Archaeological Excavations at Cheviot Quarry, Northumberland

Phase 9, 2017

Neolithic pit containing sherds of Carinated Bowl.

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EXECUTIVE SUMMARY

Project Name: Archaeological Excavations at Cheviot Quarry, Northumberland Phase 9
Site Code: LAN17
Planning Authority: Northumberland County Council
Drift Geology: Devensian glacio-fluvial sands and gravels
NGR: NT 95399 31135
Dates of fieldwork: July 2017
Dates of report: January 2018

A ninth phase of archaeological excavations following a strip, map and sample methodology was conducted by Archaeological Research Services Ltd at Cheviot Quarry near Milfield, Northumberland on behalf of Tarmac. The fieldwork took place over a four week period in July 2017 on an area measuring approximately 1.71 hectares. The investigation took the form of a strip, map and sample in which the topsoil was mechanically removed under archaeological supervision before a sampling strategy was adopted and excavations were undertaken on the features exposed.

The archaeological remains excavated as part of the Phase 9 works included:

- *Ten Early Neolithic pits, containing Early Neolithic Carinated Bowl ceramics*
- *One Early Neolithic hearth pit which containing Early Neolithic Carinated Bowl pottery*
- *Two Early Neolithic beam slots*
- *17 undated pits*
- *Five undated postholes and stakeholes*
- *One modern test pit containing rubber tubing and machine cut sides.*

The assemblage of Early Neolithic features, ceramics and accompanying lithics found during Phase 9 complement the nationally important assemblage that has been collected in previous years and which provides a continuous ceramic sequence through the entire Neolithic. Previous excavations have also yielded sherds of Carinated Bowl, Impressed Ware, Grooved Ware and Beaker and together with the evidence for settlement, farming practices and food consumption and burial, it is for these reasons that Cheviot Quarry remains one of the best sites to answer some of the many unresolved questions surrounding the Neolithic period in North East England.

Palaeoenvironmental analysis of a number of samples from the Phase 9 excavations revealed evidence for cereal agriculture with several grains of emmer wheat and hazelnut fragments being identified. Some of the assemblages of botanical remains recovered from the previous phases of excavation produced cereal grain and chaff with emmer wheat and barley present, together with occasional wild oat and species of fruit and many hazelnut fragments. Such evidence is rare for the Neolithic and although the quantities of such material are generally small, their presence is crucial in helping to understand the beginning of farming in Britain and changes in food production over time. The radiocarbon dates are highly informative and include dates directly on wheat grains as well as from shortlived hazelnut shells which indicate occupation from the beginning of the 4th millennium cal BC.

1. INTRODUCTION

1.1 This report describes Phase 9 of an archaeological strip, map and sample investigation undertaken at Cheviot Quarry, Northumberland in July 2017 by Archaeological Research Services Ltd on behalf of Tarmac. Phase 9 of the site was stripped of topsoil revealing heavily truncated archaeological deposits cut into the sand and gravel substratum below. Excavation and sampling of the *c*.1.71 hectare area took place following on immediately from the soil strip.

1.2 Archaeological investigations have been taking place at Cheviot Quarry since a programme of fieldwalking in 2003 when finds included a cache of 10 Neolithic large blade and flake tools. A test pit was dug in the location of the cache and a further 48 large flint tools were discovered and part of a Neolithic pit feature below. Excavations began in 2006, when the quarry operation was established, and continued in 2008 prior to the quarry becoming live. Since the quarry opened and began operating a further six phases of strip, map and sample have been carried out as the quarry has been worked. Previous archaeological discoveries include highly significant evidence for multi-period Neolithic settlement remains which have yielded one of the largest assemblages of Neolithic pottery yet found in northern England; Bronze Age farming settlements and associated 'granary' structures; a late Iron Age burial ground and what appears to be an associated shrine; and a pioneer phase Anglo-Saxon settlement which has produced important remains from its associated workshops for craft production and includes an important assemblage of pottery as well as loom weights, metal objects, querns, polychrome glass beads and an abundance of cereal remains. The Anglo-Saxon settlement lay immediately over a pre-existing native British roundhouse. More of this settlement survives under the southern bund of the quarry and is yet to be excavated. This site was called Lanton Quarry and Tarmac renamed the site to Cheviot Quarry. For reference, reports regarding Lanton Quarry refer to the current Cheviot Quarry site and vice versa.

1.3 Phase 9 is located in the northeast area of the quarry and was bounded by woodland to the east, a ploughed field to the south, the current haul road to the west and an area of previously extracted quarry to the north.

2. LOCATION, LAND USE AND GEOLOGY

2.1 Cheviot Quarry lies in the Milfield Basin to the northeast of the Cheviot massif, approximately 3km north of Wooler (Figure 1). The Milfield plain is an area of low-lying ground butting hard up against areas of upland and which contains a complex sedimentary sequence, with glaciodeltaic and glaciofluvial sand and gravel deposits fanning out from the valley of the River Glen to form a series of terraces (Passmore *et al*. 2002; Passmore and Waddington 2012). Inset below the gravel terraces is an in-filled glacial lake, Lake 'Ewart' or 'Milfield', which forms an extensive alluvial floodplain. Eight hundred metres to the northeast of the site lies the present channel of the River Till, and beyond that the land rises to the Fell Sandstone escarpment that borders the basin on its eastern side. Three kilometres to the south, the igneous rocks of the Cheviot Hills rise abruptly from the plain above the River Glen, where the summits of Humbleton Hill,

Harehope Hill and the double peak of Yeavering Bell form prominent landmarks. To the west, the northern foothills of the Cheviots run parallel to the Fell Sandstone ridge, leaving only a 2 km wide corridor at the northern end of the plain through which the River Till meanders. The archaeology of Cheviot Quarry is situated on a terrace of glaciofluvial sand and gravel deposits, situated for the most part at *c*.45 m aOD. The soils covering this part of the glaciofluvial terrace have been characterised as being of argillic brown earth origin (Payton 1992).

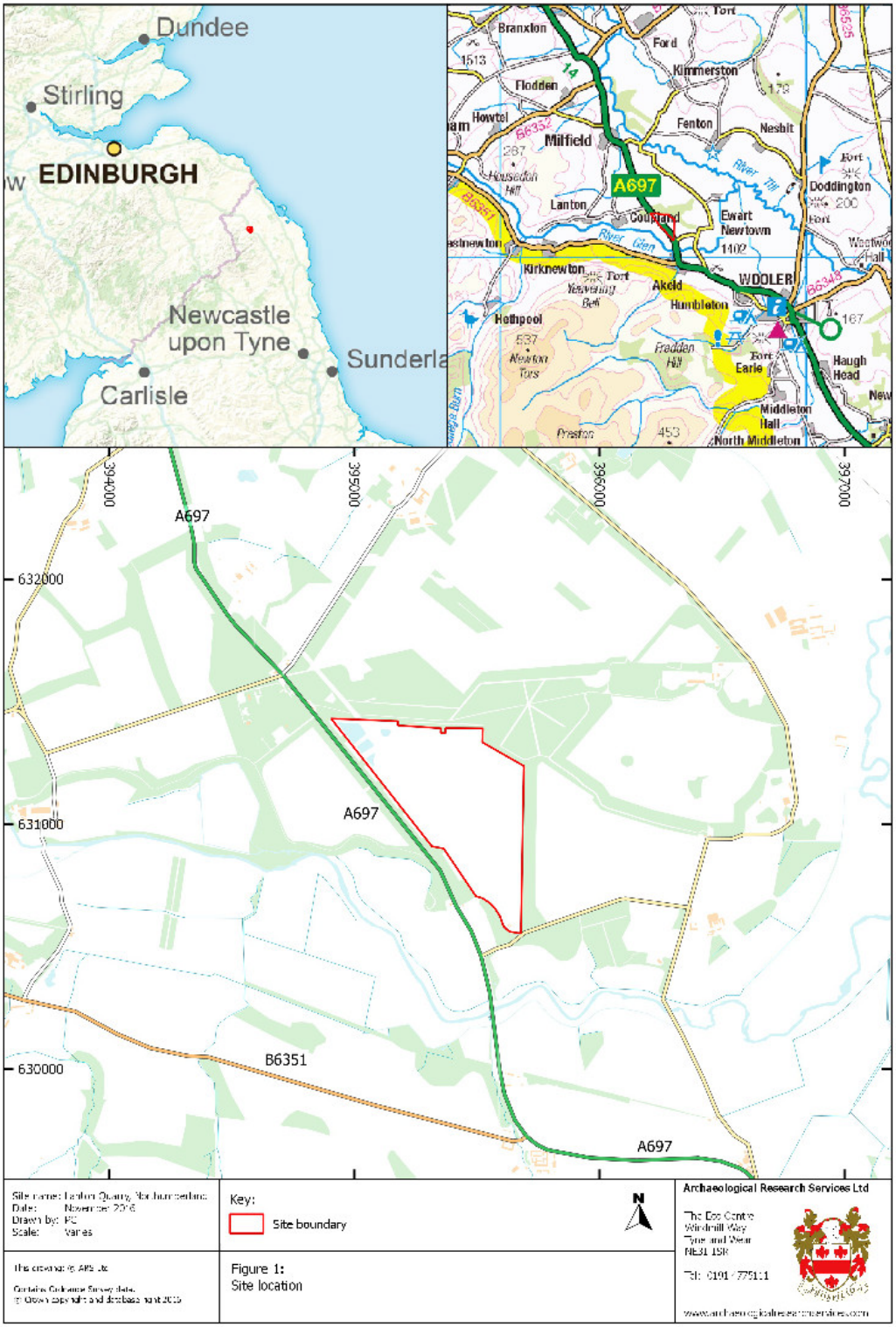

Figure 1: Site location. (Ordnance Survey data copyright OS, reproduced by permission, Licence no. 100045420).

3. METHOD STATEMENT

3.1 The methodology for the strip, map and sample excavations followed the Written Scheme of Investigation contained within the 'Cultural Heritage' chapter for the

Environmental Statement that formed part of the planning application for the site (Waddington 2009).

4. RESULTS

4.1 The following section is presented in chronological order with features described in the text and supported by individual context descriptions in the corresponding tables. All accompanying photographs and line drawings are presented in the appendices. It should be noted that the visibility of the archaeological features was often poor due to the high level of truncation across the site, caused by centuries of agricultural activity, and the nature of the sand and gravel geology. In addition, the practice of backfilling some features with the material that came out of them made identification of such subtle differentiation challenging, as has always been the case during excavations across this sand and gravel substrate.

4.2 A total of 51 features were excavated and recorded during Phase 9. These included:

- Ten Early Neolithic pits, which contained Early Neolithic pottery, including Carinated Bowl
- One Early Neolithic hearth pit which containing Early Neolithic Carinated Bowl pottery
- One possible Early Neolithic post-built structure consisting of two beam slots and associated postholes in an arc
- 17 undated pits
- Five undated postholes and stakeholes
- One modern test pit containing rubber tubing and machine cut sides.

4.3 Early Neolithic

4.3.1 A total of ten Neolithic pits were excavated across the stripped area during Phase 9 (Figure 3 and Figure 18). Double pits F4174 and F4176 (Figure 7), as well as pits F4186 and F4188 (Figure 8), were located adjacent to each other near the centre of the stripped area (Figure 18). These pits contained Early Neolithic pottery sherds, including fragments of Carinated Bowl and trimmed flint blades (see Tables 1 and 2 for summary descriptions of Neolithic features and their related contexts). The remaining pits were distributed across the stripped area: pit F4168 produced sherds of an Early Neolithic carinated vessel (Figure 9), pit F4169 produced rim sherds from a Carinated Bowl and a broken flint narrow edge-trimmed blade (Figure 10), pit F4197 produced two sherds of an Early Neolithic plain ware vessel and hazelnut shell (Figure 11), pit F4206 contained sherds of an Early Neolithic vessel and a broken flint knife (Figure 12), pit F4211 contained sherds of an Early Neolithic vessel (Figure 13), and pit F4213 contained sherds of a Carinated bowl and a rim sherd of an Early Neolithic vessel (Figure 14).

Feature	Contexts	Description	Average dimensions (m)	Colour of fill	Composition	Finds	C14 date (95.4% probability) cal BC

F4168	4167, 4168	Pit	0.5 x 0.4 x 0.08	Dark blackish brown	Sand	Two sherds from a carinated vessel	
F4169	4169, 4170	Pit	0.44 x 0.44 x 0.24	Greyish brown	Silty sand	Two rim sherds from a Carinated Bowl and broken flint narrow edge-trimmed blade	3712-3634 BC
F4174	4174, 4175, 4189	Pit	0.52 x 0.52 x 0.21	Dark brownish black/Light brownish grey	Sand	Two body sherds of Early Neolithic plain ware and brown flint broad edge-trimmed blade/One body sherd of Early Neolithic ware	3930-3664 BC
F4176	4176, 4177, 4190	Pit	0.67 x 0.6 x 0.2	Dark brownish black/Light brownish grey	Sand	Single sherd of Early Neolithic plain ware/19 sherds of Early Neolithic ware and 20 sherds of Carinated Bowl from at least two vessels	3942-3706 BC 3939-3695 BC
F4186	4185, 4186	Pit	0.3 x 0.3 x 0.11	Dark grey	Sandy silt	Single rim sherd of Carinated Bowl, flint narrow edge-trimmed blade and burnt bone	
F4188	4187, 4188	Pit	0.61 x 0.61 x 0.11	Dark grey	Sandy silt	Single sherd of thick-walled Early Neolithic vessel	
F4197	4196, 4197	Pit	0.52 x 0.52 x 0.18	Dark grey	Sandy silt	Two body sherds of Early Neolithic vessel and hazelnut shell	3766-3642 BC
F4206	4206, 4207	Pit	0.48 x 0.43 x 0.16	Blackish brown	Sandy silt	Six sherds of Early Neolithic vessels and broken flint knife	
F4211	4210, 4211	Pit	0.45 x 0.45 x 0.16	Dark brown	Silty sand	Five sherds from two Early Neolithic vessels	
F4213	4212, 4213	Pit	0.5m x 0.5m x 0.17m	Dark brownish grey	Sandy silt	Two sherds of Carinated bowl and a rim sherd of Early Neolithic vessel	

Table 1. Summary descriptions of Early Neolithic pit features.

4.3.2 Two Neolithic structural features were excavated across the stripped area during Phase 9 (Figure 3 and Figure 19). Hearth waste pit F4146 was located in the southern extent of the stripped area and was wide and shallow and contained two sherds of Carinated Bowl (Figure 15). Beam slot F4178, was located in the centre of the western edge of the stripped area and produced a sherd of Carinated Bowl (Figure 16). Radiocarbon dating of a sample of Hawthorn charcoal from beam slot F4178 produced a radiocarbon date of 3705-3536 cal BC (95.4% probability) and probably 3693-3634 cal BC (68.2% probability) (SUERC-76732 (GU46026)). This beam slot F4178 relates to other features (F4182, F4191, F4194, F4198, and F4200) as part of a truncated structure approximately 7m in diameter (see Figure 6).

Feature	**Contexts**	**Description**	**Average dimensions (m)**	**Colour of fill**	**Composition**	**Finds**	**C14 date (95.4% probability) cal BC**

F4146	4146, 4147	Hearth waste pit	1.7 x 0.8 x 0.16	Dark greyish brown	Sandy silt	Two sherds of Carinated Bowl	

Table 2. Early Neolithic hearth features.

