

Technical report: Biological remains from excavations at a site near West Lilling, North Yorkshire (site codes: OSA99EX03 and BPTSEP169)

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Summary

Sediment samples and hand-collected bone from Roman and medieval deposits revealed by excavations in 1999 and 2000 near West Lilling, North Yorkshire, were examined initially as part of an archaeological evaluation of their bioarchaeological potential. Most of the sediment samples yielded no more than a very little charcoal and few modern seeds, though there were traces of other charred plant material which included wheat chaff and some debris perhaps from burnt turves or peat, all probably ancient. In contrast, one deposit was quite rich in charred plant remains, including cereal grains and wheat chaff, whilst three yielded well-preserved plant and insect remains primarily preserved by waterlogging.

Further subsamples of four contexts, all from Roman ditch fills, were subsequently examined in more detail for plant and/or invertebrate remains. One context yielded a modest assemblage of charred cereal remains: mainly grains of wheat and chaff from spelt.

Two ditch fills gave assemblages with rather abundant well-preserved plant remains (and one also abundant, but variably preserved, insect remains) indicative of disturbed or regenerating scrub and tall herbaceous vegetation surrounding an intermittently wet ditch, with some evidence for grassland in the vicinity, perhaps rough grazing. There was little from the biological remains to indicate human occupation in the form of structures, though some charred plant material must have originated as waste.

A small assemblage of vertebrate remains was recovered. Most of the fragments were poorly preserved and few bones could be identified to species. An archive of information relating to these remains is included in this report.

Keywords: WEST LILLING; NORTH YORKSHIRE; ROMAN; MEDIEVAL; PLANT REMAINS; INSECTS; CLADOCERA; BONES; DITCH FILLS; ENVIRONMENTAL RECONSTRUCTION

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Introduction

A series of sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), and two boxes (of approximately 10 litres) of hand-collected bone, were recovered from the deposits examined during the 1999 and 2000 seasons. All of this material was submitted to the EAU for an initial evaluation of its bioarchaeological potential and, whilst no further work could be recommended for the vertebrate remains, several of the samples yielded sufficient charred or uncharred macrofossils to warrant a more detailed examination. This *Technical Report* combines the report presented as part of the assessment of the archaeological record from the site, together with an account of the detailed work carried out subsequently.

Methods

Sediment samples

The sediment samples were inspected in the laboratory. They comprised two samples submitted for assessment from the 1999 season, and thirteen selected (by the excavator) for investigation from the material collected in 2000. 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. Table 1 shows a list of the submitted samples and notes on their treatment. The flots, washovers and residues were examined for plant remains (which were recorded using a semi-quantitative scale of abundance from 1 (one or a few specimens or very rare material) to 4 (thousands of specimens or a very large component of the sample). The flot and washovers were also examined for invertebrate remains, and other biological and artefactual remains the residues were recorded during listing of plants from the residues using the same 4-point scale of abundance.

For the invertebrate material examined during the main post-excavation phase, recording of adult beetles and bugs was at the 'detailed' level of Kenward (1992), other invertebrates being recorded semi-quantitatively on a scale of 1, 2, 3, 'several' (translated as 6), 'many' (15), with estimates for very large numbers. Quality of preservation was recorded using the scales of Kenward and Large (1998). In summary, preservation is recorded as chemical erosion (E) and fragmentation (F), in each case on a scale from 0.5 (superb) to 5.5 (extremely decayed or fragmented).

Vertebrate remains

All of the bone was recorded in detail; subjective records were made of preservation, angularity (i.e. the nature of the broken surfaces) and colour, whilst quantities and identifications were noted where appropriate. Additionally, semi-quantitative information was noted for each context concerning fragment size, dog gnawing, burning, butchery and fresh breaks. Fragments not identifiable to species ('B' bones *sensu* Dobney *et al.* unpublished) were grouped into three categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), and completely unidentifiable.

Measurements for mammals were taken (where appropriate) according to the system of von den Driesch (1976), with additional measurements following those outlined by Dobney *et al.* (unpublished).

Total numbers of fragments by species were recorded, together with the number of measurable fragments and isolated teeth yielding ageing or sexing information. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Results (see Tables 2-9)

Sediment samples

The results are presented in context number order by period, with fills of the same cut listed in stratigraphic order from lowest to highest. Archaeological information, provided by the excavator, is presented in square brackets.

LATE 3RD-LATE 4TH CENTURY AD

Context 6150 [upper fill in ditch 6151]

Sample 43/BS (5 kg sieved to 300 microns with washover; assessment)

Wet, light grey-brown to mid to dark grey-brown, soft (working soft and slightly sticky), slightly clay, slightly silty sand with some ?cinder present.

The moderately large residue of about 500 cm³ comprised clean quartz sand with some ?iron pan. The washover of about 100 cm³ was of charcoal (to 10 mm) with woody and herbaceous detritus. Amongst these fragments were abundant well-preserved seeds of elder (*Sambucus nigra*) and stinging nettle (*Urtica dioica*) and modest numbers of seeds of the goosefoots in *Chenopodium* Section *Pseudoblitum*. Other identifiable plant remains included a rather large assemblage of taxa representing waterside vegetation and stands of weeds, the latter including communities of sandy fields and neglected waste places. There was also a small component perhaps from grazed or trampled turf. Some lumps (to 5 mm) of sandy humic silt observed might be from inwashed soil or mor humus. Notable in the material were rather large numbers of fragments of vegetative material with characteristic darkened epidermis and strongly sinuous cell walls. Though not identified at the assessment stage, it seemed likely this material could be identified and might offer further interpretative information. (This material was subsequently identified as *Equisetum* – see the account for sample 49/T2 from Context 6289, below.) One or two ?spelt wheat (*Triticum* cf.

spelta) glume-bases were also noted. A small group of insects was recovered, including aquatic and waterside forms, and some terrestrial species.

A further subsample was processed, primarily for analysis of invertebrates:

Sample 43/T2 (5 kg sieved to 300 microns, with paraffin flotation; recorded in detail)

This additional subsample yielded a moderate-sized residue of about 425 cm³ of which about 375 cm³ was clean quartz sand with some large iron concretions (?pan). The washover was of woody detritus including woody roots which are thought to be ancient (some were apparently tubercular and might be from alder, *Alnus glutinosa*). There were modest concentrations of seeds, mainly stinging nettle, toad rush (*Juncus bufonius*), elder and hemlock (*Conium maculatum*), probably representing somewhat disturbed ditch-side habitats and areas of trampled wet ground, with some other weeds and traces of charred cereal chaff (wheat rachis and spelt glume-bases and spikelet forks. The charred ?heather (cf. *Calluna vulgaris*) basal twig/root fragments might have originated in burnt turves (there were also traces of material which may have been charred peat).

Invertebrate remains were present only in modest numbers, and their preservation was variable and often poor (E3.0-5.5, mode 4.0, distinct; F1.5-5.0, mode 3.5, weak). Aquatics were well represented, with ‘several’ ephippia of a characteristic but as yet unidentified cladoceran, a few *Daphnia*, a caddis larva, and six aquatic beetle species. The most abundant beetle was *Lesteva longoelytrata*, found in waterside situations. Other ecological groups were poorly represented but there were indications of dung and grazing land.

Context 6237 [primary fill in cut 6089]

Sample 39/BS (5 kg sieved to 300 microns with washover; assessment)

Just moist, light brown through black in shades of orange-grey-brown (colours rather jumbled), slightly clay slightly silty ashy sand with fragments of rotted charcoal. The sample had an overall burnt appearance.

The small residue of about 200 cm³ was of clean quartz sand and ?iron pan. The large washover of 400 cm³ comprised about 100 cm³ clean quartz sand, the rest being angular charcoal (to 25 mm), probably mostly oak (*Quercus*). There were modest amounts of charred cereal remains, including ?spelt glume-bases and some other chaff which was probably also spelt wheat. The grains observed were often very puffed or eroded, and there was some iron salt deposition on both grains and charcoal. Other cereals noted were oats (*Avena*) and ?rye (cf. *Secale cereale* L.).

A further subsample was processed, primarily for analysis of charred plant remains:

Sample 39/T2 (2.6 kg sieved to 300 microns with paraffin flotation)

There was a moderate-sized residue of about 250 cm³ of which about 100 cm³ was clean quartz sand and iron concretions (?pan) and a little gravel, the remainder being charred plant material including charcoal (to 20 mm, including oak, ash and ?Pomoideae), and charred grains and chaff. The charred plant material was present at rather higher concentrations than observed in the subsample examined for the assessment, suggesting the deposit was rather heterogeneous. The moderate numbers of wheat grains were mostly distorted or greatly eroded, with very few specimens whole and in a good condition; however, there were abundant well-preserved spelt glume-bases and fragments (often with quite a large proportion of the glume present) as well as spikelet forks (the width of the base of the glume-bases was used to confirm the identification: they were all within the typical range recorded for *Triticum spelta*). There were also traces of charred rachis thought to be from free-

threshing wheat as well as some barley (*Hordeum*) rachis. Other material from cereals, or from the burning of straw or grain cleanings, were moderately frequent brome (*Bromus*) caryopses, unidentified cereal awn fragments, and traces of barley grains and 'seeds' of stinking mayweed (*Anthemis cotula*) and sea/scentless mayweed (*Matricaria maritima/perforata*) and pod segments of wild radish (*Raphanus raphanistrum*). Possible indicators of material from burnt turves were charred ?heather basal twig/root and root/rhizome fragments.

Context 6289 [fill in driveway-side ditch 6290]

Sample 49/T (5 kg sieved to 300 microns with paraffin flotation; assessment)

Moist, mid to dark grey to light to mid grey-brown, crumbly to unconsolidated (working soft), sandy slightly clay silt with a little fine and coarse herbaceous detritus.

The small to moderate-sized residue of about 500 cm³ yielded about 300 cm³ clean quartz sand, the rest being rather decayed wood debris (to 35 mm), including twigs, probably of elder, and at least one fragment which appeared to have been worked. The presence of some charred ?heather basal twig/root material and some ?pteridophyte roots (these may be *Equisetum*, in view of the results for samples from 6150 and the moderate amounts of *Equisetum* stem epidermis and other horsetail material recorded in the /T2 subsample, cf. Table 3), perhaps indicates the presence of remains from burnt and unburnt turves or peat (some ?burnt peat fragments were also noted), as may some of the grassland taxa represented by uncharred seeds. Other seeds indicate disturbed habitats, though with more evidence for grassland than for arable land, for example.

The flot yielded quite large numbers of insect remains, together with some mites and abundant water flea resting eggs (ephippia of Cladocera). The last included at least three distinct types. Aquatic beetles were numerous, too, a small *Helophorus* sp. being the most abundant taxon, but accompanied by a range of others including

Ochthebius ?minimus, *Hydrobius fuscipes*, a second *Helophorus*, two species of Hydrophilinae, a hydroporine, *Colymbetes fuscus*, and a haliplid. Aquatic deposition is therefore certain, but the abundant cladoceran resting eggs may indicate temporary water, probably much reduced in the summer. The water margins were sufficiently undisturbed to support a little aquatic-marginal vegetation on which plant-feeders lived, and to allow some mud-dwellers to survive.

The terrestrial component included a range of plant feeders and ground beetles able to live on or under fairly sparse vegetation, which included nettles, *Urtica* spp., on the basis of *Brachypterus* sp. and *Cidnorhinus quadrimaculatus*. There were distinct hints of grassland. More significant among the terrestrial species was a distinct synanthropic component. Taxa recorded in this category included *Typhaea stercorea*, of which there were at least two, *Gyrophypnus angustatus*, *Cordalia obscura*, *Ephistemus globulus*, and *Cryptophagus* spp., collectively perhaps indicative of moist but open-textured rotting plant matter. The litter on a moist surface, perhaps in a stable or animal pen, might support a community of this kind. A single *Anobium ?punctatum* probably originated in a structure, but the woodworm is common enough in the wild. Dung beetles were present in moderate numbers, four species of *Aphodius* (one fairly common) and a *Geotrupes* sp. being noted. A few other taxa may also have exploited dung, such as three or more species of *Cercyon*, *Cryptopleurum minutum*, *Platystethus arenarius* and *Oxyomus sylvestris*.

Most of the invertebrates were excellently preserved, but a few of the terrestrial forms appeared more decayed, perhaps having entered indirectly as corpses via soil or other material: in view of the botanical evidence, turves might be a source.

