

Palaeoecology Research Services

**Assessment of biological remains from excavations at
the site of the proposed waste water treatment works at
Melton, East Riding of Yorkshire (site code: MTW02)**

by

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Summary

Forty-four sediment samples and a small quantity of hand-collected bone, recovered from excavations of deposits of later Iron Age to Roman date at the site of the proposed waste water treatment works at Melton, East Riding of Yorkshire, were submitted to PRS for an evaluation of their bioarchaeological potential.

Charred plant material, other than charcoal, was limited to very small amounts of cereal grain, never in sufficient quantity to merit further investigation. One context (1271) gave a moderate concentration of wheat chaff, and five others gave some hints of the presence of burnt material from peat or turves (Contexts 814, 818, 820, 920 and 1012). Preservation of invertebrates varied, but the remains were often chemically changed, usually pale.

Despite the evidence for human occupation at this site, the plant remains largely indicate a landscape with rather little disturbance. Apart from the seeds and fruits of a few weeds and the charred cereal remains, most of the remains suggest natural or semi-natural vegetation typical of an area of lowland wetland traversed by ditches and with the sea close by. There were indications of grazing land from dung beetles, and very little to suggest the presence of trees or shrubs. Synanthropic insects were very rare, with no evidence for buildings nearby or for waste disposal. A small assemblage of vertebrate remains, amounting to half a box of hand-collected bone, was recovered from a number of ditch, pit and gully fills. Cattle and caprovid remains predominated, with horse and pig fragments also identified. Part caprovid skeletons, which may represent ritual deposits were recorded from Trenches 9 and 12.

Providing dating is refined (if necessary by AMS assay), plant and invertebrate remains from the richer deposits should be analysed in detail to amplify the ecological reconstruction and further explore the evidence for human activity in the environs. Where further samples from similar deposits at the site exist which have not yet been examined, they should be included in any further stage of analysis. The usefulness of the vertebrate assemblage in providing large datasets is limited by its small size and variable preservation. However, the scarcity of remains from rural settlements of this date warrants the production of a basic archive (including biometrical data).

KEYWORDS: PROPOSED WASTE WATER TREATMENT WORKS, MELTON; EAST RIDING OF YORKSHIRE; ASSESSMENT; LATER IRON AGE TO ROMAN; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; VERTEBRATE REMAINS; ANIMAL BURIAL

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Assessment of biological remains from excavations at the site of the proposed waste water treatment works at Melton, East Riding of Yorkshire (site code: MTW02)

Introduction

An archaeological excavation was carried out by Northern Archaeological Associates at the site of the proposed waste water treatment works at Melton, East Riding of Yorkshire (NGR SE 968 251), during the summer of 2002.

Forty-four sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), and a small quantity of hand-collected bone (amounting to approximately half a box), were recovered from the deposits. All of the samples and the hand-collected material were submitted to PRS for an evaluation of their bioarchaeological potential.

Only small quantities of pot were recovered at the site but these indicated a date range of later Iron Age (first centuries BC or AD) to Roman (early to mid third century AD) for the deposits.

Methods

All of the 44 submitted sediment samples were inspected in the laboratory. Twenty-two were selected for assessment and their lithologies were recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils. One sample was sieved to 1 mm to recover animal bone.

The flots and washovers resulting from processing were examined for plant and invertebrate macrofossils. The residues were scanned for larger plant macrofossils, bone, and other biological and artefactual remains.

Insect preservation was recorded using the scale of Kenward and Large (1998).

For the hand-collected vertebrate remains 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.

Results

Sediment samples

The results of the examinations of the samples 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 numbers (derived from the context numbers by PRS for internal record keeping purposes).

Trench 2 [measuring 25 metres by 2 metres and located to evaluate anomalies that included part of a probable trackway and an adjoining enclosure]

Context 203 [fill of ditch 202]

Sample 20301/T (3 kg sieved to 300 microns with paraffin flotation and washover; approximately 25 litres of unprocessed sediment remains)

Moist, mid grey-brown to mid grey (orange-brown in places – ?oxidation), crumbly and slightly sticky (working soft), ?slightly humic, slightly sandy clay silt, with some stones (2 to 60 mm) present.

