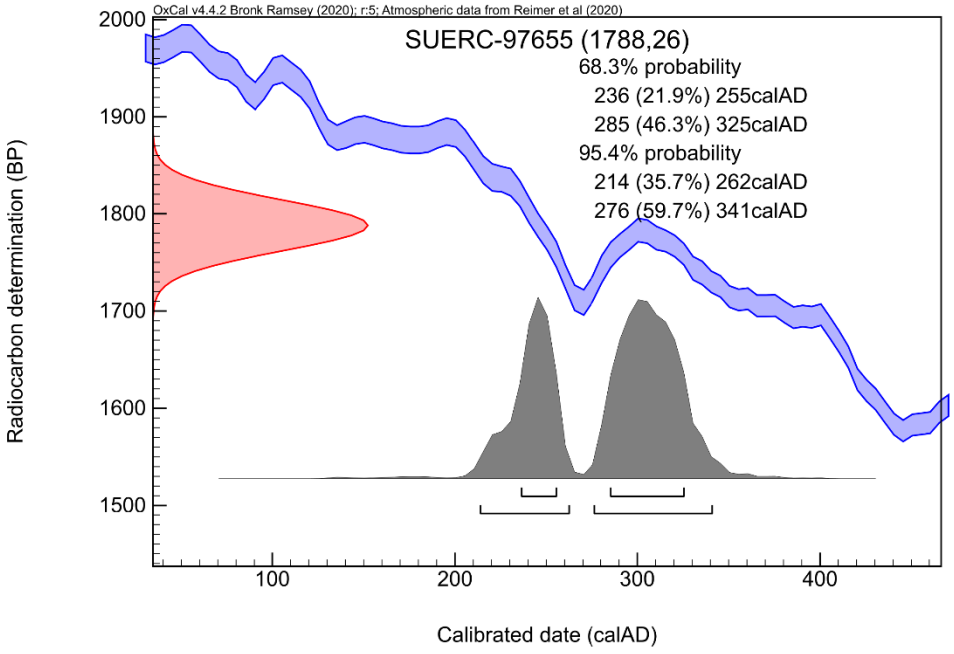
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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

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

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

Checked and signed off by : P. Naysmith



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

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

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

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2020) *Radiocarbon 62(4) pp.725-57*

Photo 1: Posthole [F2194], looking south-east

Photo 2: Posthole [F2088] (left) cutting posthole [F2090] (right), looking south

Photo 3: Posthole [F2221], looking east

Photo 4: Burnt posthole [F2076], looking north-east

Photo 5: Ditch [F2099], looking north-west

Photo 6: Ditch [F2162], looking south-west

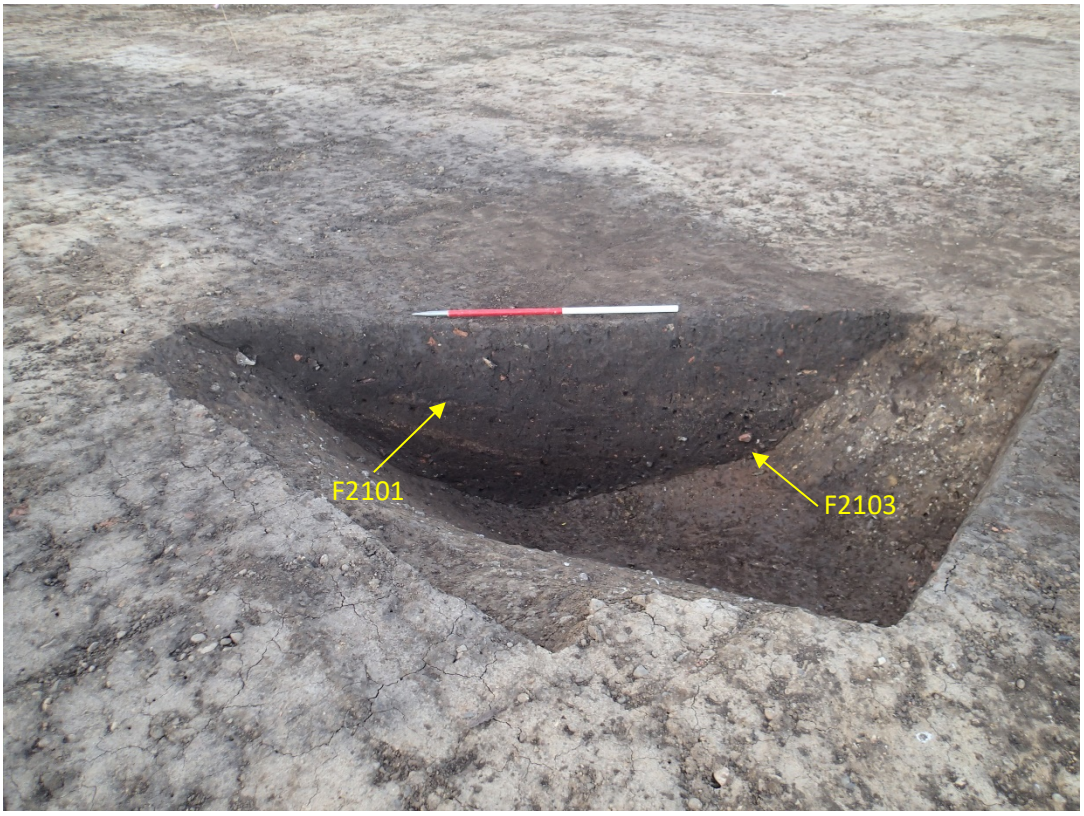


Photo 7 (above): Ditch [F2118], with recuts [F2103] and [F2101], looking south-west

