ARCHAEOLOGICAL INVESTIGATIONS A684 BEDALE, AISKEW AND LEEMING BAR BYPASS, NORTH YORKSHIRE

Post-Excavation Assessment Report

Part 2: Appendices (Figures, Plates and Specialist Assessments)

May 2017

PRE-CONSTRUCT ARCHAEOLOGY

Archaeological Mitigation in Association with the A684 Bedale, Aiskew, and Leeming Bar Bypass

Post-Excavation Assessment Report. Part 2: Appendices

Site Code: BALB 14

Commissioning Client (on behalf of North Yorkshire County Council):

Prospect Archaeology
Prospect House
Garden Lane
Sherburn-in-Elmet
Leeds
North Yorkshire
LS25 6AT

On behalf of:

Wills Bros Civil Engineering Ltd
Maxim 3, Floor 2
Suite 1 Parklands
Avenue
Eurocentral
Motherwell
ML1 4WQ

Archaeological Mitigation Design and Management:

Jacobs
1 City Walk
Leeds,
LS11 9DX

Contractor:

Pre-Construct Archaeology Limited
Northern Office
Unit N19a Tursdale Business Park
Durham
DH6 5PG
Tel: 0191 377 1111

DOCUMENT VERIFICATION

ARCHAEOLOGICAL MITIGATION IN ASSOCIATION WITH THE A684 BEDALE, AISKEW, AND LEEMING BAR BYPASS

POST-EXCAVATION ASSESSMENT REPORT

Pre-Construct Archaeology Limited Quality Control	
Project Number	K3776
Site Code	BALB 14
Report Number	RN11073

Task	*Name*	*Signature*	*Date*
Text prepared by:	Aaron Goode, Jennifer Proctor and Scott Vance		May 2015-May 2017
Text checked by:	Jennifer Proctor	J Proctor	Dec 16-May 2017
Graphics prepared by:	Mark Roughley	M. Roughley	July 2015-May 2017
Graphics checked by:	Josephine Brown	Josephine Brown	May 2017
Manager sign-off:	Jennifer Proctor	J Proctor	11 May 2017

Revision No.	*Date*	*Checked by*	*Approved by*

Pre-Construct Archaeology Limited
North Regional Office
Unit N19a Tursdale Business Park
Durham
DH6 5PG

List of Figures

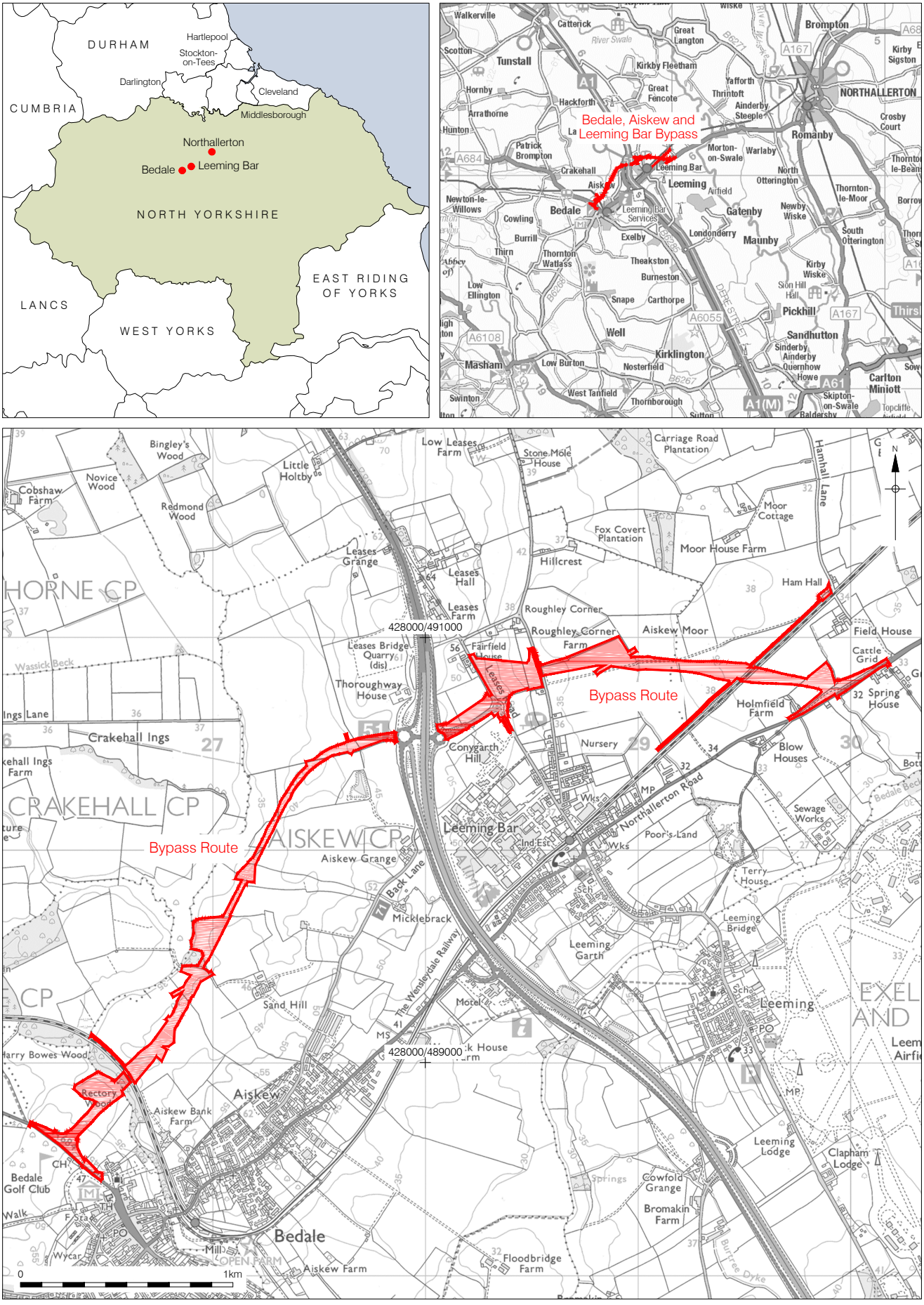

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Figure 1
Site Location
1:2,000,000; 250,000 & 25,000 at A4

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Figure 2
Detailed Site Location
1:12,500 at A3

Phase 2: Iron Age
Phase 3.1: Middle Iron Age
Phase 3.2: Middle to Late Iron Age
Phase 3.3: Late Iron Age to 2nd Century?
Phase 3.4
Phase 3.5
Phase 8: Post-Medieval
Excavated slot
Conjecture

N

SITE 55 (part)
SITE 58
SITE 58 (part)
SITE 56
SITE 55 (part)

BEDALE ENCLOSURE

LICENSED AREA
SITE BOUNDARY
HAUL ROAD

426700/489100
426850/489100

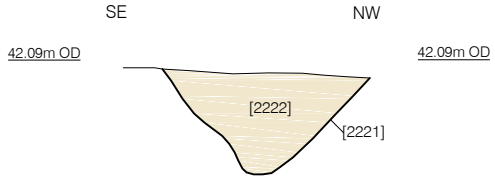
40m
41m
44m

Group 4, Slot 45, Slot 44, Slot 30, Slot 31, Slot 32, Slot 33, Group 44, Group 32, Slot 26, Slot 25, Slot 27, Slot 28, Slot 29, Group 5, Group 25, Slot 34, Group 36, Slot 20, Slot 21, Slot 22, Slot 18, Slot 19, Slot 17, Slot 16, Group 38, Group 15, Slot 15, Group 11, Slot 14, Group 42, Slot 23, Group 40, Slot 13, Slot 24, Slot 12, Group 8, Slot 11, Slot 1, Slot 10, Slot 2, Slot 3, Group 57, Slot 9, Group 38, Slot 4, Slot 5, Group 1, Slot 8, Slot 7, Slot 6, Group 11, Slot 46, Group 15, Slot 37, Group 28, Slot 36, Slot 43, Slot 35, Group 30, Slot 42, Slot 41, Slot 40, Slot 39, Slot 38, Group 23

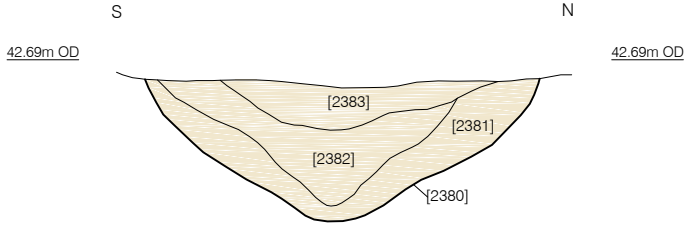
0 25m

27/09/17 MR (Revised 09/05/17)

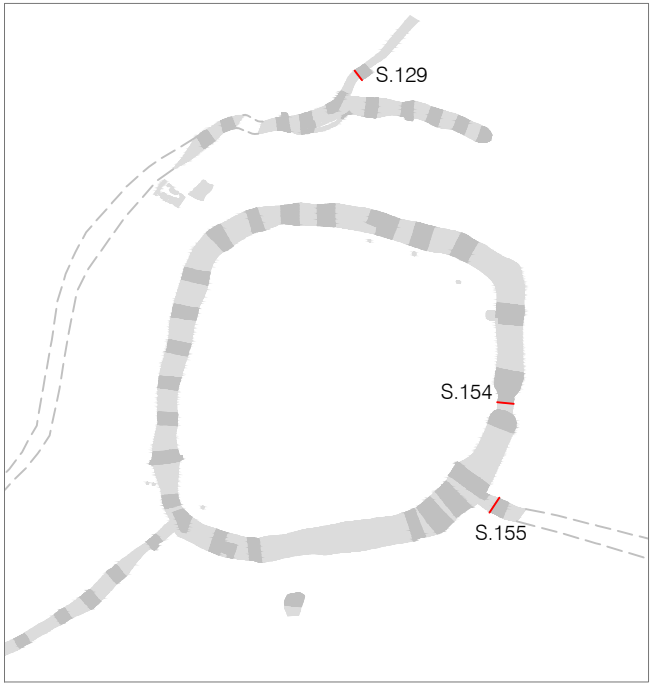
Figure 3
Site 58: Multi-Phase plan
1:625 at A3

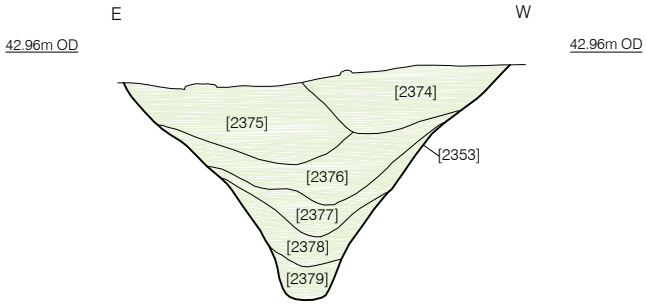


Section 129
Phase 2
North East facing



Section 155
Phase 2
East facing section through ditch [2380]





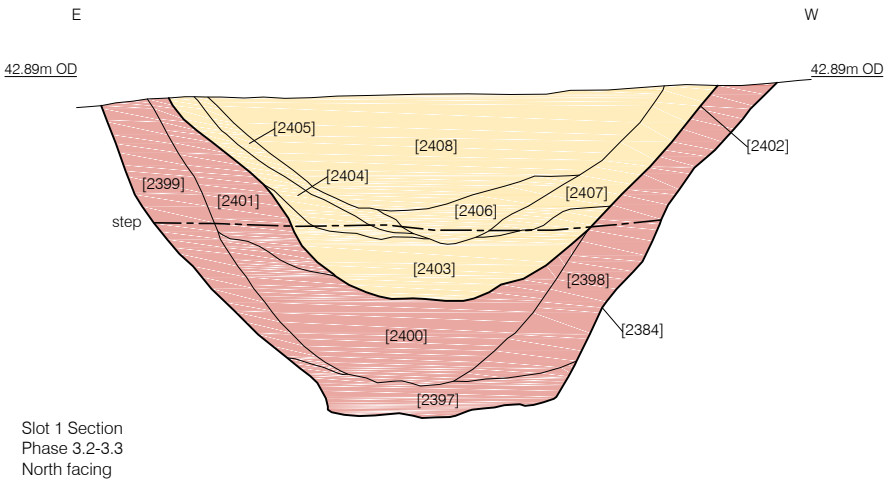
Section 154
Phase 3.1
North facing section through ditch [2353]

Phase 2: Iron Age
Phase 3.1: LIA to Early Roman

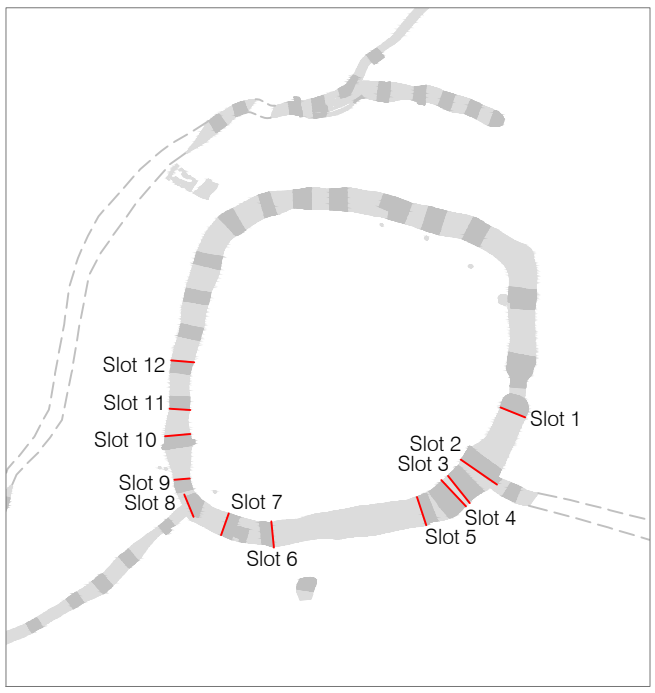
0 2m

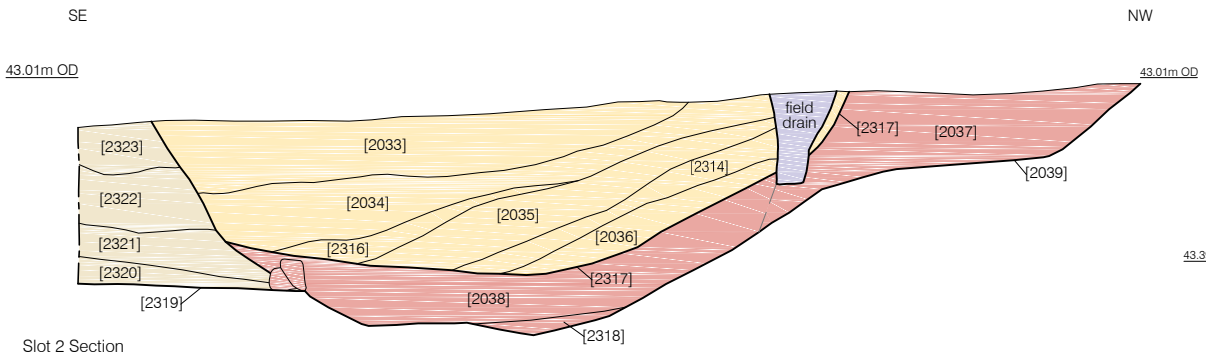
27/09/16 MR

Figure 4
Sections from Phase 2 and Phase 3.1
Sections:1:50, Location inset: 1:1,250 at A4

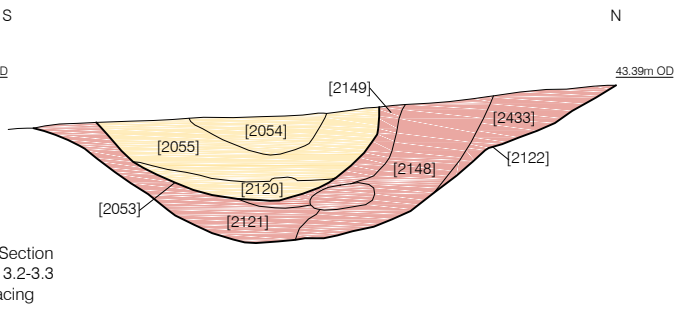


Slot 1 Section
Phase 3.2-3.3
North facing

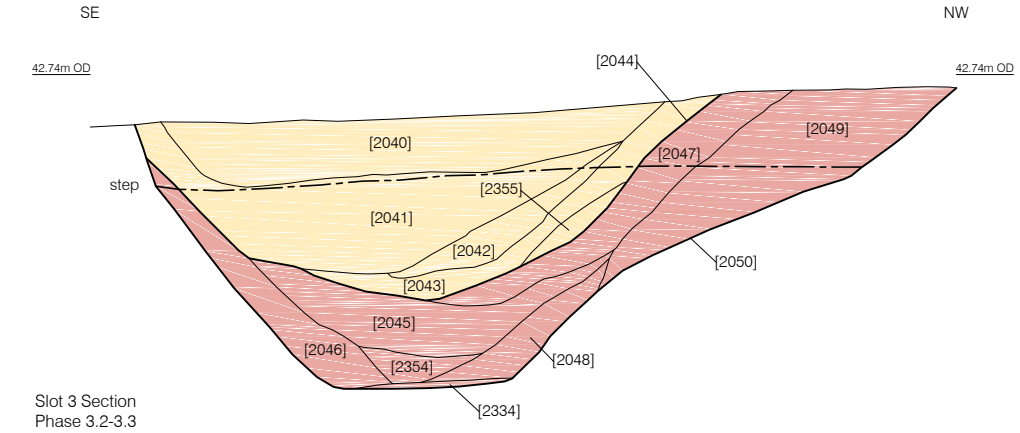




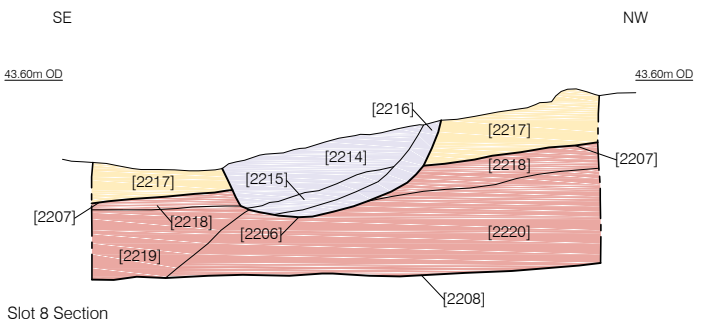
Slot 2 Section
Phase 3.2-3.3
Northeast facing



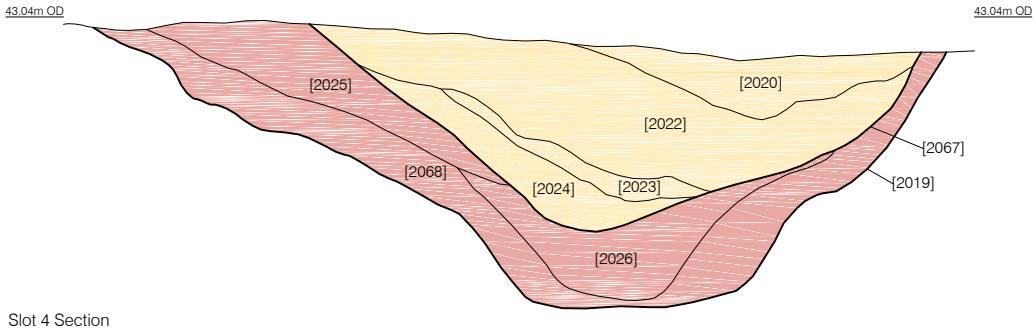
Slot 7 Section
Phase 3.2-3.3
East facing



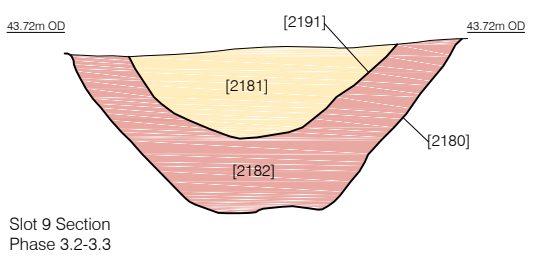
Slot 3 Section
Phase 3.2-3.3
Northeast facing



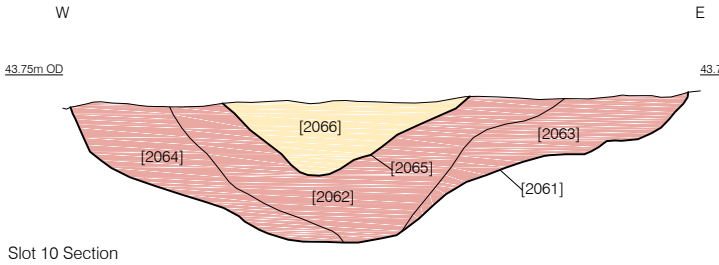
Slot 8 Section
Phase 3.2-3.3
Northeast facing



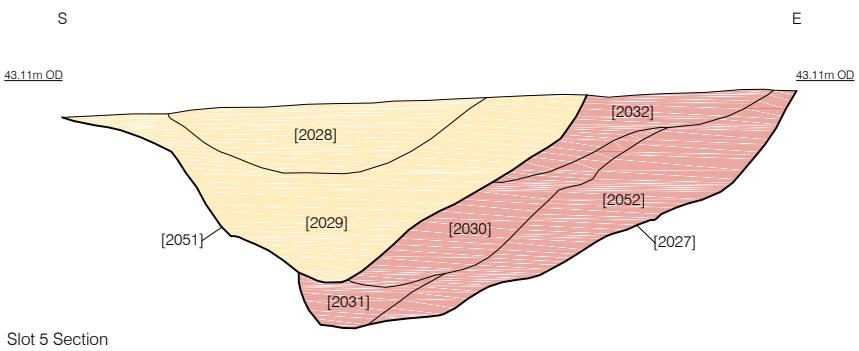
Slot 4 Section
Phase 3.2-3.3
Southwest facing



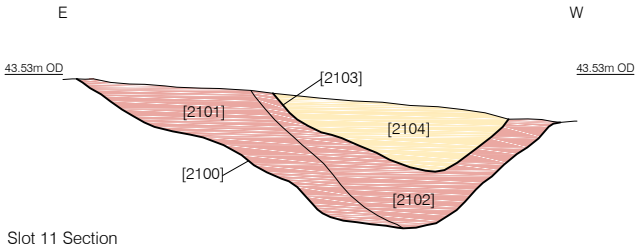
Slot 9 Section
Phase 3.2-3.3
South facing



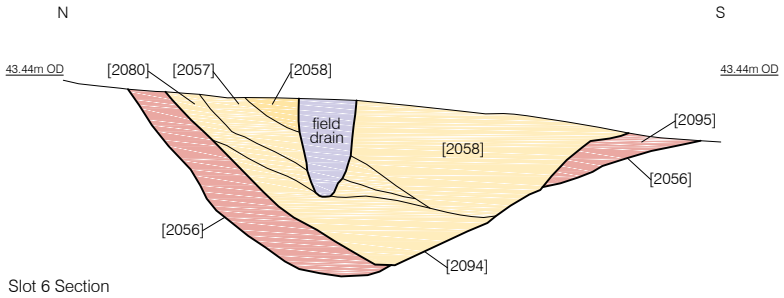
Slot 10 Section
Phase 3.2-3.3
South facing



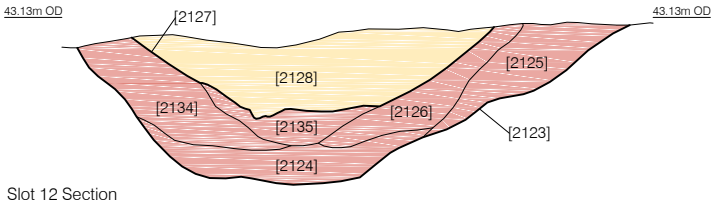
Slot 5 Section
Phase 3.2-3.3
East facing



Slot 11 Section
Phase 3.2-3.3
North facing



Slot 6 Section
Phase 3.2-3.3
West facing



Slot 12 Section
Phase 3.2-3.3
South facing

Phase 2: Iron Age
Phase 3.2
Phase 3.3: 2nd Century?
Phase 3.4
Phase 9: Modern

0 2m

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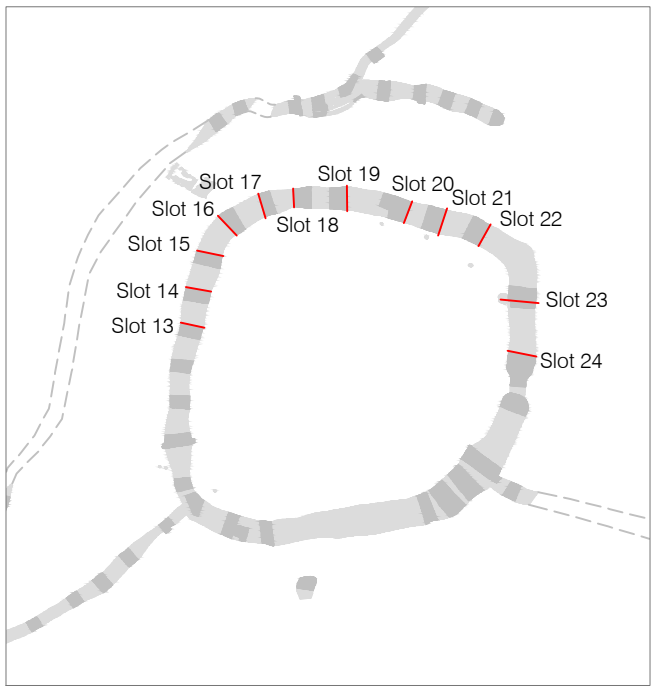
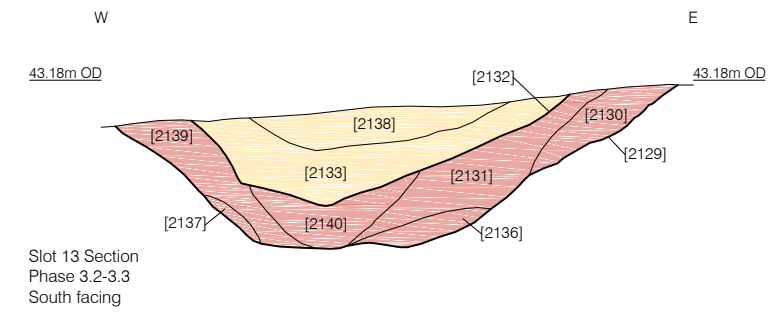
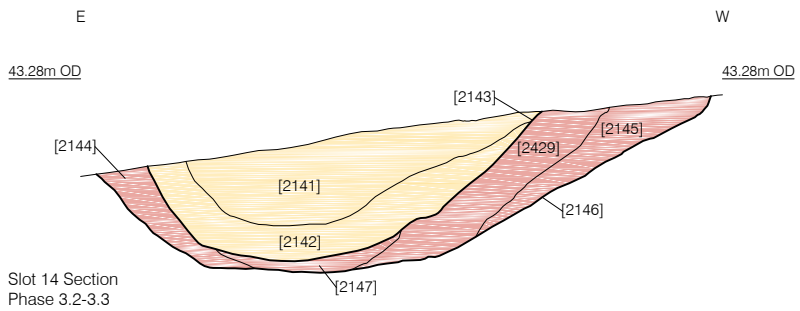
Figure 5
Sections from Phase 3.2 to Phase 3.3 through the enclosure ditch and recut, Slots 1-12
Sections:1:50, Location inset: 1:1,250 at A3

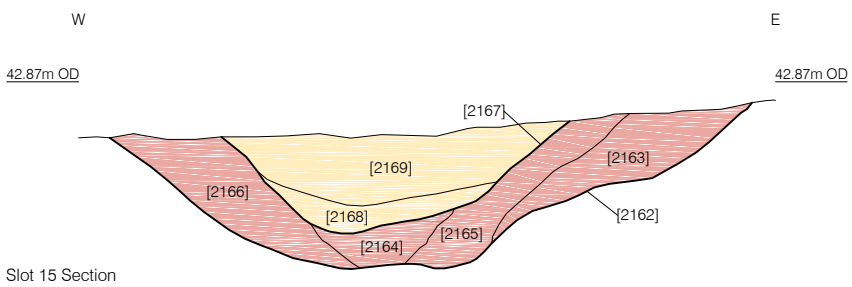




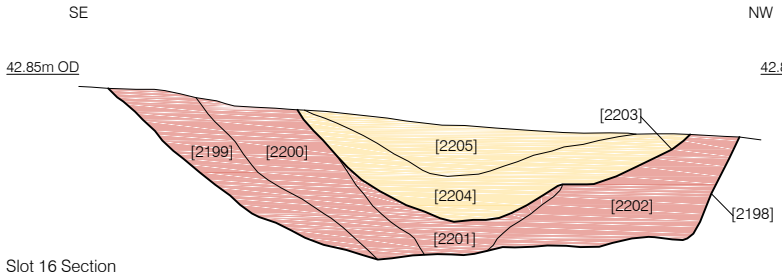
Slot 13 Section
Phase 3.2-3.3
South facing



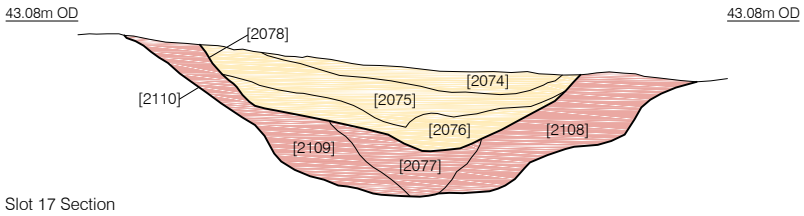
Slot 14 Section
Phase 3.2-3.3
North facing



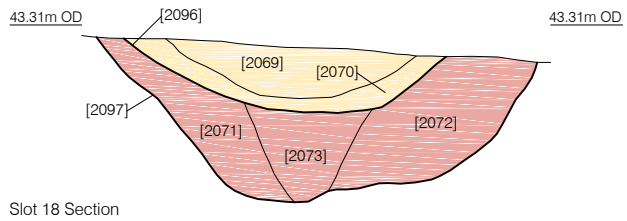
Slot 15 Section
Phase 3.2-3.3
South facing



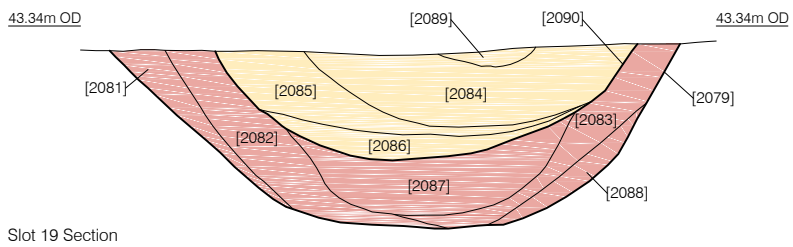
Slot 16 Section
Phase 3.2-3.3
Northeast facing



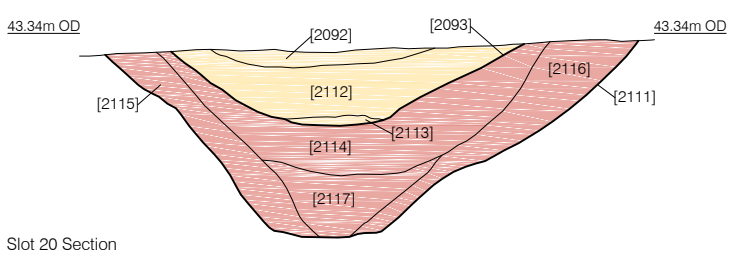
Slot 17 Section
Phase 3.2-3.3
East facing



Slot 18 Section
Phase 3.2-3.3
East facing



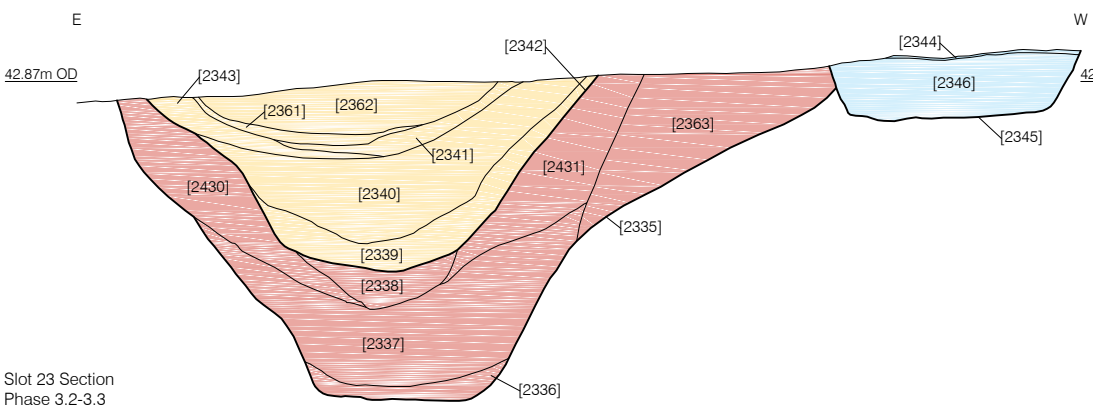
Slot 19 Section
Phase 3.2-3.3
West facing



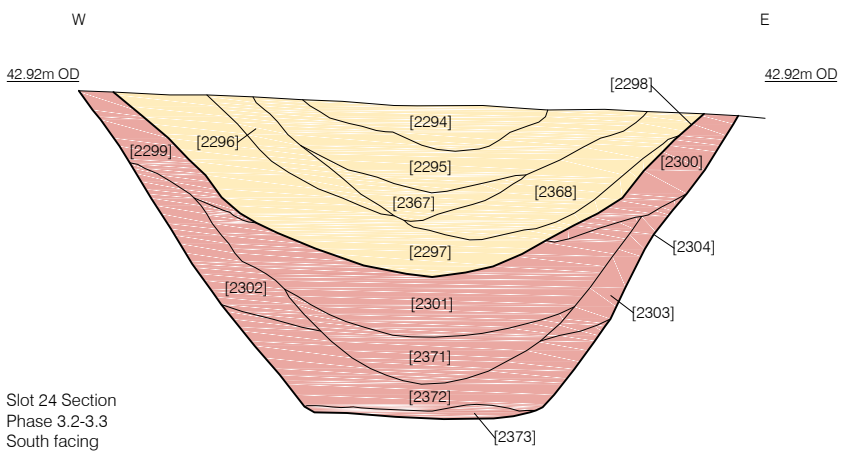
Slot 20 Section
Phase 3.2-3.3
West facing

Slot 21 Section
Phase 3.2-3.3
WestNorth facing

Slot 22 Section
Phase 3.2-3.3
West facing



Slot 23 Section
Phase 3.2-3.3
North facing



Slot 24 Section
Phase 3.2-3.3
South facing

Phase 3.2
Phase 3.3: 2nd Century?
Phase 3.5

0 2m

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Figure 6
Sections from Phase 3.2 to Phase 3.3 through the enclosure ditch and recut, Slots 13-24
Sections:1:50, Location inset: 1:1,250 at A3

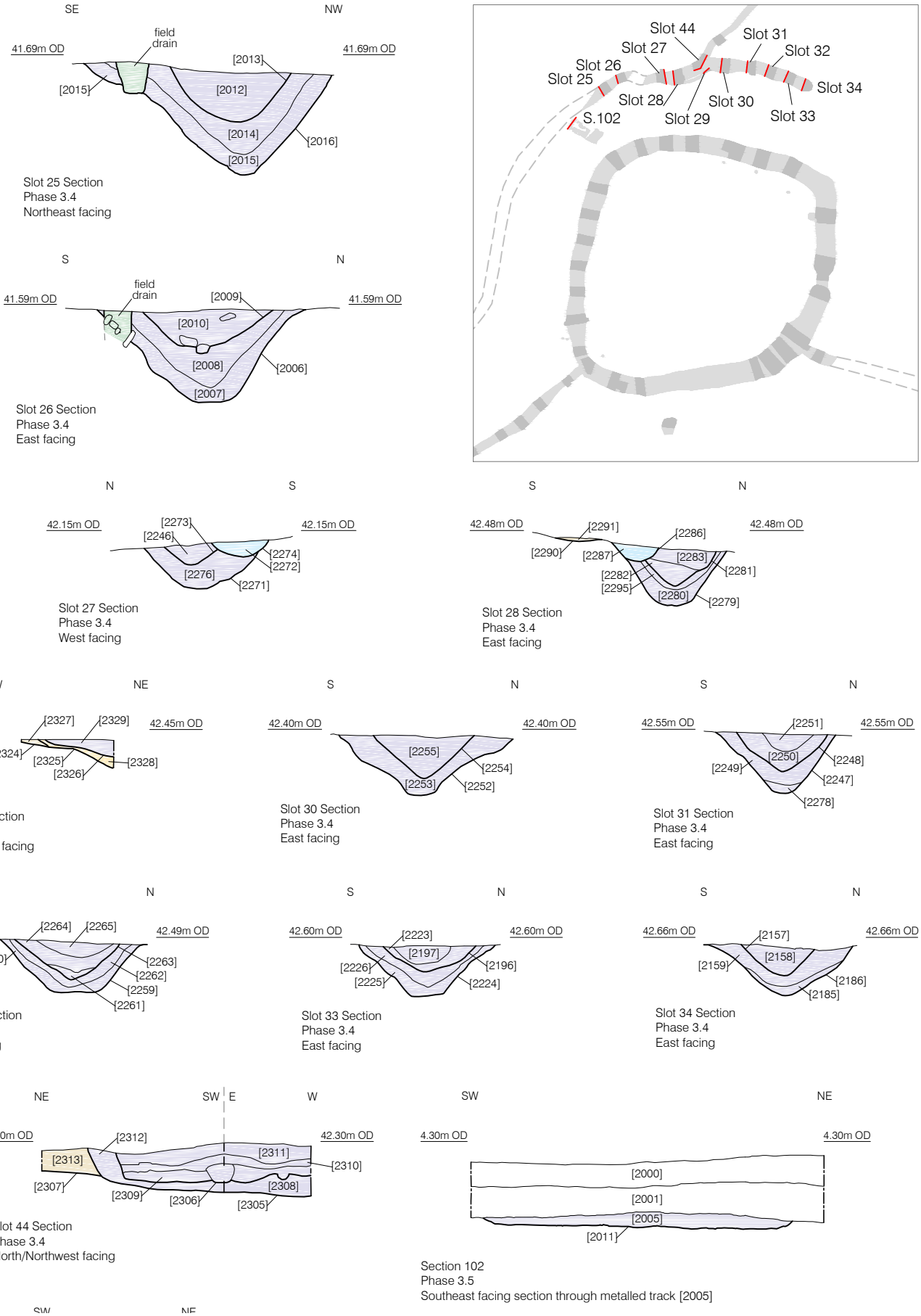

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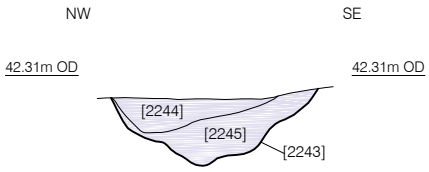
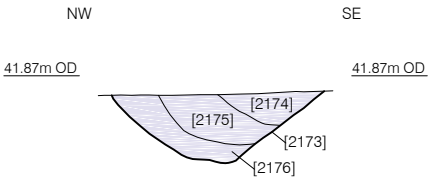
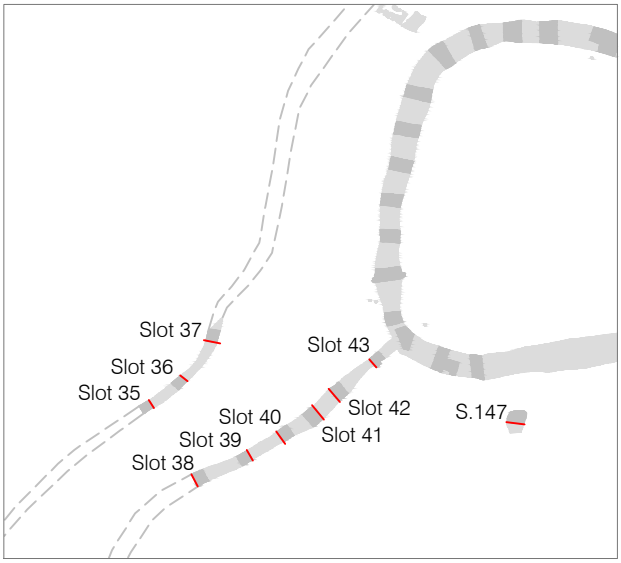
Figure 7
Sections from Phase 3.4 through the northern part of the outer ditch and ditch recut, Slots 25-30, 30-34 and 44
Sections:1:50, Location inset: 1:1,250 at A4

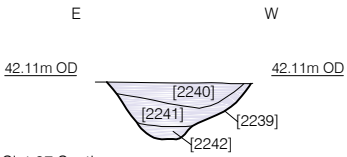


Slot 35 Section
Phase 3.4
Southwest facing

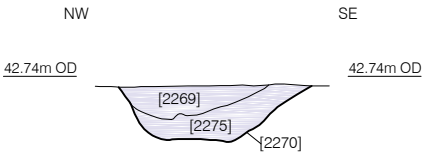


Slot 36 Section
Phase 3.4
Southwest facing

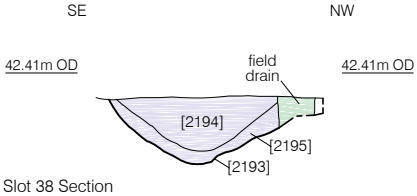




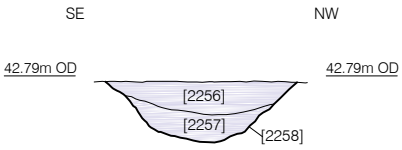
Slot 37 Section
Phase 3.4
North facing



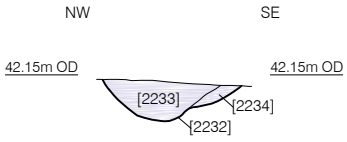
Slot 41 Section
Phase 3.4
Southwest facing



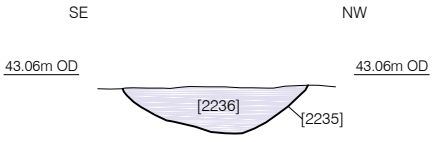
Slot 38 Section
Phase 3.4
Northeast facing



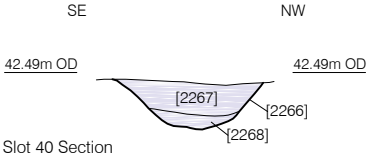
Slot 42 Section
Phase 3.4
Northeast facing



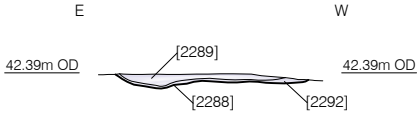
Slot 39 Section
Phase 3.4
Southwest facing



Slot 43 Section
Phase 3.4
Northeast facing



Slot 40 Section
Phase 3.4
Northeast facing



Section 147
Phase 3.4
North facing

Phase 3.4

Phase 8: Post-Medieval

0 2m

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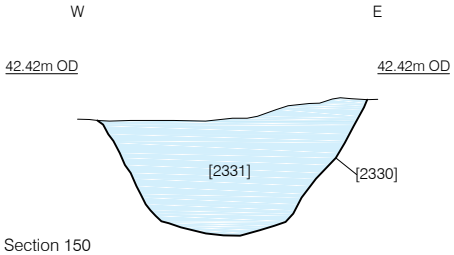
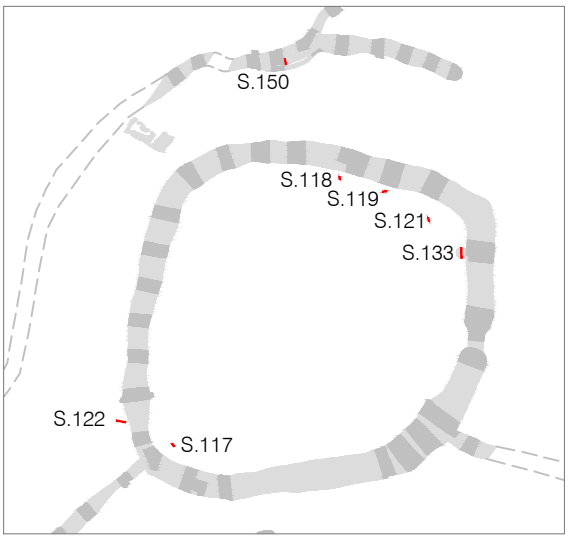
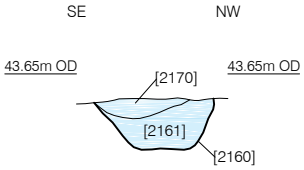
Figure 8
Sections from Phase 3.4, Slots 35-43 and Section 147
Sections:1:50, Location inset: 1:1,250 at A4

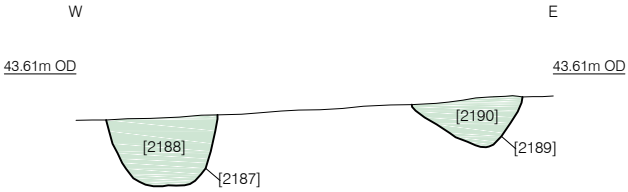


Section 150
Phase 3.5
South facing section through ditch [2330]

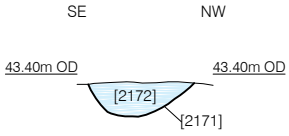




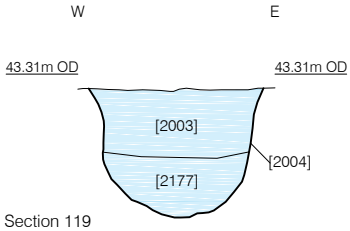
Section 117
Phase 3.5
Northeast facing through posthole [2160]



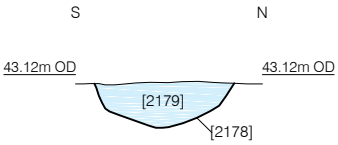
Section 122
Phase 8
South facing through postholes [2187] & [2189]



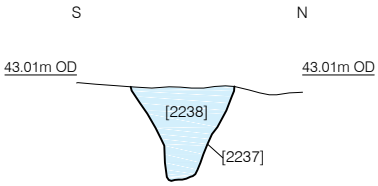
Section 118
Phase 3.5
Northeast facing through posthole [2171]



Section 119
Phase 3.5
South facing through posthole [2004]



Section 121
Phase 3.5
East facing through posthole [2178]



Section 133
Phase 3.5
East facing through posthole [2237]

Phase 3.5
Phase 8: Post-Medieval
0 1m

27/09/16 MR

Figure 9
Sections from Phase 3.5 and Phase 8
Sections:1:25, Location inset: 1:1,250 at A4

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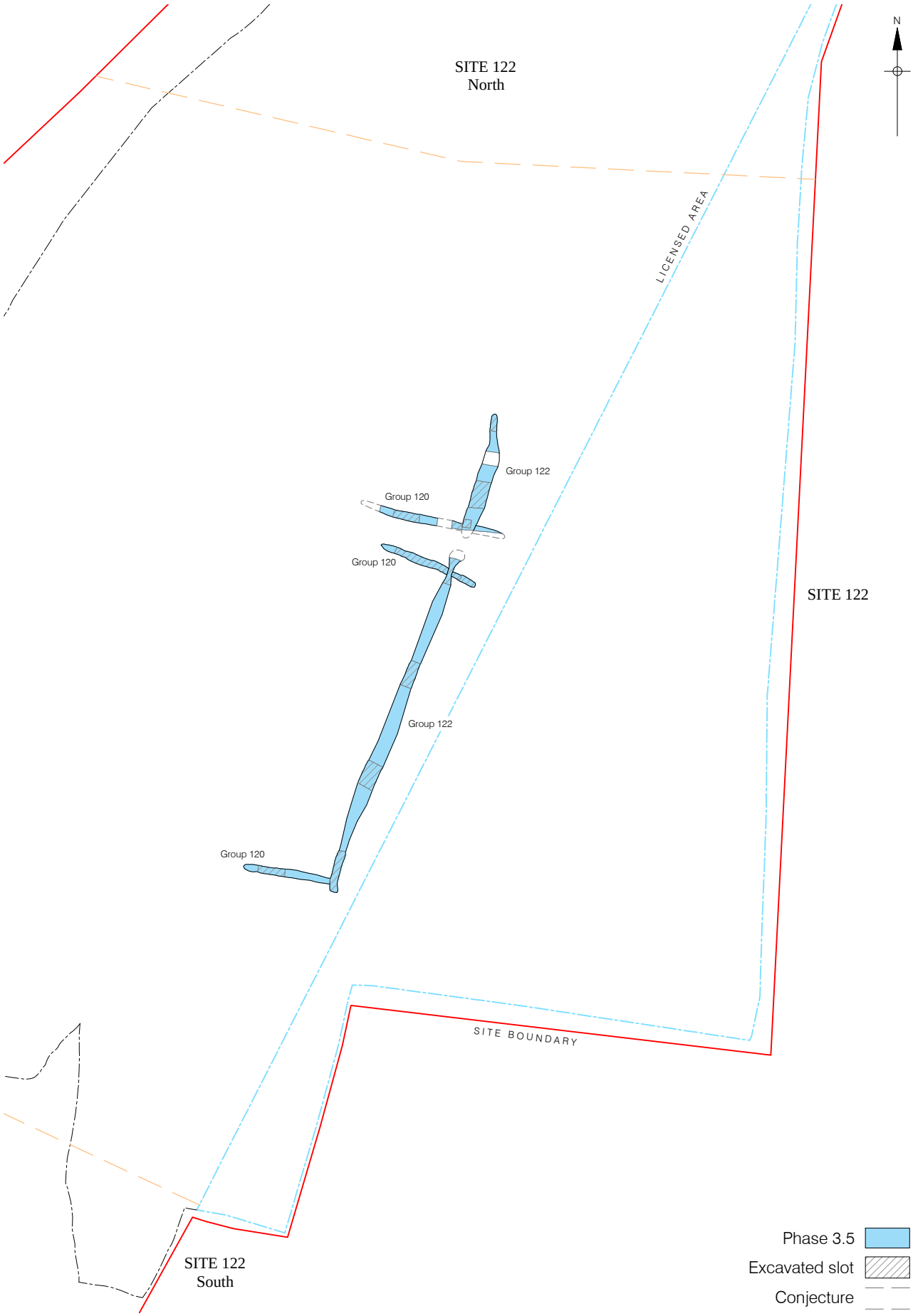
Figure 10
Sites 122 and 68: Multi-Phase plan
1:625 at A3



27/09/16 MR (Revised 09/05/17)

Figure 11
Site 122: Phases 3.5
1:400 at A4

27/09/16 MR (Revised 09/05/17)

Figure 12
Sites 68 and 122 North : Phase 4
1:400 at A4

27/09/16 MR

Figure 14
Site 122: Phase 4.3
1:400 and 1:200 at A4

27/09/16 MR (Revised 09/05/17)

Figure 12
Sites 68 and 122 North : Phase 4
1:400 at A4

N

SITE 122
North

SITE BOUNDARY

Ditch
Group 128

Ditch
Group 128

LICENSED AREA

Group 133

Group 135

Pit
Group
151

Pit
Group
149

Pit
Group
147

Ditch
Group 128

Group 161

Group 139
Wall foundation
[389]/(275)

internal floor
surface [179]

internal floor
surface [184]

Room 7

Group 153
Wall [274]
Group 124

Group 158
Postholes

Room 1

Room 2

Group 139
Wall foundation
[391]/(273)
[390]/(276)

lime concrete
floor surface [177]

Tesselated floor
surface [212]

bedding layers
[322]/[255]

Tesselated floor
surface [213]

bedding layer
[216]

Room 5

Tesselated floor
surface [214]

Ditch
Group 128

Wall
[202]

Room 3

floor makeup/
bedding layers
[192]/[194]

internal floor
surface [205]

Room 8

bedding layer
[193]

bedding
layer [216]

Quarry
pits
Group 124

Group 130

ROMAN
VILLA

Room 4

Room 6

masonry
[195]

floor makeup/
bedding layer
[197]