Feature	Contexts	Description	Average dimensions (m)	Colour of fill	Composition	Finds	C14 date (95.4% probability) cal BC
F4178	4178, 4179	Beam slot	1.3 x 0.35 x 0.1m	Brownish grey	Sandy silt	Single sherd of Carinated Bowl	3705-3536 BC

Table 3. Summary description of Early Neolithic structural features.

4.4 Modern

4.4.1 A modern L-shaped feature was excavated during Phase 9, adjacent to the post-medieval ditch identified in previous phases, which contained fragments of modern rubber tubing and very straight sides indicating machine excavation (Figure 17 and Figure 20).

Feature	Contexts	Description	Average dimensions (m)	Colour of fill	Composition	Finds	C14 date (95.4% probability) cal BC
F4217	4217, 4218	Test pit	2.73 x 1.34 x 0.5	Mottled greyish brown	Sandy silt	Rubber tubing	

Table 4. Modern feature.

4.5 Undated features

Undated pits

4.5.1 A total of 14 undated pits were excavated across the stripped area during Phase 9 (Figure 3, Figure 21 and Figure 22). Structural slot F4191, pit F4194, and pit F4208 were all located quite close to each other near to the Early Neolithic pits discussed above. The structural slot F4191 was around 1m in length, and the pits were all around 0.5 in diameter. Pit F4208 was situated adjacent to pit F4206 and contained six sherds of Early Neolithic pottery and a broken flint knife (Figure 22)

4.5.2 Pit F4216 was located adjacent to pit F4213 which produced two sherds of Carinated bowl and a rim sherd of Early Neolithic vessel, although pit F4216 did not produce any finds. Pit F4216 is similar in form to the structural slots F4178 and F4191, but does not have the same broader spatial relationship with other features.

4.5.3 Pits F4142 and F4150 appear to be a double pit similar to those nearer the central cluster of features. Unfortunately these do not appear to have close proximity with any other features indicating the presence of structures.

Feature	Context	Description	Average dimensions (m)	Colour of fill	Composition	Finds	C14 date (95.4% probability) cal BC
F4142	4142, 4143	Small pit	0.6 x 0.54 x 0.14	Greyish blackish brown	Silty sand		
F4145	4144, 4145	Pit	0.79 x 0.28 x 0.26	Light yellowish brown	Sand		
F4148	4148, 4149	Pit	0.47 x 0.41 x 0.1	Greyish black	Sandy silt		
F4150	4150, 4151	Small pit	0.56 x 0.5 x 0.18	Yellow greyish brown	Silty sand		
F4153	4152, 4153	Pit	0.81 x 0.5 x 0.14	Dark greyish brown	Sandy silt		
F4155	4154, 4155, 4156	Pit	0.49 x 0.17 x 0.16	Dark grey/Mid greyish brown	Sandy silt		
F4158	4157, 4158, 4159, 4160	Pit	0.25 x 0.25 x 0.21	Light brownish grey, mid brownish grey,	Sandy silts		
F4162	4161, 4162	Small pit	0.2 x 0.2 x 0.11	Mid brownish grey	Silty sand		
F4164	4163, 4164	Pit	0.54 x 0.26 x 0.14	Mid greyish brown	Sandy silt		
F4172	4171, 4172, 4173	Pit	0.76 x 0.76 x 0.3	Yellowy, pinkish brown/Mid brownish grey	Sandy/Sandy silt		
F4182	4181, 4182, 4183	Pit	0.51 x 0.51 x 0.15	Light greyish brown/Dark brownish grey	Silty sand/Sandy silt		
F4191	4191, 4192	Structural slot	1.1 x 0.55 x 0.08	Greyish brown	Sandy silt		
F4194	4194, 4195	Pit	0.6 x 0.46 x 0.21	Greyish brown	Sandy silt		
F4203	4202, 4203	Pit	0.42 x 0.42 x 0.1	Dark brownish grey	Sandy silt		
F4208	4208, 4209	Pit	0.35 x 0.3 x 0.14	Blackish brown	Sandy silt		
F4216	4215, 4216	Pit	1 x 0.3 x 0.3	Dark brown	Silty sand		

Table 5. Summary descriptions of undated pits.

Undated postholes and stakeholes

4.5.4 A total of five undated postholes and stakeholes were identified and excavated during Phase 9 of the strip, map and sample (Figure 3 and Figure 22). These centred around the cluster of pits which contained flint and ceramics and which dated to the Early Neolithic (see above).

4.5.5 It is possible that these are post sockets that held posts in place with the help of the weight of a roof. It is probable that these features represent the remains of a structure which may have consisted of more postholes or sockets that have been completely removed by ploughing and truncation. Similar circular and triangular structures have been excavated during previous phases at Cheviot Quarry, Bolam Lake

(Waddington 2002) and Thirlings (Miket *et al.* 2008), dated to the early Neolithic period through radiocarbon dating and the recovery of Early Neolithic Carinated Bowl pottery. These posthole/socket features did not produce any dating evidence but it is possible they represent the truncated remains of a Neolithic post-built structure.

Feature	Contexts	Description	Dimensions (m)	Colour of fill	Composition	Finds	C14 date (95.4% probability) cal BC
F4165	4165, 4166	Posthole	0.3 x 0.3 x 0.04	Blackish brown	Silty sand		
F4183	4183, 4184	Posthole	0.2 x 0.2 x 0.11	Greyish brown	Silty sand		
F4198	4198, 4199	Stakehole	0.21 x 0.19 x 0.12	Dark brownish black	Sand		
F4200	4200, 4201	Stakehole	0.2 x 0.18 x 0.08	Dark brownish black	Sandy silt		
F4204	4204, 4205	Posthole	0.44 x 0.28 x 0.07	Blackish grey	Sandy silt		

Table 6. Summary description of undated postholes and stakeholes.

5. RADIOCARBON DATING

5.1 A total of six radiocarbon dates were obtained from samples excavated during Phase 9 at Cheviot Quarry, although as with previous phases, several more are required in order to fully understand the highly significant archaeology that has been recovered from this site.

The samples consisted of:

- A charred hazelnut shell from the fill of pit (4169)
- A charred hazelnut shell from the primary fill of a pit (4174)
- A charred hazelnut shell from the primary fill of a pit (4176)
- A charred emmer wheat cereal grain from the fill of a wide, shallow pit (4176)
- A sample of hawthorn charcoal from the
- A charred hazelnut shell from the primary fill of a midden pit (4010)

Feature	Context	Sample	Lab No.	RC Age (BP)	$\delta^{13}C$ ($^{0}/_{00}$)	Calibrated date range cal BC (95.4% probability)	Calibrated date range cal BC (68.2% probability)
F4176, a circular scoop pit containing Early Neolithic pottery	4176	Hazelnut shell	SUERC-76727	5010 ± 32	-23.9	3942-3706	3911-3713
F4176, a circular scoop pit containing Early Neolithic pottery	4176	Emmer wheat grain	SUERC-76728	4994 ± 32	-26.3	3939-3695	3796-3711

F4174, a circular scoop pit containing Early Neolithic pottery and flint knife	4174	Hazelnut shell	SUERC-76726	4983 ± 32	-25.9	3930-3664	3786-3711
F4197, a circular pit containing Early Neolithic pottery	4197	Hazelnut shell	SUERC-76733	4911 ± 32	-23.4	3766-3642	3703-3655
F4169, a small pit with sherds of Carinated Bowl and flint knife	4169	Hazelnut shell	SUERC-76725	4882 ± 32	-25.1	3712-3634	3695-3643
F4178, a beam slot containing a sherd of Carinated Bowl	4178	Hawthorn charcoal	SUERC-76732	4854 ± 32	-23.9	3705-3536	3693-3634

Table 7. Radiocarbon dating results.

5.2 The samples obtained from the features containing Carinated Bowl produced dates that help date Early Neolithic ceramic use both on this the site and across the wider region. Together with the remainder of the samples these dates provide important chronological control on the advent of farming, ceramics and Neolithic lifestyles from the beginning of the Early Neolithic onwards into the mid 4th millennium cal BC. These six dates, when added to the dates previously obtained from Cheviot Quarry samples, strengthens the evidence for continued occupation of the Milfield Basin, with some pulses of settlement evident, from the beginning of the Neolithic period through to the Early Bronze Age.

6. PALAEOENVIRONMENTAL ASSESSMENT

6.1 Introduction

6.1.1 The fills of 24 Neolithic pits, two stakeholes, one posthole, and one beamslot were sampled and analysed for palaeoenvironmental analysis. The Neolithic age of most of these 28 features has been determined through pottery and flint finds from a large number of the pits.

6.1.2 Where possible, a maximum of 40L of fill was taken for sampling from each sampled archaeological context unless the volume of the context was less than 40L, whereupon the entirety of the excavated context was sampled.

6.2 Methods

6.2.1 Bulk samples were processed via water floatation through graduated sieves with the smallest being 300 µm. Flots were weighed, air dried, and scanned using a low-power binocular microscope (x40). The entirety of the flots were scanned and separated out into charcoal and plant macrofossils.

6.2.2 Where possible up to twenty identifications were made per sample. If the quantity of charcoal present in a sample exceeded 20 pieces, then the sample was dry-sieved through 10mm, 500µm and 300µm sieves. Six pieces of charcoal were then taken randomly from two of the sieves, and eight pieces from another. Charcoal with a size of >2mm was fractured to obtain clean sections on the tangential, transverse, and radial planes. These could then be identified using a high power Leica GXML3030 binocular microscope (up to x600). Species identification was undertaken using plates and guides from Scoch et al. (2004) as well as comparison with a modern reference library held by ARS Ltd.

6.2.3 Plant macrofossil identification was undertaken using a low-power binocular microscope (x40). Plant macrofossil identification utilised plates and guides from Martin and Barkley (2000) and Cappers et al. (2006). Plant macrofossil nomenclature follows Stace (1997). Cereal identification utilised the guide by Jacomet (2006). All plant macrofossils present were assessed. Non-charred macrofossils were discounted as being modern contamination and were excluded from this analysis.

6.3 Results

6.3.1 Recovered palaeoenvironmental remains are described in tables 1-3. All contexts which contained identifiable charcoal had a mix of deciduous tree and shrub species, with Quercus sp. (oak) and Corylus avellana L. (hazel) being the dominant species. All contexts which contained charcoal contained at least one fragment of these two species, with a smaller component comprised of a variety of other deciduous woodland species. The other species recovered were Crataegus monogyna Jacq. (hawthorn), Alnus cf. glutinosa Gaertn. (alder), Sambucus nigra L. (elder) and Acer campestre L. (field maple). Pit contexts (4190) and (4197) contained Rhamnus cathartica (buckthorn), and (4204) and (4206) Tilia x europaea (lime).

6.3.2 All recovered charcoal fragments which were of sufficient size to identify the original size of the burnt wood were either roundwood or deadwood.

6.3.3 Charred botanical macrofossils were recovered from the 12 of the 28 contexts. These macrofossils included a number of edible wild plants, a species of weed, as well as cereal grains. Hazelnut shells were found in 12 of the 28 contexts, with pit context (4213) also containing two charred hawthorn berry seeds. Pit contexts (4174), (4176), and (4182) each contained a single charred Fallopia sp. (buckwheat) seed. Small numbers of cereal grains in the form of Triticum dicoccum (emmer wheat) were recovered from pit contexts (4176), (4211), and (4213), with the latter pit also containing a single fragment of emmer glume base. Although relatively poorly preserved and somewhat damaged, the emmer could still be identified as such by the distinctive ‘hump’ along the dorsal outline. The angular lower part of the glume base also is distinctive of emmer wheat, differentiating it from spelt or einkorn wheat.

6.4 Discussion

6.4.1 The large variety of charcoal species is indicative of nearby deciduous woodland which was being utilised for firewood. The charcoal assemblages contained within the pit and posthole features were entirely composed of roundwood or deadwood fragments. This is indicative of opportunistic firewood collection, rather than active

deforestation. Either smaller, easily acquired branches from trees or from easily accessible shrubs (i.e. the hawthorn), or fallen pieces of deadwood, were taken. The variety makes it likely that ease of acquisition was given priority over burning characteristics of the wood. The dominance of hazel and oak wood is probably a reflection of nearby woodland composition, rather than anthropogenic preference. As noted by Huntley (2010), the Neolithic preference for smaller branch and twig wood likely reflects the technological limitations of the time.

6.4.2 The botanical macrofossils give an insight into the subsistence strategies employed by the Early Neolithic groups inhabiting this region. The emmer wheat found in pit contexts (4176), (4211), and (4213) illustrates the agricultural practices which were being employed, however these were being supplemented by gathering in the form of hazelnuts and hawthorn berries (hawes). These nuts and fruits may well have been gathered opportunistically whilst the wood used for burning was also being gathered (or vice-versa). Although the far smaller proportion of cereal remains compared to gathered remains (almost entirely in the form of hazelnuts) could be interpreted as suggesting a greater orientation towards hunter/gatherer lifestyles rather than agricultural, this dominance is more likely to be the result of taphonomic factors rather than a true reflection of dietary practice. Hazelnut chars and survives better in fire compared to cereal grains and chaff, as well as hazelnut shell often being intentionally disposed of in the fire, rather than cereal grains which are generally only unintentionally burnt (Jones, 2000). Similarly, the emmer glume base from context (4213) is likely to represent accidental burning as these are removed during the latter stages of dehusking, usually arrive on site still surrounding the grains, and are usually used as animal fodder rather than fuel (Jones, 2000). The ubiquity of hazelnut shell is consistent with a Neolithic date as significant concentrations of hazelnut shell are very typically disposed of in pitsof this period (Moffett *et al*. 1989).

6.4.3 Preference should be given for 14C dating of charred hazelnut shell or cereal grains. These not only have no in-built radiocarbon age which would affect the dating, particularly of much of the dead-wood charcoal fragments, but would also provide direct dating of the agricultural and gathering activities.

7. CERAMIC FINDS ANALYSIS

by Clive Waddington and David Cockcroft

7.1 Introduction

7.1.1 The corpus of ceramic material recovered from the Phase 9 excavation at Cheviot Quarry comprised an assemblage of Early Neolithic pottery numbering approximately 81 sherds in total (excluding crumbs and tiny sherds), with a combined weight of just over 1.52kg. It represents a minimum of 24 vessels that can be classified as Early Neolithic Carinated Bowl/Plain Ware based upon consideration of form and fabric. They were all recovered from pit features scattered across the Phase 9 excavation area together with one unstratified sherd from the topsoil.

7.1.2 The assemblage complements the previous assemblages recovered from Cheviot

Quarry and relates to the evidence for Early Neolithic occupation across the wider site. It also compares with assemblages recovered from nearby sites such as those from Cheviot Quarry (Johnson and Waddington 2008) and Thirlings (Miket et al. 2008). In this respect it forms a significant addition to the local and regional Neolithic pottery sequence.

7.2 Method Statement

7.2.1 The sherds were gently finger-washed in cold water and then left to air dry. Once they had dried the remaining soil was gently brushed off with a sable shaving brush. The sherds were laid out according to context and then by fabric group and individual vessels. The pottery was examined macroscopically with the aid of a x10 hand lens. No microscopic analysis was undertaken. Joining sherds were refitted using HMG adhesive.

