5.4 PERIOD BY PERIOD

5.4.1 Early Medieval

Although the site lies very close to the conjectured area of the early medieval ecclesiastical precinct and associated secular settlement could be located in the vicinity no deposits of this date were found.

5.4.2 Medieval

At the rear of the site the height, 27.83m AOD, c.0.60m below ground surface at which context 1010 was encountered represents the highest point at which medieval archaeological deposits survive. This deposit followed the natural slope of the topography so that at the southern edge of the trench it was encountered c.0.95m below the ground surface.

No medieval deposits were recovered from the central area of the site. However 0.65m of undated alluvial silts with a humic content are likely to represent deposits in this area of the site in this period. The uppermost of these, a clay silt (2014), was encountered at c.2m below ground surface (c.26m AOD).

Nearest to the street frontage a total depth of c.1.50m of medieval deposits was recorded. The earliest feature dating from the 13th century may have been associated with the mill and its race known to be located in the vicinity. It was encountered at c.25.15m AOD, c.2.30m below ground surface. The fine lense of organic silts (3039) formed in the base of this feature indicates excellent organic preservation of deposits at this depth. The backfill of this feature and further levelling dated to the 13th century and a further linear cut, backfilled in the 14th century was recorded. A pebble surface 3025 may have been the highest deposit dating from the 14th century and was encountered at c. 25.15m AOD, c.1.40m below ground surface.

5.4.3 Post-medieval, 15th/16th-17th century

The medieval pebble surface near to the street frontage was sealed by a possible cobble surface (3024) and a series of 15th/16th century dumps and levelling deposits above which was a substantial build up of garden soil. This part of the site appears to have been used for horticultural purposes from the 15th/16th century through to the 17th century.

5.4.4 18th/19th –20th century

At the rear of the site, above the *in situ* medieval deposits, there was a series of mixed dumps and pit cuts. The lowest of these dumps, context 1006 may have dated form the 14th century, but the mixed loose character of the deposit suggests that it may have been deposited as part of the dumping and levelling on the site in the represented by the deposits and features above, which were dated to the 19th – 20th century. The large pits were cut to a depth of c.1.35m (1002) and at least 1.50m (1008) below the ground surface at truncating the medieval deposits below and contained material thought to be discarded industrial waste most likely associated with iron / brass foundry known to have existed in vicinity (York Yard).

In the central area of the site a series of dumps, the earliest of which dated from the 18th/19th century appeared to infill the channel of the river Skell. The remains of a stone wall were seen

to have retained a further c. 0.70m depth of dumped levelling deposits and these were sealed by modern material. This wall had been partly demolished as had a sequence of boundary walls near to the street frontage.

6. POTTERY ASSESSMENT

This small assemblage of pottery is mainly of high medieval ($13^{th}/14^{th}$ century) and later pottery. The sherd sizes are quite small making recognition of specific types and forms difficult, but clearly there are both cooking pot and jug sherds amongst them. There are numerous variations on both oxidised and reduced wares, which appears to be typical of Ripon from the 12^{th} century onwards. A significant proportion of the pottery is of a fine reduced sandy ware which resembles, and might be, a Humber basin product. A 15^{th} century date (which would be consistent with this suggestion) is indicated by the forms, which include cisterns and jugs. The occurrence of this ware with Cistercian wares suggests that it continued to reach Ripon into the early 16^{th} century at least. There are several contexts which are clearly late post-medieval and modern in date. The assemblage as a whole is typical of domestic refuse.

Context	No of sherds	date	description
1000	1	Mod	
1001	1	Mod	
1004	4	13^{th}	
1005	7	15^{th}	4 reduced sandy wares, 3 residual medieval types
1006	9	14^{th}	Miscellaneous oxidised sherds
1009	5	13^{th}	Miscellaneous oxidised and reduced wares
1010	15	$12/13^{th}$	Splashed and gritty plus early (?11thc,) gritty ware
2001	2	18^{th}	1 brown glazed, 1 residual post-medieval earthenware
2001	1	19^{th}	Tin glazed earthenwares
2012	5	19^{th}	Brown wares, tin-glazed earthenwares
2013	7	$18/19^{th}$	Brown glazed, English stonewares
3000	12	19^{th}	
3001	16	19^{th}	
3005	5	16^{th}	2 reduced sandy ware, 1 Cistercian, 2 residual medieval wares
3007	32	$12/13^{th}$	Splashed wares, gritty wares and decorated jug fragments
3008	12	12^{th}	Splashed and gritty
3009	9	16^{th}	1 Cistercian, rest includes decorated jug sherds, splashed and gritty wares, 1 Hambleton ware
3010	20	15^{th}	7 reduced sandy wares, 2 Hambleton, 11 misc.
3011	20	17^{th}	3 Cist, 1 early tin-glazed earthenwares, 9 reduced sandy wares, miscellaneous residual medieval
3014	10	$15/16^{th}$	5 reduced wares, 5 residual medieval wares
3016	2	14^{th}	Thick copper green glaze on oxidised sherd
3017	16	$15/16^{th}$	5 reduced sandy wares, 3 Hambleton-type, 8 miscellaneous medieval wares
3018	1	$13/14^{th}$	Oxidised sherd
3019	16	15^{th}	13 reduced sandy ware, 3 Hambleton wares
3020	3	$13/14^{th}$	Decorated jug fragments
3021	1	$13/14^{th}$	
3022	9	$15/16^{th}$	4 reduced sandy wares, 1 Cistercian, gritty ware
3023	9	15^{th}	4 reduced sandy wares, 1 Hambleton, 4 residual

3024	8	15/16th	5 reduced sandy wares, 1 German stoneware, 2 medieval
3025	8	12/13th	Splashed and gritty wares
3034	40	14th	Gritty, splashed and decorated jug fragments
3036	35	14th	Gritty, splashed and decorated jug fragments
3037	8	13th	Splashed, gritty and glazed jug fragment
3039	3	12/13th	Splashed and gritty wares
3040	1	13th	
3042	7	13th/14th	Miscellaneous oxidised wares
3043	4	13th	Gritty, splashed and decorated jug fragments

7. CERAMIC BUILDING MATERIALS ASSESSMENT

7.1 Introduction

Approximately one standard box of ceramic building materials was presented for examination. The material dates between the medieval and the post-medieval period. Though some of the material was abraded and reused, it is in good condition.

7.2 Medieval material

Medieval material is represented by plain roofing tile, brick and floor tile.

The plain roofing tile takes the form of peg tile with circular or square pegholes. This form is typical of North Yorkshire. There are several different fabrics present, including a very refined fabric with a pale orange outer, and a reduced core. This might possibly be a pottery fabric associated with specialised roofing furniture, but the fragment is too small to identify the form for certain. There are also other definite, distinctive, tile fabrics.

The brick has some of the typical medieval features found elsewhere in Yorkshire, including a relatively broad breadth, a narrow thickness, and indented borders. This type of brick may be 'wall tile', perhaps used as infilling for timber-framed buildings.

The floor tile is represented by two types. There is one fragment of small square mosaic floor tile from context 3005, which probably dates to around the 13th century. Most typically, this type of tile is associated with ecclesiastical sites. There are two fragments of plain glazed floor tiles (contexts 3009 and 1004) which were in fairly common usage in the late medieval period. This type of tile might have been imported from the Continent, though were produced in Britain. One of the fragments (1004) is very worn.

7.3 Post-medieval material

The post-medieval material consists of peg tile and pan tile (roofing tile), and brick. Pan tile was used in Britain from about the 17th century. The peg tile has two circular pegholes, and seems to be later in date than the single-holed variety.

The dating of the brick to the post-medieval period is tentative, and based on measurements observed from York. Slop moulding, where the brick mould is dipped in water, tends to be a post-medieval feature, but some of the bricks from this site have this feature allied with other medieval features. One fragment of brick has a turning mark – where the brick has been turned from the making table onto the hack – which, again, is a post-medieval feature in this area.

7.4 Other material

There is one fragment of stone roofing tile is present in context 3002. Made of a fine grained sandstone and having a circular nailhole, this tile could have been used in conjunction with the plain roofing tile. Various combinations were used – such as several rows of stone roofing along the edge of the roof, or several rows at the top. However, it may also point to another phase, or perhaps comes from a building solely roofed in stone.

7.5 Conclusion

This sample should be retained for further study, at which time it will usefully contribute to the study of ceramic building materials in Ripon, and the wider region. There are a variety of fabrics and forms, indicating a lively medieval ceramic building materials industry in the area.

The presence of the mosaic tile may point a building of some status in the area. The plain glazed floor tile may be a later phase of this building, although they could have been used in a building of middling status as well.

