Analysis of environmental samples from Woodbridge Quarry, Northumberland

Jacqueline Cotton

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Project background

Samples have been taken during an excavation at a quarry site at Woodbridge Farm, Northumberland (NT95203269) for environmental analysis. During a watching brief at the site Neolithic features including structures, pits and hearths were uncovered. Excavations have revealed a free-standing structure in Area 1 and three structures and associated pits and hearths in Area 2.

Environmental Samples

Twenty one features from within Areas 1 and 2 were sampled for environmental remains. The preservation of environmental remains will provide information as to the function of a feature and the nature of the infill. Charred plant macrofossils, including nuts, cereal grain and seeds, can provide information on the production and consumption of crops and wild plants and the potential human impact on the landscape. Due to the absence of wetland areas at the site waterlogged plant remains will not be preserved. Non-charred seeds present in context fills will not be contemporary to the contexts.

108 individual charcoal entities were extracted from fills. These fragments require identification to assess suitability for radiocarbon dating.

Methods

Dried flots from each sample, divided into the 5mm, 2mm, 1mm and 0.5mm fractions were scanned at low magnification for charred and waterlogged plant remains. Plant

macrofossils were identified by comparison with modern and published reference material. The flot matrix for each sample was recorded.

The charcoal entities were broken along the radial, tangential and transverse axes of the wood. Each section was analysed at high magnification for diagnostic anatomical features. These were compared with published reference material (e.g. Brazier & Franklin 1961, Schweingruber 1978, Hather 2000).

Environmental Samples: Results and Discussion

Results are tabulated in Tables 1 to 21. The flot matrix components were recorded according to the relative abundance in the sample from 1 (low) to 5 (high). Counts of charred and waterlogged plant macrofossils were recorded.

Area 1

The upper and lower fills from feature F031, a bell-shaped pit from within the sub-rectangular structure, were sampled for environmental remains. Plant macrofossils from within the uppermost fill (031) included a large quantity (>1000) of charred hazelnut fragments (Table 1). The hazelnuts included well preserved fragments over 5mm in size suggesting that the remains were deposited in-situ. The large number of fragments indicates that the nuts may have been used as fuel or may have constituted an important food resource. The lower fill (052) of pit F031, also contained large quantities of charred hazelnut fragments (Table 2). A range of sizes of charred nut fragments were preserved suggesting deposition in-situ. The presence of large quantities of hazelnuts throughout the pit fill indicates continuity in the use of hazelnuts during the period of pit infilling. Both upper and lower fills of the pit contained charred cereal grains. The grain in the upper fill (031) was too degraded to enable identification, but five of the cereal grains from the lower fill (052) were identified as wheat (*Triticum* sp.). The species of cereal could not be ascertained from the grain alone (cf. Hillman *et al.* 1996). The preservation condition of the wheat suggests in-situ deposition, although the small number present indicates that the grain deposits were incidental and that the pit was not in the proximity of large grain stores or functioned as a waste area for food processing debris.

The upper and lower fills from pit F009 were sampled for environmental remains. The upper fill (009) contained a relatively low quantity of charred material (Table 3) including 23 charred hazelnut fragments and 6 degraded cereal grains. Conversely, the lower pit fill (051) contained a high number of charcoal and charred hazelnut fragments (Table 4). Charred archaeobotanical remains in the sample included Emmer wheat (*Triticum dicoccum*) spikelet fragments (including spikelet forks and glume bases) and a degraded rachis fragment, in addition to eight wheat grains and 19 degraded cereal grains. The spikelets fragments are chaff and represent the waste products from the processing of arable crops (Hillman 1981). The presence of chaff in the pit suggests that the context was subject to the infilling of waste products from nearby cereal processing. Emmer wheat has been preserved in Neolithic contexts elsewhere (van der Veen 1982; Murphy 1988; Huntley & Stallibrass 1995). The presence of Emmer wheat chaff and wheat grain in the pit fill indicates the cultivation of arable crops for consumption at the site.

Chaff was only preserved in the fill of pit 009, therefore the processing of wheat may have been specific to this locality within the settlement. The absence of chaff from the upper fill of the pit may be the result of preservation conditions, but also may suggest a reduction in the production and deposition of food processing waste in this part of the site.