Ditch
Group 128

Quarry
pits
Group 126

SITE 122
South

SITE 122

Phase 4.2: Villa construction
Phase 6: Robber cuts
Excavated slot
Conjecture

0 20m

27/09/16 MR

Figure 13
Site 122: Phase 4.2
1:400 at A3

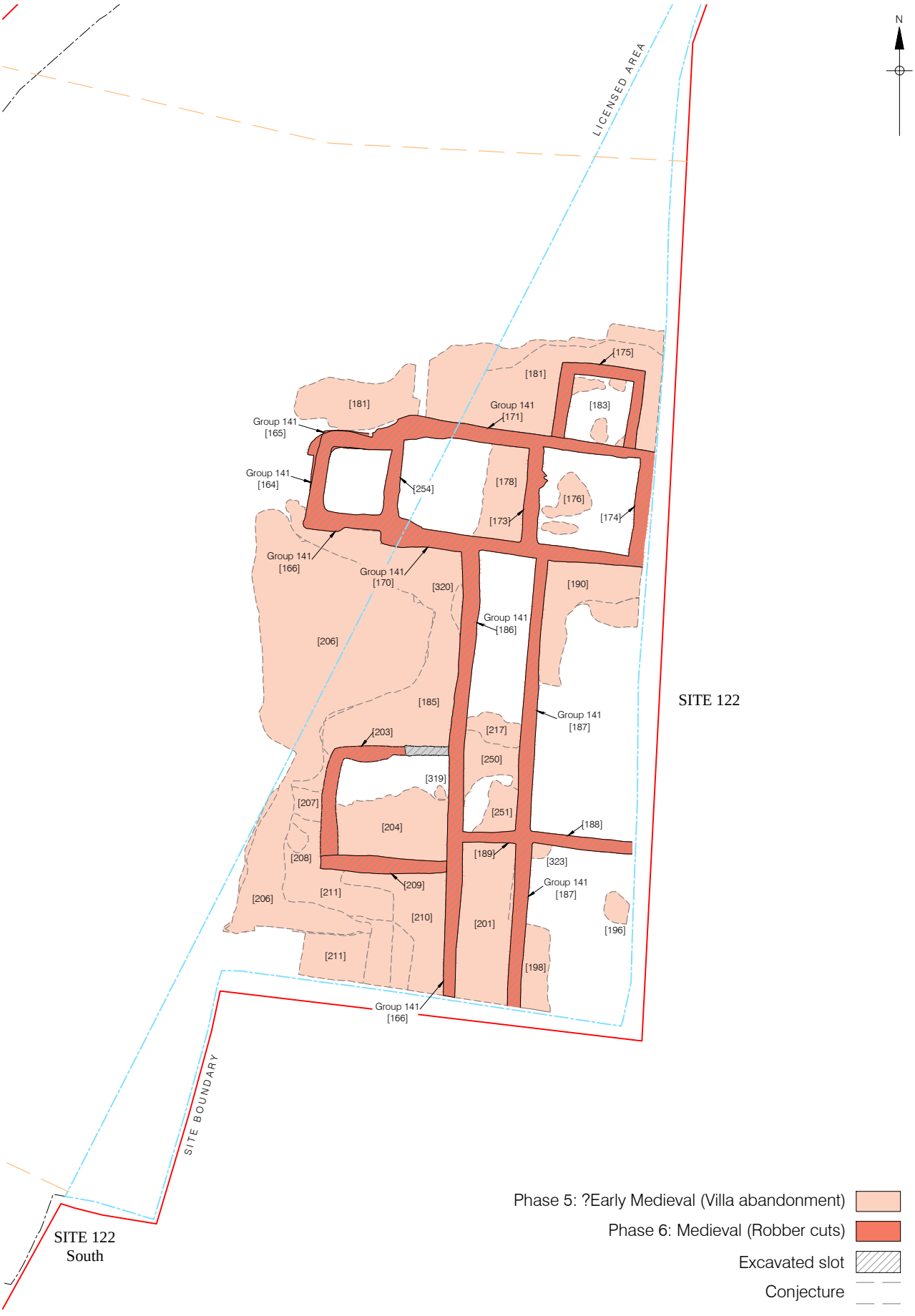


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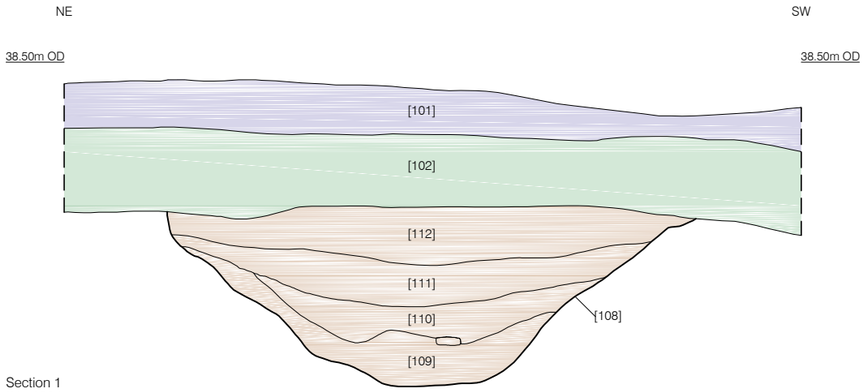
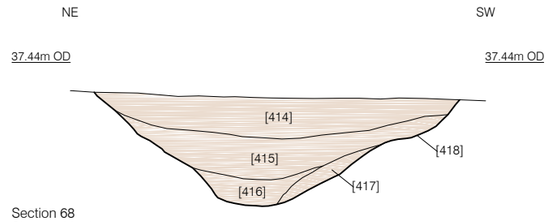
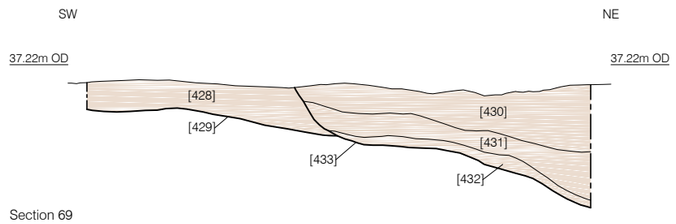
Figure 15
Site 122: Villa, Phases 5 and 6
1:400 at A3



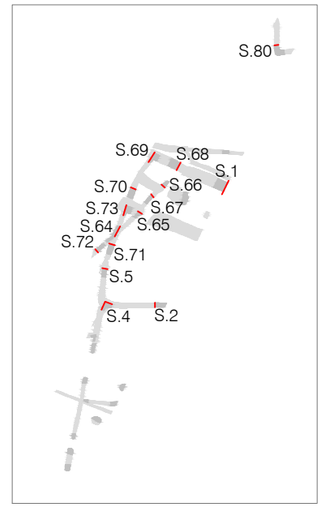
Section 1
Site 122 North
Northwest facing Section through Ditch [108]

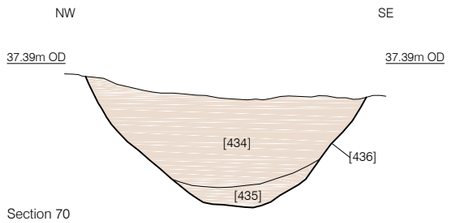


Section 68
Site 122 North
Northwest facing Section through Ditch [418]

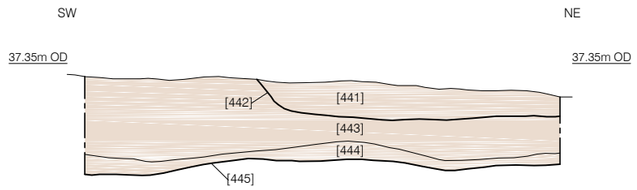


Section 69
Site 122 North
Southeast facing Section through Ditches [429] and [433]

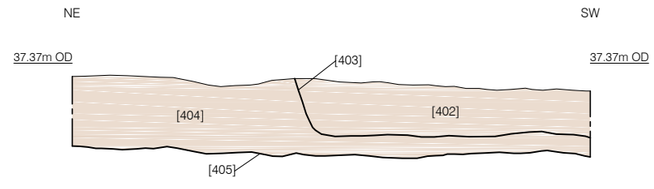




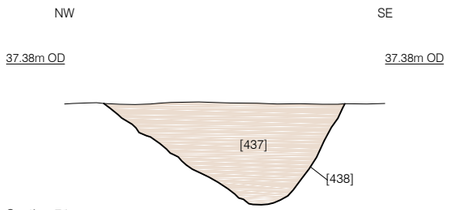
Section 70
Site 122 North
Southwest facing Section through Ditch [436]



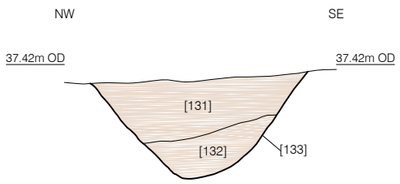
Section 73
Site 122 North
Southeast facing Section through Ditches [442] and [445]



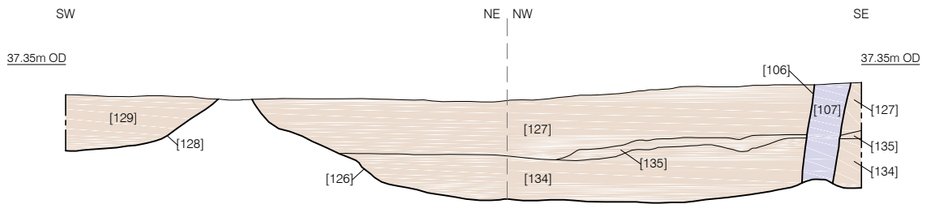
Section 64
Site 122 North
Northwest facing Section through Ditches [405] and [403]



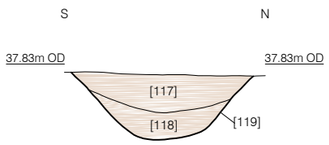
Section 71
Site 122 North
Southwest facing Section through Ditch [438]



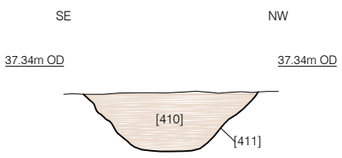
Section 5
Site 122 North
Southwest facing Section through Ditch [133]



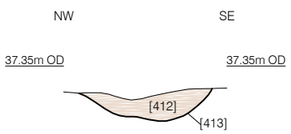
Section 4
Site 122 North
Southeast/Southwest facing Section through Ditches [126] and [128]



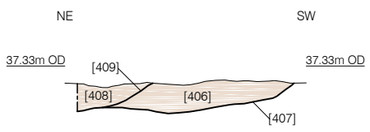
Section 2
Site 122 North
East facing Section through Ditch [119]



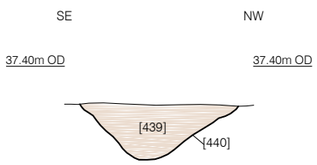
Section 66
Site 122 North
Northeast facing Section through Ditch [411]



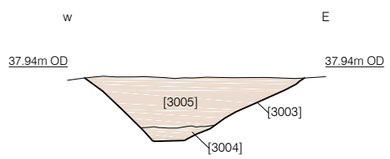
Section 67
Site 122 North
Southwest facing Section through Ditch [413]



Section 65
Site 122 North
Southwest facing Section through Ditches [407] and [409]



Section 72
Site 122 North
Northeast facing Section through Ditch [440]



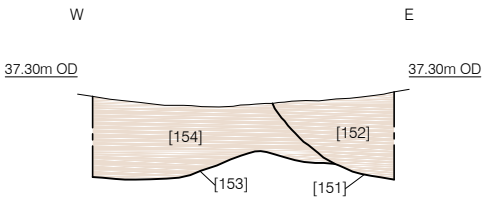
Section 80
Site 68
South facing Section through Ditch [3003]

Phase 4: 3rd to 4th century
Phase 7: Uncertain
Phase 9: Modern

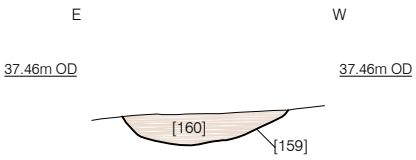
0 1m

27/09/16 MR

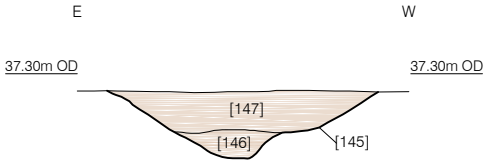
Figure 16
Sections from Sites 122 and 68
Sections:1:25, Location inset: 1:1,250 at A3



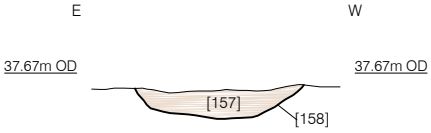
Section 8
Site 122 North
South facing Section through Ditches [151] and [153]



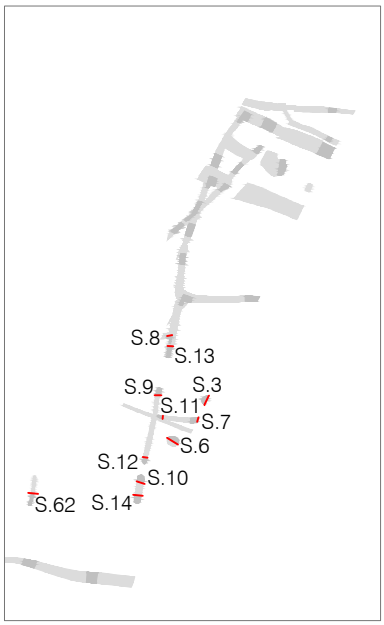
Section 13
Site 122 North
South facing Section through Ditch [159]

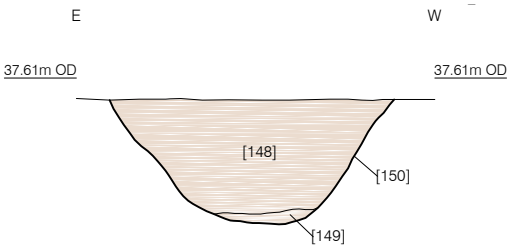


Section 9
Site 122 North
North facing Section through Ditch [145]

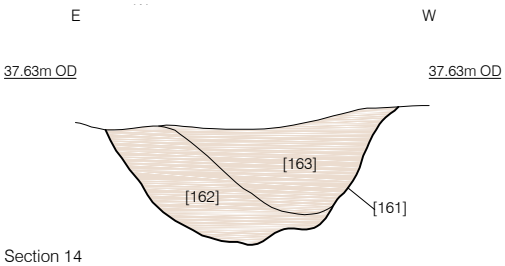


Section 12
Site 122 North
South facing Section through Ditch [158]

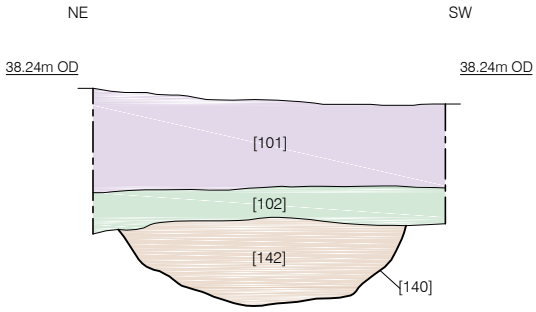




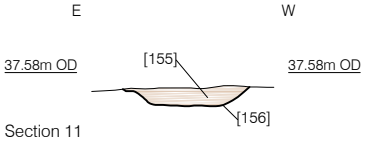
Section 10
Site 122 North
North facing Section through Ditch [150]



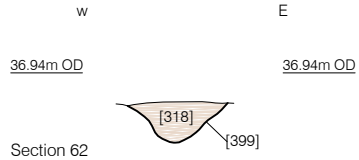
Section 14
Site 122 North
South facing Section through Ditch [161]



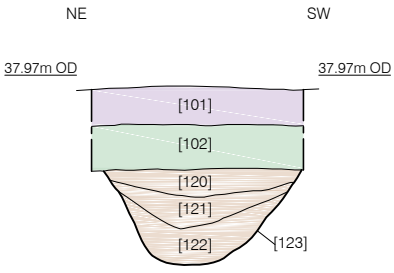
Section 7
Site 122 North
Northwest facing Section through Ditch [140]



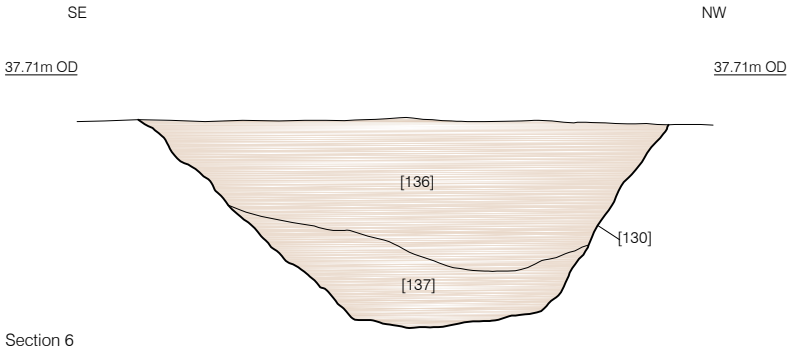
Section 11
Site 122 North
West facing Section through Ditch [156]



Section 62
Site 122
South facing Section through Ditch [399]



Section 3
Site 122 North
Northwest facing Section through Pit [123]



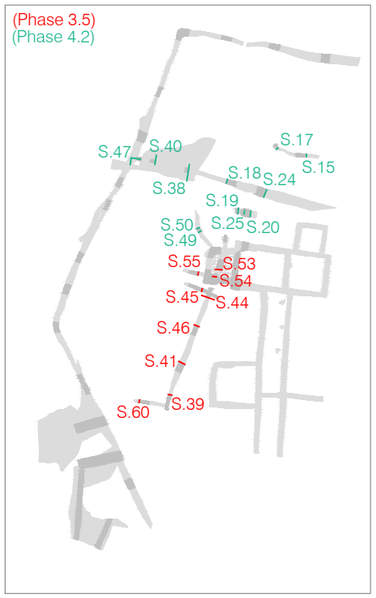
Section 6
Site 122 North
Northeast facing Section through Pit [130]

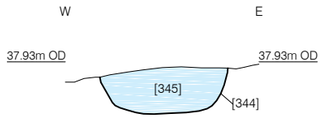
Phase 4: 3rd to 4th century
Phase 7: Uncertain
Phase 9: Modern

0 1m

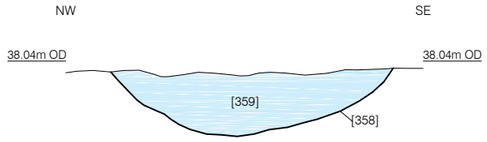
27/09/16 MR

Figure 17
Sections from Site 122
Sections:1:25, Location inset: 1:1,250 at A4

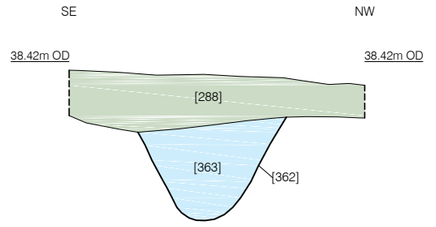




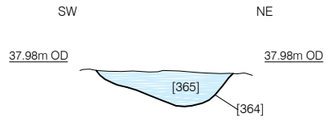
Section 39
Phase 3.5
South facing section through Ditch [344]



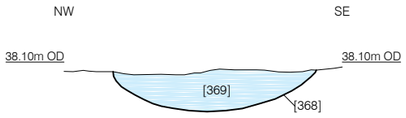
Section 41
Phase 3.5
Southwest facing section through Ditch [358]



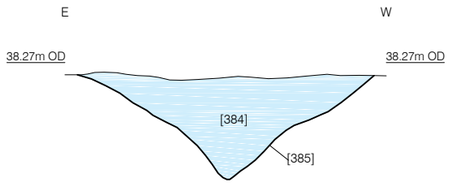
Section 44
Phase 3.5
Northeast facing section through Ditch [362]



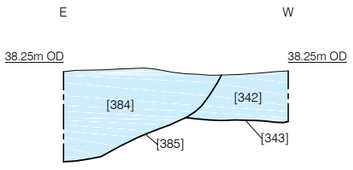
Section 45
Phase 3.5
Southeast facing section through Ditch [364]



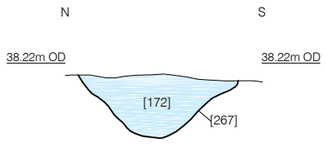
Section 46
Phase 3.5
Southwest facing section through Ditch [368]



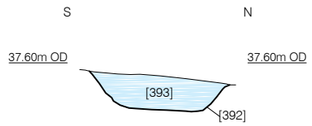
Section 53
Phase 3.5
North facing section through Ditch [385]



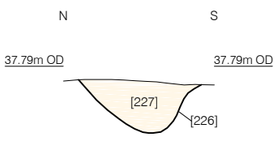
Section 54
Phase 3.5
North facing section through Ditches [343] and [385]



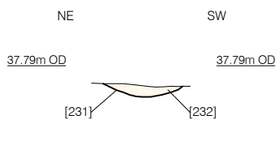
Section 55
Phase 3.5
West facing section through Ditch [267]



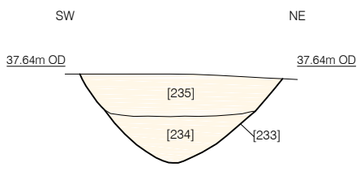
Section 60
Phase 3.5
East facing section through Ditch [392]



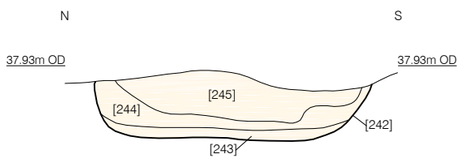
Section 15
Phase 4.2
West facing section through Ditch [226]



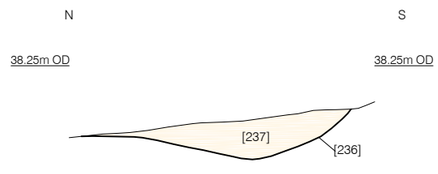
Section 17
Phase 4.2
Northwest facing section through Ditch [231]



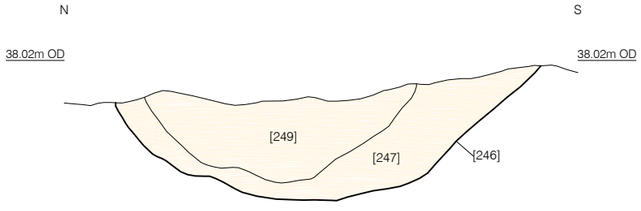
Section 18
Phase 4.2
Southeast facing section through Ditch [233]



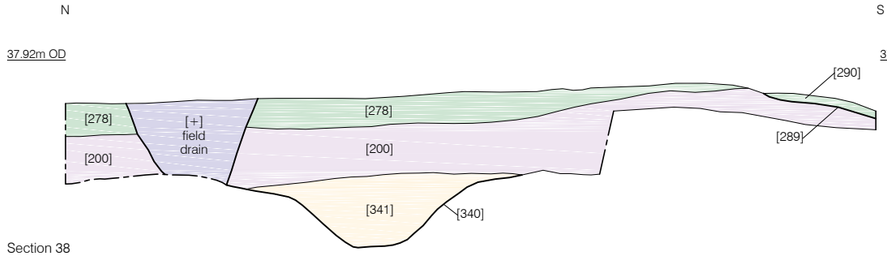
Section 19
Phase 4.2
West facing section through Pit [242]



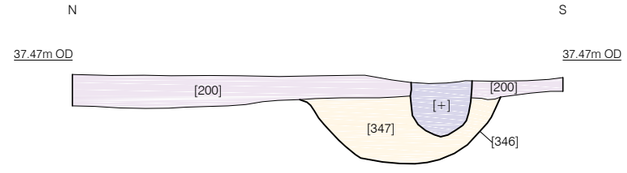
Section 20
Phase 4.2
West facing section through Pit [236]



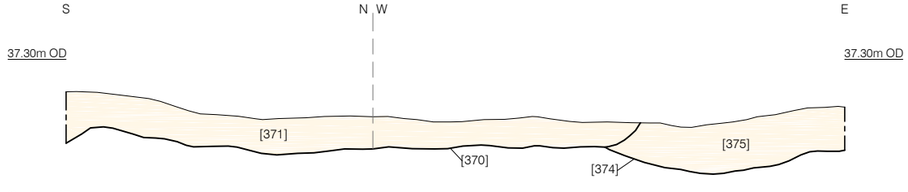
Section 24
Phase 4.2
West facing section through Ditch [246]



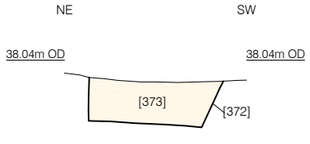
Section 38
Phase 4.2
West facing section through Ditch [340]



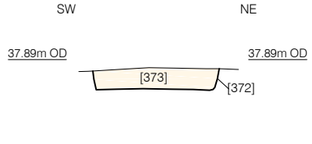
Section 40
Phase 4.2
East facing section through Ditch [346]



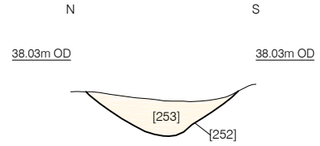
Section 47
Phase 4.2
East/South facing section through Ditches [370] and [374]



Section 49
Phase 4.2
Northwest facing section through ditch/gully [372]



Section 50
Phase 4.2
Southeast facing section through ditch/gully [372]



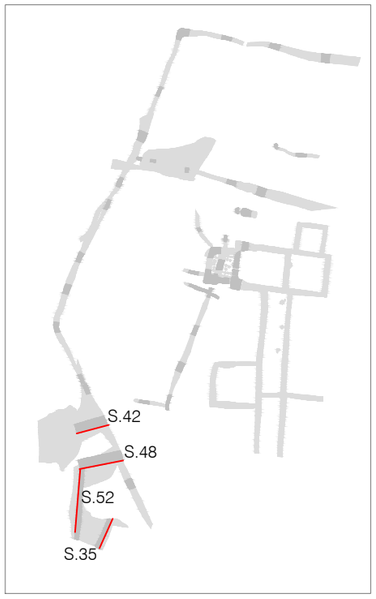
Section 25
Phase 4.2
West facing section through Pit [252]

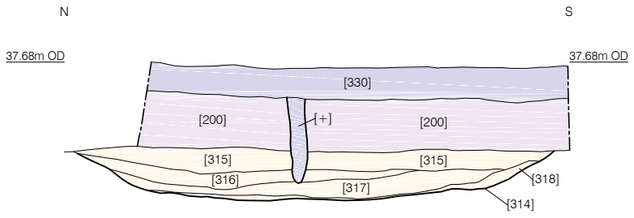
Phase 3.5
Phase 3.6
Phase 4.2
Phase 7: Uncertain
Phase 8: Post-Medieval
Phase 9: Modern

0 1m

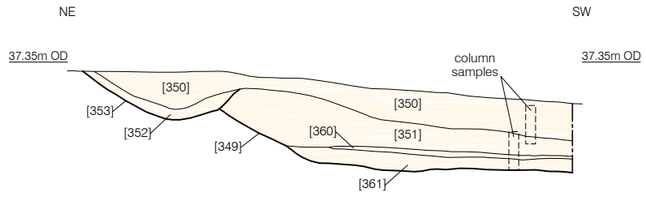
27/09/16 MR

Figure 18
Sections from Phases 3.5 and 4.2
Sections:1:25, Location inset: 1:1,250 at A3

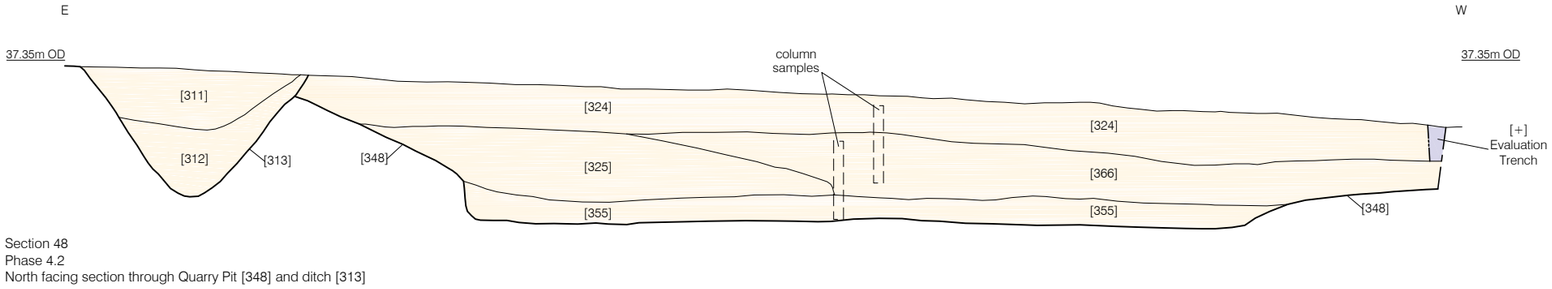




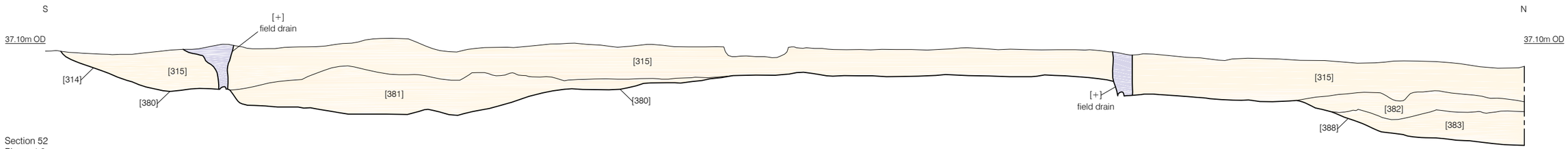
Section 35
Phase 4.2
West facing section through Quarry Pit [314]



Section 42
Phase 4.2
Northwest facing section through Quarry Pit [349] and ditch [353]



Section 48
Phase 4.2
North facing section through Quarry Pit [348] and ditch [313]



Section 52
Phase 4.2
East facing section through Quarry Pits [380] and [388]

Phase 4.2
Phase 7: Uncertain
Phase 9: Modern

0 2m

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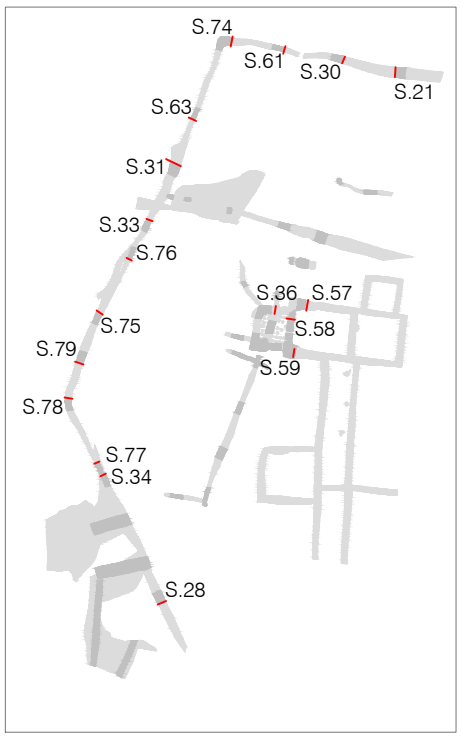
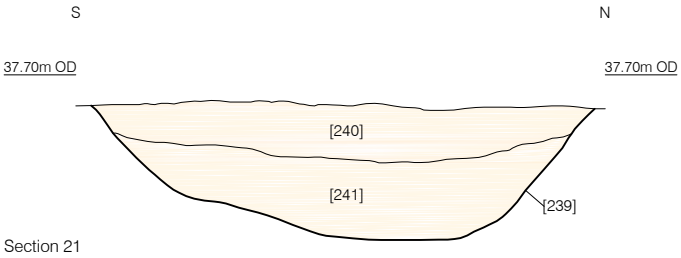
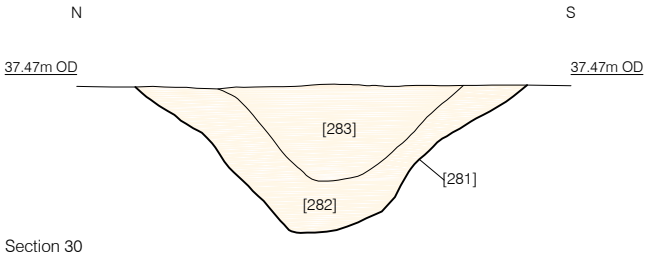
Figure 19
Sections from Phase 4.2
Sections:1:40, Location inset: 1:1,250 at A4

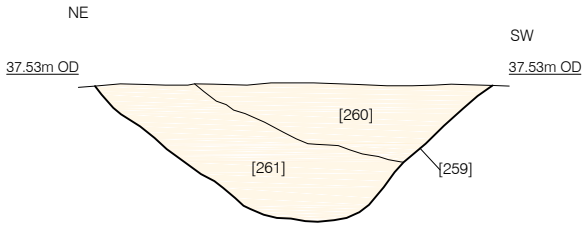




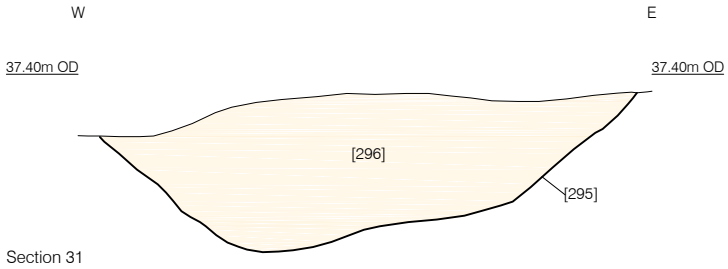
Section 21
Phase 4.2
East facing section through Ditch [239]



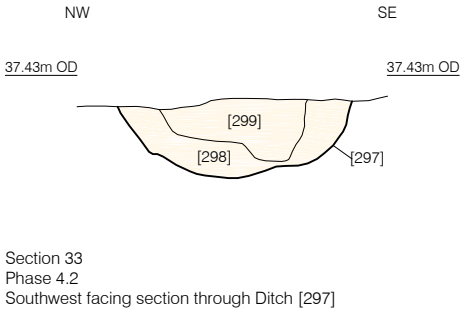
Section 30
Phase 4.2
West facing section through Ditch [281]



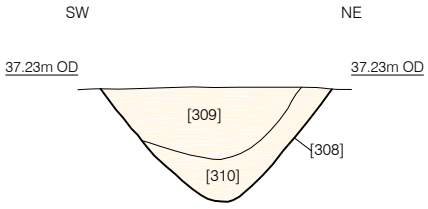
Section 28
Phase 4.2
Northwest facing section through Ditch [259]



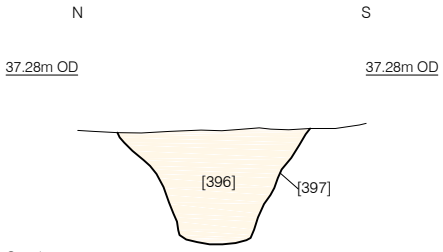
Section 31
Phase 4.2
South facing section through Ditch [295]



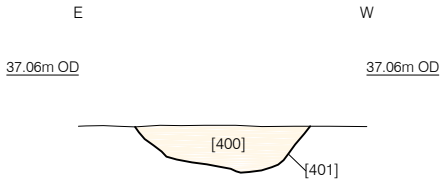
Section 33
Phase 4.2
Southwest facing section through Ditch [297]



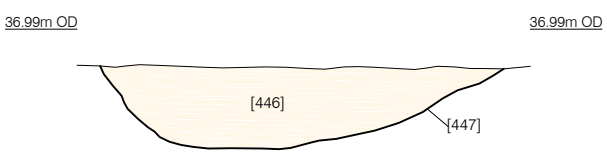
Section 34
Phase 4.2
Southeast facing section through Ditch [308]



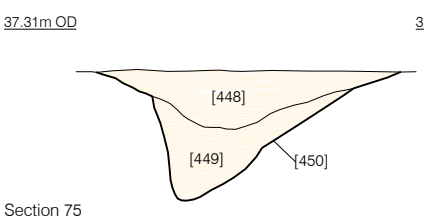
Section 61
Phase 4.2
West facing section through Ditch [397]



Section 63
Phase 4.2
North facing section through Ditch [401]

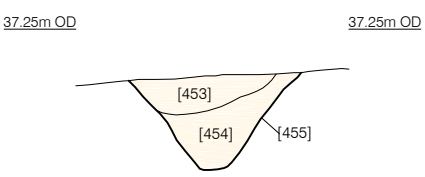


Section 74
Phase 4.2
West facing section through Ditch [447]

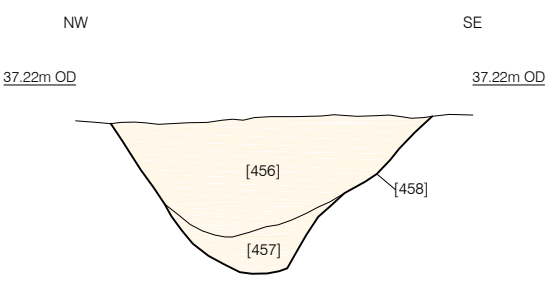


Section 75
Phase 4.2
South facing section through Ditch [450]

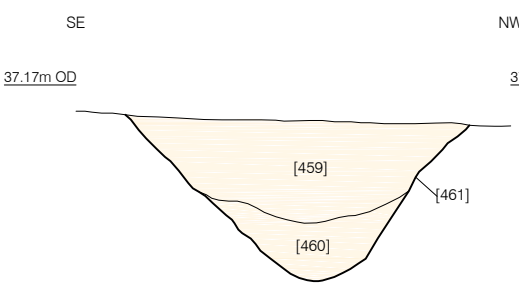
Section 76
Phase 4.2
Northeast facing section through Ditch [452]



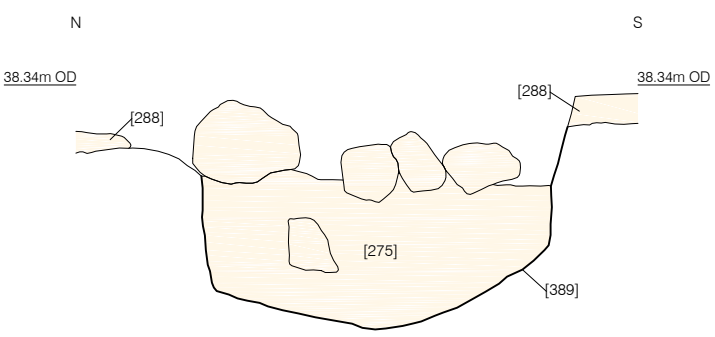
Section 77
Phase 4.2
Southeast facing section through Ditch [455]



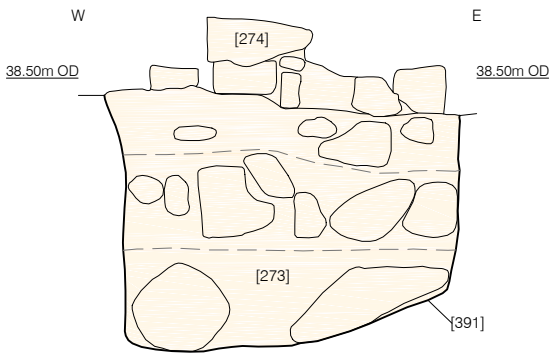
Section 78
Phase 4.2
Southwest facing section through Ditch [458]



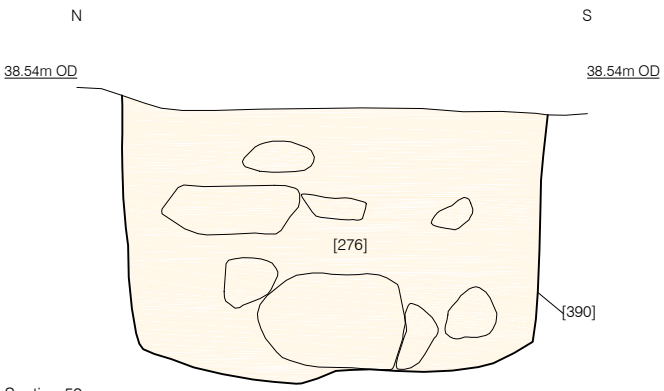
Section 79
Phase 4.2
Northeast facing section through Ditch [461]



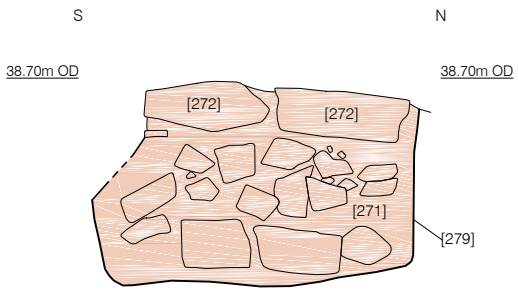
Section 57
Phase 4.2
West facing section through Wall Foundation [389]



Section 58
Phase 4.2
South facing section through Wall Foundation [391]



Section 59
Phase 4.2
West facing section through Wall Foundation [390]



Section 36
Phase 4.3
West facing section beneath hypocaust wall [272]

Phase 4.2
Phase 4.3

0 1m

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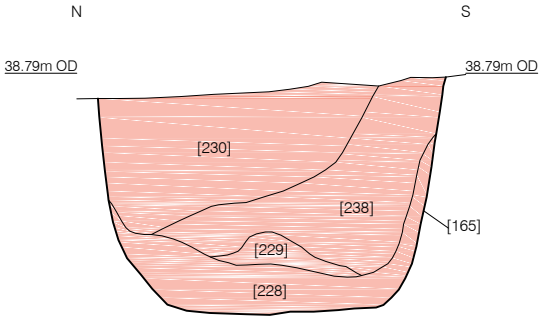
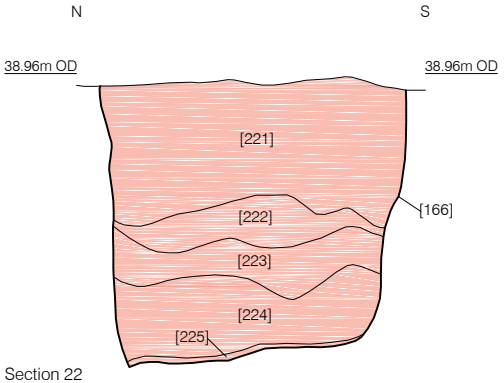
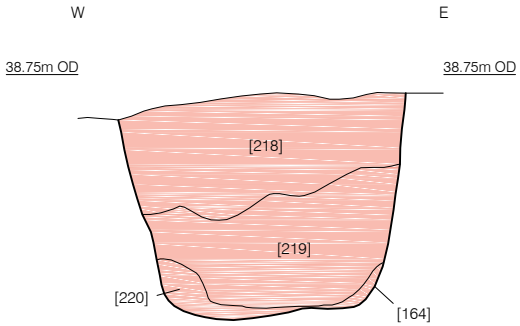
Figure 20
Sections from Phase 4.2 and 4.3
Sections:1:25, Location inset: 1:1,250 at A3



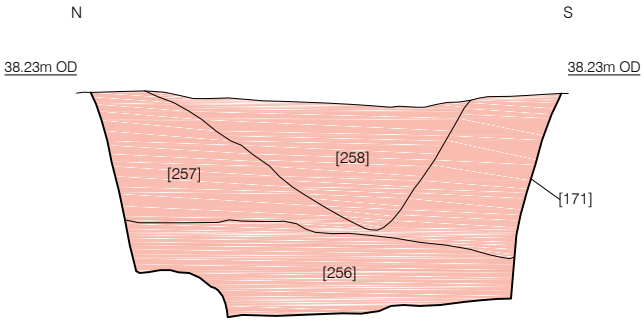
Section 16
Phase 6
West facing through Robber Trench [165]



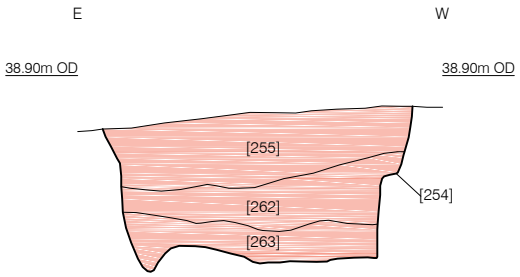
Section 22
Phase 6
West facing through Robber Trench [166]



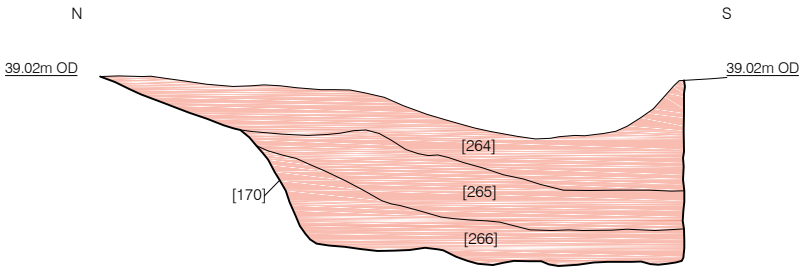
Section 23
Phase 6
South facing through Robber Trench [164]



Section 26
Phase 6
West facing through Robber Trench [171]



Section 27
Phase 6
North facing through Robber Trench [254]



Section 29
Phase 6
West facing through Robber Trench [170]

Phase 6: Medieval

0 1m

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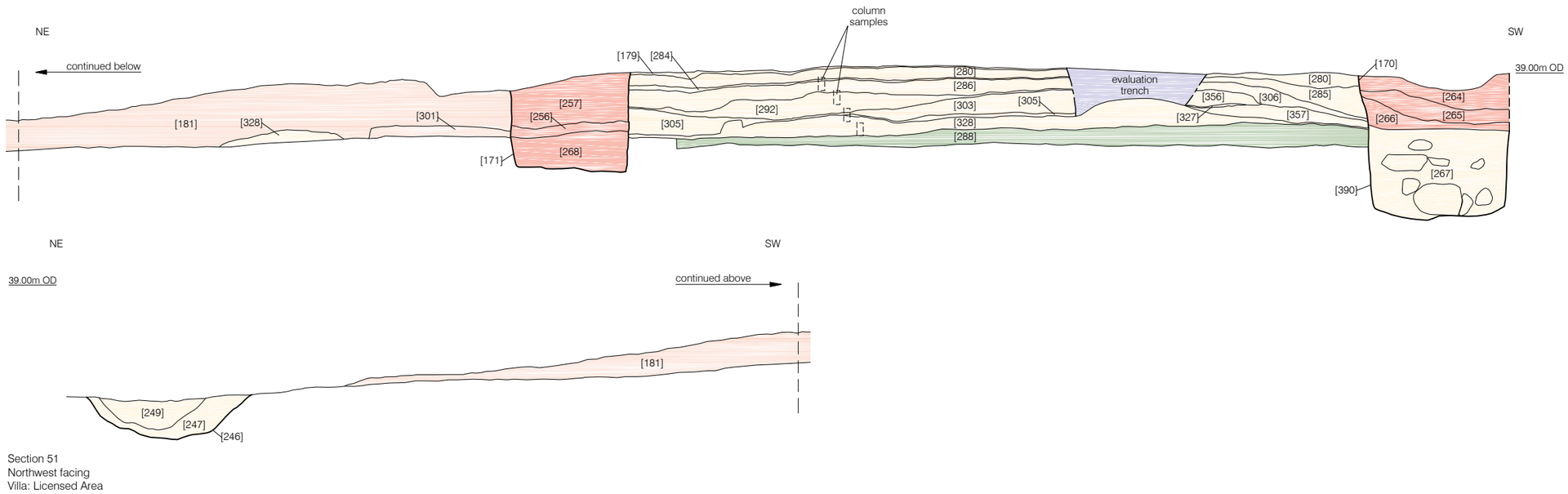
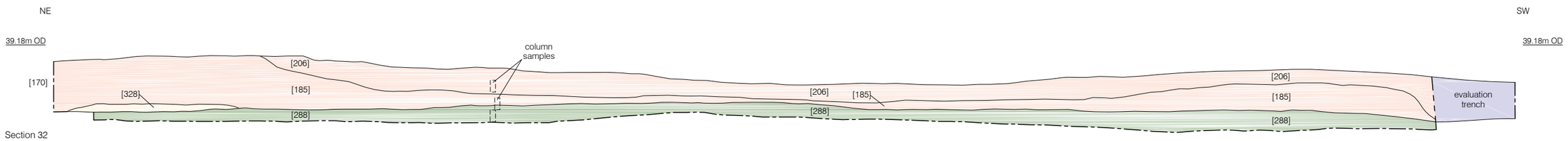
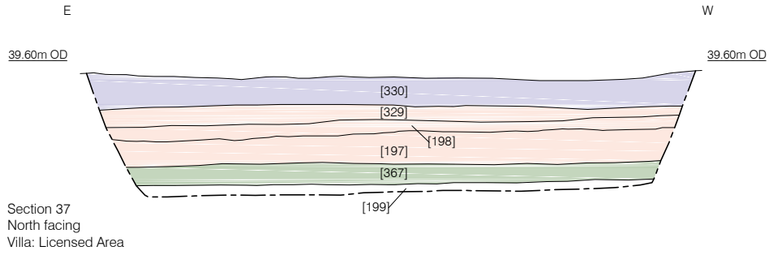
Figure 21
Phase 6 Sections 16, 22, 23, 26, 27 and 29
Sections:1:25, Location inset: 1:1,250 at A4



Section 51
Northwest facing
Villa: Licensed Area



Section 32
Northwest facing
Villa: Licensed Area



Section 37
North facing
Villa: Licensed Area

Phase 3.6
Phase 4.2
Phase 5: ?Early Medieval
Phase 6: Medieval
Phase 9: Modern

0 2m

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Figure 22
Sections from the Villa, Licensed Area
Sections:1:50, Location inset: 1:1,250 at A3

