

Palaeoecology Research Services

**Evaluation of biological remains from
excavations at Heslington East, York
(site code: YORYM 2002.569)**

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by

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Summary

Fifty-eight sediment samples, and very small quantities of hand-collected shell and bone, recovered from deposits encountered during excavations at Heslington East, York, were submitted for an evaluation of their bioarchaeological potential. Archaeological features dating from prehistoric periods through to modern were revealed. Three areas of particular archaeological significance (designated Areas A1-A3) were identified.

Interpretatively useful assemblages of plant and invertebrate macrofossils were recovered from several of the samples investigated. Preservation by waterlogging and charring was evident (sometimes both were recorded from the same deposit). The plant material largely reflected the kind of context inferred on stratigraphic grounds (pond fills, ditch fills, etc), with only a very small background component thought to derive from human occupation and a few weeds pointing to possible disturbance. There was also some evidence for imported heathland turves or peat. The insects suggested a human-dominated environment at all the periods represented, but there was no evidence at all of buildings. Where there was much evidence for conditions beyond the depositional basins, grazing land was suggested. The potential for further study of plant and invertebrate assemblages is quite large—and the material represents a rare opportunity to study environment and activity in the immediate environs of York during the prehistoric and Roman periods, and perhaps later.

Only small quantities of hand-collected shell were recovered from five contexts. Almost all of the hand-collected shell was of oyster. The small quantity of remains recovered, and the fact that most derive from unstratified/modern contexts, renders the assemblage of little value.

Very little vertebrate material was recovered from this evaluation despite the large number of trenches (115) excavated. However, Trenches 33, 35, 36 and 39 showed some potential for the preservation of bone, with material from Trench 33 being well preserved, albeit somewhat fragile. Horse teeth from a possible Iron Age/Roman deposit from Trench 42 (Context 42015) are almost certainly from one individual and may represent a ritual deposit. The assemblages from each trench were small, and provided little interpretative information, although some of material inevitably represents domestic occupation debris.

Further excavation of this area should allow for the sampling and assessment of deposits with significant bioarchaeological potential, especially as many of the more productive samples considered here were from areas identified as being of archaeological interest (Area A3 in particular). The current vertebrate remains do not warrant further consideration but there is every likelihood that a larger more valuable assemblage would be recovered by additional excavation, again, particularly in the locality of Area A3.

KEYWORDS: HESLINGTON EAST; YORK; EVALUATION; PREHISTORIC; IRON AGE; ROMAN; ANGLIAN; POST-MEDIEVAL TO MODERN; PLANT REMAINS; CHARRED PLANT REMAINS; CHARRED GRAIN; PEAT; INVERTEBRATE REMAINS; VERTEBRATE REMAINS

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Introduction

An archaeological evaluation excavation was carried out by York Archaeological Trust, at Heslington East, York (centred on NGR SE 640 506), between the 6th of November 2003 and the 4th of February 2004.

The excavation took place within an area of proposed development. One hundred and fifteen evaluation trenches revealed a range of archaeological features relating to prehistoric settlement (Bronze Age and Iron Age), Roman buildings, Roman/Anglian boundaries and a post medieval pond. Three areas of particular archaeological significance were identified: Area **A1** – palaeo-environmental deposits, prehistoric settlement and land division (possibly continuing into the Roman period), ?post-medieval pond (Trenches 9, 11-15); Area **A2** – Iron Age settlement and possible earlier prehistoric activity (Trenches 102, 103, 105-108, 115); Area **A3** – prehistoric enclosures continuing into the Roman period, Roman building, early Anglian occupation (Trenches 33-39, 55-63, 114).

Fifty-eight bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an evaluation of their bioarchaeological potential.

Methods

Sediment samples

The sediment samples were inspected and their lithologies were recorded, using a standard *pro forma*. For twenty-one of the samples, a subsample was disaggregated in water and sieved to 300 microns then subjected to either paraffin flotation or

washover (or in some cases both), broadly using the techniques of Kenward *et al.* (1980; 1986). Flots were stored in alcohol.

Plant remains (and the general nature of the flots, washovers and wet residues) were recorded briefly by 'scanning', identifiable plant taxa and other components being listed directly to a PC using *Paradox* software. Notes on the quantity and quality of preservation were made for each fraction.

Insects in the flots were recorded using 'assessment recording' *sensu* Kenward (1992), creating a list of the taxa observed during rapid inspection of the flot, with a semi-quantitative estimate of abundance, and a subjective record of the main ecological groups. A record of the preservational condition of the remains was made using scales given by Kenward and Large (1998). This scheme provides scales for chemical erosion and fragmentation (0.5-5.5, the higher figure representing the greatest degree of damage), and colour change (0-4), in each case giving a range and a value for the position and strength of the mode (Kenward and Large 1998, tables 2, 3 and 5-7).

Where the residues were primarily mineral in nature they were dried, weighed and the components recorded in brief.

Hand-collected shell

A small quantity of hand-collected shell from five contexts was submitted.

Brief notes were made on the preservational condition of the hand-collected shell and the remains identified to species where possible. For oyster (*Ostrea edulis* L.) shell additional notes were made regarding: numbers of left and right valves; evidence of having being

opened using a knife or similar implement; measurability of the valves (though measurements were not taken as part of this evaluation); damage from other marine biota (polychaet worms and dog whelks); encrustation by barnacles. Preservation was recorded subjectively on two four-point scales for erosion and fragmentation as: 0 – none; 1 – slight; 2 – moderate; 3 – severe.

Vertebrate remains

For the hand-collected vertebrate remains that were recorded, data were entered directly into a series of tables using a purpose-built input system and *Paradox* software. Records were made concerning the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Other information, such as fragment size, dog gnawing, burning, butchery and fresh breaks, was noted, where applicable.

Fragments were identified to species or species group using the PRS modern comparative reference collection. The bones which could not be identified to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), and totally unidentifiable. The latter groups are represented in Table 4 by the category labelled 'Unidentified'.

Results

The descriptions of each of the sediment samples and records of the dried residues are presented in Table 1.

For the deposits with evaluation subsamples, the results are presented in context number order by trench. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing

method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number.

TRENCH 11

Context 11010 [post-medieval – pond back fill]

Sample 29/T (3 kg sieved to 300 microns with paraffin flotation and washover; approximately 6 litres of unprocessed sediment remain)

The rather small washover of about 200 ml consisted of herbaceous detritus and a little sand. It was rich in well-preserved fruits of opposite-leaved pondweed (*Groenlandia densa* (L.) Fourr.) and oogonia of the freshwater green algae in Characeae, as well as in carpels of water-plantain and fruits of bur-reed (*Sparganium*), the last so well preserved that remains of the outer parts of the achenes were present. As in one of the other samples, some suspiciously modern-looking cereal glumes were observed. The aquatic taxa are consistent with deposition in a pond, into which a very little charred material (charcoal and charred herbaceous detritus) also found its way.