7.3 Catalogue

7.3.1 A catalogue describing each identified vessel by ceramic type is presented below.

Carinated Bowl/Plain Wares

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
124	1854	002	Body sherd from Carinated Bowl pot. Strong carination running around the vessel. Highly burnished evenly fired fabric. Dark grey inner fabric and surfaces with prepared crushed stone inclusions. Charred residue adhering to inner surface. Wall thickness 6.5mm.	17.2
125	1849	4146	Two sherds and crumbs from a substantial Carinated Bowl. The rim sherd indicates a large open pot with an internal diameter of *c*.24cm with a heavy rolled over rim. Highly burnished, evenly fired hard fabric dark grey throughout. Abundant prepared angular crushed stone inclusions up to 9mm across occasionally erupting on surfaces. Wall thickness 14mm.	151.0
126	1865	4174	Three body sherds from an Early Neolithic vessel. Distinct orange-brown coarse fabric throughout, evenly fired and with light grey prepared angular crushed limestone inclusions up to 9mm across. Roughly smoothed. Wall thickness 8mm.	33.9

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
127	1865	4174	Two body sherds from an Early Neolithic vessel. Very highly burnished red-brown. Fabric is hard and contains crushed stone inclusions up to 5mm across and is evenly fired. Wall thickness 6-7mm.	11.3
128	1865	4174	Two body sherds from what is probably the same rounded Early Neolithic vessel. Hard, dark grey fabric with lighter grey outer surface and containing crushed stone inclusions up to 7mm across which occasionally erupt at surface. Wall thickness 7-8mm.	22.0
129	1851	4168	Two body sherds from a carinated vessel. Hard orange-brown fabric containing fine crushed stone inclusions up to 4mm across. Burnished on the inside with a gritty outer surface. Wall thickness 7-9mm.	16.4
130	1872	4178	Single small sherd from a highly burnished Carinated Bowl with hard dark grey fabric, evenly fired containing small angular crushed stone inclusions up to 3mm across. Wall thickness 9mm.	4.8
131	1867	4186	Single small rim sherd from a small Carinated Bowl. Dark grey, evenly fired fine, hard fabric containing crushed stone inclusions up to 4mm across. Rim is flat topped and very slightly everted. Wall thickness 6mm.	4.2
132	1866	4188	Single sherd from thick-walled large Early Neolithic vessel. Hard fabric, dark grey core and inner surface with pale brown outer surface. Fabric contains prepared crushed stone inclusions up to 6mm across. Has a slip applied to outer surface which accounts for the difference in colour. Wall thickness 12-13mm.	34.8

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
133	1853	4169	Two adjoining rim sherds and crumbs from a substantial Carinated Bowl vessel with everted rim and an internal diameter of 18cm. Hard, dark grey evenly fired fabric containing crushed stone inclusions of prepared Old red Sandstone up to 8mm across occasionally erupting on the inner surface. Distinctive fabric suggesting contact with Lower Tweed valley area to the north where the red sandstone outcrops. Burnt residue or sooting adhering to outer surface. Wall thickness 8-9mm.	81.9
134	1853	4169	Single small sherd from an Early Neolithic vessel. Hard dark grey well-fired fabric, highly burnished and lighter brown on inner surface. Contains fine crushed stone inclusions. Wall thickness 7-8mm.	4.4
135	1869	4189	Single body sherd from rounded Early Neolithic vessel. Hard well fired fabric dark grey brown in colour, lightly burnished. Contains crushed stone inclusions up to 3mm across. Wall thickness 6-7mm.	9.8
136	1860	4193	Three body sherds and crumbs from a rounded Early Neolithic vessel. Hard fabric with grey inner surface and core and dark brown outer surface with applied slip. Fabric is roughly burnished and contains crushed stone inclusions up to 7mm across and which frequently erupt on inner and outer surfaces. Charred residue adheres to inner surface. Wall thickness 10-11mm.	42.2
137	1861	4197	Two body sherds from rounded Early Neolithic vessel. Hard fabric, evenly fired and burnished, brown in colour. Contains crushed stone inclusions up to 6mm across which occasionally erupt on outer surface. Charred residue adhering on inner surface. Wall thickness 9-10m.	33.4

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
138	1858	4200	Six sherds and crumbs, of which all three rim sherds conjoin, from a small Early Neolithic rounded bowl with upright rim with an internal diameter of 13cm. Dark grey hard fabric with pale brown slip on inner surface. Contains crushed stone inclusions thathad erupted on inner surface giving it a rough finish. The prepared crushed stone inclusions are generally fine. Wallthickness 9-10mm but narrows to 6mm at rim.	71.4
139	1857	4213	Two sherds, including one rim, from a substantial Carinated Bowl with an internal diameter of *c*.24cm. The vessel had a heavy rolled over rim and carination below the neck. It is made from a hard well fired fabric with dark grey core and pale brown slip applied to the inner and outer surfaces. It contains prepared crushed stone inclusions up to 6mm across. Wall thickness 12-13mm.	60.7
140	1857	4213	A single small rim sherd from a Early Neolithic vessel with flaring everted and rounded rim. Hard, evenly fired dark grey fabric with slip producing highly burnished pale brown inner surface. Contains crushed stone inclusions up to 5mm across. Wall thickness 7-8mm.	5.7
141	1870	4214	Three body sherds from an Early Neolithic rounded vessel made from a hard evenly fired dark grey fabric containing crushed stone inclusions up to 4mm across. Red slip applied to outer surface. Charred residue adhering to inner surface. Wall thickness 8-9mm.	33.1
142	1856	4217	Three sherds, including one rim, from a well fired hard fabric Early Neolithic vessel. Rim is rounded and slightly everted. Fabric same as vessel No 126 - orange-brown coarse fabric throughout, evenly fired and with light grey prepared angular crushed limestone inclusions up to 9mm across. Roughly smoothed. Wall thickness 8-9mm.	34.1

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
143	1856	4217	Two body sherds from a rounded and carinated Early Neolithic vessel made from a hard evenly fired fabric with slip applied to outer surface that gives it a different pale brown colour. Contains crushed stone inclusions up to 4mm across that occasionally erupt on inner and outer surfaces. Wall thickness 6-10mm.	32.3
144	1862	4190	Fifteen sherds of which many conjoin, from a substantial well-made Carinated Bowl with everted and rolled over rim and an internal diameter of 30cm, the carination being low on the pot's belly. It has a well fired fabric with crushed stone inclusions up to 5mm across. It has an applied slip, is highly burnished and varies in colour on its surfaces from dark grey and brown to red-brown. Wall thickness averages 8-9mm.	346.7
145	1862	4190	Five sherds, of which the two rims conjoin, from a Carinated Bowl vessel with everted and rolled over rim with an internal diameter of 29cm, the carination being low on the pot's belly. It is made from a hard evenly fired dark grey fabric highly burnished on its inner and outer surfaces and contains prepared crushed stone inclusions up to 6mm across that occasionally erupt on the surfaces. Wall thickness 9-11mm.	138.5
146	1862	4190	Nineteen sherds and some crumbs from an Early Neolithic vessel with everted and rolled over rim- the rim sherds conjoin. Hard dark grey fabric with slip on outer surface that has become pale brown. Frequent prepared crushed stone inclusions up to 6mm across that frequently erupt on both surfaces. Wall thickness 7-10mm.	324.0
146	1862		Bag of crumbs from the three pots from this context but unattributable to vessel.	

Vessel Number	Small Find Number	Context Number	Description	Weight (grams)
147	1873	4176	Single small body sherd from Early Neolithic vessel with hard evenly fired dark grey fabric and with slip applied to outer surface which is pale brown in colour. Charred residue adhering to inner surface. Prepared crushed stone inclusions up to 3mm across. Wall thickness 7-8mm.	5.6

Table 8. Catalogue of Carinated Bowl/Plain Ware.

Fabric

7.3.2 This assemblage of Carinated Bowl and Plain Ware has three different fabrics present. The first is the typical hard and largely well-fired fabric containing angular crushed stone temper which can be of just one stone type or several, the most common being sandstone, and some occasional quartz, all of which is available within a few miles radius of the site. The inclusions are generally well sorted and can be up to 7mm across and are fairly evenly distributed throughout the fabric. The common practice of treating the external and sometimes internal surface by means of burnishing often masks the presence of the inclusions across the surface of the vessels although in some cases surfaces are less well smoothed and inclusions erupt.

7.3.3 The second fabric is very similar to the first except that the stone inclusions are carefully prepared crushed Old red Sandstone which give distinctive red flecks to the pot surfaces. This type of sandstone is found c.20 km to the north and north east of the quarry in the Lower Tweed valley and could suggest groups coming to the Milfield Plain from this area, or perhaps trading their pots.

7.3.4 The third fabric group is a rougher fabric and has crushed limestone inclusions. This type of geology lies to the north west of the Milfield Plain and again suggests contact with neighbouring groups who either visited the Milfield area or who traded their ceramics. The colour of the clay used is also distinctive being an orange-brown colour.

7.3.5 Surface colouration can vary considerably, even within a single vessel, as is usual with ceramics fired under a bonfire or pit clamp and repeatedly exposed to smoke discolouration, heat and differential oxygen supply. On the whole they tend to be dark grey, dark brown, grey and occasionally buff brown or a red-brown or with an orangey-brown surface. On the whole, the pottery is well fired and of high quality with a fairly even and uniform colouration throughout indicative of good control of the firing process.

7.3.6 The use of slips is common in this assemblage, although not all pots have it. The slips can be recognised by the often very smooth surface and by different colouration of the slipped surface compared to the core and sometimes an unslipped inner or outer surface. The slips may have been used primarily to give the pots a neat and smart

appearance as the heavy burnishing of many of the pots without slip had clearly made them waterproof. Indeed as the pots have aged it is the pots with a slip that tend to be more crumbly, whilst those dark grey pots with no slip tend to have the hardest and most durable fabric.

Form

7.3.7 The term Carinated Bowls is here used generically to refer to the suite of Early Neolithic ceramics from his region that includes carinated forms as well as open forms, plain bowls and other assorted Plain Wares.

7.3.8 This assemblage of Carinated Bowl/Plain Ware material is typical of the Northumberland tradition displaying an absence of decoration and executed in well-fired fabrics with a slipped or highly-burnished, or at least well-smoothed, external and also typically internal surface. Examples of un-shouldered simple bowls or cups are represented as well as open bowls and more substantial cooking vessels. In this regard the corpus aligns well with the material recovered from the previous phases at Cheviot Quarry and similar assemblages elsewhere in the Milfield Basin, such as those from Cheviot Quarry (Waddington in Johnson and Waddington 2008), Coupland (Passmore and Waddington 2009) and Thirlings (Miket *et al*. 2008).

7.3.9 The small size of sherds within this assemblage means that none of the vessels are adequately represented to allow full vessel reconstruction. This said, several vessels have sufficient surviving to allow for identification of large open bowls, a single small bowl with deep belly and upright rim and several carinated vessels with heavy rolled over rims with their carinations evidently low down on the vessel's belly. At least one vessel has an everted rim with a high shoulder. These are all typical forms of Carinated Bowls and Plain ware and fit directly into the wider corpus of Early Neolithic ceramics from Northumberland generally as well as the assemblage recovered to date from the quarry.

Numbers

7.3.10 A total of 81 sherds was recovered which represents a minimum number of 24 vessels. The most productive context was [4190], an upper pit fill with three vessels represented.

7.4 Discussion

7.4.1 The Early Neolithic material includes traditional Plain Ware forms typical of other Early Neolithic settlement and pit sites across the sand and gravel terraces of the Milfield Basin. The surfaces tend to have been well burnished and are entirely devoid of decoration. One of the Plain Ware vessels has charred organic residue adhering to its surface indicating its use in the cooking process. These vessels add to the wide range and large number of vessels present across the site and are consistent with the storing, processing, cooking and consumption of food, and perhaps other processing activities, and can therefore be viewed as reflecting domestic occupation during the Early Neolithic across the site. The presence of the daub is important here as this implies the presence of structures on the site. The Carinated Bowl and Plain Ware assemblage from Cheviot Quarry is the largest assemblage of Early Neolithic pottery from anywhere in

North East England.

7.4.2 The opportunity to gain radiocarbon dates for this pottery style is important and forms a priority in the North East archaeological research agenda (Petts and Gerard 2006).

8. LITHICS ASSESSMENT

by Clive Waddington

8.1 Factual Data

Quantity

8.1.1 A total of 5 chipped lithic artefacts were recovered from the excavations at Cheviot Quarry in 2017, all of which came from pit fills that also contained Early Neolithic Carinated Bowl and related ceramics.

Provenance

8.1.2 Table 9 below lists the lithics by contexts from which they were recovered.

Context No	Find No.	Context Type	No. Lithics	Lithic Types Present	Other asstns.	Period
4169	1852	Fill of pit [4170]	1	Broken, narrow edge-trimmed blade	Early Neolithic pottery find no.1853, hazelnut shell	Early Neo
4174	1868	Fill of pit [4175]	1	Broken, broad edge-trimmed blade	Early Neolithic pottery find no.1865	Early Neo
4186	1871	Fill of pit [4185]	1	Narrow edge-trimmed blade	Early Neolithic pottery find no.1867, bone find no.1874	Early Neo
4190	1863	Upper fill of pit [4177]	1	Broken, narrow edge-trimmed blade	Early Neolithic pottery find no.1862, burnt bone find no.1864	Early Neo
4206	1869	Fill of pit [4207]	1	Broken knife made on broad blade	Early Neolithic pottery find no.1858	Early Neo
Total			**5**			

Table 9. Lithic counts by context.

Dating

8.1.3 Together the lithics are all part of a blade-based manufacturing tradition, the narrow bladed pieces being virtually indistinguishable from later Mesolithic material other than the evidence for bifacial chipping on find no1863. The broad blade pieces are classic Neolithic forms and the frequency if edge-trimmed blades is a typical feature of Early Neolithic assemblages. All of the features that produced these lithics also produced Early Neolithic pottery belonging to the Carinated Bowl and related Plain Ware style. All of the assemblage can be confidently ascribed to an Early Neolithic date

Raw Material

8.1.4 All of the material is flint and all of reasonably high quality. There is cortex surviving on two pieces with that on find no.1852 indicating a primary source of nodular flint from chalk-bearing strata and find no.1869 having a well-developed smooth brown

cortex typical of a high quality secondary glacial source that is brown in colour. All of the other pieces are shades of light grey.

Types

8.1.5 The assemblage includes a broken knife with neat unifacial retouch along one of its long edges, but having broken across its proximal end so that its bulb of percussion is missing. All of the other pieces are edge-trimmed blades, the two narrowest having triangular sections and both have breaks or deliberate snaps at one end. The broad edge-trimmed blade find no.4174 is also broken. The only complete piece, find no.4186, has maximum length, breadth and thickness measurements of 30mm, 11.5mm and 2.5mm.

Condition

8.1.6 All of the flint is in good condition. None of the pieces show fresh breaks and therefore the broken pieces have been broken in antiquity prior to discard.

Primary Sources and Documentation

8.1.7 There is no documentation that might enhance the study of this collection.

Means of Collecting the Data

8.1.8 The lithics were excavated from the ground using hand tools (trowels and small tools) and from sieves with a 1cm^2 mesh. Each lithic was washed in tap water and gently cleaned with a toothbrush before being left to air dry. Each lithic was placed in an individual plastic bag that was labelled with a unique small find number and the context number.

8.1.9 For the assessment and analysis the lithics were un-bagged and laid out on a table and grouped by context. Lithic counts were recorded and an examination made of all pieces. The lithics were then re-bagged and packed, by context, into a sturdy storage box.

8.2 Statement of Potential

Value of the Data

8.2.1 This assemblage of material is very small on its own but combined with the lithic material from earlier excavations on this site it has the potential to advance the regional research agenda and understand more, specifically, about Neolithic lithic production, use and significance in the region, a topic that is currently poorly understood and for which few radiocarbon dated assemblages are known from the region. The flint knife, although broken, is a good specimen and adds to some of the other excellent examples of Neolithic flintwork from this site.