Area 2

Two posthole fills from Building 1 were sampled for environmental remains. The fill of posthole F039, located on the southern side of Building 1 contained a very small volume of charcoal fragments and no plant macrofossils (Table 5), which suggests that the posthole was not close to areas of burning or waste deposition. Similarly, the posthole fill from F011, located on the western short axis of Building 1 contained little charcoal (Table 6) and no evidence of nearby burning or the deposition of domestic waste.

Remains within the hearth pit, F061, located within Building 2 included a moderate quantity of charcoal with only one hazelnut fragment recorded (Table 7). No other food waste products were preserved. All charcoal identified from this pit was oak.

A posthole fill (117), located on the south-western corner of Building 3 mostly comprised mineral deposits with only small quantities of charcoal preserved (Table 8). The flot of the sample taken from the fill of posthole (127) located on the south eastern corner of Building 3 was very small and contained a low number of charcoal fragments. The low number of charred remains in this sample suggests that waste products from burning did not accumulate in the proximity of the posthole.

The fills of the two postholes (129 and 131) located on the eastern axis of Building 3 contained insignificant quantities of charcoal and no charred plant macrofossils (Tables 10 and 11).

Two of the external features associated with building 3 were sampled for environmental remains. Pit fill (133) contained charcoal and charred hazelnuts fragments (Table 12). The hazelnuts included fragments over 5mm in size indicating that they were most likely to have been deposited in-situ. The hazelnuts may reflect the burning of nuts as fuel or the accidental inclusion of nuts within the charcoal fuel. It is also possible that the hazelnuts are food waste products. A small number of charred hazelnut fragments were also preserved in the pit fill (168). However, in contrast to the fill of F133, the remains from F168 were smaller in size and lower in number (Table 13). This could be the result of preservation conditions, or may suggest that the remains may have been blown or washed into the feature and that the function of pit F168 differed to that of F133.

Eight features external to the three buildings within Area 2 were sampled for environmental remains. The hearth fill of feature F005 contained large quantities of charcoal (Table 14) within included oak and hazel fragments. No charred plant macrofossils were preserved in the fill. The hearth fill of feature 013 was dominated by charcoal, with only a single hazelnut fragment also preserved (Table 15). Identification of charcoal fragments indicated the presence of willow in the pit.

The fill of hearth pit F063 contained charcoal (Table 16) but in lower quantities than preserved in other external features from Area 2. Only a small quantity of the charcoal was larger than 5mm in size suggesting that the charred remains may be residual.

The fill from hearth pit F071 was dominated by charcoal (Table 17). The presence of well preserved charcoal fragments larger than 5mm suggest that the charred material was burnt in-situ. The waterlogged seeds in the sample are not contemporary to the context. The charred legumes in the fill are present in small numbers and, in the absence of additional food waste products, the legumes may be incidental and will not reflect food processing or storage near to the feature.

The fill of hearth pit feature F075 contained large quantities of charcoal (Table 18). A significant proportion of the charcoal was larger that 5mm in size thus suggesting in-situ burning and deposition. The sample floated from the hearth pit feature F101 was also dominated by charcoal (Table 19), although the relative quantities present are lower than the other hearth features in Area 2.

The flot from hearth pit feature F157 contained well preserved charcoal (Table 20), a large proportion of which was over 5mm in size thus suggesting in-situ deposition and burning. Three degraded seeds were also preserved in the fill. The poor preservation of these seeds precluded identification and thus no palaeoenvironmental information can be obtained.

The flot from the small pit feature F161 fill was very small and contained insignificant quantities of charcoal. A waterlogged grape seed was found in the flot. This seed is not contemporary to the context.

Charcoal Identification: Results and Discussion

Tables 22, 23 and 24 contain the identification of each charcoal entity and indicate if the species is suitable for radiocarbon dating. Charcoal from hazel and willow, and from trees of the Alder family are suitable for radiocarbon dating due to the relatively short longevity of the trees. Charcoal from oak trees is not suitable for radiocarbon dating as the species have a long life-span and if old ($>10^2$ years) prior to burning would invalidate the radiocarbon date.