The flot was large, mainly composed of rootlets, but moderately rich in invertebrate remains. Preservation was good to average, though some remains were very fragmented (E 1.5-3.5, mode 2.5 weak; F 1.5-5.0, mode 2.5 weak, distinctly skewed towards more fragmented and with numerous unidentifiable scraps of cuticle). Water beetles and other aquatics were numerous and diverse (there were 'many' ostracods and 'several' Corixidae sp. and *Limnebius* sp.); this pond probably held more or less permanent water. One scrap of cuticle may have been of the great silver water beetle *Hydrophilus piceus* (Linnaeus), and if it can be confirmed it will be a notable record from this area and period. Terrestrial fauna was somewhat limited, with some plant feeders and species found in litter and other decaying matter, all of which may have lived by the water's edge. Dung beetles were notable absentees. This material would be worthy of recording in order to contribute to reconstruction of the present site, and for future synthesis. It would be desirable to process a further subsample, perhaps with great care in the hope of reducing the fragmentation of fossils, in order to enhance the evidence for terrestrial conditions.

A small snail assemblage was sorted from the dried residue. All of the snails recorded were freshwater taxa, with most (around twelve individuals) being the pond snail *Lymnaea truncatula* (Müller). Other species present included a single *Planorbis planorbis* (L.), a few small succineids (probably *Succinea pfeifferi* (Rossmässler)) and a few *Pisidium* sp. bivalves. These remains are entirely consistent with the plant and other invertebrates, indicating a body of still water, with weed and established waterside vegetation.

TRENCH 13

Context 13015 [Iron Age/early Roman – ditch backfill]
Sample 27/T (3 kg sieved to 300 microns with paraffin flotation and washover; approximately 4 litres of unprocessed sediment remain)

The rather large washover of about 400 ml consisted of woody detritus; wood and twigs (both to 20 mm), the former perhaps largely from fairly small stems, and all rather strongly decayed. Uncharred seeds and fruits were rather sparse but well preserved and were mostly weeds (only stinging nettle, *Urtica dioica* L., was present in more than trace amounts).

The flot was large and consisted primarily of fibrous plant remains, making sorting for invertebrates very time-consuming. Insects were not numerous, and there were few other invertebrates; preservation was generally quite good, however (E 1.5-3.5, mode 2.0 weak; F 2.0-3.5, mode 2.5 weak). Aquatics were the most conspicuous ecological group, these and waterside taxa contributing more than half of the recorded fossils. There were ‘several’ *Ochthebius minimus* (Fabricius), and a range of other water beetles, all tolerant of still conditions and a restricted aquatic flora, and able to exist in seasonal water. Terrestrial fauna was limited, and may all have originated at the margin of water. There was a single dung beetle (*Aphodius* sp.), insufficient evidence to indicate grazing. This material was borderline for further investigation, but probably worth recording (with an additional subsample to provide greater numbers) to add data in characterising the site as a whole and for landscape-scale synthesis.

TRENCH 14

Context 14005 [?prehistoric – ditch backfill]
Sample 35/T (3 kg sieved to 300 microns with paraffin flotation; approximately 5 litres of unprocessed sediment remain)

This subsample yielded a very small residue of about 150 ml, of which about 50 ml was woody debris, mainly very decayed wood (to 10 mm in maximum dimension) and bark (to 20 mm), the remainder being sand and gravel (to 25 mm). Fruits and seeds were moderately common and mostly quite well preserved, the more frequent being water-plantain (*Alisma*), water-dropwort (*Oenanthe*) and water-crowfoot (*Ranunculus* Subgenus *Batrachium*), together indicating deposition in still or gently flowing water. The other remains were either consistent with this or represented plants likely to have been growing nearby in a hedge, woodland or scrub. A few fragments of charcoal (to 10 mm) perhaps

indicated that some debris from occupation was reaching the deposit as it formed.

The flot, of modest size, consisted primarily of invertebrate remains, with some fragments of herbaceous plants. Insects were quite well preserved chemically, though often highly fragmented (E 1.5-3.0, mode 2.0 weak; F 2.0-5.0, mode 3.0 weak). There were immense numbers of *Daphnia* ephippia (water flea resting eggs) and resting bodies of the bryozoan *Lophopus crystallinus* (Pallas), as well as a range of water beetles, to attest to aquatic deposition, probably in essentially permanent and fairly clean water. There were not many terrestrial insects, but those present strongly suggested grazing land; ‘several’ each of an *Aphodius* species (dung beetles) and of *Phyllopertha horticola* (Linnaeus), the latter typical of poor, often rather acid, grazing land. It would be useful to make a full record of the insects from this deposit, preferably using a further subsample processed with great care, in the hope of avoiding fragmentation.

Context 14006 [?prehistoric – peat in valley]
Sample 33/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

The small washover of about 30 ml was mainly extremely decayed wood (to 10 mm) and extremely decayed caddis larva case fragments, with moderate numbers of water-plantain fruits and a few rather decay-resistant woody seeds. A trace of charred material tentatively identified as heather (*Calluna vulgaris* (L.) Hull) root/basal twig may represent debris from the burning of peat or turves; there was also a little wood charcoal (to 10 mm) and small fragments of cinders and coal, all presumably from occupation (though coal was regularly seen in these deposits in rather rounded clasts that are as likely to have originated in the local glacial drift). That the charcoal was rather eroded and iron-encrusted perhaps points to reworking. This subsample would probably have been worthy of paraffin flotation. It gave the impression of a sediment which had contained good waterlogged material but which had suffered strong decay post-depositionally.

TRENCH 24

Context 24010/11 [?modern – charcoal filled pit]
Sample 38/T (3 kg sieved to 300 microns with washover; approximately 4 litres of unprocessed sediment remain)

The modest-sized washover of charred material of about 75 ml was mainly wood charcoal (including willow/poplar/aspens, *Salix/Populus*, to 20 mm) with

some modern roots and a few charred fruits of goosegrass, *Galium aparine* L.

TRENCH 25

Context 25013 [Iron Age – pit backfill]

Sample 38/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

The tiny washover (5 ml) was mostly fine charcoal (there were a few large pieces to 15 mm) and modern plant detritus (rootlets, seedling and an occasional seed).