7.6 Context Listing Table

Key

Cxt = *Context* ***L*** = *Compete length* ***B*** = *Complete breadth* ***T*** = *Complete Thickness*
FH = *Complete Flange Height*
Date range = *date range of form* ***Date*** = *estimated date of context*
* = *only minimum measurement available*
NB: *This list indicates only forms present and any variations (such as slag attached, or pawprints). It does not list every fragment of CBM*

Cxt	Form		T	Comments	Date range	Date
1004	Plain				13-16th	L14-16th
1004	Floor	132	39	Worn, brown glaze on edge, bevel	L14-16th	
1005	Plain				13-16th	13-16th
1006	Plain			Reused	13-16th	13-16th
2001	Pan		18	Reused	17-20th	17-20th
2001	Pan		20		17-20th	
3000	Pan			Reused	17-20th	17-20th
3002	Roof		17	Circular nailhole 10mm across, fine grained sandstone, abraded	Med?	16-18th
3005	Brick	109	54	Turning mark, slop moulded, unevenly fired, sandy base	16-18th	
3005	Brick	124	59	Reused, slop moulded, sanded base, indented border	14-15th	
3005	Floor	88	32	Mosaic, scooped keying, worn upper surface, brown glaze, bevelled edge, reused, freckled fabric	13th	
3005	Peg	183	14	Reused, 2 x circular pegholes	16th+	
3005	Plain			Reused	13-16th	
3007	Peg			Circular peghole	13-16th	13-16th
3007	Plain				13-16th	
3008	Plain			Abraded	13-16th	13-16th
3009	Brick				14th+	L14-16th
3009	Floor		32*	Yellow-brown glaze, white underslip, bevelled, nailhole in corner?, kiln scar, plain glazed floor tile?	L14-16th	
3009	Plain				13-16th	

3010	Peg			Square peghole	13-16th	13-16th
3010	Plain				13-16th	
3011	Plain				13-16th	13-16th
3014	Plain				13-16th	13-16th
3014	Plain			Abraded	13-16th	
3016	Plain				13-16th	13-16th
3017	Brick		38	Sooted, sanded mould?	14-15th	14-16th
3017	Plain				13-16th	
3019	Brick			Small fragment	14th+	14th+
3019	Plain				13-16th	
3022	Plain				13-16th	13-16th
3022	Stone			Limestone? Burnt	?	
3023	Plain			Silty fabric	13-16th	13-16th
3024	Plain				13-16th	13-16th
3024	Plain		16	Shell fragments	13-16th	
3034	Peg			Circular peghole	13-16th	13-16th
3034	Plain				13-16th	
3034	Plain?		15	Pale orange fabric, with reduced and white core	13-16th	
3036	Plain				13-16th	13-16th
3042	Plain				13-16th	13-16th
3042	Plain			Reused?	13-16th	

8. FINDS ASSESSMENT

There were 44 small finds from the excavations:

8.1 Iron

Nineteen objects were made of iron. Sf33, context 3014 is a sub-rectangular buckle with traces of plating and sf17, c. 3011 may be the end of a knife with a decorative copper alloy cap. Neither object is essentially datable but both may broadly be said to be medieval. The remainder of the ironwork is composed largely of nails (sf13, c.3005; sf14, c.3022; sf19, c.3001; sf20, c.3016; sf31, c.2001; sf35, c.1005; sf37, c.3022, sf38, c.3024, sf40, c.3010; sf41, c.3011) – sf19 has a probably 15th – 16th century copper alloy pin stuck in its corrosion product. Apart from a strip (sf16, c.3014), the other iron objects are unidentifiable (sf18, c.3019; sf21, c.1004; sf34, c.3020, sf36, c.1005; sf39, c.1001; sf42, c.3011).

8.2 Copper alloy

Sf15, context 3037 is a buckle with buckle plate of 13th – 14th century form; sf7, c.3011 may be a 15th – 16th century pin shank. Sf30, c.3023 is unidentified.

8.3 Glass

Sf4, context 2000, and sf5, c.2001 appear to be fragments of crown window glass, so maybe 18th century in date. All the remaining glass fragments appear to be post-medieval or modern window or vessel glass (sf3, c.1000; sf6, c.3011; sf22, c.1004; sfs23-4, c.3001; sf25, c.2012).

8.4 Stone

The stone finds comprise a micaceous schist hone (sf27, context 3005) which is likely to be medieval or possibly Anglian/Anglo-Scandinavian, a fragment of ?hearth lining (sf12, c.2001) and an unidentified fragment, possibly unworked (sf28, c.3034).

8.5 Fired clay

Post-medieval tobacco pipes were found in the following contexts: 1004, 2000, 2012, 3001, 3005.

8.6 Slag

This was found in contexts 2000, 2006.

8.7 Wood

Two wooden artefacts Sfs1 and 2, both context 3043 – sf1 may be remnants of a medieval bowl, while sf2 appears to be an offcut. Both artefacts are from the same context and have been preserved through waterlogging. Anaerobic anoxic conditions appear to have been maintained since the objects were deposited and little subsequent change in the burial context appears to have taken place.

The objects arrived, still encased in soil from their burial context, in a Stewarts Plastics box. Both were immediately cleaned to ascertain their nature and condition and have been repacked in water awaiting a decision on their future.

Context 3043, SF 1: Parts of a turned wooden vessel, probably a bowl in five main fragments, which refit into two main sections. The first section is part of the rim and wall of the vessel, which makes a poor fit with two joining pieces at the turn of the wall/base. The breaks occur along the plane of the medullary rays. The second section is of two pieces, broken across the grain and refitting to make a section of the wall of the vessel. The exterior surfaces of the vessel are abraded and very soft. The interior surfaces exhibit the usual black deposit associated with these vessels, and prominent turning marks. There is no evident decoration or deliberate marking of the object. Ash (*Fraxinus excelsior L*).

Context 3043, SF 2: One chipping of radially faced heartwood. Surfaces eroded. Oak (*Quercus sp.*).

Recommendations. SF1 should be drawn and conserved by PEG treatment followed by freeze-drying. SF2 may be discarded, unless there is a special importance attached to the find, in which case it should be treated as SF1.

8.8 Summary

A small assemblage, and of limited interest in containing little datable material. The material is mainly domestic, although there is little to go on; the bowl is an unusual survivor. The slag and ?hearth lining suggest possible metalworking in the vicinity, although they could have been imported to the site in dumps/for levelling.

9. CONSERVATION ASSESSMENT REPORT

9.1. Objectives

This report aims to meet the requirements of MAP2, Phase 3, Assessment of Potential for Analysis, (English Heritage, 1991). The work carried out has involved an X-radiographic investigation of selected finds, an assessment of the condition of all finds, their stability and packaging for safe long-term storage. This report includes an evaluation of the potential of each group of material for further investigative conservation and research. There are recommendations for stabilisation, special packaging and analytical or specialist support required.

9.2. Procedures

All iron and copper alloy objects were X-rayed using standard Y.A.T. procedures and equipment. Two sheets of film were placed in each cassette to produce duplicate plates for archive purposes. The plates were laid out in small find number order as far as possible. The X-ray plate number (YAT series) was written on each bag. Each image on the X-ray was labelled with its small find number. The plates were packaged in acid-free archival envelopes and given a reference number in the Online Photo Archive. This was linked through to the CIFR record for each find. The archival copies are stored at the Conservation Laboratory and the duplicates with Finds Administration.

All categories of material were examined under a binocular microscope at X20 magnification. The wood was assessed by Steve Allen, report attached. The material identifications were checked and observations made about the condition and stability of the finds. Wet-packed glass was washed, dried and repacked. Any technological information deduced from the X-rays and/or microscope examination was recorded on CIFR in the Work Record area, and printed below in section 5.

9.3. Quantification

A total of 44 finds were assessed and 2 duplicated X-ray plates produced. The number of objects in each material category is listed below:

Iron	17
Copper alloy	4
Slag	4
Stone	3
Glass	4
Fired Clay/Pot	6
Wet-packed	4 glass
	2 wood

9.4. Condition

9.4.1 Iron

The ironwork was generally covered in soil/silt and bulky uneven mixed orange-brown iron corrosion. Most of the finds appear stable and are not fragmentary, few display signs of post excavation activity. The corrosion crust incorporated material from the surrounding burial deposits: charcoal and white mineral inclusions were ubiquitous. The corrosion also incorporated

occasional mineralised organic remains (MPO). These MPO's could be referred to a specialist for identification and study (costs for this are not included). Where these are visible, I have highlighted evidence of MPO's in bold in the tables in section 5. From the x-ray images there appears to be possible evidence of surface plating (Sf 33), this has been recommended for further investigation.
As long as the RH is maintained below 15% the objects should remain stable for the long term.