Integration of Study with Other Research

8.2.2 The study of this assemblage could be enhanced through acquisition of radiocarbon dates on material from the same contexts to assist with dating the flint sequence in the region, and by comparison with the dates, styles and circumstances of discard with Neolithic assemblages from previous excavations at Cheviot Quarry (see previous Phase reports), the nearby sites of Cheviot Quarry (Johnson and Waddington

2008), Thirlings (Miket *et al*. 2008), Bolam Lake (Waddington and Davies 2002) and elsewhere (e.g. Harding 1981; Miket 1976; 1981; 1985; Passmore and Waddington 2012).

8.3 Archive Requirements

Storage and Curation

8.3.1 The lithics are currently contained in sealed and labelled plastic bags. Lithics from the same context are all bagged in a context specific bag. These bags are stored in a sturdy storage box with other lithics from Cheviot Quarry.

Retention and Discard Policy

8.3.2 It is recommended that all of this collection is kept for future study.

9. Overall Discussion

9.1 The earliest dated remains excavated during Phase 9 at Cheviot Quarry were pit F4176 which produced sherds of Early Neolithic Carinated Bowl and a charred hazelnut shell that was radiocarbon dated 3942-3695 cal BC (95.4% probability) (SUERC-76727 (GU46024)) which confirms that the pit was backfilled in the earliest part of the Neolithic period. Early Neolithic Carinated Bowl pottery has been found within feature across almost all of the previous phases of work at the quarry. Carinated Bowls and other round-based vessels are the earliest examples of pottery within the British Isles and represent one of the most significant advances that were made between the Mesolithic and the Neolithic periods, and went hand in hand as part of the advent of a farming 'package'. Excavations at Cheviot Quarry are producing one of the largest assemblages of Neolithic pottery in northern Britain and will make a significant contribution to understanding the chronology, use and technology of the earliest ceramics in the region.

9.2 Previously at Cheviot Quarry, Carinated Bowl pottery has been found in association with what are typically interpreted as domestic 'waste' or 'midden' pits and frequently in association with triangular post-built structures such as those found during the Phase 1 and Phase 2 excavations in 2006 and 2008 respectively. In the past these structures have contributed considerably to building knowledge of Early Neolithic settlement structures in the region. Six different structures are illustrated and discussed within Passmore and Waddington (2012) including Buildings 7, 8 and 12 from Cheviot Quarry as well as examples from Bolam lake (Waddington and Davies 2002), Thirlings (Miket *et al.* 2008) and Whitton Park (Waddington 2005).

9.3 The arrangement of postholes/post sockets and construction slots discovered during the Phase 9 excavations represent the truncated remains of a probable circular, Neolithic post-built structure (F4178, F4182, F4191, F4194, F4198, and F4200). The maximum dimensions of the structure on the ground could be 7m in diameter, however, as in the other examples mentioned above, the postholes only demonstrate where the weight-bearing posts would have stood and do not necessarily relate directly to the shape and size of the covering superstructure or superstructures. Radiocarbon dating from a sample of hawthorn charcoal identified in beam slot F4178 was dated to 3705-

3536 cal BC (95.4% probability) (SUERC-76732 (GU46026)) placing this feature in the latter part of the Early Neolithic and is likely to be contemporary with pits F4169 and F4197 . Radiocarbon dates from other examples of these structures at Cheviot Quarry also date them to the Early Neolithic period. A similar circular structure of 7m in diameter was identified at Thirlings which was dated to 3640-2890 cal BC (Miket *et al*. 2008, 14). Further dates should be obtained from any additional post-built structures excavated in the future, as well as those obtaining dates on those Neolithic structures from Cheviot Quarry that have not yet been dated.

9.4 The assemblage of ceramics and accompanying lithics found during Phase 9 complement what is growing to be a nationally important assemblage that has been collected in previous years and which provides a continuous ceramic sequence through the entire Neolithic. The Carinated Bowl is comparable with similar ceramics from Cheviot Quarry (Johnson and Waddington 2008) and Thirlings (Miket *et al*. 2008) as well as other important sites such as Bolam Lake, Yeavering and Broomridge (Passmore and Waddington 2012). Although not all found during the Phase 9 work at the quarry, previous excavations have yielded sherds of Carinated Bowl, Impressed Ware, Grooved Ware and Beaker and together with the evidence for settlement, farming practices and food consumption and now burial, it is for these reasons that Cheviot Quarry remains the best site to answer some of the many unresolved questions surrounding the Neolithic period in North East England.

9.5 Palaeoenvironmental analysis of samples from the Phase 9 excavations revealed important evidence for cereal cultivation associated with the Early Neolithic remains. Evidence of hazelnut shell also identified within the assemblage corresponds with assemblages of botanical remains recovered from the previous phases of excavation on Early Neolithic features, which produced quantities of cereal grain and chaff with emmer wheat and barley present, together with occasional wild oat and species of fruit and many hazelnut fragments. This evidence is always rare for the Neolithic and the quantities of surviving material is generally small. The presence of this evidence for domestic cereal cultivation and food production is consistent with the Neolithic remains discussed here being associated with domestic settlement activity.

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APPENDIX I - FIGURES

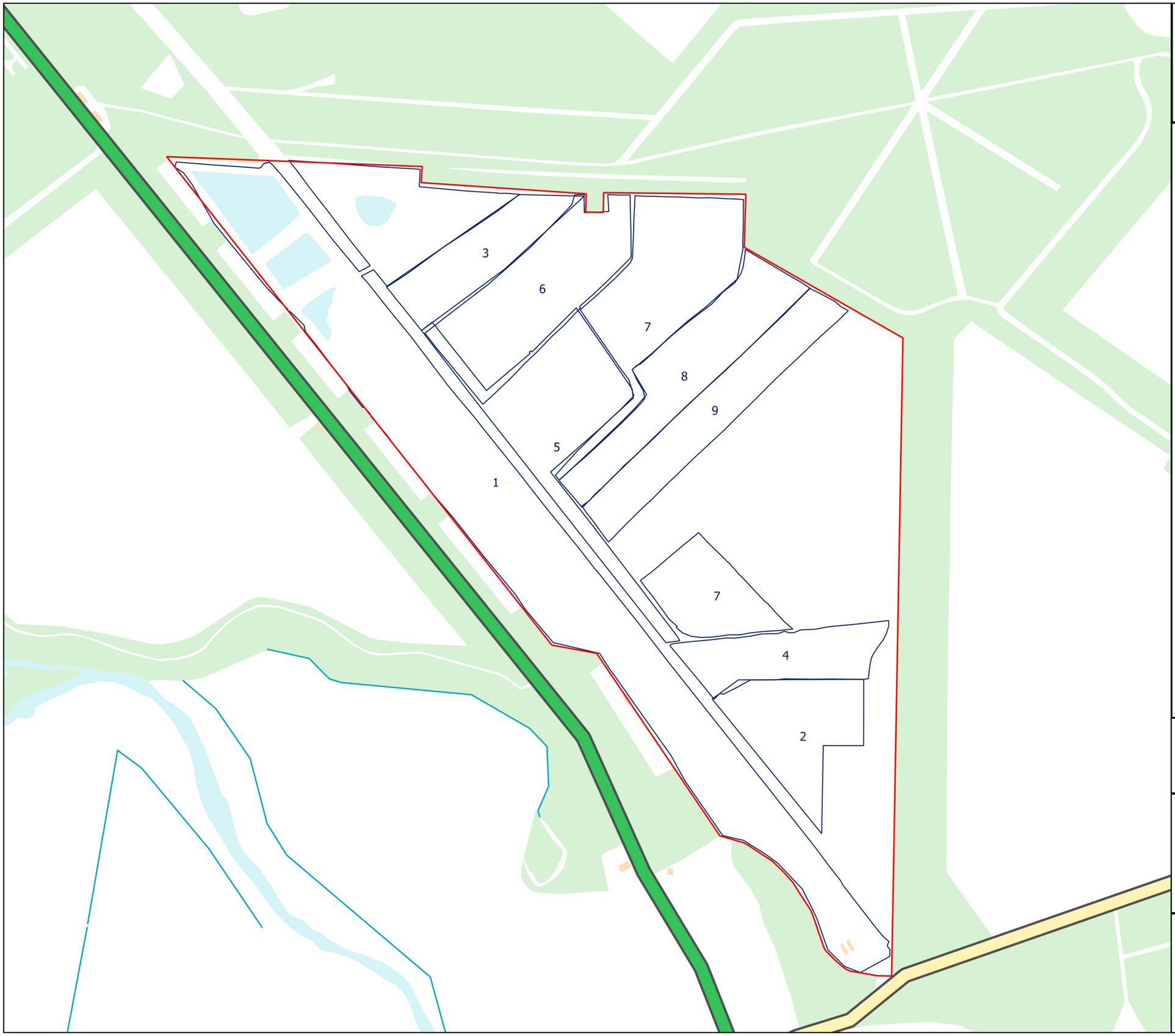

Figure 2:

Lanton Quarry showing numbered excavation phases

0 100 200 m

N

Site name: Lanton Quarry
Date: January 2018
Drawn by: DC
Scale: 1:4000 at A3

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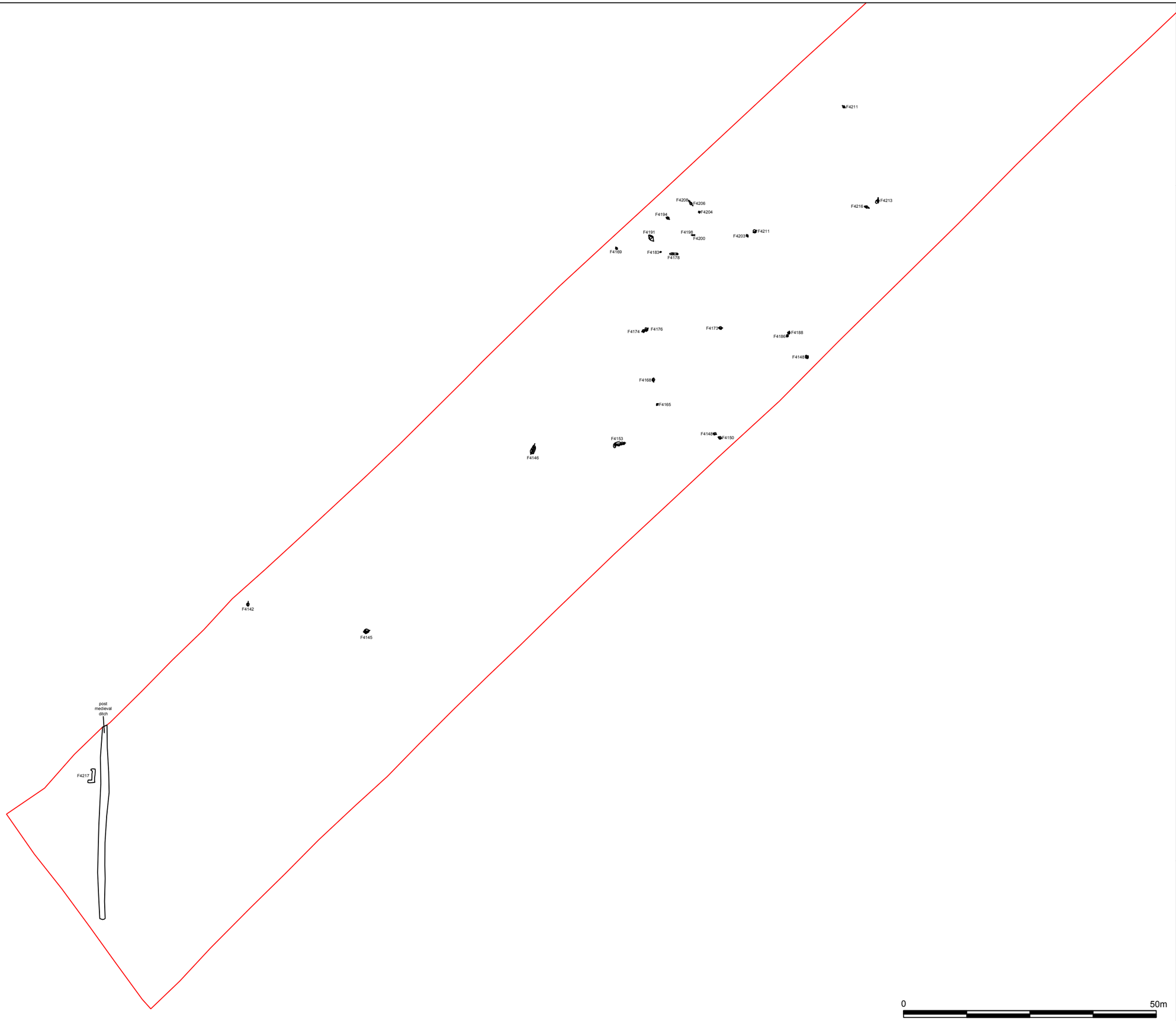
Figure 3. Distribution of features in Phase 9
Scale: 1:750 @ A3

Key:



F4142

F4145

post
medieval
ditch

F4217

Figure 4. Plan of features in southern end of Phase 9
Scale: 1:250 @ A3

N

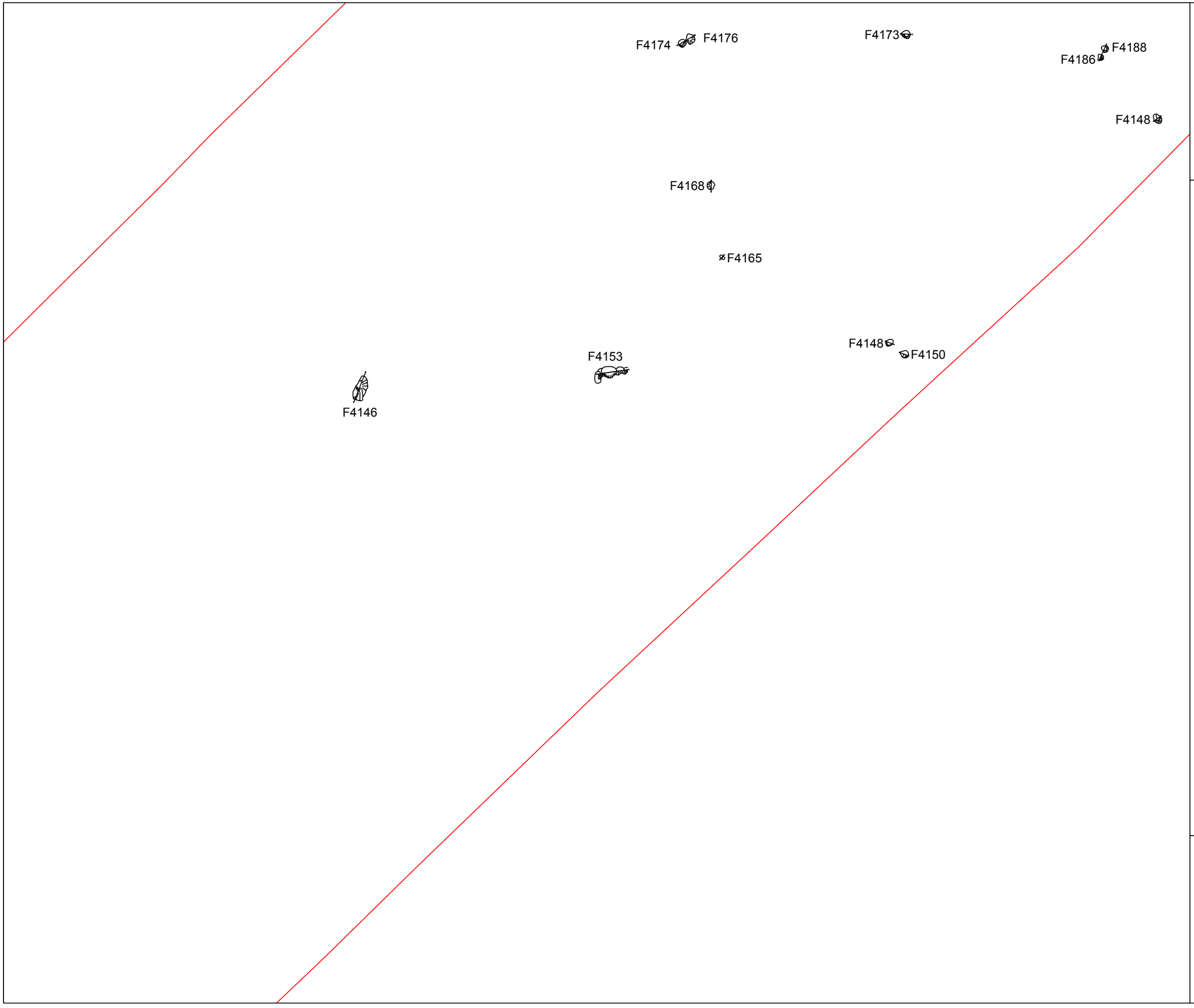


Figure 5. Plan of features in centre of Phase 9 (1)
Scale: 1:250 @ A3

Key:

N

Figure 6. Plan of features in centre of Phase 9 (2).
Scale: 1:250 @ A3

Key:

F4211
F4213
F4216
F4208
F4206
F4204
F4194
F4191
F4198
F4200
F4203
F4197
F4169
F4182
F4178
F4174
F4176
F4173
F4188
F4186
F4148
F4168
F4165

N

Figure 7. Half section of pits F4174 and F4176. Scale = 0.1m graduations.