TRENCH 33

Context 33005 [contained Roman coins]

Sample 16/T (9 kg sieved to 300 microns with washover; no unprocessed sediment remains)

This sample was processed in order to look for remains that might represent a container for a small number of Roman coins that were recovered from the deposit. No such evidence was discovered. The washover was rich in uncharred plant remains and contained fragments of insect cuticle, however. Any further study of the biological remains from this site should revisit this sample.

Context 33008 [?Roman – ditch backfill]

Sample 26/T (3 kg sieved to 300 microns with paraffin flotation; approximately 5 litres of unprocessed sediment remain)

There was a moderate-sized residue of about 300 ml, of which about 50 ml was sand and a little gravel (to 15 mm), the organics being rather decayed wood with bark and much peaty undisaggregated sediment. Fruits and seeds, preserved by waterlogging, were mainly elder (*Sambucus nigra* L.) and blackberry (*Rubus fruticosus* agg.) (of which many more were present in the flot), with very few other taxa. There was a trace of charcoal (to 5 mm).

Fragments of insects were numerous in the large flot, but their condition was generally poor, often very poor (E 3.5-5.5, mode 4.0 weak; F 3.5-5.5, mode 4.5 weak). There were very small numbers of cladocerans (water fleas), but most of the remains were highly comminuted scraps of cuticle of a narrow range of beetles, among which the chafer *Phyllopertha horticola* appeared to be the only species which was represented by more than one individual. Other taxa noted included a click beetle (Elateridae), a weevil, and the wood borer *Grynobius planus* (Fabricius). It was not clear whether the range of

beetles was initially so narrow, or whether the low diversity was only apparent and a result of the great difficulty of identifying such tiny scraps. The deposit probably formed in an open grassland landscape. It would be worth recording this material, perhaps semi-quantitatively, to provide data for synthesis.

It is possible that this deposit included droppings from roosting birds.

Context 33027 [?Roman – ditch backfill]

Sample 21/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

The very small washover, of about 15 ml, comprised moderately frequent elder seeds and very little else. There were traces of charred cereal grains (not identifiable beyond this), charcoal (to 2 mm) and a little very decayed wood.

Context 33033 [?Iron Age – pond/spring head backfill]

Sample 25/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

The very small washover (of barely 30 ml) of fine organics was discovered to consist almost entirely of elder seeds and a little undisaggregated sediment, with a trace of charcoal (to 5 mm) and a little sand. The small flot yielded only traces of well decayed cuticle (E 5.5).

TRENCH 36

Context 36008 [2nd/3rd century AD – flue backfill and demolition of hypocaust]

Sample 17/T (3 kg sieved to 300 microns with washover; approximately 4 litres of unprocessed sediment remain)

The very small washover of about 20 ml comprised charred material and modern roots. The former was wood charcoal which included oak (*Quercus*) and unidentified diffuse-porous material (both to 10 mm). The few weed seeds present were probably all of recent origin. There was a trace of charred ?heather root/twig material, perhaps from peat or turves.

Context 36033 [late 3rd/4th century AD – boundary ditch backfill]

Sample 23/T (3 kg sieved to 300 microns with washover; approximately 4 litres of unprocessed sediment remain)

There was a small washover of about 15 ml of charred material and modern roots. The former included some cereal grains—oats (*Avena*), barley (*Hordeum*), and

wheat (*Triticum*)—as well as ?heather root/twig and sedge (*Carex*) nutlets (suggesting the presence of material derived from burnt peat or turves). A trace of tentatively identified barley rachis (ear stalk) was also seen. The charcoal (to 5 mm) included oak and ash (*Fraxinus*).

TRENCH 39

Context 39009 [?Anglian – pit backfill]

Sample 4/T (3 kg sieved to 300 microns with washover; approximately 6 litres of unprocessed sediment remain)

This subsample yielded a very small washover of about 15 ml of charred material (mainly poorly preserved grain) and some modern roots. The grain comprised barley with some wheat and perhaps even rye (*Secale cereale* L.). A trace of charred ?heather root/twig was noted from the finer fraction, in which there were some spelt glume-bases and spikelet-forks (perhaps arguing for a date rather earlier than Anglian) and one fragment which seemed to be barley rachis; a few of the barley grains had evidently begun to sprout before being charred.

TRENCH 47

Context 47002 [no information]

Sample 11/T (3 kg sieved to 300 microns with washover; approximately 6 litres of unprocessed sediment remain)

There was a tiny washover (of only a few ml) of sand grains, with a few small fragments of coal and cinder, a single charred wheat grain and some uncharred modern plant detritus.

TRENCH 56

Context 56011 [2nd/3rd century AD – pit backfill]

Sample 42/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

There was a small washover, of about 25 ml, of charred material, mainly wood charcoal and moderately well preserved cereal grains, with a little unidentified bone. The grain included moderate numbers of wheat caryopses and there were also traces of chaff; glume-bases of spelt (*Triticum spelta* L.) and spikelet forms which were perhaps emmer (*Triticum dicoccum* Schrank). The rather frequent charred nutlets of sedges and sheep' sorrel (*Rumex acetosella* agg.) might well have arrived in turves and there was some supporting evidence for this suggestion from the presence of charred ?heather root/twig and root/rhizome material,

as well as some of the other plants represented by fruits or seeds.

Context 56018 [?Iron Age but perhaps more likely late Roman – pit backfill]

Sample 41/T (3 kg sieved to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

The subsample gave a tiny washover (10 ml) of approximately half modern plant detritus and half fragments of coal and charcoal. There was also a little cinder, a few charred seeds and a single very poorly preserved charred grain.

TRENCH 60

Context 60011 [unknown date – pond/spring head backfill]

Sample 43/T (3 kg sieved to 300 microns with washover; approximately 3 litres of unprocessed sediment remain)

This subsample produced a rather large residue of about 350 ml of which about 150 ml formed a washover, the rest being sand and gravel (to 40 mm, amongst which was a fragment of tentatively identified fire-cracked pebble). The organic component consisted of charcoal (15 mm) and very decayed wood (25 mm), with some charred ?heather root, sedge nutlets and rhizome fragments (all pointing to the presence of material from charred peat/turves—indeed, there were a few fragments of charred material up to 5 mm that were thought perhaps to be peat itself). There were also some remains of cereals; one part-charred cereal grain and some fully charred material (some barley, large and very well preserved, and a little wheat, less well preserved). Two fragments of chaff (lemma/glume) were uncharred and might perhaps be recent. A charred spikelet fork appeared to be emmer but needs closer inspection. An unusual find was a single charred ash seed, and for the most part the well preserved waterlogged fruits and seeds were from woody plants (elder, alder—*Alnus*) and annual weeds (some perhaps from cultivated land). There was also some wood charcoal (to 15 mm).