Photo 8 (left): Partial skeleton (SK1), looking west

Photo 9: Wall [F2011], looking north

Photo 10: Possible wall foundation [F2113], looking west

Photo 11: Gully [F2206], looking west

Photo 12: Pit [F2169] containing burnt deposits, looking south

Photo 13: Pit [F2226] containing cobble deposit [F2225], looking south-west

Photo 14: Left os coxa of Skeleton 1 prior to cleaning, with narrow greater sciatic notch (arrow) and lack of composite arch (dashed line) evident

Photo 15: Skeleton 1, right femur, posterior (A) and medial (B) views, with ridge of bone along part of linea aspera (arrows)

Photo 16: Possible buckle SF1 from SK1 [2061]

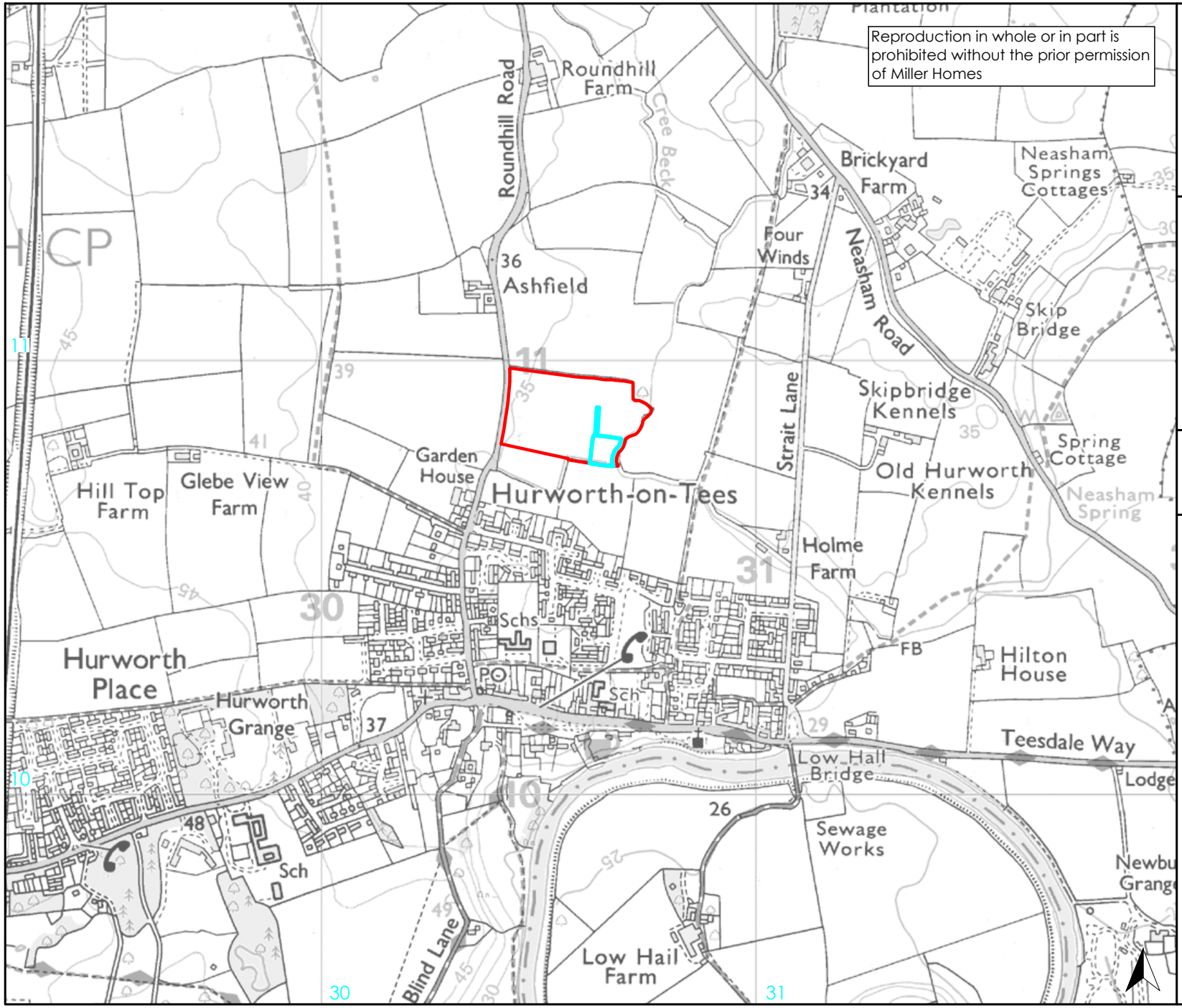


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Figure 1: Site location

0 500m
scale 1:12 500 for A4 plot

site location

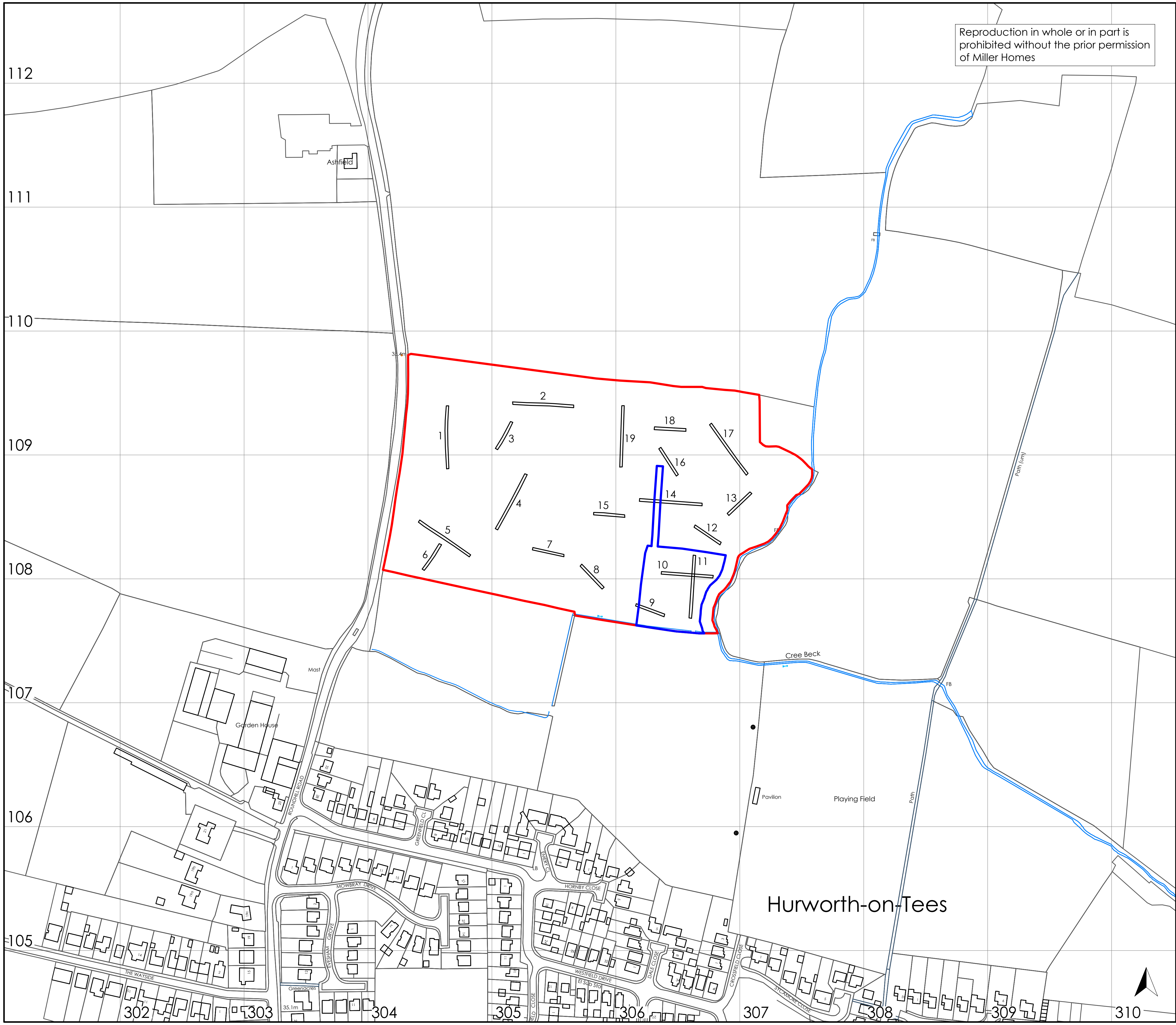