Some charcoal fragments were too small or degraded to enable observation of the diagnostic features required for identification. As a result these entities are not suitable for radiocarbon dating purposes.

Table 1.

Context 31			
Sample	13		
Sieve	5 mm	**Matrix**	Charcoal (4) Hazelnuts (2)
Volume	20 ml	**Charred remains**	
Sample	14		
Sieve	2 mm	**Matrix**	Charcoal (4) Hazelnuts (3)
Volume	60 ml	**Charred remains**	*Triticum* sp.-Wheat (2) Cerealia indeterminate (1)
Sample	15		
Sieve	1 mm	**Matrix**	Charcoal (4) Hazelnuts (2)
Volume	20 ml	**Charred remains**	Cerealia indeterminate (1)
Sample	16		
Sieve	0.5 mm	**Matrix**	Charcoal (5)
Volume	40 ml	**Charred remains**	

Table 2.

Context 052			
Sample	9		
Sieve	5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	155 ml	**Charred remains**	Hazelnut fragments (64) Cerealia indeterminate (2)
Sample	10		
Sieve	2 mm	**Matrix**	Charcoal (3) Hazelnuts (3)
Volume	300 ml	**Charred remains**	*Triticum* sp.-Wheat (5) Cerealia indeterminate (4)
Sample	11		
Sieve	1 mm	**Matrix**	Charcoal (5) Roots (1) Bone (1)
Volume	135 ml	**Charred remains**	Hazelnut fragments (24)
Sample	12		
Sieve	0.5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	200 ml	**Charred remains**	
		Waterlogged remains	

Table 3.

Context 009			
Sample	5		
Sieve	5 mm	**Matrix**	Charcoal (5)
Volume	5	**Charred remains**	
Sample	6		
Sieve	2 mm	**Matrix**	Charcoal (5)
Volume	15 ml	**Charred remains**	Hazelnut fragments (20) Cerealia indeterminate (4)
Sample	7		
Sieve	1 mm	**Matrix**	Charcoal (5)
Volume	20 ml	**Charred remains**	Hazelnut fragments (3) Cerealia indeterminate (2)
		Waterlogged remains	*Atriplex/Chenopodium* sp.-Goosefoot (1) *Urtica dioica* –Nettle (1)
Sample	8		

Sieve	0.5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	30 ml	**Charred remains**	

Table 4.

Context 051			
Sample	1		
Sieve	5 mm	**Matrix**	Charcoal (4) Hazelnuts (2) Roots (1)
Volume	40 ml	**Charred remains**	Hazelnut fragments (108) Cerealia indeterminate (2)
Sample			
Sieve	2 mm	**Matrix**	Hazelnuts (4) Charcoal (3) Clinker (1)
Volume	350 ml	**Charred remains**	*Triticum* sp. Wheat (8) Cerealia indeterminate (19)
Sample	3		
Sieve	1 mm	**Matrix**	Charcoal (4) Hazelnuts (2) Roots (1)
Volume	175 ml	**Charred remains**	Hazelnut fragments (17) *Triticum dicoccon* - Emmer wheat spikelet fragments (28) Degraded rachis base (1)
Sample	4		
Sieve	0.5 mm	**Matrix**	Charcoal (4) Sandy soil (4) Roots (1)
Volume	270 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. -Goosefoot(1) *Trifolium* sp. - Clover(1)

Table 5.

Context 039			
Sample	8		
Sieve	5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	<5 ml	**Charred remains**	
Sample	8		
Sieve	2 mm	**Matrix**	Roots (3) Charcoal (2) Fine sediment (2)
Volume	10 ml	**Charred remains**	
Sample	8		
Sieve	1 mm	**Matrix**	Roots (4) Charcoal (1) Fine sediment (1)
Volume	10 ml	**Charred remains**	
Sample	8		
Sieve	0.5 mm	**Matrix**	Fine sediment (3) Roots (4) Charcoal (1)
Volume	30 ml	**Charred remains**	

Table 6.

Context 011			
Sample	2		
Sieve	2 mm	**Matrix**	Roots (3) Fine sediment (3) Charcoal (1)
Volume	<5 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot(1)
Sample	2		
Sieve	1 mm	**Matrix**	Roots (3) Fine sediment (3) Charcoal (1)
Volume	10 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1) *Urtica dioica* - Nettle (1)

Sample	2		
Sieve	0.5 mm	**Matrix**	Fine sediment (5) Charcoal (1)
Volume	30 ml	**Charred remains**	

Table 7.