The flot was fairly small, with woody and herbaceous plant fragments and seeds. There were modest numbers of invertebrate remains, principally beetles and mites. These were very variably preserved (E 2.0-4.0, mode 2.5 weak; F 1.5-4.5, mode 3.0, weak). Aquatics were present in small numbers, but sufficient to suggest at least temporary water. Terrestrial fauna included one dung beetle and a few plant feeders and litter-dwellers. A larger, additional, subsample could probably provide sufficient remains for a reconstruction of conditions at

the point of deposition and in the immediate surroundings.

TRENCH 103

Context 103020 [Iron Age – ditch backfill (primary)]
Sample 51/T (3 kg sieved to 300 microns with paraffin flotation; approximately 16 litres of unprocessed sediment remain)

There was a moderately large residue of about 550 ml of woody debris within which 75 ml was clean quartz sand with a little gravel. The woody material was mainly small twiggy fragments, probably mostly alder (of which fruits and female cone axes were also quite frequent). Other woody taxa included hawthorn (*Crataegus monogyna* Jacq.: well-preserved berries and pyrenes) and blackthorn (*Prunus spinosa* L.: thorns), and with these probable hedgerow shrubs, herbs such as rough chervil (*Chaerophyllum temulentum* L.) and upright hedge parsley (*Torilis japonica* (Houtt.) DC.) very likely to be found growing in their shelter. A very wide range of other taxa was present—some of them weeds, as well as aquatics (such as duckweed, *Lemna*, and water-crowfoot) likely to be growing in the ditch. A trace of charcoal points to the inclusion of some occupation debris, as do uncharred capsules of heather and charred remains tentatively identified as heather twig and root/basal twig (from peat or turves).

The flot was substantial, consisting mainly of fibrous plant debris, but with numerous invertebrate remains too. The latter were variably preserved, though often in quite good condition (E 1.5-3.0, mode 2.0 weak; F 2.0-5.0, mode 3.0 and 5.0, weak). Much the most abundant invertebrate remains were resting eggs (ephippia) of *Daphnia* (water fleas), of which there were of the order of 10^3 . There were a few ephippia of a second cladoceran, and modest numbers of water beetles; together these remains suggest at least fairly permanent water, perhaps drying or greatly reduced in summer. There were a few waterside specialists (e.g. *Notaris acridulus* (Linnaeus)). Terrestrial species were fairly abundant, indicating herbaceous vegetation and plant litter, with 'several' *Aphodius* dung beetles of two or more species; the surroundings may have been grazed. This sediment deserves full analysis for insect remains in order to reconstruct aquatics and terrestrial conditions, to contribute towards an understanding of land use in this area and for future synthesis.

TRENCH 106

Context 106016 [probably Iron Age – ditch backfill]
Sample 60/T (3 kg sieved to 300 microns with paraffin flotation; approximately 6 litres of unprocessed sediment remain)

The moderately large residue of about 500 ml (of which about 100 ml was clean quartz sand) included abundant rather 'chunky' woody debris, including wood fragments (20 mm) and twigs (30 mm), with some bark (20 mm); the wood was rather decayed. A wide range of other plant remains was present, and preservation (mainly by waterlogging) was generally good or very good. A distinctive component of plants from peat bog habitats surely represent debris from imported peat: two well-preserved seeds of bog rosemary (*Andromeda polifolia* L.), a sclerenchyma spindle of cotton-grass (*Eriophorum vaginatum* L.), some fragments of the moss *Aulacomnium palustre* (Hedw.) Schwaegr., and probably also the remains of heather (flowers and twig fragments). Some charred remains thought to be heather twig and root/twig, as well as some fragments thought to be charred mor humus or peat, and a few fragments which may be uncharred fibrous peat, strengthen the argument for the presence of peat, presumably brought to the area as fuel. Other remains included a distinctive 'drying mud' group of plants typically found at the edges of ponds or in intermittently wet ditches, and a probable 'hedgerow' component, though the presence of various plant parts of alder presumably points to woody vegetation on poorly drained soils close to the ditch. Some other remains may have arrived in heathland/grassland turves rather than peat. Overall, a rather large assemblage of well-preserved plant remains was recovered.

The large flot, primarily woody fragments, but with some herbaceous debris and numerous seeds, was rich in invertebrate remains. Invertebrates were variably preserved, but often in quite good condition (E 2.0-4.0, mode 2.5 weak; F 1.5-3.5, mode 2.5 weak). The insect assemblage was notable for its apparently very high diversity, with numerous species represented by small numbers of individuals. Deposition was in a body of water, perhaps permanent and with aquatic vegetation. Several waterside species were present. Terrestrial insects were abundant, representing a range of habitats including herbaceous vegetation (with some nettle-feeders) and a range of decaying matter from fairly dry litter to dung. There were two woodworm beetles, *Anobium* sp., perhaps from natural dead wood or from (for example) fence posts. Dung beetles were fairly abundant and several species of *Aphodius* were present. There were also two *Phyllopertha horticola*. Overall the terrestrial insects gave a subjective indication of grazing land, an impression which should be tested by further detailed analysis.

TRENCH 107

Context 107016 [probably Iron Age – ditch/gully backfill]

Sample 64/T (3 kg sieved to 300 microns with washover; approximately 15 litres of unprocessed sediment remain)

There was a tiny washover (5 ml) of modern rootlets, with traces of fine charcoal and cinder and an occasional larger fragment of charcoal (to 10 mm).

TRENCH 115

Context 115002 [?prehistoric – ditch backfill]

Sample 69/T (3 kg sieved to 300 microns with washover; approximately 6 litres of unprocessed sediment remain)

The small washover (of about 10 ml) consisted of modern roots and a little charred material; charcoal (to 10 mm) that was rather iron-encrusted—including material identified as oak (*Quercus*) and alder/hazel (*Alnus/Corylus*). There were also a few fragments of charred rhizome (to 3 mm), presumably from burnt turves.