A further subsample was processed, primarily for analysis of invertebrates:

Sample 49/T2 (5 kg, sieved to 300 microns with paraffin flotation; recorded in detail)

There was a small to moderate-sized residue of about 600 cm³ of which about 250 cm³ consisted of clean quartz sand and a little iron-rich concretion, perhaps iron pan; the rest mainly comprised woody detritus including several hazel (*Corylus avellana*) roundwood fragments, apparently from worked poles or stakes. There were also a few twig fragments and abundant seeds of elder. Other 'woody' taxa represented were ash (*Fraxinus*) in the form of very decayed fruits ('keys') and at least one or two bud-scales, as well as charcoal, and the latter material also included specimens identified as hazel, Pomoideae (which includes apple, pear, hawthorn, rowan) and *Prunus*.

The characteristic vegetative material observed during the assessment proved to be from a horsetail (*Equisetum*): there were stem nodes and epidermis fragments, as well as root and rhizome material, but it could not be more closely identified. In Britain, the genus includes species which grow in standing water and marshy places as well as terrestrial types, so there is no good interpretative information to be gained since marsh and terrestrial taxa were abundant amongst the other identifiable remains.

Of these, the more abundant taxa from aquatic-marginal habitats (perhaps mud in a ditch which periodically dried out) were marsh yellow-cress (*Rorippa palustris*) toad rush and *Chenopodium* Section *Pseudoblitum*, whilst taxa indicative of drier habitats, though possibly still the banks of a ditch or stream, included hemlock, self-heal (*Prunella vulgaris*), buttercups (*Ranunculus* Section *Ranunculus*) and stinging nettle. Certainly more than one kind of community is indicated here, with some plants likely to be from shorter grass-dominated vegetation, others tall herbs of more disturbed habitats. Disturbance is also suggested by some of the annual weeds, of which the more common were oraches (*Atriplex*) and annual nettle (*Urtica urens*). To these habitats may be added heathland, represented by various charred and uncharred remains of heather, though all (but especially the charred material) may have originated in imported turves rather than in the local vegetation – the presence of traces of charred wheat grains and a single ?spelt wheat glume

fragment certainly points to some material from human occupation having been introduced to the deposit.

The quite large flot was rich in invertebrate remains. Adult beetles and bugs were very abundant (408 individuals), and the assemblage was very species rich (173 taxa, giving a value for alpha of Fisher *et al.* (1943) of 113 (SE 9). Although a few taxa were abundant, most were present in small numbers, more than half by single individuals. This in part reflects what is likely to have been an ecologically rather diverse environment (see below), but may also result from the presence of abundant background fauna, i.e. insects which flew or tumbled into the ditch and died there.

The trapping of background fauna would have been enhanced by the fact that this deposit clearly formed in water. Aquatics were abundant (31% of the adult beetles and bugs): the two most abundant beetles fell in this category, *Helophorus ?brevipalpis* (at least 59 individuals; most were probably *brevipalpis* but a few may have been of other species), and *Ochthebius minimus* (26). Other aquatics included a second *Helophorus* (5); and *Haliplus* sp., two *Hydroporus* species, *Helophorus aquaticus*, *Hydrobius fuscipes*, and *Limnebius truncatellus* (all 3). Cladocera (water fleas), represented by their resistant resting eggs (ephippia), were very abundant. It was estimated that of the order of 5000 *Daphnia* ephippia and 1000 of another, frequently occurring but as yet unidentified type, were present.

Generally the invertebrate evidence points to deposition in still water, but one species, the elmid *Esolus parallelepipedus*, represented by a single specimen, requires clean moving water. It may have been carried in by seasonally flowing water, or have arrived on the wing (elmids are occasionally found in small numbers in deposits which clearly did not form in flowing water, including surface-lain occupation deposits and the fills of urban pits).

The more abundant waterside insects were *Carpelimus rivularis* (9), *C. elongatulus* (4), and

Lesteva longoelytrata (4), all of which would be typical of waterside mud with plant litter. *C. bilineatus* (4), although typical of occupation layers in archaeological deposits, and clearly part of the decomposer community both indoors and out, was probably behaving in its more modern way and living in waterside litter at West Lilling. There were a few species associated with emergent and waterside vegetation (e.g. *Aphrodes flavostriatus*, *Hydrothassa* sp. and *Notaris acridulus*), but nothing to suggest that this was well developed, consistent with the lack evidence for aquatic-marginals amongst the plant remains.

The insects suggested that the vegetation in the immediate surroundings was dominated by perennial herbs. *Gastrophysa viridula* is generally found on docks (*Rumex*). Nettles are indicated by *Cidnorhinus quadrimaculatus* (3), *Brachypterus ?glaber* (2), and *Heterogaster urticae* (1), plantains by *Gymnetron ?labile* (3), and vetches or clovers by *Sitona lepidus* (2) and *Apion ervi* (1). *Apion urticarium* (3) is perhaps more typical of annual nettle (*Urtica urens*) than stinging nettle (*U. dioica*); both were recorded amongst the plant remains. Several kinds of froghopper, including the 'cuckoo spit' *Philaenus spumarius*, were identified, all suggesting well-established herbaceous vegetation.

The insect remains give some pointers to conditions in the wider vicinity of the ditch. There are indications of rough grassland from, for example, *Serica brunnea*, *Agrypnus murinus* and *Athous haemorrhoidalis*: all probably arrived on the wing as background fauna. That the grassland may have been grazed is hinted at by the presence of modest numbers of dung beetles (e.g. *Aphodius ?prodromus* and *A. sphacelatus*). According to Jessop (1986) both these *Aphodius* occur in dung of various kinds, as well as rotting plant matter, though he suggests that *A. prodromus* is rarely associated with horse dung. Landin (1961), however, states unequivocally that *A. prodromus* often occurs in horse dung in Sweden. There were rather weaker hints of artificial accumulations of rotting material, such as house litter or stable manure. A few species typical of these habitats were present, but rare: for example *Lithocharis*

ochracea, *Gyrophypnus fracticornis* and *Typhaea stercorea* (all 2). A further range of decomposers often found in artificial habitats was present (e.g. *Platystethus arenarius* and *Omalium rivulare*), but all may have lived in waterside mud and litter, in natural accumulations of decaying plant debris, or in dung.

Beetles indicative of trees or timber were notably rare. There was a single tentatively identified woodworm beetle, *Anobium punctatum* (echoing the record during the assessment), and a fragment of the bark beetle *Leperisinus ?varius*; both are quite likely to have been imported with timber, rather than originating from trees growing by the ditch (but note that the elder twigs and seeds mentioned above probably did have a local origin).

3RD/4TH CENTURY AD

Context 5005 [third fill in ditch 5008]

Sample 1/BS

Moist, dark grey-brown (mottled with dark grey, light yellow-brown and orange), crumbly (working unconsolidated), sandy silt, perhaps with an ash component. Stones to 6 mm were present together with charcoal and ?ancient root traces.

The minute washover of a few cm³ consisted of fine charcoal with some poorly preserved charred cereal grains, and the very small residue of about 400 cm³ yielded further cereal grains together with some charcoal (to 40 mm in maximum dimension) and rounded fragments of brick/tile, with rather a lot of charred ?heather root/twig fragments (to 20 mm) and a few small fragments of unidentified charred root or rhizome. The cereals were bread/club wheat (*Triticum aestivo-compactum*), with single grains of barley and oats. In all there were perhaps no more than about 10 cereal grains from this large subsample. The ?heather and charred root/rhizome material may represent debris from burnt turves.

ROMAN: NOT MORE CLOSELY DATED

Fills of Cut 6089 (see also 6237, above)

Context 6091 [clay lining of cut 6089, above 6505]

Sample 31/BS (4 kg sieved to 300 microns with washover)

Just moist, light to mid red-brown to mid to dark grey-brown. Stiff (working plastic) clay with some ?rotted charcoal and modern rootlets present.

The tiny residue consisted of sand, grit and ?iron pan; there was a small washover of about 25 cm³ of modern rootlets and ancient charcoal (to 5 mm) with traces of charred cereal grains and chaff, including a few ?spelt wheat glume-bases in reasonably good condition, and hulled barley grains, but all at very low concentrations.

Context 6205 [fill in cut 6089, below 6091]

Sample 41/BS (5 kg sieved to 300 microns with washover)

Moist, light yellow-orange-brown to mid to dark grey-brown, crumbly to unconsolidated, slightly clay slightly silty sand and ?ash with patches (to 10 mm) of light brown clay. Some ?cinder/clinker was present in the sample which had an overall 'burnt' appearance.

The moderate-sized residue of about 350 cm³ consisted of clean quartz sand with ?iron pan, pottery fragments (to 70 mm) and a little charcoal (to 10 mm). The washover comprised about 120 cm³ of charcoal with some sand-sized clasts of undisaggregated silt), and traces of reasonably well preserved charred cereals (one or two of each of oats, barley and wheat, as well as a little ?spelt chaff). There were also traces of charred plant remains which might have originated in turves.

Other deposits

Context 2025 [fill of ditch 2026; probably part of the late Roman enclosure ditch]

Sample 2/BS (8 kg sieved to 300 microns with washover; paraffin flotation on the fraction of the residue <4mm)

Moist, dark grey-brown, crumbly (working sticky then unconsolidated), slightly sandy silty clay with fine and coarse woody and herbaceous detritus. Patches of light brown sand were present within the matrix. Wood fragments were common and twigs with bark were present.

The small washover of about 100 cm³ was of fine herbaceous detritus with large numbers (though low concentrations, given the large subsample size) of well preserved seeds, the herbaceous detritus including many small fragments of monocotyledonous epidermis, the rest mostly brown fine roots with large cells.

The small residue of about 750 cm³ included some narrow rods (to 150 x 15 mm) tentatively identified as *Prunus* (perhaps blackthorn, *P. spinosa*) with woody and herbaceous detritus quite rich in well preserved seeds. Human occupation is indicated by the presence of a few charred cereal grains (some of them extremely well preserved wheat caryopses) and a variety of weeds, and probably also by the presence of small heathland and grassland components (perhaps from turves) mixed into an assemblage predominantly indicative of an intermittently wet ditch or the drying margins of a pond. Indeed, the mixture of taxa was in some ways more reminiscent of an assemblage from an urban occupation deposit than a rural one.

This large subsample yielded a modest sized group of invertebrate remains, including around 50 adult beetles. These represented approximately 35 taxa, so the assemblage was diverse (i.e. mixed and derived from a range of habitats, probably from a fairly wide area). There were several individuals of a *Helophorus* species, and single individuals of five other water beetles were present, together with numerous *Daphnia* ephippia (water flea resting eggs). These suggest that the deposit was formed in water, probably not permanent.

Plant feeders were moderately common, the nine taxa probably all being derived from short

herbaceous vegetation, including two indicating nettles (*Urtica* sp.). Three species of dung beetles (two *Aphodius* and a *Geotrupes*, probably totalling several individuals) suggest the possibility that there was grazing land.

There were no species strongly associated with human occupation, although there was a group of beetles associated with decaying matter which would not be likely to be found together in natural litter.

Overall, the invertebrate remains were rather reminiscent of those from Sample 49 (Context 6289).

Context 6075 [fill of large ditch 6074]

Sample 3/T2 (5kg sieved to 300 microns with paraffin flotation)

There was a moderate-sized residue of about 650 cm³ of clean quartz sand and a little gravel, including rounded brick/tile fragments and also ?iron pan. The washover was quite large (about 90 cm³), largely consisting of charred ?heather basal twig/root fragments and a little charcoal, with some charred cereal grains, mainly barley, of which some were hulled. The ?heather remains, along with charred root/rhizome fragments and *Cenococcum* sclerotia point to the likelihood that material from burnt turves had become incorporated into this fill.

Context 6134 [fill of possible post hole/cremation pit 6135]

Sample 52/BS (1 kg sieved to 300 microns with washover)

Just moist, light to mid grey-brown (with lighter mm-scale mottling), crumbly to unconsolidated, sandy (and ?ashy) silt with fragments of burnt mammal bone present.

The small residue of about 75 cm³ consisted of burnt bone (to 15 mm), charcoal (to 20 mm), sand, and gravel; the washover of about 50 cm³ contained further sand with some charred organic debris amongst which there was more burnt bone,

charcoal and perhaps debris from the burning of turves (charred herbaceous detritus and charred moss stems—though the remains were extremely sparse).

This sample yielded over 100 small, very brittle and fragmented bones, all of which were burnt. Although only a single fragment was identifiable to species (a single sheep astragalus), most of the material represented medium-sized mammals (assumed to be caprovid, pig or small cervid).

Context 6161 [fill of ditch 6160]

Sample 20/BS (5 kg sieved to 300 microns with washover)

Just moist, light to mid grey-brown, unconsolidated, slightly silty sand.

The moderate-sized residue of about 400 cm³ consisted of clean quartz sand and a little ?iron pan. The washover of about 120 cm³ was at least half by volume sand and ?iron pan, the rest charcoal (to 10 mm) with some reasonably well preserved ?spelt glume-bases and a few charred remains which might have originated in burnt turves or peat.