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Figure 2: Trench location

0 50m
scale 1:1250 for A3 plot

site boundary
previous trench
area of excavation

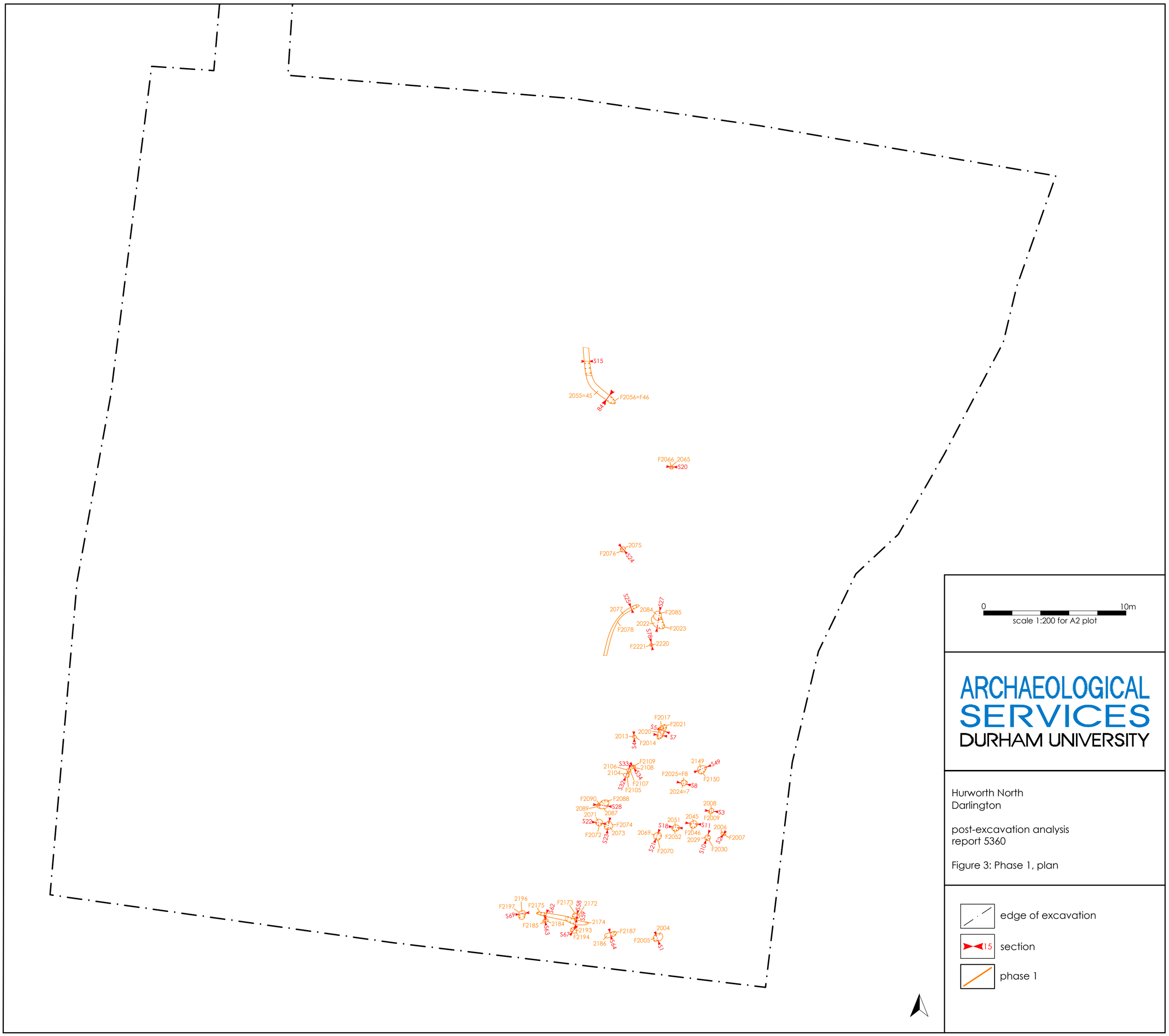
S15
2055=45
F2056=F46
84
F2066_2065
S20
2075
F2076
S24
S25
2077
2084
S27
F2085
F2078
2022
F2023
S26
F2221
2220
F2017
F2021
S5
2020
S7
2013
S6
F2014
2149
S9
F2025=F8
F2150
S8
2024=7
2106
S33
F2109
2104
S34
2108
S32
F2107
F2105
F2090
F2088
2089
S28
2087
2071
2008
S3
F2009
S22
F2074
2051
2045
S18
S11
F2072
S23
2073
2069
F2052
F2046
2006
2029
S10
S12
F2007
F2070
F2030
2196
F2197
F2175
F2173
S58
2172
S69
S62
S65
2174
F2185
S63
2184
S67
2193
F2194
F2187
2004
2186
S64
F2005
S1
0
10m
scale 1:200 for A2 plot
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Figure 3: Phase 1, plan
edge of excavation
15
section
phase 1