9.4.2 Copper alloy
The copper alloy was covered with thin layers of soil/silt overlying mixed green corrosion products. A number of the finds display pale powdery green corrosion, a possible sign of bronze disease. Due to the potentially unstable nature of the material the finds should be stored dry. Only one find (Sf 30) has been recommended for a chemical stabilisation treatment.
The others should remain stable if stored below 35% RH.

9.4.3 Slag
The slag fragments have been catalogued as small finds, packed (unwashed) in grip-top bags and stored without silica gel. There was no magnetic response from any of the fragments. The heavy slag needs to be supported in a box, as the plastic is beginning to split under the weight of the object. It is suggested that the material be examined by an archaeometallurgist, particularly sf12, which may be possible hearth lining fragment.

9.4.4 Stone
The stone is stable, well-packed and ready for long-term storage.

9.4.5 Glass
The wet material had been double bagged with a small amount of water and contained within a black plastic box. It was washed, air dried and packaged as discussed below. Most of this material was relatively modern green glass, some fragments retained the thickened mark where the pontil had been attached during manufacture. The large vessel base had a moulded inscription.
All the dry finds had been packed in perforated mini-grip bags within a cardboard box. Most of these were opaque post-medieval sherds which should have been kept damp, rapid drying had led to cracking and some lamination.
This material is safe for the long term. Caution, many of the fragments are sharp.

9.4.6 Fired Clay/Pot
Largely clay pipe remains, plus one modern base. All the dry finds had been packed in perforated mini-grip bags within a cardboard box. This material is robust and should be safe for the long term.

9.5. Assessment:
The finds were viewed by the conservator and finds specialist Nicky Rogers to determine the potential for further research and investigative conservation in the light of the microscope examination and X-radiographic results.

The results are listed in the tables below by material type:

9.5.1 IRON

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00013	3005	;IRON;	Nail, one piece, incomplete, tip is missing and shank is bent. Covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00014	3022	;IRON;	Nail, one piece, complete, but shank is bent. Covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00016	3014	;IRON;	Strip, (originally sent as Nail, but without head), one piece, bent. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00017	3011	;IRON; COPPER ALLOY;	Probably a fragment of the handle of a scale tang knife. There is a trefoil-shaped copper alloy terminal with pale green powdery surface, above areas of smooth dark grey-green patina. The x-ray shows one rivet in situ. The iron handle is covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. **Partial investigative conservation is requested (NR) to reveal the terminal, rivet, cross-section at break and to look for possible MPO handle remains**. The fragment should remain stable if stored at <15%RH. **(est. 2 hours)**
SF00018	3019	;IRON;	Bent strip with rectangular cross-section (visible on x-ray), possibly nail or staple, one piece, incomplete. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00019	3001	;IRON; COPPER ALLOY;	Two objects corroded together: Iron nail, one piece, bent, incomplete, head missing. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). Attached to the tip is a bent copper alloy pin whose head is inside the iron corrosion (appears likely to be a wound wire head on x-ray). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00020	3016	;IRON;	Two nails, complete. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00021	1004	;IRON;	Bar or strip with rectangular cross-section, one piece, complete. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00031	2001	;IRON;	Two large nails, one complete, the other with tip missing. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00033	3014	;IRON;	Complete rectangular buckle frame and pin, one piece constructed from two parts, complete. Covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). The corrosion has laminated in one corner, exposing a white powdery layer (probably tin or lead corrosion). X-ray shows probable non-ferrous plating all over, and very little iron metal core. No sign of active weeping or orange powdery corrosion. **Investigative cleaning is required to expose plating for XRF and to determine cross-section (NR).**

			Store dry, <15%RH. **(estimate 2hours)**
SF00034	3020	;IRON;	Probable nail, one piece, complete and attached to stone. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. **NR wants cross-section to confirm whether nail or strip**. Store dry, <15%RH. **(estimate 1 hour).**
SF00035	1005	;IRON;	One piece, incomplete, one end broken and missing. Probably a large nail fragment. Covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH
SF00036	1005	;IRON;	Possibly a nail shank, one piece, incomplete. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00037	3022	;IRON;	Nail, one piece, large and complete, but shank is bent. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.) Mineralised wood attached. No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH
SF00038	3024	;IRON;	Nail, one piece, complete, but cracked near tip. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00039	1001	;IRON;	Two fragments. The smaller one is not magnetic, and can be identified from x-ray as a nail fragment, tip missing. It is very heavily corroded, with a powdery yellow deposit, an odd pinkish granular deposit and mixed iron corrosion. The broken end exposes a square cross-section of the shank. The larger fragment is again non-magnetic, but very powdery, and corroded in 3 distinct layers: a semi-circle of grey sandy deposit with pale yellow flecks, and above this the edge of a possible iron object is revealed by an orange layer, and finally the purple-grey ashy layer at the top. The x-ray shows a C-shaped object or loop fragment. **Investigate a cross-section of this to see if an iron object can be located and the surrounding deposit identified.** Store dry <15%RH. **(est 1hr).**
SF00040	3010	;IRON;	Eight fragments covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). X-ray and visual examination reveals (in order of decreasing size): Largest is a nail with bent shank; next is a strip fragment with rectangular cross-section visible at break; third is a possible nail shank (square cross-section at both breaks), corroded to stone; fourth through sixth are probable strip fragments; seventh is a possible nail shank (square cross-section at both breaks); and eighth is a non-diagnostic fragment. No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00041	3011	;IRON;	Fifteen fragments, covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). X-ray and visual examination reveals eight nails with heads, and seven non-diagnostic fragments. No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00042	3011	;IRON;	One piece, covered in bulky mixed iron corrosion with adherent sand, silt and inclusions (mortar, charcoal, etc.). Fragment with rectangular end and projecting curved strip, possibly a fitting. **Investigative cleaning is required to expose the shoulder and a cross-section** Store dry at <15%RH. **(est 1 hour).**

9.5.2 COPPER ALLOY

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00007	3011	;COPPER ALLOY;	One piece, incomplete, tip only, pin or needle fragment. Examined under binocular microscope at x20: Pale green powdery pitted surface, but silver coloured surface (**white metal plating**) is visible at wide end and small areas towards the tip. The fragment has been scratched, exposing the coppery metal core. There is a black deposit at the break. Should remain stable if stored dry at <35%RH. XRF of white metal coating advisable only if part of a wider study of pins. No further treatment required.
SF00015	3037	;COPPER ALLOY; IRON; LEATHER;	Complete buckle frame, D-shaped, with perforated bent buckle plate and two iron rivets (now corrosion only), pin is missing. **Mineral preserved organic remains of the strap (leather) in situ**. X-rayed in two planes. Examination at x20 shows pale powdery green corrosion in some areas, bright green shiny corrosion crust at one end of the plate, and a compact patina at the other. A recently scratched edge exposed a coppery metal core. Stable if stored dry, <35%RH. No further work required (NR).
SF00019	3001	;IRON; COPPER ALLOY;	Two objects corroded together: Iron nail, one piece, bent, incomplete, head missing. Covered in bulky mixed iron corrosions with adherent sand, silt and inclusions (mortar, charcoal, etc.). Attached to the tip is a bent copper alloy pin whose head is inside the iron corrosion (appears likely to be a wound wire head on x-ray). No sign of active weeping or orange powdery corrosion. No further work required (NR). Store dry, <15%RH.
SF00030	3023	;COPPER ALLOY;	Bent strip (S-shaped), flat at the wide end (a recent scratch here reveals a coppery metal core) and tapering to a thick blunt point at the other. The x-ray of this area suggests it is possibly a hollow cone or perhaps has just been folded over. There is a crack across the strip at its middle and c. 4 pustules of **bronze disease** breaking out. **Remove silt and investigate the hollow(?) terminal. Stabilise.** Stable in the short term if stored dry, <35%RH. **(est 3 hours)**

9.5.3 SLAG

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00012	2001	;STONE;SLAG;	Fragment, stone; slag: Arrived dry and unwashed, all edges broken, one face a glassy bubbly green to grey slag layer, the bulk of the fragment consisting of a white granular stone cemented by clear transparent glass. **High temperature process, possibly a hearth lining fragment? Refer to archaeometallurgist**.
SF00032	3011	;SLAG;	Slag (sent originally as iron). One piece, not magnetic, x-ray shows porous and amorphous lump with adherent sand, silt and inclusions (mortar, charcoal, etc.). No further work required (NR).
SF00043	2000	;SLAG;	Slag: one large piece and two smaller fragments, unwashed, not magnetic. **Refer to archaeometallurgist**.

9.5.4 STONE

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00027	3005	;STONE;	Description:1 piece, complete, mica schist, worn and smooth, tapering to a point on one side. Arrived dry and washed. Robust and stable. No further treatment required.