Context 061			
Sample	4		
Sieve	5 mm	**Matrix**	Charcoal (4) Roots (2)
Volume	40 ml	**Charred remains**	Hazelnut fragments (1)
Sample	4		
Sieve	2 mm	**Matrix**	Charcoal (3) Fine sediment (2) Roots (1)
Volume	20 ml	**Charred remains**	
Sample	4		
Sieve	1 mm	**Matrix**	Charcoal (3) Fine sediment (2) Roots (2)
Volume	20 ml	**Charred remains**	
Sample	4		
Sieve	0.5 mm	**Matrix**	Charcoal (3) Fine sediment (2) Roots (1)
Volume	30 ml	**Charred remains**	

Table 8.

Context 117			
Sample			
Sieve	5 mm	**Matrix**	Fine sediment (3) Roots (2) Charcoal (2)
Volume	30 ml	**Charred remains**	
Sample			
Sieve	2 mm	**Matrix**	Fine sediment (3) Roots (2) Charcoal (2)
Volume	20 ml	**Charred remains**	
Sample			
Sieve	1 mm	**Matrix**	Fine sediment (4) Roots (2) Charcoal (1)
Volume	30 ml	**Charred remains**	
Sample			
Sieve	0.5 mm	**Matrix**	Fine sediment (5)
Volume	75 ml	**Charred remains**	

Table 9.

Context 127			
Sample			
Sieve	5 mm	**Matrix**	Charcoal (5)
Volume	<5 ml	**Charred remains**	
Sample			
Sieve	2 mm	**Matrix**	Charcoal (3) Fine sediment (3) Roots (1)
Volume	5 ml	**Charred remains**	
Sample			
Sieve	1 mm	**Matrix**	Roots (3) Fine sediment (3) Charcoal (1)
Volume	<5 ml	**Charred remains**	
Sample			
Sieve	0.5 mm	**Matrix**	Roots (3) Fine sediment (3) Charcoal (1)
Volume	5 ml	**Charred remains**	

Table 10.

Context 129

Sample	11		
Sieve	all	**Matrix**	Roots (3) Fine sediment (2) Charcoal (1)
Volume	10 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1) *Galium* sp. - Goosegrass (1)

Table 11.

Context 131			
Sample	10		
Sieve	5 mm	**Matrix**	Roots (4) Fine sediments (2) Charcoal (2)
Volume	15 ml	**Charred remains**	
Sample	10		
Sieve	2 mm	**Matrix**	Roots (3) Fine sediments (2) Charcoal (1)
Volume	10 ml	**Charred remains**	
Sample	10		
Sieve	1 mm	**Matrix**	Roots (3) Fine sediments (3) Charcoal (1)
Volume	15 ml	**Charred remains**	
Sample	10		
Sieve	0.5 mm	**Matrix**	Fine sediment (5) Charcoal (1)
Volume	20 ml	**Charred remains**	

Table 12.

Context 133			
Sample	8		
Sieve	5 mm	**Matrix**	Charcoal (4) Hazelnut fragments (1)
Volume	40 ml	**Charred remains**	Hazelnuts fragments (16)
Sample	8		
Sieve	2 mm	**Matrix**	Charcoal (4) Hazelnut fragments (2)
Volume	90 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1)
Sample	8		
Sieve	1 mm	**Matrix**	Charcoal (4) Hazelnut fragments (1) Fine sediment (1)
Volume	45 ml	**Charred remains**	
Sample	8		
Sieve	0.5 mm	**Matrix**	Fine sediment (5)
Volume	350 ml	**Charred remains**	

Table 13.

Context 168			
Sample	13		
Sieve	5 mm	**Matrix**	Charcoal (4) Roots (2) Fine sediment (1)
Volume	20 ml	**Charred remains**	
Sample	13		
Sieve	2 mm	**Matrix**	Charcoal (4) Roots (2) Hazelnuts (1)
Volume	30 ml	**Charred remains**	Hazelnut fragments (9)
Sample	13		
Sieve	1 mm	**Matrix**	Charcoal (3) Roots (2)
Volume	30 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1)
Sample	13		
Sieve	0.5 mm	**Matrix**	Charcoal (3) Roots (2) Fine sediment (2)

Volume	30 ml	**Charred remains**	

Table 14.