continued in inset

inset

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Figure 4: Phase 2 and 3, plan

0 10m
scale 1:200 for A2 plot

edge of excavation
15 section
stones/wall
phase 1
phase 2
phase 3

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on behalf of
Miller Homes

edge of excavation
2 section
stone

0 2m
scale 1:40 for A3 plot

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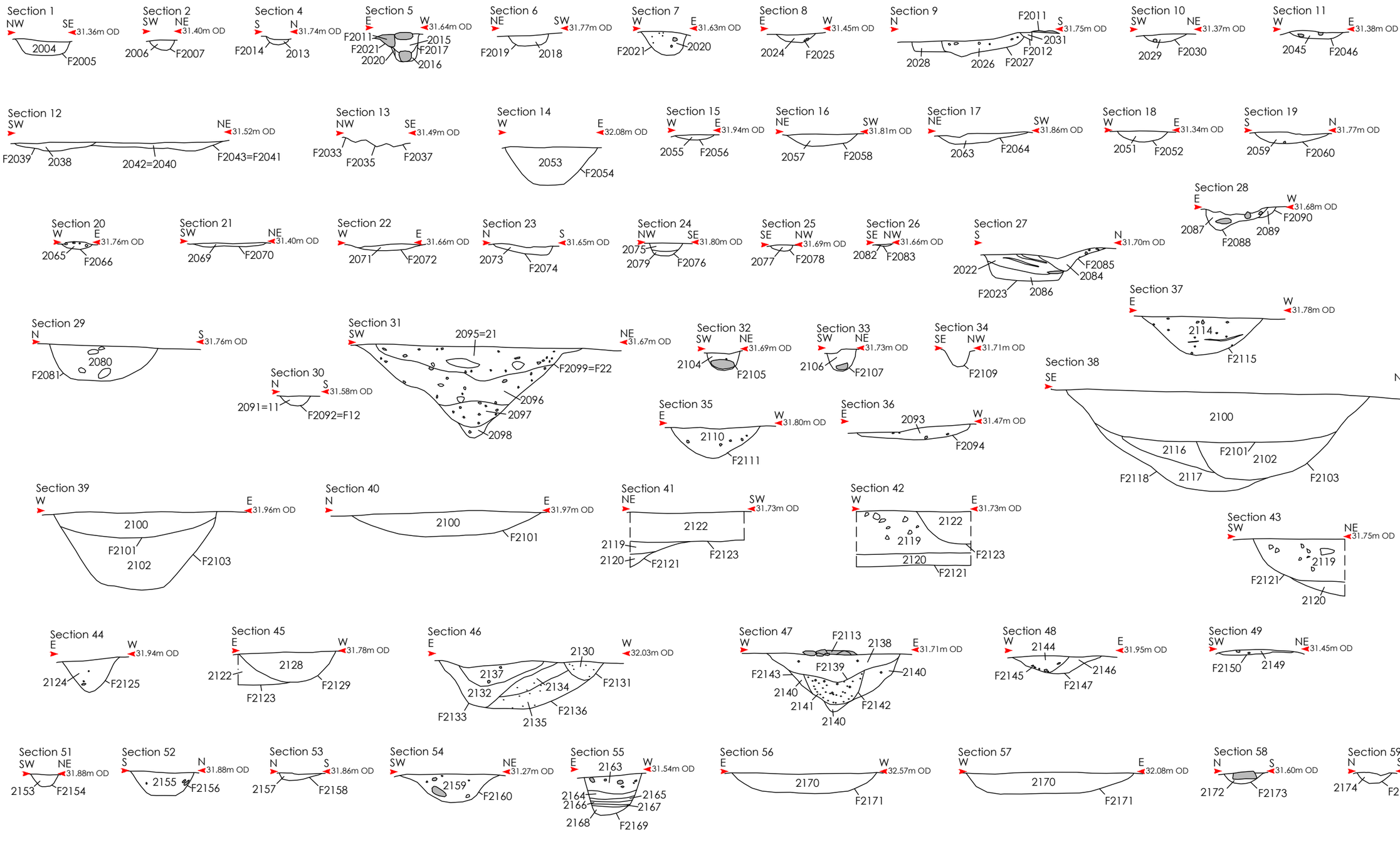
Figure 5: Sections 1-59