Context 6182 [fill in ditch recut 6185]

Sample 26/BS (5 kg sieved to 300 microns with washover)

Just moist, mid grey-brown, crumbly to unconsolidated, slightly silty sand.

The moderate-sized residue of about 500 cm³ comprised clean quartz sand and a little ?iron pan. The ~40 cm³ washover was of sand and extremely strongly silt-coated charcoal with modern remains (rootlets, earthworm egg capsules and perhaps most of the few weed seeds). There were traces of insect remains, but insufficient for further analysis.

Context 6184 [fill in ditch 6206 (below 6183)]

Sample 28/BS (5 kg sieved to 300 microns with washover)

Moist, mid grey-brown, crumbly to unconsolidated, slightly clay silty sand. Fragments of mammal bone were present in the sample.

The moderate-sized residue of about 500 cm³ was of clean quartz sand with a single large (65 mm) cobble fragment and a trace of bone. The washover of about 40 cm³ was of sand and charcoal (to 10 mm) with a few charred wheat grains, charred weed seeds (*Bromus*) and some very decayed bone; the few uncharred grass fruits present included modern and ?fossil material. Hints of the presence of material from burnt turves were also recorded. Insect remains were restricted to a few well-decayed weevil fragments (reddened, with eroded edges).

Preservation of the 27 unidentified bone fragments recovered from this sample was very poor. The surface of the bones had been completely destroyed by chemical erosion and their fragility had resulted in much fresh breakage.

Context 6183 [fill in ditch 6206 (above 6184)]

Sample 27/BS (5 kg sieved to 300 microns with washover)

Moist, mid grey-brown, crumbly to unconsolidated, slightly silty sand.

The moderate-sized residue of about 500 cm³ was of clean quartz sand with a little ?iron pan and traces of very decayed bone. The small washover of about 40 cm³ contained more sand with some charcoal (to 20 mm) and very decayed bone with a very few charred cereal grains (oats and wheat). Again there were traces of charred remains which might have originated in turves.

Context 6311 [basal fill in linear cut 6312]

Sample 54/BS (5 kg sieved to 300 microns with washover)

Moist, mid grey-brown (mottled lighter and darker in patches), crumbly to unconsolidated, slightly clay silty sand with some stones (2 to 6 mm)

present.

The moderate-sized residue of about 325 cm³ consisted of clean quartz sand with a little very decayed bone and ?iron pan. The washover of about 70 cm³ was of bone fragments and sand with some very decayed elder seeds and beetles (a few tough weevils of the kind often found in deposits where most insects have decayed completely) and a trace of charred ?heather root/twig perhaps from turves.

Forty-five fragments of bone, all >30 mm in size, were recovered. As with the hand-collected material from this deposit, preservation was poor and fragments were battered and eroded in appearance.

Context 6310 [charcoal-rich fill in linear cut 6312, above 6311]

Sample 53/BS (5 kg sieved to 300 microns with washover)

Just moist, mid grey-brown, crumbly to unconsolidated, slightly silty sand.

The moderate-sized residue of about 500 cm³ consisted of clean quartz sand with some fragments of flaggy micaceous sandstone and rounded clasts of ?burnt soil and ?iron pan. The small washover of about 40 cm³ was of sand and charcoal (to 20 mm) with traces of charred cereals (oats, barley, ?wheat) and modern (germinating!) weeds.

MEDIEVAL

Context 6100 [layer]

Sample 9/BS (5 kg sieved to 300 microns with washover)

Wet, light to mid brown to mid to dark grey-brown, soft and slightly sticky (working somewhat thixotropic), clay silty sand with patches (to 5 mm) of very dark brown ?humic material and medium-sized stones (20 to 60 mm).

The very small residue of about 100 cm³ comprised very clean quartz sand. There was a washover of

about another 40 cm³, mainly of tiny pellets of undisaggregated silt, with traces of charcoal (to 5 mm) and a little more sand as well as a few seeds, most of which were probably modern.

Many very small and extremely poorly preserved fragments of unidentifiable bone were recovered from this sample.

Hand-collected vertebrate remains

TRENCHES 2 TO 5

Vertebrate remains were recorded from all 12 contexts submitted for assessment. Preservation records were made for material from seven of these contexts.

Overall preservation was described as poor, except for Context 2016 which was recorded as good. Angularity (appearance of broken surfaces) was mostly noted as battered or rounded. Colour was recorded as variable, although it was generally consistent within contexts.

The degree of fragmentation of the bones was moderate, most fragments being between 5 and 20 cm in largest dimension. Dog gnawing and butchery were evident on 10-20 % of fragments from some contexts. Evidence of fresh breakage was observed on fragments in all contexts except 2016. Burnt fragments were noted in Contexts 4009 and 5001. A preponderance of teeth was noted, which can be attributed to taphonomic rather than depositional factors as teeth generally survive better in conditions of poor bone preservation.

A total of 61 fragments (weighing 1435 g) were recovered, of which 17 (weighing 767 g) were identifiable to species (Table 7). The species present were cattle (13 fragments), pig (1) and horse (3). A single bird fragment (not identifiable to species) was noted in Context 4003. Two loose teeth (giving ageing information) and four measurable bones (all cattle) were noted and the measurements are given in Table 9.

TRENCH 6

The hand-collected vertebrate remains were recovered from 14 contexts, ten of which dated to the Roman period. The remaining deposits were of modern origin or undated. Of the 141 fragments recovered, 100 were from the Roman deposits. Preservation was, on the whole, so poor that few fragments could be identified to species. Eroded bone surfaces, the result of the acidic nature of the deposits, were common. Much fresh breakage was noted throughout the assemblage, probably because of the brittle and fragile nature of the bones. Half the assemblages from contexts 6075, 6090, 6092, 6095 and 6125 (of Roman date) contained burnt or heavily calcined fragments, which again were somewhat delicate. The few bones which were identified to species represented the remains of the major domestic species, cattle, caprovid and pig (Table 8).

Discussion

With some notable exceptions, survival of plant remains other than charcoal in these deposits was poor, though many of those examined were found to contain a few (and in one case a rather high concentration of) chaff fragments - mostly of spelt wheat (the type of wheat most often recorded from sites of Roman date in Britain) - and a few charred cereal grains. Many (perhaps thirteen of 20) subsamples gave hints that material derived from burnt turves was present – mainly in the form of ?heather basal twig/root fragments and sometimes also unidentifiable charred root/rhizome fragments. Some samples contained uncharred remains (heather and various short-growing grassland taxa) which may indicate that material from unburnt turves was also deposited at times into these ditches. (Similar evidence has been recovered from deposits of roughly the same date at several other sites along the same pipeline to the south-east of the present site.) These results vindicate a policy of extensive investigation of unpromising deposits for, as at medieval and post-medieval site at Low

Fisher Gate, Doncaster (Hall *et al.*, in prep.), the pattern of thinly-distributed remains has proved most informative.

Those ditch fills which gave remains preserved by anoxic waterlogging yielded assemblages of plant and invertebrate microfossils consistently indicating what was probably a mixed agricultural landscape, with some evidence for cereal cultivation and grazing land within the catchment of the cuts. There was no evidence of extensive scrub or woodland, although the plant remains indicated that there may have been occasional small trees such as elder, and hawthorn or blackthorn; ash, too, was close enough for its wind-dispersed fruits to become incorporated into the fills. All of these plants may have occurred in hedges associated with the ditches, of course, though the range of debris from woody plants was much less than is often observed waterlain deposits under trees, and insects associated with hedgerows were effectively absent. Overall, the impression is of an intensively exploited agricultural landscape, of a kind which is being seen repeatedly in Iron Age and Roman rural deposits in the Vale of York and areas to the east of it (e.g. Jaques *et al.* 2000a; 2000b) – and not dissimilar to the landscape (although not the crops) seen today.

The deposits rich in waterlogged plant and invertebrate remains also yielded small amounts of charred material likely to have originated in burnt turves, suggesting that this material was widespread throughout the ditchfills as a kind of ‘background’ scatter. One explanation for this may be that ash was being used as a fertiliser on the light sandy soils prevalent in the vicinity, although the turves may have been used for structures in which burning took place, such as kilns or ovens, located nearby.

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Table 1. List of examined sediment samples from excavations near West Lilling, North Yorkshire, with notes on their treatment. Samples marked * were examined during the main post-excavation phase, the remainder during the assessment.

Context	Sample	Notes
2025	2	8 kg sieved to 300 microns and the washover sieved to 300 microns; paraffin flotation on the fraction of the residue <4mm
5005	1	7 kg sieved to 300 microns and the washover sieved to 300 microns
6075	3	5 kg sieved to 300 microns with paraffin flotation*
6091	31	4 kg sieved to 300 microns with washover
6100	9	5 kg sieved to 300 microns with washover
6134	52	1 kg sieved to 300 microns with washover
6150	43	5 kg sieved to 300 microns with washover: a further 5 kg examined subsequently: sieved to 300 microns with paraffin flotation*
6161	20	5 kg sieved to 300 microns with washover
6182	26	5 kg sieved to 300 microns with washover
6183	27	5 kg sieved to 300 microns with washover
6184	28	5 kg sieved to 300 microns with washover
6205	41	5 kg sieved to 300 microns with washover
6237	39	5 kg sieved to 300 microns with washover; a further 2.6 kg examined subsequently: sieved to 300 microns with paraffin flotation*
6289	49	5 kg sieved to 300 microns with paraffin flotation: a further 5 kg examined subsequently: sieved to 300 microns with paraffin flotation*
6310	53	5 kg sieved to 300 microns with washover
6311	54	5 kg sieved to 300 microns with washover

Table 2. Complete list of plant and invertebrate taxa recorded from deposits at a site near West Lilling.

For abbreviations in plant names, see Table 3. Taxonomic order and nomenclature follow Tutin et al. (1964-80) for vascular plants, Smith (1978) for mosses, and Kloet and Hincks (1964-77) for insects. Tentative records for insects are not included if secure ones were also made. Plant material not specifically noted as being preserved by charring or mineral replacement can be taken to be uncharred and unmineralised (i.e. 'waterlogged', but sometimes denoted simply as 'uncharred'). For invertebrates, * = not used in calculating assemblage statistics (Table 5); ecode—ecological code used in generating main statistics; Sp(p).—species not previously listed; Sp(p). indet.—may be a species already listed.

Taxon	Vernacular name	Remains recorded
<i>Equisetum</i> sp(p).	horsetail	rhizome fragments, roots, stem epidermis fragments, stem nodes
<i>Pteridium aquilinum</i> (L.) Kuhn	bracken	pinnule fragments
<i>Salix</i> sp(p).	willow	buds
<i>Alnus glutinosa</i> (L.) Gaertner	alder	twig fragments
<i>Corylus avellana</i> L.	hazel	charcoal fragments, charred nuts and/or nutshell fragments, roundwood fragments
<i>Quercus</i> sp(p).	oak	buds and/or bud-scales, charcoal fragments, charred twig fragments, charred wood chips
<i>Urtica dioica</i> L.	stinging nettle	achenes
<i>U. urens</i> L.	annual nettle	achenes
<i>Polygonum aviculare</i> agg.	knotgrass	charred and uncharred fruits
<i>P. persicaria</i> L.	persicaria/red shank	fruits
<i>P. lapathifolium</i> L.	pale persicaria	charred and uncharred fruits
<i>Bilderdykia convolvulus</i> (L.) Dumort.	black bindweed	charred and uncharred fruits
<i>Rumex acetosella</i> agg.	sheep's sorrel	fruits
<i>Rumex</i> sp(p).	docks	charred and uncharred fruits, perianths/perianth segments
Chenopodiaceae	goosefoot family	charred seeds
<i>Chenopodium</i> Section <i>Pseudoblitum</i>	red goosefoot etc.	seeds
<i>C. ficifolium</i> Sm.	fig-leaved goosefoot	seeds
<i>C. album</i> L.	fat hen	charred and uncharred seeds
<i>Atriplex</i> sp(p).	oraches	charred and uncharred seeds
<i>Montia fontana</i> ssp.		
<i>chondrosperma</i> (Fenzl) Walters	blinks	seeds
<i>Stellaria media</i> (L.) Vill.	chickweed	seeds
<i>S. cf. neglecta</i> Weihe in Bluff & Fingerh.	?greater chickweed	seeds
<i>S. cf. pallida</i> (Dumort.) Pire	?lesser chickweed	seeds
<i>Stellaria</i> sp(p).	stitchworts/chickweeds	charred and uncharred seeds
<i>Cerastium</i> sp(p).	mouse-ear chickweeds	seeds
<i>Spergula arvensis</i> L.	corn spurrey	seeds
<i>Lychnis flos-cuculi</i> L.	ragged robin	seeds
<i>Agrostemma githago</i> L.	corncockle	charred seeds
<i>Ranunculus</i> Section <i>Ranunculus</i>	meadow/creeping/ bulbous buttercup	charred and uncharred achenes
<i>R. flammula</i> L.	lesser spearwort	achenes
<i>Papaver argemone</i> L.	long prickly-headed	