N

SCURF BECK

SITE 68

SITE 122
North

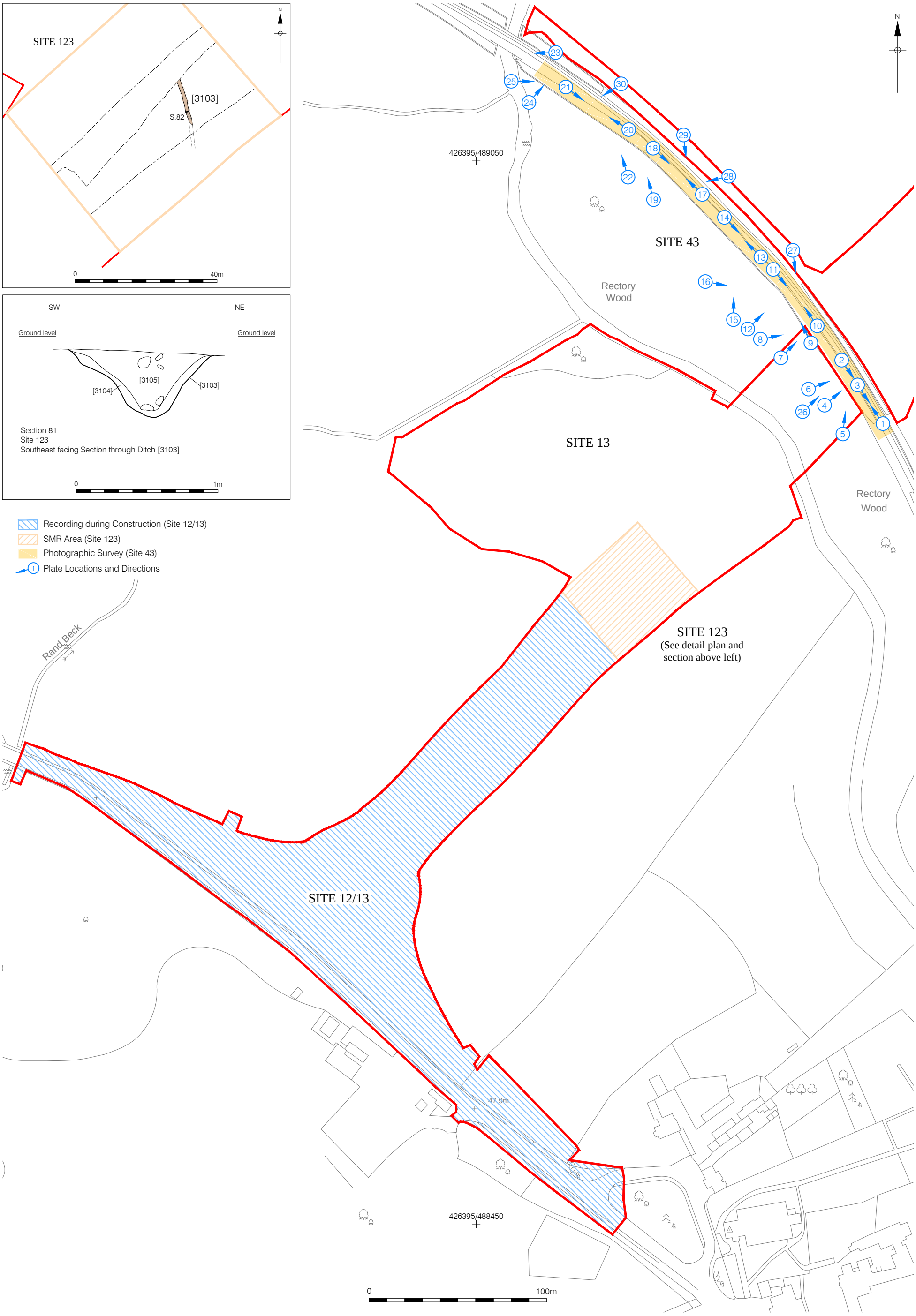
SITE 122

SITE 122
South

0 50m

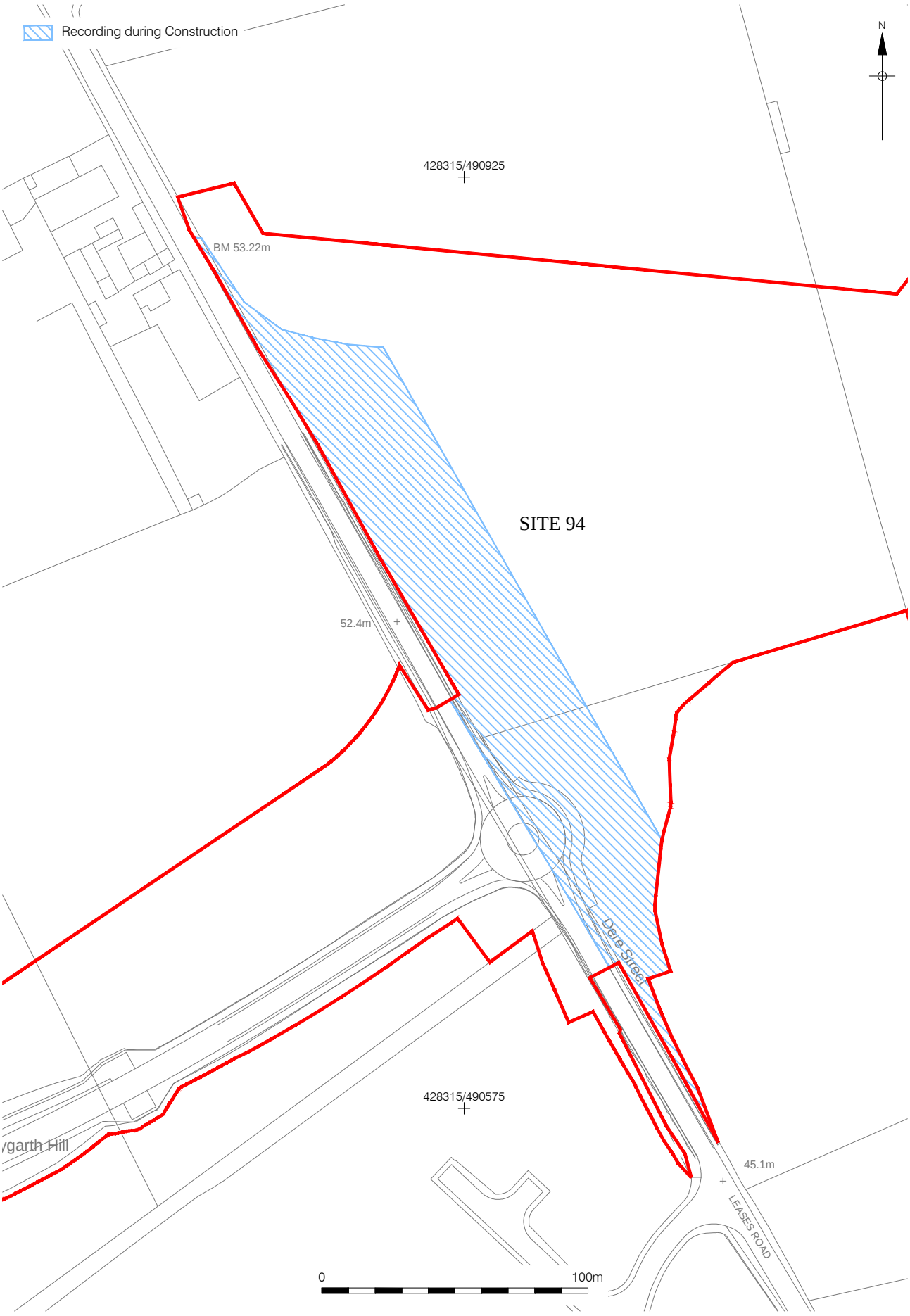
27/09/16 MR

Figure 23
Sites 122 and 68: Archaeological features overlain on geophysical survey results
1:1,000 at A3



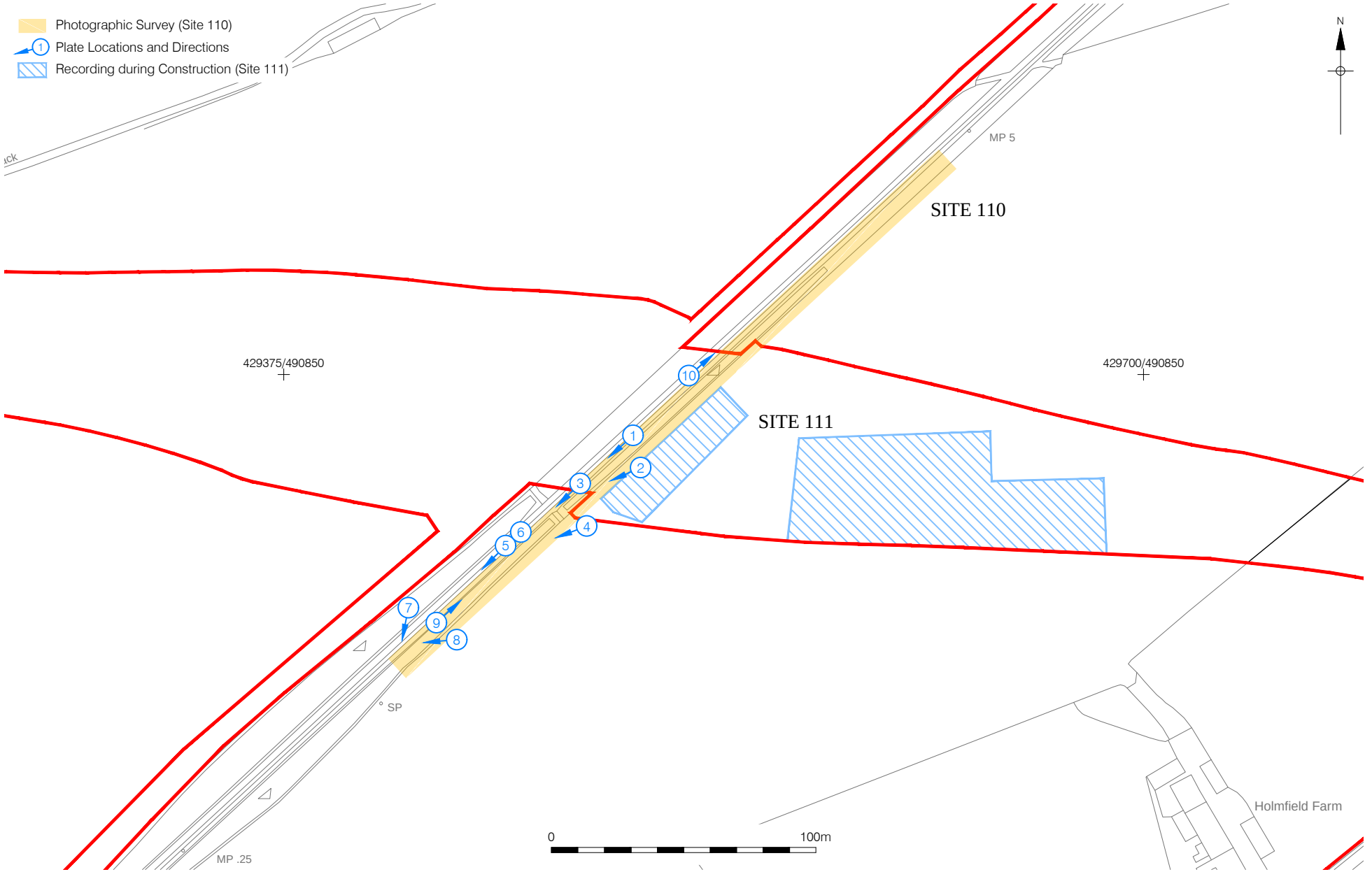
23/08/16 MR (Revised 09/05/17)

Figure 24
Plan showing Sites 12/13, 13, 123 and 43 and detail of Site 123
Plan - 1:2,000, Detail plan - 1:1,000, Section - 1:25 at A3



23/08/16 MR (Revised 09/05/17)

Figure 25
Plan showing Site 94
1:2,000 at A4



23/08/16 MR (Revised 09/05/17)

Figure 26
Plan showing Sites 110 and 111
1:2,000 at A4

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
101	122N	9	164			Layer	agricultural/horticultural/garden soil	Plough soil	Soft, dark greyish brown, silty clay.
102	122N	7	164			Layer	Natural	Colluvium	Soft, mid brownish grey, silty clay
103	122N	1	164			Layer	Natural		Firm to friable, mid brownish yellow to mid orangey brown, silty clay to coarse clayey sand.
104	122N	9		105		Cut	other	field drain	Linear, east-west aligned, vertical sides, flat base
105	122N	9		104		Fill	infilling/use	field drain	Firm, mid greyish brown, clayey silt
106	122N	9				Cut	other	field drains	linear, vertical sides, flat base. Not excavated
107	122N	9		106		Fill	infilling/use	field drains	Firm, mid greyish brown, clayey sand. Not excavated
108	122N	4	100			Cut	ditch/gully		linear, WNW-ESE aligned, U-shaped profile
109	122N	4	102	108		Fill	natural silting/accumulation		Friable, light brownish yellow, clayey silt. Frequent small angular stones. 2m slot excavated
110	122N	4	102	108		Fill	natural silting/accumulation		Soft, mid brownish grey, sandy clay. Occasional small angular stoned. 2m slot excavated
111	122N	4	103	108		Fill	backfill/disuse		Friable mid brownish grey, sandy clay. Occasional small sub-angular stones, frequent large sub-round stones, occasional small pieces of ceramic building material. 2m slot excavated
112	122N	4	103	108		Fill	backfill/disuse		friable, mid greyish brown, silty sandy clay. Frequent small sub-round stones. 2m slot excavated
113	122N	4				Cut	ditch/gully		Linear, east-west aligned, shallow U-shaped profile
114	122N	4		113		Fill	backfill/disuse		Firm, mid reddish brown, silty sand
115	122N	8		116		Fill	pit		Friable, dark greyish brown, clayey silt.
116	122N	8				Cut	pit		Irregular shape in plan, moderate sloping edge, uneven base
117	122N	4	172	119		Fill	backfill/disuse		Firm, brownish grey, silty clay. V.occasional small sub-round stones, V.occasional charcoal flecks. 2m slot excavated
118	122N	4	107	119		Fill	natural silting/accumulation		Firm, mid grey, silty clay. V.occasional small sub-round stones. 2m slot excavated
119	122N	4	106			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
120	122N	4	173	123		Fill	backfill/disuse		Firm, mid brownish grey, silty clay.
121	122N	4	173	123		Fill	backfill/disuse		Firm, mid greyish brown, silty clay
122	122N	4	173	123		Fill	backfill/disuse		Firm, light grey, silty clay. Occasional medium to large sub-angular and sub-round stones
123	122N	4	165			Cut	pit		Circular, U-shaped profile
124	122N	9		125		Fill	infilling/use	animal burial	Loose, mid brown, sandy silt. Contains articulated animal bones. Not excavated
125	122N	9				Cut	other	animal burial	Rectangular in plan, not excavated
126	122N	4	106			Cut	ditch/gully		linear, east-west aligned, U-shaped profile. 2m slot excavated
127	122N	4	172	126		Fill	backfill/disuse		Firm, mid reddish grey, sandy clay. 2m slot excavated
128	122N	4	104			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
129	122N	4	105	128		Fill	natural silting/accumulation		Firm, mid reddish brown, sandy clay. 2m slot excavated
130	122N	4	166			Cut	pit		Circular, U-shaped profile
131	122N	4	115	133		Fill	natural silting/accumulation		Friable, dark brownish grey, sandy silty clay. Frequent small sub-round stones. 2m slot excavated
132	122N	4	115	133		Fill	natural silting/accumulation		Firm, mid brownish grey, clay. 2m slot excavated
133	122N	4	114			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 2m slot excavated
134	122N	4	107	126		Fill	natural silting/accumulation		Compact, mid yellowish grey, clay. 2m slot excavated
135	122N	4	107	126		Fill	natural silting/accumulation		Firm, mid brownish yellow, silty sand. 2m slot excavated
136	122N	4	167	130		Fill	backfill/disuse		Soft, dark brownish grey, silty clay. Occasional fragments of degraded sandstone. 2m slot excavated
137	122N	4	167	130		Fill	backfill/disuse		Firm, dark brownish grey, silty clay. Frequent large sub-round stones
140	122N	4	108			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
142	122N	4	109	140		Fill	natural silting/accumulation		Soft, mid grey, silty clay. 2m slot excavated
145	122N	4	110			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 1.22m slot excavated
146	122N	4	111	145		Fill	natural silting/accumulation		Firm, mid grey, silty clay. 2m slot excavated
147	122N	4	111	145		Fill	natural silting/accumulation		Firm, yellowish grey, silty clay. 2m slot excavated
148	122N	4	113	150		Fill	natural silting/accumulation		Friable, mid brownish grey, sandy silty clay. 2m slot excavated
149	122N	4	113	150		Fill	natural silting/accumulation		Firm, dark bluish grey, clay. 2m slot excavated
150	122N	4	112			Cut	ditch/gully		linear, north-south aligned, U-shaped profile. 2m slot excavated
151	122N	4	104			Cut	ditch/gully		Linear, north-south aligned, shallow U-shaped profile
152	122N	4	105	151		Fill	natural silting/accumulation		Firm, dark grey, clayey sand. 2m slot excavated
153	122N	4	168			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
154	122N	4	169	153		Fill	natural silting/accumulation		Firm, mid yellowish brown, clayey sand. 2m slot excavated
155	122N	4	109	156		Fill	natural silting/accumulation		Soft, mid greyish brown, clayey silt. 1m slot excavated
156	122N	4	108			Cut	ditch/gully		Linear, WNW-ESE aligned, shallow U-shaped profile. 1m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
157	122N	4	111	158		Fill	natural silting/accumulation		Firm, mid brownish grey, clayey silt. 1m slot excavated
158	122N	4	110			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 1m slot excavated
159	122N	4	104			Cut	ditch/gully		Linear, NNE-SSW aligned, U-shaped profile. 2m slot excavated
160	122N	4	105	159		Fill	natural silting/accumulation		Firm, mid yellowish grey, silty clay. 2m slot excavated
161	122N	4	112			Cut	natural silting/accumulation		Linear, north-south aligned, U-shaped profile. 2m slot excavated
162	122N	4	113	161		Fill	backfill/disuse		Firm, mid yellowish grey, clayey silt. 2m slot excavated
163	122N	4	113	161		Fill	natural silting/accumulation		Firm, mid yellowish grey, silty clay. 2m slot excavated
164	122V	6	141			Cut	robber cut	hypocaust wall	Linear, vertical sides, flat base
									aligned N-S
165	122V	6	141			Cut	robber cut	hypocaust wall	Linear, vertical sides, flat base
									Aligned E-W
166	122V	6	141			Cut	robber cut		linear, east-west aligned, near vertical side, uneven base
167	122V	5	145			Layer	demolition	hypocaust	soft, mid brown, sandy clay, with demolition rubble, i.e. cbm, stone, mortar
168	122V	4.3	144			Masonry	pilae	hypocaust	Sandstone pilae stacks max 520mm x 420mm x 120mm to min 210mm x 210mm x 50mm. Bonded light grey lime mortar. 37 stacks in total
169	122V	6	141			Cut			
170	122LA	6	141			Cut	robber cut		Linear, east-west aligned, steep sloping to vertical sides, flat base
171	122V	6	141			Cut	robber cut		Linear aligned east-west, vertical sides, flat base
172	122V	3.5	121	267		Fill	backfill/disuse		Firm, dark grey, sandy clay, very occasional small sub-round stones, 2m slot excavated
173	122LA	6				Cut	robber cut		Linear, north-south aligned, not excavated
174	122LA	6				Cut	robber cut		Linear, north-south aligned, not excavated
175	122LA	6				Cut	robber cut		Linear, north-south 5.50m and east-west 6.10m aligned, not excavated
176	122LA	5				Layer	demolition	villa	Loose, dark brown and light yellowish brown, sandy silt. Frequent fragments of ceramic building material, frequent small to large sub-angular stone, fragments of light grey lime plaster
177	122LA	4.2				Layer	surface/floor (internal)	villa	Indurated, light grey, lime concrete surface
178	122LA	5				Layer	demolition	villa	Friable, mid brownish grey, sandy silt. Frequent fragments of ceramic building material, occasional small fragments of lime wall plaster
179	122V	4.2	143			Layer	surface/floor (internal)	villa	Firm, light brownish pink, course silty sand, patches of in situ cement surface, small pieces of wall plaster throughout
180	122V	4.2	143			Layer			

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
181	122V	5	145			Layer	demolition		Soft, dark brown, silty clay, frequent medium to large sub-angular stones, occasional fragments of CBM
183	122LA	5				Layer	demolition	villa	Soft, light brownish pink, sand. Occasional fragments of lime wall plaster, V. occasional small fragments of ceramic building material
184	122LA	4.2				Layer	surface/floor (internal)	villa	Firm, dark brownish grey, sandy silt. V. occasional fragments of ceramic building material
185	122V	5	145			Layer	demolition		Friable, mid yellowish brown, sandy silt, frequent small to medium sub-angular stones, occasional small pieces of CBM
186	122LA	6				Cut	robber cut		Linear, north-south aligned, not excavated
187	122LA	6				Cut	robber cut		Linear, north-south aligned, not excavated
188	122LA	6				Cut	robber cut		Linear, east-west aligned, not excavated
189	122LA	6				Cut	robber cut		Linear, east-west aligned, not excavated
190	122LA	5				Layer	demolition	villa	Firm, dark yellowish brown, silty sand. Occasional fragments of ceramic building material
191	122LA	4.2				Layer	bedding/make-up/levelling	villa	Soft, dark greyish brown, silty sand
192	122LA	4.2				Layer	bedding/make-up/levelling	villa	Soft, dark greyish brown, silty sand
193	122LA	4.2				Masonry	other	consolidation	Medium to large roughly hewn and unworked rectangular stones laid on edge in rows (max 340mm x 100 x 200mm), within a sandy silt matrix. Not excavated
194	122LA	4.2				Layer	bedding/make-up/levelling	villa	Firm, mid greyish brown, sandy silt. Occasional small to large sub-angular and sub-round stones
195	122LA	4.2				Masonry	wall	villa	Possible wall aligned NE-SW, exposed to one course built with roughly hewn rectangular and square stones (min 220mm x 160mm x 100mm), (max 320mm x 160mm x 100mm), no bonding material
196	122LA	5				Layer	demolition	villa	Friable, light yellowish brown, sandy silt. Frequent medium to large sub-round and sub-angular stones. Not excavated
197	122LA	4.2				Layer	bedding/make-up/levelling	villa	Firm, dark greyish brown, clayey silt. Occasional small to large sub-angular and sub-round stones, V. Occasional fragments of ceramic building material
198	122LA	5				Layer	demolition	villa	Loose - compact, light yellowish brown, sandy silt. Frequent small to medium sub-angular stones, occasional small fragments of ceramic building material. Not excavated
200	122V	7	146			Layer	Natural	Colluvium	friable, mid greyish brown, sandy silt
201	122LA	5				Layer	demolition	villa	Soft, mid grey brown, silty sand. Moderate medium sub-round stones, occasional small charcoal flecks
202	122LA	4.2				Masonry	wall	villa	Wall, east-west aligned, built with unworked and roughly hewn square and rectangular stone, bonded with light grey lime mortar
203	122LA	6				Cut	robber cut		Linear, east-west and north-south aligned, not excavated
204	122LA	5				Layer	demolition	villa	Firm, dark brownish red, sandy silt. Moderate small fragments of ceramic building material. Not excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
205	122LA	4.2				Other	surface/floor (internal)	villa	Firm, dark reddish brown, sandy silt. Frequent small to medium sub-round and sub-angular stones forming a surface
206	122V	5	145			Layer	demolition		Firm, mid greyish brown, clayey silt, occasional small fragments of sub-angular sandstone, very occasional pieces of CBM
207	122LA	5				Layer	demolition	villa	Compact, mid yellowish brown, silt. Moderate small to medium sub-angular stone, fragments and flecks of ceramic building material. Not excavated
208	122LA	5				Layer	demolition	villa	Compact, dark reddish brown, silt. V.occasional flecks of ceramic building material, occasional small sub-round stones. Not excavated
209	122LA	6				Cut	robber cut		Linear, east-west aligned, not excavated
210	122LA	5				Layer	demolition	villa	Soft, mid yellowish red, sandy silt. Moderate small pieces of ceramic building material,. Not excavated
211	122LA	5				Layer	demolition	villa	Firm, mid greyish brown, silty sand. Frequent medium to large sub-rounded and sub-angular stone, V.occasional flecks of ceramic building material
212	122LA	4.2				Masonry	floor/surface	villa	Tessellated floor surface, square tesserae (maximum 20mmx 30mm)
213	122LA	4.2				Masonry	floor/surface	villa	Tessellated floor surface, square tesserae (maximum 20mmx 30mm)
214	122LA	4.2				Masonry	floor/surface	villa	Tessellated floor surface, square tesserae (maximum 20mmx 30mm)
215	122LA	4.2				Layer	surface/floor (internal)	villa	Firm, light reddish brown, sandy silt. Occasional flecks of ceramic building material. Not excavated
216	122LA	4.2				Layer	bedding/make-up/levelling	villa	Soft, mid brownish grey, silt. V.occasional flecks of ceramic building material. Not excavated
217	122LA	5				Layer	demolition		Firm, light yellowish brown, sandy silt. Occasional flecks of ceramic building material
218	122V	6	142	164		Fill	backfill/disuse		Soft, mid greyish brown, mottled, sandy clay
219	122V	6	142	164		Fill	backfill/disuse		Soft, mid brownish grey, mottled, gravelly clay
220	122V	6	142	164		Fill	backfill/disuse		Soft, mid yellowish grey, coarse sandy clay
221	122V	6	142	166		Fill	backfill/disuse		Friable, mid greyish brown, sandy silt
222	122V	6	142	166		Fill	backfill/disuse		Soft, mid yellowish grey, sandy clay
223	122V	6	142	166		Fill	backfill/disuse		Soft, dark grey, gravelly clay
224	122V	6	142	166		Fill	backfill/disuse		Soft, light greyish brown, sandy clay
225	122V	6	142	166		Fill	backfill/disuse		Soft, mid bluish grey, sandy clay
226	122V	4.2	133			Cut	backfill/disuse		Linear, east-west aligned, shallow U-shaped profile, 2m slot excavated
227	122V	4.2	133	226		Fill	backfill/disuse		Soft, mid brownish grey, silt
228	122V	6	142	165		Fill	backfill/disuse		Firm, mid greyish yellow, sandy clay
229	122V	6	142	165		Fill	backfill/disuse		Soft, dark brownish grey, silty clay
230	122V	6	142	165		Fill	backfill/disuse		Loose, mid greyish brown, gravelly clay

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
231	122V	4.2	133			Cut	ditch/gully		Linear terminus, aligned NE-SW, shallow U-shaped profile, 1m slot at SW terminus
232	122V	4.2	134	231		Fill	backfill/disuse		Soft, mid orange brown, silt, 1m slot at NW terminus
233	122V	4.1	135			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile, 2m slot excavated
234	122V	4.1	136	233		Fill	backfill/disuse		Firm, mid yellowish grey, clay, 2m slot excavated
235	122V	4.1	136	233		Fill	backfill/disuse		Firm, dark grey, sandy clay, 2m slot excavated
236	122V	4.2	147			Cut	ditch/gully		Oval, east-west aligned, shallow U-shaped profile
237	122V	4.2	148	236		Fill	backfill/disuse		Soft, dark brownish grey, silt, charcoal flecks
238	122V	6	142	165		Fill	backfill/disuse		Loose, mid greyish brown, gravelly clay
239	122V	4.2	128			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile, 2m slot excavated
240	122V	4.2	129	239		Fill	backfill/disuse		Firm, mid brownish grey, silty clay, 2m slot excavated
241	122V	4.2	129	239		Fill	backfill/disuse		Stiff, light brownish grey, clay, 2m slot excavated
242	122V	4.2	149			Cut	pit		Oval, steep to moderate sloping sides and flat base
243	122V	4.2	150	242		Fill	backfill/disuse		Soft, mid grey, clay, charcoal flecks
244	122V	4.2	150	242		Fill	backfill/disuse		Soft, mid grey, sandy clay, charcoal flecks
245	122V	4.2	150	242		Fill	backfill/disuse		Soft, dark grey, coarse sandy clay
246	122V	4.1	135			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile, 2m slot excavated
247	122V	4.1	136	246		Fill	backfill/disuse		Firm, mid greyish yellow, sandy silt, charcoal flecks, 2m slot excavated
249	122V	4.1	136	246		Fill	backfill/disuse		Soft, dark brownish grey, sandy silt, 2m slot excavated
250	122LA	5				Layer	demolition		Soft, mid reddish brown, sandy silt. V.occasional flecks of light grey lime plaster and ceramic building material. Not excavated
251	122LA	5				Layer	demolition		Firm, greyish brown, sandy silt. Occasional small pieces of ceramic building material. Not excavated
252	122V	4.2	151			Cut	pit		Circular, shallow U-shaped profile
253	122V	4.2	152	252		Fill	backfill/disuse		Soft, dark greyish brown, silt
254	122V	6	141			Cut	robber cut		Linear, north-south aligned, steep to near vertical sides and flat base
255	122V	6	142	254		Fill	backfill/disuse		Soft, dark greyish brown, silt
256	122V	6	142	171		Fill	backfill/disuse		Firm, greyish yellow, clayey sand
257	122V	6	142	171		Fill	backfill/disuse		Firm, light brownish yellow, silty sand
258	122V	6	142	171		Fill	backfill/disuse		Firm, mid greyish brown, silty sand
259	122V	4.2	128			Cut	ditch/gully		Linear, NW-SE aligned, U-shaped profile, 2m slot excavated
260	122V	4.2	129	259		Fill	backfill/disuse		Soft, dark greyish brown, silt, 2m slot excavated
261	122V	4.2	129	259		Fill	backfill/disuse		Firm, mid orangey brown, silt, 2m slot excavated
262	122V	6	142	254		Fill	backfill/disuse		Firm, mid greyish brown, coarse sandy gravel
263	122V	6	142	254		Fill	backfill/disuse		Firm, light greyish brown, clay
264	122V	6	142	170		Fill	backfill/disuse		Soft, mid greyish brown, silty sand
265	122V	6	142	170		Fill	backfill/disuse		Soft, dark brownish grey, silty sand
266	122V	6	142	170		Fill	backfill/disuse		Soft, light greyish brown, silty sand

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
267	122V	3.5	120			Cut	ditch/gully		Linear, aligned east-west, U-shaped profile, 2m slot excavated
268	122V	6	142	171		Fill	backfill/disuse		Soft, dark brownish grey, sandy silt
269	122V	4.3	144			Layer	other	hypocaust flue deposit	Friable, black, ashy silt
270	122V	4.3	144			Layer	bedding/make-up/levelling		Friable, light grey, clayey sand, frequent small to medium sub-angular fragments of sandstone
271	122V	4.3	144	279		Masonry	foundation		Cobble foundation in construction cut [279]
272	122V	4.3	144	279		Masonry	wall		Hypocaust wall
273	122V	4.2	140	391		Masonry	foundation		Cobble foundation for wall [274], construction cut [391]
274	122V	4.2	153	391		Masonry	wall		Villa wall, in construction cut [279]
275	122V	4.2	140	389		Masonry	foundation		Villa wall cobble foundation, in construction cut [389]
276	122V	4.2	140	390		Masonry	foundation		Villa wall cobble foundation, in construction cut [390]
277	122V	4.3	144			Masonry	other	Flue	Hypocaust flue structure
278	122V	8	154			Layer	natural silting/accumulation		Friable, dark brown, fine sandy silt
279	122V	4.3	144			Cut	construction cut		Linear, aligned east-west, vertical sides and flat base
280	122V	4.2	143			Layer	bedding/make-up/levelling		Friable, light brownish yellow, silty sand, frequent large sub-angular stones
281	122V	4.2	128			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile, 2m slot excavated
282	122V	4.2	129	281		Fill	backfill/disuse		Firm, mid grey, silty sandy clay, 2m slot excavated
283	122V	4.2	129	281		Fill	backfill/disuse		Soft, mid grey sandy clayey silt, 2m slot excavated
284	122V	4.2	143			Layer	surface/floor (external)		Friable, black, ashy silt
285	122V	4.2	143			Layer	surface/floor (external)		Friable, black, ashy silt
286	122V	4.2	143			Layer	bedding/make-up/levelling		Friable, mid yellowish brown, silty sand and clayey sand
288	122V	3.6	155			Layer	other	developed soil	Soft, mid grey, sandy silt
289	122V	8	170			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile
290	122V	8	171	289		Fill	infilling/use		Firm, light greyish brown, silty clay, frequent medium to large sub-round boulders
291	122V	4.3	144			Layer	dump		Soft, dark brownish red, sandy silty ash, charcoal throughout, associated with hypocaust
292	122V	4.2	143			Layer	dump		Friable, black, ashy silt
295	122V	4.2	128			Cut	ditch/gully		Linear, aligned north-south, U-shaped profile, 2m slot excavated
296	122V	4.2	129	295		Fill	backfill/disuse		Friable, mid brownish grey, sandy silt, 2m slot excavated
297	122V	4.2	128			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile
298	122V	4.2	129	297		Fill	ditch/gully		Soft, mid grey, silty clay
299	122V	4.2	129	297		Fill	ditch/gully		Soft, mid grey, silty clay, 2m slot excavated
300	122V	4.3	144			Layer	demolition		Firm, mid orange brown, clayey silt, inclusions of ceramic building material and shell
301	122V	5	145			Layer	demolition		Loose, light yellowish grey, coarse sand, occasional small to medium sub-angular fragments of stone
303	122V	4.2	143			Layer	bedding/make-up/levelling	villa	Friable, mid yellowish brown, silty sand, frequent small sub-angular stones (

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
304	122V	4.2	143			Layer	floor/surface	villa	Friable, mid brown, fine sandy silt, V.occasional small sub-round stones (<100mm)
305	122V	4.2	143			Layer	bedding/make-up/levelling	villa	Friable, light yellowish brown, sandy silt, frequent inclusions of lime mortar, small sub-angular stones (50mm - 150mm), small lenses of black ash and fragments of ceramic building material. Very occasional flecks of charcoal. Occasional large angular stones
306	122V	4.2	143			Layer	bedding/make-up/levelling	villa	Friable, mid greyish brown, silty sand. Frequent small sub-angular stones (
307	122V	4.3	144			Layer	demolition	hypocaust	Firm, dark greyish brown, clayey silt. Frequent inclusions of ceramic building material
308	122V	4.2	128			Cut	ditch/gully		North-south aligned ditch, U-shaped profile, 2m slot excavated
309	122V	4.2	129	308		Fill	backfill/disuse		Friable, dark reddish brown, ashy silt. Frequent flecks of ceramic building material, occasional small pieces of charcoal. 2m slot excavated
310	122V	4.2	129	308		Fill	backfill/disuse		Firm, light greyish brown, silty clay. V.occasional flecks of ceramic building material. 2m slot excavated
311	122V	4.2	129	313		Fill	backfill/disuse		Firm, dark greyish brown, sandy silt. Occasional flecks of ceramic building material. 2m slot excavated
312	122V	4.2	129	313		Fill	backfill/disuse		Firm, light brownish grey, sandy silty clay. 2m slot excavated
313	122V	4.2	128			Cut	ditch/gully		NW-SE aligned ditch, U-shaped profile. 2m slot excavated
314	122V	4.2	126			Cut	other	quarry	Irregular shape, moderate sloping edges, very shallow concave/flat base
315	122V	4.2	156	314		Fill	natural silting/accumulation	quarry	Firm, mid bluish grey. Sandy clay
316	122V	4.2	127	314		Fill	backfill/disuse	quarry	Firm, dark brownish grey, clayey silt.
317	122V	4.2	127	314		Fill	backfill/disuse	quarry	Firm, light brownish grey, clayey silt
318	122V	4.2	127	314		Fill	backfill/disuse	quarry	Firm, light grey, silty sand
319	122LA	5				Layer	demolition		Firm, light brownish yellow, sandy silt. V. Occasional small sub-rounded stones. Not excavated
320	122LA	5				Layer	demolition		Firm, mid yellowish red, sandy silt. V.occasional small sub-angular stones. Not excavated
321	122LA	4.2				Layer	surface/floor (internal)	villa	Firm, mid yellowish brown, sandy silt. Occasional flecks of ceramic building material. Not excavated
322	122LA	4.2				Layer	bedding/make-up/levelling	villa	Firm, light yellowish brown, sandy silt. Occasional small pieces of ceramic building material, moderate small sub-rounded stones. Not excavated
323	122LA	5				Layer	demolition		Firm, mid yellowish brown, silty sand. V.occasional flecks of ceramic building material. Not excavated
324	122V	4.2	156	348		Fill	backfill/disuse	quarry	Firm, mid greyish brown, sandy silt. Occasional small fragments of ceramic building material. 2m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
325	122V	4.2	125	348		Fill	backfill/disuse	quarry	Firm, mid brownish grey, silty sand. Occasional fragments/flecks of ceramic building material and small -medium sub-rounded stones. 2m slot excavated
326	122V	4.3	144			Layer	dump	hypocaust	Compact, light grey lime mortar spread
327	122V	4.2	143			Layer	other	mortar structure	Compact, light grey lime mortar spread. Central portion forming a square socket forming a post pad?
328	122V	4.2	157			Layer	bedding/make-up/levelling	villa	Firm, mid brownish yellow, clayey sand. Occasional patches of sandy clay.
329	122LA	5				Layer	demolition		Firm, mid orangey brown, sandy gravel. Recorded in section
330		9				Layer	agricultural/horticultural/garden soil	ploughsoil	Friable dark greyish brown silty clay.
331	122LA	6		186		Fill	backfill/disuse		Soft, dark greyish brown, silt. Occasional small sub-angular stones. Not excavated
332	122LA	6		187		Fill	backfill/disuse		Soft, dark greyish brown, silt. Occasional small to medium sub-angular and sub-round stones. Not excavated
333	122LA	6		188		Fill	backfill/disuse		Soft, dark reddish brown, silt. V.occasional small sub-round stones. Not excavated
334	122LA	6		189		Fill	backfill/disuse		Soft, dark reddish brown, silt. Occasional angular and sub-angular stones. Not excavated
335	122LA	6		209		Fill	backfill/disuse		Firm, mid reddish brown, silt. Moderate medium to large angular and sub-round stones, V.occasional flecks of ceramic building material. Not excavated
336	122LA	6		203		Fill	backfill/disuse		Firm, mid reddish brown, silt. Moderate small angular and sub-round stones. Not excavated
337	122LA	6		171		Fill	backfill/disuse		Friable, mid greyish brown, clayey sandy silt. Occasional small to medium sub-angular stones. Not excavated
338	122LA	6		175		Fill	backfill/disuse		Firm, light yellowish brown, sandy silt. Frequent medium sub-angular and angular stones, occasional pieces of ceramic building material
339	122LA	6		174		Fill	backfill/disuse		Firm, mid reddish brown, silt. Moderate small sub-angular stones, V.occasional flecks of ceramic building material. Not excavated
340	122V	4.1	135			Cut	ditch/gully		linear east-west aligned, U-shaped profile. 1m slot excavated
341	122V	4.1	136	340		Fill	backfill/disuse		Soft, mid grey, clayey silt. Charcoal flecks. 1m slot excavated
342	122V	3.5	121	343		Fill	backfill/disuse		Friable, mid grey, sandy silt
343	122V	3.5	120			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile
344	122V	3.5	122			Cut	ditch/gully		Linear, U-shaped profile, rounded terminus to south. 2m slot excavated
345	122V	3.5	123	344		Fill	backfill/disuse		Soft, dark brownish grey, clayey sandy silt. 2m slot excavated
346	122V	4.1	135			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 1m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
347	122V	4.1	136			Fill	backfill/disuse		Friable, mid orange brown, sandy clay. Flecks of charcoal. 1m slot excavated
348	122V	4.2	124			Cut	pit	quarry	Irregular shape in plan, moderate sloping eastern edge, sharp mid break-of-slope and steep slope, flat base. 2m slot excavated
349	122V	4.2	124			Cut	pit	quarry	Irregular shape in plan, moderate sloping sides, uneven base. 2m slot excavated
350	122V	4.2	130	353		Fill	backfill/disuse		Friable, dark reddish brown, ashy clayey fine sand. Occasional small sub-angular stones. 2m slot excavated
351	122V	4.2	125	349		Fill	backfill/disuse	quarry	Firm, mid grey, clayey silt. 2m slot excavated
352	122V	4.2	129	353		Fill	backfill/disuse		Firm, light brownish grey, clayey silt. 2m slot excavated
353	122V	4.2	128			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 2m slot excavated
354	122V	4.2	125	348		Fill	backfill/disuse	quarry	Firm, mid yellowish grey, silty clay. 2m slot excavated
355	122V	4.2	125	348		Fill	backfill/disuse	quarry	Firm, mid grey, silty clay. 2m slot excavated
356	122V	4.2	143			Layer	bedding/make-up/levelling	villa	Friable, light yellowish brown, sandy silt. Frequent small to medium sub-angular stones
357	122V	4.2	143			Layer	bedding/make-up/levelling	villa	Friable, mid yellow brown, silty sand. Occasional large sub-angular stones
358	122V	3.5	122			Cut	ditch/gully		Linear, NNE-SSW aligned, shallow U-shaped profile. 2m slot excavated
359	122V	3.5	123	358		Fill	backfill/disuse		Soft, mid brownish grey, sandy clay. 2m slot excavated
360	122V	4.2	125	349		Fill	backfill/disuse	quarry	Friable, dark greyish brown, humic silty sand. 2m slot excavated
361	122V	4.2	125	349		Fill	backfill/disuse	quarry	Firm, light grey, clayey silt. 2m slot excavated
362	122V	3.5	122			Cut	ditch/gully		Linear, NW-SE aligned, U-shaped profile. 2m slot excavated
363	122V	3.5	123	362		Fill	backfill/disuse		Soft, mid brownish grey, sandy clay. 2m slot excavated
364	122V	3.5	120			Cut	ditch/gully		Linear, SW-NE aligned, Shallow U-shaped profile. 2m slot excavated
365	122V	3.5	121	364		Fill	backfill/disuse		Soft, dark brownish grey, sandy clay. 2m slot excavated
366	122V	4.2	125	348		Fill	backfill/disuse	quarry	Firm, dark brownish grey, silty sand. 2m slot excavated
367	122LA	3.6				Layer	Natural	developed soil	Firm, light yellowish grey, silty clay. Recorded in section
368	122V	3.5	122			Cut	ditch/gully		Linear, ENE-WSW aligned, U-shaped profile. 2m slot excavated
369	122V	3.5	123	368		Fill	backfill/disuse		Soft, light brownish grey, sandy clay. 2m slot excavated
370	122V	4.2	128			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile
371	122V	4.2	129	370		Fill	backfill/disuse		Firm, mid orange brown, sandy silt. Occasional flecks of charcoal.
372	122V	4.2	161			Cut	ditch/gully		Linear (curving), NW-SE aligned, vertical sides, flat base
373	122V	4.2	162	372		Fill	backfill/disuse		Firm, mid grey, sandy silt. Flecks of shell and ceramic building material.
374	122V	4.1	135			Cut	ditch/gully		Linear, U-shaped profile, rounded terminus to the west.
375	122V	4.1	136	374		Fill	backfill/disuse		Firm, mid orange brown, sandy silt.
376	122V	4.2	158			Cut	stake-hole		Circular, V-shaped profile

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
377	122V	4.2	159	376		Fill	backfill/disuse		Firm, mid yellowish grey, sandy silt
378	122V	4.2	158			Cut	stake-hole		Circular, U-shaped profile
379	122V	4.2	159	378		Fill	backfill/disuse		Firm, mid yellowish grey, sandy silt
380	122V	4.2	126			Cut	pit	quarry	Irregular shape in plan, moderate sloping sides, uneven base. 1m slot excavated
381	122V	4.2	125	380		Fill	backfill/disuse	quarry	Firm, mid brownish grey, sandy silt. 1m slot excavated
382	122V	4.2	125	388		Fill	backfill/disuse	quarry	Firm, dark brownish grey, sandy silty clay. 1m slot excavated
383	122V	4.2	125	388		Fill	backfill/disuse	quarry	Firm, mid yellowish grey, sandy silt. 1m slot excavated
384	122V	4.1	123	385		Fill	backfill/disuse		Firm, light grey, silty sand. Very occasional flecks of charcoal, V. Occasional small sub-round stones (
385	122V	4.1	122			Cut	ditch/gully		Linear, north-south aligned, V-shaped profile. 2m slot excavated
386	122V	4.1	123	387		Fill	backfill/disuse		Firm, mid brownish grey, sandy silt. 2.80m slot excavated
387	122V	4.1	122			Cut	ditch/gully		Linear, north-south aligned, shallow U-shaped profile. 2.80m slot excavated
388	122V	4.2	124			Cut	pit	quarry	Irregular shape in plan, moderate sloping edges, shallow concave/uneven base. 1m slot excavated
389	122V	4.2	139			Cut	construction cut	foundation	Linear, east-west aligned, steep sloping/vertical sides, flat base
390	122V	4.2	139			Cut	construction cut	foundation	Linear, east-west aligned, steep sloping/vertical sides, flat base
391	122V	4.2	139			Cut	construction cut	foundation	Linear, north-south aligned, steep sloping/vertical sides, flat base
392	122V	3.5	120			Cut	ditch/gully		Linear, east-west aligned, shallow U-shaped profile. 2m slot excavated
393	122V	3.5	121	392		Fill	backfill/disuse		Soft, mid brown grey, sandy silty clay. 2m slot excavated
395	122V	4.2	130			Fill			friable dark reddish brown ashy clayey sand, material removed by machine excavated and processed (sieved) of site for finds recovery.
396	122N	4.2	129	397		Fill	backfill/disuse		Firm, dark brownish grey, silty clay. 2m slot excavated
397	122N	4.2	128			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
398	122N	4	163	399		Fill	backfill/disuse		Soft, mid greyish brown, silty clay.
399	122N	4	174			Cut	backfill/disuse		Linear (curving), aligned north-south, U-shaped profile
400	122N	4.2	129	401		Fill	backfill/disuse		Firm, dark brownish grey, silty clay. 2m slot excavated
401	122N	4.2	128			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 2m slot excavated
402	122N	4	119	403		Fill	backfill/disuse		Firm, mid brownish grey, sandy silt. 2m slot excavated
403	122N	4	118			Cut	ditch/gully		Linear, SW-NE aligned, U-shaped profile. 2m slot excavated
404	122N	4	115	405		Fill	natural silting/accumulation		Firm, mid grey, sandy clay. V.occasional angular stones. 2m slot excavated
405	122N	4	114			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 2m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
406	122N	4	117	407		Fill	natural silting/accumulation		Firm, mid brownish blue, silty clay. Occasional small sub-round stones. 2m slot excavated
407	122N	4	116			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
408	122N	4	119	409		Fill	backfill/disuse		Firm, mid greyish brown, sandy silt. Occasional small sub-round stones. 2m slot excavated
409	122N	4	118			Cut	ditch/gully		Linear, SW-NE aligned, U-shaped profile. 2m slot excavated
410	122N	4	119	411		Fill	natural silting/accumulation		Loose, dark brownish grey, silty sand. 2m slot excavated
411	122N	4	118			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
412	122N	4	119	413		Fill	natural silting/accumulation		Soft, mid greyish brown, sandy silt. 2m slot excavated
413	122N	4	118			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
414	122N	4	103	418		Fill	backfill/disuse		Firm, mid brownish grey, clayey silt. Occasional sub-angular sandstone (200mm x 120mm x 80mm). 2m slot excavated
415	122N	4	103	418		Fill	backfill/disuse		Firm, mid greyish brown, clayey silt. 2m slot excavated
416	122N	4	103	418		Fill	backfill/disuse		Firm, dark brownish grey, silty clay. 2m slot excavated
417	122N	4	102	418		Fill	natural silting/accumulation		Compact, light brownish yellow, silty sand. 2m slot excavated
418	122N	4	100			Cut	ditch/gully		Linear, NW-SE aligned, U-shaped profile. 2m slot excavated
419	122N	9		421		Fill	backfill/disuse	culvert	Friable, dark greyish brown, clayey silt. Not excavated
420	122N	9		421		Masonry	other	culvert	Brick (245mm x 110mm x 55mm) culvert with stone slab capping (300mm x 400mm x 120mm). Not excavated
421	122N	9				Cut	other	culvert	Linear, NW-SE aligned, not excavated
422	122N	9		424		Fill	infilling/use	field drain	Friable, mid greyish brown, clayey silt. Not excavated
423	122N	9		424		Fill	infilling/use	field drain	Ceramic field drain, 0.17m diameter
424	122N	9				Cut	infilling/use	field drain	Linear, NNW-SSE aligned, not excavated
425	122N	9		427		Fill	infilling/use	field drain	Friable, dark greyish brown, clayey silt. 2m slot excavated
426	122N	9		427		Masonry	other	manhole	Brick (2.40m x 110mm x 75mm) manhole capped with a sandstone slab (900mm x 780mm x 50mm)
427	122N	9				Cut	other	field drains	Linear, NE-SW aligned, not excavated
428	122N	4	115	429		Fill	natural silting/accumulation		Firm, mid grey brown, sandy clay. Frequent small stones, V.occasional large stones. 2m slot excavated
429	122N	4	114			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
430	122N	4	103	433		Fill	backfill/disuse		Firm, mid reddish brown, silty sand. Occasional charcoal flecks, frequent small sub-round stones and angular stones . 2m slot excavated
431	122N	4	103	433		Fill	backfill/disuse		Soft, mid brown grey, sandy silty clay. Frequent small stones, V.occasional flecks of charcoal. 2m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
432	122N	4	103	433		Fill	backfill/disuse		Firm, mid reddish grey, silty clay. V.occasional small stones. 2m slit excavated
433	122N	4	100			Cut	ditch/gully		Linear, east-west aligned, U-shaped profile. 2m slot excavated
434	122N	4	115	436		Fill	natural silting/accumulation		Soft, mid brownish grey, clayey silt. Frequent small stones, frequent charcoal flecks. 2m slot excavated
435	122N	4	115	436		Fill	natural silting/accumulation		Friable, mid brownish grey, silty clay. V.occasional small stones. 2m slot excavated
436	122N	4	114			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
437	122N	4	115	438		Fill	natural silting/accumulation		Firm. Dark brownish grey, silty clay. 2m slot excavated
438	122N	4	114			Cut	ditch/gully		Linear, NNE-SSW aligned, u-shaped profile. 2m slot excavated
439	122N	4	119	440		Fill	natural silting/accumulation		Soft, mid greyish brown, sandy silt. V.occasional small pieces of ceramic building material. 2m slot excavated
440	122N	4	118			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
441	122N	4	117	442		Fill	natural silting/accumulation		Firm, mid brown, silty sand, frequent small stones. 2m slot excavated
442	122N	4	116			Cut	ditch/gully		Linear, NNE-SSW aligned, U-shaped profile. 2m slot excavated
443	122N	4	115	445		Fill	natural silting/accumulation		Friable, dark brownish grey, sandy clay. Occasional angular stones (
444	122N	4	115	445		Fill	natural silting/accumulation		Soft, mid brownish grey, sandy clay with sand patches. Occasional small stones (
445	122N	4	114			Cut	ditch/gully		Linear, SSW-NNE aligned, U-shaped profile. 2m slot excavated
446	122N	4.2	129	447		Fill	backfill/disuse		Firm, dark brownish grey, silty clay. 4m slot excavated
447	122N	4.2	128			Cut	ditch/gully		Linear, north-south aligned turning to a NE-SW alignment, U-shaped profile. 4m slot excavated
448	122V	4.2	130	450		Fill	backfill/disuse		Soft, dark reddish brown, sandy clay. 2m slot excavated
449	122V	4.2	129	450		Fill	backfill/disuse		Firm, dark brownish grey, clayey silt. 2m slot excavated
450	122V	4.2	128			Cut	ditch/gully		Linear, north-south aligned, U-shaped profile. 2m slot excavated
451	122V	4.2	129	452		Fill	backfill/disuse		Soft, dark brownish grey, clayey silt. 2m slot excavated
452	122V	4.2	128			Cut	ditch/gully		Linear, NE-SW aligned, U-shaped profile. 2m slot excavated
453	122V	4.1	130	455		Fill	backfill/disuse		Soft, dark reddish brown, sandy clay. 2m slot excavated
454	122V	4.1	129	455		Fill	backfill/disuse		Firm, dark brownish grey, clayey silt. 2m slot excavated
455	122V	4.2	128			Cut	ditch/gully		Linear, NW-SE aligned, U-shaped profile. 2m slot excavated
456	122V	4.2	129	458		Fill	backfill/disuse		Soft, mid brownish grey, clayey sand. Occasional small stones (<50mm)
457	122V	4.2	129	458		Fill	backfill/disuse		Firm, light brownish grey, sandy clay. 2m slot excavated

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
458	122V	4.2	128			Cut	ditch/gully		Linear (curving), north-south aligned, U-shaped profile. 2m slot excavated
459	122V	4.2	129	461		Fill	backfill/disuse		Firm, mid brownish grey, silty clay. 2m slot excavated
460	122V	4.2	129	461		Fill	backfill/disuse		Firm, light brown grey, silty clay. 2m slot excavated
461	122V	4.2	128			Cut	backfill/disuse		Linear, NE-SW aligned, V-shaped profile. 2m slot excavated
462	122LA	4.2				Layer	bedding/make-up/levelling		Friable, mid greyish brown, sandy silt. V.occasional small sub-angular stones. Not excavated
463	122V	4.2	130	464		Fill	backfill/disuse	quarry	Friable, dark reddish brown, ashy clayey sand
464	122V	4.2	124			Cut	pit	quarry	Irregular shape in plan. Not excavated
500	111	8				Layer	agricultural/horticultural/garden soil	Sub soil	Friable, mid brown, clayey silty sand
2000	58	9	35			Layer	agricultural/horticultural/garden soil	topsoil	Soft, dark brownish grey, clayey silt, topsoil.
2001	58	8	50			Layer	agricultural/horticultural/garden soil	developed soil/plough soil	Soft, mid reddish brown sandy silt, subsoil.
2002	58	1	37			Layer	Natural	Boulder clay	Firm, mid brownish grey boulder clay.
2003	58	3.5	39	2004		Fill	backfill/disuse		Firm, mid brownish grey, sandy silt. Fill of posthole [2004].
2004	58	3.5	38			Cut	post-hole		Circular, steep sides, concave base
2005	58	3.5	36			Layer	surface/floor (external)	trackway	Compacted, light grey, sandstone cobbles and pebbles, mixture of rounded, sub-rounded and angular, stones range in size from 30mm x 20mm x 20mm to 200mm x 120mm x 100mm, matrix of soft, light greyish brown sandy silt
									Runs NW-SE continuing beyond limits of excavation
2006	58	3.4	25		Slot 26	Cut	ditch/gully	trackway	Northern ditch of trackway
									Curvilinear, steep sides, flat base
									2m excavated slot
2007	58	3.4	26	2006	Slot 26	Fill	natural silting/accumulation	primary	Firm, mid brownish yellow, sandy clay, moderate small to medium stones
2008	58	3.4	26	2006	Slot 26	Fill	natural silting/accumulation	secondary	firm, mid greyish yellow, silty, sandy clay, moderate small to medium stones
2009	58	3.4	32	2006	Slot 26	Cut	ditch/gully	trackway	recut of northern trackway ditch 2006
									curvilinear, steep sides, slightly concave base
									2m long slot excavated
2010	58	3.4	34	2009	Slot 26	Fill	natural silting/accumulation		single fill in recut of northern trackway ditch
									soft to firm, mid brownish grey, sandy, clayey silt, occasional small to medium stones
2011	58	3.5	36			Cut	construction cut	metalled track	Linear NW-SE aligned, sharp b.o.s top and base, steep sides, flat base