Context 005			
Sample	17		
Sieve	5 mm	**Matrix**	Charcoal (4) Fine sediment (1)
Volume	150 ml	**Charred remains**	
Sample	17		
Sieve	2 mm	**Matrix**	Charcoal (5) Fine sediment (1)
Volume	110 ml	**Charred remains**	
Sample	17		
Sieve	1 mm	**Matrix**	Charcoal (5) Fine sediment (1)
Volume	50 ml	**Charred remains**	
Sample	17		
Sieve	0.5 mm	**Matrix**	Charcoal (5) Fine sediment (1)
Volume	75 ml	**Charred remains**	

Table 15.

Context 013			
Sample	16		
Sieve	5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	320 ml	**Charred remains**	
Sample	16		
Sieve	2 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	60 ml	**Charred remains**	Cerealia indeterminate (1)
Sample	16		
Sieve	1 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	50 ml	**Charred remains**	Hazelnut fragments (1) Degraded seed (1)
Sample	16		
Sieve	0.5 mm	**Matrix**	Charcoal (3) Fine sediment (3)
Volume	100 ml	**Charred remains**	

Table 16

Context 063			
Sample	14		
Sieve	5 mm	**Matrix**	Charcoal (3) Roots (2) Fine sediment (2)
Volume	25 ml	**Charred remains**	
Sample	14		
Sieve	2 mm	**Matrix**	Charcoal (4) Roots (2)
Volume	20 ml	**Charred remains**	
Sample	14		
Sieve	1 mm	**Matrix**	Charcoal (4) Roots (1) Coal (1) Clinker (1)
Volume	10 ml	**Charred remains**	
Sample	14		
Sieve	0.5 mm	**Matrix**	Charcoal (4) Fine sediment (1) Roots (1)
Volume	30 ml	**Charred remains**	

Table 17.

Context 071			
Sample	6		

Sieve	5 mm	**Matrix**	Charcoal (4) Fine sediment (2)
Volume	325 ml	**Charred remains**	Legumes (4)
Sample	6		
Sieve	2 mm	**Matrix**	Charcoal (4) Fine sediment (2)
Volume	60 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1) *Persicaria* sp. - Knotweed (1) *Stellaria media* - Chickweed (1)
Sample	6		
Sieve	0.5 mm	**Matrix**	Fine mineral (3) Charcoal (3) Roots (1)
Volume	125 ml	**Charred remains**	

Table 18.

Context 075			
Sample	5		
Sieve	5 mm	**Matrix**	Charcoal (4) Fine sediment (2)
Volume	200 ml	**Charred remains**	
Sample	5		
Sieve	2 mm	**Matrix**	Charcoal (4) Fine sediment (2)
Volume	75 ml	**Charred remains**	
Sample	5		
Sieve	1 mm	**Matrix**	Charcoal (4) Fine sediment (1)
Volume	30 ml	**Charred remains**	
Sample	5		
Sieve	0.5 mm	**Matrix**	Charcoal (4) Fine sediment (2)
Volume	50 ml	**Charred remains**	

Table 19.

Context 101			
Sample	7		
Sieve	5 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	20 ml	**Charred remains**	
Sample	7		
Sieve	2 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	20 ml	**Charred remains**	
Sample	7		
Sieve	1 mm	**Matrix**	Charcoal (5) Roots (1)
Volume	10 ml	**Charred remains**	*Persicaria* sp. - Knotweed (1)
Sample	7		
Sieve	0.5 mm	**Matrix**	Charcoal (4) Fine sediment (1) Roots (1)
Volume	20 ml	**Charred remains**	

Table 20.