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on behalf of
Miller Homes

edge of excavation
drain
section
stone

0 2m
scale 1:40 for A3 plot

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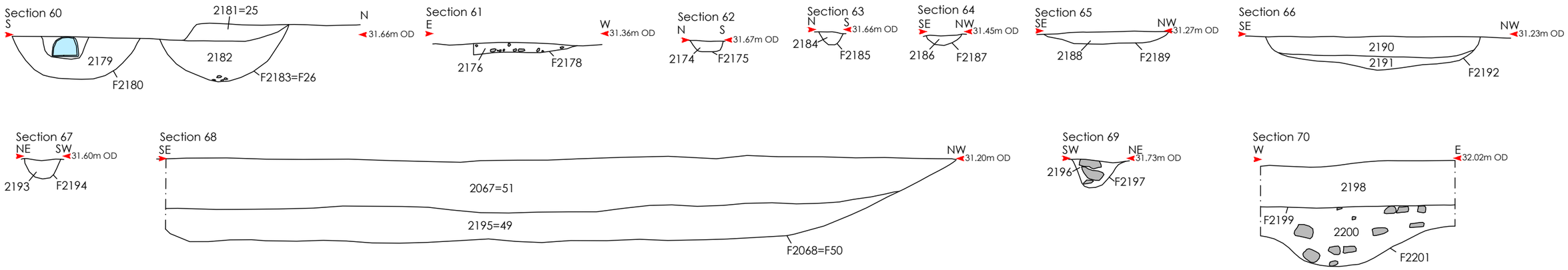
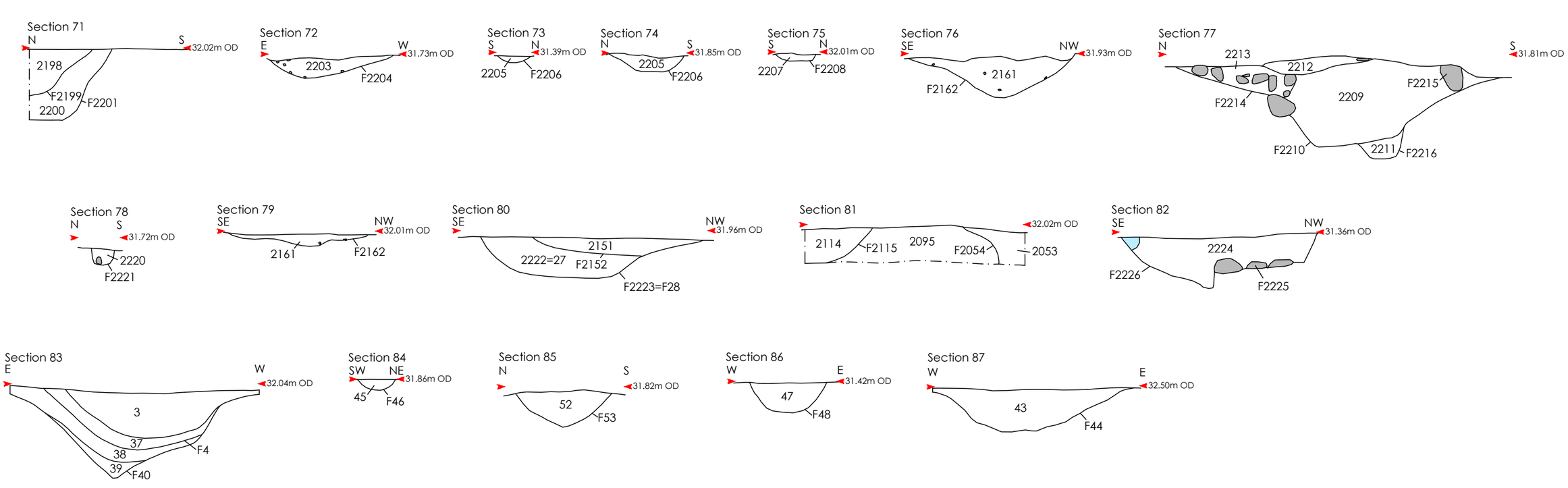
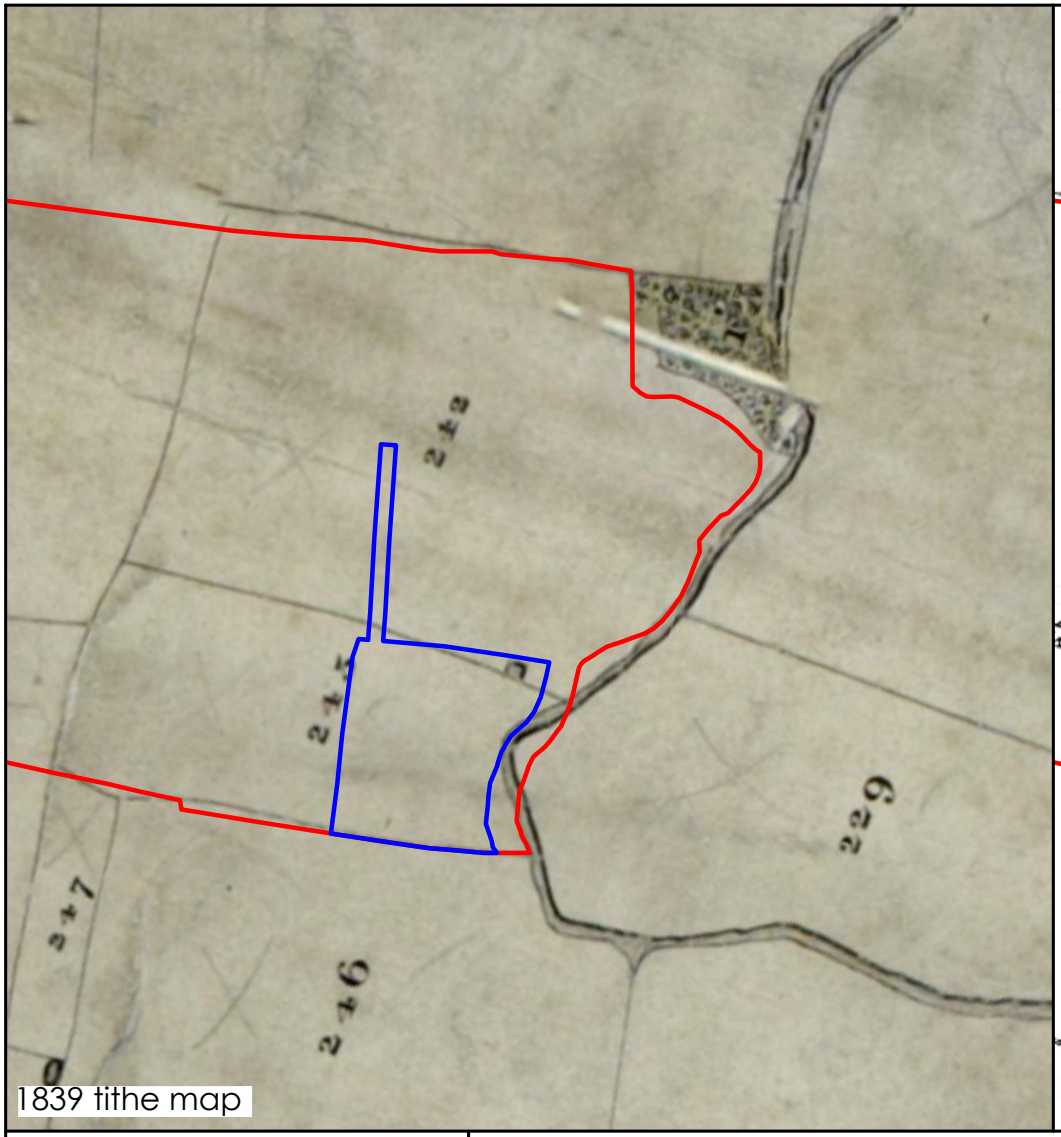
Figure 6: Sections 60-87