Hand-collected shell

Four contexts (two modern/unstratified, Contexts 11000 and 33000, 11011 an early 19th century levelling deposit and 106020 a late Iron Age/early Roman trackway through an Iron Age enclosure entrance) each gave small amounts (only Context 11000 yielded more than a few grammes) of oyster shell. The remains from Contexts 11011, 33000 and 106020 were poorly preserved, whereas those from Context 11000 were in rather better condition. Five (possibly six) of the valves were measurable. Evidence of the oysters having been opened using a knife or similar implement (as shown by 'V'- or 'W'-shaped notches on the shell margins) was noted on one (perhaps two) of the valves. There was no evidence of damage to the valves (e.g. polychaet worm burrows, dog whelk holes), and little of encrustation (e.g. by barnacles), by other marine biota. Just under one third of the valves showed some fresh breakage presumably caused during excavation.

A fifth context (121004, described as a natural glacial deposit) contained the remains of a single *Helix aspersa* Müller.

Summary information for the hand-collected shell assemblage is presented as Table 2.

Hand-collected vertebrate remains

In total, 183 fragments of bone were recovered from 27 deposits representing 11 of the excavated trenches. Material was recovered from four other trenches (16,

40, 120, 121) but this was only briefly scanned being either of modern date or unstratified. Most of the bones were from deposits of prehistoric (Iron Age or ?Iron Age) or Roman date, with just a few dating to the late Roman/early Anglian or the post-medieval periods. A range of context types were encountered, but most commonly the bone was recovered from gully or ditch fills. A detailed list of the contexts which produced bone can be found in Table 3.

Very few fragments were recovered from Trenches 11, 26, 38, 56 and 125 (Table 4). Those from Trenches 11, 26 and 125 were post-medieval in date and, generally, unidentified to species. These fragments were of reasonable preservation. Vertebrate remains from Trenches 38 and 56 were mostly of Roman (2nd/3rd century) date and included bones of cattle and caprovid. Material from both trenches was described as being of variable preservation, including both well preserved and poorly preserved fragments. Trench 107 produced 14 fragments; many were burnt and only one (a pig tooth) identified to species.

Trench 33 produced one of the largest concentrations of bones. Seven deposits, mostly of Iron Age or Roman date (late 1st/early 2nd or 2nd century or 2nd/3rd century), produced 29 fragments, of which 17 were 'unidentified'. Preservation was slightly variable but, in general, the bones were well preserved, although some were a little brittle. Colour of the fragments varied from dark brown to gingery brown in colour. Caprovid and cattle remains were the most prevalent species, with single fragments of horse, dog and red deer (Contexts 33040, 33007 and 33003 respectively) also identified.

Two deposits from Trench 35 produced 15 fragments of very poorly preserved bone; the surface of the bones had been almost completely eroded. Most fragments represented the part skeleton of a cow (Context 35008), with only skeletal elements from the fore limb, a tooth and some mandible fragments being present. The deposit from which these remains were recovered possibly dated to the Iron Age.

Forty fragments of bone were recovered from five deposits from Trench 36. Four of the five contexts were of Roman date (2nd/3rd century and 3rd/4th century). Preservation of the material was recorded as 'fair', and colour as fawn. Fresh breakage was extensive and some bones were a little fragile. Cow, pig and caprovid remains were recorded; however, most fragments could not be identified to species but represented large mammals and included shaft, rib and vertebra fragments.

Vertebrate remains from Trench 39 were very poorly preserved, with much surface erosion. Most of the bones, 45 of the 47 recovered, came from Context 39017. The excavators identified an animal burial from

this deposit, but most of the skeleton was apparently left *in situ*. The bones submitted for evaluation were too extensively fragmented to be identified to species but appeared to represent a large mammal. Whether all the fragments belonged to one individual could not be determined from these remains.

A single ditch fill of possible Iron Age/Roman date from Trench 42 produced 22 horse fragments, mainly upper molars and premolars. Two incisors were also recovered suggesting an animal of about five years old. Preservation of the teeth was fairly good, but clearly they had survived, whilst the bone of the skull had not.

Discussion and statement of potential

The quantity and quality of preservation of macrofossil plant remains varied widely through this series of samples. At best there was well-preserved material largely reflecting the kind of context inferred on stratigraphic grounds (pond fills, ditch fills, and so on) with only a very small background component thought to derive from human occupation and a few weeds pointing to possible disturbance of the environment. Many of these 'waterlogged' samples did however produce both charred and uncharred material thought to represent imported heathland turves or peat—neither of which seems likely to have formed on the slopes of the moraine (though was quite possibly present in extensive areas on the undrained land at the foot of the slope, long since lost to drainage and agriculture, if not completely removed by paring or cutting first). Another group of samples yielded only charred remains but in some cases there were small concentrations of cereals and, amongst these, the wheat chaff needed for identification of the grains of this genus. Material from turves or peat was also present in these 'charred' samples, and it may be that this raw material was used in, for example, the firing of drying kilns, through the use of which charring of the cereals also took place.

Useful numbers of invertebrate (particularly insect) remains were present in most of the deposits for which extraction had been undertaken, and these assemblages have the potential to provide information about the

depositional basins and local ecology and land used, as well as providing data for wider, landscape-level synthesis. Preservation was variable in many cases (suggested by Kenward and Hall, *in press*, to be a characteristic of decay during deposition). Fragmentation was often considerable, or even extreme, placing a limit on identification for some of the assemblages. However, even the small or badly-preserved groups showed potential to contribute towards synthesis, even when context reconstruction would be limited.

The insects suggested a human-dominated environment at all the periods represented, but there was no evidence at all of buildings; no occupation-site synanthrope communities were detected. Where there was much evidence for conditions beyond the depositional basins, grazing land was suggested. A ditch encountered in Trenches 103 and 106 was thought by the excavator to perhaps have had a livestock control function. There was certainly nothing in the insect assemblages recovered from Samples 51 and 60 (Contexts 103020 and 106016, respectively) to contradict this, though there were probably too few dung beetles to suggest that livestock was concentrated (e.g. for drinking or shelter).

The potential for further study of plant and invertebrate assemblages is quite large—and (if secure dating can be achieved) the material represents a rare opportunity to study environment and activity in the immediate environs of York during the prehistoric and Roman periods, if not somewhat later. We know next to nothing about this from the existing (bio)archaeological record.

Almost all of the hand-collected shell was of oyster. The small quantity of remains recovered, and the fact that most derive from unstratified/modern contexts, renders the assemblage of little value. However, the presence of an oyster valve in Context 106020, assuming its integrity to be secure, would indicate that the later of the supposed

dates for this deposit is perhaps more likely (i.e. early Roman rather than late Iron Age).

Very little vertebrate material was recovered from this evaluation despite the large number of trenches (115) excavated. However, Trenches 33, 35, 36 and 39 showed some potential for the preservation of bone, with material from Trench 33 being well preserved, albeit somewhat fragile. These trenches fall within A3, an area of some archaeological significance, both in the prehistoric period and subsequently in the Roman period. Several animal burials (not excavated) were also noted from trenches in this area; these may be of ritual significance.