9.5.5 GLASS

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00003	1000	;GLASS;	Two fragments of pale green transparent glass received wet and with a covering of dark silt. The smaller fragment is paler, very thick, flat, scratched, chipped and with all edges broken. CAUTION, very sharp. The larger fragment is the base of a large vessel, with a very thick soil deposit in one side. This deposit was removed and sieved to 1mm. The residue was examined at x10 and found to be pebbles and fragments of orange fired clay. There were white deposits in the interior, mortar-like, which were loose and dissolved. **There is a moulded inscription on the base : "G.S & Co. Ld" and the number "481",** probably modern. Both pieces were rinsed in tapwater, then brushed under a binocular microscope at x10 and judged to be sufficiently robust to air dry. Repacked in perforated mini-grip bag with jiffy foam, smaller fragment in separate bag within this.
SF00004	2000	;GLASS;	Five fragments of pale green transparent window (?) glass received wet, with a covering of dark silt and with all edges broken . CAUTION, very sharp. The smaller 2 fragments are paler, thinner, flat, scratched, chipped . The larger 3 fragments are large, thickened at the centre, and with **pontil marks.** All pieces were rinsed in tapwater, then brushed under a binocular microscope at x10. They were judged to be sufficiently robust to air dry. Repacked in individual bags with jiffy foam, all within one large perforated mini-grip.
SF00005	2001	;GLASS;	Two fragments of pale blue-green transparent glass received wet and with thin covering of dark silt. The smaller fragment is flat, with all edges broken; the surface was obscured by areas of orange iron corrosion, and a slight iridescence was visible. The larger fragment is flat but of irregular thickness, very thick at the centre of one side; it is cracked, scratched and chipped. There is slight iridescence and a small white deposit towards the projecting corner of the thick edge. Both pieces were rinsed in tapwater, then brushed in reverse osmosis water under a binocular microscope at x10. They were judged to be sufficiently robust to air dry. Repacked in perforated mini-grip with jiffy foam, smaller fragment in separate bag within this. Caution: sharp.
SF00006	3011	;GLASS;	Description:1 fragment vessel (?) glass, NR said probably post-medieval in date. Opaque, all edges broken and missing. Arrived dry and unwashed, with silt still adherent. Surface is lustrous mid-brown, flaking and iridescent. Examination under binocular microscope at x10: Surface is pitted, the core at break shows a layered structure, bubbles trapped within, hydrated silica structures prone to cracking were visible throughout. Concave surface contains original scratches or possible linear decoration. No further treatment required at this time, monitor flaking.
SF00022	1004	;GLASS;	Description:1 fragment bottle (?) glass, NR said probably post-medieval in date. Opaque, all edges broken and missing. Arrived dry and unwashed, with silt still adherent. Surface is mid-brown, some areas are chipped and flaking and an iridescent green and yellowish surface is exposed. Examination under binocular microscope at x10: The fragment is crazed, with large hairline cracks. Hydrated silica structures prone to cracking were visible throughout. No further treatment required at this time, monitor flaking.
SF00023	3001	;GLASS;	Description:1 fragment window glass, NR said probably post-medieval in date. Translucent, all edges broken and missing. Arrived dry and unwashed, with silt still adherent. Surface is creamy pale yellow and slightly iridescent. One edge is a recent break, and a green glassy core sandwiched between thin yellow surface layers is exposed. No further treatment required at this time, monitor flaking.

SF00024	3001	;GLASS;	Description:1 fragment bottle base. Translucent green glass, all edges broken and missing. Arrived dry and unwashed, with considerable silt, soil, charcoal and white mineral still adherent. No further treatment required.
SF00025	2012	;GLASS;	Description: 1 small complete bottle base, modern. Clear transparent glass, all edges broken and missing. Arrived dry and unwashed, with considerable silt still adherent. No further treatment required.

9.5.6 FIRED CLAY/POT

FIND	CONTEXT	MATERIAL	ASSESSMENT
SF00008	2000	;FIRED CLAY;	1 fragment, tobacco pipe, stem fragment, one end shaped, tapering to a point. Arrived dry and washed. No further treatment required.
SF00009	1004	;FIRED CLAY;	2 fragments, tobacco pipe, stem fragments, both ends broken and missing. Arrived dry and unwashed. No further treatment required.
SF00010	2012	;FIRED CLAY;	4 fragments, tobacco pipe, 2 decorated bowls with spurs, one with part of stem attached, and 2 additional stem fragments, both ends of stems are broken and missing, no joins. Arrived dry and washed, with some burning and iron staining visible. Packed the fragments in separate bags with foam to prevent mechanical damage. No further treatment required.
SF00011	3001	;FIRED CLAY;	2 fragments, tobacco pipe, stem fragments, both ends broken and missing. Arrived dry and washed. No further treatment required.
SF00029	3005	;FIRED CLAY;	2 fragments, tobacco pipe, bowl and stem fragments, both ends of stem broken and missing. Arrived dry and washed, but with soil in interior. Stem stained and cross-section shows a black, reduced core. No further treatment required.
SF00026	2012	;POT;	Description:1 fragment, glazed white china clay ceramic base sherd with edges broken and missing. Arrived dry and washed, with silt and orange iron staining within the crizzled surface cracks. No further treatment required, modern (NR).

9.6. Statement of Potential

9.6.1. After any necessary stabilisation has been carried out, the finds will be stable for the long term. Investigative conservation can proceed as required to meet the research objectives in the analysis phase.

9.6.2. The slag should be referred to a specialist in order to determine which, if any, industrial processes occurred on-site or nearby.

9.7. Recommendations

Recommendations for further work are highlighted in bold in the tables. These are summarised below:

9.7.1 Further investigative conservation

I have recommended further investigative cleaning of five iron finds. One copper alloy find requires cleaning and stabilisation. The investigative work on the metals would involve selective, partial removal of corrosion crusts for the purposes of research. Total removal of the corrosion crusts should be undertaken if illustration/photography is required for publication. Selected finds may merit photographic or video recording.

9.7.2 Analysis and specialist support

In line with the research requirements, suggestions for further analysis and specialist support have been made. This will have to be arranged after conservation has been completed.

9.7.2.1 MPO's (mineral preserved organic materials): If found they should be viewed by a specialist for identification.
9.7.2.2 XRF (X-ray fluorescence analysis): Where evidence of plating seen on the x-ray plates and after cleaning is confirmed, it should be analysed by XRF.
9.7.2.3 The stone and slag may be of interest to specialist researchers.

9.7.3 Storage
9.7.3.1 Packaging: The finds have been packed appropriately for long-term storage. All materials used are archive stable and acid-free. Plastic bags have been pierced to allow airflow within microclimates, reducing the risk of condensation and mould growth. 'Jiffy', (polythene) foam inserts have been added to some of the bags (except for those mentioned above) to provide additional support and protect against mechanical damage during transit. Any replacement of packaging materials should be carried out in consultation with a conservator.

9.7.3.2 Storage environment: Metals are packaged in a polythene 'Stewart' box with silica gel to provide a dry microclimate of less than 15% Relative Humidity which will halt any further corrosion (Knight 1990). The box of metalwork contained 2x100g silica gel bags and an indicator strip. It is necessary to monitor the indicator strips; **if any part of the strip turns pink the gel will need to be regenerated.**

10. EVALUATION OF BIOLOGICAL REMAINS

10.1 Summary

Eight sediment samples and two boxes of hand-collected bone, from deposits of 12th century to modern date, revealed by excavations at Skellgarths, Ripon, North Yorkshire, were submitted for an evaluation of their bioarchaeological potential.

These deposits have, unusually for sites in Ripon observed in the past few years, produced some modest (in one case rich) assemblages of plant remains and one assemblage with excellent preservation of invertebrates, and there is clearly potential for further study both of the material in hand and any deposits threatened with destruction by development, to elucidate plant use, human activity and local environmental conditions in this area.

A small but well preserved assemblage of animal bone (totalling approximately 40 litres) was recovered. The material came from three separate excavation trenches, with a total of 27 dated bone-bearing contexts. Material in each trench was summarily grouped by period as medieval, post-medieval and modern. A rather limited range of taxa was identified, but there was a high proportion of measurable bones, though these were largely concentrated in one modern context (1009) and appeared to represent specialised butchery waste (probably from an adjacent property which was, until recently, a butcher's shop). It is recommended that the vertebrate remains should be fully recorded and a biometrical archive created.

Any further excavation at this site should employ a systematic programme of sampling with subsequent analysis of plant and animal remains to explore these deposits further.

10.2 Introduction

An archaeological evaluation excavation was carried out by York Archaeological Trust at Skellgarths, Ripon, North Yorkshire, during the first quarter of 2001.