Figure 8. Half section of pits F4186 and F4188. Scale = 0.5m graduations.

Figure 9. Half section of pit F4168. Scale = 0.1m graduations.

Figure 10. Half section of pit F4169 [4170]. Scale = 0.01m graduations.

Figure 11. Half section of pit F4197. Scale = 0.1m graduations.

Figure 12. Half section of pit F4206. Scale = 0.1m graduations.

Figure 13. Half section of pit F4211. Scale = 0.01m graduations.

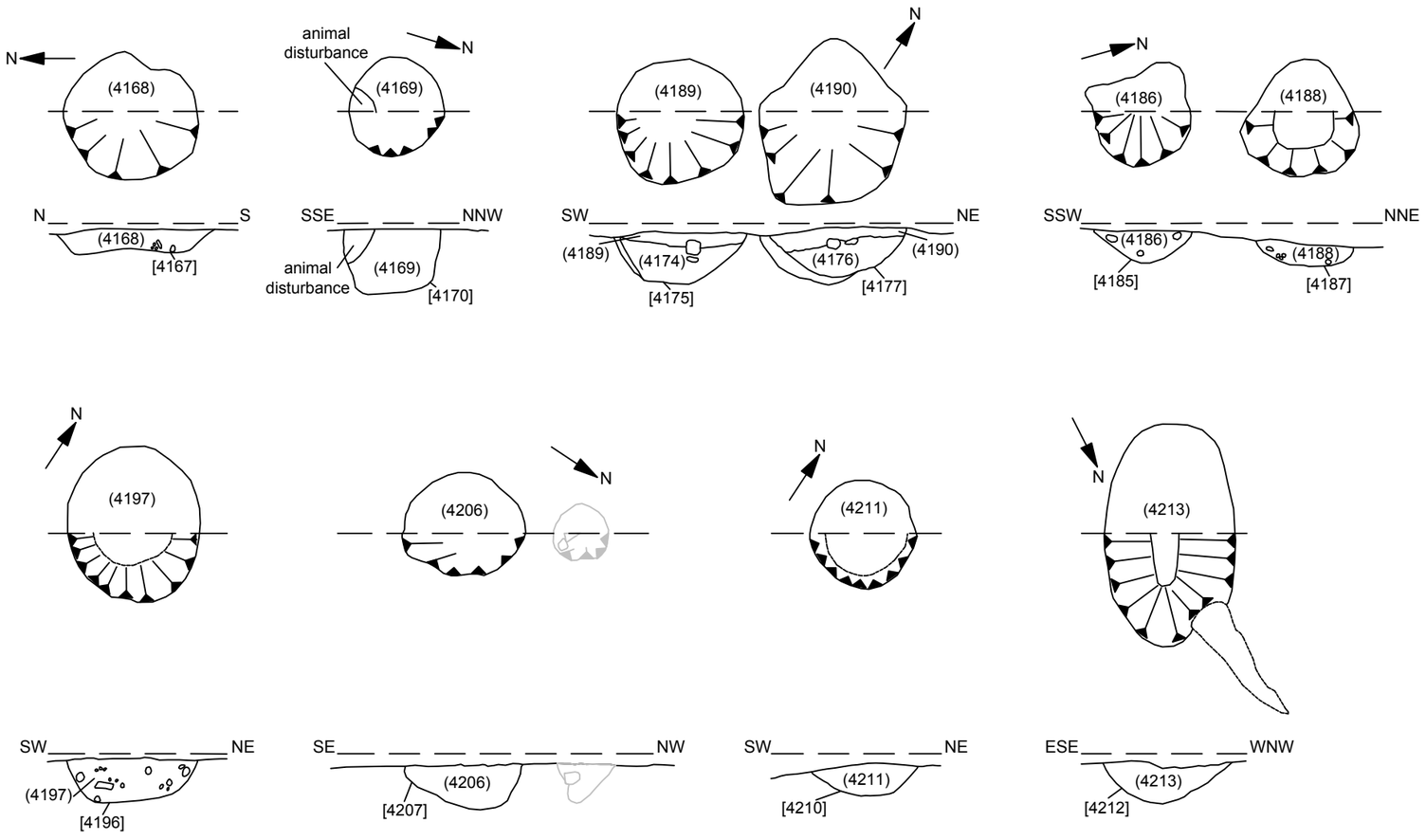
Figure 14. Half section of pit F4213. Scale = 0.1m graduations.

Figure 15. Half section of Neolithic hearth F4146. Scale = 0.5 graduations.

Figure 16. Half section of Neolithic construction slot F4179. Scale = 0.5m graduations.

Figure 17. Modern pit F4217. Scale = 0.5m graduations.

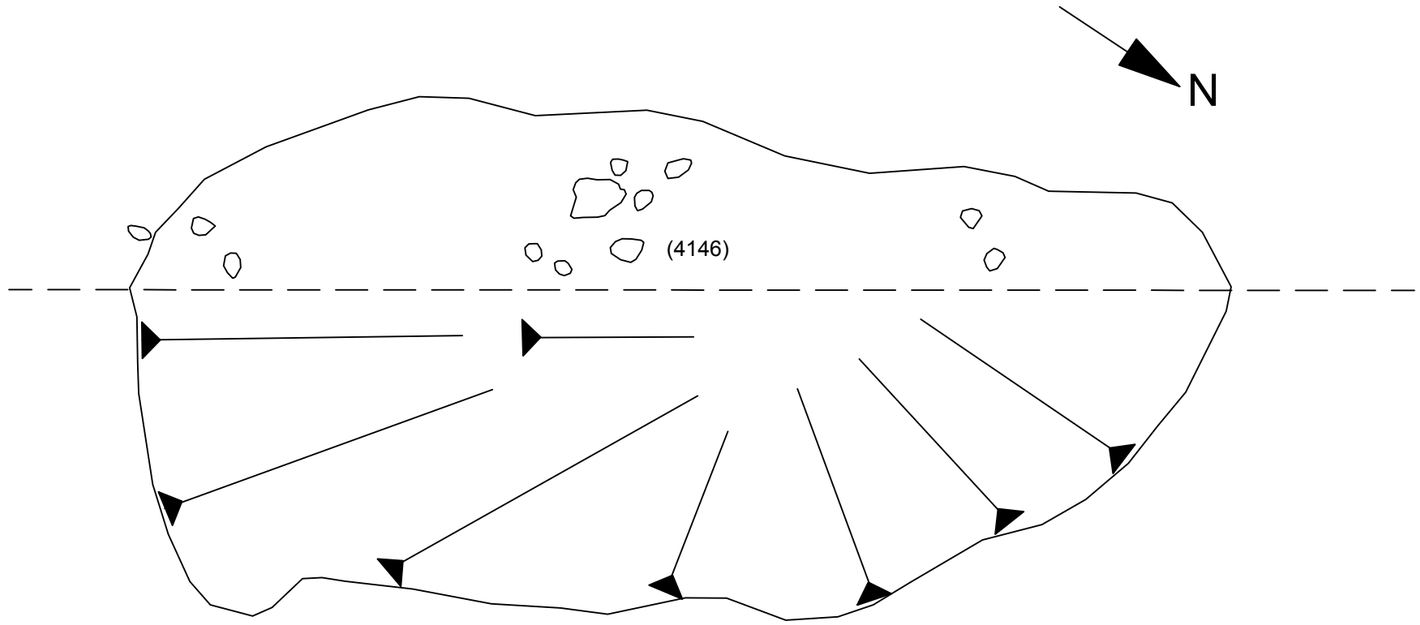
Figure 18. Plans and sections of Neolithic pits
Scale: 1:20 @ A3

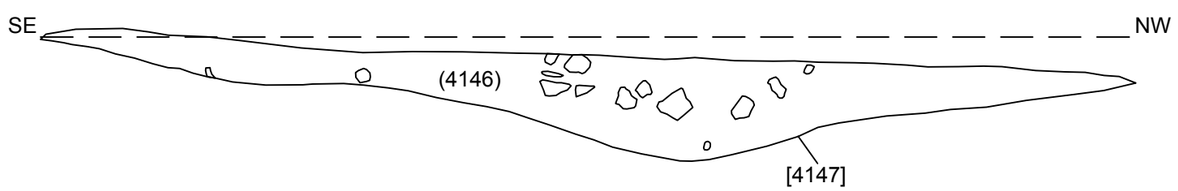


Key:

N

Figure 19. Plan and section of Neolithic hearth
Scale: 1:10 @ A3





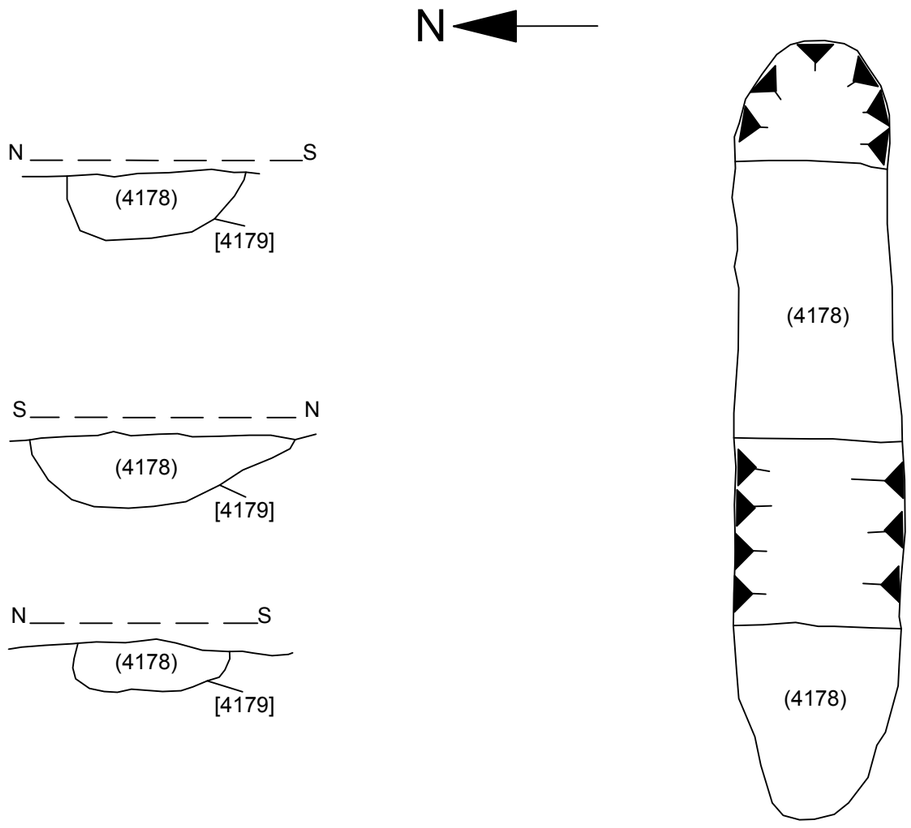
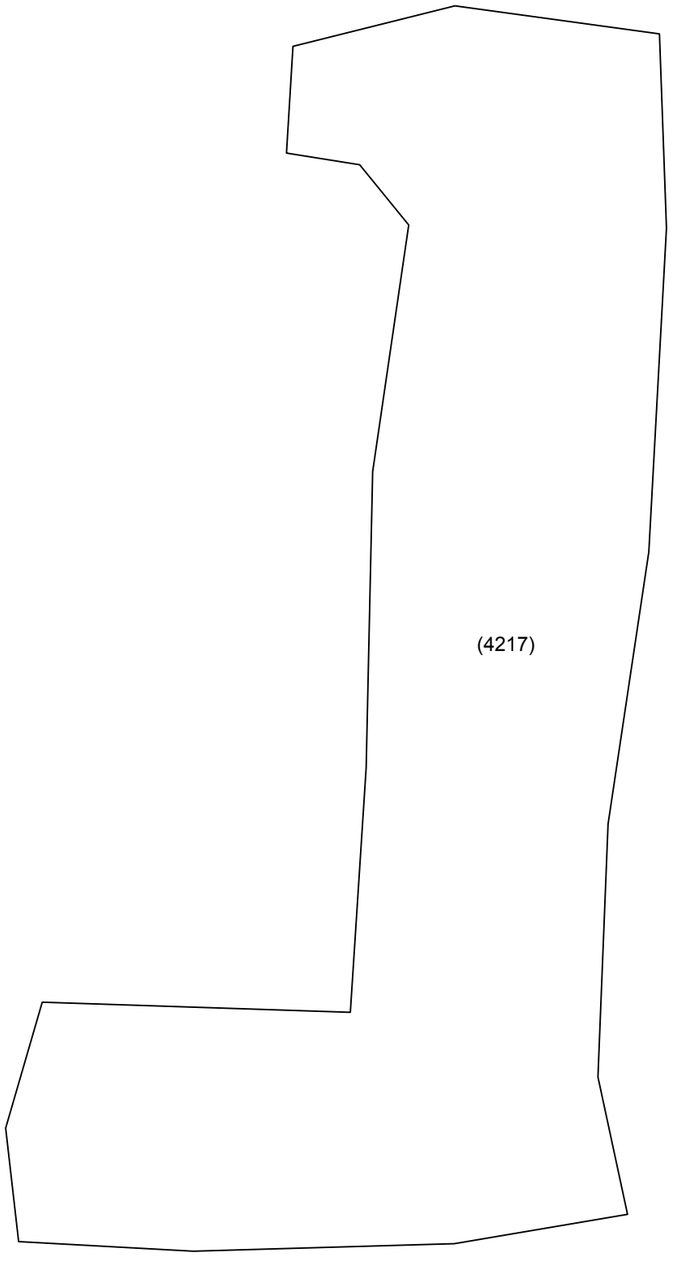