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
									exposed for length of 4.42m, continuing beyond limits of excavation
2012	58	3.4	33	2013	Slot 25	Fill	natural silting/accumulation		Single fill in north trackway ditch recut
									friable, mid brownish grey, sandy clay, moderate large sub rounded stones < 0.30m, moderate small stones, occasional bone and shell
									2m slot excavated
2013	58	3.4	32		Slot 25	Cut	ditch/gully	trackway	recut of northern trackside ditch [2016]
									curvilinear, sharp b.o.s. top, concave base
									2m slot excavated
2014	58	3.4	26	2016	Slot 25	Fill			secondary fill northern trackway ditch
									soft, mid pinkish grey, sandy clay, frequent small and large angular and sub-angular rounded stones
2015	58	3.4	26	2016	Slot 25	Fill	natural silting/accumulation	primary	primary fill of northern trackside ditch
									friable, mid yellowish grey, clayey sand, occasional medium
2016	58	3.4	25		Slot 25	Cut	ditch/gully	trackway	Northern trackway ditch
									curvilinear, shallow sides south edge, steep on north edge, sharp b.o.s. to concave base
									2m slot excavated
2019	58	3.2	11		Slot 4	Cut	ditch/gully	enclosure	Sub-rectangular ditch
									sharp b.o.s. to moderate sloping sides, sharp b.o.s. to flat base
2020	58	3.3	20	2067	Slot 4	Fill			Upper fill enclosure recut [2067]
									firm, light brownish grey, sandy clay, occasional small to large angular stones
2022	58	3.3	19	2067	Slot 4	Fill	backfill/disuse		Firm, dark brownish grey, silty clay, frequent charcoal, occasional small to medium sub-angular stones
2023	58	3.3	18	2067	Slot 4	Fill	natural silting/accumulation		upper silting fill of enclosure ditch recut [2067]
									firm, light orange brown, clay, occasional small to large sub rounded and angular stones
2024	58	3.3	18	2067	Slot 4	Fill		primary	primary fill enclosure ditch recut [2067]
									firm, light grey, silty clay, moderate small to medium sub-angular stones, very occasional charcoal
2025	58	3.2	12	2019	Slot 4	Fill	backfill/disuse	redeposited bank material	firm, light brownish grey, silty clay
									upper fill of enclosure ditch [2109], only on NW edge of ditch (internal to enclosure) possibly redeposited bank material

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2026	58	3.2	12	2019	Slot 4	Fill	natural silting/accumulation		soft, light greyish brown, clayey silt, frequent small to large angular and sub-rounded stones
2027	58	3.2	11		Slot 5	Cut	ditch/gully	enclosure	sub-rectangular enclosure ditch
									Only inner edge visible, outer (SE) side truncated by recut, so full width does not survive at this location, stepped moderately sloping side, relatively flat base
2028	58	3.3	53	2051	Slot 5	Fill			firm, mid greyish brown, silty clay
2029	58	3.3	53	2051	Slot 5	Fill			firm, dark greyish brown, silty, sandy clay, frequent rounded stones,
									animal bone, industrial residues
2030	58	3.2	12	2027	Slot 5	Fill	natural silting/accumulation		firm, mid greyish brown, clayey silt, occasional small rounded stones
2031	58	3.2	12	2027	Slot 5	Fill	natural silting/accumulation		firm, mid greyish brown, silty clay, occasional small rounded stones
2032	58	3.2	12	2027	Slot 5	Fill	natural silting/accumulation		firm, mid orange brown, clay, occasional rounded stones
2033	58	3.3	54	2317	Slot 2	Fill			firm, mid brownish grey 30:70, sandy silt, occasional stones, charcoal flecks
2034	58	3.3	54	2317	Slot 2	Fill			firm, dark brownish grey, sandy silt 30:70, occasional small stones, charcoal flecks
2035	58	3.3	19	2317	Slot 2	Fill			soft, mid grey, sandy clayey silt, occasional charcoal flecks and fragments, occasional small stones
2036	58	3.3	53	2317	Slot 2	Fill	backfill/disuse		soft, mid brownish grey, sandy, clayey silt, very occasional small stones, charcoal flecks and fragments
2037	58	3.2	52	2039	Slot 2	Fill	backfill/disuse	Redeposited bank material	firm, mid brownish grey, sandy clay, occasional small to medium stones
2038	58	3.2	12	2039	Slot 2	Fill	natural silting/accumulation		soft, mid greyish brown, sandy clay, occasional small and medium stones, charcoal flecks and fragments
2039	58	3.2	11		Slot 2	Cut	ditch/gully	enclosure	east side steep to vertical, west side moderately sloping, slightly concave base
									2m slot excavated
2040	58	3.3	54	2044	Slot 3	Fill			firm, mid brownish grey, sandy clay, moderate small to medium stones, charcoal flecks and fragments
2041	58	3.3	54	2044	Slot 3	Fill			soft, mid greyish grey, clayey silt, moderate small to medium stones, charcoal flecks and fragments
2042	58	3.3	20	2044	Slot 3	Fill	natural silting/accumulation		firm, mid greyish yellow, silty, sandy clay, very occasional small stones
2043	58	3.3	19	2044	Slot 3	Fill			soft, mid yellowish grey, clayey silt, occasional small stones, charcoal flecks and fragments
2044	58	3.3	15		Slot 3	Cut	ditch/gully	enclosure recut	steeply sloping sides, sharp b.o.s. to concave base
									2.48m wide long slot excavated
2045	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		soft, mid yellowish grey, sandy, clayey silt, occasional small to medium stones

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2046	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		firm, mid reddish brown, silty clay, occasional small stones
2047	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		firm, mid greyish yellow, silty, sandy clay, occasional small stones
2048	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		firm mid reddish brown silty clay.
2049	58	3.2	52	2050	Slot 3	Fill	backfill/disuse	redeposited bank material	firm mid yellowish brown sandy clay. Occasional small and medium pebbles.
2050	58	3.2	11		Slot 3	Cut	ditch/gully	enclosure	Steep sided cut of enclosure ditch. Flat base. Sharp break of slope at top and base.
2051	58	3.3	15		Slot 5	Cut	ditch/gully	enclosure recut	Recut of enclosure ditch [2027] Sharp break of slope at top and base. Concave base
2052	58	3.2	12	2027	Slot 5	Fill	natural silting/accumulation		
2053	58	3.3	15		Slot 7	Cut	ditch/gully	enclosure recut	Recut of enclosure ditch [2122]. Steep sides with sharp break of slope at top. Not perceptible at base. Concave base.
2054	58	3.3	20	2053	Slot 7	Fill	natural silting/accumulation		soft mid greyish yellow clayey silt. Occ. Small stones.
2055	58	3.3	19	2053	Slot 7	Fill	backfill/disuse		soft mid brownish grey clayey silt. Fill of enclosure ditch recut [2053].
2056	58	3.2	11		Slot 6	Cut	ditch/gully	enclosure	Steep sided cut of enclosure ditch with slightly concave base.
2057	58	3.3	20	2094	Slot 6	Fill	natural silting/accumulation		Firm, mid greyish yellow silty clay. Occ. Small stones.
2058	58	3.3	54	2094	Slot 6	Fill	backfill/disuse		soft dark brownish grey clayey silt. Occ. Small stones, and fragments of bone. Occ. Flecks of charcoal
2059	58	3.3	18	2094	Slot 6	Fill	natural silting/accumulation		soft mid yellowish grey silty clay. V. Occ. Small stones.
2060	58	3.2	52	2056	Slot 6	Fill	backfill/disuse	redeposited bank material	firm mid greyish orange sandy clay. V. occ. Small stones. 1.9m slot in enclosure ditch
2061	58	3.2	11		Slot 10	Cut	ditch/gully	enclosure	cut of enclosure ditch. Sharp break of slope at top and base. Flat base.
2062	58	3.2	12	2061	Slot 10	Fill	natural silting/accumulation	enclosure	friable, light orange brown sandy clay. Occ. Small to medium sub angular cobbles. 2m slot in enclosure ditch
2063	58	3.2	52	2061	Slot 10	Fill	natural silting/accumulation		firm, light greyish brown clay. Frequent small & large sub angular fragments of sandstone
2064	58	3.2	12	2061	Slot 10	Fill	natural silting/accumulation		firm light greyish brown clay
2065	58	3.3	15		Slot 10	Cut	ditch/gully	enclosure recut	enclosure ditch recut with sharp break of slope at top and base. Concave base
2066	58	3.3	53	2065	Slot 10	Fill	backfill/disuse	enclosure	firm dark brownish grey clayey silt.
2067	58	3.3	15		Slot 4	Cut	ditch/gully	enclosure recut	recut of enclosure ditch [2019]. Sharp break of slope at top and base. Concave base.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2068	58	3.2	12	2019	Slot 4	Fill	natural silting/accumulation		firm dark greyish brown silty clay
2069	58	3.3	53	2096	Slot 4	Fill	backfill/disuse	enclosure	firm dark brownish grey silty clay
2070	58	3.3	53	2096	Slot 18	Fill	backfill/disuse	enclosure	firm dark brownish grey silty clay.
									Occ. flecks of charcoal
2071	58	3.2	52	2097	Slot 18	Fill	backfill/disuse	redeposited bank material	firm mid yellowish grey sandy clay. Redeposited bank material
2072	58	3.2	12	2097	Slot 18	Fill	natural silting/accumulation		firm mid yellowish grey silty clay
2073	58	3.2	12	2097	Slot 18	Fill	natural silting/accumulation		firm light greyish brown silty clay
2074	58	3.3	53	2078	Slot 17	Fill	backfill/disuse		friable mid brownish grey silty clay
2075	58	3.3	53	2078	Slot 17	Fill	backfill/disuse	enclosure	friable dark brownish grey silty clay. Moderate sub angular large fragments of sandstone. Frequent flecks of charcoal. Occ. patches of burnt clay.
2076	58	3.3	53	2078	Slot 17	Fill	backfill/disuse	enclosure	friable mid brownish grey silty clay.occ. Patches of burnt clay and flecks of charcoal
2077	58	3.2	12	2110	Slot 17	Fill	backfill/disuse		loose mid brownish grey with mottled patches of brown silty clay.
2078	58	3.3	15		Slot 17	Cut	ditch/gully	enclosure recut	recut of enclosure ditch. Sharp break of slopes at top and base. Concave base
2079	58	3.2	11		Slot 19	Cut	ditch/gully	enclosure	U shaped profile. Sharp break of slope at top and base. Flat base
2080	58	3.3	19	2094	Slot 6	Fill	backfill/disuse		soft mid brownish grey clayey silt. Occasional flecks of charcoal.
2081	58	3.2	12	2079	Slot 19	Fill	natural silting/accumulation		firm mid orange grey clayey sand
2082	58	3.2	12	2079	Slot 19	Fill	natural silting/accumulation		firm light greyish orange sandy silt
2083	58	3.2	12	2079	Slot 19	Fill	natural silting/accumulation		firm light greyish brown sandy silt
2084	58	3.3	19	2090	Slot 19	Fill	backfill/disuse		firm mid greyish brown silty clay
2085	58	3.3	18	2090	Slot 19	Fill	natural silting/accumulation		firm mid orange brown sandy clay
2086	58	3.3	53	2090	Slot 19	Fill	backfill/disuse		light brownish grey silty clay. Occasional flecks of charcoal
2087	58	3.2	12	2079	Slot 19	Fill	natural silting/accumulation		firm light brownish grey silty clay.
2088	58	3.2	52	2079	Slot 19	Fill	backfill/disuse	redeposited bank material	firm light orange brown sandy silt
2089	58	3.3	20	2090	Slot 19	Fill	natural silting/accumulation		firm dark greyish brown silty clay.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2090	58	3.3	15		Slot 19	Cut	ditch/gully	enclosure recut	U shaped profile. sharp break of slope at top but not perceptible at base. Concave base.
2091	58	3.3	17	2093	Slot 20	Skeleton	crouched	enclosure ditch recut	Crouched inhumation at base of enclosure ditch recut 2093. Cu. Brooch pin on upper left side of chest
2092	58	3.3	53	2093	Slot 20	Fill	backfill/disuse		firm dark greyish brown silty clay. Occasional flecks of charcoal.
2093	58	3.3	15		Slot 20	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and base. Concave base.
2094	58	3.3	15		Slot 6	Cut	ditch/gully	enclosure recut	Steep sided recut of enclosure ditch. Concave base.
2095	58	3.2	12	2056	Slot 6	Fill	natural silting/accumulation		Firm, mid greyish orange, sandy clay.
2096	58	3.3	15		Slot 18	Cut	ditch/gully	enclosure recut	U shaped profile. Sharp break of slope at top and base. Concave base.
2097	58	3.2	11		Slot 18	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Concave base.
2099	58	3.3	16	2053	Slot 7	Skeleton	crouched	enclosure ditch recut	Crouched inhumation found at base of enclosure ditch recut. Torso extended supine legs flexed on right side. Rolled onto left shoulder at west looking east.
2100	58	3.2	11		Slot 11	Cut	ditch/gully	enclosure	Steep sided enclosure ditch. Sharp break of slope at top and base. Concave base.
2101	58	3.2	52	2100	Slot 11	Fill	backfill/disuse	redeposited bank material	Firm mid greyish brown silty clay.
2102	58	3.2	12	2100	Slot 11	Fill	natural silting/accumulation		Firm mid orange brown silty clay.
2103	58	3.3	15		Slot 11	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and base. Concave base
2104	58	3.3	53	2103	Slot 11	Fill	backfill/disuse		firm dark brownish grey clayey silt. Occ. flecks of charcoal.
2108	58	3.2	12	2110	Slot 17	Fill	natural silting/accumulation		Friable mid brownish grey silty clay. V. occ. snail shells within fill.
2109	58	3.2	52	2110	Slot 17	Fill	natural silting/accumulation		Friable, mid grey brown, silty clay. Occ. Fragments of snail shell.
2110	58	3.2	12		Slot 17	Cut	ditch/gully		Sharp break of slope at top and base. Slightly flat base.
2111	58	3.2	11		Slot 20	Cut	ditch/gully	enclosure	Steep sided cut with a sharp break of slope at top and base. Flat base.
2112	58	3.3	53	2093	Slot 20	Fill	backfill/disuse		firm mid greyish brown silty clay. Moderate flecks of charcoal.
2113	58	3.3	53	2093	Slot 20	Fill	backfill/disuse		Soft dark greyish brown silty clay. Frequent flecks of charcoal
2114	58	3.2	12	2111	Slot 20	Fill	natural silting/accumulation		Firm, mid brownish grey clayey silt.
2115	58	3.2	12	2111	Slot 20	Fill	natural silting/accumulation		Firm mid greyish brown silty clay.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2116	58	3.2	52	2111	Slot 20	Fill	backfill/disuse	redeposited bank material	firm mid yellowish grey silty clay.
2117	58	3.2	12	2111	Slot 20	Fill	natural silting/accumulation		Firm mid greyish brown silty clay
2120	58	3.3	18	2053	Slot 7	Fill	natural silting/accumulation		firm mid yellowish grey silty clay.
2121	58	3.2	12	2122	Slot 7	Fill	natural silting/accumulation		soft mid yellowish grey silty clay
2122	58	3.2	52		Slot 7	Cut	ditch/gully	enclosure	Steep sided ditch cut. Sharp break of slope at top and base. Base slightly concave.
2123	58	3.2	11		Slot 12	Cut	ditch/gully	enclosure	Steep sided ditch. Sharp break of slope at top and gradual at base. Slightly concave base
2124	58	3.2	12	2123	Slot 12	Fill	natural silting/accumulation		firm light greyish orange clayey silt.
2125	58	3.2	52	2123	Slot 12	Fill	backfill/disuse	redeposited bank material	firm mid greyish brown clayey silt
2126	58	3.2	12	2123	Slot 12	Fill	natural silting/accumulation		firm light brownish orange clayey silt
2127	58	3.3	15		Slot 12	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and base. Concave base.
2128	58	3.3	19	2127	Slot 12	Fill	backfill/disuse		firm dark brownish grey clayey silt. Frequent flecks of charcoal.
2129	58	3.2	11		Slot 13	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Steep sides. Flat base.
2130	58	3.2	52	2129	Slot 13	Fill	backfill/disuse	redeposited bank material	Firm mid brownish grey sandy clay.
2131	58	3.2	12	2129	Slot 13	Fill	natural silting/accumulation		Firm mid greyish orange clayey sand.
2132	58	3.3	15		Slot 13	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and base. Concave base.
2133	58	3.3	53	2132	Slot 13	Fill	ditch/gully	enclosure recut	firm dark brownish grey clayey silt. Moderate charcoal flecks. 2m slot in enclosure ditch
2134	58	3.2	12	2123	Slot 12	Fill	natural silting/accumulation		firm light brownish orange clayey silt. Occ. small angular stones.
2135	58	3.3	18	2127	Slot 12	Fill	natural silting/accumulation		soft light brownish grey silty clay
2136	58	3.2	12	2129	Slot 13	Fill	natural silting/accumulation		firm mid greyish brown silty clay
2137	58	3.2	12	2129	Slot 13	Fill	natural silting/accumulation		firm mid greyish brown silty clay
2138	58	3.3	18	2132	Slot 13	Fill	natural silting/accumulation		firm mid greyish brown clayey silt
2139	58	3.2	12	2129	Slot 13	Fill	natural silting/accumulation		soft mid orange grey sandy silt

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2140	58	3.2	12	2129	Slot 13	Fill	natural silting/accumulation		soft mid greyish brown sandy silt
2141	58	3.3	19	2143	Slot 14	Fill	backfill/disuse		friable mid brownish grey silty clay
2142	58	3.3	18	2143	Slot 14	Fill	natural silting/accumulation		soft mid greyish brown silty clay
2143	58	3.3	15		Slot 14	Cut	ditch/gully	enclosure recut	sharp break of slope at top and base, concave base.
2144	58	3.2	12	2146	Slot 14	Fill	natural silting/accumulation		soft light greyish brown sandy clay
2145	58	3.2	12	2146	Slot 14	Fill	backfill/disuse	redeposited bank material	Friable mid brownish grey sandy grey
2146	58	3.2	11		Slot 14	Cut	ditch/gully	enclosure	steep sided ditch cut. Sharp break of slope at top and base. Flat base.
2147	58	3.2	12	2146	Slot 14	Fill	natural silting/accumulation	enclosure	soft dark greyish brown sandy silt
2148	58	3.2	52	2122	Slot 7	Fill	backfill/disuse	redeposited bank material	firm mid yellowish grey sandy clay.
2149	58	3.2	12	2122	Slot 7	Fill	natural silting/accumulation		soft light greyish yellow sandy clay
2150	58	3.3	15		Slot 21	Cut	ditch/gully	enclosure recut	U shaped profile. Sharp break of slope at top, not perceptible at base. Concave base
2151	58	3.2	12	2183	Slot 21	Fill	natural silting/accumulation		friable light brownish grey with mottled patches of iron oxide. V. occ. Snail shells.
2152	58	3.3	53	2150	Slot 21	Fill	backfill/disuse		Soft dark brownish grey silty clay.
2153	58	3.3	53	2150	Slot 21	Fill	backfill/disuse		Firm mid greyish brown silty clay.
2154	58	3.3	53	2150	Slot 21	Fill	backfill/disuse		Firm dark greyish brown silty clay
2157	58	3.4	32		Slot 34	Cut	ditch/gully	trackway	Sharp break of slope at top, gradual at base. Concave base. 2m slot in northern trackway ditch
2158	58	3.4	34	2157	Slot 34	Fill	backfill/disuse		Firm mid brownish grey clayey silt. V occ. Flecks of charcoal.
2159	58	3.4	26	2186	Slot 34	Fill	natural silting/accumulation		soft light reddish brown clayey silt
2160	58	3.5	38			Cut	post-hole		circular posthole. Sharp break of slope at top and base. Flat base.
									Diameter- 0.40m
2161	58	3.5	39	2160		Fill	backfill/disuse		firm mid yellowish brown sandy silt.
									Diameter 0.40m
2162	58	3.2	11		Slot 15	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Slightly convex base.
2163	58	3.2	52	2162	Slot 15	Fill	backfill/disuse	redeposited bank material	firm dark brownish grey clay. Frequent small sub angular sandstone fragments.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2164	58	3.2	12	2162	Slot 15	Fill	natural silting/accumulation		firm light brownish grey clay.
2165	58	3.2	12	2162	Slot 15	Fill	natural silting/accumulation		firm light greyish orange clay
2166	58	3.2	12	2162	Slot 15	Fill	natural silting/accumulation		firm light greyish orange clay
2167	58	3.3	15		Slot 15	Cut	ditch/gully	enclosure recut	Sharp break of slope at top, gradual at base. Concave base.
2168	58	3.3	18	2167	Slot 15	Fill	natural silting/accumulation		firm light yellowish grey clay.
2169	58	3.3	19	2167	Slot 15	Fill	backfill/disuse		Firm mid brownish grey silty clay
2170	58	3.5	39	2160		Fill	backfill/disuse		firm mid brownish grey sandy silt
2171	58	3.5	38			Cut	post-hole		Circular in plan. Sharp break of slope at top and gradual at base. Concave base. Diameter-0.35m diameter
2172	58	3.5	39	2171		Fill	backfill/disuse		friable mid greyish brown sandy silt. Occasional flecks of charcoal.
									Diameter- 0.35
2173	58	3.4	28			Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.
									2m slot in trackway ditch
2174	58	3.4	29	2173	Slot 36	Fill	natural silting/accumulation		firm mid brownish grey clayey silt.
2175	58	3.4	29	2173	Slot 36	Fill	natural silting/accumulation		Friable mid brownish grey clayey silt
2176	58	3.4	29	2173	Slot 36	Fill	natural silting/accumulation		Friable light yellowish brown clayey sand silt
2177	58	3.5	39	2004		Fill	backfill/disuse		Firm dark brownish grey sandy silt
2178	58	3.5	38			Cut	post-hole		Circular in plan. Sharp break of slope at top and gradual at base. Concave base.
2179	58	3.5	39	2178		Fill	backfill/disuse		Firm mid brownish grey clayey silt.
2180	58	3.2	11		Slot 9	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Steep sides and flat base.
2181	58	3.3	53	2191	Slot 9	Fill	backfill/disuse		firm dark brownish grey silty clay
2182	58	3.2	12	2180	Slot 9	Fill	natural silting/accumulation		soft light reddish brown sandy silt
2183	58	3.2	11		Slot 21	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Concave base. Sides over-excavated
2184	58	3.2	12	2183	Slot 21	Fill	natural silting/accumulation	enclosure	Soft mid yellowish grey with mottled patches of orange iron panning. Sandy clay.
2185	58	3.4	26	2186	Slot 34	Fill	natural silting/accumulation		soft light brownish grey clayey silt.
2186	58	3.4	25		Slot 34	Cut	ditch/gully	trackway	Sharp break of slope at top and not perceptible at base. Concave base.
2187	58	8	57			Cut	post-hole		Circular in plan. Sharp break of slope at top and base. Slightly concave base

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2188	58	8	58	2187		Fill	infilling/use		firm mid brownish grey sandy silt. Occasional small fragments of CBM. Post-Med pottery recovered from fill.
2189	58	8	57			Cut	post-hole		Circular in plan. Sharp break of slope at top and gradual at base. Concave base.
									Diameter 0.36m
2190	58	8	58	2189		Fill	backfill/disuse		Firm mid brownish grey sandy silt. Occ. small flecks of CBM.
									Diameter 0.36m
2191	58	3.3	15		Slot 9	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and gradual at base. Concave base.
									2.1m slot in ditch
2193	58	3.4	30		Slot 38	Cut	ditch/gully	trackway	Sharp break of slope at top and gradual at base. Concave base. WSW edge was truncated by field drain so width is not a true representation of the ditch.
									Width- 2.26m.
									2m slot in trackway ditch
2194	58	3.4	31	2193	Slot 38	Fill	natural silting/accumulation	trackway	Friable light yellowish brown clayey silt.
2195	58	3.4	31	2193	Slot 38	Fill	natural silting/accumulation	trackway	firm mid greyish brown clayey sandy silt.
2196	58	3.4	32		Slot 33	Cut	ditch/gully	trackway recut	Sharp b break of slope at top and gradual at base. Concave base
2197	58	3.4	34	2196	Slot 33	Fill	backfill/disuse	trackway recut	Friable mid greyish brown silty clay. Frequent flecks of charcoal.
2198	58	3.2	11		Slot 16	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Flat base.
2199	58	3.2	12	2198	Slot 16	Fill	natural silting/accumulation	enclosure	Stiff mid brownish grey silty clay
2200	58	3.2	12	2198	Slot 16	Fill	natural silting/accumulation		Firm dark orange brown silty clay.
2201	58	3.2	12	2198	Slot 16	Fill	backfill/disuse	redeposited bank material	firm mid brownish grey clayey sand
2202	58	3.2	12	2198	Slot 16	Fill	natural silting/accumulation		firm mid brownish grey silty clay
2203	58	3.3	15		Slot 16	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and gradual at base. Concave base.
2204	58	3.3	53	2203	Slot 16	Fill	backfill/disuse		firm mid greyish brown sandy silt. Occ. Flecks of charcoal.
2205	58	3.3	53	2203	Slot 16	Fill	backfill/disuse		soft mid brownish grey silty clay. Frequent flecks of charcoal.
2206	58	3.4	30		Slot 8	Cut	ditch/gully	trackway	Sharp break of slope at top and gradual at base. Concave base. Terminus of eastern trackway ditch
2207	58	3.3	15		Slot 8	Cut	ditch/gully	enclosure recut	Slot excavated along length of the ditch down the centre so only base is visible.
									3.32m slot

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2208	58	3.2	11		Slot 8	Cut	ditch/gully	enclosure	Slot excavated along length of the ditch down the centre so only base is visible.
									3.32m slot
2209	58	3.2	11		Slot 22	Cut	ditch/gully	enclosure	Sharp break of slope at top gradual at base. Concave base.
2210	58	3.3	19	2213	Slot 22	Fill	backfill/disuse		firm mid greyish brown silty clay. Occasional flecks of charcoal
2211	58	3.3	19	2213	Slot 22	Fill	backfill/disuse		firm light brownish grey clay. Frequent flecks of charcoal.
2213	58	3.3	15		Slot 22	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and gradual at base. Concave base. 2m slot excavated in ditch
2214	58	3.4	31	2206	Slot 8	Fill	natural silting/accumulation		Friable mid greyish brown clayey sand
2215	58	3.4	31	2206	Slot 8	Fill	natural silting/accumulation		friable mid greyish brown sandy clay.
2216	58	3.4	31	2206	Slot 8	Fill	natural silting/accumulation		friable mid brownish grey sandy clay
2217	58	3.3	18	2207	Slot 8	Fill	natural silting/accumulation		Friable dark brownish grey silty clay. V Occasional flecks of charcoal.
									Slot excavated along length of ditch so width and length are not a true representation of the ditch.
2218	58	3.2	12	2208	Slot 8	Fill	natural silting/accumulation		Friable mid greyish brown sandy clay.
									Slot excavated along length of ditch so width and length are not a true representation of the ditch.
2219	58	3.2	12	2208	Slot 8	Fill	natural silting/accumulation		Soft dark brownish grey sandy clay. Occasional flecks of charcoal . Slot excavated along length of ditch so width and length are not a true representation of the ditch. True depth can also not be given as the slot is not at a right-angle to the feature as the slot was excavated on the corner of the enclosure ditch to observe the relationship with eastern trackside ditch [2206].
2220	58	3.2	52	2208	Slot 8	Fill	natural silting/accumulation		soft light greyish brown sandy clay.
									Slot excavated along length of ditch so width and length are not a true representation of the ditch. True depth can also not be given as the slot is not at a right-angle to the feature as the slot was excavated on the corner of the enclosure ditch to observe the relationship with eastern trackside ditch [2206].
2221	58	2	4		Slot 8	Cut	ditch/gully		Sharp break of slope at top and base. Concave base.
2222	58	2	6	2221	Slot 8	Fill	natural silting/accumulation		firm light orange brown sandy clay
2223	58	3.4	34	2196	Slot 33	Fill	backfill/disuse		Friable mid brownish grey silty clay.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2224	58	3.4	25		Slot 33	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Slightly concave base. Over excavated at base.
									2m slot in ditch
2225	58	3.4	26	2224	Slot 33	Fill	natural silting/accumulation		compact mid brownish grey clayey silt.
2226	58	3.4	26	2224	Slot 33	Fill	natural silting/accumulation		friable mid orange brown silty clay.
2228	58	3.2	52	2209	Slot 22	Fill	backfill/disuse	redeposited bank material	firm light greyish brown clay
2229	58	3.2	12	2209	Slot 22	Fill	natural silting/accumulation		firm light greyish brown clay.
2230	58	3.2	12	2209	Slot 22	Fill	natural silting/accumulation		firm mid orange brown clay.
2231	58	3.3	50	2213	Slot 22	Fill	backfill/disuse		Soft mid brownish grey silty clay.
2232	58	3.4	30		Slot 39	Cut	ditch/gully	trackway	Sharp break of slope at top and gradual at base. U shaped profile. Concave base. 2m slot of ditch excavated.
2233	58	3.4	31	2232	Slot 39	Fill	natural silting/accumulation	trackway	friable mid brownish grey clayey silt. Occ. Flecks of charcoal.
2234	58	3.4	31	2232	Slot 39	Fill	natural silting/accumulation	trackway	firm light yellowish brown clayey silt
2235	58	3.4	30		Slot 43	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base. 2m slot of dich excavated.
2236	58	3.4	31	2235	Slot 43	Fill	natural silting/accumulation	trackway	soft light yellowish brown sandy clay.
2237	58	3.5	42			Cut	post-hole		Sharp break of slope at top and base. Flat base.
2238	58	3.5	43	2237		Fill	post-hole		Loose dark brownish grey silty sand.
2239	58	3.4	28		Slot 37	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.
									2m slot in ditch
2240	58	3.4	29	2239	Slot 37	Fill	natural silting/accumulation	trackway	firm mid greyish brown sandy clay
2241	58	3.4	29	2239	Slot 37	Fill	natural silting/accumulation	trackway	Friable mid brownish grey clayey sand. Occ. Flecks of shell and charcoal.
2242	58	3.4	29	2239	Slot 37	Fill	natural silting/accumulation	trackway	soft mid brownish grey sandy clay. V. occasional shell fragments and charcoal flecks.
2243	58	3.4	28		Slot 35	Cut	ditch/gully	trackway	Sharp break of slope at top. Irregular sides and sharp break of slope at base. Concave base. 2m slot excavated in ditch.
2244	58	3.4	29	2423	Slot 35	Fill	natural silting/accumulation	trackway	friable mid brownish grey clayey silt. Occasional small flecks of charcoal
2245	58	3.4	29	2423	Slot 35	Fill	natural silting/accumulation	trackway	firm mid greyish brown silty clay
2246	58	3.4	34	2273	Slot 27	Fill	backfill/disuse	trackway	friable mid brownish grey silty clay with frequent flecks of charcoal.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2247	58	3.4	25		Slot 31	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base. 1.88m slot
2248	58	3.4	32		Slot 31	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.
									1.88m slot
2249	58	3.4	26	2247	Slot 31	Fill	natural silting/accumulation	trackway	firm mid greyish yellow silty sandy clay.
2250	58	3.4	33	2248	Slot 31	Fill	natural silting/accumulation	trackway	soft light yellowish grey clayey silt. Occ. Flecks of charcoal.
2251	58	3.4	34	2248	Slot 31	Fill	backfill/disuse	trackway	soft mid yellowish grey clayey silt. Occ. Flecks of charcoal.
2252	58	3.4	25		Slot 30	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Convex side and a concave base.
									2m slot
2253	58	3.4	26	2252	Slot 30	Fill	natural silting/accumulation	trackway	soft light yellowish brown silty clay.
2254	58	3.4	32		Slot 30	Cut	ditch/gully	trackway	V shaped profile, Sharp break of slope at top and base. Concave base.
									2m slot
2255	58	3.4	34	2254	Slot 30	Fill	backfill/disuse	trackway	soft dark greyish brown silty clay. Occasional flecks of charcoal.
2256	58	3.4	31	2258	Slot 42	Fill	natural silting/accumulation	trackway	soft dark greyish brown sandy clay
2257	58	3.4	31	2258	Slot 42	Fill	natural silting/accumulation	trackway	loose dark greyish brown silty sand.
2258	58	3.4	30		Slot 42	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.
									2m slot
2259	58	3.4	25		Slot 32	Cut	ditch/gully	trackway	sharp break of slope at top and base. Flat base.
									2m slot
2260	58	3.4	26	2259	Slot 32	Fill	natural silting/accumulation	trackway	firm light greyish brown silty clay
2261	58	3.4	33	2263	Slot 32	Fill	natural silting/accumulation	trackway	Firm light grey clayey silt
2262	58	3.4	26	2259	Slot 32	Fill	natural silting/accumulation	trackway	firm light orange brown silty clay.
2263	58	3.4	32	2259	Slot 32	Fill	ditch/gully	trackway	Sharp break of slope at top and base. Concave base. 2m slot
2264	58	3.4	34	2263	Slot 32	Fill	backfill/disuse	trackway	firm light grey silty clay
2265	58	3.4	34	2263	Slot 32	Fill	backfill/disuse	trackway	firm dark brownish grey silty clay
2266	58	3.4	30		Slot 40	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2267	58	3.4	31	2266	Slot 40	Fill	natural silting/accumulation	trackway	soft mid greyish brown sandy silt.
2268	58	3.4	31	2266	Slot 40	Fill	natural silting/accumulation	trackway	soft mid brownish grey clayey sand.
2269	58	3.4	31	2270	Slot 41	Fill	natural silting/accumulation	trackway	Compact mid orange brown sandy clay. Occasional flecks of charcoal.
2270	58	3.4	30		Slot 41	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Flat base. 2m slot
2271	58	3.4	25		Slot 27	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base.
									1.9m slot
									Over excavated at base
2272	58	3.5	45	2274	Slot 27	Fill	ditch/gully		friable mid brownish grey silty clay
2273	58	3.4	32		Slot 27	Cut	ditch/gully	trackway recut	Sharp break of slope at top and base. Concave base. Truncated buy [2274]
									1.9m slot
2274	58	3.5	44		Slot 27	Cut	ditch/gully		Sharp break of slope at top and not perceptible at base. Concave base. 1.9m slot
2275	58	3.4	31	2270	Slot 41	Fill	natural silting/accumulation	trackway	Compact, mid orange brown sandy clay.
2276	58	3.4	26	2271	Slot 27	Fill	natural silting/accumulation	trackway	Firm light yellowish brown clayey silt.
2278	58	3.4	26	2247	Slot 31	Fill	natural silting/accumulation	trackway	firm light yellowish grey sandy clay
2279	58	3.4	25		Slot 28	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Concave base. 2m slot of ditch. Truncated by recut [2281] and ditch [2286]
2280	58	3.4	26	2279	Slot 26	Fill	natural silting/accumulation	trackway	firm dark orange brown silty clay
2281	58	3.4	32		Slot 26	Cut	ditch/gully	trackway recut	Sharp break of slope at top and base. Step side. V shaped profile. Concave base.
2282	58	3.4	33	2281	Slot 26	Fill		trackway recut	Soft, light orange grey clayey silt
2283	2286	3.4	34	2281	Slot 26	Fill	backfill/disuse	trackway recut	Frim, dark brownish grey silty clay
2286	58	3.5	44		Slot 26	Cut	ditch/gully		Shallow U shaped profile. Sharp break of slope at top and base. Concave base. 2m slot.
2287	58	3.5	45	2286	Slot 26	Fill	natural silting/accumulation		firm mid brownish grey silty clay.
2288	58	3.4	23			Cut	pit		Shallow pit. Sharp break of slope at top, gradual at base. Base irregular. 2.14M excavated. True limit unknown as goes beyond limit of excavation.
2289	58	3.4	24	2288		Fill	backfill/disuse		Soft dark greyish brown silty clay. Frequent charcoal flecks.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2290	58	2	5		Slot 26	Cut	ditch/gully		Shallow gully. Very gradual break of lope at top and base. Concave base.
2291	58	2	7	2290	Slot 26	Fill	backfill/disuse		Soft light orange brown silty clay. Occasional fecks of charcoal
2292	58	3.4	24	2288		Fill	backfill/disuse		Soft dark orange brown silty clay
2293	58	3.4	26	2279	Slot 26	Fill	natural silting/accumulation	trackway	Soft light yellowish brown, clayey silt
2294	58	3.3	19	2298	Slot 24	Fill	backfill/disuse	enclosure	Friable, dark greyish brown, silty sand. Occasional flecks of charcoal.
2295	58	3.3	19	2298	Slot 24	Fill	backfill/disuse	enclosure	Friable, dark brownish grey silty sand. Occasional fragments of animal bone and industrial residue.
2296	58	3.3	19	2298	Slot 24	Fill	backfill/disuse	enclosure	Soft, mid greyish brown, sandy silt. Frequent flecks of charcoal.
2297	2368	3.3	53	2298	Slot 24	Fill	backfill/disuse	enclosure	Soft mid greyish brown clayey silt. Occasional flecks of charcoal
2298	58	3.3	15		Slot 24	Cut	ditch/gully	enclosure recut terminal	Linear terminal of enclosure north (northern side). Sharp break of slope at top and not perceptible at base. Concave base.
2299	58	3.2	14	2304	Slot 24	Fill	natural silting/accumulation	enclosure	Soft light greyish brown, silty sand
2300	58	3.2	14	2304	Slot 24	Fill	natural silting/accumulation	enclosure	Soft light greyish brown silty sand.
2301	58	3.2	13	2304	Slot 24	Fill	backfill/disuse	enclosure terminal	Soft, mid brownish grey clayey silt.
2302	58	3.2	12	2304	Slot 24	Fill	natural silting/accumulation	enclosure terminal	Compact, mid greyish brown silty sand.
2303	58	3.2	12	2304	Slot 24	Fill	natural silting/accumulation	enclosure terminal	Compact, mid greyish brown silty sand
2304	58	3.2	11		Slot 24	Cut	ditch/gully	enclosure terminal	Sharp break of slope at top and base. Flat base. Enclosure ditch terminal (north). 2m slot (4.36m with step)
2305	58	3.4	25		Slot 44	Cut	ditch/gully	trackway	Sharp break of slope at top and base. Slightly concave base. L shaped slot.
2306	58	3.4	32		Slot 44	Cut	ditch/gully	trackway recut	Sharp break of slope at top and base. Irregular base. L shaped slot.
2307	58	2	4			Cut	ditch/gully		L shaped slot. Only partially visible in section. Flat base.
2308	58	3.4	26	2305		Fill	natural silting/accumulation	trackway	Compact, light yellowish brown sandy silt.
									L shaped slot so true dimensions cannot be given.
2309	58	3.4	34	2306		Fill	backfill/disuse	trackway	Firm mid brownish grey silty clay. L shaped slot so true dimensions cannot be given.
2310	58	3.4	34	2306		Fill	backfill/disuse	trackway	Firm mid brownish grey silty clay. L shaped slot so true dimensions cannot be given.
2311	58	3.4	34	2306		Fill	backfill/disuse	trackway	Weakly cemented, light greyish brown, silty clay. L shaped slot so true dimensions cannot be given.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2312	58	3.4	26	2305		Fill	natural silting/accumulation	trackway	Weakly cemented light greyish brown silty clay. L shaped slot so true dimensions cannot be given.
2313	2307	2	6	2307		Fill	natural silting/accumulation	ditch	Firm mid yellowish brown sandy clay. Only partially visible in section so true dimensions cannot be given. L shaped slot.
2314	58	3.3	18	2317	Slot 2	Fill	natural silting/accumulation	enclosure	soft mid greyish brown clayey silt. 2.42m slot.
2316	58	3.3	20	2317	Slot 2	Fill	natural silting/accumulation	enclosure	Friable mid orange brown sandy clay.
2317	58	3.3	15		Slot 2	Cut	ditch/gully	enclosure recut	U shaped profile. Sharp break of slope at top and base. Concave base. 2.42m slot
2318	58	3.2	12	2039	Slot 2	Fill	natural silting/accumulation	enclosure	firm light brownish grey silty clay.
2319	58	2	1		Slot 2	Cut	ditch/gully		Sharp break of slope in top and base. L shaped slot (only partially visible in section). Concave base
2320	58	2	2	2319	Slot 2	Fill	natural silting/accumulation		Friable mid orange brown sandy clay. L shaped slot so only partially visible in section. E-W 1.26m to LOE. N-S 1.12m to LOE
2321	58	2	2	2319	Slot 2	Fill	natural silting/accumulation		Friable, mid greyish brown, sandy clay. L shaped slot so true dimensions cannot be given. E-W 1.26m to LOE. N-S 1.12m to LOE
2322	58	2	2	2319	Slot 2	Fill	natural silting/accumulation		Firm, dark brownish grey, silty clay. L shaped slot so true dimensions cannot be given. E-W 0.90m to LOE. N-S m 1.12m to LOE.
2323	58	2	2	2319	Slot 2	Fill	natural silting/accumulation		Form, mid brownish grey sandy clay. L shaped slot so true dimensions cannot be given. E-W 0.66m to LOE. N-S 1.12m to LOE.
2324	58	2	5		Slot 29	Cut	ditch/gully		Only partially visible in section within L shaped slot. Not true representation of feature.
2325	58	3.4	25		Slot 29	Cut	ditch/gully	trackway	L shaped slot not fully excavated. Sharp break of slope at top.
									Depth- 0.50m to LOE
2326	58	3.4	32		Slot 29	Cut	ditch/gully	trackway recut	L shaped slot not fully excavated so true dimensions cannot be given.
2327	58	2	59	2324	Slot 29	Fill	natural silting/accumulation	ditch	Firm mid greyish brown sandy clay. L shaped slot not fully excavated so true dimensions cannot be given
2328	58	3.4	26	2325	Slot 29	Fill	natural silting/accumulation		Weakly cemented, mid greyish brown, sandy clay. L shaped slot not fully excavated so true dimensions cannot be given.
2329	58	3.4	34	2326	Slot 29	Fill	backfill/disuse		Weakly cemented, mid brownish grey silty clay. L shaped slot not fully excavated so true dimensions cannot be given.
2330	58	3.5	44			Cut	ditch/gully		Sharp break of slope at top and base. Concave base. 1m slot
2331	58	3.5	45	2330		Fill	natural silting/accumulation		Firm mid brownish grey sandy silt.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2334	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		soft light brownish grey clayey silt. 2.48m slot
2335	58	3.2	11		Slot 23	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Flat base. 3.24m slot
2336	58	3.2	12	2335	Slot 23	Fill	natural silting/accumulation	enclosure	Firm, mid greyish blue clay. 3.24m slot.
2337	58	3.2	12	2335	Slot 23	Fill	natural silting/accumulation	enclosure	Firm mid greyish yellow clayey silt. 3.24 m slot
2338	58	3.2	12	2335	Slot 23	Fill	natural silting/accumulation	enclosure	Firm mid bluish grey silty clay.
2339	58	3.3	53	2342	Slot 23	Fill	backfill/disuse	enclosure	Soft dark greyish brown, sandy silt. Frequent flecks of charcoal.
2340	58	3.3	18	2342	Slot 23	Fill	natural silting/accumulation		Firm mid greyish yellow sandy silt. 3.24m slot
2341	58	3.3	20	2342	Slot 23	Fill	natural silting/accumulation		Soft mid yellowish grey sandy silt
2342	58	3.3	15		Slot 23	Cut	ditch/gully	enclosure	Sharp break of slope at top and base. Concave base. 3.24m slot.
2343	58	3.3	19	2342	Slot 23	Fill	backfill/disuse	enclosure	Firm, mid greyish brown sandy silt. Frequent flecks of charcoal. 3.24m slot
2344	58	3.5	41	2345	Slot 23	Fill	infilling/use		Firm, dark greyish brown clayey silt. Industrial residue recovered from fill.
2345	58	3.5	40		Slot 23	Cut	pit		Sub circular pit. Sharp break of slope at top and base. Flat base.
2346	58	3.5	41	2345	Slot 23	Fill	backfill/disuse		Firm mid greyish brown clayey silt.
2347	58	3.3	55	2348		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 9 & 10
2348	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2349	58	3.3	55	2350		Fill	backfill/disuse		Firm dark brownish grey clayey silt. Fill removed from baulk between slots 10 & 11
2350	58	3.3	15			Cut	ditch/gully	Enclosure	Cut not fully exposed, only upper fills excavated
2351	58	3.3	55	2352		Fill	backfill/disuse		Firm dark brownish grey clayey silt. Fill removed from baulk between slots 11 & 12
2352		3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2353	58	3.1	8			Cut	ditch/gully	enclosure?	V-shaped ditch only visible within entrance way of Phase 3.2 and 3.3 ditched enclosure
									Length -2.44m before being truncated by enclosure ditch.
2354	58	3.2	12	2050	Slot 3	Fill	natural silting/accumulation		Soft mid greyish yellow clayey silt
									2.48m slot
2355	58	3.3	18	2044	Slot 3	Fill	natural silting/accumulation		Soft mid yellowish grey clayey silt.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
									2.48m slot
2356	58	3.3	56	2358		Fill	natural silting/accumulation	enclosure	Firm, dark greyish brown silty clay. Fill removed from baulk between slots 19 & 20
2357	58	3.3	55	2358		Fill	backfill/disuse	enclosure	Firm mid greyish brown silty clay. Fill removed from baulk between slots 19
									& 20
2358	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2359	58	3.3	55	2360		Fill	backfill/disuse	enclosure	Soft dark brownish grey clayey silt. Fill removed from baulk between slots 6 & 7
2360	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2361	58	3.3	20	2342	Slot 23	Fill	natural silting/accumulation		Firm mid greyish yellow sandy silt
2362	58	3.3	54	2342	Slot 23	Fill	backfill/disuse		Firm dark greyish brown sandy silt
2363	58	3.2	52	2335	Slot 23	Fill	natural silting/accumulation		compact, mid bluish yellow silty sand. 3.24m slot
2364	58	3.3	56	2366		Fill	natural silting/accumulation	enclosure	Firm dark greyish brown, silty clay. Fill removed from baulk between slots 20 & 21
2365	58	3.3	55	2366		Fill	backfill/disuse		Firm mid greyish brown silty clay. Fill removed from baulk between slots 20 & 21
2366	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2367	58	3.3	19	2298	Slot 24	Fill	backfill/disuse		Very soft. Dark brownish grey silt. Frequent flecks of charcoal.
2368	58	3.3	18	2298	Slot 24	Fill	natural silting/accumulation		Friable, mid greyish brown silty sand.
									4.36m slot.
2369	58	3.3	55	2370		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 5 & 6
2370	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2371	58	3.2	12	2304	Slot 24	Fill	natural silting/accumulation	enclosure	Soft, light bluish grey silt. 4.36m slot.
2372	58	3.2	12	2304	Slot 24	Fill	natural silting/accumulation		Soft mid greyish brown sandy silt. 4.36m slot.
2373	58	3.2	12	2304	Slot 24	Fill	natural silting/accumulation		Soft light bluish grey silt. 4.36m slot.
2374	58	3.1	10	2353		Fill	backfill/disuse		Friable mid greyish brown sandy silt.
2375	58	3.1	10	2353		Fill	backfill/disuse		Friable mid greyish brown sandy silt.
2376	58	3.1	9	2353		Fill	natural silting/accumulation		Firm mid greyish brown clayey sand.
2377	58	3.1	9	2353		Fill	natural silting/accumulation		Friable mid brownish grey clayey silt.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2378	58	3.1	9	2353		Fill	natural silting/accumulation		Friable light grey clayey silt.
2379	58	3.1	9	2353		Fill	natural silting/accumulation		Friable light greyish brown clayey silt.
2380	58	2	1			Cut	ditch/gully		Sharp break of slope at top and base. Concave base. 1.8m slot
2381	58	2	2	2380		Fill	natural silting/accumulation		Firm, dark greyish brown silty clay.
2382	58	2	3	2380		Fill	backfill/disuse		Firm, black silty clay. 1.8m slot
2383	58	2	3	2380		Fill	backfill/disuse		Firm light orange brown clay. 1.8m slot.
2384	58	3.2	11		Slot 1	Cut	ditch/gully	enclosure	Southern terminal at eastern entrance into enclosure. Sharp break of slope at top and base. Flat base.
2385	58	3.3	55	2386		Fill	backfill/disuse		Firm dark brownish grey clayey silt. Fill removed from baulk between slots 12 & 13
2386	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2387	58	3.3	55	2388		Fill	backfill/disuse		Firm mid greyish brown silty clay. Fill removed from baulk between slots 13 & 14
2388	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2389	58	3.3	55	2390		Fill	backfill/disuse		Firm mid brownish grey silty clay. Fill removed from baulk between slots 14 & 15
2390	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2391	58	3.3	55	2392		Fill	backfill/disuse		Firm mid brownish grey silty clay. Fill removed from baulk between slots 15 & 16
2392	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2393	58	3.3	56	2395		Fill	natural silting/accumulation		Firm mid brownish grey silty clay. From the baulk between Slots 16 and 17
2394	58	3.3	51	2395		Fill	backfill/disuse		animal bone assemblage in enclosure ditch recut
2395	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2396	58	3.3	55	2395		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 16 & 17
2397	58	3.2	12	2384	Slot 1	Fill	natural silting/accumulation		Very soft, light brownish grey sandy clay.
2398	58	3.2	12	2384	Slot 1	Fill	natural silting/accumulation		Soft mid greyish brown sandy clay.
2399	58	3.2	12	2384	Slot 1	Fill	backfill/disuse		deliberate backfilling of ditch near to entrance, southern terminal
2400	58	3.2	13	2384	Slot 1	Fill	infilling/use		Very soft, light brownish grey sandy clay.
2401	58	3.2	14	2384	Slot 1	Fill	infilling/use		Friable mid brown sandy clay.
2402	58	3.3	15		Slot 1	Cut	ditch/gully	enclosure recut	Sharp break of slope at top and gradual at base. Concave base. 2.86m slot excavated.