Eight sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) and two boxes (each of approximately 20 litres) of hand-collected bone were recovered from the deposits. Spot dating of recovered artefacts gave a date range from the 12th century to modern for the deposits.

All of the material was submitted to the EAU for an evaluation of its bioarchaeological potential.

10.3 Methods

10.3.1 Sediment samples

The sediment samples were inspected in the laboratory. Four of the samples were selected for evaluation 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. The flots, washovers and residues were examined for plant remains. The flots and washovers were also examined for invertebrate remains, and the residues were examined for other biological and artefactual remains.

Preservational condition of the invertebrate remains was recorded using the scheme 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).

Table 1 shows a list of the processed samples and notes on their treatment.

10.3.2 Hand-collected vertebrate remains

For the hand-collected vertebrate remains that were recorded, data were entered directly into a series of tables using a purpose-built input system and *Paradox* software. Subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, for the larger assemblages, notes were made concerning fragment size, dog gnawing, burning, butchery and fresh breaks.

Where possible, fragments were identified to species or species group, using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), unidentified bird, and completely unidentifiable.

10.4 Results

10.4.1 Sediment samples

The results are presented in context number order. Archaeological information, provided by the excavator, is presented in square brackets.

Context 1010 [12th/13th century dump immediately above 'natural']
Sample 5/T (5 kg sieved to 300 microns with washover)

Dry, light to mid grey-brown, crumbly to unconsolidated, very stony (stones 2 to 60+ mm were common), sandy clay silt.

The tiny washover of a few cm^3 consisted of modern woody (?tree) roots and a little charcoal (to 10 mm in maximum dimension); there were traces of rather poorly preserved charred cereals (oats, *Avena* sp. and 'bread/club' wheat, *Triticum 'aestivo-compactum'*). The very large residue of about 1700 cm^3 comprised gravel (mostly rather rounded clasts, to 75 mm, perhaps largely water-worn) with some sand.

There were approximately sixty (total weight 2.5 g) very small fragments of bone, either fawn or brown in colour. Most of the remains were of mammal bone, but there were five pieces of fish, includng a scale and a damaged vertebra of a small gadid.

Context 3011 [17th century, horticultural soil]
Sample 3/T (3 kg sieved to 300 microns with washover)

Just moist, mid grey-brown, unconsolidated to crumbly (working soft and somewhat plastic), sandy clay silt. Stones (2 to 20 mm), cinder, charcoal and modern roots were present in the sample.

The small washover of about 75 cm^3 consisted of modern woody roots and charcoal (to 15 mm, including oak, *Quercus*), with a little coal (to 5 mm) and cinders (to 10 mm); there were also a few scraps of extremely poorly preserved seed fragments of no interpretative value. The large residue of about 500 cm^3 was sand and (mostly rather angular/shaly) gravel (to 35 mm), with bone (to 30 mm) and three small fragments of shell (including mussel *Mytilus edulis* L.).

The recovered bone weighed 10.7 g and comprised about 100 unidentified mammal fragments, three pieces of large mammal, and seven bits of unidentified fish. Five fragments were charred and another four calcined. The rest of the bones were well preserved and generally fawn in colour.

Context 3039 [12th/13th century backfill of linear cut]
Sample 7/T (3 kg sieved to 300 microns with paraffin flotation and washover)

Moist, mid grey-brown (mottled lighter and darker on a mm-scale), brittle to crumbly (working soft and slightly sticky), sandy clay silt. Stones (2 to 60 mm), rotted ?mortar, charcoal and modern roots were present in the sample.

The small flot yielded a few charred cereals and poorly preserved weed seeds, whilst the washover of about 70 cm^3 consisted of modern roots with some bone (to 30 mm), wood and charcoal (both to 10 mm) with further cereals: oats, bread/club wheat and barley (*Hordeum*). Some of the oat grains appeared to be partly charred and retained patches of brown rather than black tissue. Two other 'useful' plants, both represented by a single seed, were field bean (*Vicia faba* L. var. *minor*) and fig (*Ficus carica* L.). The large residue of about 550 cm^3 was of sand and gravel (to 55 mm). There was also a single fragment of pottery (to 30 mm).

Context 3043 [13th century waterlogged deposit]

Sample 6/T (3 kg sieved to 300 microns with paraffin flotation)

Moist, light to mid brown to mid to dark brown, brittle to crumbly (working soft), humic, slightly clay sandy silt with some ?fine herbaceous detritus and patches of light to mid brown sand. Stones (6 to 20 mm rounded pebbles) and twigs were present in the sample.

The small flot contained many well preserved stinging nettle (*Urtica dioica* L.) and other weed seeds along with numerous well-preserved insects, ostracods and cladocerans. The large residue

of about 600 cm^3 included about 350 cm^3 of 'waterlogged' organic detritus—mainly small wood fragments (including chips, to 10 mm) and twig fragments (probably mostly willow, *Salix*). Seeds and fruits were abundant and well preserved and included many more nettle seeds, as well as nutlets of common mallow (*Malva sylvestris* L.). Other taxa were mostly other weeds of various kinds, including some typical of cereal fields (perhaps from straw?). A single fragment of capsule of flax (*Linum usitatissimum* L.) and a charred bread/club wheat grain represented the only cultivated plants in the assemblage. Aquatic taxa were limited to horned pondweed (*Zannichellia palustris* L.).

The flot was rich in invertebrate remains, particularly fragments of immature insects of various kinds. Preservation was good (E 1.5-2.5, mode 2, weak; F 1.5-3.0, mode 2.0, weak). Aquatics were abundant, with at least 100 *Daphnia* ephippia (water flea resting eggs) and numerous resting eggs of another cladoceran, and quite large numbers of ostracods. Many of the fragmentary immatures were probably of aquatic forms, too. However, there was no well-developed aquatic beetle and bug fauna; although several taxa were present it was usually as single individuals. There were two pondskaters, *Gerris* sp., indicating open water, but the aquatic invertebrates as a whole can probably best be seen as representing temporary water, or pools among emergent or overhanging vegetation. Waterside taxa were present in small numbers, and suggested damp litter or moss.

Terrestrial taxa could be divided into those which might have lived in an area of weed vegetation (e.g. the plant feeders *Psylliodes*, *Chaetocnema*, *Apion* and *Sitona* spp., the ground beetles *Loricera pilicornis* (Fabricius) and *Calathus* sp.), species often found in litter below plants (such as *Tachinus* and *Tachyporus* spp.), and species typically associated with human habitations or other structures. In the latter category, the spider beetles *Tipnus unicolor* (Piller and Mitterpacher) and *Ptinus* sp., and the mould-feeding *Mycetaea hirta* (Marsham), were rather abundant. There was not, however, a large fauna indicative of waste disposal; there was no community typical of house floors or stable manure, for example, and little to suggest foul matter. The woodworm, *Anobium punctatum* (Degeer), was quite common, and may have originated with the spider beetles and *Mycetaea*, or have emerged from fencing or dead branches of trees nearby. The few dung beetles probably represent 'background fauna'; their numbers certainly do not suggest adjacent grazing land.

A single fragment of a puparium of the sheep ked, *Melophagus ovinus* (Linnaeus), may have originated from livestock living adjacent to the cut, but in view of the rarity of dung beetles is perhaps more likely originally to have been deposited during wool-cleaning.

A notable record was a bug scutellum, almost certainly of the nettlebug *Heterogaster urticae* (Fabricius), a species whose archaeological records indicate temperatures well above present day in medieval Yorkshire. Some nymphs of psyllid bugs were present and would, if identified, give indications of local vegetation from organisms unlikely to have travelled far unless transported by humans.

The biological evidence thus indicates deposition in water, perhaps near willow trees, with some limited input from occupation in an area bearing indications of vegetation disturbance by human activity.

10.4.2 Hand-collected vertebrate remains

Summary data for the hand-collected vertebrate remains from the medieval and post-medieval periods are presented in Tables 2 and 3 respectively.

Trench 1

Medieval

Bone from four contexts ranging in date from the 12th to the 15th centuries was examined, a total of 51 fragments. Preservation was consistently recorded as 'good', frequently verging on 'excellent', and, with the exception of Context 1006, angularity was described as 'spiky'. Colour was noted as fawn in each context. Fragmentation tended to be high, with no bones above 20 cm in maximum dimension, and in most contexts, more than 50 % of the fragments were less than 5 cm across the longest axis. Fragmentation was somewhat less extreme in the material from Context 1004, with approximately half of the bones ranging between 5 and 20 cm. Dog gnawing, burning, and butchery marks, while present, were not observed in significant amounts. Fresh breakages, affecting between 20% and 50% were most prevalent in Context 1006.