Figure 20. Plan and sections of Neolithic construction slot.
Scale: 1:10 @ A4



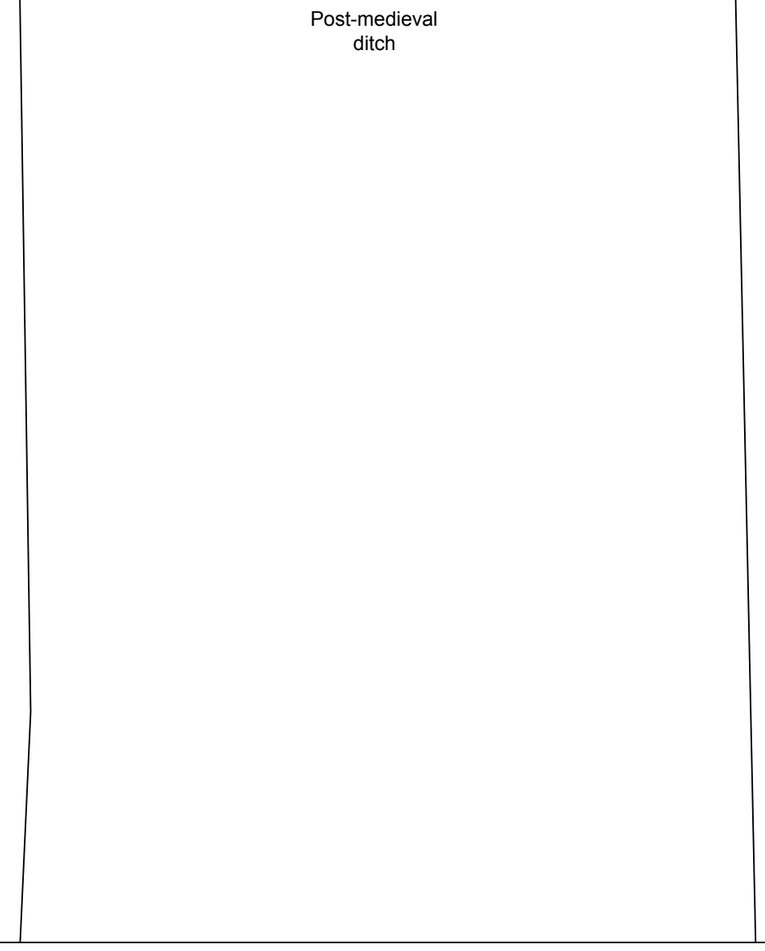
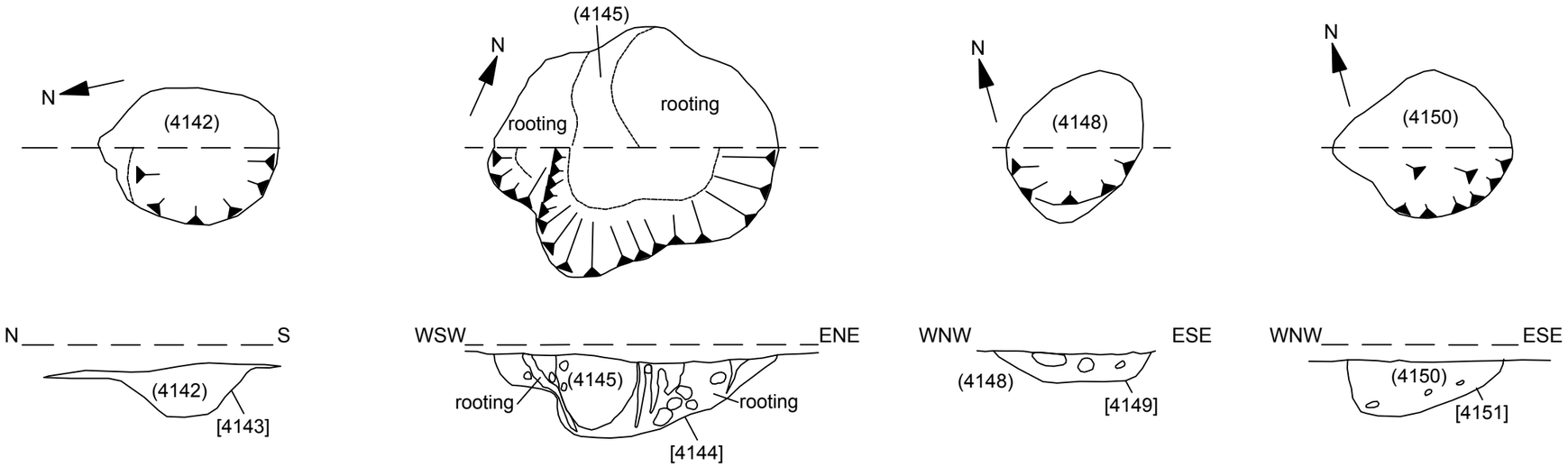


Figure 21. Plan of modern pit
Scale: 1:20 @ A3

N



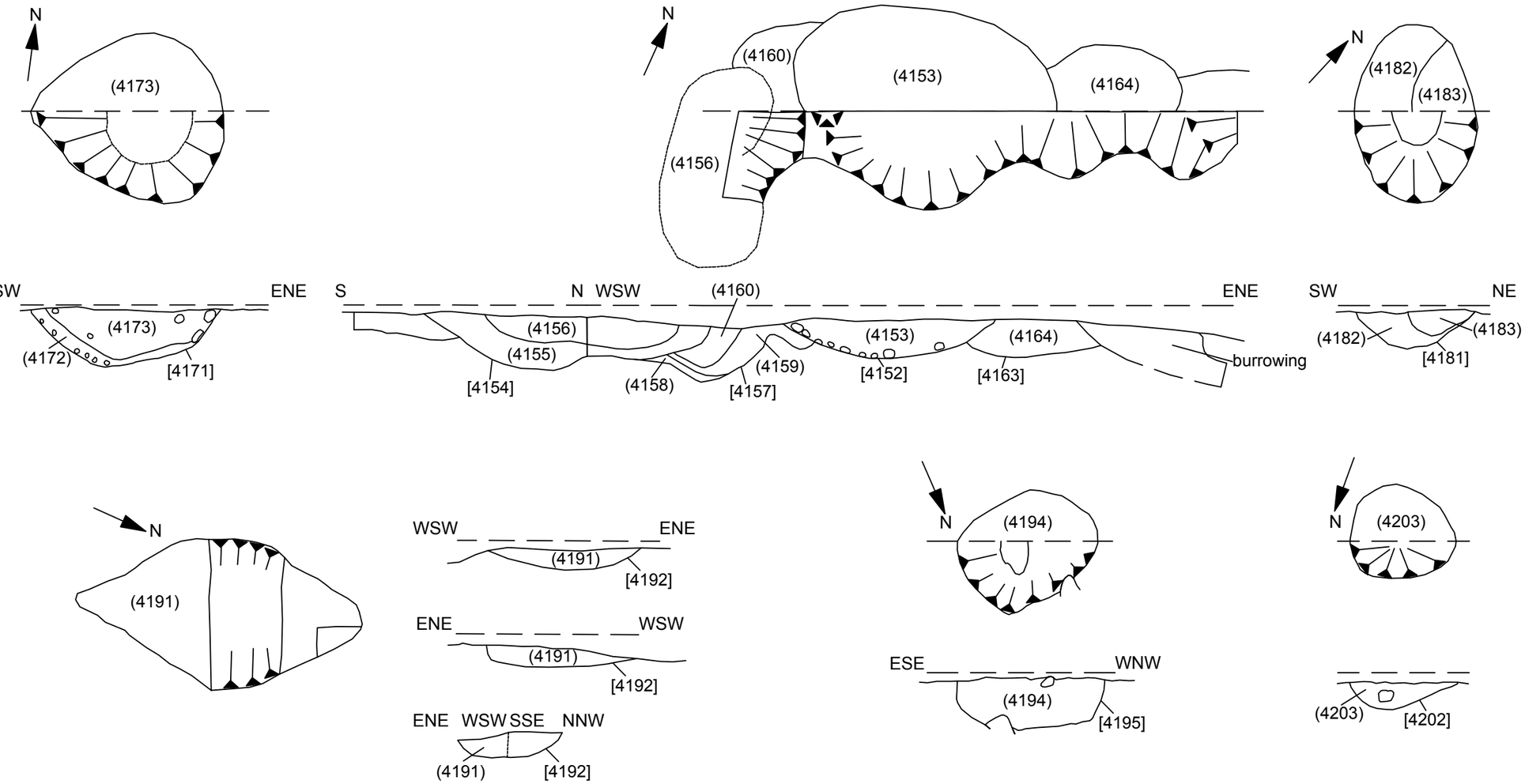


Figure 22. Plans and sections of undated pits
Scale: 1:20 @ A3

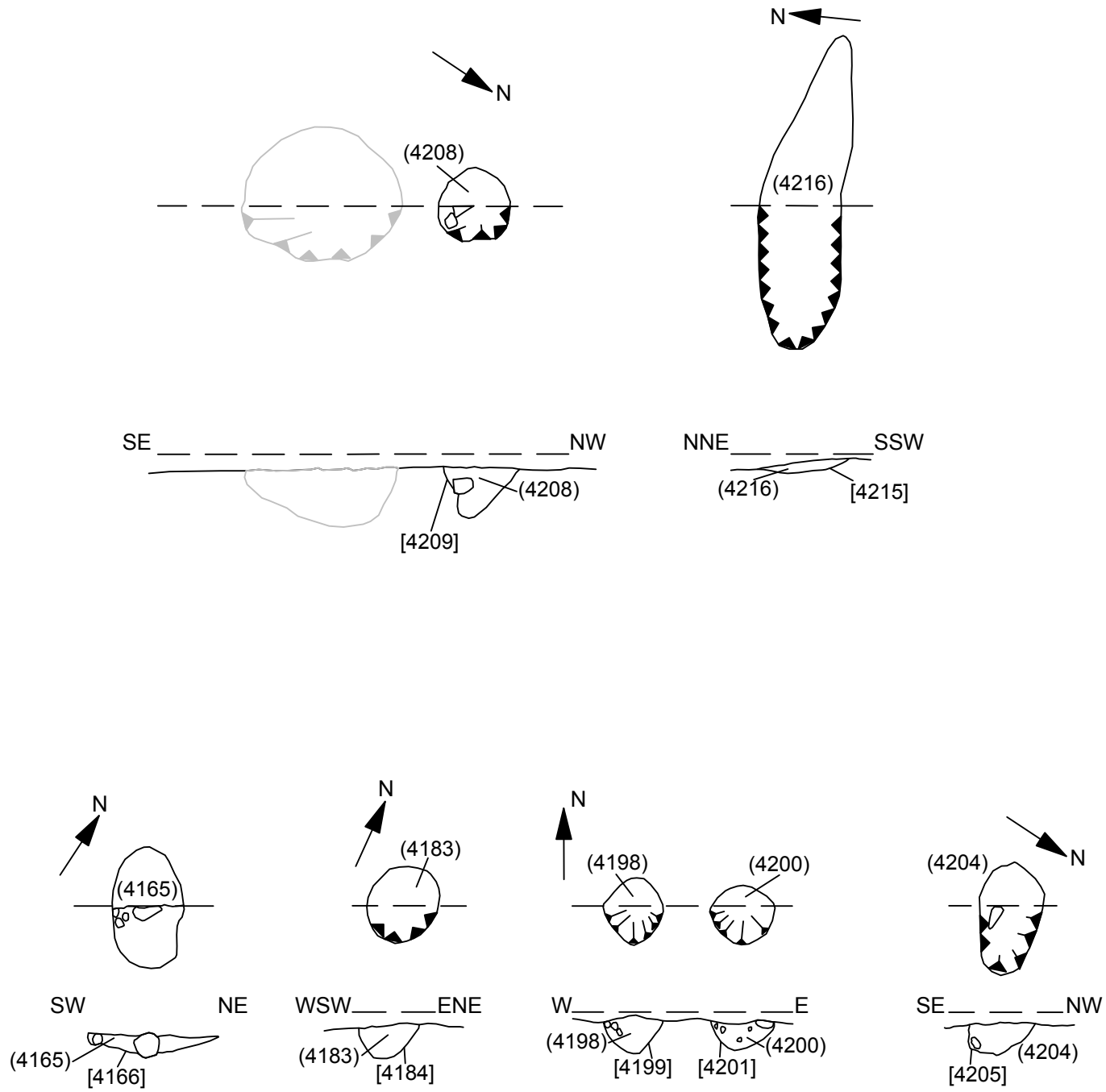


Figure 23. Plans and sections of undated pits and postholes
Scale: 1:20 @ A4

Figure 24. Early Neolithic flints from Cheviot Quarry from left to right: edge-trimmed blades 1852, 1868, 1871, 1863 and knife 1869

APPENDIX II - REGISTERS

Context Register

Context No.	Associated Contexts	Description	Date
4142	4142, 4143	Pit	
4144	4144, 4145	Pit	
4146	4146, 4147	Hearth	Neo
4148	4148, 4149	Pit	
4150	4150, 4151	Pit	
4153	4152, 4153, 4163, 4161	Pit	
4156	4154, 4155, 4160, 4186	Pit	
4158	4154, 4155, 4157, 4158, 4159, 4160,	Pit	
4162	4161, 4162, 4152, 4153	Pit	
4164	4163, 4164, 4152,	Pit	
4166	4165, 4166	Pit	
4168	4167, 4168	Pit	Neo
4169	4170, 4169	Pit	Neo
4172	4171, 4172, 4173	Pit	
4174	4174, 4175, 4189	Pit	Neo
4176	4176, 4177, 4190	Pit	Neo
4178	4178, 4179	Beam Slot	Neo
4181	4180, 4181, 4182	Pit	
4184	4183, 4184	Posthole	
4186	4185, 4186	Pit	
4188	4187, 4188	Pit	Neo
4191	4191, 4192	Beam Slot	
4193		Subsoil	Neo
4194	4194, 4195	Pit	
4197	4196, 4197	Pit	Neo
4198	4198, 4199	Stakehole	
4200	4200, 4201	Stakehole	
4203	4202, 4203	Pit	
4204	4204, 4205	Pit	
4206	4206, 4207	Pit	Neo
4208	4208, 4209	Pit	
4211	4210, 4211	Pit	Neo
4213	4212, 4213	Pit	Neo
4214		Subsoil	Neo
4216	4215, 4216	Pit	
4217		Test pit	Modern

Table 10. Context Register.