<i>Fumaria</i> sp(p).	poppy	seeds
<i>Rorippa palustris</i> (L.) Besser	fumitories	seeds
<i>Brassica rapa</i> L.	marsh yellow-cress	seeds
<i>Raphanus raphanistrum</i> L.	'turnip'	seeds
<i>Rubus fruticosus</i> agg.	wild radish	charred pod segments and/or fragments
<i>Potentilla anserina</i> L.	blackberry/bramble	seeds
<i>P. cf. erecta</i> (L.) Räschel	silverweed	achenes
<i>P. cf. reptans</i> L.	?tormentil	achenes
<i>Potentilla</i> sp(p).	?creeping cinquefoil	achenes
<i>Aphanes microcarpa</i> (Boiss. & Reuter) Rothm.	slender parsley-piert	achenes
Pomoideae (<i>Crataegus/Malus/Pyrus/Sorbus</i>)	hawthorn/apple/pear/rowan	charcoal fragments
<i>Malus sylvestris</i> Miller	crab apple	endocarp
<i>Crataegus</i> sp./ <i>Prunus spinosa</i> L.	hawthorn/sloe	thorns
<i>Crataegus</i> sp(p).	hawthorns	immature fruits
<i>Prunus spinosa</i> L.	sloe	thorns
<i>Prunus</i> sp(p).	sloe/plum/cherry, etc.	charcoal fragments, twig fragments
Leguminosae	pea family	calyx/calyces, flowers and/or petals, charred cotyledons
<i>Vicia</i> sp(p).	vetches, etc.	charred seeds
cf. <i>V. faba</i> L.	?field bean	charred seeds
<i>Trifolium pratense</i> L.	red clover	Pods and/or pod lids
<i>Linum catharticum</i> L.	purging flax	seeds
<i>Viola</i> sp(p).	violets/pansies, etc.	capsule segments, seeds
Umbelliferae	carrot family	mericarps
<i>Chaerophyllum temulentum</i> L.	rough chervil	mericarps
<i>Anthriscus caucalis</i> Bieb.	bur chervil	mericarps
<i>Conium maculatum</i> L.	hemlock	mericarps and fragments
<i>Apium graveolens</i> L.	wild celery	mericarps
<i>Calluna vulgaris</i> (L.) Hull	heather, ling	uncharred capsules, flowers, basal twig and/or root fragments, shoot fragments, shoot tips; charred , basal twig and/or root fragments, shoot fragments
<i>Fraxinus excelsior</i> L.	ash	buds and/or bud-scales, fruits and fruit fragments, seed epidermis fragments; charcoal
<i>Menyanthes trifoliata</i> L.	bogbean	seeds
<i>Galium aparine</i> L.	goosegrass, cleavers	charred fruits
<i>Myosotis</i> sp(p).	forget-me-nots	nutlets
Labiatae	mint family	nutlets
<i>Galeopsis</i> Subgenus <i>Galeopsis</i>	hemp-nettles	nutlets
<i>Galeopsis</i> sp(p).	hemp-nettles	nutlets
<i>Lamium</i> Section <i>Lamiopsis</i>	annual dead-nettles	nutlets
<i>Stachys</i> sp(p).	woundworts	nutlets
<i>Prunella vulgaris</i> L.	selfheal	nutlets
<i>Mentha</i> sp(p).	mints	nutlets
<i>Hyoscyamus niger</i> L.	henbane	seeds
<i>Solanum nigrum</i> L.	black nightshade	seeds
<i>Rhinanthus</i> sp(p).	yellow rattles	seeds
cf. <i>Plantago media</i> L.	?hoary plantain	charred seeds
<i>Sambucus</i> cf. <i>ebulus</i> L.	?danewort	seeds

<i>Sambucus nigra</i> L.	elder	uncharred and charred seeds; uncharred twig fragments
<i>Anthemis cotula</i> L.	stinking mayweed	charred and uncharred achenes
<i>Matricaria maritima</i> L./ <i>M. perforata</i> Mérat	sea/scentless mayweed	charred achenes
<i>Leucanthemum vulgare</i> Lam.	ox-eye daisy	achenes
<i>Arctium</i> sp(p).	burdocks	achenes
<i>Carduus/Cirsium</i> sp(p).	thistles	achenes
<i>Hypochoeris</i> sp(p).	cat's ears	achenes
<i>Leontodon</i> sp(p).	hawkbits	achenes
<i>Lapsana communis</i> L.	nipplewort	achenes
<i>Alisma</i> sp(p).	water-plantains	carpels and/or seeds
<i>Juncus bufonius</i> L.	toad rush	seeds
Gramineae	grasses	charred and uncharred caryopsis/es
Cerealia indet.	cereals	charred awns/awn fragments, caryopsis/es, chaff fragments
<i>Bromus</i> sp(p).	bromes, etc.	charred caryopsis/es
<i>Triticum spelta</i> L.	spelt wheat	charred glume-bases and spikelet forks
<i>T. cf. spelta</i>	?spelt wheat	charred caryopsis/es, glume-bases and lemmas and/or glumes
<i>Triticum aestivo-compactum</i>	bread/club wheat	charred caryopsis/es
<i>Triticum</i> sp(p).	wheats	charred caryopsis/es, rachis fragments, spikelet forks
	free-threshing wheat	charred rachis fragments
<i>Triticum/Hordeum</i> sp(p).	wheat and/or barley	charred caryopsis/es
cf. <i>Secale cereale</i> L.	?rye	charred caryopsis/es
<i>Hordeum</i> sp(p).	barley	charred caryopsis/es, rachis internodes
<i>Avena</i> sp(p).	oats	charred caryopsis/es
<i>Danthonia decumbens</i> (L.) DC. in Lam. & DC.	heath grass	caryopsis/es
<i>Lemna</i> sp(p).	duckweeds	seeds
<i>Scirpus setaceus</i> L.	bristle club-rush	nutlets
<i>Eleocharis palustris sensu lato</i>	common spike-rush	nutlets
<i>Carex</i> sp(p).	sedges	charred and uncharred nutlets

Mosses (all remains were leaves and/or shoot fragments)

<i>Sphagnum</i> sp(p).
<i>Thuidium cf. tamariscinum</i> (Hedw.) Br. Eur.
<i>Drepanocladus</i> sp(p).
<i>Calliergon cuspidatum</i> (Hedw.) Kindb.
<i>Eurhynchium</i> sp(p).
<i>Hypnum cf. cupressiforme</i> Hedw.
<i>Hylocomium</i> sp(p).

	ecode		ecode
ANNELIDA		INSECTA	
* <i>Oligochaeta</i> sp. (egg capsule)	u	DERMAPTERA	
		* <i>Dermaptera</i> sp.	u
CRUSTACEA			
CLADOCERA		TRICHOPTERA	
* <i>Daphnia</i> sp. (ephippium)	oa-w	* <i>Trichoptera</i> sp.	oa-w
* <i>Cladocera</i> sp. F (ephippium)	oa-w	* <i>Trichoptera</i> sp. indet. (larva)	oa-w

HEMIPTERA		<i>Cercyon atricapillus</i> (Marsham)	rf-st
<i>Heterogaster urticae</i> (Fabricius)	oa-p	<i>Cercyon haemorrhoidalis</i> (Fabricius)	rf-sf
<i>Drymus</i> sp.	oa-p	<i>Cercyon pygmaeus</i> (Illiger)	rf-st
Lygaeidae sp.	oa-p	<i>Cercyon ?melanocephalus</i> (Linnaeus)	rt-sf
<i>Temnostethus</i> sp.	oa	<i>Cercyon tristis</i> (Illiger)	oa-d
<i>Anthocoris</i> sp.	oa-p	<i>Megasternum obscurum</i> (Marsham)	rt
<i>Lygus</i> sp.	oa-p	<i>Cryptopleurum minutum</i> (Fabricius)	rf-st
Miridae sp.	oa-p	<i>Hydrobius fuscipes</i> (Linnaeus)	oa-w
Saldidae sp.	oa-d	Hydrophilidae sp.	u
<i>Corixa</i> sp.	oa-w	<i>Acritus nigricornis</i> (Hoffmann)	rt-st
Corixidae spp.	oa-w	<i>Ochthebius minimus</i> (Fabricius)	oa-w
<i>Philaenus spumarius</i> (Linnaeus)	oa-p	<i>Ochthebius pusillus</i> Stephens	oa-w
<i>Evacanthus interruptus</i> (Linnaeus)	oa-p	<i>Ochthebius</i> sp.	oa-w
<i>Aphrodes bicinctus</i> (Schrank)	oa-p	<i>Hydraena testacea</i> Curtis	oa-w
<i>Aphrodes flavostriatus</i> (Donovan)	oa-p-d	<i>Hydraena</i> sp.	oa-w
<i>Aphrodes</i> sp.	oa-p	<i>Limnebius ?aluta</i> (Bedel)	oa-w
Cicadomorpha sp.	oa-p	<i>Limnebius truncatellus</i> (Thunberg)	oa-w
? <i>Delphacodes</i> (s. lat.) spp.	oa-p	<i>Ptenidium</i> sp.	rt
* <i>Psylloidea</i> sp. (nymph)	oa-p	<i>Micropeplus fulvus</i> Erichson	rt
* <i>Aphidoidea</i> sp.	u	<i>Micropeplus porcatus</i> (Paykull)	rt
		<i>Anthobium atrocephalum</i> (Gyllenhal)	oa
DIPTERA		<i>Lesteva longoelytrata</i> (Goeze)	oa-d
* <i>Bibio</i> sp.	oa	<i>Omalium ?rivulare</i> (Paykull)	rt-sf
*Bibionidae sp.	u	<i>Omalium rivulare</i> (Paykull)	rt-sf
*Chironomidae sp. (larva)	w	<i>Omalium</i> sp. indet.	rt
*Diptera sp. (adult)	u	<i>Syntomium aeneum</i> (Muller)	oa
*Diptera sp. (pupa)	u	<i>Carpelimus bilineatus</i> Stephens	rt-sf
*Diptera sp. (puparium)	u	<i>Carpelimus elongatulus</i> (Erichson)	oa-d
		<i>Carpelimus rivularis</i> (Motschulsky)	ob-d
COLEOPTERA		<i>Aploderus caelatus</i> (Gravenhorst)	rt
<i>Clivina fossor</i> (Linnaeus)	oa	<i>Platystethus alutaceus</i> Thomson	oa-d
<i>Patrobis ?atorrufus</i> (Strom)	oa	<i>Platystethus arenarius</i> (Fourcroy)	rf
<i>Trechus quadristriatus</i> (Schrank)	oa	<i>Platystethus degener</i> Mulsant & Rey	oa-d
<i>Trechus</i> sp.	ob	<i>Platystethus cornutus</i> group indet.	oa-d
<i>Bembidion (Philochthus)</i> sp.	oa	<i>Platystethus nitens</i> (Sahlberg)	oa-d
<i>Bembidion</i> sp.	oa	<i>Platystethus nodifrons</i> (Mannerheim)	oa-d
<i>Pterostichus melanarius</i> (Illiger)	ob	<i>Anotylus complanatus</i> (Erichson)	rt-sf
<i>Pterostichus (Poecilus)</i> sp.	oa	<i>Anotylus nitidulus</i> (Gravenhorst)	rt
<i>Calathus</i> sp.	oa	<i>Anotylus rugosus</i> (Fabricius)	rt
<i>Amara</i> sp.	oa	<i>Anotylus tetracarinated</i> (Block)	rt
<i>Harpalus</i> sp.	oa	<i>Stenus</i> spp.	u
<i>Bradycellus</i> sp.	oa	<i>Lathrobium</i> sp.	u
<i>Haliphus</i> sp.	oa-w	<i>Lithocharis ochracea</i> (Gravenhorst)	rt-st
Hydroporinae spp.	oa-w	<i>Astenus</i> sp.	rt
<i>Agabus bipustulatus</i> (Linnaeus)	oa-w	<i>Leptacinus ?intermedius</i> Donisthorpe	rt-st
<i>Rhantus</i> sp.	oa-w	<i>Gyrophypnus angustatus</i> Stephens	rt-st
<i>Colymbetes fuscus</i> (Linnaeus)	oa-w	<i>Gyrophypnus fracticornis</i> (Muller)	rt-st
<i>Acilius ?sulcatus</i> (Linnaeus)	oa-w	<i>Xantholinus</i> sp.	u
<i>Helophorus aquaticus</i> (Linnaeus)	oa-w	<i>Philonthus</i> spp.	u
<i>Helophorus ?brevipalpis</i> Bedel	oa-w	<i>Gabrieus</i> sp.	rt
<i>Helophorus</i> spp.	oa-w	Staphylininae sp.	u
<i>Sphaeridium</i> sp.	rf	<i>Tachyporus nitidulus</i> (Fabricius)	u
<i>Cercyon analis</i> (Paykull)	rt-sf	<i>Tachyporus</i> sp.	u