From the total of 51 fragments, 20 were identified to species, the majority being of cattle, and caprovid, with a few pig bones, and a single goose carpometacarpus from Context 1004. Amounts of bone categorised as large mammal, medium mammal and bird roughly mirrored the proportions of identified taxa. Four of the identified bones were measurable, and there were two mandibles, both caprovid, to which ages could be assigned.

Modern

One context (1009) gave 193 fragments of animal bone (a few of which were more rounded and possibly redeposited as this context also contained 13th century pottery). The vast majority of bones were identified as cow or large mammal, with at least four or five individuals represented. There were also a few fragments of pig, including parts of the skull, and a single radius of an adult goat. Of particular note was the high proportion of lower limb bones of cattle, particularly astragali, calcanea and distal tibiae. Metapodials and phalanges were present but under-represented in comparison. Similarly, there were no cow head elements, but butchered atlas and axis fragments were well represented. Meat bearing elements included several fragments of humerus, and a high proportion of radii, as well as ribs and vertebrae identified as large mammal. Summary information for the vertebrate remains from this context is given in Table 4.

Trench 2

Early Modern

There was a single horse phalanx from Context 2013, dating to the 18th/19th century.

Trench 3

Medieval

Fourteen contexts dating to between the 12th and 15th centuries yielded 77 bones, the largest group, from Context 3010, contained only 21 fragments. Preservation and angularity were consistently recorded as 'good' and 'spiky' respectively. Colour tended to be variable between contexts, generally either brown or fawn, tinged with brown patches. Overall fragmentation was somewhat lower than in Trench 1, with the majority of bones falling between 5 cm and 20 cm, and none above 20 cm in maximum dimension. Dog gnawing, butchery, burning, and fresh breakages were not observed with significant frequency. Thirty-five bones were identified to species, cow and caprovid being the most commonly occurring taxa, followed by pig. There were fourteen measurable fragments.

Post-medieval
Ninety-six bones were recovered from seven contexts ranging in date from the 15th/16th to the 17th centuries. Context 3011 contained 55 fragments, the remainder of the deposits mostly yielding less than eight bones. Preservation and angularity were uniformly 'good' and 'spiky' respectively, but colour, while generally fawn, tended to vary within contexts. Fragmentation and proportions of dog gnawing and burning were similar to those observed from the Trench 3 medieval group, but amounts of butchery and fresh breakages were greater. There were 38 bones identified to species, of which caprovid was dominant, followed by cattle. A single chicken bone from Context 3022 and a very rounded dog metacarpal from Context 3011 were also noted. Fourteen bones, mainly caprovid, were measurable, and there was a single cow mandible.

Early Modern
Bones from two contexts dating to the 19th century were scanned for interesting features. Context 3000 yielded a damaged piece of worked cervid metapodial, probably a large fallow deer metatarsal. The bone had been split medio-laterally, with the ventral part having been shaped and smoothed into a long narrow scoop 17 mm wide and surviving to a length of 97 mm. Bones from Context 3001 included the scapula of a hare (*Lepus* sp.), a complete humerus of a robust sheep, a cow second mandibular molar and a (very) large mammal long bone fragment with saw-marks.

10.5 Discussion and statement of potential

These deposits have, unusually for sites in Ripon observed in the past few years, produced some modest (in one case rich) assemblages of plant remains and one assemblage with excellent preservation of invertebrates, and there is clearly potential for further study both of the material in hand and any deposits threatened with destruction by development, to elucidate plant use, human activity and local environmental conditions in this area.

Insufficient fragments of bone were recovered from each date group for any meaningful conclusions to be drawn but the general composition suggests domestic waste. The overall absence of wild species, and low proportion of even domesticated birds, might imply that the medieval and post-medieval occupants were of fairly lowly status.

The modern assemblage from Context 1009 is worthy of note. The overall appearance of the material from this context is that of a deposit of secondary butchery waste; probably from the adjacent property which was until relatively recently a butcher's shop. While it is possible that whole carcasses could have been disarticulated on the site, the hides (with the limb extremities still attached) being taken to the tanners, the absence of heads implies that primary butchery was carried out elsewhere. As the vertebrae were whole rather than split, it is possible that otherwise complete carcasses (rather than sides of beef) arrived at the site, still requiring further processing. The bias of the skeletal element representation away from those associated with prime cuts of meat is consistent with the production of foodstuffs such as pies.

Although too small to be of interpretative value in isolation, the tightly dated vertebrate assemblage from Skellgarths would provide some additional data in combination with other, similarly dated (medieval and post-medieval), material from Ripon and the wider area.

10.6 Recommendations

The plant and invertebrate remains recovered from Context 3043 (Sample 6) should be recorded in detail, preferably together with remains from an additional subsample. They would provide a

more detailed picture of local ecology, including vegetation and the effects of human activity, but remains with climatic significance should also be sought in view of the *?Heterogaster* fragment recorded.

No additional work is recommended on the current vertebrate material. If further excavation reveals greater concentrations of well dated remains then the current assemblages should be considered in conjunction with them. Similarly, in the event of a synthetic study of vertebrate remains of the represented periods being undertaken the biometrical data available from the present assemblages should be recorded.

Any further excavation at this site should employ a systematic programme of sampling with subsequent analysis of plant and animal remains to explore these deposits further.

10.7 Retention and disposal

All of the current material should be retained for the present.

10.8 Archive

All material is currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

10.9 Acknowledgements

The authors are grateful to Rhona Finlayson of York Archaeological Trust for providing the material and the archaeological information, and to English Heritage for allowing AH and HK to contribute to this report.

Table 1. *Skellgarths, Ripon: list of processed sediment samples with notes on their treatment.*

Context	Sample	Notes
1010	5	5 kg sieved to 300 microns with washover
3011	3	3 kg sieved to 300 microns with washover
3039	7	3 kg sieved to 300 microns with paraffin flotation and washover
3043	6	3 kg sieved to 300 microns with paraffin flotation

Table 2. *Skellgarths, Ripon: summary information for the medieval hand-collected vertebrate remains.*

Taxon		Measurable	Unfused	Mandibles	Total fragments
Sus f. domestic	pig	4	5		10
Bos f. domestic	cow	2	1		23
Ovis f. domestic	sheep	4	1		4
Caprovid		7	1	2	17
Anser sp.	goose	1			1
Subtotal		**18**	**8**	**2**	**55**
Bird					2
Large mammal					42
Medium mammal					29
Subtotal					**73**
Grand total		**18**	**8**	**2**	**128**

Table 3. *Skellgarths, Ripon: summary information for the post-medieval hand-collected vertebrate remains.*

Taxon		Measurable	Unfused	Mandibles	Total fragments
Canis f. domestic	dog				1
Bos f. domestic	cow	2	2	1	15
Ovis f. domestic	sheep	1			1
Caprovid		10			20
Gallus f. domestic	fowl	1			1
Subtotal		**14**	**2**	**1**	**38**
Bird					2
Large mammal					20
Medium mammal					35
unidentified					1
Subtotal					**58**
Grand total		**14**	**2**	**1**	**96**

Table 4. *Skellgarths, Ripon: summary information for the hand-collected vertebrate remains from Context 1009*

Taxon		Measurable	Unfused	Total fragments
Sus f. domestic	pig		1	6
Bos f. domestic	cow	22	6	46
Capra f. domestic	goat	1		1
Ovis f. domestic	sheep	1		1
Caprovid				1
Subtotal		**24**	**7**	**55**
Large mammal				97
Medium mammal				24
Unidentified				17
Subtotal				**138**
Grand total		**24**	**7**	**193**

11. DISCUSSION AND CONCLUSIONS

Excavations on the adjacent site at Bedern Bank, (now Bedern Court) recorded well preserved remains, including waterlogged deposits, covering a sequence of occupation form the 12th –15th centuries. The braided course of the River Skell flowed across part of the Bedern Bank site. By the late 12th/13th century the banks had been reinforced and a terrace created and drained, probably as a result of the construction of a mill stream which ran alongside the present Skellgarths. This evaluation found evidence of the river channel together with features which may have been associated with the mill race; evidence of the infilling of these features and water course and subsequent use of the reclaimed land.

The examination of deposits by means of three "keyhole" trenches in this area revealed that there has been both water and land management of the area over a long period of time. East facing sections from each trench illustrate the detailed sequences recovered by the evaluation work and demonstrate the changes from one part of the site to another (Figure 8). However, while it is possible to interpolate from this evidence, the "keyhole" examination cannot establish the complete sequence of changes. It is not possible from the evidence recovered to identify all of the changes made to the topography, the course of the river, its use, and the subsequent use of the reclaimed land. This is particularly true where terracing is likely to have been employed as a result of which the depth of deposit may change significantly over a small area.