Environmental Sample Register

Sample No.	Context No.	Description
516	4142	Fill of pit F4142
517	4148	Fill of pit F4148
518	4150	Fill of pit F4150
519	4146	Fill of hearth F4146 containing Carinated Bowl rim sherd
520	4165	Fill of shallow scoop posthole pit F4165
521	4168	Fill of waste pit F4168 containing carinated vessel
522	4169	Fill of scoop pit F4169 containing Carinated Bowl fragments
523	4153	Fill of waste pit F4153
524	4172	Primary fill of pit F4172
525	4182	Secondary fill of pit F4182
526	4178	Fill of structural slot F4178 containing Carinated Bowl fragments
527	4183	Fill of posthole F4183
528	4186	Fill of pit F4186 containing a small fragment of Carinated Bowl
529	4188	Fill of pit F4188 containing a thick walled Early Neolithic vessel
530	4174	Primary fill of waste pit F4174
531	4176	Primary fill of waste pit F4176 containing an Early Neolithic vessel
532	4189	Secondary fill of waste pit F4174 containing an Early Neolithic vessel
533	4190	Secondary fill of waste pit F4176 containing fragments of Carinated Bowl, flint, and burnt bone
534	4191	Fill of structural slot F4191
535	4194	Fill of pit F4194
536	4197	Fill of pit F4197 containing Early Neolithic sherd, hazelnut, and charcoal
537	4203	Fill of pit F4203 containing hazelnut
538	4204	Fill of truncated pit F4204
539	4198	Fill of stakehole F4198
540	4200	Fill of stakehole F4200
541	4206	Fill of small pit F4206 containing Early Neolithic fragments
542	4208	Fill of posthole F4208
543	4213	Fill of pit F4213 containing Carinated Bowl fragments
544	4211	Fill of pit F4211 containing Early Neolithic fragments
545	4150	Sample of hazelnut shell from small pit F4150
546	4169	Sample of hazelnut shell from pit F4169
547	4197	Sample of hazelnut shell from pit F4197
548	4203	Sample of hazelnut shell from pit F4203

Table 11. Environmental Sample Register

APPENDIX III - PALAEOENVIRONMENTAL INVENTORY

Context No.	4142	4146	4148	4150	4153	4165	4168	4169	4173	4174	4176	4178
Sample No.	516	519	517	518	523	520	521	522	524	530	531	526
Description	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Posthole	Waste Pit	Pit	Pit Fill	Pit Fill	Pit Fill	Pit Fill
Charred Material Weight	6.03g	59.13g	11.20g	17.93g	30.92g	0.77g	30.05g	196.67g	12.05g	370.91g	308.68g	52.93g
Charcoal												
Alnus cf. glutinosa Gaertn. (alder)			1	2						3		
Sambucus nigra L. (elder)			2				4					
Corylus avellana L. (hazel)	2 (2DW)	16	11	16 (2DW)	2		2	3		3		4 (1DW)
Quercus sp. (oak)		4 (8DW)		1	1		10 (9DW)	12(4DW)		11	13 (3 DW)	10 (5DW)
Crataegus monogyna Jacq. (hawthorn)			3		1		2	3			2	3
Acer campestre L. (ash)			3 (2DW)	1			2	2		3	2	2
Tilia x europaea (lime)												
Rhamnus cathartica (buckthorn)											3	
Plant Macrofossils												
Wild seeds												
Corylus avellana L. (hazel) nuts		0.41g		0.45g				0.39g		0.97g	0.87g	
Fallopia sp. (buckwheat)										1	1	
Crataegus monogyna Jacq. (hawthorn) Seed												
Cereals												
Triticum dicoccum (emmer wheat)											2	
Triticum dicoccum glume base												

Table 12. Palaeocological residues. Notes: DW- Deadwood charcoal fragments. Green highlight indicates radiocarbon dateable remains

Context No.	**4182**	**4183**	**4186**	**4188**	**4189**	**4190**	**4191**	**4197**	**4198**	**4200**
Sample No.	**525**	**527**	**528**	**529**	**532**	**533**	**534**	**536**	**539**	**540**
Description	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Beam slot	Pit Fill	Stakehole	Stakehole
Charred Material Weight	8.99g	1.71g	115.99g	31.76g	30.94g	66.40g	7.2g	165.48g	0.41g	0.4g
Charcoal										
Alnus cf. glutinosa Gaertn. (alder)		1						1		
Sambucus nigra L. (elder)					1	2	1	1		
Corylus avellana L. (hazel)	1	4	11		2	1	12	6(1 DW)		
Quercus sp. (oak)	5 (1DW)		8(1DW)	20 (17DW)	11 (1DW)	10 (3DW)	5	4 (2DW)		
Crataegus monogyna Jacq. (hawthorn)		1	1		6 (1DW)	6	2	3 (1DW)		
Acer campestre L. (ash)								4 (1DW)		
Tilia x europaea (lime)										
Rhamnus cathartica (buckthorn)						1		1		
Plant Macrofossils										
Wild seeds										
Corylus avellana L. (hazel) nuts	0.16g					0.44g		4.20g		
Fallopia sp. (buckwheat)	1									
Crataegus monogyna Jacq. (hawthorn) Seed										
Cereals										
Triticum dicoccum (emmer wheat)										
Triticum dicoccum glume base										

Table 13. Palaeocological residues. Notes: DW- Deadwood charcoal fragments. Green highlight indicates radiocarbon dateable remains

Context No.	**4203**	**4204**	**4206**	**4208**	**4211**	**4213**
Sample No.	537	538	541	542	544	543
Description	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Pit Fill	Pit Fill
Charred Material Weight	23.90g	3.60g	354.72g	14.41g	61.96g	91.17g
Charcoal						
Alnus cf. glutinosa Gaertn. (alder)	3		3			2
Sambucus nigra L. (elder)	2	2 (1DW)				2
Corylus avellana L. (hazel)	8 (1DW)	16 (4 DW)	3	1	8	7 (2DW)
Quercus sp. (oak)	3 (1DW)	1 (1DW)	6 (2 DW)	16	2 (1DW)	3
Crataegus monogyna Jacq. (hawthorn)	3		7	3	10	2
Acer campestre L. (ash)	1					4
Tilia x europaea (lime)		1 (1DW)	1			
Rhamnus cathartica (buckthorn)						
Plant Macrofossils						
Wild seeds						
Corylus avellana L. (hazel) nuts	2.71g	0.25g			0.22g	0.30g
Fallopia sp. (buckwheat)						
Crataegus monogyna Jacq. (hawthorn) Seed						2
Cereals						
Triticum dicoccum (emmer wheat)					2	1
Triticum dicoccum glume base						1

Table 14. Palaeocological residues. Notes: DW- Deadwood charcoal fragments. Green highlight indicates radiocarbon dateable remains.

APPENDIX IV - RADIOCARBON DATING CERTIFICATES

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

RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76725 (GU46022)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4169) Pit
Sample Reference	LAN17/01
Material	Charred nut shell : Corylus avellana
$\delta^{13}C$ relative to VPDB	-25.1 ‰
Radiocarbon Age BP	4882 ± 32

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.

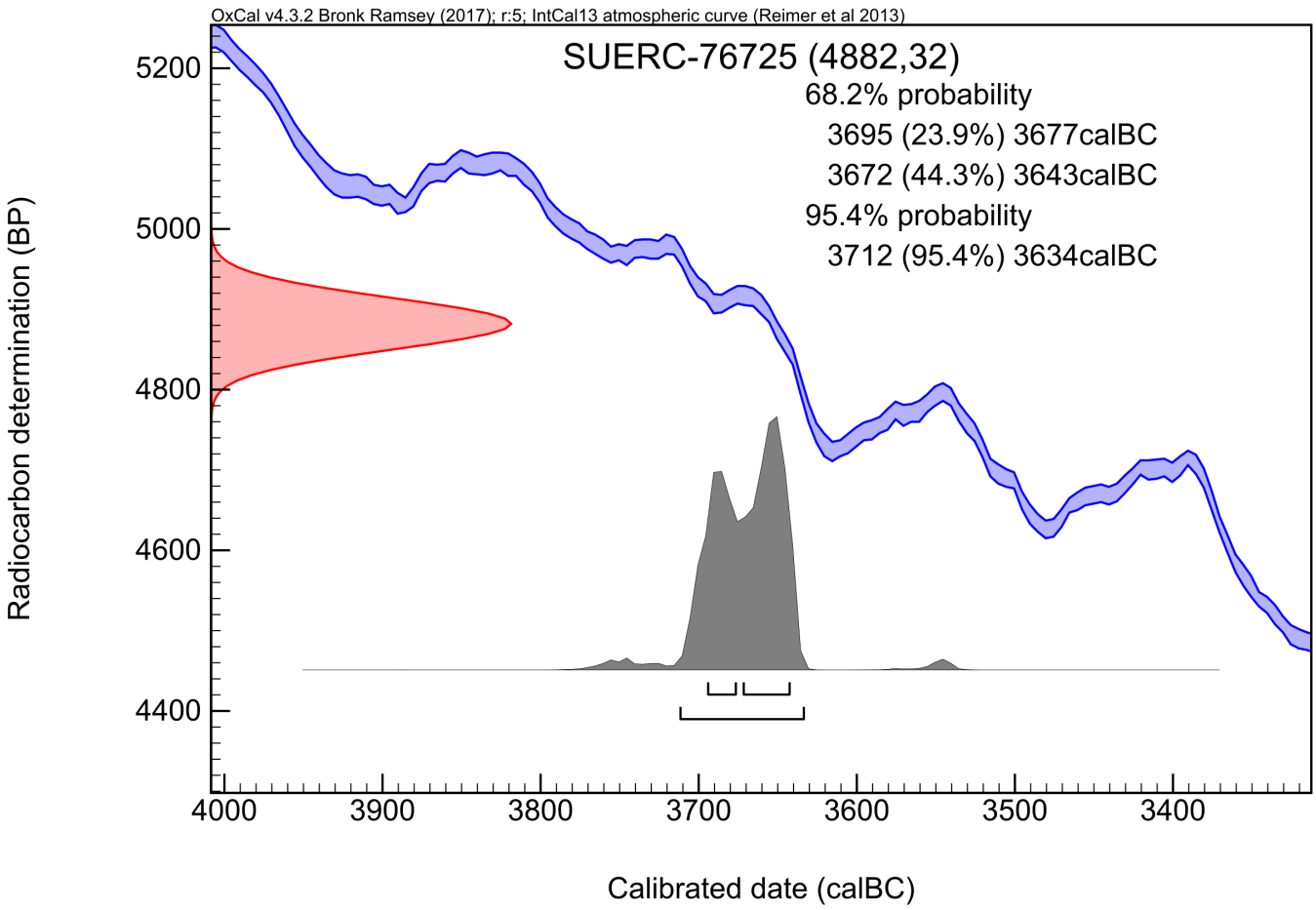
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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

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

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

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 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. (2013) *Radiocarbon 55(4) pp.1869-87*

Scottish Universities Environmental Research Centre
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RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76726 (GU46023)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4174) Pit
Sample Reference	LAN17/02
Material	Charred nut shell : Corylus avellana
$\delta^{13}C$ relative to VPDB	-25.9 ‰
Radiocarbon Age BP	4983 ± 32

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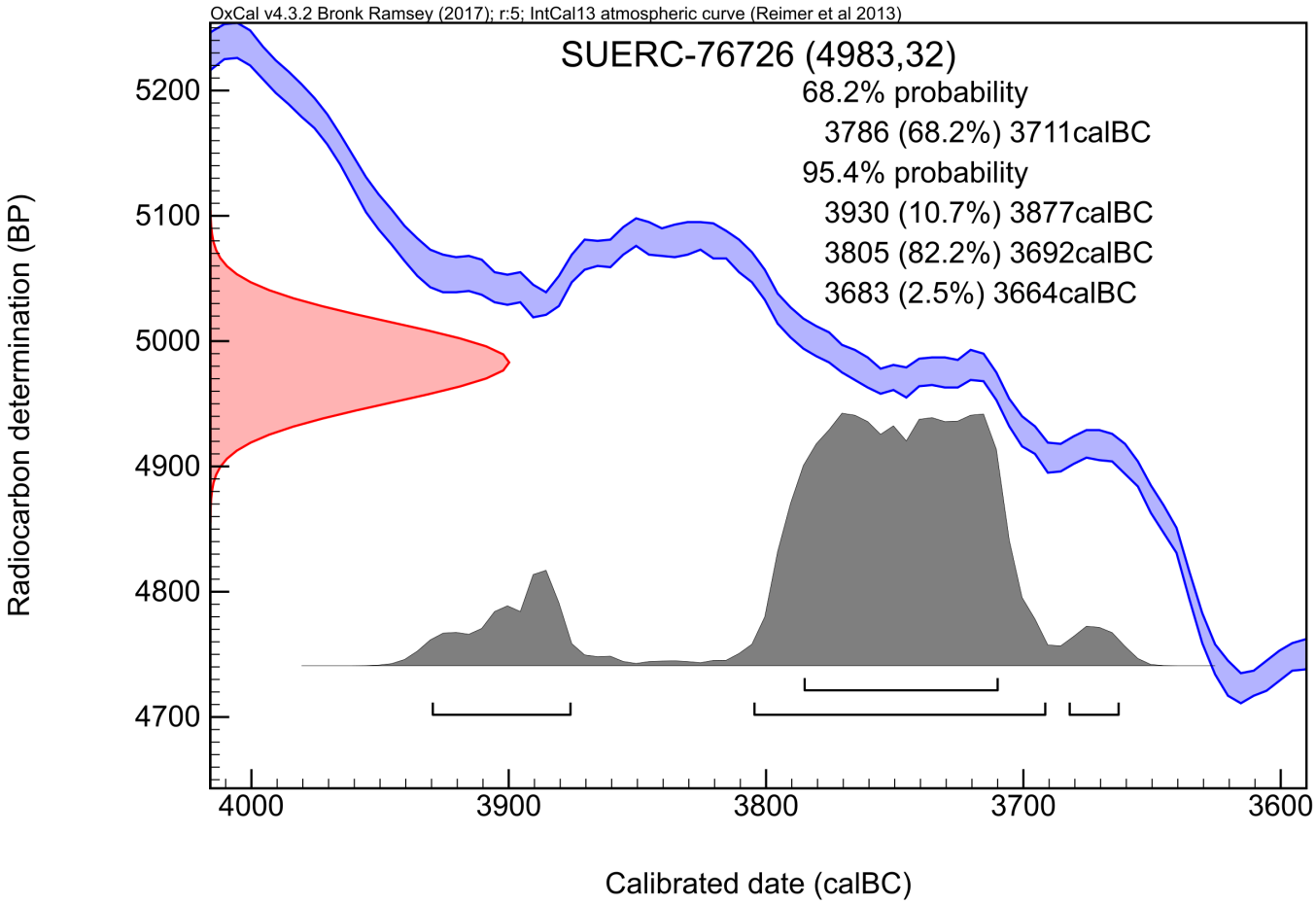
For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

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

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve†

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† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76727 (GU46024)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4176) Pit
Sample Reference	LAN17/03
Material	Charred nut shell : Corylus avellana
$\delta^{13}C$ relative to VPDB	-23.9 ‰
Radiocarbon Age BP	5010 ± 32