This subsample yielded a washover of about 50 cm³ of fine uncharred herbaceous plant detritus with a few moderately well or well preserved seeds and fruits of taxa typical of a wet ditch and its banks: the most abundant were duckweed (*Lemna*) with moderate numbers of silverweed (*Potentilla anserina* L.), celery-leaved crowfoot (*Ranunculus sceleratus* L.) and stinging nettle (*Urtica dioica* L.). With these remains was a little charcoal (to 5 mm in maximum dimension) and very decayed uncharred bark. The weeds in this assemblage point to some disturbance, though there appear not to have been any well-developed weed communities in the vicinity as this deposit formed. Traces of elder (*Sambucus nigra* L.) and blackberry (*Rubus fruticosus* agg.) seed were the only evidence for possible successional scrub. The small residue consisted of about 150 cm³ of sand and gravel; the small flot contained only a few earthworm egg capsules and traces of what may have been very decayed insect cuticle.

Trench 5 [measuring 21 metres by 2 metres and located to evaluate a large north-south orientated linear trend]

Context 508 [primary fill of ditch 505]

Sample 50801/T (1 kg sieved to 300 microns with paraffin flotation; approximately 8 litres of unprocessed sediment remains)

Moist, silty ?peat, with some stems of monocotyledonous plants, and some patches (to 25 mm) of light to mid brown clay silt.

There was a very large residue of about 1 litre of uncharred herbaceous plant detritus containing what was apparently a wholly natural uncharred plant assemblage, mainly plants of wet places (typical for a ditch) – primarily sedges (*Carex*) and water crowfoot (*Ranunculus* Subgenus *Batrachium*) with a hint of maritime influence (a single seed of sea milkwort, *Glaux maritima* L.). A single alder (*Alnus glutinosa* (L.) Gaertner) fruit was the only evidence for woody vegetation.

The flot was small and contained modest numbers of invertebrate remains. Preservation was generally not good, but was variable (E 2.5-4.5, mode 3.5 weak; F 2.0-4.0, mode 3.0, weak; trend to pale 1-3, mode 2, weak). A mixture of aquatic and terrestrial beetles was present, with evidence that there was open water with aquatic and marginal vegetation in the ditch and at least some dead wood on land.

Although the invertebrate remains would be difficult (but by no means impossible) to identify, detailed analysis of a larger (3-5 kg) subsample should provide a clearer view of conditions in and around the ditch, and further work is desirable in view of the subjectively rather unusual nature of the recovered assemblage. Re-examination of plant remains from the present subsample will probably suffice to provide an adequate record of the fossil flora and explore further its implications.

Trench 6 [measuring 27 metres by 2 metres and located to evaluate both ditch and pit-type anomalies that represented a possible enclosure]

Context 603 [upper fill of pit 602]

Sample 60301/T (3 kg sieved to 300 microns with washover; approximately 15 litres of unprocessed sediment remains)

Moist, mid grey-brown, crumbly to unconsolidated (working soft), moderately stony (stones of 6 to 60 mm were present, and of 2 to 6 mm common) sandy clay silt, with a little ?rotted charcoal.

This subsample yielded a small washover of a few cm³ of charcoal (to 10 mm); the very large residue of 800 cm³ was of gravel (including chalk and flint to 25 mm) and some sand.

Context 604 [primary fill of pit 602]

Sample 60401/T (3 kg sieved to 300 microns with washover; approximately 25 litres of unprocessed sediment remains)

Just moist, light to mid grey-brown, crumbly to unconsolidated (working soft), stony (stones 2 to 60 mm were common), silty sand.

There was a tiny washover with a few scraps of fine (<5 mm) charcoal; the very large residue of about 900 cm³ consisted of sand and gravel (including flint and chalk to 35 mm).

Context 608 [primary fill of ditch 605]

Sample 60801/T (3 kg sieved to 300 microns with washover; approximately 37 litres of unprocessed sediment remains)

Waterlogged, light to mid grey-brown, sticky (working soft and slightly sticky), slightly clay silty sand (mostly fine sand of less than 300 microns). Stones (2 to 20 mm), charcoal, elder seeds, large mammal bone and fragments of unidentified land snail, were present.