There is a depth of modern overburden (varying from c.0.60m at the rear of the site, 2m in the centre of the site, to c.1.30m at the street frontage) covering the site and there is also clear evidence of truncation of earlier deposits at the rear of the site but significant medieval deposits were recorded in this evaluation. The sequences of deposition recovered from the evaluation trenches suggest that *in situ* medieval deposits with a depth of 0.15m – 0.25m survived in the area towards the rear of the development site but that they had been severely truncated by modern/19th century pit digging. At their highest point these deposits were c. 0.60m below ground. Evidence of an earlier course of the River Skell or a meander in it was found in Trench 2 located in the centre of the development site. Undated alluvial river silts c.2.30m below the ground surface may be from the medieval period. Preservation of medieval deposits was found to be more complete in the area close to the street frontage of Skellgarths. In this area a sequence of medieval deposits c.1.50m deep was found c.1.30m below the ground surface. These included a linear cut possibly associated with a mill race, another linear cut, evidence of land reclamation and a deliberately laid surface. Some of these deposits were waterlogged and organic preservation here and within the alluvial material from Trench 2 was excellent allowing biological remains and organic artefacts to survive in good condition.

The evaluation ascertained that well preserved, organic, undisturbed but vulnerable deposits survive from a depth of 1.30m below the modern ground surface near to Skellgarths. These may have the potential to address some of the important issues relating to the use of this area, the course of the river, features associated with the medieval mill and subsequent management of the area together with its use. An assessment of the area of the site over which these deposits are likely to survive is more difficult to make. From the available evidence the area between Trenches 2 and 3 and the Skellgarths street front is where significant archaeological remains with the best preservation are likely to survive. In the area between Trenches 1 and 2 there has been significant modern truncation of deposits representing earlier activity on the site.

12. ARCHAEOLOGICAL IMPLICATIONS

The area of proposed development lies within an area of archaeological importance at the heart of the historic town of Ripon and is one of the last remaining empty plots of land on the eastern side of Skellgarths. It is thought to lie close to the ecclesiastical precinct boundary identified by Hall and Whyman (1996, 144). The excavations at Bedern Bank in the area known as Bedern Court demonstrated the development of the natural water course and recorded well preserved remains covering a sequence of occupation from the 12th –15th centuries. Within the more limited areas excavated for the purposes of evaluation at Skellgarths significant remains from the same period were identified together with continued 16th-17th century occupation and later 19th-20th century activity.

Different stratigraphic sequences were recorded in the three trenches which partly reflects the topography of the site but also demonstrates that archaeological survival is not uniform across the site.

The early course of the River Skell is likely to be represented by alluvial deposits in Trench 2 and the deposits below 1.30m below ground level in Trench 3 represented an undisturbed medieval sequence. The most complete survival of medieval deposits is likely to be in the area south of Trench 2 to the street frontage with Skellgarths.

The area between Trench 2 and the rear boundary of the site appeared to have been quite severely affected by 19th-20th century pit digging and while islands of earlier deposits will undoubtedly survive it is likely that the quality of the archaeological data recoverable from this material would be impaired by this degree of truncation.

The quality of the survival of medieval deposits particularly in respect of the organic material within the deposits at depth in Trench 3 was excellent. These undisturbed medieval deposits have the potential to address some of the important questions associated with the development and use of the River Skell and the development of the mill and its race in the medieval period. In addition further light may be shed on local crafts practiced in the area, although artefacts recovered from the evaluation trenches were overwhelmingly domestic rather than industrial in character.

It is recommended that a foundation scheme which avoids the destruction of deposits to greater depth than c.1.30m below ground should be sought. While it may be possible to design foundations which avoid destruction of medieval deposits at this depth, it must also be considered that construction techniques may have an effect on the water levels within these deposits which may have an adverse effect on the anerobic conditions currently prevailing.

The evaluation trenches have indicated a very good potential for the survival of medieval deposits of archaeological significance close to the street frontage although the evaluation was not able to define the northern limit of this survival. Further archaeological work should be considered if these are significantly threatened by the foundations required for the development. An archaeological trench from the Skellgarths street front to the location of Trench 2 of the evaluation would enable a more thorough understanding of the development of the site in the medieval period to be reached.

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APPENDIX 1 : CONTEXT INDEX

Context number	Description	Context Type
1000	Loose dark brown sandy silt and mixed brick/tile rubble.	Dump, Build-up
1001	Loose very fine grained black sand/powder.	Back-fill of pit cut 1002
1002	Sub circular in shape, sides break sharply from surface to fall steeply, almost vertical, to a sharp bottom edge leading to a flat uneven base.	Pit cut
1003	Friable olive brown clay sand with occasional mortar flecks, charcoal flecks and mortar fragments	Dump / Levelling
1004	Loose mid brown mixed sand and pebbles with moderate large brick and tile fragments and occasional slate fragments	Dump / Levelling
1005	Mixed deposit consisting of a friable light brown slightly silty sand and clayey sand with inclusions of occasional charcoal flecks	Dump / back-fill of 1008
1006	Loose light brown silty sand and clayey silt sand with frequent flecks to fragments of mortar and decayed limestone fragments, occasional pebbles and cobbles and 1 large limestone block	Dump / Levelling
1007	Loose black very fine grained powdery sand	Back-fill of pit 1008
1008	Truncated by both east and north facing sections. Possibly rectilinear, sides broke sharply from surface to fall steeply to wards north facing section. Base of cut not reached due to depth restrictions / vicinity of limit of excavation.	Pit cut
1009	Loose light brown clay sand with occasional pebbles	Back fill of pit 1008
1010	Friable reddish brown slightly silty sand with frequent pebbles and occasional charcoal flecks	Build-up / dump
1011	Compact light grey clay silt with occasional charcoal flecks	Dump / back-fill
1012	Void context number - not used.	Void number
1013	Loose red brown sand with pebble banding and occasional lenses / fragments of Gypsum	Natural
2000	Loosely friable dark grey brown slightly clay sand silt with occasional small concrete fragments, pebbles, grit patches and brick / tile fragments	Dump / levelling
2001	Limestone blocks, sizes range from 0.10 x 0.20 x 0.20m up to 0.20 x 0.38 x 0.20m, millstone grit blocks with occasional large cobbles bonded with a soft pinkish white mortar	Wall make-up
2002	Not a cut as such but depression in ground surface formed by weight of wall with a southern edge that broke gently from the surface to fall very gently towards the north, where it was truncated by the south facing section.	Construction cut / subsidence
2003	Loose re-deposited natural sands and gravels With occasional small brick fragments.	Levelling / Dump
2004	Friable mid to dark brown sand silt with occasional small brick fragments and small mortar fragments	Levelling / Dump
2005	Loose small - large brick, tile and mortar fragments in a matrix of a loose powdery brick/tile/mortar flecked mid brown silt sand.	Levelling / Dump
2006	Very hard compacted concretion of ash, slag and clinker	Back-fill / levelling

Context number	Description	Context Type
2007	Only seen in section. Linear, oriented east - west with only southern edge exposed. This breaks gently from the surface to fall steeply to an obtuse bottom edge leading to a flat uneven base. North, west and east sides truncated by limits of excavation	Construction / pit cut
2008	Small to large fragments of slag/clinker in a matrix of a powdery orange sand spotted mid - dark brown fine silt sand with occasional mortar flecks and small brick fragments.	Levelling / Dump
2009	Loose brick, tile and mortar rubble in a matrix of mid brown fine grained sand silt.	Levelling / Dump
2010	Loose brick rubble and mortar	Levelling / Dump
2011	Soft plastic pale greyish brown clay silt with occasional mortar flecks, medium cobbles and spotting / banding of pale - dark grey gritty sand silt .	Alluvial silt
2012	Soft crumbly moist dark brown humic clayey sand silt with occasional small pebbles.	Dump / levelling
2013	Highly organic deposit consisting mainly of small wood / bark chippings in a dark brown silt with occasional large brick fragments, small cobbles and mortar fragments.	Dump / levelling
2014	Plastic pale - mid blue grey clay silt with moderate black spotting / marbling and occasional small patches and streaks of pinkish orange clay silt.	Build - up
2015	Loosely friable moist humic black mottled mid brown sand silt with frequent small pebbles, moderate medium pebbles, occasional angular stone fragments and animal bone.	Alluvial Build - up
3000	Number allocated to finds from machining	Other
3001	Loosely friable mid greyish brown mortar rich gritty silt with frequent fragments of plaster, moderate charcoal flecks, occasional limestone fragments, brick fragments and animal bone.	Back-fill of 3004
3002	Compacted dark grey silty clay with moderate small pebbles, mortar and charcoal flecks	Other / Surface
3003	Remnant of wall / foundation of limestone and cobbles with loose mid grey brown silt filling interstices of single remaining course.	Wall Structure make-up
3004	Linear, orientated north - south, truncated by north, south and west facing sections. Western edge breaks sharply from surface to fall steeply to a rounded bottom edge leading to a flat base.	Robbing cut
3005	Loosely friable light pinkish brown silt sand with frequent mortar flecks to small fragments and small - medium limestone fragments, moderate charcoal flecks and brick fragments and occasional small patches orange brown sand.	Back-fill of robber cut 3004
3006	Linear, orientated north - south, truncated by south and west facing section, with squared terminus to south. Sides break sharply from surface to fall steeply to a rounded bottom edge leading to a gently rounded uneven base.	Robber cut
3007	Compact dark grey silty clay with moderate mortar flecks, charcoal flecks and pebbles as well as occasional tile and limestone fragments.	Dump / levelling