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
2403	58	3.3	18	2402	Slot 1	Fill	natural silting/accumulation		Friable mid brown grey clay sand.
2404	58	3.3	19	2402	Slot 1	Fill	backfill/disuse		Soft, dark greyish brown sandy clay.
2405	58	3.3	20	2402	Slot 1	Fill	natural silting/accumulation		Friable mid yellowish brown clayey sand.
2406	58	3.3	54	2402	Slot 1	Fill	backfill/disuse		Soft dark brownish grey clayey sand.
2407	58	3.3	54	2402	Slot 1	Fill	backfill/disuse		Soft dark greyish brown sandy clay.
2408	58	3.3	54	2402	Slot 1	Fill	backfill/disuse		Friable dark brownish grey clayey sand.
2409	58	3.3	56	2411		Fill	natural silting/accumulation		Firm mid brownish grey silty clay. Fill removed from baulk between slots 17 & 18
2410	58	3.3	55	2411		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 17 & 18
2411	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2412	58	3.3	56	2414		Fill	natural silting/accumulation		Firm dark brownish grey silty clay. Fill removed from baulk between slots 18 & 19
2413	58	3.3	55	2414		Fill	backfill/disuse		Firm mid brownish grey silty clay. Fill removed from baulk between slots 18 & 19
2414	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2415	58	3.3	55	2416		Fill	backfill/disuse		Firm mid greyish brown silty clay. Fill removed from baulk between slots 21 & 22
2416	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2417	58	3.3	55	2418		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 7 & 8
2418	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2419	58	3.3	55	2420		Fill	backfill/disuse		Firm dark brownish grey silty clay. Fill removed from baulk between slots 8 & 9
2420	58	3.3	15			Cut	ditch/gully	enclosure recut	Cut not fully exposed, only upper fills excavated
2429	58	3.2	12	2146	Slot 14	Fill	natural silting/accumulation		Firm mid greyish brown silty clay.
2430	58	3.2	12	2335	Slot 23	Fill	natural silting/accumulation		Firm mid greyish brown silty clay.
2431	58	3.2	12	2335	Slot 23	Fill	natural silting/accumulation		Firm mid greyish brown silty clay
2432	58	3.3	17	2093		Other	infilling/use		pot found with skeleton 2091
2433	58	3.2	52	2122	Slot 7	Fill	backfill/disuse	redeposited bank material	Firm mid reddish brown sandy clay
3000	68	9				Layer	agricultural/horticultural/garden soil	Topsoil	Friable, mid greyish brown, silty sand
3001	68	8				Layer	agricultural/horticultural/garden soil	Sub-soil	Firm, mid reddish brown, silty sand

Context	Area	Phase	Group	Fill of cut	Slot	Type	Type 2	Type 3	Description
3002	68	1				Natural	Natural		Firm, mid reddish brown, sandy clay
3003	68	4				Cut	ditch/gully	Enclosure ditch	Linear, N-S alignment turning E-W, shallow U-shaped profile. 2m x 1.80m slot excavated
3004	68	4		3003		Fill	natural silting/accumulation		Firm, mid brownish yellow, silty sand. 2m x 1.80m slot excavated
3005	68	4		3003		Fill	backfill/disuse		Firm, mid yellowish brown, clayey, sandy silt, V. occ. small sub rounded stones
3100	123	9				Layer	agricultural/horticultural/garden soil	Top soil	Soft, dark brownish grey, top soil, moderate stones
3101	123	8				Layer	agricultural/horticultural/garden soil	Sub-soil	Firm, reddish brown, sandy clay silt, moderate small to large stones
3102	123	1				Natural	Natural		Firm, brown yellow sandy clay, moderate small to large stones
3103	123	5				Cut	ditch/gully	Ditch	Linear, U-shaped in profile, N-S alignment. 2m slot excavated.
3104	123	5		3103		Fill	natural silting/accumulation	Ditch	Firm, yellow grey, sandy clay silt, Occ. Rounded and angular stones
3105	123	5		3103		Fill	backfill/disuse	Ditch	Soft, brownish grey, sandy clay silt, occ. Rounded and angular stones. 2m slot excavated.
3200	12	1				Layer	Natural		firm reddish brown clayey silt
3201	12	9				Layer	agricultural/horticultural/garden soil		friable brownish grey silty clay
4000	94	9				Layer	agricultural/horticultural/garden soil	Top soil	Friable, mid grey brown, fine silty sand, V. occ. Small stones <50mm
4001	94	9				Layer	Natural		Friable, mid reddish brown, fine silty sand, moderate small angular stones <100mm
5000	111	9				Layer	agricultural/horticultural/garden soil	Plough soil	Friable, Mid grey brown, sandy clay silt
5001	111	8				Layer	agricultural/horticultural/garden soil	Sub soil	Friable, mid reddish brown, clayey silty sand
5002	111	1				Natural	Natural		Firm, light blue grey, clay
6000	12	9				Layer	agricultural/horticultural/garden soil	Top soil	Soft, dark brownish grey, topsoil, moderate stone
6001	12	8				Layer	agricultural/horticultural/garden soil	Sub-soil	Firm, reddish brown, sandy clay silt, moderate small to large stones
6002	12	1				Natural	Natural	Sub-soil	Firm, brown yellow, sandy clay, moderate small to large stones

APPENDIX 3

PLATES

Plate 1. Site 58. North facing section of Phase 3.1 ditch G8. (2m scale)

Plate 2. Site 58 Aerial photograph of enclosure. Looking west.

Source: Ian Watkins of Aerial Exposure.

Plate 3. Site 58. Enclosure ditch Slot 2, looking south-east. (2m scale)

Plate 4. Site 58. Enclosure ditch Slot 19, looking east. (2m scale)

Plate 5. Site 58. Enclosure ditch Slot 24: northern terminus of entranceway, looking north, showing G13 consolidation of Phase 3.2 ditch with stones. (2m scale)

Plate 6. Site 58. Longitudinal section of enclosure ditch Slot 8, truncated by Phase 3,4 trackside ditch, looking south-west. (2m scale)

Plate 7. Site 58. Enclosure ditch Slot 11, looking south-west. (2m scale)

Plate 8. Site 58. Enclosure ditch Slot 3, looking south. (2m scale)

Plate 9. Site 58. Dump of bone-working waste G51.in Phase 3.3 latest recut of enclosure ditch (0.5m scale)

Plate 10. Site 58. Skeleton [2099] within Slot 20 at base of Phase 3.3 re-cut of enclosure ditch (0.5m scale)

Plate 11. Site 58. Skeleton [2091] within Slot 7 at base of Phase 3.3 re-cut of enclosure ditch (0.5m scale)

Plate 12. Site 58 Aerial photograph of enclosure and trackside ditches. Looking north-east.

Source: Ian Watkins of Aerial Exposure.

Plate 13. Site 58. Metalled surface G36, inside Phase 3.4 ditched trackway looking north-west. (2m scale)

Plate 14 Site 122 Phase 3.5 pre–villa enclosure ditch [385] G122 facing south, scale 1m

Plate 15 Site 122 Phase 3.6 pre villa developed soil [288] G155, also showing postholes [376] & [378] G158, facing north-west, scale 2m

Plate 16 Site 122 Phase 3.6 pre-villa developed soil [288] G155, with demolition deposits [185] & [206] G145, west facing section showing (oblique view), scale 2m

Plate 17 Site 122N Phase 4 Enclosure 1 ditch G100, north-west facing section, scale 1m

Plate 18 Site 122 N Phase 4 Enclosure 3 ditch G112, south facing section, scale 1m

Plate 19 Site 112N Phase 4 refuse pit G165 north-west facing section, scale 1m

Plate 20 Site 122 Phase 4.2 south facing section of gully or timber slot [372] G161, scale 0.50m

Plate 21 Site 122 Phase 4.2 Quarry Pit [349] G124, facing south, showing extensive refuse deposit G130, scales 2m and 1m

Plate 22 Site 122 Phase 4.2 Quarry Pits [380] G126 & [388] G124, facing NNW, scale 2m

Plate 23 Site 122 Phase 4.2 villa enclosure ditch [259] G128, north-west facing section, scale 1m

Plate 24 Site 122 Phase 4.2 villa enclosure ditch [295] G128, SSW facing section, scale 0.50m

Plate 25 Site 122 Phase 4.2 villa enclosure ditch [313] G128, looking south-east, scale 1m
.

Plate 26 Site 122 general view of villa wall [274] G153, foundation [391] G139, and wall of heated room [272] and foundation [279] G144, facing west, scale 2m

Plate 27 Site 122 south facing section of villa wall foundation [391] G139 and wall [274] G153, scale 1m

Plate 28 Site 122 Robber Trench [254] G141 also showing clay and cobble wall foundation [391] G139, scale 1m

Plate 29 Site 122 villa Room 1 occupation deposit [292] G143, facing north, scale 0.5m

Plate 30 Site 122 north-west facing section showing villa Room 1 occupation and floor surfaces, facing east, scale 2m

Plate 31 Site 122 villa Room 1 lime mortar floor surface [327] G143 with structural feature, facing east, scale 0.5m

Plate 32 Site 122 villa Rooms 1 & 2, *opus signinum* floor surfaces [179] & [177], evaluation trench in foreground, facing east, scale 2m

Plate 33 Site 122 villa Room 2 *opus signinum* floor surface 177, with patches of collapsed painted wall plaster, facing west, scale 2m

Plate 34 Site 122 detail of tessellated surface [212] in villa Room 3, corridor, facing south, scale 1m

Plate 35 Site 122 villa Room 7 *opus signinum* floor surface [184], robber trench [175], facing south-west, scale 2m

Plate 36 Site 122 villa Room 8 general view, facing north-east, scale 2m

Plate 37 Site 122 villa Room 8, facing east, scale 2m

Plate 38 Site 122 villa Room 8 wall [202], facing east, scale 2m

Plate 39 Site 122 general view of hypocausted room G144 showing pilae stacks [168], facing south-west, scale 1m

Plate 40 Site 122 general view of hypocaust room G144, facing north, scale 2m

Plate 41 Site 122 remains of hypocausted room wall foundation [271] and wall [272] G144, facing east, scale 0.50m

Plate 42 Site 122 hypocausted room stocking chamber walls [272], [277] also showing charcoal deposit [269]n facing NNE, scale 0.5m

Plate 43 Site 122 west-facing section Robber Trench [165] G141, scale 1m

Plate 45 Site 122 Robber Trenches [164] & [165] G141, facing east, scales 2m and 1m

Plate 46 Site 122 general view showing villa wall [274] G153 and foundation [391] G139, occupation deposit [284] foreground, facing west, scale 2m

APPENDIX 4

ASSESSMENT OF THE INDIGENOUS HANDMADE WARES (LIA-ERB) FROM SITE 58, BEDALE, N. YORKS

Dr James Gerrard ACIFA FHEA

(Archaeology)

Centre for Interdisciplinary Artefact Studies

Newcastle University

James.gerrard@newcastle.ac.uk

Introduction

The excavation at Site 58 produced 289 sherds (6895g) of Indigenous Hand Made Wares (also known as 'native pottery') and a small (25 sherds, 277g) quantity of Romano-British pottery that together number 314 sherds, weighing 7.172kg from 56 contexts. This material survived in a variety of states but the majority was in a generally fresh state of preservation. All of the assemblages were very small in size (1-30 sherds) with a single exception in the medium range (30-100 sherds).

Methodology and recording

The methodology used for recording this ceramic assemblage is adapted from the scheme proposed by the Museum of London Specialist Services and widely used in London and its immediate hinterland (Symonds 2002).

The 'Indigenous Hand Made Wares' present a number of methodological challenges. Various fabric groupings have been suggested but the material is so heterogeneous that even sites within relatively close geographical proximity to one another may display great variability in fabric. Presumably this reflects both the lack of standardisation in production and a variety of sources for this material. An attempt to use the Faverdale fabric classification was made but found to be unsatisfactory (Gerrard 2012), so the decision was made to create a number of site specific fabric divisions (see below).

The small quantity of Romano-British pottery was divided into samian (reported on by J. M. Mills Appendix 5) and other Romano-British fabrics. These other fabrics have been recorded using either: the National Roman Fabric Reference Collection codes (Tomber and Dore 1998); codes used in the English Heritage Catterick publication (Wilson *et al*. 2002). Expansions of these codes are provided in Table 2 in Appendix 6. Forms are described by reference to existing regional typologies, or typologies relevant to individual pottery industries.

The pottery has been quantified using the standard measures of sherd count and weight. Given the small size of the assemblage, the decision was made to not quantify by Estimated Vessel Equivalents (EVEs) during this assessment stage of analysis. All data has been recorded directly into an Excel Spreadsheet, the design of which is based on the database structure used by medieval and post-medieval pottery specialists within Pre-Construct Archaeology. This is ultimately based on standards

established by the Museum of London's Archaeology and Specialist Services (Symonds 2002). A copy of this spreadsheet is available for consultation in the archive.

The 'Indigenous Hand Made Wares'

Fabrics

Twelve fabrics in the indigenous handmade tradition were identified (289 sherds, 6895g). This is a reasonably-sized assemblage for the region and compares favourably in size to the groups from Pegswood and Great Ayton Moor (Gerrard 2012, table 1). Almost all of the sherds are derived from thick, handmade jars with wiped or smoothed surfaces. These vessels have coarse fabrics, with a variety of inclusions, and often show a variable firing. Surfaces are usually black, but grey and brownish orange surfaces or patches are not uncommon.

Sherds were examined using x10 and x20 magnification and basic inclusion identifications were undertaken. As is typical with these kinds of assemblage, firm distinctions between fabrics are impossible to make. One fabric blends into another and there is often the suspicion that sherds from different parts of a single vessel could be assigned to different fabrics, such is the variability exhibited in the vessels and the preparation of their clays.

Of the twelve fabrics present (Table 1) only Fabrics A and J were the most common with Fabrics B, E , H and G present in small quantities and the remaining fabrics present as only a handful of sherds. Fabrics containing dolerite inclusions (B, G, K, and L) account for sixty sherds (1408g) or approximately one fifth of the assemblage by both count and weight. Doleritic tempered wares are typical of assemblages between the Tyne and the Tweed (Willis 2009, 44) but are less common in assemblages south of the Tyne (Evans 1995, fig 5.2). Willis (2009, 44) speculates that there may have been some symbolic reason for the selection of dolerite as a temper, but Evans (1995, 48) prefers a functional explanation. Calcite tempered wares (Evans 1995, 49) are rare, with only Fabric H showing the characteristic voids associated with leached calcite inclusions. The remainder of the assemblage appears to be heavily quartz gritted with, in many cases, sparse micaceous inclusions too. Fabric A was the most common of these quartz rich fabrics and some sherds of this fabric also included occasional ?sandstone fragments. These quartz tempered fabrics were an important component of the Faverdale assemblage (Gerrard 2009, table 2), although at that site dolerite tempered vessels formed a more important element of the assemblage.

Fabric A

This was the most common fabric by count and weight. A hard fabric with a rough feel and an irregular fracture. The core is dark grey, with yellowish grey margins and orange surfaces. The inclusions are: moderate angular, fairly sorted quartz <1mm; moderate and well sorted mica flecks <0.1mm and sparse, sub-rounded, poorly sorted quartz sandstone <5mm.

Fabric B

A less common fabric. A hard fabric with a rough to smooth feel and an irregular fracture. The core is grey with grey-black margins and black surfaces. The inclusions are: sparse, sub-angular, poorly

sorted quartzite grains <1mm; moderate and well sorted mica flecks <0.1mm and sparse, sub-rounded, poorly sorted dolerite <4mm.

Fabric C

A fabric represented by a single sherd. A soft fabric with a rough feel, smooth texture and ablack core, light brown margins and orange surfaces. Inclusions include sparse ?slag <5mm and fairly sorted moderate, sub-angular mica flecks.

Fabric D

A fabric represented by only two sherds. A soft black fabric with a rough feel and hackly fracture. Inclusions present are abundant poorly sorted angular quartz <1mm, sparse sub-rounded black ?iron ore and abundant well sorted sub-angular mica <1mm.

Fabric E

A reasonably common fabric. Black, except for the orange exterior surfaces. Hard, with a smooth feel and irregular fracture. The inclusions present are: sparse angular mica flecks <0.1mm; moderate sub-angular well-sorted quartzite <0.5mm

Fabric F

An uncommon black fabric. Hard with a rough feel and irregular fracture. Moderate, fairly sorted angular red iron ore >1mm and sparse sub-rounded clay pellets <2mm.

Fabric G

A common fabric with black core and surfaces and orange margins. Hard, with a rough feel and a fine fracture. Inclusions are moderate angular dolerite <0.5mm and poorly sorted, sparse sub-rounded mica flecks <0.5mm.

Fabric H

A less common fabric. A hard fabric with smooth surfaces and a hackly fracture. A black core and light grey margins and surfaces. Inclusions include: abundant poorly sorted sub-angular calcite <0.5mm and poorly sorted sub-angular surface voids <2mm (leached calcite?).

Fabric I

Not used

Fabric J

A distinctive hard, smooth fabric with hackly surfaces. A grey core with yellowish brown margins and light-greyish-orange surfaces. Inclusions are restricted to abundant poorly sorted sandstone fragments <5mm x 3mm.

Fabric K

An uncommon hard fabric with a harsh feel and hackly fracture. The core is grey with orange internal margins and surfaces. The inclusions are large poorly sorted angular to sub-angular dolerite fragments <7mm x 5mm and moderate sub-rounded quartz <1mm.

Fabric L

An uncommon fabric with a grey core and light grey to brownish orange margins and surfaces. This is a soft fabric with a rough feel and a fine texture. Inclusions are moderate well sorted, rounded black iron ore <2mm, sparse well-sorted sub-angular quartz <1mm and sparse poorly sorted sub-angular dolerite >3mm.

Briquetage

Nineteen sherds (200g) of what appears to be briquetage were recovered. These crude pottery vessels used in the manufacture and transportation of salt have been found at a number of Late Iron Age and Early Roman indigenous sites in the region (for instance Willis 2009, 44).

Fabric	Count	Weight (g)
A	95	2572
B	18	517
C	1	25
D	2	46
E	20	922
F	4	262
G	33	747
H	16	228
J	60	1197
K	5	93
L	4	39

Table 1 The quantities of indigenous handmade ceramics in each of the eleven fabrics.

Forms

The forms were classified using the typological scheme developed for the indigenous pottery at Faverdale (Gerrard 2012, 80) (Table 2). Vessels with the code IA are convex sided ‘barrel-shaped jars’; IB are straight sided ‘barrel-shaped jars’; IC are lid-seated jars and ID are ‘neckless’ vessels with simple rims. Further numbers denote typological subdivisions of these broad form groups (for which see Gerrard 2012, fig 52, although some of the vessels are incorrectly positioned in this illustration).

A minimum of at least 25 vessels are represented by the diagnostic sherds, although this total (as with all MNV calculations), significantly under-represents the actual number of vessels present in the assemblage. In comparison with Faverdale there is far less typological variety visible in the

assemblage, although Faverdale is perhaps exceptional in this regard. Other assemblages of broadly similar material at Pegswood (Willis 2009) and Thorpe Thewles (Heslop 1987, 57-76) are comparable in terms of the importance of jars.

The Roman Pottery

A very small number of Roman pottery sherds were recovered from Site 58 (25 sherds, 277g). This group includes three pieces of South Gaulish samian and two sherds of Central Gaulish samian. These are discussed by J. M. Mills (Appendix 5). The only other import is a single abraded sherd of Baetican amphora.

The remainder of the assemblage is comprised of a variety of fabrics. Most significant are ten sherds of oxidised pottery, including a flagon handle and a flagon rim of probable Hadrianic or earlier date (Wilson *et al.* 2002, Type F1.2). There is also a single sherd of whiteware and seven sherds in reduced fabrics, including five from a single jar decorated with an acute lattice. The full description and quantification of these fabrics are contained in the pottery database and have been related to the fabric descriptions published for the Roman pottery from Catterick (Wilson *et al.* 2002).

The small size of the Roman assemblage is interesting in that it suggests restricted access to Roman pottery. Equally interesting is the samian assemblage, which accounts for a fifth of the group. The strong showing of oxidized wares, largely derived from flagons, reinforces this emphasis on tablewares. The poor showing of jars is perhaps explained by the inhabitants already having enough locally manufactured 'indigenous' jars (above) but it is still surprising to find that there is no BB1 or BB2. All of the jar sherds would seem to be from locally manufactured 'Romanized' coarsewares. Finally, the absence of mortaria, which were reasonably common at both Faverdale (Gerrard 2012) and Thorpe Thewles (Heslop 1987) is worthy of note.

Discussion and Chronology

The material is an important assemblage of late prehistoric and indigenous Roman period pottery. As such it is worthy of further study, analysis and publication and key recommendations to this end are made below.

Understanding the chronology of this material presents some difficulties. The Roman pottery demonstrates that material was reaching the site in both the late first and second centuries. The stratigraphic distribution of this pottery would further suggest that there is an earlier phase of Late Iron Age activity. The indigenous pottery was clearly used well into the second century (Gerrard 2012), if not beyond. However, the absence of any of the later Roman material found at the villa site would suggest that activity ceased before the middle of the third century. Spot dates for individual contexts can be found in Table 3.

Recommendations

- The pottery should form an integral part of any publication

- A full publication report is recommended. The indigenous ceramics are of regional importance and, given the importance of understanding the early Roman transition in the North East of England, take on a greater importance.
- As part of the publication programme it will be necessary to undertake a detailed contextual analysis of the distribution of the pottery.
- It would be extremely desirable to place the study of the indigenous pottery fabrics on a sounder empirical fashion through a comprehensive programme of thin section analysis. Thin sections (perhaps as many as 80) and pXRF analysis is recommended as a way of advancing our understanding of this material.
- Ideally all diagnostic rims, bases and other sherds should be illustrated in any publication.
- The assemblage is of a small size and quantification by Estimated Vessel Equivalent has not been undertaken for this assessment. It would be extremely desirable to quantify the pottery in this fashion before publication.
- It would also be desirable to make a detailed survey of the sherds to determine the presence of residues. Residues noted in passing but have not been systematically recorded. Some surviving residues might have the potential to shed light on diet and chronology (via high precision AMS dating). Provision should be designed into any publication programme to undertake this sort of analysis.

	IA1	IA2	IA3	IA4	IA5	IA6	IA7	IA9	IB1	IB2	IB3	IB4	IB5	IB6	IC2	ID3
A	X	x	X	X	x	x					x	x		x		x
B		x	X											x		
C																
D		x														
E											x					
F									x							
G		x					x							x		x
H	X															
J										x			x			
K															x	
L								x								

Table 2. Indigenous handmade vessel forms by fabric (for form codes see Gerrard 2012, 80 and fig 52).

Context	Phase	Size	Spot Date
2010	3.4	S	LIA
2022	3.3	S	43-200
2029	3.3	S	LIA
2033	3.3	S	LIA
2034	3.3	S	LIA
2035	3.3	S	LIA
2040	3.3	S	43-100
2041	3.3	S	LIA
2043	3.3	S	LIA
2058	3.3	S	LIA
2068	3.2	S	43-200
2070	3.3	S	120-200
2071	3.2	S	LIA
2072	3.2	S	LIA
2077	3.2	S	LIA
2079	3.2	S	LIA
2084	3.3	S	LIA
2092	3.3	S	LIA
2128	3.3	S	43-200
2133	3.3	S	LIA
2141	3.3	M	LIA
2142	3.3	S	LIA
2151	3.2	S	LIA
2152	3.3	S	LIA
2153	3.3	S	LIA
2154	3.3	S	LIA
2169	3.3	S	LIA
2188	8	S	1500-1900
2205	3.3	S	LIA
2223	3.4	S	43-200
2255	3.4	S	LIA
2265	3.4	S	LIA
2267	3.4	S	120-200
2283	3.4	S	LIA
2289	3.4	S	LIA
2294	3.3	S	LIA

2295		S	LIA
2296		S	LIA
2311		S	43-200
2323		S	LIA
2347		S	120-200
2351		S	43-200
2357		S	LIA
2362		S	LIA
2365		S	LIA
2369		S	43-200
2382		S	43-200
2385		S	LIA
2387		S	43-100
2391		S	LIA
2393		S	LIA
2396		S	LIA
2408		S	43-100
2410		S	LIA

Table 3. Spot dates for the pottery from Site 58. Assemblages spot dated to 'LIA' could conceivably run into the early Roman period (until *c*. AD200). The indigenous pottery is not chronologically sensitive enough to demonstrate this on its own.

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APPENDIX 5

ASSESSMENT OF THE SAMIAN POTTERY

J. M. Mills

Introduction

Despite the small quantity recovered (73 sherds, weighing 1485g), samian from a wide range of production centres was identified, including La Graufesenque in South Gaul; Les Martres-de-Veyre and Lezoux in Central Gaul; and Argonne, Rheinzabern and another, unidentified centre in East Gaul. The majority of the pottery is in good condition, with a few sherds being notably battered or abraded, few (seven sherds) showing evidence of burning, and, unusually, no signs of repair were evident. No samian potters' stamps are present.

The pottery has been quantified using the standard measures of sherd count, weight and rim EVE. All data has been recorded directly into an Excel Spreadsheet and includes observations of sherd condition and use-wear as well as fabric and form for each sherd or group of sherds which represent a vessel.

Site 58

Just five sherds (42g) of samian were recovered from five contexts assigned to Phase 3 (3.3 and 3.4); of these three (6g) are typical of the ware produced at La Graufesenque, South Gaul (SAMLG) in the first century AD. The only identifiable form is a rim sherd from a Drag 30 showing the characteristic rilling on the internal surface. No decoration survives. The other two sherds, a small chip and a rim sherd from a Curle 15 dish (34g, 0.11 rim EVEs), are from vessels made at Lezoux, Central Gaul (SAMCG) in the second century AD.

Site 122N

This site yielded six sherds (88g) of samian from five contexts assigned to Phase 4. A small chip and a body sherd from a Flavian Drag 37 were produced at La Graufesenque, South Gaul (SAMLG). Of the other four sherds, three (59g) are from vessels made at Lezoux, Central Gaul (SAMCG); two of these are body sherds from late second century products; a Drag 45 mortaria, and a Drag 31R [435] probably dating from the last quarter of the century; and one (15g), a rim sherd, probably from a Drag 37 bowl, is of late second or early third century date a was made at Rheinzabern in East Gaul (SAMRZ).

The sherds of samian from Site 58 and from Site 122N serve to refine the dating available for their contexts; however, further analysis is not required. Close dating is not possible as there are no stamped sherds and the only decorated sherd [154] is not closely dated as only a fragment of a chevron wreath remains. The presence of a single sherd of East Gaulish samian from Site 122N may indicate that activity extended into the third century AD although this vessel could have been contemporary with the two late second century vessels from [435].

Site 122 (The Aiskew Villa)

The samian from the villa site, 62 sherds (1355g) from 11 contexts, is summarised by form and fabric the tables below (Tables 1 & 2). Samian accounts for *c.* 5% of the pottery assemblage from this site, by weight, a relatively high proportion for a rural site (cf Willis 2005, 7.2.7). The assemblage is relatively small, and is noteworthy for a very limited range of vessel forms and an unusually large number of Drag 38 bowls. Much of the material is in good condition and has not been abraded or affected adversely by post-depositional processes. The mean sherd size of more than 20g is consistent with this.

Production Centre	Fabric	Sherd Count	% total	Weight (g)	% total	Rim EVE	% total	Mean Sherd Weight
South Gaul	?SAMLG	1	1.6	2	0.1	0	0	2
Central Gaul	SAMMV	3	4.8	38	2.8	0	0	12.7
	SAMCG	36	58	885	65.3	1.97	57.3	24.6
East Gaul	SAMEG	1	1.6	11	0.8	0.08	2.3	11
	SAMARG	1	1.6	3	0.2	0	0	3
	SAMRZ	20	32.3	416	30.7	1.39	40.4	20.8
Totals		62		1355		3.44		21.9

Table 1. Fabric/ production centre quantification by count, weight and rim EVE

The general absence of abrasion, the large sherd size and number of cross-joins (especially with in Group 130) may suggest the source of the pottery was not too far from where it was deposited. Some of the earliest sherds derive from the post-destruction levels (Phase 5) and may derive from further afield or from a different settlement focus. Clearly the main activity on this site, the third century construction of the villa and its subsequent use, post-dates main the period of samian consumption in Britain, broadly the first and second centuries AD and the first few decades of the third century. Samian imports finally ceased in the mid third century. There are no vessels here that date to the second quarter of the third century; the latest sherds are dated broadly to the late second-early third century AD.

Date

Other than a small chip of possible South Gaulish samian (?SAM LG) (Phase 5), the samian from the villa site is from Central and East Gaul. A small quantity of the material (6 sherds, 56g) is of early second century date, this includes the sherds of Les Martres ware (SAMMV) (Phase 5), a straight flange probably from a Curle 11 bowl (SAMCG) and a Drag 18/31 (SAMCG) (both Phase 4.1 quarry fills) and a Drag 18/31 dish rim sherd from one of the early East Gaulish centres (La Madeleine, Blickweiler or Heiligenberg)[1], the latter from a ditch fill assigned to Phase 3.5 pre-dating the villa construction.

The bulk of the samian is from Lezoux in Central Gaul (SAMCG) and Rheinzabern in East Gaul (SAMRZ) and derives from Phase 4.1; most from the quarry fills (Group 130). This quarrying activity

[1] My thanks to Joanna Bird for confirming the identification of this sherd

predates the construction of the villa, the dating of the infilling of these open features will depend on the coarse pottery; the samian, however, was manufactured broadly in the late second- to early third-century. The group from Quarry Group 130 is distinctive; there is a single rim sherd from a Drag 37 decorated bowl, the only example of this form from the site, sherds from two closed vessels and from two cups, a rim sherd from a Drag 45 mortarium, a large rim sherd from a large Curle 23 dish and many sherds from Drag 38 flanged bowls and a few other small sherds. There are several joining sherds of Drag 38s within the group and some of the SAMCG sherds are probably from the same vessel, but do not join. It is likely that there are up to 14 Drag 38s (maximum vessel numbers). In these terms *c*. 25% of the vessels recorded from the site are Drag 38s from G130, or when measured by rim EVE there are 1.92 Drag 38s (56% of the total). To put these figures in perspective, from the samian assemblage recovered from the large excavation at Drapers Gardens, London from a total of 3793 records only 106 (<3%) were Drag 38s (Mills and Monteil forthcoming); at the *vicus* site at Castleford <1% of the Central Gaulish vessels were Drag 38s with none from East Gaul (Dickinson and Hartley 2000, table 10); at Catterick Bridge only five Drag 38s (*c*. 3% of recorded vessels) are listed from Central and East Gaul (Hartley and Dickinson 2002, tables 42 and 42) and at New Fresh Wharf, London only 142 (*c*. 3.2%) of the identified vessels were Drag 38s (Bird 1986, fig 85). These figures serve to show that the Drag 38 bowl is not usually found in great quantities although it was a distinctive part of the normal samian repertoire in the second and third century industries.

Form

With a small assemblage it is difficult to undertake statistical analysis or to compare these low numbers of vessels effectively with larger assemblages like those mentioned above. Smaller and more local assemblages of samian like those from the villa at Piercebridge (Ward 2008) or the small collections of samian from the villa at Ingleby Barwick (Willis 2013) and indigenous settlement at Faverdale (Willis 2012), appear to follow trends observed for the samian from rural and villa sites country-wide (Willis 2005), and although also perhaps not large enough collections to be considered statistically robust, the broad trends are clear enough to demonstrate that the group under consideration here is highly unusual. The stand out element of this group is the quantity of flanged bowls (Tables 2 & 3). The range of forms and the fabrics suggest that the bulk of the samian from the site dates from the second half of the second century into perhaps the first quarter of the third. For a group of this date from a rural site whether villa or other rural settlement, one would usually expect to find more Drag 31/31R (or Lud Sa/Sb) bowls, more cups, Walters 79 platters, and decorated bowls. All these elements were present at Ingleby Barwick, Faverdale and Piercebridge.

Vessel form	?SAMLG	SAMMV	SAMCG	SAMEG	SAMARG	SAMRZ	*Totals*
Dr 27		1					1
Dr 33			2				2
O&P LV, 13			1				1
Dr 18/31		1	1	1			3
Dr18/31R or					1		1
Curle 23			1				1
Lud Sa or Sb						1	1
?Curle 11			1				1
Drag 38			10			4	14
Drag 45			1				1
Drag 37			1				1
Closed			2				2
Dish			2				2
Bowl			6			2	8
?	1					1	2
Totals	1	2	28	1	1	8	41

Table 2. Numbers of vessels recorded by maximum vessel count

Patterns of use-wear

No instances of repaired vessels were recorded, although a large proportion of the vessels have varying amounts of internal slip worn away by heavy or prolonged use, including nearly all of the Drag 38's. Willis states: '…. the Drag. 38, along with the cup, Drag. 27, is the most likely samian form to display wear (cf. Oswald and Pryce 1920, 213). This is a significant finding, since the 38 is a comparatively infrequent form among second and third century AD assemblages. This confirms that it was regularly employed for a specific purpose, evidently grinding.' (Willis 2005, section 8.7.4). It has been suggested that Drag 38s were used for mixing or grinding where Drag 45s are absent. This is not necessarily the case here, although only one sherd was recorded that sherd represents 2% of the assemblage by rim EVE which is, if anything, a high percentage for the site type. Clearly the mortarium form was available so the reason for the heavy use of Drag 38 bowls may need a different explanation. There were three different types of wear pattern on Drag 38 bowls noted within this group. One example is very heavily worn across the base and up the wall so much so that a ring over the foot ring is worn into a series of round pits *c.* 5mm diameter; others have no internal slip remaining up to the level of the flange, as far as can be seen this wear is even across the entire bowl; the final group displays patches of wear on one side of the bowl wall– as if the bowl were tipped, as one would when beating eggs perhaps.

Marked use-wear is a feature of the other northern groups already mentioned here, some of those reports note worn rims and foot-rings – slip was absent from some of the rims and foot-rings in this group - but also from other high points like base angles and the missing slip in these instances may be due to post-depositional processes, or a combination of post-depositional attrition and use-wear, but it is not clear that it was caused solely by use; whereas the internal absence of slip appears to be more certainly caused by use, especially when accompanied by polishing of the surfaces and discrete pitting (cf 350). Another feature of those groups not noted here is re-use of broken vessels either as small pots formed from bases, or as counters/discs and as spindle whorls.

Vessel Function	?SAMLG	SAMMV	SAMCG	SAMEG	SAMARG	SAMRZ	*Total MVN*	*Total rim*
Cup		1	3				3	0.49
Dish		1	2	1	1		5	0.36
Plain Bowl			17			7	24	2.47
Dec bowl			1				2	0.05
Closed form			2				2	0
Mortaria			1				1	0.07
? unident	1					1	2	0

Table 3. Numbers of vessels recorded by functional category by maximum vessel count (total also shown by rim EVE)

Recommendations

Although a small collection, the samian from the villa site is noteworthy for having an unusual profile characterised by a very limited range of vessel forms, a paucity of decorated wares, an absence of stamped sherds, an absence of repaired vessels, and an unusually large number of Drag 38 bowls, most of which display signs of heavy or prolonged use. This group of samian is demonstrably different from other groups of samian from northern villa sites and indigenous settlements, Ingleby Barwick, Holme House, Piercebridge, and Faverdale. The collection should be published, even if in summary, preferably with illustrations of the Drags 38s showing the range of wear patterns and form variations.

The group is perhaps too small, and not closely enough dated, to merit extensive research into comparative groups should they exist, but the basic data should be in the public domain as the group is highly unusual.

The small groups from Site 58 and from site 122N are valuable for site phasing and the presence of the sherds should be summarised in the publication report, but no further work is required.

Fabric Codes

SAMLG	La Graufesenque	South Gaul
SAMMV	Les Martres-de-Veyre	Central Gaul
SAMCG	Lezoux	
SAMEG	Unspecified centre	East Gaul
SAMARG	Argonne	
SAMRZ	Rheinzabern	

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site	context	phase	count	wt	rim diam	rim EVE	flange diam	flange eve	shd	form	e date	l date	comment
58	2040	3.3	1	1					body chip		50	100	
58	2070	3.3	1	2					body chip		120	200	
58	2267	3.4	1	34	210	11			rim	CU15	120	200	quite a large dish
58	2387	3.3	1	1					rim chip	Dr 30	50	100	chip from int with characteristic grooves
58	2408	3.3	1	4					body	dish/bowl	50	110	
122N	122	4	1	26					footring	bowl	120	200	parallel sided foot, large 130 base diam 20% EVE
122N	127	4	1	15					rim	DR37	170	230	collar - no dec, v orange . Squashed bead rim
122N	435	4	1	12					collar near spout	DR45	170	210	scoring close to mask - bottom of collar worn - no slip
122N	435	4	1	21					base angle	DR31R	165	200	
122N	142	4	1	1					body		50	110	
122N	154	4	1	13					dec body	DR37	70	100	basal wreath of chevrons
122V	185	5	1	4	160	7			rim	bowl	120	200	bead rim could be plain or dec bowl - not enough to tell
122V	185	5	1	8					body	DR27	100	130	hard-fired, and over-fired
122V	185	5	1	4	140	12			rim	DR38	160	230	rim, but could just be a deep Dr 38 flange…?
122V	206	5	1	2					body		50	110	Looks like a late SG fabric
122V	206	5	1	7					body	DR27	100	130	hard-fired, and over-fired
122V	206	5	1	23					base angle	DR18/31	100	125	
122V	235	4.2	1	24			180	8	body+flange	DR38	140	200	int wear up to height of flange
122V	309	4.2	1	31			180	14	body+flange	DR38	140	200	int wear up to height of flange and slight wear - all over with little flecks/spots of slip missing all over
122V	324	4.2	1	3					base angle	DR18/31R or 31R	150	200	underside worn at angle of foot and base no more of base present so can't tell if entire base missing slip. Antonine Argonne (confirmed J Bird)
122V	350	4.2	1	60	260	18			rim	CU23	120	200	VERY large eg. Pale fabric, probably Antonine
122V	350	4.2	2	37	110	28			profile	DR33	140	200	worn on high points - rim, foot, base angle; also use-wear on base - no slip

													nd ring at base of wall
122V	350	4.2	1	4					body	closed	150	200	no int slip joins 395 body - but these don't join base in that context
122V	350	4.2	1	54	130	34			rim	DR38	140	200	plain rim, collar 20mm; flange roughly chipped of. Interior worn to height of flange; slightly undulating irregular/diffuse border between slip worn off and unworn
122V	350	4.2	1	32					base +	DR38	150	200	v pale fabric; flange seems to have been broken off cleanly. Int wear to one side at base, not far up wall. Beaded foot
122V	350	4.2	1	56			160	20	body+flange	DR38	150	200	lge chalk inclusions in fabric - also white streaks. Heavy int wear up to level of flange
122V	350	4.2	1	6					body	?DR38	150	200	sherd from below flange, not worn - slip 'flecked' like area above totally worn sherds from other vessels
122V	350	4.2	1	5	180	8			rim	bowl	120	200	bead rim - could be 44 - or 38, doesn't look like 37 at all
122V	350	4.2	1	7	140	11			rim	bowl	120	200	squashed bead rim, curving wall like Dr 44
122V	350	4.2	1	62	140	19	180	20	rim+flange	DR38	180	250	pale orange fabric, no inclusions - soft - almost all slip gone. Probably C3rd. Collar 28mm
122V	350	4.2	3	101	140	37	180	38	rim+flange	DR38	170	230	heavy internal wear up to and slightly higher than flange. Collar 20mm
122V	350	4.2	2	16	140	27			rim	DR38	180	220	hard fired. plain rim broken just above flange - collar 20mm
122V	350	4.2	1	3					body		170	230	
122V	359	3.5	1	11	180	8			rim	DR18/31	130	160	poorly finished and a bit over-fired. Probably one of early EG centres (Blickweiler, La Madeleine or Heiligenberg) Confirmed by J Bird.
122V	382	4.2	1	3	160	10			rim	DR18/31	120	160	bead rim - quite shallow wall
122V	395	4.2	1	5	200	7			rim	DR45	175	210	scoring to right of mask - fabric looks diff from other 45 -
122V	395	4.2	1	18					base	dish	120	200	base diam 64mm, 35%. Wall chipped

													off, smooth over chips but could be post deposition. Foot parallel-sided; Base not flat, int slip worn away completely; under base ring of slip worn away at base of foot-ring, no slip on base of foot
122V	395	4.2	1	4					flange		120	150	flat, unhooked flange, no barbotine - probably Curle 11
122V	395	4.2	4	243	160	35	180	60	rim+flange	DR38	160	200	BEAD RIM, some very large chalk inclusions, up to 5mm Int wear removing slip to about 10mm below level of flange - top of wear undulates
122V	395	4.2	1	82			180	17	base + flange	DR38	150	200	beaded foot patch of int wear on side wall from level of flange downwards c 30mm diam, clear step at junction of lower edge of flange and ext wall
122V	395	4.2	2	60	140	8	160	20	rim + flange	DR38	150	200	beaded rim, very small hook below flange. Patch of wear on one side from c level of flange diagonally down inside vessel - ?ellipse shaped? sherd break. Collar 31mm deep
122V	395	4.2	2	60			180	23	body + flange	DR38	150	200	Patch of wear on one side from c level of flange
122V	395	4.2	1	12			180	15	flange	DR38	150	200	deep hook off flange
122V	395	4.2	1	7			180	12	flange	DR38	150	200	
122V	395	4.2	1	6	130	10			rim	bowl	120	200	under-fired. Bead rim. Bowl
122V	395	4.2	1	3					base angle	dish	120	200	
122V	395	4.2	1	5					body	bowl	120	200	
122V	395	4.2	1	8					body	bowl	120	200	int wear no slip
122V	395	4.2	1	12					body	closed	150	200	no int slip, joins body from 350
122V	395	4.2	1	14					base	closed	150	200	base 100% , diam 36mm. Appears to be different vessel from the 2 plain body sherds as fabric is more chalky. Interior un slipped so prob Drag 54
122V	395	4.2	1	11	140	8			rim	O&P LV, 13	140	200	int wear to base 9or edge of base0 only
122V	395	4.2	1	12	140	13			rim	DR33	150	200	thickly thrown
122V	395	4.2	1	9	220	5			rim	?DR37	170	240	rim only and step at top of ovolo, no dec
122V	395	4.2	2	11					body	Lud Sa or	160	230	

										Sb			
122V	395	4.2	4	70	140	25			rim	DR38	170	230	plain rim; collar 30mm, flange missing, heavy int wear up to level slightly below flange, slip of wall scratched and spots of slip missing.
122V	395	4.2	3	130	140	7	180	20	rim + flange= base	DR38	170	230	all sherds join large section of vessel from 350, collar 20mm. Base diam 90 mm(100%) The base is VERY heavily worn in a ring over the foot ring as a series of round pits c 5mm diameter., The foot-ring is plain and a large chip is missing from the ext face.
122V	395	4.2	1	5					body	bowl	170	230	
122V	448	4.2	1	5	160	7			rim chip	bowl	170	230	heavy throwing rings int.Poss Drag 38 - not same vessel as 350/395

APPENDIX 6

ASSESSMENT OF THE ROMANO-BRITISH POTTERY FROM THE AISKEW ROMAN VILLA (SITE 122 and 122N)

Dr James Gerrard ACIFA FHEA
(Archaeology)
Centre for Interdisciplinary Artefact Studies
Newcastle University
James.gerrard@newcastle.ac.uk

Introduction

The excavations at Site 122 (the villa) and 122N produced 1079 sherds of Romano-British pottery weighing 25.865kg from 62 contexts. As Site 122N, which was located immediately adjacent to the villa and comprised associated field systems to the north, produced a relatively small quantity (Table 1), the material is discussed as a whole. This material survived in a variety of states from very small and abraded up to fresh. The bulk of the pottery was, however, in a generally good and fresh state of preservation. The majority of assemblages were very small in size (1-30 sherds) with smaller numbers of contexts containing medium (30-100 sherds) or large (100+ sherds) quantities of pottery.

Site Code	Sherd count	Wt (g)
BALB14 122N	109	2352
BALB14 122	970	23513
TOTAL	1079	25865

Table 1 Quantification of pottery assemblage by site

Methodology and recording

The methodology used for recording this ceramic assemblage is adapted from the scheme proposed by the Museum of London Specialist Services and widely used in London and its immediate hinterland (Symonds 2002). The pottery fabrics have been recorded using either: the National Roman Fabric Reference Collection codes (Tomber and Dore 1994); codes used in the English Heritage Catterick publication (Wilson *et al*. 2002) or (in a small number of cases) codes developed for this report. Expansions of these codes are provided in Table 2. Forms are described by reference to existing regional typologies, or typologies relevant to individual pottery industries.

The pottery has been quantified using the standard measures of sherd count and weight. Given the small size of the assemblage and limited resources the decision was made to quantify by Estimated Vessel Equivalents (EVEs) during this assessment stage of analysis. All data has been recorded directly into an Excel Spreadsheet, the design of which is based on the database structure used by mediaeval and post-mediaeval pottery specialists within Pre-Construct Archaeology. This is ultimately based on standards established by the Museum of London's Archaeology and Specialist Services (Symonds 2002). A copy of this spreadsheet is available for consultation in the archive.

The pottery (excluding samian, amphora and mortaria)

In many respects the pottery assemblage conforms to what might be expected of a late Roman villa in North Yorkshire (Tables 2-4). There is relatively little ceramic evidence for activity pre-dating the third century. There are several incipient beaded and flanged bowls in SEDBB1 and some of the other SEDBB1 vessels, such as jars decorated with obtuse lattices would be typical of the third century. There are also a number of beaded and flanged SEDBB1 bowls, which are generally dated *c.* AD250-400+, but in the north these vessels should be dated to *c*. AD250-350. A small group of LNV CC and OXF RS sherds are also appropriate to a third or early fourth century date, as is a sherd of MOS BS and a sherd of CNG BS.

The early fourth century is more difficult to see in the assemblage. Some SED BB1 and CRA RE should be appropriate to this date. However, the majority of the Crambeck wares come from deposits also containing HUN CG. These late fourth-century calcite tempered wares from east Yorkshire are typical of the latest Roman deposits in the north (Bidwell and Croom 2010). It is tempting to use the ratios of Carmbeck to Huntcliff sherds to investigate how late some of these groups might be (Bidwell and Croom 2010, Fig 4.3), but in most cases the number of sherds is so small to render such an exercise at best meaningless and at worst misleading.

Almost a third of the assemblage by sherd count was comprised of various greywares. These generally conform to the various subdivisions of greywares established for Catterick (Wilson *et al.* 2002). It is unlikely that further analysis will provide any more information about the local greyware assemblage (Alex Croom pers. comm).

The assemblage was spot-dated and the results of this exercise can be found in Table 5.

The samian

The samian assemblage is discussed in a separate specialist assessment report (Appendix 5).

The mortaria

The mortaria assemblage is discussed in a separate specialist assessment report (Appendix 8).

The amphorae

As is typical for late Roman sites, the number of amphorae sherds was small (Table 3). Of the 46 sherds the majority were derived from Spanish oil carrying vessels (BAT AM), although it is impossible to determine whether these body sherds were from Dressel 20 or the later Dressel 23 form.

There was a small group (14 sherds) of North African material. North African amphorae form a small component of some late Roman groups (Williams and Carreras 1995). They are being increasingly recognised but remain uncommon in the north. The millennium excavations at Carlisle produced 27 sherds (Swan *et al.* 2009, Table 21), which was only 2.2% of the assemblage and none appear to have been reported from Catterick (Wilson *et al*. 2002). Of particular note is a rim sherds <37> [247] from an Africana IID amphora, stamped with a ‘vegetal’ motif (see Appendix 7). The form is a well-

known type produced in Tunisia. The cargo was probably wine or fish sauce. The stamp is paralleled at Ostia (Anselmino *et al*. 1977, Tav XXXIX, No. 273) where it is called 'Type N'. The form is of mid to late third-century and perhaps into the fourth century (I am grateful to Michel Bonifay for commenting on a picture of this sherd).

Seven sherds are catalogued as unidentified amphorae. These, along with the remainder of the assemblage, should be assessed by an amphora specialist before publication.

Recommendations

It is recommended that the following further analysis is undertaken prior to publication:

- That the amphora assemblage be assessed by a specialist
- Key groups should, if possible and viable, be quantified by rim EVE
- Selected diagnostic sherds from key groups ought to be illustrated
- A discussion of the pottery by phase (including quantification and its local and regional context) should be included in any publication text.