This subsample yielded a small washover of about 50 cm³ of uncharred plant detritus, almost entirely elder seeds (including many fragments) with traces of charcoal (to 5 mm). The large residue of about 550 cm³ of sand and gravel (to 35 mm), a single piece of oak (*Quercus*) charcoal, and some pot sherds.

Trench 7 [measuring 13.5 metres by 2 metres and located to evaluate a ditch-type anomaly]

Context 709 [fill of posthole 708]

Sample 70901/T (3 kg sieved to 300 microns with washover; approximately 10 litres of unprocessed sediment remains)

Waterlogged, light to mid grey-brown, unconsolidated and slightly sticky, clay silty sand, with some stones (2 to 20 mm) present.

There was a very small washover of a few cm³ of fine charcoal and modern rootlets; the large residue consisted of about 400 cm³ of sand, gravel (to 8 mm) and iron-concreted sediment and a trace of coarser (to 10 mm) charcoal.

Trench 8 [measuring approximately 20 metres by 2 metres and located to evaluate anomalies that may have represented an east to west aligned trackway and parts of enclosures to the north and south]

Context 806 [layer - ?peat]

Sample 80601/T (1 kg sieved to 300 microns with paraffin flotation and washover; approximately 5 litres of unprocessed sediment remains)

Moist to wet, mid grey-brown, brittle (working sticky), slightly silty ?peat with stones (primarily chalk and flint of 2 to 60 mm) common.

The large residue of about 450 cm³ contained 150 cm³ gravel (to 35 mm) with a little sand. The washover was mainly uncharred herbaceous detritus with traces of charcoal; there were abundant, mostly well-preserved fruits and seeds, including an unusual concentration of bur chervil (*Anthriscus caucalis* Bieb.) as well as abundant hemlock (*Conium maculatum* L.), prickly

sow-thistle (*Sonchus asper* (L.) Hill) and stinging nettle fruits. These, and the less frequent remains – including moderate numbers of remains of wild celery (*Apium graveolens* L.), oraches (*Atriplex* sp(p).), goosefoots (*Chenopodium* Section *Pseudoblitum*), rush (*Juncus compressus* Jacq./*J. gerardi* Loisel.), common mallow (*Malva sylvestris* L.), buttercup (*Ranunculus* Section *Ranunculus*), hairy buttercup (*R. sardous* Crantz), celery-leaved crowfoot (*R. sceleratus* L.), docks (*Rumex* sp(p).), chickweed (*Stellaria media* (L.) Vill.) and annual nettle (*Urtica urens* L.) point to an area of tall herbaceous vegetation, largely perennial and nutrient-enriched, with a little disturbance and a maritime influence. Such communities might well grow on ditchbanks in an area where disturbance resulted either from human activity, animal grazing or regular inundation by water (though not daily tidal flow).

The flot was of average size (for a 1 kg subsample) and had a rather high concentration of insect remains. Preservation varied, though was generally fairly good (E 1.5-3.5, mode 2.5 weak; F 2.0-4.0, mode 2.5 weak). Aquatic insects were well-represented, and *Daphnia* abundant, though the water may not have been permanent. Some taxa suggested marshy vegetation. Terrestrial insects were numerous, and hinted at a rather strongly modified environment, with perhaps enough dung beetles (*Aphodius* and members of other families favouring foul matter) to suggest grazing land. Nettles were indicated by *Cidnorhinus quadrimaculatus* (Linnaeus) and the bug *Heterogaster urticae* (Fabricius).

A 3-5 kg subsample would almost certainly produce an insect assemblage large enough for detailed reconstruction, including investigation of land use, though the existing subsample will probably suffice for re-examination of plant remains.

Context 814 [primary fill of ditch 813]

Sample 81401/T (3 kg sieved to 300 microns with washover; approximately 8 litres of unprocessed sediment remains)

Waterlogged, light to mid grey-brown to light to mid yellow-brown, unconsolidated and slightly sticky (working sticky), clay silty sand, with stones (2 to 60 mm) present.