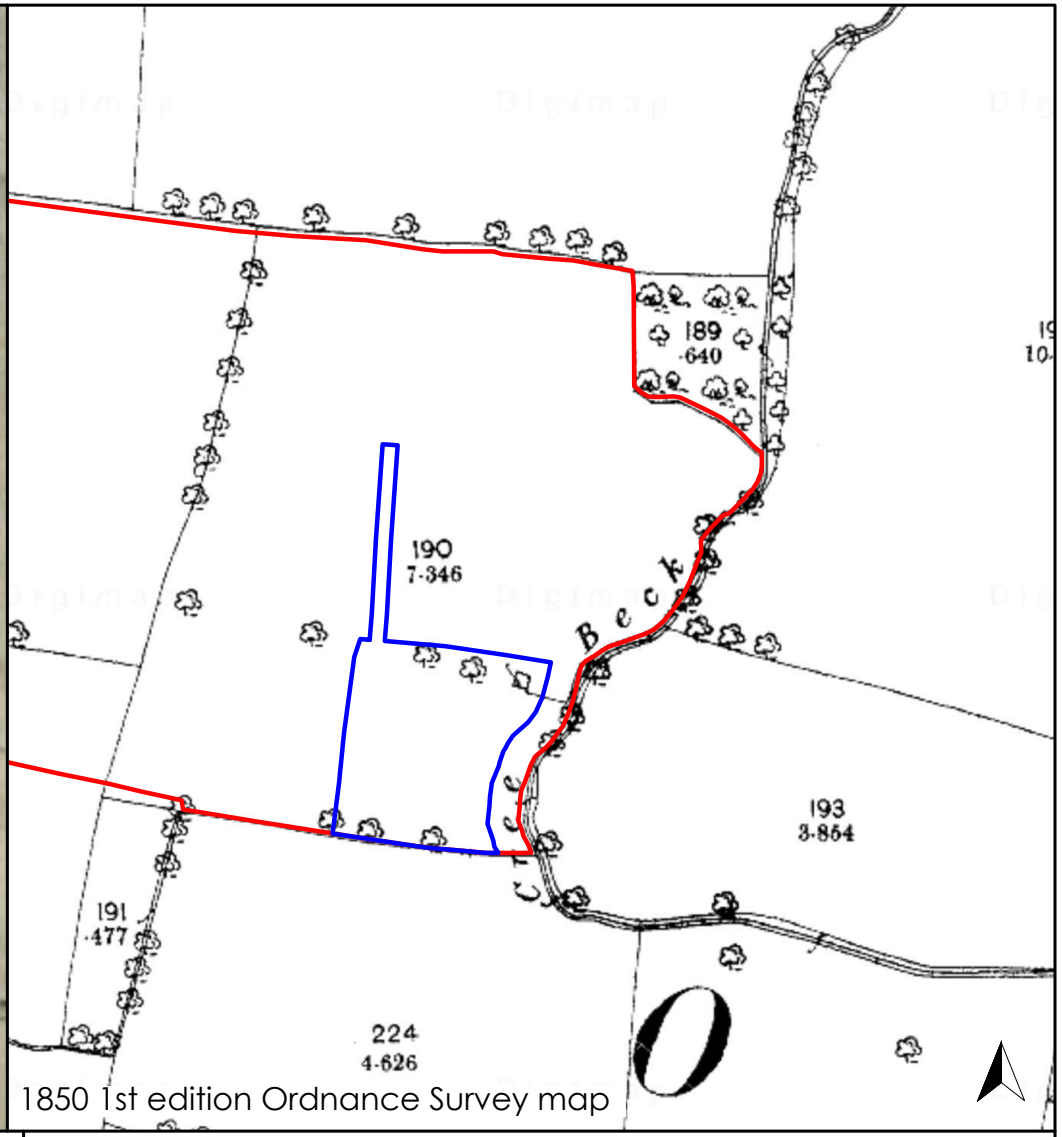


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Figure 7: Historic mapping showing the changing route of the Cree Beck