Context 157			
Sample	9		
Sieve	5 mm	**Matrix**	Charcoal (5) Fine sediment (1) Roots (1)
Volume	100 ml	**Charred remains**	Degraded seeds (3)
Sample	9		
Sieve	2 mm	**Matrix**	Charcoal (5) Fine sediment (2) Roots (1)
Volume	40 ml	**Charred remains**	
Sample	9		
Sieve	1 mm	**Matrix**	Charcoal (5)

Volume	20 ml	**Charred remains**	
Sample	9		
Sieve	0.5 mm	**Matrix**	Charcoal (3) Fine sediment (3) Roots (1)
Volume	40 ml	**Charred remains**	

Table 21.

Context 161			
Sample	15		
Sieve	5 mm	**Matrix**	Roots (4) Fine sediment (2) Charcoal (1)
Volume	<5 ml	**Charred remains**	
Sample	15		
Sieve	2 mm	**Matrix**	Charcoal (3) Roots (3)
Volume	5 ml	**Charred remains**	
		Waterlogged remains	*Vitis* sp. - Grape (1)
Sample	15		
Sieve	1 mm	**Matrix**	Fine sediment (3) Charcoal (2) Roots (2)
Volume	10 ml	**Charred remains**	
		Waterlogged remains	*Atriplex/Chenopodium* sp. - Goosefoot (1)
Sample	15		
Sieve	0.5 mm	**Matrix**	Fine sediment (5)
Volume	50 ml	**Charred remains**	

Table 22. Charcoal Identification from Area 1

Context	**Sample**	**Identification (botanical name)**	**Identification (common name)**	**Suitable for C^{14} dating**
015	1	No identifiable charcoal		No
015	2	Degraded sample		No
005	3	*Corylus avellana*	Hazel (charcoal and nut fragment	Yes
009	4	*Corylus avellana*	Hazel	Yes
009	5	*Salix* sp.	Willow	Yes
009	6	*Quercus* sp.	Oak	No
009	7	*Quercus* sp.	Oak	No
009	7	*Salix* sp.	Willow	Yes
009	8	Fragments too small		No
009	9	Betulaceae	Alder family	Yes
027	10	Fagaceae	Oak/Beech family	No
029	11	No identifiable charcoal		No
029	12	*Corylus avellana*	Hazel	Yes
029	13	Betulaceae	Alder family	Yes
029	14	Fragments too small		No
029	15	Fragments too small		No
029	16	Fragments too small		No
029	17	*Corylus avellana*		Yes
029	18	No identifiable charcoal		No
029	19	No identifiable charcoal		No
029	20	Fragments too small		No
049	20	Betulaceae	Alder family	Yes
049	21	*Corylus avellana*	Hazel	Yes
049	22	Degraded sample		No
049	23	Betulaceae	Alder family	Yes

049	24	*Corylus avellana*	Hazel	Yes
039	25	Degraded sample		No
039	26	Degraded sample		No
039	27	Degraded sample		No
039	Sample from flot	*Corylus avellana*	Hazel	Yes
051	28	*Corylus avellana*	Hazel	Yes
051	29	*Corylus avellana*	Hazel	Yes
051	30	*Corylus avellana*	Hazel	Yes
051	31	*Corylus avellana*	Hazel	Yes
051	32	*Corylus avellana*	Hazel	Yes
051	33	*Corylus avellana*	Hazel	Yes
051	34	*Corylus avellana*	Hazel	Yes
051	35	*Corylus avellana*	Hazel	Yes
051	36	*Quercus* sp.	Oak	No
051	37	*Corylus avellana*	Hazel	Yes
051	38	*Salix* sp.	Willow	Yes
051	39	Degraded sample		No
051	40	*Quercus* sp.	Oak	No
051	41	*Corylus avellana*	Hazel	Yes
051	42	Degraded sample		No
051	43	*Corylus avellana*	Hazel	Yes
031	44	*Corylus avellana*	Hazel	Yes
031	45	*Corylus avellana*	Hazel	Yes
031	46	*Corylus avellana*	Hazel	Yes
031	47	*Corylus avellana*	Hazel	Yes
031	48	*Salix* sp.	Willow	Yes
031	49	*Corylus avellana*	Hazel	Yes
031	50	*Quercus* sp.	Oak	No
031	51	*Salix* sp.	Willow	Yes
031	52	Betulaceae	Alder family	Yes
031	53	*Salix* sp.	Willow	Yes
052	54	*Corylus avellana*	Hazel	Yes
051	55	*Quercus* sp.	Oak	No
031	56	*Salix* sp.	Willow	Yes
052	57	*Corylus avellana*	Hazel	Yes