There was a very small washover of a few cm³ of fine charcoal and other charred plant material and modern roots, whilst the moderate-sized residue of about 225 cm³ was of sand and gravel (to 30 mm). The few remains other than charcoal included one or two of each of the following: nutlets of sedge, spike-rush (*Eleocharis palustris sensu lato*) and bristle club-rush (*Scirpus setaceus* L.), and seeds of blinks (*Montia fontana* ssp. *chondrosperma* (Fenzl) Walters), as well

as some unidentified charred herbaceous detritus and fragments of hazelnut (*Corylus avellana* L.). With the exception of the last-named, such a suite has been considered by the author perhaps most likely to result from the burning of turves (Hall 2002).

Context 818 [fill of posthole 817]

Sample 81801/T (1 kg sieved to 300 microns with paraffin flotation and washover; approximately 1 litre of unprocessed sediment remains)

Wet to waterlogged, light to mid brown to mid grey-brown, sticky to unconsolidated, slightly clay silty sand, with some stones (2 to 6 mm) present.

The small washover consisted of a few cm³ of fine charcoal and a trace of charred root/rhizome (from burnt turf?); the moderate-sized residue was mainly sand with a little gravel (to 40 mm) and iron-concreted sediment. There was one charred cereal grain whose shape was rather like that of rye (*Secale cereale* L.) but which could not be identified with confidence, and another grain surviving as a damaged fragment.

Context 820 [primary fill of gully 819]

Sample 82001/T (3 kg sieved to 300 microns with washover; approximately 3 litres of unprocessed sediment remains)

Moist to wet, mid grey-brown, sticky (working soft and slightly sticky), ?slightly sandy clay silt, with patches of light yellow-brown sand. Stones (2 to 20 mm) and charcoal were present.

The small washover comprised a few cm³ of charcoal (to 15 mm) and some modern roots; the modest-sized residue of about 300 cm³ was of sand and gravel (to 25 mm). There were a very few very abraded charred cereal grains, perhaps all barley (*Hordeum*) and traces of remains which may have come from burnt litter or turves: ?heather (cf. *Calluna vulgaris* (L.) Hull) root/twig fragments, charred herbaceous detritus and a charred rush (*Juncus*) seed capsule.

Trench 9 [measuring approximately 23.5 metres by up to 4 metres and located to evaluate the interior of an enclosure which contained a number of linear trends]

Context 918 [fill of pit 917]

Sample 91801/T (6 kg sieved to 1mm a washover was attempted but no material was separated; no unprocessed sediment remains)

Abundant medium-sized mammal bone in a matrix of waterlogged, mid grey-brown, unconsolidated, slightly clay sandy silt, with some stones (2 to 60 mm) present.

A large number of bones were recovered from this sample—these are reported in paragraph 2 of the following section.

Context 920 [upper fill of pit 919]

Sample 92001/T (2 kg sieved to 300 microns with washover; approximately 7 litres of unprocessed sediment remains)

Moist to wet, light to mid brown to mid grey-brown, crumbly and slightly sticky (working soft and slightly sticky), ?slightly clay silty sand (mostly fine sand of less than 300 microns). Stones (2 to 60 mm) and ?charcoal were present.

The moderate-sized residue of about 200 cm³ was of sand and some gravel (to 30 mm), with some concreted root-/burrow-casts. There was a small washover of a few cm³ of charred material and uncharred modern rootlets, the former including charcoal (to 10 mm) and herbaceous detritus – perhaps rush or grass culm (stem) fragments.

Context 926 [primary fill of pit 924]

Sample 92601/T (1 kg sieved to 300 microns with washover; approximately 1 litre of unprocessed sediment remains)

Wet to waterlogged, light to mid grey-brown to dark grey, sticky (working soft and sticky), ?slightly clay silty sand (mostly fine sand of less than 300 microns). Stones (2 to 20 mm) were present and ?very fine charcoal was abundant (resulting in the dark grey colour).