<i>Tachinus corticinus</i> Gravenhorst	u	<i>Hydrothassa</i> sp.	oa-d-p
<i>Tachinus laticollis</i> Gravenhorst	u	<i>Phyllotreta</i> sp.	oa-p
<i>Tachinus marginellus</i> (Fabricius)	u	<i>Longitarsus</i> sp.	oa-p
<i>Tachinus signatus</i> Gravenhorst	u	<i>Crepidodera</i> sp.	oa-p
<i>Cypha</i> sp.	rt	Halticinae sp.	oa-p
<i>Cordalia obscura</i> (Gravenhorst)	rt-sf	<i>Apion</i> (<i>Taenapion</i>) <i>urticarium</i> (Herbst)	oa-p
<i>Falagria</i> sp.	rt-sf	<i>Apion</i> (<i>Eutrichapion</i>) <i>ervi</i> Kirby	oa-p
<i>Aleochara</i> sp.	u	<i>Apion</i> spp.	oa-p
Aleocharinae spp.	u	<i>Strophosomus</i> sp.	oa-p
Pselaphidae sp.	u	<i>Sitona lepidus</i> Gyllenhal	oa-p
<i>Geotrupes</i> sp.	oa-rf	<i>Sitona</i> sp.	oa-p
<i>Aphodius ater</i> (Degeer)	oa-rf	Cossoninae sp.	u
<i>Aphodius ?contaminatus</i> (Herbst)	oa-rf	<i>Notaris acridulus</i> (Linnaeus)	oa-d-p
<i>Aphodius fimetarius</i> (Linnaeus)	oa-rf	<i>Cidnorhinus quadrimaculatus</i> (Linnaeus)	oa-p
<i>Aphodius ?prodromus</i> (Brahm)	ob-rf	<i>Ceutorhynchus</i> spp.	oa-p
<i>Aphodius rufipes</i> (Linnaeus)	oa-rf	<i>Rhinoncus</i> sp.	oa-p
<i>Aphodius sphacelatus</i> (Panzer)	oa-rf	Ceuthorhynchinae sp.	oa-p
<i>Aphodius</i> spp.	ob-rf	<i>Curculio</i> sp.	oa-p
<i>Oxyomus sylvestris</i> (Scopoli)	rt-sf	<i>Gymnetron ?labile</i> (Herbst)	oa-p
<i>Serica brunnea</i> (Linnaeus)	oa-p	<i>Leperisinus ?varius</i> (Fabricius)	l
<i>Phyllopertha horticola</i> (Linnaeus)	oa-p	*Coleoptera sp. indet. (larva)	u
<i>Simplocaria semistriata</i> (Fabricius)	oa-p		
<i>Dryops ?ernesti</i> des Gozis	oa-d	HYMENOPTERA	
<i>Esolus parallelepipedus</i> (Muller)	oa-w	*Aculeata sp.	u
<i>Agrypnus murinus</i> (Linnaeus)	oa-p	*Proctotrupeoidea sp.	u
<i>Athous ?haemorrhoidalis</i> (Fabricius)	oa-p	*Hymenoptera Parasitica sp.	u
<i>Agriotes obscurus</i> (Linnaeus)	oa-p	* <i>Myrmica</i> sp.	u
*Elateridae sp. indet. (larva)	ob		
<i>Cantharis rufa</i> Linnaeus	ob		
? <i>Anobium punctatum</i> (Degeer)	l-sf	ARACHNIDA	
<i>Malachius</i> sp.	u	*Aranae sp.	u
<i>Brachypterus ?glaber</i> (Stephens)	oa-p	*Acarina spp.	u
<i>Meligethes</i> sp.	oa-p		
<i>Monotoma longicollis</i> (Gyllenhal)	rt-st	VERTEBRATA	
<i>Atomaria</i> spp.	rd		
<i>Ephistemus globulus</i> (Paykull)	rd-sf	<i>Equus</i> f. domestic	
Coccinellidae sp.	oa-p	<i>Sus</i> f. domestic	
<i>Lathridius minutus</i> group	rd-st	<i>Bos</i> f. domestic	
<i>Enicmus</i> sp.	rt-sf	Caprovid	
<i>Corticaria elongata</i> (Gyllenhal)	rt-sf		
<i>Corticaria</i> sp.	rt-sf	Large mammal	
<i>Corticarina</i> or <i>Corticicara</i> sp. indet.	rt	Medium-sized mammal	
<i>Typhaea stercorea</i> (Linnaeus)	rd-ss	Unidentified bird	
<i>Anthicus formicarius</i> (Goeze)	rt-st	Unidentified	
<i>Gastrophysa viridula</i> (Degeer)	oa-p		

Table 3: Complete lists of plant remains and other components of samples recorded during examination of plant material from a site near West Lilling. Samples are presented in context and sample order and within each list components are listed by decreasing abundance, using a semi-quantitative four-point scale.

Abbreviations: b/bs—buds/bud-scales; cal—calyces; caps—capsules; ch—charred; cot—cotyledon; dec—decayed; 'embs'—'embryos'; endo—endocarp; epid—epidermis; fgts—fragments; fr—fruits; f/t—free-threshing; glb—glume, glume-base; imm—immature; inc—including; max—maximum dimension; mf—mericarp fragments; per—perianth; pet—petals; pinnule; rh—rhizome; rt-tw—basal twig/root; segs—segments; sf—seed fragments; sht—shoot; spec—specimen; st—stem; tw—twig; v—very; for twig fragments, measurements are length x diameter in mm.

Context 2025, Sample 2/BS		Rorippa palustris	1
		Rubus fruticosus agg.	1
Conium maculatum	2	Rumex sp(p). (inc per)	1
Scirpus setaceus	2	Sambucus cf. ebulus	1
Urtica dioica	2	Sambucus nigra	1
Anthemis cotula	1	Sphagnum sp(p). (lvs)	1
Anthriscus caucalis	1	Stellaria cf. pallida	1
Atriplex sp(p).	1	Stellaria media	1
Brassica rapa	1	Triticum sp(p).	1
Calliergon cuspidatum	1	Triticum/Hordeum sp(p).	1
Calluna vulgaris (caps)	1	Umbelliferae	1
Calluna vulgaris (fls)	1	Urtica urens	1
Calluna vulgaris (sht fgts)	1	Viola sp(p).	1
cf. Calluna vulgaris (ch rt-tw fgts)	1	beetles	1
Carex sp(p).	1	charcoal	1 max 15 mm
Cerastium sp(p).	1	earthworm egg caps	1
Chenopodium Sect. Pseudoblitum	1	fly puparia	1
Chenopodium album	1	grit	1
Danthonia decumbens	1	moss	1
Daphnia (ephippia)	1	root/rhizome fgts	1
Eurhynchium sp(p).	1	root/rhizome fgts (ch)	1
Galeopsis sp(p).	1	root/rootlet fgts	1
Gramineae	1	sand	1
Heterodera (cysts)	1	twig fgts	1 max 150 x 15 mm
Hylocomium sp(p).	1	wood fgts	1 max 30 mm
Hyoscyamus niger	1		
Hypnum cf. cupressiforme	1		
Lapsana communis	1		
Lemna sp(p).	1		
Leontodon sp(p).	1		
Linum catharticum	1		
Malus sylvestris (endo)	1		
Montia fontana ssp. chondrosperma	1		
Polygonum aviculare agg.	1		
Potentilla cf. erecta	1		
Potentilla cf. reptans	1		
Prunella vulgaris	1		
Quercus sp(p). (b/bs)	1		
Ranunculus Section Ranunculus	1		
Ranunculus flammula	1		
		Context 5005, Sample 1/BS	
		cf. Calluna vulgaris (ch rt-tw fgts)	2 max 20 mm
		charcoal	2 max 40 mm
		Avena sp(p).	1
		Cenococcum (sclerotia)	1
		Gramineae (ch)	1
		Triticum aestivo-compactum	1
		brick/tile	1 max 15 mm
		coal	1 max 2 mm
		root/rhizome fgts (ch)	1
		sand	1

stone 1 max 35 mm

Context 6075, Sample 3/T2

sand 3
 Hordeum sp(p). (inc hulled) 2
 cf. Calluna vulgaris (ch rt-tw fgts) 2 max 10 mm
 cf. Calluna vulgaris (ch sht fgts) 1
 Carex sp(p). (ch) 1
 Cenococcum (ch sclerotia) 1
 Cenococcum (sclerotia) 1
 Chenopodium album 1 ?modern
 Corylus avellana (ch) 1 max 5 mm
 Quercus sp(p). (charcoal) 1 max 10 mm
 Sambucus nigra (ch) 1
 Triticum sp(p). (hexaploid) 1
 cf. Vicia faba 1
 bark fgts (ch) 1 max 10 mm
 brick/tile 1 max 15 mm
 burnt bone fgts 1 max 10 mm
 charcoal 1
 coal 1 max 5 mm
 gravel 1 max 40 mm
 herbaceous detritus (ch) 1
 ?iron pan fgts 1 max 30 mm
 ?pottery 1 max 15 mm
 root/rhizome fgts (ch) 1 max 5 mm

Context 6091, Sample 31/BS

Cerealia indet. 1 single spec
 Chenopodium album 1 ?modern
 Hordeum sp(p). (inc hulled) 1
 Polygonum lapathifolium (ch) 1
 Triticum cf. spelta (glb) 1
 Triticum sp(p). 1
 ?burnt soil 1 max 5 mm
 charcoal 1 max 5 mm
 grit 1
 herbaceous detritus (ch) 1
 ?iron pan fgts 1 max 5 mm
 root/rootlet fgts (modern) 1
 sand 1

Context 6100, Sample 9/BS

Carex sp(p). 1
 Chenopodium album 1 ?modern
 Spargula arvensis 1 ?modern
 Vicia sp(p). 1 modern
 charcoal 1 max 5 mm

earthworm egg caps (contaminant) 1
 sand 1
 unwashed sediment 1 max 3 mm

Context 6134, Sample 52/BS

Bilderdykia convolvulus (ch) 1 single spec
 Chenopodium album 1 ?modern
 Quercus sp(p). (ch tw fgts) 1
 bone fgts 1 max 5 mm
 burnt bone fgts 1 max 15 mm
 ?burnt peat fgts 1 max 5 mm
 charcoal 1 max 20 mm
 coal 1 max 5 mm
 gravel 1 max 10 mm
 herbaceous detritus (ch) 1
 moss (ch) 1
 root/rootlet fgts (modern) 1
 sand 1

Context 6150, Sample 43/BS

Sambucus nigra 3
 Urtica dioica 3
 sand 3
 Chenopodium Sect. Pseudoblitum 2
 Conium maculatum 2
 Juncus bufonius 2
 Stachys sp(p). 2
 herbaceous detritus 2
 Agrostemma githago (ch) 1
 Anthriscus caucalis 1
 Aphanes microcarpa 1
 Apium graveolens 1
 Bilderdykia convolvulus 1
 Bromus sp(p). 1
 Carex sp(p). 1
 Carex sp(p). (ch) 1
 Chenopodium album 1
 Crataegus sp./
 Prunus spinosa (thorns) 1
 Daphnia (ephippia) 1
 Fraxinus excelsior 1 v dec
 Galeopsis Subgenus Galeopsis 1
 Heterodera (cysts) 1
 Hyoscyamus niger 1
 Lamium Section Lamiopsis 1
 Lapsana communis 1
 Leontodon sp(p). 1