Context number	Description	Context Type
3008	Compact, friable when worked, red tinged dark brownish grey sand silt with moderate limestone fragments and pebbles as well as occasional flecks to small fragments charcoal.	Dump / levelling
3009	Mixed deposit consisting mainly of a friable dark brownish grey slightly clayey sand silt with moderate mortar flecks, decayed limestone flecks and flecks to small fragments of charcoal, occasional brick / tile fragments and animal bone.	Build-up / levelling
3010	Sticky, friable when worked, dark brownish grey slightly clayey sand silt with frequent mortar flecks, moderate decayed limestone flecks, flecks to small fragments charcoal, occasional brick/tile fragments.	Build-up / levelling
3011	Compact, friable when worked, dark brownish grey slightly clayey sand silt with frequent mortar flecks, moderate decayed limestone flecks, charcoal flecks to small fragments, occasional brick / tile fragments and animal bone.	Build - up/levelling / garden soil
3012	Linear cut orientated east - west, truncate to west and north by limit of excavation. Sides break gently from surface to fall steeply to an imperceptible bottom edge leading to a tightly rounded 'V' shaped base.	Other / "lazy bed"
3013	Shallow linear east - west orientated, truncated to west by limit of excavation and to east by 3006. Sides break sharply from surface to fall vertically / steeply to a rounded bottom edge leading to a flat uneven base with a shallow sub-circular depression at its eastern extent.	Other / "lazy bed"
3014	Compacted, friable when worked, mid grey brown slightly clay silt with moderate limestone fragments and charcoal flecks and occasional pebbles and animal bone.	Build - up / levelling / garden soil
3015	Orientated wsw/ene with sides that broke sharply from the ground surface (except at w end where base rises very gently to form a rounded terminus), to fall steeply to a rounded bottom edge leading to a flat irregular base falling towards east, where truncated by cut 3006.	Other / "lazy bed"
3016	Plastic brown tinged orange yellow sandy clay with moderate charcoal flecks and occasional limestone fragments.	Dump / levelling
3017	Compacted loose angular stone and cobbles (40% limestone, 30% cobbles, 20% sandstone & 20% unidentified), with inclusions of occasional tile fragments and animal bone.	Dump / Levelling / Surface?
3018	Moderately compact orange tinged yellowish brown sandy clay with moderate pebbles, occasional angular stone fragments and charcoal flecks.	Dump / Levelling
3019	Moderately compact dark grey brown slightly sandy clay silt with frequent flecks to small fragments limestone, moderate charcoal flecks and occasional brick / tile fragments.	Dump / Levelling
3020	Friable dark grey brown slightly sandy silty clay with occasional small charcoal fragments and flecks of decayed limestone.	Dump / Levelling
3021	Moderately compact mid greyish brown slightly sandy silty clay with frequent flecks to small fragments charcoal and occasional brick / tile fragments.	Dump
3022	Moderately compact orange tinged mid yellow brown sandy silty clay with moderate small limestone fragments and charcoal flecks.	Dump / levelling

Context number	Description	Context Type
3023	Friable, slightly plastic, yellow tinged dark orange brown slightly sandy silty clay with moderate decayed limestone flecks, charcoal flecks and occasional limestone fragments.	Dump / levelling.
3024	Small to large cobbles, rounded and irregular limestone fragments and angular sandstone fragments in a matrix / bedding of soft mid to dark brown silt sand.	Surface / standing / dump
3025	Compacted small pebbles in a matrix of mid grey sand silt with moderate charcoal flecks and occasional small limestone fragments and animal bone.	Track / path or standing.
3026	Very mixed deposit consisting of cobbles, pebbles, brick / tile rubble and mortar in a matrix of friable mid grey gritty slightly sandy clay silt with moderate pockets pale brown coarse sand.	Levelling / Demolition dump
3027	Soft creamy white mortar surrounding and overlying partially demolished wall stub (see east facing section) with inclusions of occasional small - medium cobbles, small brick and pan tile fragments.	Demolition dump
3028	Loosely friable mid grey brown slightly clay sand silt with occasional charcoal and mortar flecks, small pebbles and stone fragments.	Dump / build-up / garden soil
3029	Friable mid brown gritty clay sand silt with occasional flecks to small fragments mortar, charcoal flecks, small clay lumps, pebbles and flecks to small fragments brick/tile.	Back-fill
3030	Only seen in section. West side breaks gently from surface before falling steeply, towards west, to an angular bottom edge leading to a flat uneven base truncated by cut 3006. All other edges removed by machine or lay outside excavated area.	Unknown/pit cut
3031	Loosely friable mid grey brown clay sand silt with occasional flecks to small fragments mortar, charcoal flecks, burnt clay flecks, small pebbles, small clay patches, small brick / tile fragments, pale brown sand spotting and a single medium limestone fragment.	Build up / levelling.
3032	Friable mid orange brown clay silt sand with frequent spots / streaks pale - mid grey silt sand, occasional mortar and charcoal flecks.	Back-fill
3033	Only seen in section. Rounded bowl shaped profile, west and east sides break gently from surface to fall steeply to an imperceptible bottom edge leading to a gently rounded base.	Other / "lazy bed"
3034	Compact, friable when worked, dark reddish brown gritty sandy silty clay with frequent medium pebbles, occasional flecks to small fragments decayed limestone, and charcoal flecks.	Levelling / Dump
3035	Small pebbles in a matrix of loose gingerish brown silt sand with occasional mortar and charcoal flecks.	Build-up
3036	Friable dark brown sand silt with frequent medium pebbles, occasional large cobbles, fleck to small fragments charcoal and medium limestone fragments.	Back-fill of 3038
3037	Friable light brown slightly clay sand silt with occasional mortar flecks, pebbles and large cobbles.	Dump / levelling.

Context number	Description	Context Type
3038	Linear cut along northern side of reduced area of excavation, extends beyond east, west and northern limit of excavation. South side breaks gently from surface before falling steeply to a rounded bottom edge leading to a flat base with a steep sided depression towards western limit of excavation.	Linear cut / ditch
3039	Compact, friable when worked, dark brown slightly sandy silt with moderate charcoal flecks, pebbles and occasional limestone fragments.	Primary silting or, more likely, back-fill of cut 3038
3040	Loose pebbles and gravel.	Dump / levelling / back-fill
3041	Friable, loose when worked, mid grey silty sand and coarse gravel with frequent pebbles, occasional charcoal flecks, large cobbles and patches of sand.	Dump of material used to raise, level and consolidate underlying fill of cut 3044.
3042	Friable red brown fine grained sand with occasional charcoal and gypsum flecks, cobbles and lenses of orange clay and occasional fragments of bark and occasional small to medium tile fragments.	Deposit used to both backfill cut 3044 and level surrounding area.
3043	Crumbly, plastic when worked, dark greyish brown humic slightly clay silt (very fine particulates), with very thin lenses of paler brown fine silt, occasional charcoal flecks, flecks to small wood fragments and small pebbles towards base.	Build-up / back-fill of cut 3044
3044	Only seen in small area. Located against north facing section of reduced area of excavation. Truncated by north, east and west facing sections and cut 3038 to north. Linear orientated east - west (parallel to Skellgarths) Remainder of northern side breaks gently from surface to fall steeply to an imperceptible bottom edge leading to a gently rounded base.	Linear cut / Other
3045	Loose light brownish yellow fine gravel pebbles and coarse grained sand.	Natural
3046	Mixed deposit consisting mainly of a friable mid grey brown slightly clay sand silt with occasional large cobbles, small - medium cobbles, small to large brick fragments, small mortar fragments and crushed brick and mortar flecks.	Back-fill of pit cut 3047
3047	Seen in section. South and west truncated by sections, east and north by machine. North side breaks sharply from surface to fall vertically to a rounded bottom edge leading to a rounded uneven base.	Pit