The large residue consisted of about 275 cm³ of which about 200 cm³ was charcoal (to 10 mm), most of it with an iron-like mineral encrustation and in some cases concreted together in clumps. The charcoal included oak and ?willow/poplar (*Salix/Populus*).

Context 929 [primary fill of ditch 927]

Sample 92901/T (1 kg sieved to 300 microns with washover; approximately 1 litre of unprocessed sediment remains)

An unconsolidated, waterlogged, mix of light yellow-brown sand and mid grey-brown slightly clay sandy silt with some stones (2 to 20 mm), ?charcoal, and rotted wood, present.

The large residue of about 325 cm³ included a large component (about 200 cm³) of charcoal (to 35 mm), apparently mostly oak, the remainder being sand and gravel (to 25 mm).

Trench 10 [measuring approximately 34 metres by 2 metres and located to evaluate ditch and pit-type anomalies representing a possible enclosure]

Context 1012 [fill of ditch 1011]

Sample 101201/T (2 kg sieved to 300 microns with paraffin flotation and washover; approximately 16 litres of unprocessed sediment remains)

Moist, light grey-brown to mid grey-brown, stiff and sticky to crumbly (working soft), slightly sandy clay silt with some stones (20 to 60 mm, including chalk) and rotted wood present.

The large residue from this subsample comprised about 200 cm³ of uncharred woody (?wood chips and fine twig fragments) and herbaceous detritus amongst which were some well-preserved plant remains, a mixture of woody and herbaceous taxa likely to have lived in the ditch (e.g. duckweed, stonewort (Characeae), water-crowfoot and horned pondweed (*Zannichellia palustris* L.)), on its banks, or in disturbed areas nearby (hemlock, silverweed, chickweed, annual and stinging nettles) and in scrub in the vicinity (hawthorn, *Crataegus monogyna* Jacq., and elder). There was also a distinctive, albeit small, component from salt-marsh – traces of sea milkwort, mud rush (*Juncus* cf. *gerardi*), sea rush (*J. maritimus* Lam.), annual seablite (*Suaeda maritima* (L.) Dumort.), and sea arrowgrass (*Triglochin maritima* L.). The remainder of the residue comprised about 75 cm³ of sand and flint gravel (to 35 mm). The only charred remains noted were a single shrunken charred cereal grain, traces of charred peat (to 10 mm) and a trace of charred herbaceous material.

The flot contained abundant insect remains, whose preservational condition was variable but often good; fossils were often fragmented, perhaps recently (E 1.5-3.5, mode 2.5 weak; F 1.5-4.0, mode 2.5, weak). This was clearly an aquatic deposit, for a range of water beetles and species associated with mud and marginal vegetation was present. The remains of several dung beetles perhaps hint at the presence of livestock locally, and there were indications of weedy vegetation including nettles. This terrestrial component would be usefully represented in a larger subsample, preferably of about 5 kg, though the existing subsample will probably be sufficient for further analysis of plant remains.

Trench 12 [an 'L'-shaped trench measuring approximately 36 metres by 2 metres (north to south) and 26 metres by 2 metres (east to west) and located to evaluate linear trends that may reflect an extension to a possible trackway and to establish whether or not other archaeological features survived in this area]

Context 1213 [fill of ditch 1212]

Sample 121301/T (3 kg sieved to 300 microns with washover; approximately 25 litres of unprocessed sediment remains)

Moist, mid grey to mid grey-brown, slightly crumbly to soft (working soft and more or less plastic), slightly sandy clay silt with some stones (2 to 60 mm) and modern rootlets present.

This subsample yielded a very small washover of a few cm³ of plant material, both charred (charcoal to 5 mm and a single yellow-rattle, *Rhinanthus*, seed) and uncharred (including a few seeds from a handful of taxa – mainly water-plantain, *Alisma*), all rather eroded. The moderate-sized residue of about 175 cm³ consisted of sand and gravel (to 45 mm). Rather small numbers of invertebrate remains were present in the flot, and preservation was variable, often extremely poor (E 3.0-5.5, mode 4.0 weak; F 2.0-5.5, mode 3.5 weak). Doubtless other remains had decayed completely, though whether during deposition or more recently cannot be determined. The sparseness of remains and their poor condition would make further investigation of very little value.