Table 23. Charcoal Identification from Area 2

Context	**Sample**	**Identification (botanical name)**	**Identification (common name)**	**Suitable for C^{14} dating**
051	2	*Corylus avellana*	Hazel	Yes
089	3	Fragments too small		No
061	4	Degraded sample		No
061	5	*Quercus* sp.	Oak	No
061	6	*Quercus* sp.	Oak	No
061	7	*Quercus* sp.	Oak	No
061	8	*Quercus* sp.	Oak	No
061	9	Degraded sample		No
061	10	*Quercus* sp.	Oak	No
075	11	Degraded sample		No
075	12	*Corylus avellana*	Hazel	Yes
075	13	Degraded sample		No

163	14	Bone		No
163	15	*Quercus* sp.	Oak	No
073	16	Clinker/Degraded sample		No
101	17	Fragments too small		No
101	18	Fragments too small		No
101	19	Fragments too small		No
071	20	Degraded sample		No
071	21	*Quercus* sp.	Oak	No
071	22	*Quercus* sp.	Oak	No
071	23	*Quercus* sp.	Oak	No
133	24	*Salix* sp. *Corylus avellana*	Willow Hazel	Yes Yes
133	25	Fragments too small		No
157	26	Degraded sample		No
157	27	*Corylus avellana*	Hazel	Yes
157	28	*Corylus avellana*	Hazel	Yes
133	29	*Corylus avellana*	Hazel	Yes
133	30	*Corylus avellana*	Hazel	Yes
063	31	*Quercus* sp.	Oak	No
063	32	*Quercus* sp.	Oak	No
168	33	*Corylus avellana*	Hazel	Yes
168	34	*Corylus avellana*	Hazel	Yes
168	35	*Corylus avellana*	Hazel	Yes
133	36	*Corylus avellana*	Hazel	Yes
005	37	*Corylus avellana*	Hazel	Yes
005	38	*Quercus* sp.	Oak	No
005	39	*Corylus avellana*	Hazel	Yes
005	40	*Quercus* sp.	Oak	No
013	41	*Salix* sp.	Willow	Yes
013	42	*Salix* sp.	Willow	Yes
013	43	*Salix* sp.	Willow	Yes
153	44	Fragments too small		No
153	45	*Quercus* sp.	Oak	No
027	46	Fragments too small		No
027	47	Fragments too small		No
023	48	*Corylus avellana*	Hazel	Yes
023	49	Fragments too small		

Table 24. Charcoal identification from F102 and F108

Context	**Identification (botanical name)**	**Identification (common name)**	**Suitable for C^{14} dating**
F102	Degraded sample		No
F108	*Corylus avellana*	Hazel	Yes

References

Brazier, J D, and Franklin, G L, 1961. *Identification of Hardwoods. A Microscope Key*. Forest Products Research Bulletin No. 46.

Hather, J G, 2000. *The Identification of the Northern European Woods: A Guide for Archaeologists and Conservators.* Archetype Publications. London.

Hillman, G C, 1981. Reconstructing Crop Husbandry Practices from Charred Remains of Crops. R. Mercer Ed. *Farming Practice in British Prehistory*. Edinburgh University Press, Edinburgh. 123-162.

Hillman G, Mason S, de Moulins D and Nesbitt M, 1992. Identification of archaeological remains of wheat: the 1992 London workshop (p.195-210) *Circaea* 12(2) 195-210.

Huntley J P and Stallibrass S M, 1995. *Plant and vertebrate remains from archaeological sites in northern England: data reviews and future directions.* Architectural and Archaeological Society of Durham and Northumberland, Durham.

Schweingruber F H, 1978. *Microscopic Wood Anatomy*. Swiss Federal Institute of Forestry Research.

van der Veen M, 1982. Carbonised plant remains from Neolithic Thirlings (Northumberland). *Ancient Monuments Laboratory Report* 3831: 4.

Murphy P, 1988. Carbonised neolithic plant remains from The Stumble, an intertidal site in the Blackwater Estuary, Essex, England. *Circaea* 6(1) 21-38.