Mentha sp(p).	1	Corylus avellana (ch)	1
Montia fontana ssp. chondrosperma	1	Crataegus sp./Prunus spinosa (thorns)	1
cf. Plantago media (ch)	1 single spec		
Polygonum persicaria	1	Equisetum sp(p). (sef)	1
Potentilla sp(p).	1	Gramineae	1
Prunella vulgaris	1	Hyoscyamus niger	1
Rorippa palustris	1	Labiatae	1
Rumex acetosella agg.	1	Mentha sp(p).	1
Rumex sp(p).	1	Polygonum aviculare agg.	1
Solanum nigrum	1	Prunella vulgaris	1
Spergula arvensis	1	Prunus sp(p). (charcoal)	1 max 10 mm
Stellaria media	1	Quercus (ch wood chips)	1 max 15 mm
Stellaria sp(p).	1	Ranunculus Section Ranunculus	1
Triticum cf. spelta (glb)	1	Ranunculus Sect. Ranunculus (ch)	1
Urtica urens	1	Rorippa palustris	1
Viola sp(p).	1	Rubus fruticosus agg.	1
beetles	1	Rumex acetosella agg.	1
buds	1	Rumex sp(p).	1
charcoal	1 max 10 mm	Sambucus nigra (tw fgts)	1 max 30 x 10 mm
coal	1 max 5 mm		
fly puparia	1	Solanum nigrum	1
humic silt	1 max 5 mm	Stachys sp(p).	1
?iron pan fgts	1 max 5 mm	Stellaria media	1
leaf ab pads	1	Triticum sp(p). (rachis fgts)	1
mites	1	Triticum spelta (glb)	1
root/rhizome fgts (ch)	1	Triticum spelta (spklt forks)	1
twig fgts	1 v dec, max 30 mm	Urtica urens	1
		Viola sp(p).	1
		Viola sp(p). (caps segs)	1
		bark fgts	1 max 10 mm
		beetles	1
		caddis larva cases	1
		charcoal	1 max 15 mm
		earthworm egg caps	1
		fly puparia	1
		herbaceous detritus	1
		?peat fgts (ch)	1 max 5 mm
		?pteridophyte root fgts	1
		root/rootlet fgts	1
		twig fgts	1 max 30 x 10 mm
		wood fgts	1 v dec, max 10 mm
Context 6150, Sample 43/T2			
Sambucus nigra	3 inc fgts		
Urtica dioica	3		
sand	3		
Conium maculatum	2 inc fgts		
Juncus bufonius	2		
iron-rich concretions	2 max 35 mm		
woody root fgts	2		
Alnus glutinosa (tw fgts)	1 max 20 x 5 mm		
Apium graveolens	1		
Arctium sp(p).	1		
Atriplex sp(p).	1		
Bilderdykia convolvulus	1		
Bromus sp(p).	1		
cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm		
Carex sp(p).	1		
cf. Chaerophyllum temulentum	1 v dec		
Chenopodium Sect. Pseudoblitum	1		
Chenopodium album	1		
		Context 6161, Sample 20/BS	
		sand	3
		Bilderdykia convolvulus	1 modern
		Bromus sp(p).	1
		cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm
		Chenopodiaceae (ch)	1
		Chenopodium album	1 ?modern

Gramineae	1 modern	charcoal	1 max 10 mm
Hordeum sp(p).	1	herbaceous detritus (ch)	1
Linum usitatissimum (caps fgts)	1 modern	?iron pan fgts	1 max 5 mm
Spergula arvensis	1	root/rhizome fgts (ch)	1
Triticum cf. spelta (glb)	1		
Triticum sp(p).	1		
Viola sp(p).	1 modern		
Context 6182, Sample 26/BS		Triticum sp(p).	1
sand	3	beetles	1
Atriplex sp(p).	1 ?modern	bone fgts	1 v dec, max 15 mm
Chenopodium album	1 ?modern	charcoal	1 max 10 mm
Spergula arvensis	1 ?modern	cobbles	1 max 65 mm
beetles	1 ?modern	root/rhizome fgts (ch)	1
charcoal	1 max 5 mm		
coal	1 max 5 mm		
concreted sediment	1 max 2 mm	Context 6205, Sample 41/BS	
earthworm egg caps	1	sand	3
gravel	1 max 30 mm	Avena sp(p).	1
?iron pan fgts	1 max 5 mm	Bromus sp(p).	1
root/rootlet fgts (modern)	1	cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm
woody root fgts (modern)	1	Cenococcum (sclerotia)	1
		Cerealia indet.	1
Context 6183, Sample 27/BS		Gramineae	1 modern
sand	3	Hordeum sp(p).	1
Avena sp(p).	1	Triticum cf. spelta (glb)	1
cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm	Triticum sp(p).	1
Chenopodium album	1 ?modern	Vicia sp(p).	1 max 2 mm
Gramineae	1 modern	brick/tile	1 max 15 mm
Stellaria cf. pallida	1	charcoal	1 max 10 mm
Triticum sp(p).	1	coal	1 max 5 mm
bone fgts	1 v dec, max 25 mm	herbaceous detritus (ch)	1
charcoal	1 max 20 mm	pottery	1 max 70 mm
concreted sediment	1 max 5 mm	unwashed sediment	1 max 1 mm
?iron pan fgts	1 max 5 mm		
root/rootlet fgts (modern)	1	Context 6237, Sample 39/BS	
		charcoal	3 max 25 mm
Context 6184, Sample 28/BS		sand	3
sand	3	Quercus sp(p). (charcoal)	2 max 25 mm
Bromus sp(p).	1	Triticum cf. spelta (glb)	2
cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm	Triticum sp(p).	2
Cenococcum (sclerotia)	1	?burnt soil/daub	1 max 10 mm
Chenopodium album	1 ?modern	?iron pan fgts	1 max 5 mm
Conium maculatum (mf)	1	Avena sp(p).	1
Gramineae	1	Bromus sp(p).	1
Linum usitatissimum		Cerealia indet.	1
(stem/epid fgts)	1 modern	Linum usitatissimum (sf)	1 ?modern
Stellaria sp(p). (ch)	1	Linum usitatissimum (stem/epid fgts)	1 ?modern
		Rumex sp(p). (ch)	1

cf. <i>Secale cereale</i>	1	<i>Rorippa palustris</i>	2
<i>Triticum</i> sp(p). (rachis fgts)	1	<i>Sambucus nigra</i>	2 inc fgts
<i>Triticum</i> sp(p). (spklt forks)	1	<i>Urtica dioica</i>	2
bone fgts	1 max 5 mm	herbaceous detritus	2
		root/rootlet fgts	2
		wood fgts	2 v dec, max 35 mm
Context 6237, Sample 39/T2			
<i>Triticum spelta</i> (glb)	3	<i>Alisma</i> sp(p).	1 'embs' only
<i>Triticum spelta</i> (spklt forks)	3	<i>Arctium</i> sp(p).	1
charcoal	3 max 20 mm	<i>Atriplex</i> sp(p).	1
<i>Bromus</i> sp(p).	2	<i>Bilderdykia convolvulus</i>	1
<i>Cerealia</i> indet. (awns)	2	cf. <i>Calluna vulgaris</i> (ch rt-tw fgts)	1 max 10 mm
<i>Triticum</i> sp(p).	2	<i>Carduus/Cirsium</i> sp(p).	1
sand	2	<i>Cerealia</i> indet.	1
<i>Anthemis cotula</i> (ch)	1	<i>Chenopodium album</i>	1
<i>Atriplex</i> sp(p). (ch)	1	<i>Chenopodium ficifolium</i>	1
cf. <i>Calluna vulgaris</i> (ch rt-tw fgts)	1 max 15 mm	<i>Danthonia decumbens</i>	1
<i>Cerealia</i> indet.	1	<i>Eleocharis palustris</i> sl	1
<i>Cerealia</i> indet. (chaff)	1	<i>Fraxinus excelsior</i>	1
<i>Chenopodium album</i> (ch)	1	<i>Fumaria</i> sp(p).	1
<i>Fraxinus excelsior</i> (charcoal)	1 max 10 mm	Gramineae	1
<i>Galium aparine</i> (ch)	1	Heterodera (cysts)	1
Gramineae (ch)	1	<i>Hyoscyamus niger</i>	1
<i>Hordeum</i> sp(p).	1	<i>Juncus bufonius</i>	1
<i>Hordeum</i> sp(p). (rachis internodes)	1	<i>Lapsana communis</i>	1
Leguminosae (ch cot)	1 max 2 mm	Leguminosae (cal)	1
<i>Matricaria maritima/perforata</i> (ch)	1	Leguminosae (fls/pet)	1
<i>Polygonum aviculare</i> agg. (ch)	1	<i>Leontodon</i> sp(p).	1
cf. Pomoideae (charcoal)	1 max 10 mm	<i>Leucanthemum vulgare</i>	1
<i>Quercus</i> sp(p). (charcoal)	1 max 10 mm	<i>Linum catharticum</i>	1
<i>Raphanus raphanistrum</i>		<i>Lychnis flos-cuculi</i>	1
(ch pod segs/fgts)	1	<i>Montia fontana</i> ssp.	
<i>Rumex</i> sp(p). (ch)	1	<i>chondrosperma</i>	1
<i>Triticum</i> cf. <i>spelta</i>		<i>Papaver argemone</i>	1
(lemmas/glumes)	1	<i>Polygonum aviculare</i> agg.	1
<i>Triticum</i> sp(p). (f/t rachis fgts)	1	<i>Polygonum persicaria</i>	1
gravel	1 max 10 mm	<i>Potentilla anserina</i>	1
iron-rich concretions	1 max 10 mm	<i>Potentilla</i> cf. <i>erecta</i>	1
moss (contaminant)	1	<i>Potentilla</i> sp(p).	1
?peat fgts (ch)	1 max 5 mm	<i>Prunella vulgaris</i>	1
root/rhizome fgts (ch)	1 max 10 mm	<i>Ranunculus flammula</i>	1
		<i>Rosellinia</i> cf. <i>mammiformis</i>	1 single spec
		<i>Rubus fruticosus</i> agg.	1
		<i>Rumex acetosella</i> agg.	1
		<i>Rumex</i> sp(p). (inc per)	1
		<i>Sambucus nigra</i> (tw fgts)	1 max 30 mm
		<i>Scirpus setaceus</i>	1
		<i>Solanum nigrum</i>	1
		<i>Spergula arvensis</i>	1
		<i>Stellaria media</i>	1
		<i>Trifolium pratense</i> (pods/lids)	1
		<i>Triticum</i> sp(p).	1
		<i>Urtica urens</i>	1
Context 6289, Sample 49/T			
sand	3		
<i>Anthriscus caucalis</i>	2		
<i>Carex</i> sp(p).	2		
<i>Chenopodium</i> Sect. <i>Pseudoblitum</i>	2		
<i>Conium maculatum</i>	2 inc fgts		
<i>Daphnia</i> (ephippia)	2		
<i>Ranunculus</i> Section <i>Ranunculus</i>	2		

Viola sp(p).	1	Danthonia decumbens	1
beetles	1	Drepanocladus sp(p).	1
?burnt peat fgts	1 max 5 mm	Eleocharis palustris sl	1
caddis larva cases	1	Equisetum sp(p). (nodes)	1
charcoal	1 max 10 mm	Equisetum sp(p). (rh fgts)	1
coal	1 max 2 mm	Equisetum sp(p). (roots)	1
earthworm egg caps	1	Eurhynchium sp(p).	1
fly puparia	1	Fraxinus excelsior (b/bs)	1
root/rhizome fgts (ch)	1 max 5 mm	Fraxinus excelsior (charcoal)	1 max 10 mm
twig fgts	1 max 30 mm	Fraxinus excelsior (seed epid fgts)	1
worked wood fgts	1 max 40 mm	Fumaria sp(p).	1
		Gramineae	1
		Hyoscyamus niger	1
		Hypnum cf. cupressiforme	1
		Hypochoeris sp(p).	1
		Lapsana communis	1
		Leguminosae (cal)	1
		Leguminosae (fls/pet)	1
		Leontodon sp(p).	1
		Linum catharticum	1
		Menyanthes trifoliata	1
		Montia fontana ssp.	
		chondrosperma	1
		Myosotis sp(p).	1
		Polygonum aviculare agg.	1
		Polygonum lapathifolium	1
		Polygonum persicaria	1
		Pomoideae (charcoal)	1 max 10 mm
		Potentilla anserina	1
		Potentilla cf. erecta	1
		Pre-Quaternary megaspores	1
		Prunus sp(p). (charcoal)	1 max 10 mm
		Prunus sp(p). (tw fgts)	1 max 10 mm
		Prunus spinosa (thorns)	1
		Pteridium aquilinum (pinn fgts)	1 v dec
		Ranunculus flammula	1
		Rhinanthus sp(p).	1
		Rosellinia cf. mammiformis	1
		Rubus fruticosus agg.	1
		Rumex acetosella agg.	1
		Rumex sp(p). (per/segs)	1
		Salix sp(p). (b)	1
		Sambucus nigra (tw fgts)	1 max 15 x 5 mm
		Scirpus setaceus	1
		Solanum nigrum	1
		Spergula arvensis	1
		Stachys sp(p).	1
		Stellaria cf. neglecta	1
		Thuidium cf. tamariscinum	1
		Triticum cf. spelta	1
		Triticum spelta (glb)	1
		Viola sp(p).	1
Context 6289, Sample 49/T2			
Chenopodium Sect. Pseudoblitum	3		
Conium maculatum	3 inc fgts		
Daphnia (ephippia)	3		
Sambucus nigra	3 inc fgts		
Urtica dioica	3		
sand	3		
wood fgts	3		
Atriplex sp(p).	2		
Carex sp(p).	2		
Equisetum sp(p). (sef)	2 max 10 mm		
Fraxinus excelsior (fr fgts)	2		
Juncus bufonius	2		
Prunella vulgaris	2		
Ranunculus Section Ranunculus	2		
Rorippa palustris	2		
Rumex sp(p).	2		
Stellaria media	2		
Urtica urens	2		
beetles	2		
herbaceous detritus	2		
twig fgts	2 max 15 x 5 mm		
Anthemis cotula	1		
Anthriscus caucalis	1		
Arctium sp(p).	1 fgt(s) only		
Bilderdykia convolvulus	1		
Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm		
Calluna vulgaris (ch sht fgts)	1		
Calluna vulgaris (rt-tw fgts)	1 max 5 mm		
Calluna vulgaris (sht tips)	1		
Carduus/Cirsium sp(p).	1		
Cerastium sp(p).	1		
Chaerophyllum temulentum	1		
Chenopodium album	1		
Corylus avellana (charcoal)	1 max 15 mm		
Corylus avellana (roundwood)	1 to 35 mm diam		
Crataegus sp(p). (imm fr)	1		