Context 1221 [fill of ditch 1220]

Sample 122101/T (3 kg sieved to 300 microns with washover; approximately 13 litres of unprocessed sediment remains)

Wet to waterlogged, light to mid brown to light to mid grey-brown, soft, slightly clay slightly silty sand with some stones (2 to 60 mm) and modern plant ?stalk fragments.

There was a small washover of a few cm³ of coarse uncharred herbaceous detritus, apparently mostly modern cereal straw debris, with a few fruits and seeds all or most of which might well have been modern. The single charred nutlet of self-heal (*Prunella vulgaris* L.) was presumably ancient. The moderate-sized residue comprised about 275 cm³ of sand, gravel (to 25 mm) and iron-concreted sediment with a trace of charcoal (to 5 mm).

Context 1223 [fill of gully 1222]

Sample 122301/T (3 kg sieved to 300 microns with washover; approximately 16 litres of unprocessed sediment remains)

Wet to waterlogged, light to mid brown to light to mid grey-brown, soft, slightly clay silty sand. Stones (2 to 60 mm) and modern rootlets were present.

There was a small washover of a few cm³ of fine charcoal (to 10 mm) with traces of charred and uncharred elder seeds/seed fragments, and a large residue of about 400 cm³ of sand and gravel (to 35 mm).

Context 1229 [fill of posthole 1228]

Sample 122901/T (3 kg sieved to 300 microns with washover; approximately 14 litres of unprocessed sediment remains)

Waterlogged, mid grey-brown to mid to dark grey-brown, crumbly (working soft and slightly sticky), sandy clay silt, with patches of mid yellow-brown silty sand and light grey clay silt. Stones (2 to 60 mm) and ?charcoal were present.

The small washover of about 60 cm³ was primarily of charcoal (mostly iron-stained), with a trace of uncharred elder seeds; there was further charcoal in the residue (presumably it was heavy because of impregnation by iron minerals). The residue volume was large (about 400 cm³), the remainder comprising sand and gravel (25 mm). Some of the charcoal remained weakly cemented in clusters, as in the sample from Context 926; at least some of the charcoal was oak.

Context 1231 [fill of pit 1230]

Sample 123101/T (3 kg sieved to 300 microns with washover; approximately 24 litres of unprocessed sediment remains)

Moist, mid grey, sticky (working soft), sandy clay silt, with patches of light to mid orange-brown silty clay, and some stones (2 to 20 mm).

The very small washover consisted of a few cm³ of charcoal (to 5 mm) with moderate numbers of uncharred elder seed fragments and a single unidentified charred cereal grain; the moderate-sized residue was about 325 cm³ of sand and flint gravel (to 40 mm).

Context 1271 [fill of ditch 1270]

Sample 127101/T (3 kg sieved to 300 microns with paraffin flotation and washover; approximately 14 litres of unprocessed sediment remains)

Moist, mid grey-brown to mid to dark grey-brown (and mid orange-brown in places), slightly sticky (working soft and sticky), clay silty sand and herbaceous detritus. Some stones (2 to 60 mm) and modern rootlets were present.

The large washover of about 300 cm³ was mostly fine uncharred herbaceous detritus and there was a small residue of about 120 cm³ of sand and gravel (to 35 mm), with iron-concreted root moulds. Amongst the herbaceous detritus were two charred wheat (*Triticum*) grains and one of oats (*Avena*), together with moderate numbers of charred spikelet forks and glume bases which may well have been spelt (*T. spelta* L.) but which could not be identified at this stage. The most abundant of the uncharred remains were consistent with deposition in a ditch – especially water-crowfoot, water-plantain, sedges, gipsywort (*Lycopus europaeus* L.) and horned pondweed – the banks and land beyond supporting some grassland (there were several taxa likely to have lived in grazed turf) and some areas with disturbance (perhaps through trampling by animals or humans).