The current assemblages from each trench are small, and can provide little interpretative information, although some of material inevitably represents domestic, occupation debris. Horse teeth from a possible Iron Age/Roman deposit from Trench 42 (Context 42015) are almost certainly from one individual and are likely to have been deposited as a complete skull, with the bone subsequently decaying but the teeth remaining (enamel generally survives better where unfavourable conditions for bone survival prevail). The presence of isolated skulls, particularly horses, has been recorded on other sites of Iron Age and Romano-British date and they are sometimes interpreted as deliberate depositions of a ritual nature. One such example was noted from Easingwold, North Yorkshire (Carrott *et al.* 1993) where associated isolated horse teeth were recovered from within roundhouse ditches. These were interpreted as possibly indicating the original presence of skulls, perhaps ritually placed within the ditches or buildings (Dobney 2001).

Recommendations

It is certainly worthwhile to consider making further botanical analysis of a selection of the deposits, particularly those showing little or no waterlogged preservation, and using rather

larger assemblages, to check on the distribution in space and time of the evidence for peat/turf utilisation (and in the hope of tying this in with evidence for structures in the area).

Further analysis of the insect assemblages, preferably together with material recovered during development (which will surely threaten additional deposits?) is recommended. The use of larger, carefully processed, subsamples of many of the sediments is desirable in order to enhance reconstruction of local ecology and land use. Plant remains from these samples should also be examined to provide corroborative evidence of environment and explore further the use of materials as well as the nature of the agro-economy at the various periods represented (through the remains of cereals).

Further excavation of this area should allow for the sampling and assessment of deposits with significant bioarchaeological potential, especially as many of the more productive samples considered here were from areas identified as being of archaeological interest (Area A3 in particular).

No further investigation of the hand-collected shell is warranted.

In spite of the poor preservation and small assemblage size, bone assemblages from this area of York, and of Iron Age/Romano-British date, are rare and our understanding of the rural outskirts of the city is minimal during this period. The current assemblage does not warrant further consideration but there is every likelihood that a larger more interpretative assemblage would be recovered should additional excavation be undertaken, particularly in the locality of Area A3.

Retention and disposal

All of the current material, together with the remains extracted from the processed sediment subsamples, should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Heslington East, York: sediment and dry residue descriptions. Key: CN = Context number; SN = Sample number; Wt = Weight of processed subsample in kg—'NFA' - no further action (beyond sediment description); Res Wt = Weight of dry residue in kg.

CN	SN	Sediment description	Wt	Res Wt	Dry residue description
9003	32	Just moist, light to mid grey-brown to mid grey, crumbly to unconsolidated, silty, fine sand. Stones (2 to 6 mm) were present.	NFA		
9005	31	Moist, light to mid grey-brown, crumbly to unconsolidated, slightly silty, fine sand. No obvious inclusions.	NFA		
9007	30	Moist, light to mid grey, crumbly to unconsolidated, slightly clay, silty, fine sand. Stones (2 to 6 mm) were present.	NFA		
11010	29	Moist, mid brown to mid to dark grey brown (some patches of light brown and light grey), crumbly (working soft), humic, slightly sandy slightly clay silt. Black sulphide staining was noted internally.	3	0.46	Mostly sand, with some stones (to 40 mm) and traces of coal (1 g, to 10 mm), seeds (<<1 g, 10 or so sorted from residue) and freshwater snails (see text). A single amphibian limb bone was recovered from this sample.
13015	27	Moist, mix of light to mid blue-grey sticky clay and light to mid brown sand. Wood/woody root was present.	3	0.09	Mostly sand, with some stones (to 35 mm) and flecks of ?charcoal.
13018	28	Moist, light grey-brown to mid grey-brown, crumbly to unconsolidated (working soft), slightly sandy slightly clay silt. Stones (6 to 60 mm), charcoal and ?wood were present.	NFA		
14005	35	Just moist, mid to dark brown, crumbly (working soft), humic, slightly sandy slightly clay silt, with patches of light grey and yellow-brown, slightly silty clay. Stones (2 to 6 mm and 20 to 60 mm), ?seeds and plant fragments were present.	3	-	Organic residue kept wet (see text).
14006	33	Just moist, dark grey-brown to dark brown, brittle to crumbly (working soft), very slightly sandy slightly clay silt, with some patches of mid orange-brown clay silt. Stones (20 to 60 mm), ?charcoal flecks and very rotted ?wood fragments were present.	3	0.08	Mostly sand, with a few stones (to 30 mm) and traces of charcoal (<<1 g, to 5 mm).
14012	34	Varicoloured, light grey to mid grey-brown (and shades in between), brittle to crumbly (working soft), silty clay, with some fine herbaceous detritus. Modern rootlets were present.	NFA		
24010/11	38	Moist, mid grey-brown to dark grey, crumbly to unconsolidated, moderately stony, slightly clay sand. Darker grey areas perhaps more clay with ?ash. Stones (6 to 20 mm) were common and ?rotted charcoal and modern rootlets were present.	3	1.10	Stones (to 50 mm) and sand.
25013	37	Moist, mid brown to mid grey-brown, crumbly, slightly silty sand. Rotted charcoal was present.	3	0.83	Sand and stones (to 45 mm), with a little charcoal (<1 g, to 8 mm).
26004		Mid to dark grey-brown, crumbly to unconsolidated. Stones (20 to 60 mm) were common.	NFA		
31019	10	Light grey, crumbly, working soft, slightly clay, sandy silt, with some ?very decayed organic material (orange in colour).	NFA		
32003	13	Just moist, light to mid grey to mid orange (mottled	NFA		