site boundary

excavation area

0 100m
scale 1:2500 for A4 plot

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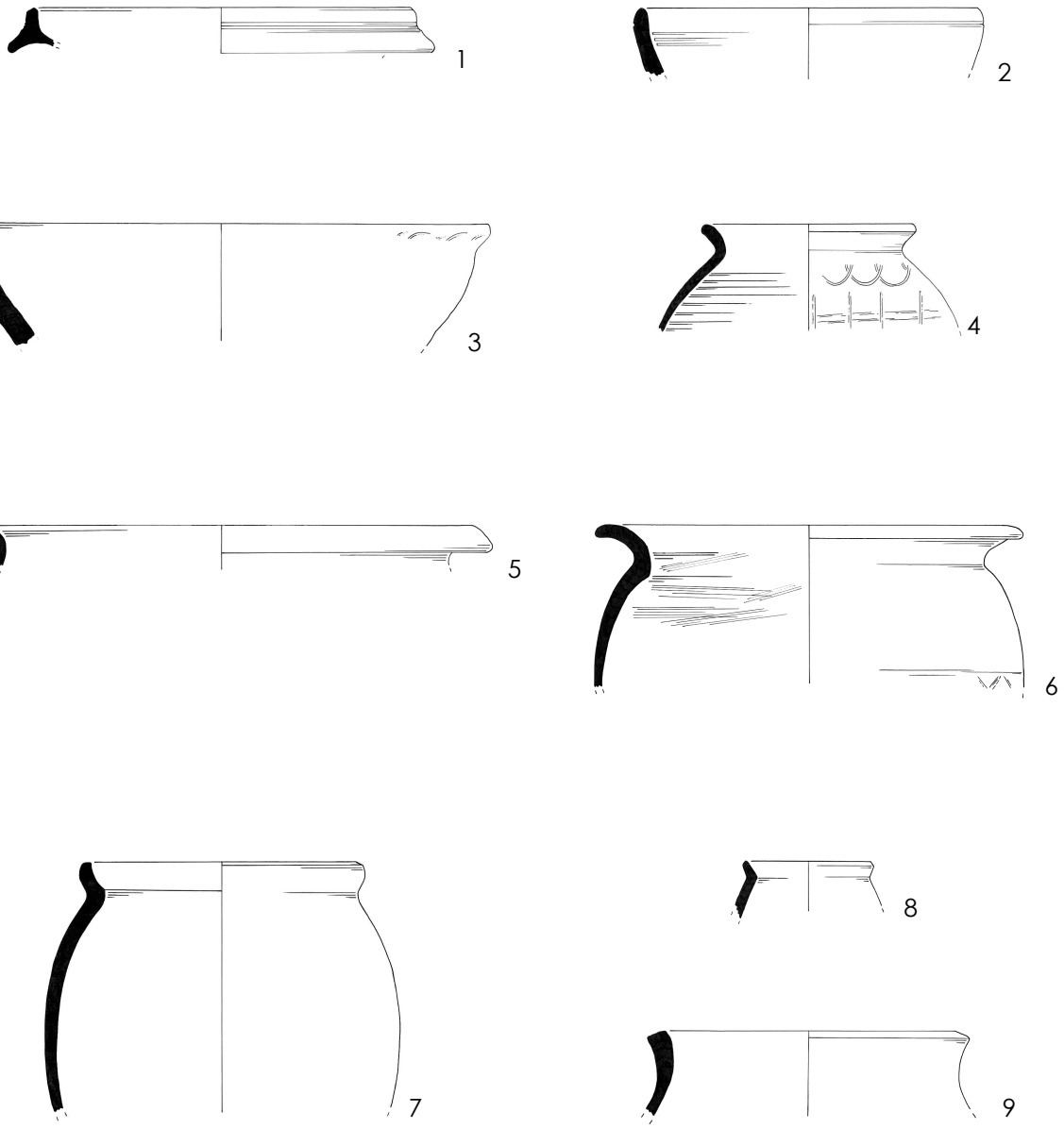
Figure 8: Illustrated pottery



1 mortarium [2209] **2** dish [2198] **3** bowl [2053] **4** jar [2100] **5** bowl [u/s]
6 cooking pot [2102] **7** cooking pot [2211] **8** beaker/small jar [2211] **9** jar [2211]

0 10cm
scale 1:4 for A4 plot

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site (mentioned in text)

unitary district boundary

0 5km
scale 1:100 000 for A3 plot

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Figure 9: Location of sites mentioned in the text