bark fgts	1 max 5 mm	Linum usitatissimum	1 modern
charcoal	1 max 10 mm	Stellaria media	1 modern
dicot lf fgts	1 max 5 mm	cf. Triticum sp(p).	1
earthworm egg caps	1	?burnt soil	1 max 10 mm
fly puparia	1	charcoal	1 max 20 mm
herbaceous detritus (ch)	1	flaggy sandstone	1 max 25 mm
iron-rich concretions	1 max 10 mm	?iron pan fgts	1 max 10 mm
leaf ab pads	1	root/rootlet fgts (modern)	1
mites	1		
moss (ch st fgts)	1		
root bark/epidermis fgts	1		
root/rhizome fgts (ch)	1 max 5 mm		
?wood chips	1 max 10 mm		
Context 6310, Sample 53/BS			
sand	3		
Avena sp(p).	1		
Chenopodium album	1 ?modern		
Gramineae	1 modern		
Hordeum sp(p).	1		
Context 6311, Sample 54/BS			
		sand	3
		cf. Calluna vulgaris (ch rt-tw fgts)	1 max 5 mm
		Cenococcum (sclerotia)	1
		Sambucus nigra	1 v dec, inc
		fgts	
		beetles	1 v dec
		bone fgts	1 v dec, max 30 mm
		charcoal	1 max 4 mm
		?iron pan fgts	1 max 15 mm

Table 4. Insects and other macro-invertebrates from a site near West Lilling, North Yorkshire: species lists by sample. Taxa are listed in descending order of abundance.

Key: n - minimum number of individuals; q - quantification (s - semi-quantitative 'several', m - semi-quantitative 'many', both sensu Kenward et al. (1986), e - estimate); ecodes - ecological codes (see Table 6 for explanation); * - not used in calculation of statistics in Table 5.

Context: 6150 Sample: 43/T2 ReM: D
Weight: 5.00 E: 4.00 F: 3.50

Notes: Entered HK 18/12/01. Flot 1 dish. Recorded from flot, problems on paper. Preservation poor (E3-5.5, mode 4.0 distinct; F1.5-5.0 mode 3.5 weak).

	n	q	e
Lesteva longoelytrata	4	-	oa-d
Megasternum obscurum	2	-	rt
Ochthebius minimus	2	-	oa-w
Omalium sp.	2	-	rt
Lygaeidae sp.	1	-	oa-p
Cicadomorpha sp.	1	-	oa-p
Trechus sp.	1	-	ob
Hydroporinae sp.	1	-	oa-w
Helophorus aquaticus	1	-	oa-w
Helophorus sp. A	1	-	oa-w
Helophorus sp. B	1	-	oa-w
Hydrobius fuscipes	1	-	oa-w
Omalium ?rivulare	1	-	rt-sf
Platystethus cornutus group	1	-	oa-d
Anotylus rugosus	1	-	rt
Xantholinus sp.	1	-	u
Philonthus sp.	1	-	u
Staphylininae sp.	1	-	u
Tachinus signatus	1	-	u
Cordalia obscura	1	-	rt-sf
Aleocharinae sp. A	1	-	u
Aleocharinae sp. B	1	-	u
Aphodius ?contaminatus	1	-	oa-rf
Aphodius sp. A	1	-	ob-rf
Aphodius sp. B	1	-	ob-rf
Phyllopertha horticola	1	-	oa-p
Agrypnus murinus	1	-	oa-p
Atomaria sp.	1	-	rd
Enicmus sp.	1	-	rt-sf
Halticinae sp.	1	-	oa-p
?Strophosomus sp.	1	-	oa-p
Sitona sp.	1	-	oa-p
Notaris acridulus	1	-	oa-d-p
*Cladocera sp. F (ephippium)	6	s	oa-w
*Daphnia sp. (ephippium)	3	-	oa-w
*Acarina sp.	2	-	u

*Dermaptera sp.	1	-	u
*Oligochaeta sp. (egg capsule)	1	-	u
*Trichoptera sp. (larva)	1	-	oa-w
*Diptera sp. (adult)	1	-	u
*Diptera sp. (pupa)	1	-	u
*Bibio sp.	1	-	oa
*Chironomidae sp. (larva)	1	-	w
*Hymenoptera Parasitica sp.	1	-	u

Context: 6289 Sample: 49/T2 ReM: D
Weight: 5.00 E: 3.00 F: 2.50

Notes: Entered HK 18/12/01. Flot 1 cm in jar (including some material from AH). Preservation generally rather to very poor (E2.0-5.0 mode 3.0 weak; F 1.0-4.5 mode 2.5 weak). Mostly show pale trend (range 1-4 mode 2 weak). Mostly recorded on filter paper as hard to make confident identifications in spirit.

	n	q	e
Helophorus ?brevipalpis	59	-	oa-w
Ochthebius minimus	26	-	oa-w
Anotylus nitidulus	11	-	rt
Aleocharinae sp. F	10	-	u
Carpelimus rivularis	9	-	ob-d
Platystethus arenarius	9	-	rf
Aleocharinae sp. G	7	-	u
Helophorus sp.	5	-	oa-w
Omalium rivulare	5	-	rt-sf
Aploderus caelatus	5	-	rt
Anotylus rugosus	5	-	rt
Gyrophypnus angustatus	5	-	rt-st
Lesteva longoelytrata	4	-	oa-d
Carpelimus bilineatus	4	-	rt-sf
Carpelimus elongatulus	4	-	oa-d
Anotylus tetracarinus	4	-	rt
Xantholinus sp.	4	-	u
Trechus quadristriatus	3	-	oa
Pterostichus melanarius	3	-	ob
Harpalus sp.	3	-	oa
Halipilus sp.	3	-	oa-w
Hydroporinae sp. A	3	-	oa-w
Hydroporinae sp. B	3	-	oa-w
Helophorus aquaticus	3	-	oa-w

Cercyon haemorrhoidalis	3	-	rf-sf	Corixa sp.	1	-	oa-w
Hydrobius fuscipes	3	-	oa-w	Corixidae sp. A	1	-	oa-w
Limnebius truncatellus	3	-	oa-w	Corixidae sp. B	1	-	oa-w
Platystethus degener	3	-	oa-d	Philaenus spumarius	1	-	oa-p
Tachinus signatus	3	-	u	Evacanthus interruptus	1	-	oa-p
Aleocharinae sp. A	3	-	u	Aphrodes bicinctus	1	-	oa-p
Aphodius ?prodromus	3	-	ob-rf	Aphrodes flavostriatus	1	-	oa-p-d
Aphodius sphacelatus	3	-	oa-rf	Cicadomorpha sp.	1	-	oa-p
Aphodius sp. A	3	-	ob-rf	Clivina fossor	1	-	oa
Atomaria sp. A	3	-	rd	Patrobus ?atorufus	1	-	oa
Atomaria sp. B	3	-	rd	Bembidion (Philochthus) sp.	1	-	oa
Enicmus sp.	3	-	rt-sf	Pterostichus (Poecilus) sp.	1	-	oa
Apion (Taenapion) urticarium	3	-	oa-p	Calathus sp.	1	-	oa
Cidnorhinus quadrimaculatus	3	-	oa-p	Amara sp.	1	-	oa
Gymnetron ?labile	3	-	oa-p	Bradycellus sp.	1	-	oa
Lygus sp.	2	-	oa-p	Hydroporinae sp. D	1	-	oa-w
Aphrodes sp.	2	-	oa-p	Agabus bipustulatus	1	-	oa-w
?Delphacodes (s. lat.) sp. A	2	-	oa-p	Rhantus sp.	1	-	oa-w
?Delphacodes (s. lat.) sp. B	2	-	oa-p	Colymbetes fuscus	1	-	oa-w
Bembidion sp. A	2	-	oa	Acilius ?sulcatus	1	-	oa-w
Hydroporinae sp. C	2	-	oa-w	Sphaeridium sp.	1	-	rf
Megasternum obscurum	2	-	rt	Cercyon analis	1	-	rt-sf
Cryptopleurum minutum	2	-	rf-st	Cercyon atricapillus	1	-	rf-st
Limnebius ?aluta	2	-	oa-w	Cercyon pygmaeus	1	-	rf-st
Micropeplus porcatus	2	-	rt	Cercyon ?melanocephalus	1	-	rt-sf
Platystethus nitens	2	-	oa-d	Cercyon tristis	1	-	oa-d
Lithocharis ochracea	2	-	rt-st	Hydrophilidae sp.	1	-	u
Gyrophypnus fracticornis	2	-	rt-st	Acritus nigricornis	1	-	rt-st
Philonthus sp. D	2	-	u	Ochthebius pusillus	1	-	oa-w
Gabrius sp.	2	-	rt	Ochthebius sp.	1	-	oa-w
Tachyporus nitidulus	2	-	u	Hydraena testacea	1	-	oa-w
Tachyporus sp.	2	-	u	Hydraena sp.	1	-	oa-w
Cypha sp.	2	-	rt	Ptenidium sp.	1	-	rt
Falagria sp.	2	-	rt-sf	Micropeplus fulvus	1	-	rt
Aphodius fimetarius	2	-	oa-rf	Anthobium atrocephalum	1	-	oa
Aphodius rufipes	2	-	oa-rf	Syntomium aeneum	1	-	oa
Oxyomus sylvestris	2	-	rt-sf	Platystethus alutaceus	1	-	oa-d
Phyllopertha horticola	2	-	oa-p	Platystethus nodifrons	1	-	oa-d
Dryops ?ernesti	2	-	oa-d	Anotylus complanatus	1	-	rt-sf
Agriotes obscurus	2	-	oa-p	Stenus sp. A	1	-	u
Brachypterus ?glaber	2	-	oa-p	Stenus sp. B	1	-	u
Meligethes sp.	2	-	oa-p	Stenus sp. C	1	-	u
Corticaria elongata	2	-	rt-sf	Lathrobium sp.	1	-	u
Corticarina or Cortinicara sp.	2	-	rt	Astenus sp.	1	-	rt
Typhaea stercorea	2	-	rd-ss	Leptacinus ?intermedius	1	-	rt-st
Longitarsus sp.	2	-	oa-p	Philonthus sp. A	1	-	u
Sitona lepidus	2	-	oa-p	Philonthus sp. B	1	-	u
Heterogaster urticae	1	-	oa-p	Philonthus sp. C	1	-	u
Drymus sp.	1	-	oa-p	Philonthus sp. E	1	-	u
Temnostethus sp.	1	-	oa	Tachinus corticinus	1	-	u
Anthocoris sp.	1	-	oa-p	Tachinus laticollis	1	-	u
Miridae sp.	1	-	oa-p	Tachinus marginellus	1	-	u
Saldidae sp.	1	-	oa-d	Cordalia obscura	1	-	rt-sf