CN	SN	Sediment description	Wt	Res Wt	Dry residue description
		on a mm-scale), crumbly to unconsolidated, slightly clay, sandy silt.			
32012	14	More or less dry, mid to dark grey (with some light grey-brown patches), crumbly to unconsolidated, silty fine sand. No obvious inclusions.	NFA		
33005	16	Moist, mid grey-brown to mid to dark grey, brittle to crumbly (working soft), slightly sandy silt, with some light grey-brown sand in patches and some lumps of ?peat (detritus peat). Wood or woody root was present.	9	0.76	Mostly sand, with a few small stones.
33008	26	Moist, dark grey-brown to very dark grey, crumbly (working more or less soft), humic, sandy silt. Stones (2 to 20 mm), pot, twigs or ?woody root and large mammal bone were present.	3	-	Organic residue kept wet (see text).
33027	21	Moist, mid grey-brown, crumbly (working soft), slightly silty, clay sand. Occasional small lumps of light orange-brown ?clay (to 5mm). Stones (6 to 20 mm and >60 mm) were present.	3	0.61	Sand and stones (to 65 mm). This sample produced 22 small fragments of bone, most of which were well preserved. The larger fragments (to 30 mm) represented medium-sized mammals, whilst some of the smaller fragments included vole and mouse teeth and several amphibian fragments such as vertebra and pelvis.
33033	25	Just moist, mid to dark grey-brown to dark grey (some areas of light to mid grey-brown), crumbly (working soft), humic, sandy silt. Stones (2 to 60 mm) were present.	3	0.40	Sand and stones (to 40 mm). Two fragments of bone were recovered, one of which was a vole tooth.
35009	8	More or less dry, crumbly, slightly sandy silt (possibly ashy), with some ?humic flecks and ?charcoal present.	NFA		
36008	17	Just moist, mid to dark grey-brown, crumbly (working more or less soft), slightly clay, silty sand. Stones (6 to 60 mm), rotted mortar/plaster, rotted brick/tile and modern rootlets were present.	3	0.38	Sand and stones (to 35 mm), with a little brick/tile (15 g, to 40 mm) and ?metal (23 g, to 30 mm). A single amphibian pelvis fragment was recovered from this sample.
36033	23	Just moist, mid brown to mid grey-brown (mottled on a mm-scale), crumbly to unconsolidated, slightly clay, ?ashy, sandy silt, with some small patches of light orange-brown clay. ?Pot and very rotted ?large mammal bone were present.	3	0.36	Sand and stones (to 55 mm), with a little brick/tile (7 g, to 16 mm). Four rather eroded and poorly preserved fragments were noted from this sample.
38003	6	Just moist, mid to dark brown to mid to dark grey-brown, crumbly to unconsolidated, fine silt. Traces of ?charcoal were present.	NFA		
38004	7	More or less dry, mid to dark brown to mid to dark grey-brown, brittle to crumbly, silty sand. Pot present.	NFA		
38005	5	Mid to dark brown (to mid brown in places), fine sandy silt. Stones (20 to 60 mm) and pot were	NFA		

CN	SN	Sediment description	Wt	Res Wt	Dry residue description
		present.			
39001	1	Light to mid brown to light to mid grey-brown, brittle to crumbly, slightly sandy slightly clay silt. No obvious inclusions.	NFA		
39009	4	Dry, mid brown to mid grey-brown (mottled on a mm-scale), brittle to unconsolidated, ?very ashy, sandy silt. Modern rootlets were present.	3	0.62	Sand and some stones (to 45 mm). This sample produced a poorly preserved sheep/goat incisor a small unidentified scrap of bone.
39017	2	Dry, light to mid grey-brown, unconsolidated to brittle, very stony, slightly clay slightly sandy silt. Stones (2 to 20 mm) were abundant and larger stones (20 to >60 mm) were present.	NFA		
39022	3	Just moist mid brown, unconsolidated, silty fine sand. Stones (2 to 20 mm) were common and larger stones (20 to >60 mm) were present.	NFA		
42015	36	Mid grey-brown, moist and crumbly. Large stones (>60mm) were present.	NFA		
47002	11	Moist, light grey-brown to light to mid red-brown (mottled on a mm- to cm-scale), stiff to crumbly (working plastic), ?slightly silty clay. Some orange/reddish colouration, perhaps from organics or iron salts, was noted. No obvious inclusions.	3	0.72	Mostly sand, with ferrous concretions (to 40 mm) and a few stones.
47003	12	Moist, light to mid grey to light orange (mottled on a mm- to cm-scale), slightly sandy, clay silt to silty clay. Orange component ?baked/heated clay.	NFA		
49015	15	Just moist, light to mid grey to light to mid brown (mottled on a mm-scale), brittle to crumbly, silty sand. Some dark brown humic lumps. No other obvious inclusions.	NFA		
54003	44	Moist, light grey-brown, crumbly (working soft), sandy silt to silty sand. No obvious inclusions.	NFA		
56011	42	Just moist, light to mid brown to mid grey-brown, crumbly to unconsolidated, ?slightly ashy, slightly silty sand. Stones (2 to 60 mm) were common (rounded pebbles).	3	0.65	Mostly stones (to 60 mm), with some sand and a little charcoal (<1 g, to 10 mm). Bone (5 fragments) from this sample was poorly preserved and unidentified.
56018	41	Moist, mid brown to mid grey-brown (mottled on a mm-scale), crumbly to unconsolidated, slightly stony, slightly clay slightly silty sand. Stones (2 to 6 mm) and modern rootlets were present and larger stones (6 to 20 mm) were common.	3	0.76	Sand and stones (to 50 mm).
57011	40	Mid grey-brown, crumbly to unconsolidated. Stones (2 to 20 mm) and modern rootlets were present.	NFA		
60011	43	Moist, light to mid grey to mid to dark grey-brown, crumbly and slightly sticky to layered in places (working soft), ?humic, slightly sandy clay silt. Some clasts of sticky light grey-brown silty clay and ?charcoal or ?ash were present.	3	-	Organic residue kept wet (see text).
74004	61	Moist, light to mid brown to light to mid grey-brown, crumbly, sand.	NFA		
81003	45	Moist, mid grey-brown, crumbly, slightly silty sand.	NFA		
99003	49	Moist, light to mid grey-brown, crumbly, slightly silty sand.	NFA		
102003	50	Moist, light to mid black-grey-brown, crumbly, sand.	NFA		