Cowpen Bewley

Faverdale

Ingleby Barwick

Hurworth

Rockcliffe Park

Dalton-on-Tees

200

100

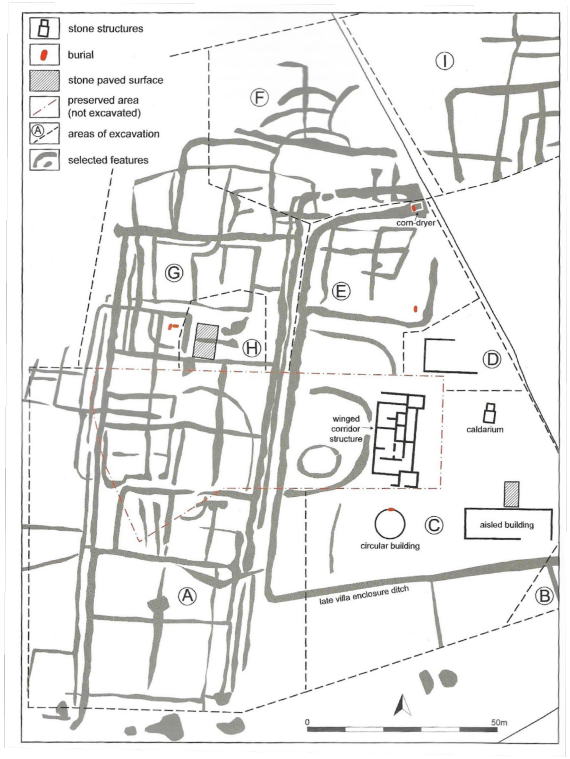
300

400

500

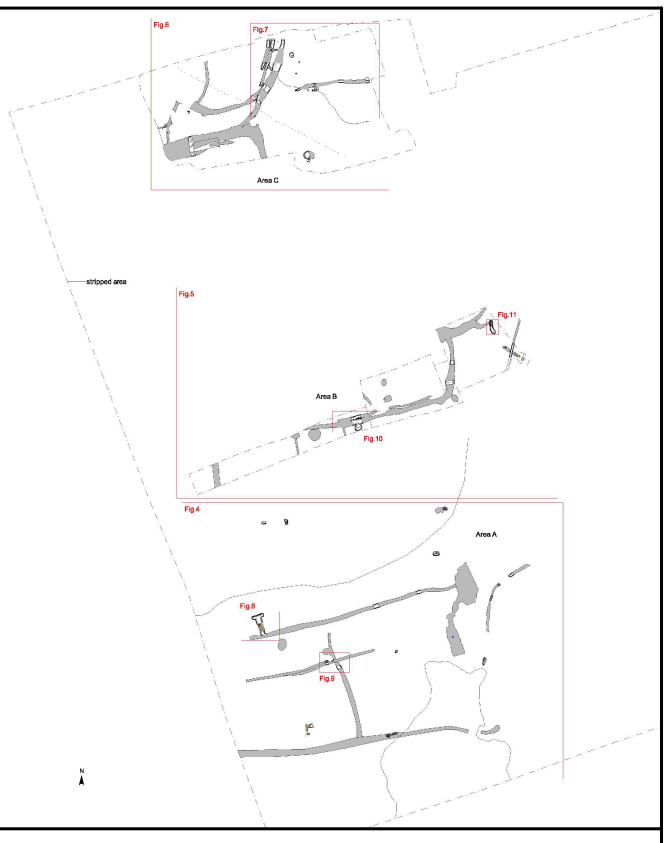
600

Ingleby Barwick (reference Willis & Carne 2013, 18)



0 30m

Rockliffe Park (reference Johnson 2009, 83)

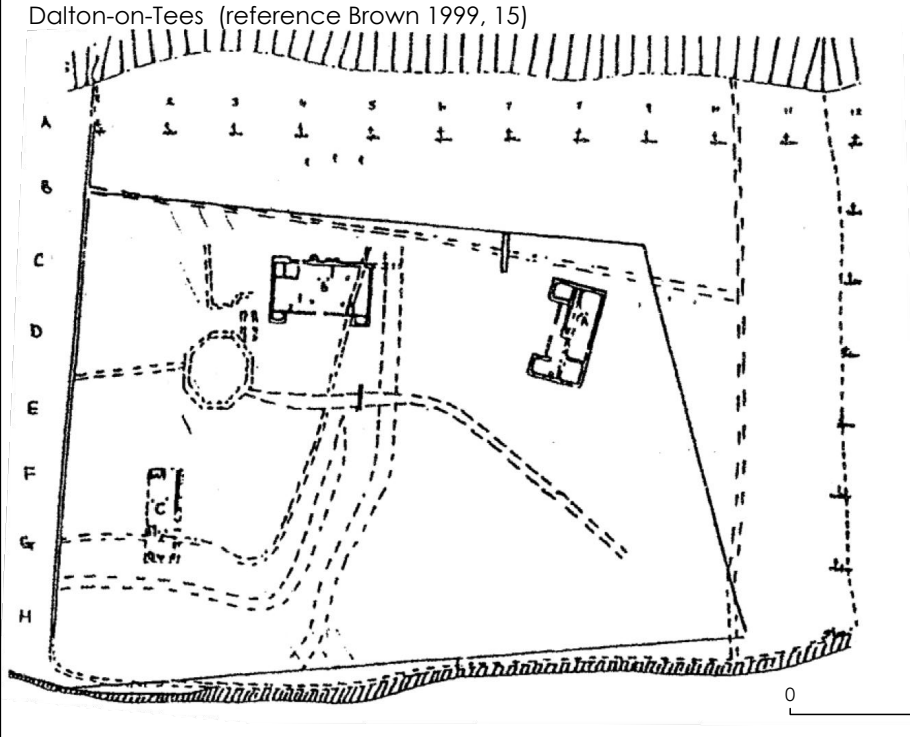


0 30m

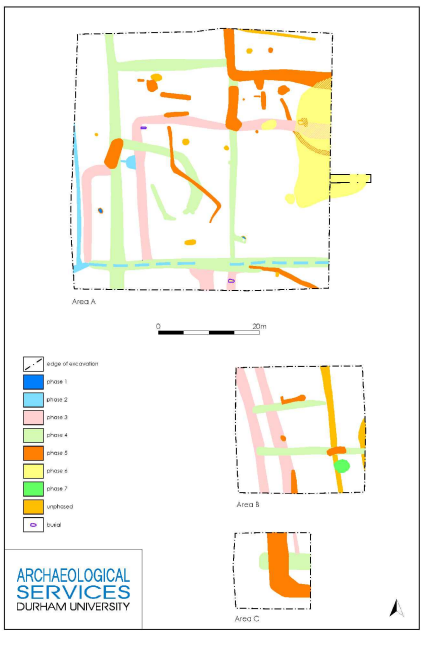
Faverdale (reference Proctor 2012, 17)

0 30m

Dalton-on-Tees (reference Brown 1999, 15)



Cowpen Bewley (reference Walsh & Platell 2021, 7)



0 30m

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Figure 10: Plans of sites mentioned in the text