The fairly small flot was rich in insect cuticle, though (other than mites) the total number of remains was not large. Preservation was variable, though on average fairly good, with some remains very pale and others distorted (E 1.5-4.0, mode 2.0 weak; F 1.0-3.5, mode 2.5 weak). Aquatic deposition was indicated, water fleas and beetles found in and at the edge of water being predominant. There were a few terrestrial insects.

Adding a further subsample (of about 5 kg) to this one would probably produce sufficient remains for a reconstruction of conditions in the ditch and its immediate surroundings. A much larger subsample would be needed to provide a more substantial assemblage of charred cereal chaff to confirm the identification of the wheat.

Context 1292 [fill of pit 1291]

Sample 129201/T (3 kg sieved to 300 microns with washover; approximately 4 litres of unprocessed sediment remains)

Waterlogged, light to mid brown to mid grey-brown, unconsolidated, slightly clay silty sand with small stones (2 to 6 mm) common and larger stones (to 60+ mm) present.

The small washover consisted of a few cm³ of charred material – charcoal (to 10 mm) and hazel nutshell fragments, the large residue of about 550 cm³ of sand and flint gravel (to 40 mm).

Vertebrate remains from the samples

In general, only very small amounts of bone were recovered from the samples. Most fragments represented the main domestic mammals. A number of the bones recovered from Contexts 818, 820, 1012 and 1229 were burnt. Small mammal and amphibian

remains were identified from Contexts 603 (Sample 60301/T) and 608 (Sample 60801/T), the latter also included several fish vertebrae and a ?snake vertebra.

Context 918 (Sample 91801/BS) produced a large number of bone fragments. A high degree of fragmentation was noted, with over 300 small fragments, including medium-sized mammal rib, vertebrae, cranium and shaft fragments. A large proportion of the unidentified remains clearly derived from larger bones but were too small to be identified to skeletal element or species. The identified component consisted of 62 sheep bones representing at least three individuals. A wide range of elements were present and these bones could represent parts of whole skeletons.

Hand-collected vertebrate remains

Hand-collected vertebrate remains, amounting to 162 fragments, were recovered from four of the 16 excavated trenches. Trenches 6 and 12 produced the largest assemblages of bone (61 and 96 fragments, respectively), with only five bones in total from Trenches 2 and 8. Table 1 lists the contexts from which vertebrate remains were recovered by hand collection.

Preservation of the remains was quite variable. Material from Trench 6 was, for the most part, quite well preserved. Some exceptions were the bones from Contexts 600 and 601, which were poorly preserved and eroded and a small number of fragments from Context 608 which were slightly battered in appearance. In contrast, the remains from Trench 12 were mainly rather eroded, particularly those from Contexts 1223, 1237 and 1269. Material from this trench was also considerably damaged by fresh breakage that must have occurred during excavation. Context 1219 produced 62 fragments, which had all been burnt to varying degrees. This variation was even noted on individual bones, with one end scorched black and the other white and calcined. The resultant remains were quite fragile and brittle. The five fragments from Trenches 2 and 8 were all well preserved.

A large component of the vertebrate assemblage was unidentified to species but represented large and medium-sized mammals. Identified remains included cattle, caprovid, with a few fragments of horse and pig. Caprovid remains were predominant but the numbers were inflated by the presence of what appeared to be the part skeleton of an adult sheep from Context 1219. As discussed above, all the bones were burnt. Parts of both the front and back legs were recorded, along with ribs and some vertebrae (atlas, cervical and thoracic). No fragments of cranium or teeth were present.

Additionally, a single shaft fragment of a human baby was identified from Context 621.

Few bones were measurable and mandibles with teeth *in situ* were scarce.

Table 2 gives summary information for the hand-collected vertebrate material.

Discussion and statement of potential

Preservation of plant remains in these deposits was very localised, uncharred remains being abundant (and usually well preserved) in some of the ditch fills (e.g. 203, 1012, and 1271) and in the one non-fill layer examined (peat 806). However, some of the ditch fills contained very few remains. The pit fills always yielded very few remains. Charred plant material, other than charcoal, was limited to very small amounts of cereal grain, never in sufficient quantity to merit further investigation, even with larger subsamples (concentrations were generally no more than one or two grains per kilogramme), one example of a moderate concentration of wheat chaff (1271), which should be examined further (if dating will be sufficiently precise, if necessary using AMS on selected plant remains), and some hints of the presence of burnt material from peat or turves (Contexts 814, 818, 820, 920 and 1012).