CN	SN	Sediment description	Wt	Res Wt	Dry residue description
103004	57	Moist, mid grey-brown to mid grey, crumbly, stony, sand. Stones (6 to 60 mm) were common.	NFA		
103006	54	Moist, mid grey-brown to mid to dark grey, crumbly, slightly silty sand. Modern rootlets and large pebbles (>60 mm) were present.	NFA		
103020	51	Moist, mid to dark brown, brittle to crumbly (working soft), very humic silt to silty amorphous organic. Wood (including bark) and ?modern rootlets were present.	3	-	Organic residue kept wet (see text).
103026	56	Moist, light brown to mid grey-brown to mid grey, crumbly, sand.	NFA		
103029	55	Moist, light to mid brown to mid grey, crumbly, sand.	NFA		
103032	58	Moist, mid grey-brown, crumbly, sand. Large stones (>60 mm) were common and modern rootlets were present.	NFA		
105007	53	Moist, light to mid grey-brown, crumbly (working more or less plastic), sandy silty clay.	NFA		
105009	57	Moist, light to mid grey-brown, crumbly, sand, with a little silt.	NFA		
106016	60	Moist, very dark grey-brown to black (occasional patches of mid grey-brown and lighter internally), crumbly (working soft), humic, slightly clay sandy silt. Vivianite, ?twigs, herbaceous detritus and ?modern rootlets were present.	3	-	Organic residue kept wet (see text).
107010	63	Moist, mid grey-brown, crumbly, sand. Modern seedlings were present.	NFA		
107016	64	Moist, light to mid brown to mid grey-brown, crumbly to unconsolidated, silty sand. Charcoal flecks and modern rootlets were present.	3	0.61	Mostly sand, with some stones (to 10 mm) and a little charcoal (1 g, to 12 mm) and one piece of ?daub/?burnt clay (9 g, to 40 mm).
107022	66	Moist, light to mid brown to light to mid grey-brown, crumbly, slightly silty sand.	NFA		
107024	65	Moist, mid to dark grey-brown to mid to dark grey, crumbly, slightly silty sand. Stones (>60 mm) were present.	NFA		
109007	67	Moist, light to mid grey-brown (slight orange cast in places), crumbly (working more or less plastic), slightly silty clay sand to sandy clay.	NFA		
109009	68	Moist, light to mid grey-brown (mottled lighter and darker), crumbly, sand.	NFA		
115002	69	Moist, light to mid orange-grey-brown, brittle to crumbly (working somewhat plastic), clay silt. Modern rootlets were present.	3	0.12	Mostly sand, with a few small stones (to 8 mm).

Table 2. Heslington East, York: summary information for the hand-collected shell by context. A '?' before numbers indicates possible numbers (e.g. '2/?3 = definitely 2, possibly 3). Key: 'Cn' = Context number; 'left' = number of left (or lower) valves; 'right' = number of right (or upper) valves; 'in' = number of valves of indeterminate side; 'meas' = estimated number of valves intact enough to be measured; 'e' = average erosion score for valves; 'f' = average fragmentation score for valves; 'kn' = number of valves showing damage characteristic of the oyster having been opened using a knife or similar implement; 'worm' = number of valves showing damage by polychaet worms; 'barn' = number of valves with barnacles; 'dog' = number of valves showing damage from dog whelk boring; 'fr' = number of valves showing fresh breakage; 'wt' = total weight of shell in grammes.

Cn	Oyster valves										other taxa	wt	
	left	right	in	meas	e	f	kn	worm	barn	dog			fr
11000	6	8	0	5/?6	2	1	1/?2	0	1	0	3		322
11011	0	1	0	0	2	2	0	0	0	0	1		25
33000	0	1	0	0	3	3	0	0	0	0	1		16
106020	1	0	0	0	3	2	0	0	0	0	0		14
121004	0	0	0	-	-	-	-	-	-	-	-	1 x <i>Helix aspersa</i> Müller	5
Total	7	10	0	5/?6			1/?2	0	1	0	5		382

Table 3. Heslington East, York: list of contexts from which animal bones were recovered (by hand-collection) including deposits of modern date (no fragment counts are available for these).

Context	date	total fragments	context type
11011	E19thC	1	Levelling material over pond
16000	modern		Unstratified finds from Trench 16
26004	18thC	1	Backfill of wide linear - unknown origin.
26007	post-medieval	1	Backfill of gully
33000	modern		Unstratified finds from Trench 33
33002	IA/L1st/E2ndC	1	Upper backfill levelling of ditch
33003	?IA	2	Backfill of pond/springhead
33007	?2ndC	5	Backfill of ditch
33007	?2ndC	5	Ditch Backfill
33024	2nd/3rdC	10	Levelling - top of ditch
33039	?IA or Roman (2ndC)	8	Backfill of ditch
33040	?2nd/3rdC	2	Ditch Backfill
33041	2ndC	1	Ditch Backfill
35008	?IA	12	Backfill of ditch terminus or pit
35009	Late Roman	3	Ditch Backfill
36000	modern		Unstratified finds from Trench 36
36008	2nd/3rdC	21	Flue Backfill plus demolition of hypocaust.
36019	?2ndC	1	Construction cut for flue/Robber cut?
36036	?2ndC	1	Cobble foundation for Roman building
36045	Late Roman (3rd/4thC)	4	Boundary ditch Backfill
38000	modern		Unstratified finds from Trench 38
38005	2nd/3rdC	2	Upper fill of Quarry hole for cobbles for the construction of Roman road
39000	modern		Unstratified finds from Trench 39
39013	Late Roman/E Anglian	1	Backfill of tree/hedge boundary -small sfbs? That follow earlier double ditch boundary (dated late 3rd/4th century)
39015	Late Roman/Early Anglian	1	Backfill of tree/hedge boundary -small sfbs? That follow earlier double ditch boundary (dated late 3rd/4th century)
39017	Late 3rd/4thC	45	Backfill of gully/ ditch - part of double gully/ditch - contains (mostly left <i>in situ</i>) animal burial.
40000	modern		Unstratified finds from Trench 40
42015	?IA/Roman	22	Backfill of ditch
56000	modern		Unstratified finds from Trench 56
56011	2nd/3rdC	4	Pit Backfill
56018	?IA or Late Roman	4	Pit Backfill
107010	?IA	7	Backfill of ring ditch/drip gully of round house
107014	?IA	7	Backfill of re-cut ditch
120004	?modern		Buried agri/horticultural soil layer
121000	modern		Unstratified finds from Trench 121
125000	modern		Unstratified finds from Trench 125
125002	post-medieval	4	Backfill of furrow?

Table 4. Heslington East, York: hand-collected vertebrate remains by trench.

species		11	26	33	35	36	38	39	42	56	107	125	Tota 1
<i>Canis</i> f. domestic	dog	-	-	1	-	-	-	-	-	-	-	-	1
<i>Equus</i> f. domestic	horse	-	-	1	1	-	-	-	22	-	-	-	24
<i>Sus</i> f. domestic	pig	-	-	-	-	4	-	-	-	-	1	-	5
<i>Cervus elaphus</i> L.	red deer	-	-	1	-	-	-	-	-	-	-	-	1
<i>Bos</i> f. domestic	cow	-	1	4	12	6	1	1	-	3	-	-	28
Caprovid	sheep/goat	-	-	5	2	1	-	-	-	1	-	-	9
Unidentified		1	1	17	-	29	1	46	-	4	13	4	116
Total		1	2	29	15	40	2	47	22	8	14	4	184