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Fabric Code	Sherd count	Weight (g)	Description	Reference
AMPH	7	618	Unsourced amphora	-
BAT AM	25	4058	Baetican amphora	Tomber and Dore 1998, 84-85
CAT O20	1	36	Catterick Oxidised	Wilson *et al.* 2002, 353
CAT O4	25	306	Catterick Oxidised	Wilson *et al.* 2002, 353
CAT R	19	478	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R1	105	1680	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R1B	7	168	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R1C	34	1002	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R1D	1	42	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R2	53	1197	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R3	10	119	Catterick Reduced	Wilson *et al.* 2002, 353
CAT R5	6	184	Catterick Reduced	Wilson *et al.* 2002, 354
CAT R7	44	490	Catterick Reduced	Wilson *et al.* 2002, 354
CAT R8	43	270	Catterick Reduced	Wilson *et al.* 2002, 354
CAT W4	11	374	Catterick White Ware	Wilson *et al.* 2002, 352
CBM	2	6	Ceramic Building Material	-
CNG BS	5	293	Central Gaulish Black Slipped ware	Tomber and Dore 1998, 50
CRA PA	2	176	Crambeck Parchment Ware	Tomber and Dore 1998, 196
CRA RE	2	269	Crambeck Reduced Ware	Tomber and Dore 1998, 197
CRA WH	50	2197	Crambeck White Ware	Tomber and Dore 1998, 198
CTR WS	1	13	Catterick White Slipped Ware	Tomber and Dore 1998, 195
DAL SH	1	5	Dales Shelly Ware	Tomber and Dore 1998, 157
FINE W/S	56	1891	Unsourced fine white slipped	-
HUN CG	19	478	Huntcliff Calcite Gritted ware	Tomber and Dore 1998, 201
LNV CC	78	536	Lower Nene Valley Colour Coated ware	Tomber and Dore 1998, 118
MAH WH	4	413	Mancetter Hartshill White Ware	Tomber and Dore 1998, 189
MISC	15	74	Small, abraded miscellaneous sherds	-
MORT	11	1144	Unsourced mortaria	-
MOS BS	1	1	Moselkeramik	Tomber and Dore 1998, 60
MPOT	4	65	Medieval pottery (unassessed)	-
NAF AM	14	451	North African Amphora	Tomber and Dore 1998, 101-102
OXF RS	4	93	Oxfordshire Red Colour Coated ware	Tomber and Dore 1998, 174-175
OXID	93	1137	Unsourced oxidised ware	-

OXID WS	1	6		
PMPOT	1	1	Post-Medieval pottery (unassessed)	-
SAM	27	277	Samian	Tomber and Dore 1998, 25-41
SAM CG	27	999	Central Gaulish Samian	Tomber and Dore 1998, 30-33
SAM EG	13	205	East Gaulish Samian	Tomber and Dore 1998, 34-37
SAND	73	1411	Unsourced sand tempered ware	-
SED BB1	215	3524	South-East Dorset BB1	Tomber and Dore 1998, 127
WW	3	12	Unsourced whiteware	-
TOTAL	1094	26221		

Table 2 Fabric code expansions

Site Code	Fabric	Sherd count	Wt(g)
BALB14 122N	AMPH?	2	24
BALB14 122N	BAT AM	1	267
BALB14 122N	BLACK	3	31
BALB14 122N	CAT R	1	8
BALB14 122N	CAT R1	13	166
BALB14 122N	CAT R1C	34	1002
BALB14 122N	CAT R1D	1	42
BALB14 122N	CAT R8	13	102
BALB14 122N	CBM	1	79
BALB14 122N	CRA PA	2	68
BALB14 122N	CRA RE	8	145
BALB14 122N	DALES	1	13
BALB14 122N	HUN CG	3	30
BALB14 122N	MORT	4	122
BALB14 122N	OXID	8	55
BALB14 122N	SAM	3	45
BALB14 122N	SAND	2	9
BALB14 122N	SED BB1	5	126
BALB14 122N	WS OXID	1	6
BALB14 122N	WW	3	12
TOTAL		109	2352

Table 3 Fabric totals for Site 122N

Site Code	Fabric	Sherd count	Wt(g)
BALB14 122	AMPH	5	594
BALB14 122	BAT AM	24	3791
BALB14 122	CAT	5	178
BALB14 122	CAT 020	1	36
BALB14 122	CAT 04	25	306
BALB14 122	CAT R	13	292
BALB14 122	CAT R1	92	1514
BALB14 122	CAT R1B	7	168
BALB14 122	CAT R3	53	1197
BALB14 122	CAT R5	10	119
BALB14 122	CAT R7	6	184
BALB14 122	CAT R8	31	388
BALB14 122	CAT W4	43	270
BALB14 122	CGBL	2	6
BALB14 122	CRA PA	3	225
BALB14 122	CRA RE	42	2052
BALB14 122	CRA WH	2	176
BALB14 122	CTR WS	2	269
BALB14 122	FINE W/S	1	5
BALB14 122	HUN CG	53	1861
BALB14 122	LNV CC	78	536
BALB14 122	MAH WH	4	413
BALB14 122	MISC	15	74
BALB14 122	MORT	7	1022
BALB14 122	MOSL	1	1
BALB14 122	NAF AM	14	451
BALB14 122	OXF RS	4	93
BALB14 122	OXID	85	1082
BALB14 122	SAM	24	232
BALB14 122	SAM CG	27	999
BALB14 122	SAM EG	13	205
BALB14 122	SAND	68	1376
BALB14 122	SED BB1	210	3398
TOTAL		970	23513

Table 4 Fabric totals for Site 122

Context	Group	Site	Sherd Count	Weight (g)	Spot Date	Comments
0			89	2431		
110		122N	1	8	70-400	
117		122N	43	1150	360-400+	
121		121N	7	341	120-300	Mortarium sherd may narrow spot date
131		121N	2	13	70-400	
136		122N	1	42	160-250	
142		122N	1	1	43-400	Tiny frag
142		122N	1	42	43-400	Mortarium sherd may narrow spot date
147		122N	1	3	43-400	Tiny frag
154		122N	1	12	70-200	Samian sherd may narrow date
160		122N	1	2	120-350	
162		122N	1	9	43-400	Tiny abraded frag
167		122	5	84	360-400+	
181		122	17	593	360-400+	
185		122	44	860	360-400+	
200		122	2	7	43-400	Two tiny frags
206		122	26	825	360-400+	Spot date based on single sherd of HUN CG. Also present are a stamped mortarium, prob. Residual and a possibly intrusive medieval sherd. If the HUN CG is intrusive then an early to mid fourth date would be appropriate
235		122	5	239	360-400+	
247		122	7	677	360-400+	Stamped amph <37> third or possibly fourth century
249		122	53	2786	360-400	
271		122	2	17	200-350	
275		122	2	23	160-300	
286		122	1	5	120-400	
292		122	1	28	160-200	
296		122	13	1116	250-300/350	
299		122	2	10	250-350	
304		122	1	276	120-300	Mortarium sherd may narrow date
305		122	1	4	120-350	
307		122	1	8	200-275	
309		122	7	540	250-300	
311		122	1	39	120-350	
315		122	9	128	70-300	
316		122	35	1115	120-250	
324		122	30	799	360-400	
341		122	1	8	200-350	
350		122	166	3303	200-300	
351		122	6	112	70-400	
352		122	4	42	120-300	

354		122	1	32	70-400	
359		122	1	13	120-160	Samian sherd
373		122	3	129	250-400	
382		122	8	116	120-200	Samian may narrow date
395		122	357	6117	200-275	Machined portion of quarry pit
398		122	46	311	70-300	
404		122N	6	67	200-350	
412		122N	2	24	43-400	
414		122N	2	68	350-400	
415		122N	2	9	70-400	Tiny frags
416		122N	5	138	120-300	
430		122N	4	46	120-350	
431		122N	2	46	43-400	Mortarium sherd
432		122N	1	13	250-340	
434		122N	3	10	70-350	
435		122N	17	243	160-300	
437		122N	5	70	300-400	
443		122N	1	4	120-350	
448		122	19	431	200-300	
453		122	2	10	120-350	
456		122	7	168	120-300	
459		122	3	396	120-300	

Table 5 Spot dates

APPENDIX 7

ANALYSIS OF AN AFRICANA II D AMPHORA FROM THE AISKEW VILLA

C. Capelli and M. Bonifay

A sherd of an Africana II D amphora found at the Aiskew villa shows a non-epigraphic stamp of a cordiform leaf. This stamp is known in Ostia, on the same amphora type, published by D. Manacorda under his type N (Manacorda 1977, 211, Pl. XXXIV, 273).

A sample (no. 11750) of the sherd has been analysed in thin section under the polarizing microscope. The fabric (Fig. 1) is characterized by a Fe-oxide rich clay matrix, with a subordinate calcareous component, and abundant, well-sorted inclusions with a bimodal distribution. The fine fraction (<0.1 mm) is mainly composed of quartz and microfossils (foraminifers), associated with rare feldspar and mica. The coarser fraction is essentially formed by often rounded (aeolian?) quartz grains up to 0.5 mm in size. Fe-oxide/limonitic nodules are also present.

The comparative study with the databases of the laboratory of the DISTAV (Università degli Studi di Genova) and of the Centre Camille Jullian (Aix-Marseille-Université, CNRS MCC, INRAP, UMR 7299, 13090 Aix-en-Provence, France) shows partial similarities with samples attributed to *Hadrumetum*/Sousse (Tunisia), whereas the fabrics from the other African workshops studied up to now are more different (Capelli, Bonifay 2016). Even if no kiln wasters are available for that site, a series of amphorae bearing stamps with the name of the city (COL HADR) have been analysed, providing good references.

In conclusion, the petrographical hypothesis of a possible production from *Hadrumetum* is particularly consistent with the typology. The studied amphora is evidence for the transport of *salsamenta* (?) from the coastal Byzacena to Roman Britannia in the second half of the 3rd century or the beginning of the 4th century AD.

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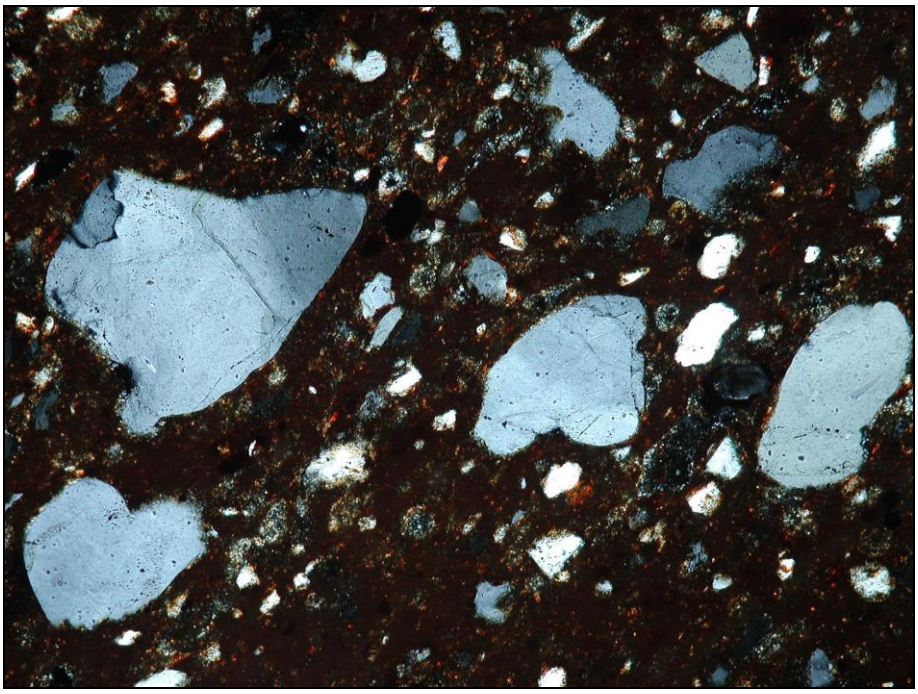

Fig. 1. Microphotograph (crossed polars, actual dimensions: 1,3 x 1 mm) of a thin section of the studied fabric.

APPENDIX 8

ASSESSMENT OF THE *MORTARIA* FROM THE AISKEW ROMAN VILLA (SITES 122N AND 122)

Eniko Hudak

Introduction

Excavations at Sites 122N and 122 produced 21 sherds of *mortaria* weighing 2236g and representing 1.14 EVEs. The mortaria were fully quantified using the standard measures of sherd count, weight, and Estimated Vessel Equivalents (EVEs). Fabrics have been identified with the help of the National Roman Fabric Reference Collection (Tomber and Dore 1998), and a range of type series published in excavation reports. The assemblage was recorded using The National Roman Fabric Reference Collection codes (Tomber and Dore 1994) into an MS Access database based on standards established by the Museum of London's Archaeology and Specialist Services (Symonds 2002).

The assemblage

Mortaria were recovered from 10 individually numbered contexts, and five sherds were unstratified. As opposed to the whole of the Roman pottery assemblage of the site (Gerrard this volume), the *mortaria* are rather abraded, which could be an effect of the soil conditions or indicate a degree of redeposition. Most sherds show signs of interior use-wear indicating that they were possibly discarded at the end of their use-life.

Site Code	SC	Wt(g)	EVEs
BALB14 122N	5	160	0.05
BALB14 122	16	2076	1.09
TOTAL	21	2236	1.14

Table 1 – Quantification of *mortaria* per excavation area

Since the individual site assemblages are very small, they will be considered here together. Given the small size of the assemblage there is a limited range of fabrics represented. Almost half of the assemblage is made up by Mancetter-Hartshill sherds (MAH WH), followed by Lower Nene Valley (LNV WH) products, and the remaining five fabrics are more or less equally represented. The general date of the assemblage agrees with the rest of the Roman pottery assemblage, which is the 3rd century AD including the Mancetter-Hartshill, Lower Nene Valley, and the single fragment of a Crambeck Parchment Ware (CRA PA) *mortarium*. Although the two sherds from the Verulamium region (VER WH), the Catterick area sherds (CTR WH), and the possibly Gaulish import sherd can be dated to the 2nd century AD and are probably all residual. The forms represented in the assemblage also reinforce the 3rd-century date: there are a number of multi-reeded hammerhead *mortaria,* a Corder type 6 (Wilson 1989) and a Perrin type M25 (Perrin 1999) *mortarium,* all dated to after AD200/230.

Fabric	SC	Wt(g)	EVEs
CTR WS	2	416	0.18
CRA PA	1	52	0.07
Handmade	2	46	
LNV WH	4	247	0.05
MAH WH	6	786	0.45
MAH WH?	3	163	0.04
NOG WH4?	1	278	0.2
VER WH	2	248	0.15
TOTAL	21	2236	1.14

Table 2 – Quantification of *mortaria* per fabric

The limited range of fabrics is also due to the date of the assemblage. There was a general chronological trend observed in the distribution of *mortaria* in Northern Britain, where by the 3rd century local production of *mortaria* declines and the variety of available types is reduced with the emergence of 'supra-regional' production centres (Hudak 2013). In the 3rd century AD the Mancetter-Hartshill potteries were the main supplier of *mortaria* in Northern Britain, after a notable specialisation in *mortarium* production (also see Hartley 2012). This can also be seen in the 3rd-century *mortarium* assemblage of Catterick (Hartley 2002), which also compares well to this assemblage: Mancetter-Hartshill products are dominant, but residual local and Verulamium region products are also present. The later date of the MAH WH sherds in this assemblage is confirmed by the forms present (change to hammerhead forms after AD 160, Tyers 1996), and also the trituration grits used, which change to black and red inclusions after AD 150 (Tomber and Dore 1998).

There is only one stamp in the assemblage, on a large rim sherd with a near complete spout in CTR WS fabric. There is a double stamp on the left side of the spout, possibly the same die impressed twice with a *c*. 25mm gap between the two. The sherd is heavily abraded, but some of the letters on the stamp are just legible reading: IAIO on the first stamp and AIOR on the second (the second I in both could be an abraded T). Further research may identify the stamp, but the sherd is more than likely to pre-date AD200, around which time the practice of stamping *mortaria* stopped (Hartley 1973).

Handmade *mortarium* fragments

There are two joining sherds of a possibly handmade *mortarium* in the assemblage, from context (431) Site 122N, the field system to the immediate north of the Aiskew villa. The fabric is black and is heavily tempered with ill-sorted quartz and occasional shell(?) and red particles. The interior of the vessel is orange-brown, which forms an up to 2mm thick layer above the black fabric. The trituration grits are large pieces of white quartz, up to 9mm in diameter. They seem to be forming a roughly circular pattern, which suggests that the grits were individually inserted rather than being scattered across the surface of the pot. To date only a single example of a handmade *mortarium* has been found in Britain, at Faverdale (Hartley 2012), *c*. 30km to the north of site, where the fabric seems to be similar to the local native wares, but that vessel showed no signs of gritting at all.

Recommendations

It is recommended that the fabric of the Aiskew handmade *mortarium* is compared to that of Faverdale example, as the description of the fabric suggests that these sherds are very similar.

No further work is required on the remainder of the assemblage, but a description should be included in any future publication. The handmade *mortarium* should be illustrated by photography for inclusion in the publication.

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APPENDIX 9

ASSESSMENT OF THE CERAMIC BUILDING MATERIAL

Berni Sudds

Introduction

A total of 2679 fragments of ceramic building material, weighing over 416kg, were recovered from the archaeological investigations. A breakdown of the assemblage by site and period appears below in Table 1. Prior to the material being assessed by the current author a sampling strategy was implemented with non-diagnostic and poorly stratified fragments being counted and weighed by context and discarded.

Site	Phase	Period	Number	Weight
58	-	Prehistoric - Roman	2	8
		Roman	1	13
		Medieval/ post-medieval	1	35
		Modern	4	80
122	Watching brief	Prehistoric - Roman	3	10
		Roman	42	2535
		Modern	18	354
	Trial Trenching	Roman	25	5597
	Excavation	Prehistoric - Roman	1	196
		Roman	792	220020
		Modern	1	260
		Discarded	1789	187094
		Totals	2679	416202

Table 1: Breakdown of the assemblage by site and period. Weight in grams.

A 20% sample of the retained assemblage was examined under magnification (x20) and quantified by fabric, form, number, weight and dimension. The remaining material was quantified by form, number and weight although any marked or otherwise significant or rare fragments were recorded in more detail. The flange profile and lower cut-away codes are recorded in line with the Museum of London Archaeology typology. A database cataloguing this information has been generated using Microsoft Access. Unsurprisingly, as evidenced in Table 1, the vast majority of the ceramic building material was derived from the villa site (Site 122) and is of Roman date. It is this material that forms the focus of the following assessment.

Fabric

Five provisional fabric groups have been identified in the 20% of the assemblage subject to fabric analysis. A brief description of each type appears below in Table 2 and a breakdown of the sampled assemblage by fabric in Figure 1. While they form relatively cohesive and distinct groups all share a similar suite of inclusions, albeit in varying proportions.

Fabric	Description	Range of forms
1	Orange to red sandy fabric. Hard dense fabric with a harsh, sandy feel. Moderate to abundant fine to medium quartz sand with sugary appearance, occasional white and grey sandstone, red iron ore and black (burnt/ slag-like) inclusions. Occasional white silty/ clay streaks.	Tegula, imbrex, brick
1V	AS 1 with less quartz sand and/or more black inclusions	Tegula, imbrex, brick, box-flue tile
2	Orange sandy fabric. More open textured than Fabric 1. Abundant fine to coarse quartz and occasional white and grey sandstone, white silty/ clay streaks and inclusions, red iron ore and black (burnt/ slag-like) inclusions.	Tegula, imbrex, brick, box-flue tile, hollow voussoir
2V	As Fabric 2 with less quartz and/ or more black inclusions. Softer and more powdery than Fabric 2.	Tegula, imbrex, brick, box-flue tile
3	Marbled orange and white fabric with moderate medium to coarse quartz and occasional red iron ore. More silty and less sandy variant of Fabric 2?	Tegula, imbrex, box-flue tile
4	Overfired/ high-fired variant of Fabric 2V? Grey core, pale orange surfaces.	Tegula, box-flue tile
5	Near to Fabric 1 with moderate fine white inclusions (calcareous?).	Tegula, imbrex

Table 2: Provisional fabric groups.

The most commonly occurring fabric was Type 2V, followed by 2, together accounting for nearly 60% of the sample. Both are mid orange in colour, and probably represent variations of the same parent group with Fabric 2 being a sandier variant of Fabric 2V. Fabric 3 has a distinctive marbled appearance from abundant white silty/ clay streaks and may be a silty variant of Fabric 2. Similarly, Fabric 4 could represent a high fired variant of Fabric 2V.

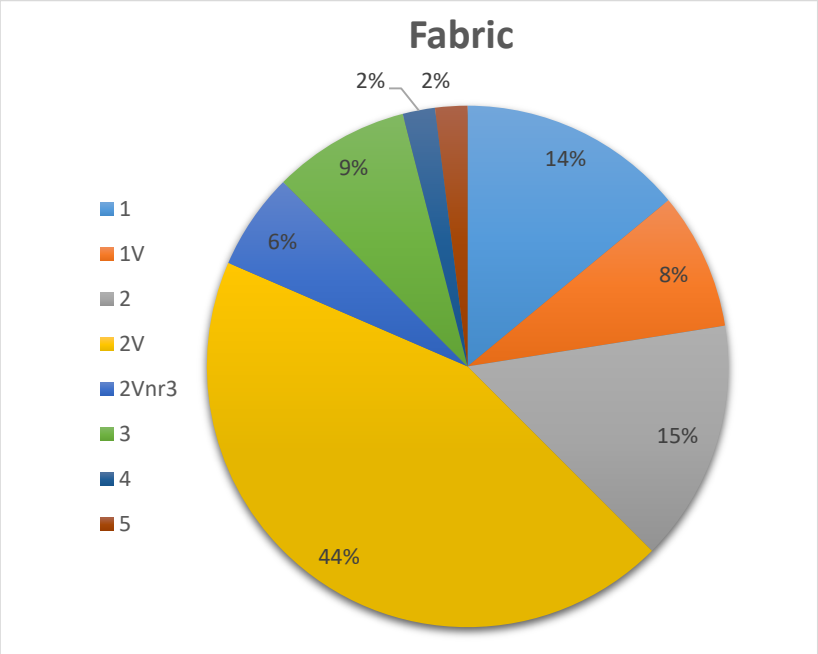

Figure 1: Breakdown of fabric (percentage of fragment count)

Fabrics 1 and 1V are generally much harder, higher fired and mostly red. Again the two variants have varying quantities of quartz sand but in this group it has a sugary appearance. Sandstone inclusions (identified by K. Hayward as Millstone Grit) are a more significant feature and it is possible the sand in matrix is derived from crushed fragments of sandstone. Fabric 5 appears to be a variant of Fabric 1 with the addition of fine white, possibly calcareous inclusions.

From the limited sample analysed it does not appear that any of the fabrics specialised in particular forms. Fabrics 3, 4 and 5 occurred in a more limited range of forms but this may simply result from their relative infrequency.

Form and function

A breakdown of the assemblage by form appears in Figure 2. Roofing tile represents by far the most frequent form recovered, accounting for over two-thirds of the material assessed. This is followed by box-flue tile and smaller quantities of brick and tesserae.

Roofing tile

The roof tile assemblage is comprised of roughly equal proportions of tegulae and imbrices. Although largely fragmentary, it was possible to ascertain the full length of at least one tegula at 440mm. The small number of measurable widths range from 300 to 350mm. Thickness varies from 16 to 34mm and the depth of flanges from 40 to 68mm, although the majority fall below 55mm. Flange profiles for all fabric groups are mostly commonly squared (MOLA Type 1), with a flat top and straight inside edge, although those with either sloping tops or sides, or both were also recorded (MOLA Types 2, 12 and 13). One rounded flange (near Type 26) was identified in Fabric 2 and three tall thin flanges in Fabric 2V (Types 31 and 32). Lower cut-aways are either vertical (MOLA Type C), sloped (Type E) or most frequently a combination of both (Type B). By number 3% of the tegulae have nail holes to facilitate with fixing he lowest course of tiles in place. More unusually two of these were made post-firing, one of which was located to the corner of the tile, rather than the bottom centre.

The imbrices are also pretty typical in tapering slightly towards one end. It is possible, particularly with the more fragmentary pieces that curved ridge tiles are also represented, although imbrices would function just as well for this purpose. No full lengths were recorded but widths range from 140 to 170mm and thickness from 13 to 23 mm.

Given the presence of mortar over broken edges and heavy wear to the face of some roof tile, it is likely that some were used or re-used in lacing courses, ovens, flue linings and floors but the quantity and freshness of the bulk of the assemblage suggest that some or all of the villa had a tiled roof. Stone roofing tiles have also been recovered from site (see Hayward Appendix 11). These would not have been used in direct conjunction with the ceramic tiles. A distributional analysis may reveal if different sections of the structure had different roofing material, and if this has any chronological or functional significance. Of course it is also possible they were used on separate structures.

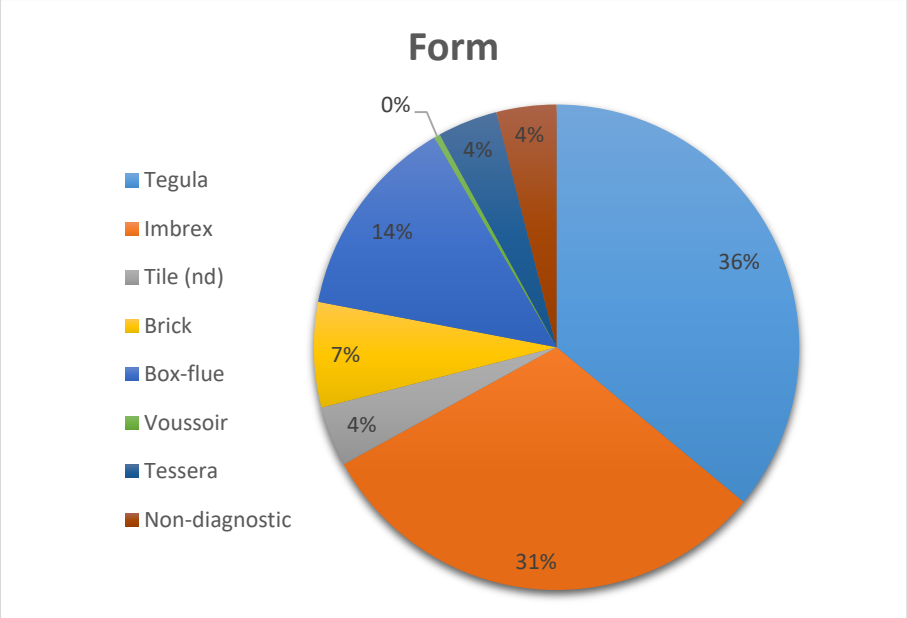

Figure 2: Breakdown of form (percentage of fragment count)

Brick

The loose brick assemblage is quite fragmentary with the only measurable dimension being thickness. Complete thicknesses range from 40 to 48mm indicative of the smaller Roman brick forms, namely the bessalis, pedalis and lydion, although a few fragments exceed 60-65mm which may suggest some of the larger sesquipedalis and bipedalis types are also represented. Bipedalis, measuring 2 feet square, have an average thickness of 60mm but in identifying the form from fragmented material a thickness of over 70mm should be recorded (Brodribb 1987, 42-3). Thickness is not always a reliable indicator of form, however, as some bessales can be up to 90mm thick. Many bipedalis are combed to aid with the attachment of mortar (ibid.). Eight of the bricks (13 fragments) in the assemblage are comb-keyed. The majority are laminated fragments that may well derive from bipedales, although the single measurable example was just 43mm thick.

Whilst it is clear from the in-situ remains that brick, along with stone, was used to construct the pilae stacks in the heated room, the degree of robbing to the rest of the structure makes it difficult to determine where else it may have been utilised. Brick, along with tile, was often used to construct lacing courses in stone masonry buildings to provide structural stability and maintain level coursing. It was also used in other structural elements and features, including ovens and flue linings, where heat resistance was required. In addition to flooring, whole sesquipedalis were sometimes used to form the base onto which the pilae stacks were constructed, although in the hypocaust on site a compacted stone and tile rubble layer was used instead (Brodribb 1987, 40-1). In the same way bipedales were often used to bridge the gaps between the pilae, forming the base of the suspensura, but stone slabs were also used for this purpose as at Quarry Farm (Ingelby Barwick) and likely at Faverdale (ASDU 2008, 137; Sudds 2012, 115). The small quantity of brick recovered may itself provide evidence to suggest that stone was more heavily exploited, but the possibility exists that the bricks were simply

targeted for robbing and re-use, along with much else of the villa. As with the roof tile, the degree of surface wear would suggest at least some bricks were used as flooring.

Flooring

Evidence for specialised ceramic flooring is limited to a small number of tesserae. A total of 34 were recovered, some used in combination with variously coloured stone examples to form tessellated surface [212] (Hayward Appendix 11). The remaining tesserae were recovered from the fill of a linear feature ([249]), or were unstratified. They were cut from both tegulae and imbrices. No opus spicatum bricks were recovered, that would imply herringbone floors, but some worn brick and roof tile suggest, that in addition to opus signinum and mosaic floors, a tile surface is likely to have existed somewhere in the villa.

Box-flue and hollow voussoir

A large quantity of combed keyed box-flue tile was recovered from multiple deposits with larger concentrations from layers [167], [181] and [307]. Just one fragment appears to have been re-used and thus it is highly likely that the walls of the heated room would have been jacketed with stacked columns of box-flue tile. The discovery of a hollow voussoir tile (tubulus cuneatus) might also suggest the room had a heated vault. These are similar to box-flue tiles but are wedge shaped, used to construct hollow vaulted ceilings, allowing for the circulation of heat to continue up from the walls through the roof. As only a single example that demonstrates evidence of re-use, however, this cannot be assumed, although the existence of a vaulted ceiling over the heated room is also intimated by the recovery of blocks of tufa (Hayward Appendix 11).

All of the box-flue is comb-keyed, typically with crossed diagonal and vertical bands. These are usually made with a broad-toothed comb, although include a few with fine combing. The hollow voussoir is lattice scored.

Markings and graffiti

The majority of deliberate markings in the assemblage occur on tegulae in the form of tile maker signature marks. Almost all of these are semi-circular types made with the fingertip at the upper end of the tile (upper-cut-away end). These range from single to four consecutive semi-circles, although one has two or more adjacent small semi-circles to the end. Four bricks also bore signature marks, three semi-circular types and one with two-diagonal lines. A single piece of probable graffiti was recorded on the face of a box-flue tile, between the combing, appearing to be the letter ‘T’ within a teardrop outline and made with a pointed tool or stylus.

Type	Animal prints	Signatures	Signature/ finger mark	Finger mark	Graffiti
Brick	1	4		1	
Tegula	9	51	1		
Box-flue tile					1
Non-diagnostic		1			

Table 3: Markings by form type (by fragment count).

Of the accidental markings, dog prints occur most frequently, although at least one other small mammal is represented. Finger dunting is also evident on a couple of fragments, where they have been handled or move prior to drying.

Summary and recommendations for further work

The assemblage is sizable, in good condition and from a structure of known date and function excavated under controlled conditions and as such has significant potential for further research. It is already apparent that there is more than one fabric group, although at this stage it is not clear if these derive from different sources, or have a chronological significance, representing differing phases of construction or modification. Local and regional stone types were clearly exploited for much of the buildings superstructure and internal appointment but it is equally evident that both standard and specialised types of ceramic brick and tile were acquired to construct the roof and the hypocaust. The ceramic building material not only reveals information about construction and appointment, however, but also about broader issues of connectivity and the organisation of supply in the late Roman period.

Early Roman tile production was undertaken at both military and civilian tileries but legionary tile production appears to have all but ceased during the early 3rd century (Warry 2010, 146). Given the late date of the villa, and non-military nature, the absence of stamped tile in the assemblage would thus be expected, intimating the building material was supplied by a private contractor. How devolved or centralised this production might have been, particularly during the 3rd and 4th century, and how much could be re-used and consequently salvage, is a matter that requires further research and consideration.

One of the apparent obstacles to an understanding of supply in the region is the homogeneity of regional clays (Isserlin 2002, 524). Indeed, in the current assemblage many of the inclusions are likely to have been fairly widely available. The presence of sandstone, likely derived from the carboniferous sandstone to west (Millstone Grit), might on face of it suggest source in that region but stone of this type was being brought to site in some quantity so more localised manufacture cannot be ruled out. For the early period a model of centralised production is favoured, with production focused at York, although possibly including Catterick and another kiln beyond the town, but this refers specifically to production and distribution of legionary building material (ibid. 524-5). The situation in the late Roman period is certainly likely to have been different but this does not necessarily mean that production, or at least distribution, was more devolved, indeed it has been argued that the stone building material may have been sourced from stockpiles held at York or Catterick (Hayward Appendix 11). In order to make progress in these areas a number of more specific recommendations are outlined below:

- Fabric analysis of the remaining 80% of assemblage.
- Distributional analysis of fabric to determine if there is any chronological significance to the types used.
- Comparison of the fabrics to local and regional assemblages of earlier and contemporary date. There are a number of potential villa sites for comparison in the locality including Middelham, Well, Langwith House, Snape, Castle Dikes and Bainesse Farm (Catterick),

although to the authors knowledge the results of fabric analysis are only available from the latter (Burroughs 2001, 12). Furthermore, no detailed analysis of the ceramic building material from other villas in the region, including Holme House (Piercebridge) and Dalton-on-Tees, appears to have been completed. Further afield, more detailed analysis has been carried out at York, including thin-section and Neutron Activation Analysis (Betts 1985), but this again focuses on early material. Identifying late sites will be key. Ideally, further work should include thin section and chemical analysis (ICP-AES) of fabrics from site, alongside samples available from other sites in the region. This could be compared to the results from York (Betts 1985) to enhance an understanding of the range and distribution of fabrics, and if these can be distinguished under x20 magnification. Any results have the potential to inform on tile supply and add to an understanding of this how this develops in the region over time.

- Further consideration should be given to reuse and if it is prevalent within a particular fabric group, or to specific forms. This should include an understanding of the distribution of reused material to see if it is restricted to later modifications or part of the original build. Further south, in the London region, a greatly reduced tile industry is evidenced in the late Roman period and consequently high levels of reuse, to the point where salvage is likely to have become an organised industry. It will be interesting to see if, and how much, a role salvage played at Aiskew. If more of a feature than immediately apparent the absence of stamped tile would suggest the material was not salvaged from official or military structures.
- The level and method of use of ceramic building material should also be established. This should be undertaken alongside the stone to determine how the differing materials were used and if there is any functional or chronological significance to this. Certainly both types were used for roofing and in the construction of the hypocaust, although in the former case not together. The initial impression is that there appears to be a relatively considerable exploitation of ceramic building material, in line with Catterick and perhaps Piercebridge, and in contrast to sites like Ingelby Barwick where only stone appears to have been used (McClaren et al 2008, 85). As a key route way, the location of the former sites on Dere Street is likely to be significant.
- An overview of the use of specialised tile in region should also be attempted. Some settlements favour the use of half box-flue tile (tegulae hamatae), including Faverdale and Dalton-on-Tees (Sudds 2012, 117), or wall tile as at Binchester and Langton (implied by the recovery of spacer bobbins; Brodribb 1987, 69), whilst others, including Catterick and now Aiskew use combed box-flue tile. It will be important to determine if there is any chronology to this, as may be expected with improvements in wall-cavity technology, or if the picture is more complicated and other issues play a role, including relative affluence, or accessibility and differential supply.

Any future publication should include a report on the ceramic building material detailing the outcome of any of the research detailed above and would require up to 20 illustrations.

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Context	Number	Weight (g)
0	191	31406
68	8	96
110	2	19
117	4	690
119	2	1113
127	3	396
134	1	132
162	1	98
164	21	2277
167	102	25149
181	182	33195
185	332	55818
200	29	697
206	272	20776
212	12	194
218	24	3537
220	2	313
221	2	328
229	6	354
230	25	4368
235	8	2659
237	3	550
240	8	905
249	176	38239
255	5	484
258	8	2490
260	10	2738
264	6	760
271	3	522
275	1	8
278	3	154
283	3	2110
284	11	2334
285	1	72
286	8	1971
288	10	712
291	5	1217
292	1	133
296	24	1797
303	10	2330
305	67	8076
306	3	1019
307	97	13357
309	16	4082
311	8	881
315	33	7222
316	7	128
324	38	25500
341	14	864
346	3	814
350	282	44988
351	1	179
352	7	689
356	11	1986
357	2	118
373	2	85
395	480	52964
410	1	4
412	1	352
414	2	963
430	1	125
431	1	22
434	1	88
435	12	1198
437	2	328
439	1	48
443	3	534
444	1	3
446	3	131
448	15	3580
451	1	231
456	4	293
459	26	2073
2357	3	21
2413	5	115

Table 4: Total fragment count and weight of ceramic building material by context (g = grams).

APPENDIX 10

ASSESSMENT OF THE WALL PLASTER, OPUS SIGNINUM AND MORTAR FROM THE AISKEW VILLA

Berni Sudds

Introduction

A total of 675 fragments of wall plaster, opus signinum and mortar were recovered from Site 122, the Aiskew villa, weighing 46,323g. A breakdown of the assemblage by type is given below in Table 1. Although each group form distinct types in terms of materials used, particular properties and finish, with the exception of the lime based wall plaster, their use can vary. They are often used interchangeably and sometimes in combination. For this reason, the material from site is presented and discussed below by function rather than type (see Table 2).

Type	Total number	Total Weight
Wall plaster	439	20448
Opus signinum	163	18247
Mortar	73	7628

Table 1: Assemblage totals by type (weight in grams).

Methodology

The entire assemblage has been counted and weighed but due to time constraints an analysis and quantification of the fabric and thickness of individual layers has only been undertaken for the mortar and opus signinum, although was noted in the comments for the wall plaster. The fabric composition and grade were recorded using standardised letter and number codes. A copy of these codes and their expansions is included with the archive. The finish of the wall plaster and competence of decoration was also noted, informing on the status of schemes and any related structure. An Access database has been generated recording these attributes.

In common with general terminology employed for Roman wall plaster elsewhere (Mora et al 1984, 10) the term ‘arriccio’ is used to describe the coarse base coats, applied successively to the wall, and the term ‘intonaco’ refers to the fine top coat, comprising the finished surface. Common colour terms were used to describe the different pigments used. Finally, where painted the decoration on Roman wall plaster is commonly divided into the following three zones, henceforth referred to in this report; the dado, representing the bottom of wall; the main or middle zone, often with most accomplished and detailed decoration; and the upper zone or frieze (Davey and Ling 1982, 31).

Assemblage by function

Function	Type	Total number	Total Weight
Wall construction	Opus signinum	1	347
	Mortar	27	3383
Wall covering	Wall plaster	439	20448
	Opus signinum	1	32
Flooring, lining and mouldings	Opus signinum	114	12495
	Mortar	46	4245
Non-diagnostic	Opus signinum	47	5373

Table 2: Assemblage totals by function and type (weight in grams)

Wall construction (28 fragments, 3730g)

If the assemblage recovered is representative of the material used in the construction of the masonry elements of the villa, then lime based mortar appears to be the preferred bonding agent. The colour is commonly off white but can be yellow, pale grey, greyish-brown or pale pink, dependent upon the choice and frequency of inclusions. The majority is dominated by lime and sand but also includes small fragments of dark grey carboniferous limestone, also a feature of the opus signinum floors on site. Sparse tile and charcoal are also included and large fragments of opus signinum have been added to at least one fragment. The presence of fossils within some fragments, along with the fragments of carboniferous limestone, suggest source for the lime on site lay to the north west. The size of a single fragment of opus signinum might suggest it was used as a mortar, although with no surface impressions it is impossible to be certain.

Wall covering/ decoration (440 fragments, 20480g)

The majority of the wall covering is comprised of painted wall plaster, composed of one or two base coats with a fine lime intonaco, but painted opus signinum has also been recovered. Almost all of the plaster derives from one of two schemes, one of which has been renovated, although small pieces from other schemes would suggest that the villa had more than two painted rooms.

Schemes 1 and 2 ([167], [255], [258], [+])

The fragments of two consecutive painted plaster schemes were recovered, predominantly from demolition layer [167], but also from fills [255], [258] and clearance deposits. The earliest scheme has two base coats, a thin lime intonaco and is relatively crudely finished. The design is very fragmentary and consequently difficult to reconstruct with any certainty, but provisionally appears to be a two-dimensional polychrome panel based scheme on a natural plaster (white) ground. Preparatory incisions, demarcating the broad outline of the design are evident, marking the edges of panels.

The scheme appears to have red panel borders delineated with fairly thick blueish-grey framing lines, overpainted by a yellow ochre arc in one fragment with the blueish grey line from one side turning to follow it. There is also a yellow panel border overpainted with a grey line and a greyish-black border overpainted with a red curved line or block of colour. A parallel for these may be the S-modillions supporting a cornice on a panel scheme from a bath-building in Insula 19 at Verulamium (Davely and

Ling 1982, 169-70 Pl.LXXXI), particularly where the panel border curves to follow the modillion to create three dimension through shadow, although the colours differ. There are also a number of fragments with adjacent red and black, the black over-painted with white stylised 'flower' motifs with a central white dot and four to six 'petals'. These resemble the quatrefoil motifs from the same scheme at Verulamium, although these are ordered in a line, in contrast to the random and closely packed arrangement evident in the scheme from site. Indeed, the latter appear to fill entire panel, akin to the more elaborate and late debased marble and breccia dado schemes, but the motif and colour are more consistent with main zone panel or interval decoration. A parallel is difficult to find as, for intervals at least, floral motifs typically take the form of more delicate candelabra or bushy garlands, as depicted at Winchester and Sparsholt (ibid. No. 47C, p.195 and No. 37D, p.163).

The scheme also has yellow panels outlined with red borders and over-painted with a thickly painted red motif and natural white ground with exuberant linear and curved black and red lines. These are also likely to form part of the main zone, the thick black lines being somewhat reminiscent of the vegetal motifs on white panels in the heated structure at Faverdale to the north (Sudds 2012, 118-20), although too little survives to be certain. Finally, there are solid blocks of red, applied with a broad brush in fans shapes and arcs and red and black flecks on natural white ground, the latter in imitation of marble, and a likely candidate for the dado.

Less of the successive scheme survives but it is also relatively crudely finished, formed from a single base coat and thin line intonaco. Some areas have surface striations from poor finishing. Again a polychrome panel based scheme on natural white ground appears to be represented. There are adjacent stripes of yellow, red and black, yellow and black and yellow and red. These most likely form coloured panels or panel borders. There are also red and black specks on white ground, again most likely representing marble and potentially from the dado.

Scheme 3 ([167]; [181]; [185]; [206]; [218]; [221]; [230]; [264]; [280])

A smaller, but still significant, group of better quality plaster was retrieved across a number of robber cut backfills and layers in the area of hypocaust, some from same the same deposits as Schemes 1 and 2. The plaster is comprised of a grey arriccio and thick intonaco with a smooth, even finish. There are a number of chamfered and bevelled fragments, likely from door and window apertures or recesses. It is very fragmentary but includes many polychrome elements which are difficult to reconstruct with any degree of certainty.

There is a significant quantity of yellow ochre, some from a panel which is surrounded by a red border delineated by white lines, but also a few fragments overpainted with white, red and grey lines, sometimes in combination, which could represent internal framing lines within panels. A small number are overpainted with sharp thin black curving and tapering lines and one is overpainted with a pale greyish-purple branching stem?. Others have fine combing to surface or traces of green paint. A number of fragments of red ground, overpainted with fairly crude white lozenges and lines could be from a garland or floral spray. Two pieces are painted with thin red scrolling lines, one faded example on a yellow background and the second on a background that fades from pink to pale yellow in vertical bands.

There is also plain natural ground, overpainted with red and yellow panel borders, some with blueish-grey framing lines. Other plain ground fragments are painted with curving or more naturalistic black, olive green and dark green lines, the latter possibly representing vegetation. One piece has a pale grey ground painted with curving broad faint red curvilinear lines and the edge of a curved white line, possibly depicting folds of cloth from robes or drapery.

Fragments of pink ground with flecks of black and red, grey ground with flecks of red and white ground flecks of red and black might suggest the scheme had a polychrome marbled dado, although this technique could be used to decorate panels in the main zone. In the later Roman period there was an increasing tendency to set marbled panels in surrounds of different colour (Davey and Ling 1982, 31). A fragment of adjacent green and dark red/ purple, delineated with a thin white line, could be such panel border, but could equally derive from the main zone, division between the zones, or as so fragmentary represent another coloured panel.

Although too fragmentary to reconstruct the various elements are suggestive of a polychrome panel based scheme, perhaps with a marbled dado. The main zone appears to include foliate motifs, perhaps including reeds and a garland, and possible figure. The scheme shares some elements in common with early 4th-century wall-decoration from principa in York, although the latter is very elaborate with a three-dimensional architectural main zone (ibid. 201 Pl.C1).

Other schemes

A large fragment of plaster from layer [167] may derive from a different scheme to the rest of the plaster from the deposit. It appears to derive from the corner of a room with a graduated purple, pink and white border on natural ground with a dark red framing line. Similar fragments with red and yellow panel borders, delineated with darker lines of the same colour were also recovered from unstratified deposits.

Also unstratified and apparently unrelated to the above schemes are a fragment of natural white ground with a yellow line to one side and a maroon arc with crude dabs to the outer curve and fragments of green and green 'blotches' over dark blue/ black. A single fragment of red painted opus signinum was also recorded.

Flooring, lining and mouldings (160 fragments, 16740g)

It is evident from the ceramic and stone assemblages that both tessellated and tile floors were present in the villa but it is likely that the majority of floors, in addition to other internal features, were constructed of opus signinum. The latter was relatively easy and inexpensive to make and, significantly for certain areas of the villa, durable and water resistant. Opus signinum was often used in Roman construction as a base for tile, mosaic or stone veneer but, as appears to be case in assemblage, was simply smoothed to form the finished surface. The opus signinum is formed of lime, crushed tile and small angular fragments of dark grey carboniferous limestone, with varying amounts of sand. The colour varies from off white to pale/mid pink depending on the amount of tile and tile dust with orange and grey speckles from the tile and stone. In addition to opus signinum, mortar was also used to form at least one relatively crude surface

The majority of floors are comprised, or at least survive as, a single layer of varying thickness but up to four successive construction layers are evident. Fragments of floor recovered from demolition layer [167] are comprised of a rudus of coarse gravelly mortar topped with well smoothed opus signinum, the tile and stone inclusions being more or less visible depending on the amount of wear. Four layers form the crudely finished mortar floor recovered from dump layer [326], comprised of a statumen of dolomite rubble, followed by a coarse gravelly rudus, topped with a finer mortar layer and a thin lime layer. There are a significant number of tapered fragments, possibly indicating the floors sloped upwards at the room edges

Nine fragments of opus signinum quarter beading were also recovered, likely deriving from the edges of rooms, bridging and consolidating the join between the wall and the floor. Beading was also used for the same purpose in other internal features including plunge baths.

Summary and recommendations for further work

The mortar, opus signinum and wall plaster inform directly on the construction and internal appointment of the villa. In examining application, finish, painting skill and the range of pigments used, the wall plaster in particular, can provide information on the level of time and money invested, and consequently the affluence or pretentions of the commissioning clients. Successive schemes also have the potential to reveal information about changing tastes for decoration. The wall plaster from site is of moderate to good quality and is typical of the later Roman period, depicting two dimensional polychrome panel based schemes, for the most part on a natural white ground. It is possible some figurative elements are represented but the majority of diagnostic components appear to indicate foliate and floral motifs in the main zone of decoration. Some attempt at three dimensions, in the form of rudimentary architectural schemes, might be suggested by the tonal shading on some pieces and the possible modillions, although the latter are only tentatively identified.

There is evident mixing of the schemes within and between deposits. Further work should include a full analysis of the composition of the wall plaster in order to refine the individual schemes. A closer examination of distribution might reveal if particular schemes can be attributed to certain rooms, although a brief overview indicates much of the plaster was recovered from the same demolition and robbing deposits in the area of the hypocaust so the potential in this respect may be limited. The schemes also need to be compared with others from the region, particularly from villas, but also from other classes of building. This will not only inform on the social strata or aspirations of the inhabitants of the Aiskew villa, but add to a broader understanding of the regions taste in decorative schemes, how these compare to rest of Roman Britain and develop over time.

A selection of the wall plaster schemes should be photographed/reconstructed to be included in any future publication.

No further analysis of the mortar or opus signinum is required, although both materials, along with the painted wall plaster, should be written up for inclusion within any future publication.

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Appendix 1: Distribution

Context	Number	Weight (g)
0	103	4316
164	1	43
167	151	15926
169	1	347
181	25	1183
185	199	9466
206	32	2061
218	4	347
221	2	365
230	9	468
235	1	136
249	24	2598
255	16	917
258	12	1510
264	9	779
280	1	43
284	5	473
288	3	47
307	5	786
326	45	3315
395	27	1197

Table 3: Total fragment count and weight of mortar, opus signinum and wall plaster by context (g = grams).

APPENDIX 11

ASSESSMENT OF THE STONE

Dr Kevin Hayward

Introduction and aims

Eight boxes, three crates and four examples of loose stone were retained from the excavations.

This large sized assemblage (82 examples 97.5kg), was assessed in order to:

- Identify (under binocular microscope) geological character and source of the worked and unworked stone objects (this also includes the stone tesserae) recovered from the late Roman villa excavations Site 122 as well as Site 58.
- Sub-divide up the assemblage by function as walling rubble, roofing, paving, tesserae.
- Compilation of two databases; one of worked stone (Database 1- BALB14.mdb) and the other of the stone tessera (Database 2- BALB14TESS.mdb).
- Make recommendations for further study.

Methodology

For the material retained from the excavation, the application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10). As there was no pre-existing fabric series of stone for Bedale (North Yorkshire) held at PCA; each new fabric type was prefixed by *BEDL* for Bedale; Thus *BEDL 1, 2.* etc. Consultation of the geological maps and memoirs (Powell *et al*. 1992; Frost 1998) for this region, as well as an overview of the use of building materials in Roman York (Wilson & Price 2002) and economic resources of Yorkshire (Rayner & Hemingway 1974) ensured a thorough understanding of the quarrying and use of stone for this region.

Existing studies and regional geology

Other than a detailed review of the types of worked stone from York (Gaunt and Buckland 2002), no other study has examined the geological character and source of Roman worked stone in the county, especially in relation to Roman villas. This includes no petrological study of the stone tesserae (Neal & Cosh 2002). Indeed, this dearth of studies applies to the Roman province as a whole, with only southern Britannia beginning to receive adequate attention (Allen 2004; 2014; Hayward 2009; 2015).

North Yorkshire is well blessed in natural building resources (Rayner & Hemingway 1974), and consultation of the local geological memoirs for Thirsk (Powell *et al*. 1992) and Northallerton (Frost 1998) show a number of working quarries currently extracting suitable paving stone and walling stone rubble within the nearby area.

The underlying bedrock at Bedale encompasses a series of Permian dolomitic limestones (Lower Magnesian Limestone – Cadeby Formation) and mudstones (Middle Permian Marl), the former a suitable building stone (Smith 1974, 363), although the best quality Permian stone lies to the south e.g. Tadcaster.

The geological age of the rocks in this region increases the further west and north-west you go, with outcrops of Upper Carboniferous Namurian sandstones (Red Scar Grit), lying 7km to the west and older Yoredale cherts, limestones and sandstones of the Wensleydale Group exposed by the River Swale to the north-west. Some of these materials have been used as building stone, paving stone and roofing slate. To the east there are the Triassic Sherwood sandstones, and a further 15-20km away, Lower to Upper Jurassic mudstones and limestones. Furthermore, there are local deposits of low density Holocene Tufa, and erratic inclusions from the underlying boulder clay drift to consider. Given this rich diversity of suitable material types within a 20km radius and good road and river links (Dere Street and the River Swale respectively) afforded to it nearby, then one would expect a variety of walling, paving and roofing materials.

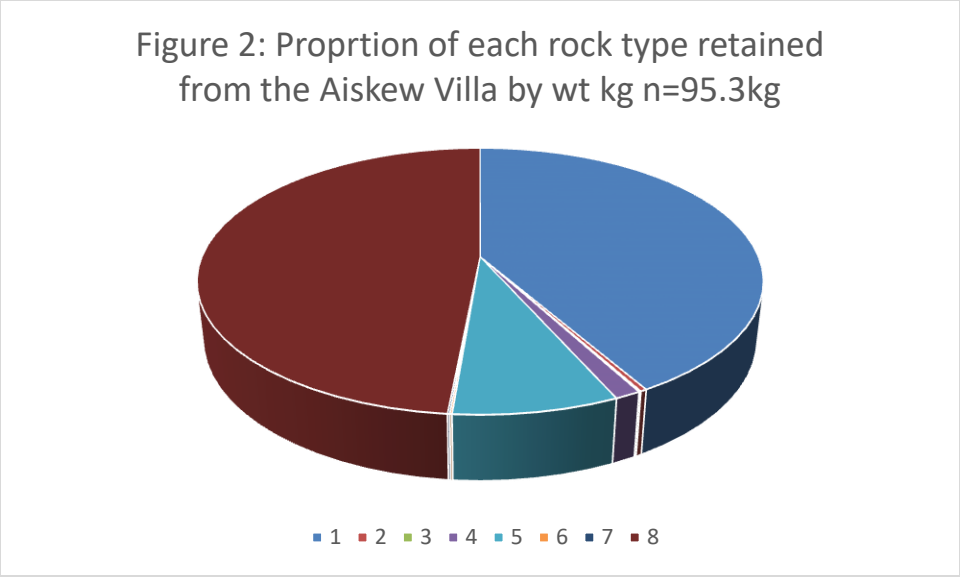
Stone- types

Distribution

Hand specimen petrological analysis of the worked stone from the excavations (BALB14) has identified the geological character and source of eight lithotypes, one of which (Magnesian Limestone) has at least three sub-types. Their description, geological source, frequency and use at the Aiskew villa are summarised below (Figure 1 and 2).

Geological Type and source	Description	Use at BALB1414
3129 Elland Flags- Type Lower Coal Measures of the Leeds-Bradford-Elland District (Godwin 1984, 1) but there are outcrops along the entire length of the Upper Carboniferous Coal Measures (Gaunt & Buckland 2002, 135) including the area west of Bedale.	Flaggy, dark grey to olive green fine laminated micaceous sandstones. Often appear red-brown due to burning or heat	950 examples 46.2kg. Most common and versatile material type in the villa as easily split into roofing slates, paving slabs, border tesserae and one ashlar. Only material used in roofing slates, very large group in Phase 4.2 disuse backfill [249] and [395]. Phase 5 demolition layer of hypocaust [167] and villa building demolition layer [181].
BEDL1; 1a; 1b Poor quality Magnesian Limestones from the immediate surroundings of the Lower Magnesian Cadeby Formation (Upper Permian) although best material from South Yorkshire (Lott and Cooper 2005).	*BEDL1* Yellow dolomitic concretionary micritic limestone occasional trace fossils and bivalve casts. *BEDL1a* White Concretionary dolomitic mudstone. *BEDL1b* Yellow Concretionary dolomitic limestone with iron shot bright red iron oxide specs.	169 examples 39.7kg. Principal walling construction material for the villa with large part-worked rectangular blocks from the wall [272] and [274]. Too hard to be used for finer paving & roofing although identified in a handful of unstratified border tessera as well as Phase 5 demolition layer [181].
3118 Calcareous Tufa Holocene Spring Water deposit in carbonate rich limestone and dolomite areas. Possibly from the adjacent River Swale. Exposures today in this region are located just 3km south and south-east of Bedale at Snape Mill GR 2750 8409, Mires House GR 2837 8499 and Black Plantation GR 2906 8596.	Low-density white-grey chemically precipitated nodular tufa.	One example of rubble adhered with mortar 0.1kg. Phase 4.2 disuse backfill of villa area [249] could have been used as vaulting in the heated/hypocaust room, as seen in other villas throughout central and southern England e.g. Chedworth villa (Hayward in prep.).
3116 Chalk Upper Cretaceous closest outcrops 30-40km SE.	Soft, white foraminiferal limestone.	Three small examples comprising 0.1kg of walling rubble. Lime or mortar/plaster raw material from Phase 4.2 disuse backfill of villa enclosure ditch [249] and [395]. Site 58 fill [2128]
BEDL2 Crinoidal Limestone Middle Carboniferous (Yoredale) Outcrops exposed 7km north-west by River Swale.	Very hard sparitic grey-cream crinoidal limestone with sections of crinoid stems.	One example of walling rubble 0.3kg from Phase 4.2 disuse backfill of villa [249].
BEDL3 Sherwood Sandstone Group (Lower Triassic) nearest outcrop 4km east at Gatenby GR 3115 8731 and Burneston GR 3078 8605 (Powell et. al. 1992).	Fine brick-red silty micaceous sandstone.	One example comprising 0.1kg of walling rubble Phase 6 [230] backfill disuse.
BEDL4 Gritty shelly sandstone of unknown provenance.	Grey gritty quartz shelly sandstone of unknown provenance.	One example comprising 1.2kg grindstone type material curved profile just 20mm thick from Phase 4.2 disuse backfill of villa [249].
BEDL5 Blonde fine Upper Carboniferous sandstone probably recovered due west as nearest outcrops of Namurian sandstone lie 7km away and could belong to any number of sandstones from this group (e.g. Red Scar Grit).	White (blonde) fine sugary Carboniferous sandstone with flecks of iron oxide.	670 examples 7.5kg Used exclusively in white border tesserae in Phase 4.2 tessellated floor [212].