Aleochara sp.	1 - u	Apion sp. D	1 - oa-p
Aleocharinae sp. B	1 - u	Strophosomus sp.	1 - oa-p
Aleocharinae sp. C	1 - u	Sitona sp.	1 - oa-p
Aleocharinae sp. D	1 - u	Cossoninae sp.	1 - u
Aleocharinae sp. E	1 - u	Notaris acridulus	1 - oa-d-p
Pselaphidae sp.	1 - u	Ceutorhynchus sp. A	1 - oa-p
Geotrupes sp.	1 - oa-rf	Ceutorhynchus sp. B	1 - oa-p
Aphodius ater	1 - oa-rf	Ceutorhynchus sp. C	1 - oa-p
Serica brunnea	1 - oa-p	Rhinoncus sp.	1 - oa-p
Simplocaria semistriata	1 - oa-p	Ceuthorhynchinae sp.	1 - oa-p
Esolus parallelepipedus	1 - oa-w	Curculio sp.	1 - oa-p
Agrypnus murinus	1 - oa-p	Leperisinus ?varius	1 - l
Athous ?haemorrhoidalis	1 - oa-p		
Cantharis rufa	1 - ob	*Daphnia sp. (ephippium)	5000 e oa-w
?Anobium punctatum	1 - l-sf	*Cladocera sp. F (ephippium)	1000 e oa-w
Malachius sp.	1 - u	*Diptera sp. (adult)	6 s u
Monotoma longicollis	1 - rt-st	*Diptera sp. (pupa)	6 s u
Ephistemus globulus	1 - rd-sf	*Diptera sp. (puparium)	6 s u
Coccinellidae sp.	1 - oa-p	*Bibionidae sp.	6 s u
Lathridius minutus group	1 - rd-st	*Chironomidae sp. (larva)	6 s w
Corticaria sp.	1 - rt-sf	*Coleoptera sp. (larva)	6 s u
Anthicus formicarius	1 - rt-st	*Acarina sp.	6 s u
Gastrophysa viridula	1 - oa-p	*Psylloidea sp. (nymph)	3 - oa-p
Hydrothassa sp.	1 - oa-d-p	*Aphidoidea sp.	2 - u
Phyllotreta sp.	1 - oa-p	*Proctotrupoidea sp.	2 - u
Phyllotreta sp.	1 - oa-p	*Dermaptera sp.	1 - u
Crepidodera sp.	1 - oa-p	*Oligochaeta sp. (egg capsule)	1 - u
Apion (Eutrichapion) ervi	1 - oa-p	*Trichoptera sp.	1 - oa-w
Apion sp. A	1 - oa-p	*Elateridae sp. (larva)	1 - ob
Apion sp. B	1 - oa-p	*Aculeata sp.	1 - u
Apion sp. C	1 - oa-p	*Myrmica sp.	1 - u
		*Aranae sp.	1 - u

Table 5. Main statistics for the assemblages of adult Coleoptera and Hemiptera (excluding Aphidoidea and Coccidoidea) from a site near West Lilling, North Yorkshire. For explanation of codes see Table 6.

Context	6150	6289	ALPHART	31	0
Sample	43	49	SEALPHART	5	0
Ext	/T2	/T2	SRD	5	1
S	173	33	PSRD	3	3
N	408	39	NRD	10	1
ALPHA	113	99	PNRD	2	3
SEALPHA	9	43	ALPHARD	0	0
SOB	102	20	SEALPHARD	0	0
PSOB	59	61	SRF	13	3
NOB	252	24	PSRF	8	9
PNOB	62	62	NRF	32	3
ALPHAOB	64	55	PNRF	8	8
SEALPHAOB	7	28	ALPHARF	8	0
SW	24	6	SEALPHARF	2	0
PSW	14	18	SSA	26	3
NW	125	7	PSSA	15	9
PNW	31	18	NSA	48	3
ALPHAW	9	0	PNSA	12	8
SEALPHAW	1	0	ALPHASA	23	0
SD	13	3	SEALPHASA	6	0
PSD	8	9	SSF	14	3
ND	31	6	PSSF	8	9
PND	8	15	NSF	28	3
ALPHAD	9	0	PNSF	7	8
SEALPHAD	3	0	ALPHASF	11	0
SP	46	8	SEALPHASF	4	0
PSP	27	24	SST	11	0
NP	62	8	PSST	6	0
PNP	15	21	NST	18	0
ALPHAP	80	0	PNST	4	0
SEALPHAP	22	0	ALPHAST	0	0
SM	0	0	SEALPHAST	0	0
PSM	0	0	SSS	1	0
NM	0	0	PSSS	1	0
PNM	0	0	NSS	2	0
ALPHAM	0	0	PNSS	0	0
SEALPHAM	0	0	ALPHASS	0	0
SL	2	0	SEALPHASS	0	0
PSL	1	0	SG	0	0
NL	2	0	PSG	0	0
PNL	0	0	NG	0	0
ALPHAL	0	0	PNG	0	0
SEALPHAL	0	0	ALPHAG	0	0
SRT	48	10	SEALPHAG	0	0
PSRT	28	30			
NRT	116	12			
PNRT	28	31			

Table 6. Abbreviations for ecological codes and statistics used for interpretation of insect remains in text and tables. Lower case codes in parentheses are those assigned to taxa and used to calculate the group values (the codes in capitals). See Table 2 for codes assigned to taxa from the present site. Alpha - the index of diversity alpha (Fisher et al. 1943); Indivs - individuals (based on MNI); No - number.

No taxa	S	Percentage of indivs of grain pests	PNG
Estimated number of indivs (MNI)	N	No decomposer taxa (rt + rd + rf)	SRT
Index of diversity (α)	alpha	Percentage of RT taxa	PSRT
Standard error of alpha	SE alpha	No RT indivs	NRT
No 'certain' outdoor taxa (oa)	SOA	Percentage of RT indivs	PNRT
Percentage of 'certain' outdoor taxa	PSOA	Index of diversity of RT component	alpha RT
No 'certain' outdoor indivs	NOA	Standard error	SEalphaRT
Percentage of 'certain' outdoor indivs	PNOA	No 'dry' decomposer taxa (rd)	SRD
No OA and probable outdoor taxa (oa+ob)	SOB	Percentage of RD taxa	PSRD
Percentage of OB taxa	PSOB	No RD indivs	NRD
No OB indivs	NOB	Percentage of RD indivs	PNRD
Percentage OB indivs	PNOB	Index of diversity of the RD component	alphaRD
Index of diversity of the OB component	alphaOB	Standard error	SEalphaRD
Standard error	SEalphaOB	No 'foul' decomposer taxa (rf)	SRF
No aquatic taxa (w)	SW	Percentage of RF taxa	PSRF
Percentage of aquatic taxa	PSW	No RF indivs	NRF
No aquatic indivs	NW	Percentage of RF indivs	PNRF
Percentage of W indivs	PNW	Index of diversity of the RF component	alphaRF
Index of diversity of the W component	alphaW	Standard error	SEalphaRF
Standard error	SEalphaW	No synanthropic taxa (sf+st+ss)	SSA
No damp ground/waterside taxa (d)	SD	Percentage of synanthropic taxa	PSSA
Percentage D taxa	PSD	No synanthropic indivs	NSA
No damp D indivs	ND	Percentage of SA indivs	PNSA
Percentage of D indivs	PND	Index of diversity of SA component	ALPHASA
Index of diversity of the D component	alphaD	Standard error	SEALPHASA
Standard error	SEalphaD	No facultatively synanthropic taxa (sf)	SSF
No strongly plant-associated taxa (p)	SP	Percentage of SF taxa	PSSF
Percentage of P taxa	PSP	No SF indivs	NSF
No strongly P indivs	NP	Percentage of SF indivs	PNSF
Percentage of P indivs	PNP	Index of diversity of SF component	ALPHASF
Index of diversity of the P component	alphaP	Standard error	SEALPHASF
Standard error	SEalphaP	No typical synanthropic taxa (st)	SST
No heathland/moorland taxa (m)	SM	Percentage of ST taxa	PSST
Percentage of M taxa	PSM	No ST indivs	NST
No M indivs	NM	Percentage of ST indivs	PNST
Percentage of M indivs	PNM	Index of diversity of ST component	ALPHAST
Index of diversity of the M component	alphaM	Standard error	SEALPHAST
Standard error	SEalphaM	No strongly synanthropic taxa (ss)	SSS
No wood-associated taxa (l)	SL	Percentage of SS taxa	PSSS
Percentage of L taxa	PSL	No SS indivs	NSS
No L indivs	NL	Percentage of SS indivs	PNSS
Percentage of L indivs	PNL	Index of diversity of SS component	ALPHASS
Index of diversity of the L component	alphaL	Standard error	SEALPHASS
Standard error	SEalphaL	No uncoded taxa (u)	SU
No indivs of grain pests (g)	NG	Percentage of uncoded indivs	PNU

Table 7. Summary of vertebrate remains from a site near West Lilling, North Yorkshire - Trenches 2 to 5.

Context	No. of fragments	Preservation	Notes	Weight (g)
2002	9	Poor; chemically eroded; rounded fragments; brown in colour.	Cattle: 1 isolated tooth, 1 metacarpal fragment. Unidentified: 1 tooth enamel fragment, 7 unidentified 'lumps' of bone.	154.7
2012	2	Fair.	Cattle: 2 isolated teeth	43.1
2016	3	Good; distinct edges; dark brown in colour.	Cattle: 1 humerus, 1 tibia, 1 calcaneum.	217.1
3009	1		Unidentified: 1 medium-sized mammal tibia shaft fragment.	4.5
4001	21	Poor; chemically eroded; rounded; fawn.	Cattle: 1 metacarpal. Horse: 1 isolated tooth. Unidentified: 19 large mammal fragments, including vertebrae, ribs and shafts.	495
4003	1		Bird: 1 shaft fragment.	1
4007	6	Fair; rounded; variable colour (ginger to fawn).	Cattle: 1 radius fragment. Unidentified: 5 large mammal shaft fragments	70.4
4008	3	Poor; battered in appearance; ginger.	Pig: 1 pelvis fragment. Unidentified: 2 large mammal rib fragments.	34.1
4009	8	Poor; battered in appearance; brown.	Cattle: 1 scapula and 2 metatarsal fragments. Unidentified: 5 fragments, including large and medium-sized shaft fragments and 2 burnt fragments.	264.3
5000	1		Horse: 1 isolated tooth.	37.8
5001	5	Poor; battered in appearance; fawn.	Cattle: 1 isolated tooth. Unidentified: 4 burnt fragments.	10.5
5013	1		Horse: 1 pelvis fragment.	102.6

Table 8. Summary of the hand-collected vertebrate remains from a site near West Lilling, North Yorkshire - Trench 6.

Date	Context	No. of fragments	Preservation	Notes	Weight (g)
modern	6000	1	Fair; battered in appearance.	Unidentified: 1 large mammal shaft fragment.	9
Roman	6075	16	Fair; rather brittle.	Unidentified: 5 tooth enamel fragments, 11 unidentified fragments (all burnt)	15
Roman	6090	5	Fair; fragile.	Unidentified: 5 fragments (burnt).	5.2
Roman	6092	2	Fair; fragile.	Unidentified: 2 fragments (burnt).	1
Roman	6095	29	Fair; battered and rounded; fawn in colour. Some surfaces eroded.	Cattle: 1 P3, 1 first phalanx fragment. Unidentified: 27 mainly large mammal fragments	54
modern	6097	29	Variable preservation.	Cattle: 1 metapodial, 1 carpal and 1 maxillary molar. Caprovid: metapodial. Pig: canine fragment. Unidentified: 24 mainly large mammal fragments.	45.2
Roman	6125	9	Fair; brittle.	Caprovid: distal radius (burnt). Unidentified: 8 medium-sized mammal fragments (all burnt).	8.2
no info	6132	1	Fair; battered	Cattle: 1 mandibular molar (M1/M2).	15
Roman	6142	11	Fair to poor; root etching and some damage to bone surface.	Cattle: 1 ulna. Caprovid: 1 maxillary molar (M3). Pig: 1 maxilla with teeth <i>in situ</i> . Unidentified: 8 mainly large mammal fragments, including shaft and rib.	84
Roman	6170	15	Very poor preservation; eroded and battered.	Unidentified: 10 tooth enamel fragments and 5 unidentified fragments.	14.2
Roman	6258	10	Poor.	Unidentified: 10 tooth enamel fragments.	5.5

Roman	6307	4	Variable, fair and poor.	Caprovid: 1 astragalus, 1 calcaneum. Unidentified: medium-sized mammal shaft fragments.	11.5
Roman	6310	1	Very poor; fragile.	Cattle: 1 maxillary molar.	7

Table 9. Measurements of vertebrate remains (all cow) from a site near West Lilling, North Yorkshire. All measurements in mm.

Context	Date	Element	Side	Measurements
2002	?4th AD	C Metacarpal	l	Bp=51.22 Dp=29.86
2016	?4th AD	C Tibia	l	Bd=65.39 Dd=48.17
2016	?4th AD	C Calcaneum	r	GL=138.1 DS=42.69 C=29.80 C+D=52.35 7
4009	?4th AD	C Metatarsal	r	Bp=40.57 Dp=38.61