Despite the evidence for human occupation at this site, the plant remains largely indicate a landscape with rather little disturbance. Apart from the seeds and fruits of a few weeds and the charred cereal remains, most of the remains suggest natural or semi-natural vegetation typical of an area of lowland wetland traversed by ditches and with the sea close by. Further analysis might usefully be carried out in order to amplify the ecological reconstruction and further explore the evidence for human activity in the environs.

Preservation of invertebrates varied, but the remains were often (so far as can be revealed by visual inspection) chemically changed, usually pale. This may have been the result of recent de-watering, or of a rather vigorous decay environment during deposition. The

invertebrate assemblages reflected deposition in ditches which contained water for an appreciable part of the year, but not necessarily permanently. There were indications of grazing land from dung beetles, and very little to suggest the presence of trees or shrubs (there were traces of dead wood species, but these are as likely to have lived in posts as in woodland). Synanthropes were very rare, with no evidence for buildings nearby or for waste disposal.

Enough invertebrate remains could be recovered from some of the samples to amplify these preliminary deductions and to contribute useful evidence concerning the site and its surroundings. Further analysis would also yield data for synthesis of changing land use in lowland eastern Yorkshire. In two cases the residues contained significant numbers of insect remains, and many fossils may have broken during extraction, signalling the need for careful processing for detailed analysis.

The vertebrate assemblage recovered from these excavations was small, with few measurable bones and mandibles with teeth *in situ* of use for providing biometrical and age-at-death information. Preservation was rather variable and quite a number of fragments were eroded or rather fragile. Some of the material may be redeposited and may have initially been dumped elsewhere prior to being incorporated into ditch and pit fills. A limited range of species was identified. However, the presence of part skeletons is worthy of note. This is a phenomenon known from other Iron Age/Romano-British sites in the region, including burnt and part burnt caprovid skeletons found at Welton Rd, Brough (Hamshaw-Thomas and Jaques 2000), and Hayton (Jaques *et al.* 2000); deposits such as these are frequently identified as being ritual in nature.

Recommendations

Providing dating is refined (if necessary by AMS assay), plant and invertebrate remains from the richer deposits should be analysed in detail to address the topics mentioned above. Where further samples from similar deposits (e.g. from additional ditch fill contexts) at the site exist which have not been examined here, they should be included in any further stage of analysis.

In spite of the poor preservation and small assemblage size, an archive report should be made of all well dated vertebrate material. Bone assemblages from rural sites, particularly of this date, are rare and our understanding of these sites is limited. Data from this assemblage could be used to provide a valuable contribution to any synthetic projects carried out in the region.

Retention and disposal

All of the current material 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. List of contexts from Melton, East Riding of Yorkshire, producing hand-collected bone.

Context	Number of fragments
203	2
600	1
601	6
604	4
607	2
608	36
610	2
621	10
814	1
825	2
1219	62
1223	9
1237	15
1268	1
1269	2
1273	3
1277	3
1285	1
18	162

Table 2. Hand-collected vertebrate remains from deposits at Melton, East Riding of Yorkshire. **Key:** No. frags = total number of fragments; No. meas. = number of measurable fragments; No. mands/teeth = number of mandibles (with teeth in situ) and numbers of teeth of use for providing age-at-death data; the number in parentheses represents a part skeleton from Context 1219.

Species		No. frags	No. meas	No. mands/teeth
<i>Equus</i> f. domestic	horse	3	-	-
<i>Sus</i> f. domestic	pig	2	1	-
<i>Bos</i> f. domestic	cow	11	4	1
Caprovid	sheep/goat	9 (62)	1	1
<i>Homo sapiens</i>	human	1	-	-
Unidentified		74	-	-
Total		100 (62)	6	2