Figure 1: Listing of rock types, geological source, distribution and use at BALB14



1. Poor Quality Permian Magnesian Limestones BEDL1 mainly walling a few tesserae (41.7% wt).
2. Carboniferous Crinoidal Limestone BEDL2 walling (0.3% wt).
3. Sherwood Sandstone BEDL3 walling (0.1% wt).
4. BEDL4 Grindstone Unknown source gritty shelly sandstone (1.3% wt).
5. Blonde Carboniferous sandstone BEDL5 border tesserae (8% wt).
6. Tufa 3118 vaulting? (0.1% wt). 3116
7. Chalk 3116 rubble/plaster (0.1% wt)
8. Elland Flags-type Upper Carboniferous roofing, paving, border tesserae, ashlar (48.5% wt).

The retention policy for stone building material on site involved taking samples of different stone types used in surviving elements of wall and retaining a representative sample of all stone types encountered in the demolition deposits, as well as retaining all tesserae found in such deposits. A few small areas of tessellated floor surface survived in the corridoor of the villa; all of the tesserae were excavated and retained. This accounts for the large proportion of tesserae in the stone assemblage.

The roofing tile, paving stone and most of the border tesserae used in the villa (49% by weight) are comprised of hard fissile green micaceous Elland Flag more commonly identified today as York stone. This material has been identified before in Roman York (Gaunt & Buckland 2002, 135) for both roofing and paving with occasional examples used as tesserae. Outcrops are numerous along the Upper Carboniferous (Namurian) Coal Measures of the Pennines (Gaunt & Buckland 2002, 135) including an area west of Bedale and any one of these could have supplied the worked stone in the villa. However, given the proximity of Dere Street it is possible that the material could also have been brought up road via a depot in York.

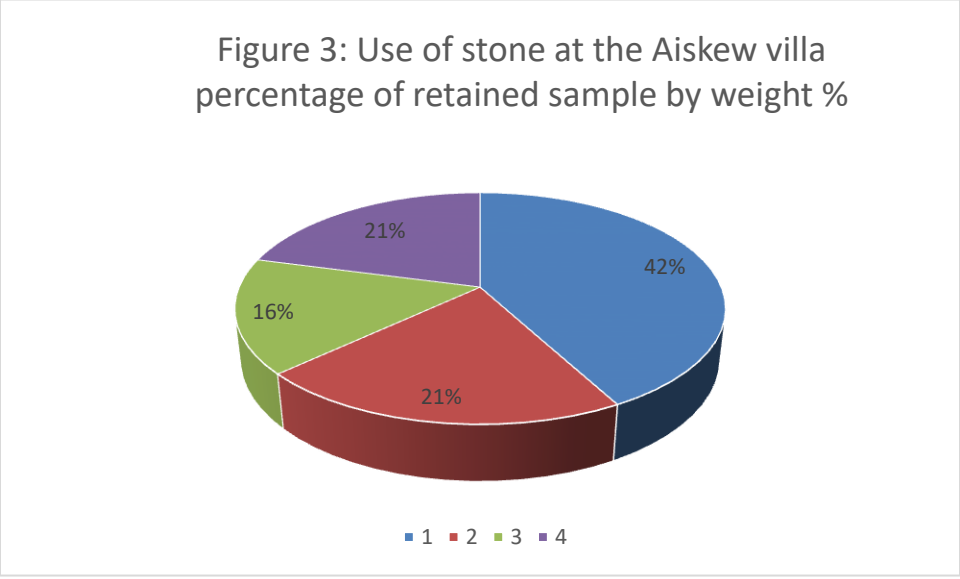
Approaching 40% of the sampled assemblage (nearly all of it walling) is comprised of Magnesian Limestone; a dense dolomitised concretionary carbonate that outcrops in the immediate vicinity of

Bedale. The use of stone for the villa walling in the immediate surroundings makes economical as well as practical sense.

Of the remaining 10%, most can be accounted for by 7.5kg of border tesserae using a white or blonde Upper Carboniferous sandstone. This, like the Elland Flags, could have come from the surrounding Upper Carboniferous rocks with the nearest outcrop just 7km to the west of the site. The remaining 3% consist of locally acquired low density Tufa possibly for vaulting and red Sherwood Sandstone. Carboniferous crinoidal limestone rubble was recovered that may have come from slightly further afield to the north, with an unusual gritty shelly sandstone present in a small grindstone fragment. Chalk may in fact be the furthest travelled material at 30-40km.

Function

By function (Figure 3) it is clear that the two key structural elements of roofing and walling construction (21% and 42% respectively) dominate the assemblage (wt %). Paving, possibly for the floor of the heated room above the hypocaust, is also common (16%). The fourth major group are the tesserae (21%). The high percentage of tesserae (21 % by weight) reflect the retention policy, with all examples being retained.



1= Walling material.
2= Roofing.
3= Paving.
4=Tesserae.

Roofing elements

In all there were 51 fragments (20.2kg) of worked stone defined by their thickness or having a nail hole as roofing material. Most came from a series of villa demolition debris [181], [249], [395] including one from

the area of the hypocaust. It is all of Elland Flag type from the Upper Carboniferous. This rock, which splits readily along regular laminae defined by muscovite mica, are ideal for the manufacture of roofing tile. Although no definable profiles could be determined because roofing collapse would have completely shattered the shape of these rather thin rigid materials, the average thickness is about 20mm. Nail holes, where present, are either very large circular forms, or chevron cut by a knife. Given the quantities of ceramic tegulae and imbrex it seems likely that both man-made and natural materials were used to roof the villa.

Paving elements

Elland Flags were also split into much thicker (30-45mm) paving elements. Quite a number of the 16 examples (15.4kg) were burnt suggesting use as a heated floor surface, although fire damage to the structure of the villa also needs to be considered here. One example had opus signinum attached to its underside.

Walling elements

Very large rectangular blocks (10-15kg) of locally acquired dense Magnesian Limestone typically 300mm across by 90mm thick formed substantial structural elements in the wall of the ([272] and [274]). These make up 14 examples comprising 40.5kg of the assemblage. Other materials, probably as infill rubble, include Crinoidal limestone, Elland Flags and Sherwood sandstone.

Tesserae

There were numerous (1619 examples comprising 20.1kg) large (25mm x 25mm x20mm) individual sub-rectangular border stone tesserae either from areas of *in situ* tessellated flooring [212], [213], and [214] or from demolition deposits. On first inspection it appeared that there were only two colours: a dark grey stone and red ceramic tile. However, fresh surfaces indicated that the entire tessellated floor from [212] was made of a white fine “blonde” sandstone from the Upper Carboniferous, with flooring from [213] and [214] dominated by the green Elland flags, supplemented by the occasional cream-yellow Magnesian limestone. In the absence of smaller design tesserae, these surfaces would have formed individual or intermixed tessellated zones of white sandstone and dark-grey/green Elland Flags with a few yellow dolomites and red tile.

Vaulting

The presence of low density tufa is an indication of vaulting in the villa, possibly in a heated domed structure. Locally acquired spring deposited Tufa forms part of the template of stone material types used in villa construction throughout the province.

Discussion and recommendations for further work

The worked stone assemblage from the Aiskew villa consists of the basic elements of villa construction; building stone, roofing tile, paving slabs and tessellated flooring supplemented with a fragment of potential vaulting and even a possible quern. No sculpture or stone-types suitable for fine intricate carving in architectural elements or sculpture were identified although this does not exclude the possibility that such elements once existed. In all, eight lithotypes were identified that perhaps reflect the intricate local Mesozoic and Late Palaeozoic stratigraphy of this part of North Yorkshire but also the proximity of excellent road and river links to places like York or Catterick that may have had stockpiles of suitable materials.

Elland flagstone normally associated with industrial paving slabs was the most abundant and versatile material type in the villa used in all of the roofing, paving and most of the villa. As expected the walling was made out of the local or underlying bedrock, in this case Magnesian dolomitic limestone.

This is the first time that the petrology of structural stone from a villa in Yorkshire has been examined in any great detail and for this reason alone a section on the stone types and function should be included in future publication. As much of the assemblage is in a fragmentary condition, very little needs to be illustrated. Also with such a gap in our knowledge of the types of stone used in mosaics, especially in pavements from the northern half of the province (Neal & Cosh 2002), I would recommend that a review of the findings contained here should also be incorporated into the text with a distribution map of the source of the rock types. Comparanda by stone-type in tessellated pavements and structural stone from adjoining villas may also help to establish a regional picture of stone use.

The possible millstone should be examined by a millstone specialist.

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APPENDIX 12

ASSESSMENT OF THE LATE IRON AGE AND ROMANO-BRITISH SMALL FINDS FROM SITES 58 AND 122 BEDALE, N. YORKS

Dr James Gerrard ACIFA FHEA
(Archaeology)
Centre for Interdisciplinary Artefact Studies
Newcastle University
James.gerrard@newcastle.ac.uk

Introduction

Sites 58 and 122 produced 142 and 239 individual finds respectively. The following report details their recording and assessment. It provides a brief discussion of the assemblages and provides a series of recommendations for publication.

Methodology

The finds have been recorded in an Excel spreadsheet based on the Pre-Construct Archaeology *Roman Small Finds Database*, which was originally developed by the author. A copy of the spreadsheet is held in the archive and a hardcopy print is provided as a table at the end of this report (Tables 4 and 5). Many of the iron objects were x-rayed for this assessment. Conservation of the objects recommended for illustration was undertaken by Karen Barker after this assessment of the small finds along with further x-rating of unstratified objects.

Finds have been identified using standard catalogues (Allason Jones and Miket 1984, Crummy 1983, Manning 1985) and functional categories have been assigned to each find using the scheme developed by Crummy (1983, v) (Table 1). This scheme is not without its difficulties (Cool and Baxter 2000, Crummy 2007). However, it is widely used and thus useful for inter-site comparisons of assemblages.

Assistance in the identification and quantification was provided by Masters students in Archaeology and Roman Frontier Studies at Newcastle University. These individuals include Emily Hails, Meghan King, Cameron Straughan, Octavia Kerr and Freya Redman. Their assistance is gratefully acknowledged and use has been made of their work where appropriate. All objects and identifications have been checked by the author.

Site 58

The Late Iron Age to Early Roman enclosure site produced 142 individual small finds in copper alloy, bone, antler, stone and iron. All of the items are catalogued in Table 4. The more interesting and significant objects are discussed below by functional category following Crummy (1983) (Table 1).

Excluded from this analysis is <317>: a modern gas tap. This should be discarded.

Personal adornments

<329> A complete (but missing its intaglio) copper-alloy finger-ring of Guiraud's (1989) Type 1b (Fig 1). Guiraud (1989 180) considers this to be an early Roman ring (100BC-100AD) form. There is,

however, no reason to presuppose a pre-Roman date for the use of this object and rings circulated as heirlooms long after their manufacture.

<139> A copper-alloy 'Colchester derivative' type brooch with pierced catchplate and sprung hinge. A rather commonplace brooch form and one that is probably best dated AD43-200 (Mackreth 2011).

There were also three brooch pins <141>, <169> and <331>, which might indicate further brooch use at the site.

The only other personal adornments were an incomplete bone hairpin with two reels beneath an ovoid bead <144> (Fig 2). This is a type not easily paralleled in Crummy's (1983) Colchester scheme, but perhaps finds its analogues closer to home in Allason-Jones and Miket's (1984, 73) South Shields Type E. If this form is related typologically to Crummy's (1983, 21) Type 2 a date before AD200 would be appropriate.

An attempt may have been made to drill a hole in a stone crinoid <184> to fashion it into a bead.

Toilet Instruments

The only possible toilet instrument was a copper-alloy spoon or spatula fashioned from a sheet of metal <322>. It has a slightly concave profile and a handle that expands in to an almost oval bowl. This is a rather crude object and its form has been difficult to parallel. It may be of local manufacture.

Household equipment

A small and fragmented bone spoon with an oval and slightly dished bowl and a slightly swollen handle end <323>. This item does not easily fit the known Roman spoon types. Early Roman spoons are sometimes felt to have round bowls and oval and lyre shaped bowls are usually considered to be late Roman (MacGregor 1985, 181).

Textile Working Equipment

Octavia Kerr writes (Fig 3): <102> is a very well preserved Iron Age weaving comb. The comb is approx. 164mm in length. The shaft is curved and is decorated with 10 dot-and-ring motifs alongside linear incisions. On either end of the butt there are two lines of cross-cross incisions. In between these are three double-circled dot-and-ring motifs, the middle of which is perforated. There are 14 teeth at the distal end of the weaving comb with irregular lengths alongside equally irregular inter-dentate incisions.

Dating to the Late Iron Age and Early Roman period, weaving combs are relatively common on both Roman and native sites throughout northern Britain. A similar example has been recovered from Catcote (Long 1988, 30) and from Faverdale (Proctor 2012). Weaving comb <102> also shares similar features as those found at other Iron Age sites. Five of the combs at Danebury show breakage and subsequent smoothing of the extreme left hand first and/or second teeth (Sellwood 1984, 375). This pattern can clearly be seen in the weaving comb from Bedale. It also exhibits a similar pattern as two of the weaving combs from Danebury in that the central teeth are substantially longer than those surrounding them (Sellwood 1984, 395). The suggestion that weaving combs were re-used and

refurbished can also be supported by the weaving comb from Bedale (Tuohy 2000: 143). In this example we can clearly see that the teeth have at some point in their use-life been re-cut further into the body shaft of the comb as demonstrated by the irregular inter-dentate incisions'.

Fragments of two other weaving combs were also discovered <338> (a perforated T-shaped head, decorated with ring and dot and two rows of notches) and <353> (a small broken fragment including teeth).

Other textile working equipment included a spindle whorl made from the femur head of an animal, probably cow. The object is approximately 40mm in diameter and with a central hole 9mm in diameter <111>. Similar objects are reported from Thorpe Thewles (Heslop 1987, 92) and Dragonby (May 1996, Fig 14.11). There was also a bone awl <357>.

Items associated with written communications

<156> is an incomplete bone stylus with a spatulate head (Allason Jones and Miket 1984, 48-50).

Objects Associated with Transport

<182> A so-called bone 'toggle' (Fig 4). This is a particularly fine example, split longitudinally. It is highly polished, barrel shaped and decorated with dot and ring and incised lines. Traces of copper staining are visible at one end. This is best paralleled by an object from a third-century deposit at Shiptonthorpe (E. Yorks) (Millett 2006, Illus. 10.6) and an example from Aldborough (Bishop 1996, Fig 3.4) which has the same form and is decorated with dot and ring (although not as finely executed). Similar finds are known from a range of sites (for instance Cool and Philo 1998, 283).

Bishop (1996, 6) argues strongly that this sort of object is a part of a bone cheekpiece for a bridle. He further suggests that these are a 'native', rather than 'Roman' object.

Tools

Three so-called 'serrated rib-bones' form an interesting group of tools <133>, <339> and <350>. These objects have a series of triangular notches or teeth cut into one side and are presumably a tool of some kind. A similar example was found in the *vicus* at South Shields (Snape *et al.* 2010, Fig 29), where a function as rasps, weaving tools and for cleaning animal skins were suggested. The examples from Dragonby (Lincs.) were thought to have been used to decorate pottery (May 1996, 363), a perhaps unlikely function at Bedale. Similar objects from the prehistoric periods in Central Europe are manufactured from scapulae. Functions suggested include leather working, processing meat, cord and decorating pottery (Luik 2013, 27).

Other evidence for tools include two bone tubular handles: <154> (Allason Jones and Miket 1984, 2.70), with evidence of iron tang surviving *in situ* and a more fragmentary example <349>.

An iron punch <345> survives in a corroded state but it is likely to have been used in metal working. It is of a form that is well paralleled in Manning's (1985, A22) catalogue.

Fixtures and Fittings

The only fixtures and fittings recovered were twenty five nails. The majority were poorly preserved or broken and ranged in size from 4mm to 25mm. Some of these fragmentary nails could have performed a structural function but the majority were probably too small and the assemblage, although within Roman norms (Manning 1985), contrasts with the group from Site 122. No attempt has been made to assign the nails to a typology but if this is warranted it should be undertaken prior to publication.

Items of military equipment

A copper-alloy mount <120> shares some similarities with military apron studs (Figs 5 and 6). The current example is rather plain but is paralleled by examples from Colchester (Crummy 1983, No. 4219) and South Shields (Allason Jones and Miket 1984, No. 879). It may be evidence of visits to the site by members of the Roman army.

Items associated with metalworking

Twenty-two items of copper-alloy and lead 'waste' were identified and are detailed in Appendix 3. The majority of this material is comprised of small lumps of molten metal that have solidified. There are also a small number of pieces of sheet, wire and bar. The presence of fragments of crucible (55 fragments in total from SF. 107, 128, 142 and 324), with traces of copper rich resides, together with possible copper alloy casting and working waste in the small finds assemblage suggest that copper alloys were being produced in the immediate vicinity (refer to metallurgical assessment Appendix 17).

It is difficult to determine exactly what this material means. In conjunction with the evidence of crucibles and slags (Appendix 17), it is clear that metal working took place on site. This evidence, in a Late Iron Age – Early Roman context is of regional significance.

Items associated with bone and antler working

A single piece of antler <352> is polished and has sawn ends, which suggests the working of skeletal materials on site. There is further evidence for this bone and antler working in the animal bone assemblage (Appendix 19).

Objects of unknown function

A number of objects (22) are of either indeterminate form or cannot be assigned to a specific function. These are all detailed in Table 4

The most significant of these items are three so-called 'pointed bone tools' of typical Iron Age form <351> <356> <358>. These are well-paralleled at a variety of sites, including Dragonby (May 1996, Fig 14.4) and Danebury (Cunliffe 1984, Fig 7.34).

There are also two copper-alloy bindings <328> and <346> as well as a variety of objects with fixing holes, that could be termed 'mounts'. The remaining objects form a miscellaneous group of amorphous and fragmentary objects.

Discussion

For a 'native' site from the north of England the assemblage is a large and extensive one. The beginning of activity can be placed in the Late Iron Age but occupation probably continued in this cultural milieu into the second century.

A number of themes can be identified within the assemblage and these are discussed below.

Production

The weaving combs, pointed bone 'tools', spindle whorl, serrated ribs and handles (for ?knives) all point to the site being engaged in textile and other forms of craft working, although there are no needles present. The evidence for bone (Appendix 19) and metal working is also particularly strong, especially when the evidence of the slags and crucibles is taken into account (Appendix 17).

Adornment and styling the body

The early Roman period is typically associated with a significant increase in the use of personal adornments and toilet implements. The Site 58 assemblage has a small number of personal adornments and no typical toilet instruments. The finger-ring is a purely 'Roman' type of object and the Colchester-derivative brooch is a typical object of the late first and second-centuries. However, it is an object with a generally southern distribution as the PAS database demonstrates. It is difficult to understand what this means in a definitive sense. We might tentatively speculate and suggest that some influences or people from the south of Britain were being felt at the site.

The virtual absence of hairpins might also be of significance. Perhaps the inhabitants of the site were not styling their hair in a Roman fashion.

Military and high status evidence

The only hint of military activity is a small copper-alloy apron mount. Given the early Roman chronology of the site and its proximity to Catterick and the main route north, the influence of the Roman army might be expected. Certainly it suggests that there was, for want of a better term, interaction at the site between soldiers and local inhabitants.

The bone stylus also suggests that some people at the site were maintaining literate records. This would suggest that at least one person at some point had the ability to be at the very least functionally literate and to use Roman style writing equipment.

The bone toggle is also an object which, when combined with the copper staining (possibly from other no longer extant bridle fittings), might be indicative of horse riding. This would presumably be an elite activity.

Structures

There is little evidence for structural fittings from the site. A small collection of nails suggest their use in wood-working and carpentry but there are few large examples. This might suggest that any structures on the site were built in an indigenous fashion and did not require the use of large quantities of nails (as were used at the Aiskew villa Site 122 below).

Recommendations

The small finds should be published in a comprehensive manner as part of any publication programme.

- The worked bone assemblage is of regional (and probably in context national significance) and as such should form part of the detailed comparison to other indigenous and Roman sites;
- Forty objects (detailed on the database) should be illustrated;
- The nails could be typologised but this should depend on the prioritization of resource;
- The serrated rib bones offer an opportunity to undertake use-wear analysis to determine their function. This should form part of any publication;
- A detailed discussion of the objects by phase should be provided. This will need to draw upon the final stratigraphic account of the site;
- The distribution of the objects should be studied to see if there is any evidence for spatial zoning of activities;
- Detailed comparison of the assemblage with other indigenous and 'Roman' sites should be undertaken to identify points of comparison;
- The objects should be deposited in a suitable museum or archive in an ordered and accessible fashion.

Site 122; the Aiskew villa

The villa site produced 239 small finds in bone, antler, stone, glass, copper alloy and iron. All of the items are catalogued in Table 5. The more interesting and significant objects are discussed below by functional category following Crummy (1983) (Table 1).

Excluded from this analysis are two modern finds: part of a shotgun cartridge <78> and a two inch modern nail <41>. Both should be discarded.

Objects of Personal Adornment

As is typical of most late Roman assemblages, objects of personal adornment form an important component. Fifteen objects can be assigned to this category. The majority of these items are hairpins <61>, <69>, <70>, <92>, <217> and <218>. Of these hairpins, two are of Crummy's (1983) Type 3 and two more of her Type 6 (both late Roman types). <218> is of Greep's (1995) Type A1 and <70> is simply a swollen shaft, missing its head. A late Roman date is perfectly reasonable for these objects.

The other objects include: a small trumpet brooch <2> (Mackreth 2011, Pl. 78.11830) of early Roman date and a 'northern' type; two fragments of jet (<94> and <204>) and one fragment from a shale bracelet <74>; a copper-alloy cable twist bracelet <27> and three beads. Of these, <74> is a tiny cylindrical example in jet (Allason Jones 1996, Type 9) and <392> (recovered from the 2009

evaluation) is a fragment from a greenish-blue melon bead (Guido 1978, Fig 37, 21-22). The other glass bead is a tiny annular example in a yellow glass (Guido 1978, 97-98). These have been discussed by Cool (2010, 293), who sees them as a late Roman form.

Textile working equipment

The textile working equipment includes two bone needles <213> and <214>, both of which are similar to examples from South Shields (Allason Jones and Miket 1994, 2.260). There are also fragments of six pottery spindle whorls <51>, <201>, <232>, <233>, <234>, 235>. All of these, with the exception of <233>, were made of local greyware. The exception is an OXF RS sherd and can be dated AD240-400+.

Household Equipment

A jet disc <366> 19mm in diameter with a central perforation is not easily paralleled in Allason-Jones' (1996) catalogue. Lindsay Allason-Jones kindly examined the piece and offers the following opinion (pers. comm.):

"Jet spindlewhorls in Roman Britain tend to be globular in the south of the province and flat in the Military Zone. However, the flat ones tend to be thicker than <366> with convex faces. I thus turned to Hagen (1937) where I found Taf. 33 (G5 from Metz; G9.1 from Cologne) and Taf. 34 (G11 from Tongeren) where very similar discs are used as spindlewhorls on jet spindles. This does not preclude the notion that it could be a washer from a lid or a dagger. However, I have now come to the conclusion that it is a spindlewhorl but of an odd type usually seen in Germany rather than Britain."

Items associated with recreation

The only example was a single bone counter of gaming piece <7> with a concave upper surface and flat bottom. It exhibits a central lathe mounting point. This is a typical form well attested at other sites (for instance Crummy 1983, No. 2256).

Items associated with writing and literacy

A single iron stylus <71> is badly corroded. Examination of the x-ray shows that it is of Manning's (1985) Type 4 and has a band of decoration, probably inlaid.

Items associated with transportation

A single fragment, the head of a linchpin <238> of Manning's (1985) type 1b, attests to the presence of wheeled vehicles at the site. Linchpins are reasonably common finds.

Tools

The only tools recovered were fragments of four iron knives <34>, <50>, <53>, <87>. They were of Manning's (1985) types 4, 11b, 16 and 11a respectively and could have been used for a variety of household or agricultural tasks.

Fixtures and fittings

A small and generally typical assemblage of iron fixtures and fittings was recovered (Manning 1985). <37> a pintle is evidence for the hanging of a door. Double-spiked loop <240> and loop headed spike <198> could have performed a variety of functions. Two iron rings <97> and <255> are also typical finds. They could have fulfilled any number of purposes from aiding in chaining up a dog to being cart fittings. A T-shaped clamp (Manning 1985, R71) is a structural fitting used to secure timbers.

A more interesting object is a corroded iron bar topped by an almost mushroom shaped finial <97>. The length of this object (103mm) suggests that it was used to secure something. If it was more robust (it is 20mm square) then a function as a linchpin might be plausible. Lindsay Allason-Jones (pers. comm.) has suggested that it might have been used as a fitting for a piece of composite furniture. This is possible, although the finial seems to indicate that the bar was designed to be drawn out using the mushroom-shaped head.

Nails

182 nails were recovered from the villa excavations. They existed in a variety of states but were in general quite well preserved. Complete, bent and fragmentary examples are all represented in the assemblage. No detailed classification of these nails using typologies like those developed by Manning (1985) or Rhodes (1977) was undertaken for this assessment and this should form a component of any publication if warranted.

The average nail length was 55.62mm with examples ranging in size from 10mm to 100mm. These measurements are all within the norm for Roman period nails (Rhodes 1991, Fig 83 and 94). Evidence for the extraction of nails was noted and also the bending over of the nail tip for safety's sake. This is noted in the small finds database and might be usefully compared with interpretations of specific deposits (extracted nails, might for instance, indicate deposits associated with demolition).

Items associated with metal working

A single fragment of lead is the only evidence for metalworking <97>. The low temperature working of lead is typical for most Roman period sites.

Items associated with bone, antler and horn working

Two fragments of antler tine <230> and <231> and two fragments of work bone <83> and <212> provide evidence for bone working at the site. Greep (2015) has drawn attention to late Roman bone working on an industrial scale at South Shields, so its presence at Bedale should occasion little surprise. More evidence is likely to be found amongst the animal bone assemblage.

Items of unknown function

A large iron ring 145mm in diameter and an articulated double-spiked is an interesting and, because of its size, an unusual find. The size of the ring is large enough to be comparable to elements used to articulate cauldron chains (Manning 1983). The presence of what seems to be a double-spiked loop would, however, suggest that this is a very large structural fitting. What its function was is, however,

unknown. Smaller double-spiked loops and rings were used for a variety of purposes. We might also note the reuse of cauldron chains, as at Tarrant Hinton in Dorset (Graham 2006, 60-62 and 160-161), and reserve the possibility that an element from such an object has been reused.

The remaining ten objects of unknown function are all corroded iron items. Some may be fixtures or fittings.

Discussion

In many respects the assemblage is typical of that recovered from a late Roman villa (Table 3). There is, for instance, no evidence of any economic specialisation in the assemblage. The personal adornments, textile working equipment and fixtures are normal and what might be anticipated. The large number of nails is typical for a Roman period site. Some of them exhibit evidence for extraction and suggest that some timbers may have been salvaged or reused. Other fixtures and fittings are typical for Romano-British sites and indicate the presence of buildings.

It is a little surprising that the only tools recovered were knives. That said, the small area excavated may explain the absence of other tool types. Larger tool assemblages were recovered from both Beadlam (Neal 1996, 52-57) and Ingleby Barwick (Willis and Carne 2013, 111-120), although this pattern is skewed by the presence of ironwork hoards at both sites.

The stylus suggests a literate population and the counter, if used as a counter and not as a gaming piece, might also indicate record keeping and accountancy. Villa culture was at least partially based on the notion of *paideia*, of which literacy and education played an important role (for instance Gerrard 2013). These two objects are the only indication of the literate culture that the inhabitants of the site may have engaged with.

The linchpin is an indicator of wheeled transport. Ox-carts must have been a commonplace feature of agricultural life and would have enabled the inhabitants to move bulky commodities along the roads and tracks of the region.

The large iron ring and double-spiked loop is an interesting if enigmatic object. If it is part of a cauldron chain then this might be of significance, given the special significance of cauldrons during the Roman period (Cool 2006, 48-50).

Recommendations

The assemblage is an important contribution to the growing corpus of small finds from late Roman villas in the north of England. Given the potential for identifying regional differences between assemblages, artefacts types and patterns of usage it is fair to say that the collection is of national importance.

- A full and comprehensive report on the small finds should be an integral part of any publication.
- Thirty six objects (detailed on the dabatase) should be illustrated.

- A detailed discussion of the objects and their distribution (spatially and temporally) should be an integral part of the publication. This will require access to the final stratigraphic text.
- The finds should be compared with other villa and non-villa assemblages of the same date in the region and beyond
- The objects should be deposited in a suitable museum or archive in an ordered and accessible fashion.
- The nails could be typologised but this should depend on the prioritization of resource.

Fig 1 Copper-alloy finger-ring <329> [2413] (Photo by Emily Hails)

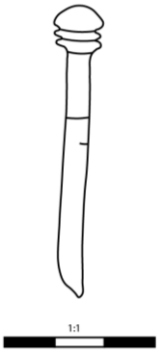

Fig 2 Bone hairpin fragment <144> [2359], drawn by Octavia Kerr

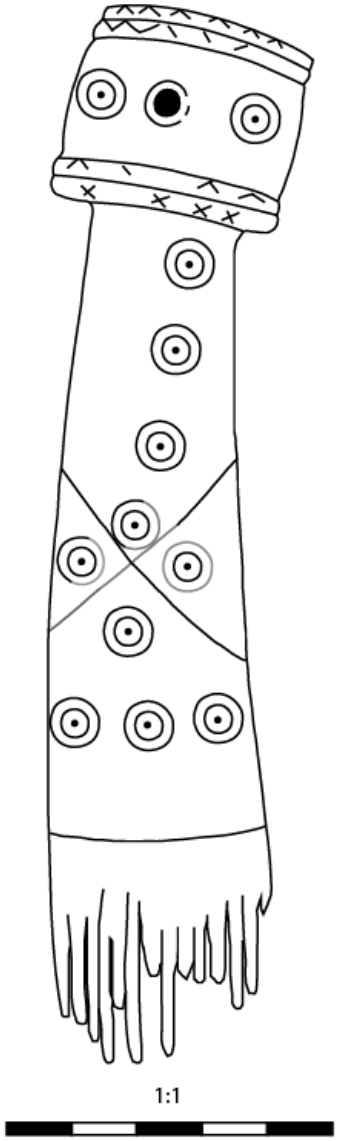

Fig 3 Weaving comb <102> [2022], drawn by Octavia Kerr

Fig 4 Bone or antler ‘toggle’ <182> [2357]

Fig 5 Possible military apron mount <120> [2070] (photo by Emily Hails)

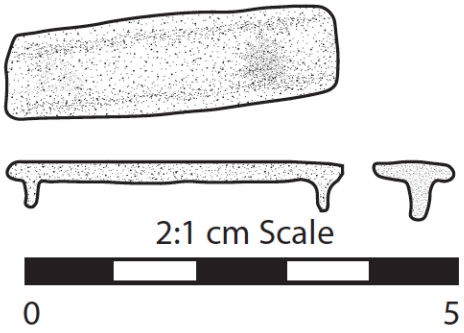

Fig 6 Drawing of military apron mount <120> [2070], drawn by Emily Hails

Category Number	Description
1	Objects of personal adornment or dress
2	Toilet, surgical or pharmaceutical instruments
3	Objects used in the manufacture or working of textiles
4	Household utensils and furniture
5	Objects used for recreational purposes
6	Objects employed in weighing and measuring
7	Objects used for or associated with written communications
8	Objects associated with transport
9	Buildings and services
10	Tools
11	Fasteners and Fittings
12	Objects associated with agriculture, horticulture and animal husbandry
13	Military equipment
14	Objects associated with religious beliefs and practices
15	Objects and waste material associated with metalworking
16	Objects and waste material associated with horn and bone working
17	Objects and waste material associated with pottery working
18	Objects of unknown function

Table 1: Crummy's (1983, v) functional categories for the analysis of small finds.

Functional Category	Number of objects
1	7
2	1
3	5
4	1
5	0
6	0
7	1
8	1
9	0
10	8
11	25
12	0
13	1
14	0
15	22
16	1
17	0
18	22

Table 2: The number of objects from each of Crummy's (1983, v) functional categories for Site 58.

Functional Category	Number of objects
1	14
2	0
3	8
4	1
5	1
6	0
7	1
8	1
9	0
10	4
11	189 (182 nails)
12	0
13	0
14	0
15	1
16	4
17	0
18	15

Table 3: The number of objects from each of Crummy's (1983, v) functional categories for Site 122.

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Site 58 Small Finds Table 4												
SF	Context	Material	ID	Length	Width	Depth	Diam	Type	Date	Comments	Functional Category	Illustrate
15	2382	Fe	Nail	45			9			Corroded nail shank incomplete	11a	No
17	2092	Fe	Nail	30			8			Corroded nail shank incomplete	11a	No
30	2040	Fe	Nail	24			5			Corroded nail shank incomplete	11a	No
58	U/S	Fe	Fe obj	30			6			Fe obj	18	No
101	2003	Fe	Fe obj	70			10			Fe obj	18	No
102	2022	Antler	Weaving comb	160	35	18				Weaving comb. The shaft leans from left to right and is decorated with 10 dot-and-ring motifs alongside a transverse linear incisions and a two crossed incisions. On either end of the butt there are two lines of transverse incisions. In between these are three double-circled dot-and-ring motifs, the middle of which is perforated. There are 14 teeth at the distal end of the weaving comb with irregular lengths alongside equally irregular inter-dentate incisions.	3	Yes
106	2058	Cu	Sheet	25	22	0.1				Small, roughly square piece of corroded sheet.	18	No
110	2074	Cu	Wire	20		1				Tiny piece of wire	18	No
111	2075	Bone	Spindle Whorl			40				The top half of a ball joint, perforated centrally with a hole 9mm in diameter	3	Yes
112	2092	Cu	Waste	12	3	3				Small piece of solidified molten waste	15	No
113	2092	Cu	Pin	45	1	1				Piece of wire or possibly unfinished pin	15	Yes
114	2092	Cu	Ball				1			Tiny solidified molten sphere	15	No
115	2092	Cu	Sheet	2	2	1				Tiny sheet frag	15	No
116	2092	Cu	Wire	40		0.1				Piece of wire, bent into an 'L' shape	18	No
118	2092		Fe Obj	60	25	20				Fe Obj	18	No
120	2070	Cu	Mount	38	12	1		Colchester 4219; S Shields 879		This appears to be of a similar form to the various 'military' apron mounts or studs, although it is much plainer than most.	13	Yes
122	2003	Fe	Pin / Fitting	103			10			Corroded pin or bolt with a 'mushroom' shaped head. This handle, visible on the x-ray was clearly intended to allow the shaft to be pulled and drawn from	11	Yes

										something. It is too slender to be a linchpin. Identification unknown.		
124	2128	Cu	Mount	18	3	1				Small piece of copper-alloy with fixing hole	18	Yes
129	2161	Fe	Fe obj	60	25	5				Fe obj	18	No
130	2169	Fe	Object	25	40	1				Three frags of Fe sheet. Indeterminate form.	18	No
131	2168	Fe	Fe obj	35	22	5				sub-triangular Fe Obj	18	No
133	2041	Bone	Serrated rib bone	102	18	5		Dragonby 134		Broken at each end. One side as triangular teeth forming a line of serrations	10	Yes
134	0	Fe	Fe obj	60	40					Fe obj (poss. Tang and part of blade of a trowel?)	18	No
135	2188	Fe	Nail	50			6			Corroded nail shank incomplete	11a	No
137	2289	Pb	Waste	18	7	1				Two frags of lead waste	15	No
138	2289	Cu	Waste	12	8	2				Piece of solidified molten waste	15	No
139	2022	Cu	Brooch	52				Colchester Derivative	43-200	A complete but rather plain Colchester derivative brooch. Perforated catchplate and sprung hinge	1	Yes
140	2040	Cu	Strip	34	2	1				Thin sub rectangular strip - probably waste	15	No
141	2034	Cu	Brooch pin	25	1	1				Broken brooch pin	1	No
143	2341	Cu	Object	3	2	1				Small piece of copper alloy	18	No
144	2359	Bone	Hairpin	67						Incomplete hairpin, Two reels beneath an ovoid bead. Transverse cuts on shaft, which is ever so slightly swollen.	1	Yes
145	2359	Fe	Fe obj	26			5			Fe obj	18	No
146	2359	Cu	Bar	46	3	5				Bar	15	No
147	2295	Fe	Fitting?	100	5	10				L shaped fitting. No fixing holes, but possibly intended to bind something. Incomplete and broken at either end.	18	Yes
148	2359	Cu	Mount	21	10	1				Small mount. Possibly a strap end. Has two rivets and is incomplete.	18	Yes
149	2295		Fe Obj	30			5			Fe Obj	18	No
150	2347	Cu	Sheet	20	15	1				Three small pieces of sheet, one with fixing hols	18	No
152	2369	Cu	Sheet	38	20	1				Irregularly shaped piece of sheet. Waste	15	Yes

153	2369	Cu	Waste	11	12	2				Piece of solidified molten waste	15	No
154	2369	Bone	Knife handle	101			20	South Shields 2.70		A tubular knife handle perforated by a longitudinal hole. The handle end expands slightly, the knife end contains remnants of an iron tang.	10	Yes
156	2347	Bone	Stylus	62		3				incomplete bone stylus with spatulate head	7	Yes
157	2365	Cu	Waste	12			7			Small, truncated cone shaped lump. Waste.	15	No
158	2357	Cu	Waste	44	12	12				Piece of solidified molten waste	15	No
159	2357	Fe	Nail	30			8			Corroded nail shank incomplete	11a	No
160	2357	Fe	Nail	70			9			Corroded nail head and part of shank Incomplete	11a	No
162	2369		Fe Obj	60	20	10				Fe Obj sub-triangular	18	No
163	2369		Fe Obj	60	10	85				Fe Obj in 3 pieces	18	No
164	0	Cu	Object	6	1	1				Small, comma shaped piece of copper alloy. Unknown function, fragmentary	18	No
165	2357		Fe Obj	60	30	15				Fe Obj in 4 pieces	18	No
166	0	Fe	Nail	30			7			Corroded nail shank incomplete	11a	No
167	2365	Fe	Nail	45			10			Corroded nail shank incomplete	11a	No
168	2365	Cu	Waste	14	20	3				A small fragment of solidified molten waste	15	No
169	2389	Cu	Brooch pin	39	1	1				Small, curved brooch pin	1	Yes
171	2356	Cu	Waste	5	2	1				Small piece of solidified molten waste	15	No
172	2356	Cu	Mount	11	3	1				Small, almost figure of eight (broken at one end) shaped mount, with fixing hole	18	Yes
173	2356	Fe	Fe obj	20			5			Fe obj	18	No
174	2356	Cu	Waste	11	6	3				Small piece of solidified molten waste	15	No
175	2356	Cu	Ball				4			Small copper ball. Solidified molten waste?	15	No
176	0	Cu	Waste	13	6	1				Small piece of solidified molten waste	15	No
177	0	Cu	Waste	20	2	1				Small, curved, cylindrical piece of copper waste	15	No
178	2410		Fe Obj				12			Sub-spherical Fe Obj	18	No
179	0	Fe	Fe obj	17	10	3				Fe obj	18	No
181	2357	Cu	Bar	91	3	2				Long, thin, roughly rectangular sectioned bar, with hammering marks. A stage in	15	Yes

										manufacturing a piece of wire etc?		
182	2357	Bone	Toggle or bridle bit	82	20	9		Allason-Jones, Shiptonthrope No 185. Citing Castleford and Finds from Aldborough	Late C3 at Shipton thorpe	A piece of bone, finished and polished. Barrel-shaped: tapers at either end from a waist. The piece has been divided by scored lines into two rectangular panels. These have then been halved to produce four quarters. The upper and lower limits of the rectangles have been defined by a border of tiny squares. The upper left and lower right quarters are filled with two rows of well-executed dot and ring decoration. Cu staining at one end. The piece is split longitudinally and a hole has been cut in transversely in the middle of the object. Edges of hole have been polished.	8	Yes
184	2412	Stone	crinoid							Natural, an attempt to drill it from both ends to make a bead?	1	Yes
185	2408	Fe	Fe obj				7			sub-spherical fe obj	18	No
186	2408	Fe	Nail	35			10			Corroded nail head and part of shank Incomplete	11a	No
187	2408		Fe Obj	20	10	5				Fe Obj	18	No
188	2408	Fe	Fe obj	40	25	5				Fe obj	18	No
189	2408		Fe Obj	15	10	5				Fe Obj	18	No
190	2408	Fe	Fe obj	45	40	6				sub-triangular Fe Obj	18	No
191	2408		Fe Obj	20	10	5				Fe Obj	18	No
192	2033	Fe	Fe obj	25			6			Fe obj	18	No
193	2033		Fe Obj	30	15	5				Fe Obj in 2 pieces	18	No
194	2033	Cu	Waste	13	12	1				Small squarish lump of solidified molten waste	15	No
195	2033	Fe	Fe obj	12			6			Fe obj	18	No
196	2033	Cu	Waste	21	8	4				Piece of solidified molten waste	15	No
197	2033		Fe Obj	30	20	10				Fe Obj	18	No
198	2033	Fe	Loop headed spike	108	20	20				Badly corroded. Appears from X Ray to be loop headed spike	11	Yes
199	2033	Fe	Nail	20			7			Corroded nail shank incomplete	11a	No
300	2033	Fe	Nail	25			6			Corroded nail head and part of shank	11a	No

										Incomplete		
302	2040		Fe Obj	35	15	10				Fe Obj	18	No
303	2040		Fe Obj	30	20	5				Fe Obj	18	No
304	2028		Fe Obj	30	30	10				Fe Obj in 2 pieces	18	No
305	2028	Fe	Nail	80			15			Corroded nail complete	11a	No
306	2028		Fe Obj	25	15	10				Fe Obj	18	No
307	2369	Pb	Waste	12	12	2				A roughly triangular shaped piece of lead, rounded and with two cut marks on one side	15	No
308	2369	Fe	Nail	50			7			Corroded nail shank incomplete broken into two parts incomplete	11a	No
309	2369		Fe Obj	25	15	10				Fe Obj	18	No
310	2369		Fe Obj	20	10	8				Fe Obj	18	No
311	2369		Fe Obj	15	8	5				Fe Obj	18	No
312	2369	Fe	Nail	10			5			Corroded nail shank (tip?) incomplete	11a	No
313	2369	Fe	Nail	30			10			Corroded nail head and part of shank Incomplete	11a	No
314	2369	Fe	Nail	25			4			Corroded nail shank (tip?) incomplete	11a	No
315	2369		Fe Obj							Fe Obj in multiple pieces	18	No
316	2369	Fe	Nail	100			7			Corroded nail complete - bent	11a	No
317	2369	Cu	Gas tap						PMED	Discard		No
318	2369		Fe Obj	50	10	5				Fe Obj	18	No
319	2369	Fe	Fe obj	25			4			Fe obj (poss. Nail shank bent at tip?)	18	No
320	2369	Fe	Fe obj	45			4			Possible nail shank?	18	No
321	2369	Fe	Nail	55			25			Corroded nail head and part of shank Incomplete	11a	No
322	2369	Cu	Spatula	102	8	1				A spatula / spatulate spoon. Manufactured from a single piece of Cu alloy it has a straight handle, slightly concave in profile. The handle expands to a sub-circular dished bowl. Difficult to parallel	2	Yes
323	2369	Bone	Spoon	130					oval form perhaps felt to be late Roman	fragmented spoon. Bowl is oval and slightly dished. The handle is fragmented into five pieces, probably on excavation. The handle's end is swollen.	4	Yes

									McGregor?			
325	2417	Fe	Buckle	30	5	5				Corroded iron ?buckle frame. Is this Roman?	1	Yes
326	2385	Fe	Fe obj	30	40	20				Fe obj - buckle ? In two pieces	18	No
326	2385	Fe	Fe obj	20	15	10				Fe obj - buckle ? In two pieces	18	No
327	2385	Fe	Fe obj	15	15	5				Fe obj	18	No
328	2385	Cu	Binding	60	4	2				Edge binding.	18	Yes
329	2413	Cu	Finger-ring	28	25		18	Guiraud Type 1b	Early Roman	Rounded finger-ring, with oval sunken bezel for the mounting of a now missing intaglio	1	Yes
330	2413	Bone	Object	43	14	4				Small fragment of worked bone. It appears to be broken longitudinally across two drilled holes (which survive as semi-circular openings). The break is almost straight. The top of the object is point and the side parallel to the break is convex. The bottom o f the object is flat.	10	Yes
331	2413	Cu	Brooch pin							Extremely fragmented and corroded brooch pin	1	No
333	2362	Fe	Fe obj		30		5			Fe loop/ring frag	18	No
335	2294	Fe	Nail	30			12			Corroded nail head	11a	No
336	2294		Fe Obj	45	35	15				Fe Obj	18	No
337	2369	Cu	Mount	32	10	1				Small mount with fixing hole	18	Yes
338	2028	Bone	Weaving comb	42	23	6				Head of a small and incomplete bone weaving comb. T shaped head with possible evidence of a perforation. Decorated with dot and ring and two panels of notches.	3	Yes
339	2255	Bone	Serrated rib bone	81	25	5		Dragonby 134		Fragment of rib bone, sawn at one end broken at the other. About half of one side has triangular notches forming a series of seven teeth or serrations	10	Yes
341	2036		Fe Obj	30	10	8				Fe Obj	18	No
342	2033	Fe	Bar	25	8	2				Small piece of iron, possibly a bar	18	No
343	2022	Bone	Handle	70	22	25				Sawn metapodial. Other end is broken. Interior has been hollowed out to presumably form a handle	10	Yes

345	2022	Fe	Punch	100	15	15		Manning A22		Corroded punch. Roughly square sectioned with signs of hammering at top. Pointed at other end.	10	Yes
346	2369	Cu	Binding?	39	7	1				Small fragment of binding, or perhaps rim?	18	Yes
347	2369	Bone	Inlay?	60	26	5				A rectangular shaped piece of bone, fractured at one end. The piece is worked smooth and has slightly convex sides and a convex profile. There is a raised circular area near the end 4mm in diameter. This seems to run through the piece.	18	Yes
348	2393	Fe	Object	54	9	3				Corroded strap	18	No
349	2347	Bone	Handle	32	20	6				Fragment of a small probably tubular handle. The end of the handle is partially preserved. It is just possible that this might be a small toggle. Too fragmentary to be certain.	10	Yes
350	2029	Bone	Serrated rib bone	116	25	3		Dragonby 134		Length of rib bone. Broken at each end. At one end there are traces of a number of teeth and a 4-5 faint incisions	10	Yes
351	2092	Bone	Toggle/pointed tool	82	15	15		Dragonby 55		A pointed bone object of triangular form and profile, with a perforation through one side at the widest end.	18	Yes
352	2092	Antler	Waste	52	30	12				Fragment of antler waste. Polished smooth on its exterior surfaces. The ends are not cut straight. Probably waste.	16	Yes
353	2058	Bone	Weaving comb	40	22	15				Small fragment of weaving comb. Seven broken teeth survive.	3	Yes
354	2359	Bone	Object	65	22	10				Bone object, flattened on the back and rounded at one end, broken at the other. Two holes drilled through the object.	18	Yes
355	2359	Bone	Object	60	10	7				A cylindrical bone object fragmented at either end. At one end the lower part of a sub-rectangular hole pierces the object. This suggests it might be a toggle or pointed tool, but the fact the other end is damaged makes an identification	18	Yes

										uncertain.		
356	2359	Bone	Toggle/pointed tool	60	12	10		(Carlisle for unperforated examples)		A pointed bone object of tapering cylindrical form. Two horizontal triangular profiled cuts made on either side overlie a perforation	18	Yes
357	2075	Bone	Awl	68						Small, complete awl. A narrow point at one end of the shat. The other end has an almost diamond-shaped expansion. Probably an awl.	3	Yes
358	2075	Bone	Toggle/pointed tool	73	13	10				A pointed bone object with triangular shape and an off centre perforation	18	Yes
359	2359	Fe	Nail	35			4			Corroded nail shank	11a	No
360	2033	Fe	Nail	60			8			Corroded nail shank	11a	No
109a	2058	Fe	Nail	35			8			Corroded nail shank incomplete	11a	No
109b	2058	Fe	Nail	52			8			Corroded nail shank incomplete	11a	No
132a	2152		Fe Obj	40	15	10				Fe Obj	18	No
132b	2152		Fe Obj	20	15	10				Fe Obj	18	No
154b	2369	Fe	Blade frags?							Three pieces of iron sheet, badly corroded. Possibly blade frags? Assoc with bone handle 154a	18	No
161a	2351	Fe	Fe obj	40	30	5				Fe obj	18	No
161b	2351	Fe	Fe obj	20	30	5				Fe obj	18	No
161c	2351	Fe	Fe obj	25	15	5				Fe obj	18	No
340a	2028	Fe	Nail	20			10			Corroded nail head incomplete	11a	No
340b	2028	Fe	Nail	30			15			Corroded nail shank incomplete	11a	No