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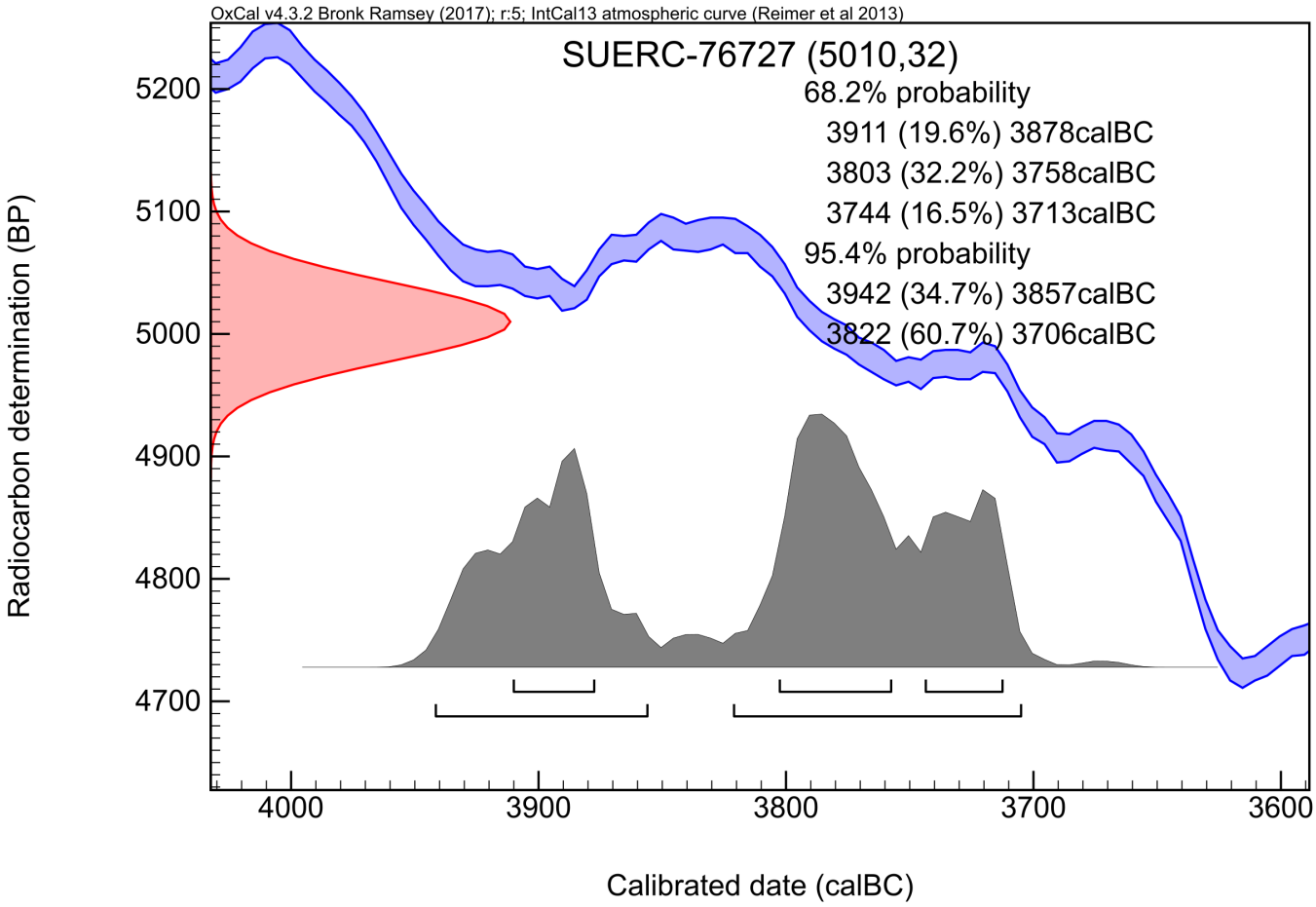
For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

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

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 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. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76728 (GU46025)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4176) Pit
Sample Reference	LAN17/04
Material	Charred cereal : Triticum dicoccum
$\delta^{13}C$ relative to VPDB	-26.3 ‰
Radiocarbon Age BP	4994 ± 32

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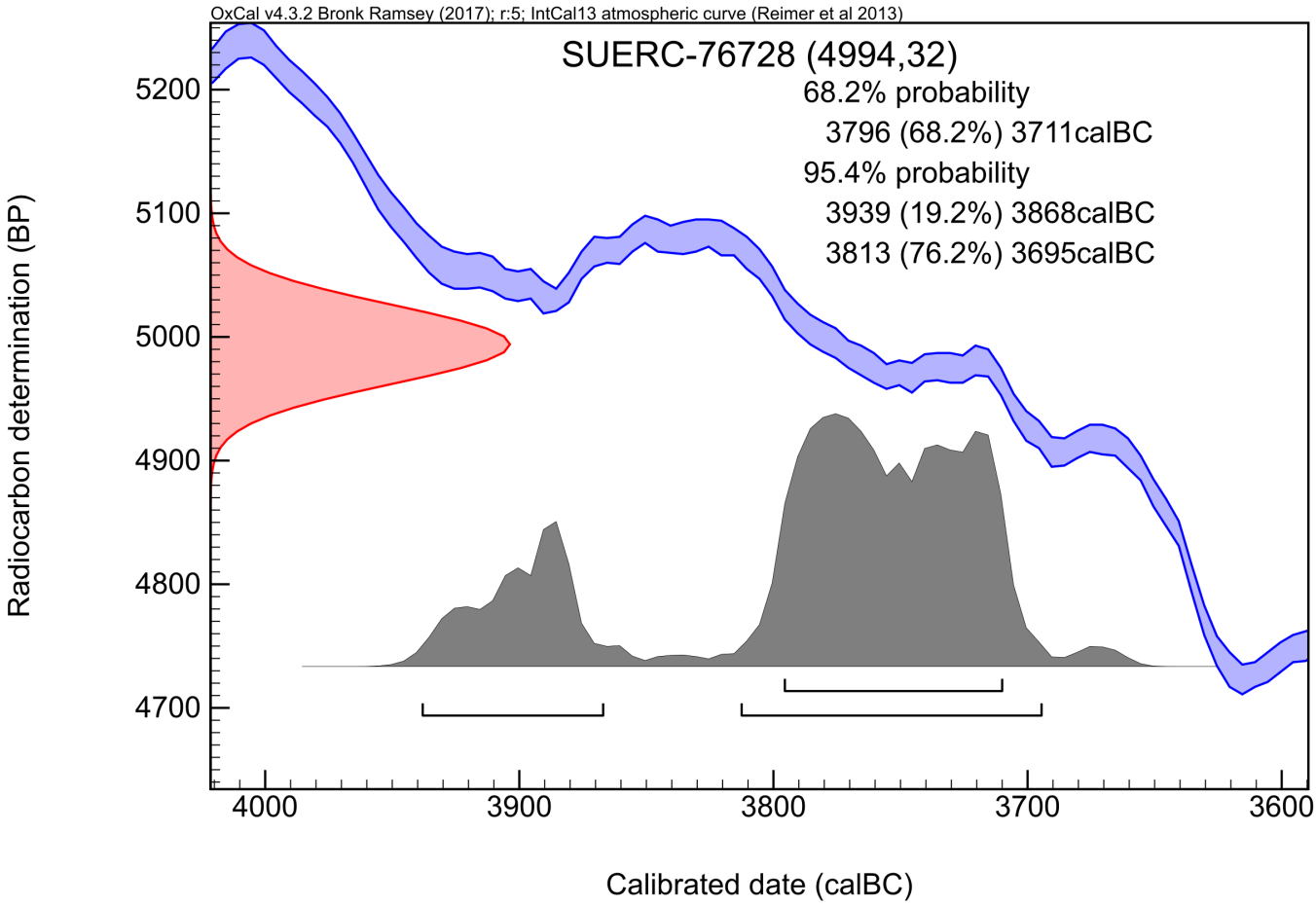
Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 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. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76732 (GU46026)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4178) Pit
Sample Reference	LAN17/05
Material	Charcoal : Crataegus monogyna
$\delta^{13}C$ relative to VPDB	-23.9 ‰
Radiocarbon Age BP	4854 ± 32

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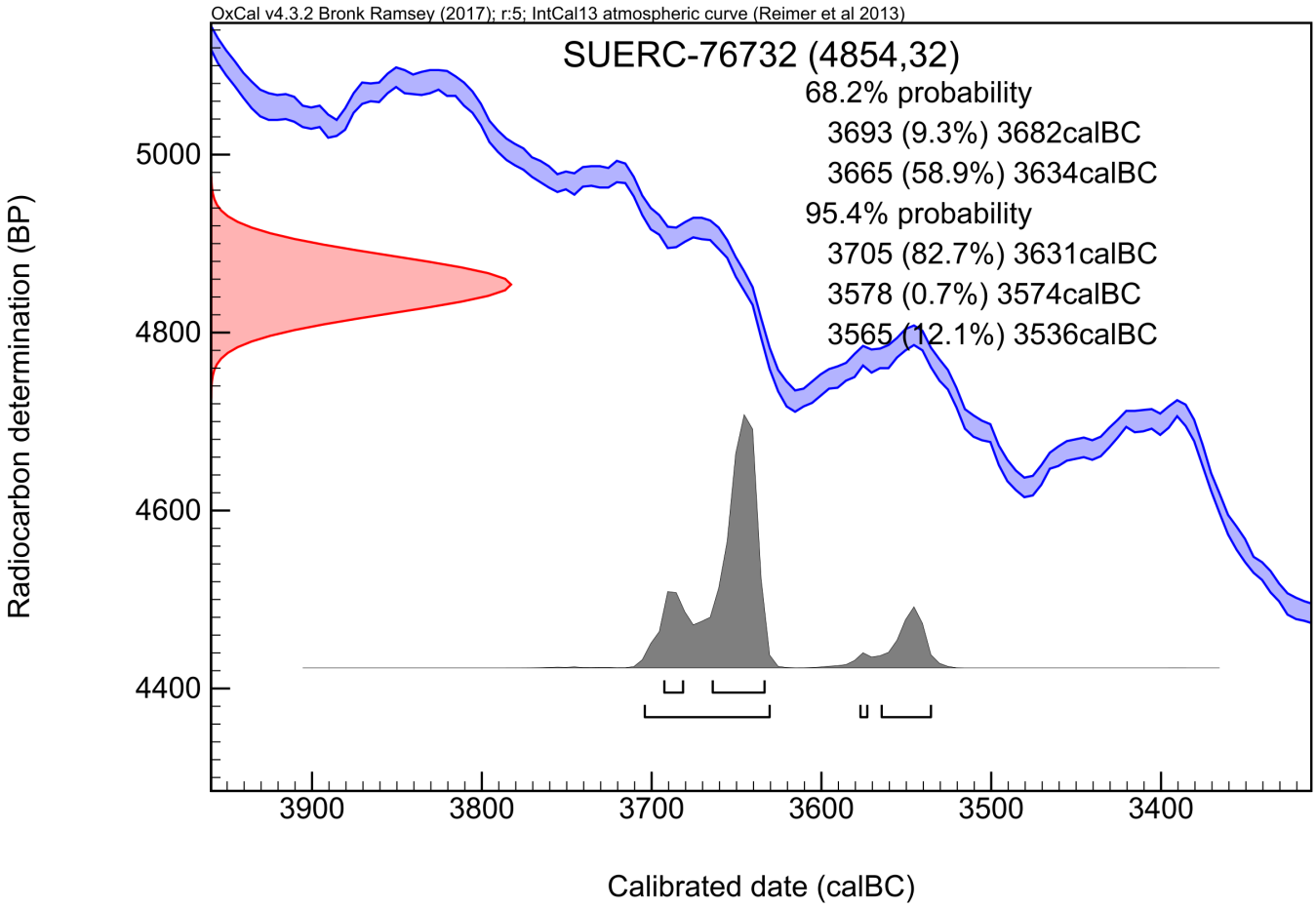
For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

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

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 atmospheric calibration curve†

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

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† Reimer et al. (2013) *Radiocarbon 55(4) pp.1869-87*

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RADIOCARBON DATING CERTIFICATE

19 December 2017

Laboratory Code	SUERC-76733 (GU46027)
Submitter	Luke Parker Archaeological Research Services Ltd Angel House Portland Square Bakewell Derbyshire DE45 1HB
Site Reference	Lanton Quarry
Context Reference	(4197) Pit
Sample Reference	LAN17/06
Material	Charred nut shell : Corylus avellana
$\delta^{13}C$ relative to VPDB	-23.4 ‰
Radiocarbon Age BP	4911 ± 32

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.

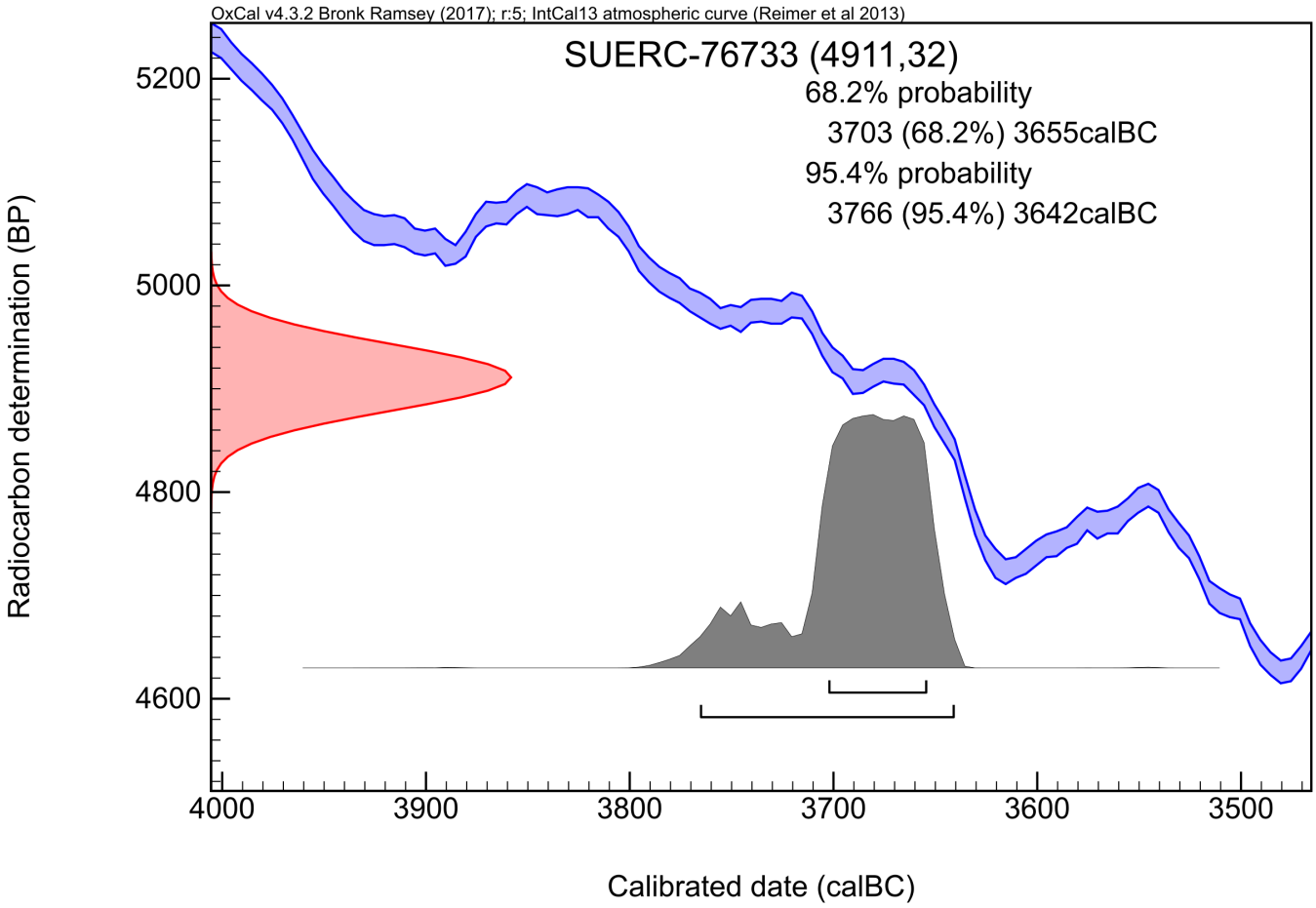
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

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

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

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

Checked and signed off by : P. Nayont



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

The above date ranges have been calibrated using the IntCal13 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. (2013) *Radiocarbon 55(4) pp.1869-87*