Site 122 Villa Small Finds Table 5

SF	Context	Material	ID	Length	Width	Depth	Diam	Type	Date	Comments	Functional Category	Illustrate
2	110	Cu	Brooch	40				Mackreth Pl 78.11830	100-300 (probably 2nd-century)	Small trumpet brooch. Complete, moulding and hinged pin. Corroded	1	Yes
4	U/S	Fe	Nail	60			5			Corroded nail complete	11a	No
5	U/S	Fe	Nail	65			6			Corroded nail complete	11a	No
367	EVAL	Bone	Counter or gaming piece				16			Bone counter with a concave upper surface and central lathe mounting point. Lower surface is flat. In two pieces. From evaluation		Yes
57	U/S	Fe	Nail	55			4			Corroded nail complete	11a	No
8	U/S	Fe	Nail	35			6			Corroded nail shank incomplete - tip bent over	11a	No
9	U/S	Fe	Nail	64			5			Corroded nail complete	11a	No
10	U/S	Fe	Nail	60			5			Corroded nail complete - tip bent over	11a	No
11	U/S	Fe	Nail	50			5			Corroded nail head and part of shank Incomplete	11a	No
12	U/S	Fe	Nail	55			5			Corroded nail complete	11a	No
13	U/S	Fe	Nail	35			5			Corroded nail head and part of shank Incomplete	11a	No
14	U/S	Fe	Nail	40			5			Corroded nail shank incomplete	11a	No
15	U/S	Fe	Nail	65			6			Corroded nail shank incomplete - bent	11a	No
16	U/S	Fe	Nail	60			5			Corroded nail complete	11a	No
17	U/S	Fe	Nail	50			5			Corroded nail head and part of shank Incomplete	11a	No
18	U/S	Fe	T Clamp	58	45	10		Manning R71		A t clamp with anchor shaped head	11	Yes
19	U/S	Fe	Nail	80			6			Corroded nail complete - bent and tip bent	11a	No
20	U/S	Fe	Nail	45			5			Corroded nail complete	11a	No
21	U/S	Fe	Nail	46			6			Corroded nail head and part of shank Incomplete	11a	No
22	U/S	Fe	Nail	70			2			Corroded nail complete - bent	11a	No
23a	U/S	Fe	Nail	70			6			Corroded nail complete	11a	No
23b	U/S	Fe	Nail	70			6			Corroded nail complete	11a	No
23c	U/S	Fe	Nail	75			6			Corroded nail complete	11a	No
23d	U/S	Fe	Nail	45			4			Corroded nail head and part of shank Incomplete	11a	No
23e	U/S	Fe	Nail	30			5			Corroded nail head and part of shank Incomplete	11a	No
23f	U/S	Fe	Nail	30			7			Corroded nail head and part of shank Incomplete	11a	No
23g	U/S	Fe	Nail	70			8			Corroded nail shank incomplete	11a	No
23h	U/S	Fe	Nail	60			8			Corroded nail shank incomplete	11a	No
24	U/S	Fe	Sheet	110	40	1				A piece of iron sheet. Vaguely reminiscent of a knife and tang. Uncertain date?	18	No
26	220	Fe	Nail	70			8			Corroded nail complete	11a	No
27	249	Cu	Bracelet	60			2			Cable twist bracelet, covered in soil. Wrist diameter c. 50mm	1	yes
28a	249	Fe	Nail	50			6			Corroded nail shank incomplete - bent	11a	No
28b	249	Fe	Nail	60			5			Corroded nail shank incomplete - bent	11a	No
28c	249	Fe	Nail	55			6			Corroded nail complete	11a	No
29	221	Fe	Nail	45			5			Corroded nail head and part of shank Incomplete	11a	No
30a	235	Fe	Nail	45			5			Corroded nail head and part of shank Incomplete	11a	No
30b	235	Fe	Nail	80			7			Corroded nail complete	11a	No
32	U/S	Fe	Object							Cone like with finial. Needs Xray but unstrat.	18	No
33	256	Fe	Nail	100			10			Corroded nail complete	11a	No

34	247	Fe	Knife	168	20	3		Manning type 4		A knife or razor, complete	10	Yes
36	167	Fe	Nail	64			7			Corroded nail head and part of shank Incomplete	11a	No
37	167	Fe	Pintle	155	19	18				Complete pintle	11	Yes
38	249	Fe	Nail	50			7			Corroded nail shank incomplete	11a	No
39	249	Fe	Nail	30			6			Corroded nail head and part of shank Incomplete	11a	No
40a	249	Fe	Nail	30			6			Corroded nail shank incomplete	11a	No
40b	249	Fe	Nail	60			6			Corroded nail complete - tip bent over	11a	No
41	249	Fe	Nail							Modern 2 inch nail Recommend discard	11a	No
42a	249	Fe	Nail	48			5			Corroded nail shank incomplete	11a	No
42b	249	Fe	Nail	30			6			Corroded nail shank incomplete	11a	No
42c	249	Fe	Nail	60			8			Corroded nail head and part of shank Incomplete	11a	No
42d	249	Fe	Nail	30			6			Corroded nail head and part of shank Incomplete	11a	No
43	249	Fe	Nail	45			6			Corroded nail shank incomplete	11a	No
44a	249	Fe	Nail	65			8			Corroded nail complete	11a	No
44b	249	Fe	Nail	45			6			Corroded nail head and part of shank Incomplete	11a	No
45	249	Fe	Nail	25			5			Corroded nail shank incomplete - bent	11a	No
46	249	Fe	Nail	50			7			Corroded nail head and part of shank Incomplete	11a	No
47	249	Fe	Nail	45			6			Corroded nail head and part of shank Incomplete	11a	No
48	249	Fe	Nail	55			6			Corroded nail shank incomplete	11a	No
49	249	Fe	Nail	70			7			Corroded nail complete	11a	No
50	264	Fe	Knife	247	24	3		Manning 16	long lived'	Almost complete. Small piece from tip missing	10	Yes
51	167	Pottery	Spindlewhorl			33				Cat G1, hole 6mm diam	3	Yes
52a	249	Fe	Nail	55			6			Corroded nail complete - bent	11a	No
52b	249	Fe	Nail	50			5			Corroded nail complete - bent	11a	No
52c	249	Fe	Nail	55			6			Corroded nail complete	11a	No
52d	249	Fe	Nail	45			7			Corroded nail shank incomplete - bent	11a	No
52e	249	Fe	Nail	35			7			Corroded nail shank incomplete - bent	11a	No
52f	249	Fe	Nail	30			5			Corroded nail shank incomplete	11a	No
52g	249	Fe	Nail	35			7			Corroded nail head and part of shank Incomplete	11a	No
52h	249	Fe	Nail	22			4			Corroded nail shank (tip?) incomplete	11a	No
52i	249	Fe	Nail	15			10			Corroded nail head	11a	No
52j	249	Fe	Nail	10			6			Corroded nail head?	11a	No
53	249	Fe	Knife	120	21	2		Manning 11b		Tang and handle of knife. Broken about a third of the way along the blade	10	Yes
55a	167	Fe	Nail	65			6			Corroded nail complete - bent	11a	No
55b	167	Fe	Nail	60			8			Corroded nail shank incomplete - bent	11a	No
56a	249	Fe	Nail	45			5			Corroded nail complete	11a	No
56b	249	Fe	Nail	45			4			Corroded nail complete	11a	No
56c	249	Fe	Nail	50			7			Corroded nail complete	11a	No
56d	249	Fe	Nail	50			7			Corroded nail complete	11a	No
56e	249	Fe	Nail	50			5			Corroded nail complete	11a	No
56f	249	Fe	Nail	30			6			Corroded nail head and part of shank Incomplete - bent	11a	No
56g	249	Fe	Nail	50			7			Corroded nail head and part of shank Incomplete - bent	11a	No
56h	249	Fe	Nail	25			6			Corroded nail head and part of shank Incomplete	11a	No

56i	249	Fe	Nail	30			7			Corroded nail shank incomplete	11a	No
56j	249	Fe	Nail	70			8			Corroded nail shank incomplete - bent	11a	No
57a	181	Fe	Nail	35			6			Corroded nail complete - tip bent over	11a	No
57b	181	Fe	Nail	40			6			Corroded nail complete	11a	No
57c	181	Fe	Nail	40			5			Corroded nail complete	11a	No
57d	181	Fe	Nail	40			6			Corroded nail complete	11a	No
57e	181	Fe	Nail	88			7			Corroded nail complete	11a	No
57f	181	Fe	Nail	50			9			Corroded nail head and part of shank Incomplete	11a	No
58	284	Fe	Nail	60			7			Corroded nail complete - bent	11a	No
59	181	Fe	Nail	60			6			Corroded nail shank incomplete	11a	No
60	206	Fe	Nail	40			6			Corroded nail shank incomplete	11a	No
61	181	Bone	Hairpin	61				Crummy 3	200-400	Head of an incomplete hairpin	1	Yes
62	181	Fe	Nail	65			7			Corroded nail complete	11a	No
63	206	Fe	Nail	80			6			Corroded nail complete	11a	No
66a	185	Fe	Nail	55			6			Corroded nail complete	11a	No
66b	185	Fe	Nail	55			7			Corroded nail complete - tip bent over	11a	No
66c	185	Fe	Nail	60			5			Corroded nail complete - tip bent over	11a	No
66d	185	Fe	Nail	55			7			Corroded nail shank incomplete - bent	11a	No
67a	185	Fe	Nail	75			7			Corroded nail complete	11a	No
67b	185	Fe	Nail	40			5			Corroded nail shank incomplete - tip bent over	11a	No
67c	185	Fe	Nail	75			7			Corroded nail shank incomplete - tip bent over	11a	No
67d	185	Fe	Nail	45			7			Corroded nail head and part of shank Incomplete - bent	11a	No
67e	185	Fe	Nail	35			5			Corroded nail complete	11a	No
67f	185	Fe	Nail	55			7			Corroded nail complete - tip bent over	11a	No
68a	185	Fe	Nail	67			7			Corroded nail complete	11a	No
68b	185	Fe	Nail	45			6			Corroded nail complete	11a	No
68c	185	Fe	Nail	55			5			Corroded nail complete	11a	No
68d	185	Fe	Nail	42			8			Corroded nail head and part of shank Incomplete	11a	No
68e	185	Fe	Nail	45			9			Corroded nail head and part of shank Incomplete	11a	No
68f	185	Fe	Nail	36			8			Corroded nail head and part of shank Incomplete	11a	No
68g	185	Fe	Nail	40			6			Corroded nail head and part of shank Incomplete	11a	No
68h	185	Fe	Nail	30			7			Corroded nail head and part of shank Incomplete	11a	No
68i	185	Fe	Nail	50			8			Corroded nail complete - bent	11a	No
68j	185	Fe	Nail	60			7			Corroded nail complete - bent	11a	No
68k	185	Fe	Nail	65			8			Corroded nail complete - bent	11a	No
68l	185	Fe	Nail	31			5			Corroded nail shank incomplete	11a	No
69	311	Bone	Hairpin	81				Crummy 6	200-400	Complete except for perhaps 2mm of tip. Bead with reel above, topped by a little bead	1	Yes
70	309	Bone	Hairpin	71					Roman	Swollen hairpin shaft, missing tip and head	1	No
71	309	Fe	Stylus	90	4	4		Manning Type 4		Badly corroded stylus. Decoration visible on x-ray ?inlay?	7	Yes
72a	185	Fe	Nail	70			8			Corroded nail shank incomplete - bent	11a	No
72b	185	Fe	Nail	70			6			Corroded nail complete	11a	No
72c	185	Fe	Nail	65			7			Corroded nail complete	11a	No
72d	185	Fe	Nail	50			5			Corroded nail complete	11a	No

72e	185	Fe	Nail	80			8			Corroded nail complete	11a	No
73	350	Fe	Nail	70			7			Corroded nail shank incomplete	11a	No
74	249	Shale	Bracelet	31	4	5		Greyhound Yard 60		Incomplete fragment	1	Yes
75	249	Glass	Bead	2	1	1		Prob. Guido Fig 13, see discussion pg 97-98 See also Lankhills	250-400	Tiny slightly yellowish glass annular bead	1	Yes
76	249	Jet	Bead	7			1	Lindsay Allason Jones No. 9		Tiny cylindrical jet bead decorated with concentric grooves. From Sample 10	1	Yes
77a	311	Fe	Nail	75			8			Corroded nail complete	11a	No
77b	311	Fe	Nail	80			7			Corroded nail shank incomplete	11a	No
79a	307	Fe	Nail	83			7			Corroded nail complete	11a	No
79b	307	Fe	Nail	60			8			Corroded nail complete	11a	No
80	200	Fe	Nail	40			5			Corroded nail shank incomplete	11a	No
81	176	Fe	Nail	45			50			Corroded nail complete - bent	11a	No
83	176	Bone	Waste or inlay	29	4	3				A small fragment of roughly squared bone. Probably working waste	16	No
84	345	Fe	Nail	85			9			Corroded nail head and part of shank Incomplete	11a	No
85	350	Fe	Objects							An iron bar and an iron strap	18	
86a	350	Fe	Nail	70			10			Corroded nail shank incomplete	11a	No
86b	350	Fe	Nail	100			10			Corroded nail complete - bent	11a	No
86c	350	Fe	Nail	60			7			Corroded nail shank incomplete - bent	11a	No
86d	350	Fe	Nail	70			8			Corroded nail complete - bent	11a	No
87	350	Fe	Knife	185	41	2		Manning 11a	no evidence to suggest it is an early type'	Almost complete, tip missing	10	Yes
88a	305	Fe	Nail	30			18			Corroded nail head	11a	No
88b	305	Fe	Nail	35			10			Corroded nail head and part of shank Incomplete	11a	No
88c	305	Fe	Nail	60			10			Corroded nail shank incomplete	11a	No
89a	305	Fe	Nail	45			15			Corroded nail shank incomplete	11a	No
89b	305	Fe	Nail	40			17			Corroded nail shank incomplete	11a	No
90	350	Fe	Nail	70			8			Corroded nail complete	11a	No
91	350	Bone	Hairpin/Needle Shaft	42					Roman	Slightly swollen	1 or 3	?
92	350	Bone	Hairpin	82				Crummy 3	200-400	Near complete	1	Yes
93	371	Fe	Ring				60	Manning S49		An iron ring ext. diam 60mm, int 32	11	No
94	0	Jet	Bracelet	17	5	3		Lindsay Allason Jones No 83		Incomplete, Slender, probably plain armlet	1	Yes
95	350	Bone	Hairpin/ Needle point	49					Roman	Very fine, unswollen	1 or 3	?
96	U/S	Fe	Nail	60			7			Corroded nail shank incomplete – bent, from evaluation trench	11a	No
96	U/S	Fe	Nail	80			10			Corroded nail complete - bent , from evaluation trench	11a	No
97	350	Lead	Waste	25	11	3				Small piece of solidified molten lead	15	
98	350	Fe	Nail	30			5			Corroded nail complete	11a	No
99	315	Fe	Ring and double				145			A large iron ring 145mm in diameter and articulate double spiked loop. Possibly a structural fitting, or possibly part of a cauldron chain.	18	Yes

			spiked loop									
200	350	Fe	Nail	80			7			Corroded nail complete - bent	11a	No
201	350	Pottery	Spindlewhorl				27			Cat Greyware, hole 5mm diam	3	Yes
202	350	Fe	Nail	30			6			Corroded nail shank incomplete	11a	No
203	350	Fe	Nail	55			10			Corroded nail complete - bent	11a	No
204	292	Jet	Bracelet	22	10	8		Lindsay Allason Jones No. 72		Fragment of cabled armlet	1	Yes
212	395	Bone	Waste or inlay	75	8	4				Roughly shaped and pointed piece of bone	16	?
213	395	Bone	Needle	65	13	3		South Shields, 2.260		Incomplete spatulate headed pin. Similar to E Med pig fibula pins. Approximate parallels at S Shields, Carlisle & Catterick Fig 317.	3	Yes
214	395	Bone	Needle	61	14	3		South Shields, 2.260		Incomplete spatulate headed pin. Similar to E Med pig fibula pins. Approximate parallels at S Shields, Carlisle & Catterick Fig 317.	3	Yes
215	395	Bone	Hairpin/Needle point	39					Roman	Very fine	1 or 3	?
216	395	Bone	Hairpin/Needle point	34					Roman	Very fine	1 or 3	?
217	395	Bone	Hairpin	37				Crummy Typ 6		A difficult to parallel (not Colc, Cant, S Shields, Cat, Carlisle, Beadlam, Wallsend) hairpin fragment. The head is formed of a rough ball shape topped by a simple pointed shaft. The ball, unlike the bead and reel type, is no wider than the shaft. There is a possibility that this is an unfinished Crummy type 2 BUT it would appear to have been polished.	1	Yes
218	395	Bone	Hairpin	46				Greep 1995 A1	100-400	Incomplete hairpin. Has a flat head and is undecorated. Not easily paralleled by Crummy or South Shields. Possible unfinished.	1	Yes
230	395	Antler	Tine	75	19	19				Sawn fragment of tine	16	Yes
231	395	Antler	Tine	136	25	19				Sawn fragment of tine	16	Yes
232	395	Pottery	Spindlewhorl				36			Greyware, sherd with obtuse lattice and central hole 5mm in diameter	3	Yes
233	395	Pottery	Spindlewhorl				26		240-400+	OXF RS? Sherd. Two scored lines on one side, hole 5mm diam. Lost slip	3	Yes
234	395	Pottery	Spindlewhorl				37			Cat greyware, hole 7mm diam. Incomplete	3	Yes
235	395	Pottery	Spindlewhorl				26			Cat greyware hole 6mm diam. Incomplete	3	Yes
238	395	Fe	Linchpin	71	42	11		Manning 1b		Head of a spatulate headed linchpin	8	Yes
239	395	Fe	Rod	88			4			Iron rod	18	?
240	395	Fe	Double spiked loop	32	3	3				A tiny, slender double spiked loop. In two frags.	11	?
241	395	Fe	Strip	50	5	2				A rectangular iron strip	18	No
242	395	Fe	Object	58						Badly corroded object	18	
243	206	Fe	Object	40	45	3				An irregular iron object	18	No
244	206	Fe	Nail	70			7			Corroded nail complete	11a	No
245	288	Fe	Nail	55			7			Corroded nail shank incomplete	11a	No
246	395	Fe	Nail	36	10	10				Corroded nail. Complete	11a	No
247	395	Fe	Object	60			9			Bent rod of iron.	18	No
248	395	Fe	Object	70			8			Curved section of rod. Probably a nail shaft missing head and tip, possibly a ring	18	No
249a	395	Fe	Nail	40			10			Corroded nail head and part of shank Incomplete	11a	No
249b	395	Fe	Nail	35			12			Corroded nail head and part of shank Incomplete	11a	No
250a	395	Fe	Nail	40			6			Corroded nail shank incomplete - bent	11a	No
250b	395	Fe	Nail	30			5			Corroded nail shank incomplete - bent	11a	No
250c	395	Fe	Nail	40			6			Corroded nail shank incomplete - bent	11a	No

250d	395	Fe	Nail	35			8			Corroded nail shank incomplete - bent	11a	No
250e	395	Fe	Nail	50			6			Corroded nail shank incomplete - bent	11a	No
250f	395	Fe	Nail	50			20			Corroded nail shank incomplete	11a	No
250g	395	Fe	Nail	27			3			Corroded nail shank incomplete	11a	No
250h	395	Fe	Nail	30			7			Corroded nail shank incomplete	11a	No
250i	395	Fe	Nail	45			8			Corroded nail shank incomplete	11a	No
250j	395	Fe	Nail	50			7			Corroded nail shank incomplete	11a	No
250k	395	Fe	Nail	43			5			Corroded nail shank incomplete	11a	No
250l	395	Fe	Nail	35			6			Corroded nail shank incomplete	11a	No
250m	395	Fe	Nail	40			10			Corroded nail shank incomplete	11a	No
250n	395	Fe	Nail	30			7			Corroded nail shank incomplete	11a	No
250o	395	Fe	Nail	38			6			Corroded nail shank incomplete	11a	No
250p	395	Fe	Nail	55			10			Corroded nail shank incomplete	11a	No
251a	395	Fe	Nail	65			7			Corroded nail complete - tip bent over	11a	No
251b	395	Fe	Nail	45			5			Corroded nail complete - tip bent over	11a	No
251c	395	Fe	Nail	30			6			Corroded nail complete - tip bent over	11a	No
251d	395	Fe	Nail	45			6			Corroded nail complete - tip bent over	11a	No
251e	395	Fe	Nail	45			7			Corroded nail complete - tip bent over	11a	No
251f	395	Fe	Nail	40			7			Corroded nail complete - tip bent over	11a	No
251g	395	Fe	Nail	45			7			Corroded nail complete - bent	11a	No
251h	395	Fe	Nail	55			9			Corroded nail complete	11a	No
251i	395	Fe	Nail	60			9			Corroded nail complete	11a	No
252a	395	Fe	Nail	55			8			Corroded nail complete - tip bent over	11a	No
252b	395	Fe	Nail	52			8			Corroded nail complete - tip bent over	11a	No
252c	395	Fe	Nail	55			8			Corroded nail complete - tip bent over	11a	No
252d	395	Fe	Nail	55			8			Corroded nail complete - tip bent over	11a	No
252e	395	Fe	Nail	53			8			Corroded nail complete	11a	No
252f	395	Fe	Nail	60			7			Corroded nail complete	11a	No
253a	395	Fe	Nail	70			8			Corroded nail complete	11a	No
253b	395	Fe	Nail	60			12			Corroded nail complete - tip bent over	11a	No
253c	395	Fe	Nail	70			8			Corroded nail complete - tip bent over	11a	No
253d	395	Fe	Nail	55			9			Corroded nail head and part of shank Incomplete	11a	No
253e	395	Fe	Nail	60			7			Corroded nail shank incomplete - bent	11a	No
254a	395	Fe	Nail	70			12			Corroded nail shank incomplete - bent	11a	No
254b	395	Fe	Nail	85			15			Corroded nail shank incomplete - bent	11a	No
254c	395	Fe	Nail	90			9			Corroded nail complete	11a	No
255	350	Fe	Ring				40			A small fragment of an iron ring. Approx 50%	11	No
366	39	Jet	Bead				19			Circular bead? Reel like disc with a central hole. From sample 5, evaluation.	4	Yes
392	63	Glass	Bead	12	7	6		Guido Fig 37, 21-22	1-250	Fragment of greenish blue glass melon bead. From evaluation	1	Yes
368	U/S	Fe	Nails							7 nails, some quite large. From evaluation	11a	No
369	U/S	Fe	Nails							2 nails. From evaluation	11a	No
370	WB	Fe	Nails							2 nails. From evaluation	11a	No

APPENDIX 13

LITHIC ASSESSMENT

Barry Bishop

Introduction

The archaeological investigations conducted at the above site resulted in the recovered of three pieces of struck flint or chert. This report describes the assemblage, assesses its archaeological significance and recommends any further work needed for the material to achieve its full research potential.

All metrical descriptions follow the methodology established by Saville (1980)

Description

SF394 unstratified

Complete flake of coarse-grained black chert in a slightly chipped condition. It has an edge-trimmed striking platform 14mm wide by 5mm deep, a slightly pronounced bulb of percussion and a feathered distal termination. Its dorsal surface is composed of at least five flake scars, all struck from the same direction as the flake. It measures 38mm x 27mm x 8mm.

SF127 Context [2154], backfill of Roman enclosure ditch

Barbed and tanged arrowhead of Green's (1980) Sutton, probably C, type made from translucent, slightly mottled brownish grey flint. It has a squared tang but the tips of both barbs have broken off, although they appear to have originally been pointed. It is well made with all-over almost parallel invasive retouch and has straight, slightly serrated sides. It measures 31mm x 22mm (estimated) wide and is 7mm wide.

SF334 Context [2362], backfill of Roman enclosure ditch

Proximal end of what is almost certainly a prismatic blade. It is in a slightly chipped condition and has white recortication but has subsequently broken, revealing it to be of translucent light grey flint. Finely edge trimmed, almost abraded striking platform 2mm wide by 1mm deep and a diffuse bulb of percussion. Its dorsal is formed from four parallel flake scars, all struck in the same direction as the blade. There are possible use-wear traces along its left

margin but this cannot be confirmed due to the possibility of post-depositional damage. It measures >20mm x 13mm x 5mm

Discussion

The three struck pieces represent a diverse group and all were recovered from Roman or later contexts, indicating they were residually deposited.

The two pieces from the enclosure ditch are both made from fine-grained flint which can be found in the form of pebbles and small cobbles within the local glacial tills or as reworked material from alluvial deposits (e.g. Henson 1985; Young 1984). The unstratified flake is made from a matt black coarse-grained chert. Macroscopically similar raw materials can be found at a number of locations across northern Britain but this perhaps most likely originates from chert bearing limestones located within the adjacent parts of Pennines (e.g. Evans *et al.* 2007; Preston 2013).

The assemblage was made during a number of different periods. The blade from the enclosure is the product of a systematic reduction strategy that can be dated to the Mesolithic or Early Neolithic periods. The arrowhead is a diagnostic marker of the Early Bronze Age, these being most commonly associated with Beaker or Food Vessel style pottery (Green 1980, 129-130) and are dated to c. 2300BC - 1500BC (Green 1984, Table 1). Although often used as funerary goods, the majority of barbed and tanged arrowheads are found as stray finds and this may well represent a hunting loss. The chert flake is not so easily dated although it was competently detached from an extensively reduced core, which would indicate a broad date somewhere between the Mesolithic or Early Bronze Age

Significance and Recommendations

The struck assemblage indicates low level flint use at the site, at least during the Mesolithic/Early Neolithic and the Early Bronze Age. Unfortunately, the small size of the assemblage and lack of associated contextual associations mean that its interpretational potential is limited and no further metrical or technological analyses are warranted. However, the assemblage does have the potential to contribute to wider understanding of prehistoric activity and landscape use in the area, and a brief description, which can largely be based on this report, should therefore be included in any published accounts of the excavations.

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APPENDIX 14

ASSESSMENT OF QUERNS AND MILLSTONE

D H Heslop

Introduction

Site 58 and Site 122 produced a total of five grinding stones and two fragments of basalt which are almost certainly from grinding stones. The group is fairly typical of material from Hambleton and Richmondshire, and demonstrates the importance of agriculture in the subsistence economy.

Assemblage Summary

Site 58 Enclosure

1 Saddle Quern (SF 332; CTXT2362): Drum-shaped saddle quern, substantially complete in light grey, fine-grained Jurassic sandstone

2 Beehive quern, upper stone (SF 104; CTXT 2084): Substantially complete beehive quern, prob Millstone Grit.

3 Lava fragment (Ctxt 2408): Medium grey basalt presumably from rotary quern

Site 122 Villa

4 Beehive quern base (SF210; CTXT 446) in fine-grained brown-grey sandstone, possibly Jurassic.

5 Collared beehive quern base (SF 1; CTXT 122) in grey-brown, fine-med grained sandstone.

6 Millstone ?top-stone (SF 395; CTXT 3), Millstone Grit (Evaluation).

7 Lava fragment (CTXT 283): Medium grey basalt presumably from rotary quern.

Assessment of the assemblage

The group form an important assemblage which sheds light on the dating, subsistence economy and ideology of the community. The material is from features which are securely dated and have produced a wide-range of other artefacts which provide a fully-rounded picture of activity on the site.

The saddle quern is a relatively rare example of a well-stratified saddle from a late Iron Age site, exhibiting a light degree of wear that hints that the object may have been deposited shortly after acquisition.

Beehive querns were in common currency in the two centuries before and after the Roman Conquest of the north. The group displays a variety of geological provenance, with possibly two coming from the Jurassic quern factories on the North Yorkshire Moors to the east, and one from the Yorkshire Dales to the west. One of the bases is of an unusual form, distributed in Wharfedale, Craven and north Richmondshire.

The millstone has a large diameter and must have come from a mechanically-driven mill. The use of the double-feedpipe is unusual, and most commonly associated with the cereal supply of the Roman military garrison. It is of Millstone Grit, which has been imported over a distance of at least 20km.

Quernstone Catalogue

Site 58 Enclosure

1 Saddle Quern SF 332 [2362]

Drum-shaped saddle quern, substantially complete but with edges removed on two, opposite, sides presumably to turn a roughly oval form into a more circular plan. This has been done after initial use, and not as part of production process, as the hammered working on the main body is not evidently on the removed edges. 312mm x 295mm; max ht 125mm, min 104mm. The form has been shaped with coarse hammering to create the general shape, without any secondary tooling. The grinding surface is slightly concave; max concavity 8mm on one axis but only 3mm on the other. The surface has been worn smooth. There is some ferruginous staining on the g/f but not on the outer body or fractures.

Light grey, fine-grained Jurassic sandstone, with pink veins and patches spread through the rock. Well-sorted and rounded, occasional fossils, possibly a Crinoid Grit. Poor to moderate milling properties. Wt. 16.0 kgs

2 Beehive quern, upper stone SF 104 [2084]

Substantially complete beehive quern, very heavily and asymmetrically worn, having lost 95mm of body on one side. Diam 313mm; ht 221mm. The form is upright, having the bullet-shaped profile typical of Wharfedale beehive querns. Two large facets are missing from the sides, done in antiquity. The straight-sided, flat-bottomed hopper, 121mm wide x 87mm deep, is markedly asymmetrical in respect to the feed-pipe. The base of the feed-pipe has been widened on opposite sides of the main channel, to create an exit aperture which is roughly S-shaped. In all there have been three successive seats for the spindle. The grinding face is well-worn and concave, max concavity, 9mm. The outer surface has very regular tooling across most of the surface but is absent in places where the patina of the original surface is extant, showing that the object is a utilized boulder. The tooling looks to be worked in rough lines – under the lip this almost looks like the start of working for a collar. The outer part of the grinding surface (approx. 50mm wide) has been worn smooth, the inner section has been either re-dressed, or has retained its natural abrasive surface with use.

Light grey-brown coarse grained sandstone, probably Millstone Grit. Moderately sorted and rounded, no inclusions or fossil pits. Wt. 15.5 kgs.

3 Lava frag, presumably from rotary quern [2408]

Small (90mm x 32mm x 20mm) fragment of medium grey basalt with small black inclusions. No diagnostic features and all surfaces worn/eroded. The lava is not vesiculated but is turbulently-bedded and friable. Lithology similar to the lava fragment from Site 122N (no. 7).

Site 122

4 Beehive quern base Site 122V SF210 [44

Approximately 40% of beehive base, split through the spindle, but this section is less than half of the total. Apart from a small modern chip, there is no other damage. Slightly oval plan, diam max approx 310mm, min approx. 285mm. The overall form is roughly hemispherical but it has been made from a utilized boulder, which is not symmetrical. The spindle socket is small and round-profiled, 16mm in diam, and 11mm deep. The outer surface is regularly tooled with a large round-tipped hammer, except for one face of the original boulder where the patina is extant. The grinding face is very smooth in a narrow band around the outer edge, rougher towards the centre.

Fine-grained brown-grey sandstone, possibly Jurassic. Well sorted and rounded, densely bedded, no larger inclusions or fossil pits. Occasional flecks of mica. Bands of iron staining run through the rock. Wt. 7.2 kgs.

5 Beehive quern base Site 122N SF 1 [122]

80% complete, but only about 1/3rd of the circumference survives - the rest has been removed in a series of facets around the collar. The base is the collared or waisted form, described as Type 7 in the author's corpus of querns from northern Yorkshire and southern Durham (Heslop 2008, 42), having a wide waist with a narrow base. Diam approx. 340mm; ht 124mm. The form is carefully sculpted using a large, round-headed hammer to give a regularly pecked surface, but like No 2 above, has part of the outer surface where the original boulder surface is unworked. The basal facet, to create a stable base, looks to be part of the original surface, fractured along a bedding plane. The grinding face is very slightly convex, and has been worn smooth, but it has a concentration of peck-marks, 50mm across, 35mm from the spindle. There is some sooting or burning on the surface but not on the fractures or the exterior surface. The spindle socket is small and narrow; U-shaped with a round base, only 14mm across and 16mm deep.

Light grey-brown, fine to medium grained sandstone, prob Jurassic, well sorted, poorly rounded. No fossils or inclusions. Moderate milling properties, having a tendency to polish with use. Wt. 9.5 kgs.

6 Millstone (Evaluation)

Fragment (380mm x 270mm x 79mm) of large diameter millstone, probably from top-stone, judging from the slope of the outer wall, and from a possible part of original surface on the internal fracture. This has a worked surface and the slight kick-out in the wall which suggests it is broken through the aperture of a double-feed pipe upper stone. the diameter is in the region of 800 – 900mm. The outer surface is regularly but coarsely tooled with a large-tipped hammer, i.e. with a point over 20mm across. The sloping out wall is 58mm long. The grinding face is slightly convex, without tooling but with a post-use hole of unknown function cut into the face.

Coarse grained sandstone. cf Millstone Grit. Medium grey, poorly rounded and sorted with moderately frequent angular quartz inclusions, up to 10mm across. Wt 9.8 kg.

7 Lava fragment, presumably from rotary quern Site 122N SF396 [283]

Small (30mm x 21mm x 9mm) fragment of medium grey basalt. No original surfaces extant. The lava is unvesiculated, but with occasional small black inclusions. Similar in general characteristics to the lava fragment from Site 58 (No 3, above).

Discussion

The site has a full range of later prehistoric and early Romano-British corn grinding equipment, assuming that the small fragments of lava recovered from [2408] (Site 58 enclosure) and [283] (Site 122N) represents Mayen lava querns. The group is typical of quern assemblages in the region, and can be compared to the large and growing group from Catterick, some 9km to the north.

The overlapping currencies of the saddle, beehive and lava rotary querns could mean that they may have been in use at the same, rather than chronologically sequential. Beehive querns are usually dated to the two centuries either side of the turn of the millennium, the dating data is biased towards later dates. Earlier examples may lie undated, but later strata are usually recognised by other, more-chronologically sensitive finds, e.g. Romano-British pottery and coins, as in the early fort horizons from Castleford (Buckley and Major 1998, 243). Moreover, querns are long-lived items, prone to re-use in secondary contexts. In northern England, there are no known examples of lava querns pre-dating the Roman conquest.

The material is lithologically typical of assemblages recorded to the west of the North Yorkshire Moors which are dominated by the fine and medium grained sandstones of the Jurassic formations and Yoredale Sandstones and Millstone Grits from the Yorkshire Dales.

The beehive topstone has an upright form, quite similar to an example from nearby Street House Farm, Brampton, 8km NE of the site, which is also in Millstone Grit (Yorkshire Quern Survey 649, Heslop 2008, 101). Features on the quern are paralleled at Red House Farm, Kirklington-cum-Upsland, Hambleton, 14km south: YQS 766 has a hopper showing similar asymmetrical drilling, and a second topstone from the same farm, YQS 765, has a faint incised groove, just below the hopper lip, suggesting the intention to embellish the rim with a collar (Heslop 2008, Fig 48); the example from the Bedale enclosure has a pecked line in the same position.

One of the base stones from north of the villa site is an interesting “waisted” form – Base type 7 in Heslop 2008. Among the generality of bases with slack forms and poor sculptural finishing, a group with well-crafted collars or waists stands out, in displaying a geographical clustering. They have been recorded in Wharfedale (examples in Ilkley Museum) Craven and North Richmondshire, with seven examples being catalogue in the 2008 corpus. The “champagne-cork” shape suggests the base sits in a socket in the ground, with only the well-sculpted collar being visible. This example forms an outlier to the distribution, being 28 km from the nearest findspot - at Hargarth Farm, Newbiggin, Bishopdale (YQS 1327). The fact that most of the Type 7 in Craven and Richmondshire, like 1327, are in Millstone Grit, show that the form is not necessarily the product of a single factory, but could be copied in other lithologies – in the Aiskew example, in a fine-grained sandstone, probably from the North Yorkshire Moors.

The presence of the millstone in a coarser grained Millstone Grit suggests a more intensive system of cereal production was employed at the villa site. Present research is suggesting that rotary querns over 500mm are likely to be millstones and this example is between 800 and 900mm (the circumference is not a consistent curve). The Aiskew example has a possible D-shaped double hopper, which is being recognised on a number of millstones in Northern England. The type is associated with the supply of the northern garrison.

Miscellaneous Stone Objects

8 Whetstone Site 58 SF 393 evaluation

Small sub-rectangular-sectioned whetstone of olive-grey siltstone or similar. Surface polished smooth, but the face has been eroded or chipped away, particularly on one side, exposing the underlying irregular body of the rock. The extant end has been rounded with use as a rubbing stone or for polishing.

9 Whetstone Site 58 SF 105 [2029]

Possible whetstone in light grey-green, fissile, micaceous laminated siltstone. The object is probably a glacial erratic of irregular form, but it does appear to have a concave wear surface on the upper face, max concavity 3mm, suggesting it has been collected and used for sharpening or polishing small objects.

10 Burnt river pebbles Site 58 SF 123 [2045]

Unworked broken river pebble, in a fine-grained, micaceous sandstone, presumably derived from the sub-soil or from a nearby stream. Shattered by heating/cooling.

11 Five broken river pebbles evaluation

Unworked broken river pebble, in a dense metamorphic lithology, probably from the glacial drift, deposited into a nearby stream. Shattered by heating/cooling.

Recommendations

The quernstone group merits publication. The detailed catalogue should be included in both the site archive, and in the Yorkshire Archaeological Society North of England Quern and Millstone database.
Five of the group (1, 2, 4, 5 & 6) merit drawing to publication standard.
It is also recommended that the millstone SF. 395 is sent to an appropriate millstone specialist for further analysis along with a possible millstone that was submitted to the stone specialist for examination (see Appendix 11).

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APPENDIX 15

THE ROMAN COINS

James Gerrard

Four late Roman coins were recovered from Site 122 (the villa). This is a small number, but the recently excavated villa at Ingleby Barwick produced only 19 coins (Willis and Carne 2013, 100) and Rudston only 42 coins (Stead 1980, 128). Other northern villas, such as Dalton Parlours (87 coins: Wrathmell and Nicholson 1990, 75) and Beadlam (331 coins: Neal 1996, 63-96) have produced longer coin lists. It is difficult to know whether this is a facet of archaeological recovery, ancient coin use, site function or even the types of excavated deposits.

SF 3 [+] Unstratified

OBV: CONSTAN-[TINVS] AVG

REV: PROVIDEN[-TIAE] AVGG [S/[F]//ARL[P]. Camp gateway with two turrets and star above.

Diameter: 21mm; OBV wear: UW; REV wear: UW

Date: AD327

Reference: RICVII (Arles), 309

SF6 [+] Unstratified

OBV: [GALLIENVS] AVG

REV: SOLI [CONS AVG]. Winged horse.

Diameter: 20mm; OBV wear: W; REV wear: SW.

Date: AD260-268

Reference: RICV(i) (Gallienus), 282; Cunetio 1337.

SF65 [206]

Heavily corroded and illegible third-century *antoninianus* or fourth-century *nummus*. Diameter: 12mm.

SF63 [185]

Heavily corroded and illegible third-century *antoninianus* or fourth-century *nummus*. Diameter: 11mm.

Recommendations

The coins should be included in any published account of the excavations.

It would be worth cleaning both coins. SF3 and SF6 would both make a nice specimens for display if cleaned and SF63 and SF65 might reveal details allowing it to be more closely dated. In this case we might note that it is from a stratified context and might have utility as dating evidence.

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APPENDIX 16

ASSESSMENT OF THE GLASS FROM THE ENCLOSURE (SITE 58) AND AISKEW ROMAN VILLA (SITE 122)

Sally Worrell

Introduction

The glass assemblage comprises 32 Roman vessel fragments, two Roman glass objects and four fragments of post-medieval/early modern glass.

The Roman glass fragments were heavily fragmented, but it was possible to identify a very interesting range of forms.

The late post-medieval/early modern glass was mass-produced for bottles and tableware.

Roman glass

A total of 34 glass fragments (including 2 beads) were found during the archaeological excavation and watching brief at the Roman villa (Site 122) and enclosure (Site 58). Roman glass fragments were not frequent finds, but although these fragments are not numerous, an interesting range of vessel forms is represented in the excavated assemblage from the Aiskew villa.

The vessel forms represented are from a series of 1st-4th century forms. Of particular interest is a decorated base from a square blue/green storage bottle ([459] SF211, a handle fragment from a bottle ([354], SF237) which date 43-200 AD. Other storage vessels include a base fragment from a globular flask dating from the mid/late 3rd century ([307] SF258) and fragments from a thin-walled greenish/colourless jug/jar dated 2nd-mid 3rd century.

Four fragments are from colourless cups or beakers from the 2nd century-mid 3rd century. A fragment of a colourless convex cup or beaker with a self-coloured unmarvered trail is not a common find (Context: 395, SF: 226). There are three fragments of 4th century drinking vessels produced in greenish/colourless, thin-walled, bubbly glass.

There are eight fragments of window glass; seven of which are cast fragments.

Items of personal adornment are represented by a single incomplete faience melon bead recovered during the archaeological evaluation (Context: 63, SF392) and a very small cylindrical bead in pale yellow/brown glass ([249] SF75).

Melon beads were in use during the 1st and 2nd centuries, being most common in the 1st century, particularly on military sites. They were produced in a wide range of blue shades ranging from turquoise to bright blue with a buff/greyish core although in many cases the glaze has completely disappeared or survives only in the grooves.

The fragments of Roman glass from the excavations were small and difficult to identify, but they certainly represent an interesting and diverse range of drinking, serving and storage vessels with a date range 1st-4th centuries AD. The knowledge of Roman glass is limited from rural sites in Yorkshire and the East Midlands with published assemblages known from Castleford (Cool and Price 1998), Hayton, East Yorkshire (Price, with Cool & Millett, 2015) and Dragonby, North Lincolnshire (Allen 1996).

Post-medieval glass

There is a total of 4 fragments of post-medieval glass which date from the 18th-19th century. All are vessel fragments and include green/brown bottle fragments and jars which are colourless. This assemblage is characteristic of many such assemblages from later post-Medieval/ early Modern settlement or its general environs.

Recommendations

Although the Roman glass assemblage is very small, the range of vessels identified represent an important addition to the understanding of the use of Roman glass in rural sites in Britain. A catalogue and description, as well as the illustration of selected fragments is very strongly recommended.

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Site	Context	Sf. No.	Weight (g)	Form	Colour	Comment	Date	Refs.
122	459	211	10g	prismatic bottle	blue/green	Base fragment, ? square bt. Concentric circle moulded.	1st-2nd C	Price and Cottam 1998, 194-98
122V	354	237	>1g	prismatic bottle	blue/green	Handle fragment. Reeded.	1st-2nd C	Price and Cottam, 1998, fig. 89 b-c
122S	315	269	8g	prismatic bottle	blue/green	Body frag	1st-2nd C	
122V	263	221		prismatic bottle	blue/green	Body frag.	1st-2nd C	
122V	315	236	6g	prismatic bottle	blue/green	Body frag.	1st-2nd C.	
122V	206	265	4g	prismatic bottle	blue/green	Body frag.	1st-2nd C.	
122V	244	264	4g	prismatic bottle	blue/green	body	1st-2nd C.	
122V	395	228	5g	jug/jar/bowl	blue/green	Body frag, convex.	1st-2nd C	
122V	350	262	4g	Conical jug	blue/green	Conical jug	late 1st-late 2nd C	Price and Cottam 1998, 155-57
122V	395	222	>1g	jug	greenish/colourless		2nd and 3rd C	
122V	395	219	> 1g	jug or jar	greenish/colourless	Body frag, thin-walled, convex	2nd-3rd C.	
122V	395	220	> 1g	jug or jar	greenish/colourless	Body frags, thin-walled, convex	2nd-3rd C.	
122V	395	221	> 1g	jug or jar	greenish/colourless	Body frags, thin-walled, convex	2nd-3rd C.	
122V	395	223	>1g	jug	greenish colourless	Body frag, thin-walled, convex,. Bubbly.	2nd-3rd C.	
122V	307	258	4g	Flask	blue/green	Globular flask. base and lower body frag. Thickened base.	Mid/late 3rd C.	Price and Cottam 1998, 181-82
122S	382	361	> 1g	unidentified	blue/green	unidentified body frag.	1st-3rd C.	
122V	247	205	> 1g	unidentified	pale blue/green	Sample 9.Body frag, straight sided	1st-3rd C.	
122V	395	226	>1g	Convex cup with trails	colourless	Body frag, expanding. Spiral, narrow, self-coloured unmarvered trails.	2nd C	Price and Cottam 1998, 103-04
122V	395	227	2g	cylindrical cup	colourless	Vertical fire-rounded rim	2nd-3rd C.	
122V	395	229	5g	Cylindrical cup	colourless with greenish tinge	Rim and upper body frag. Vertical rim, edge fire-rounded. Straight sided body. Very thin walled.	2nd-3rd C.	

122V	206	207	>1g	Convex cup	colourless	Sample 9. Thick, walled. No dec. or bubbles	2nd-3rd C.	
122V	395	225	2g	cup/beaker	greenish/colourless	Body frag, bubbly. Thin-walled. Cup/beaker.	4th C.	
122V	395	224	>1g	beaker	pale green	Body frag, conical beaker. Straight sided, bubbly.	4th century.	
122V	247	206	>1g	beaker	greenish/colourless	Sample 9. Body frags, thin-walled	4th century	
122V	307	256	23g	cast window glass frag.	blue/green	Edge frag.		
122V	185	261	6g	cast window glass frag.	blue/green	body frag.		
122V	218	257	2g	cast window glass frag.	blue/green	body frag.		
122V	356	259	12g	cast window glass frag.	blue/green	body frag, bubbly.		
122V	249	268	14g	cast window glass frag.	blue/green	body frag.		
122V	249	267	10g	cast window glass frag.	blue/green	body frag.		
122V	249	266	10g	cast window glass frag.	blue/green	body frag.		
122V	181	260	>1g	blown window glass frag.	blue/green	body frag.		
122V	249	75	>1g	cylindrical bead	very pale yellow/brown	Small, cylindrical glass bead. Sample 10.		
122V Eval. Phase	63	392	1	melon bead	turqoise	melon bead. Dark turquoise.		
Site 58	2188	364	8g	Bottle	green/brown	Base frag.	18th-20th C.	
Site 58	2267	344	>1g	?bowl	green/brown	Body frag, irridescence.	18th-20th C.	
Site 58	2347	362	17g	Bottle	colourless with greenish tinge	Body frag.	18th-20th C.	
Site 58 Evaluation	16	391	4g	?bottle	colourless with greenish tinge	Body frag.	18th-20th C.	

APPENDIX 17

ASSESSMENT OF POSSIBLE METALLURGICAL PRODUCTION RESIDUES

Dr R. Mackenzie

Introduction

The following report covers the initial assessment of potential metallurgical production residues recovered during archaeological fieldwork undertaken ahead of the construction of the Bedale, Aiskew and Leeming Bar Bypass, North Yorkshire.

The aim of this assessment has been to provisionally identify and quantify the slag-like residues, and any metallurgical micro-residues present in the bulk environmental samples; the second aim is to determine whether further analysis could provide additional information about the sites, or activities previously carried out at the site.

General discussion of archaeometallurgical slag types

Some metal production processes produce characteristic slag by-products that are indicative of the process; however, the majority also produce slag that cannot be attributed to anything more than a very broad category without detailed metallurgical analysis.

The production of metals is not the only source of archaeological slag, and other pyrotechnic processes known to produce slag include glass and pottery making. It can also be produced by fires used for heating water, cooking, baking and general heating, as well as potentially larger fires associated with cremations or the burning down of wattle and daub buildings (Keys 2012, 2; Salter 2005, 1-2).

In some cases, scientific analysis can help to determine the process origin of slags, although this is normally only justified where there is supporting archaeological or historical evidence, or the particular slag found is of an archaeometallurgically significant type.

Methodology

All of the macro fragments in the assemblage have been visually examined and, where necessary, tested for magnetic response. The contents of the bulk environmental samples were spread out in shallow trays and relevant micro-residues were separated visually and by using a magnet. The macro residues in the assemblage has been quantified by count and weight and a summary of the findings of the assessment are given in Table 1. The assemblage contains material from two sites (58 and 112); the site number is listed in the first column in the table.

At this stage it has only been possible to provide indicative relative abundances of metallurgical micro-residues. The various macro and micro-residues in Table 1 have been colour coded, and

the relative abundances of micro-residues are indicated by progressively darker shading for increasing abundance (See bottom of table for key).

Discussion and interpretation of results

Site 58

The material in the assemblage was recovered from slots cut through an enclosure ditch, which dates from the Late Iron Age to Roman period. The majority of the assemblage was recovered from the fill of the recut of this ditch (Phase 3.3), and the artefactual material found in association with the metal-working residues indicates that the ditch was infilled in the 2nd century AD. However, a small quantity of iron-smithing debris was also recovered from the infilling of the Phase 3.2 enclosure ditch.

The assemblage contains a relatively high proportion of fragments of slag that cannot be attributed to a specific metallurgical process, but also contains significant evidence for both ferrous and non-metal ferrous production. This appears to be largely concentrated in slots 2-4, on the south-eastern side of the enclosure, and 19-20, on the northern side.

The presence of fragments of crucible with traces of copper rich resides, together with possible copper alloy casting and working waste in the small finds assemblage suggest that copper alloys were being produced in the immediate vicinity. Preservation of the archaeology within the interior of the enclosure was poor due to plough truncation, with survival of archaeological features limited to a few postholes immediately adjacent to the ditch on the northern side of the enclosure. No features such as hearth or furnace bases survived within the enclosure or externally in the immediate area around the ditches. It is not possible at this stage to determine whether the metal found was being smelted from ore, or whether existing metal was being re-cycled. The black glossy colour and surface texture of some fragments of slag suggest that they relate to non-ferrous metal production, possibly lead, however metallurgical analysis would be required to investigate the process origin of the slag.

Possible scraps or part worked pieces of copper-alloy metal were also found during the excavation, these were recorded as small finds and have been described by Gerrard (Appendix 12). The small finds assemblage includes distinctive pieces, such as a prill of copper/copper alloy (SF114) and part of a possible sprue or feeder (SF157) that are indicative of metal casting; another notable piece is a length of copper/copper-alloy strip that appears to have been cut and hammered (SF181). The assemblage also contains some fragments of lead casting/melting waste (SF137 & SF307). There is the possibility that the lead may be connected with the production of a specific type of copper alloy known as leaded bronze, which is a type of alloy that was used in the Romano-British period; this is something that could be explored by investigating the chemistry of the copper based objects and scraps.

The presence and type of small finds that were found in the same contexts as metallurgical slag and micro-residues suggest that copper based alloy was being melted (or possibly smelted) and cast at the site, and the scraps/offcuts of worked metal suggests that a craftsperson may have been manufacturing items from the metal on-site. There is a possibility that the scraps/offcuts of metal are pieces brought in from elsewhere for re-melting, although on balance, it seems just as likely that the production of copper/copper-alloy artefacts was being carried out on-site.

The evidence of ferrous metal production largely consists of residues that are indicative of iron/steel working (i.e. blacksmithing). The most diagnostic fragments of macro residue appear to be a slag type known as smithing hearth cakes or bottoms; this type of slag collected in the base of blacksmiths hearths when traditional wrought iron was heated prior to forging. Many of the bulk environmental samples contain flake hammerscale and spheroidal hammerslag, which are both micro-residue types associated by iron/steel smithing. A significant concentration of smithing micro-residues was found in slot 3.

The assemblage contains some fragments of heavily corroded ferrous metal, which may be fragmentary remains of iron artefacts. Although there is currently no evidence to confirm that these items were manufactured at the site, this is something that could be explored in the future, by comparing the chemical composition of the smithing slag found to slag inclusions within the iron objects.

As well as the primary production residues mentioned, the assemblage also contains 39 fragments of fired clay, many of which are relatively heavily slagged. The latter suggests that the clay may have formed the lining of a smithing hearth, or possibly small furnace that was being used to produce non-ferrous metals at the site, although further investigation would be required to confirm this.

In summary, the assemblage from Site 58 contains strong evidence for the production of copper alloys, as well as iron smithing. The range of residues and artefacts relating to copper-alloy production make the assemblage of regional and national significance. Given that the assemblage may only be part of the total amount of metallurgical waste produced, it is difficult accurately judge the scale of production being carried out at the site; as it stands, the assemblage is more suggestive of a craft type scale of production.

Site 122

The potential metallurgical material recovered from this site consists of a small number of fragments of possibly metallurgical, but undiagnostic slag, and two flakes of hammerscale. The small finds from the site included a single fragment of lead (Gerrard Appendix 12). The presence of the undiagnostic slag is possibly indicative of small scale manufacture or repair of metal artefacts, although detailed metallurgical analysis would be required to investigate this.

There is very little evidence of metal working activities at Site 122 and, although one cannot rule it out entirely, on the evidence found, it may have only been on a very small scale; perhaps during construction of the villa or minor repairs and alterations to the structure.

Potential of the assemblage

Site 58

As mentioned above, the assemblage from Site 58 has regional and nationally significant evidence of copper-alloy production. The pieces of copper-alloy metal are of the greatest research potential, followed by the fragments of slag that appear to relate to non-ferrous metal production.

Previous work by Dungworth (1995) on Iron Age and Roman copper alloys from Northern Britain examined the changes in copper-alloy composition and how this related to cultural and economic changes. A detailed study of the composition of the copper-alloy fragments would allow the type and amounts of alloying elements to be investigated, and extend and update this research; it would also enable the assemblage to be put into its regional context.

There is also potential to compare the information from the Bedale metalworking assemblage with any similar material recovered from archaeological sites of the same period in the area; In particular, from the ongoing excavations on the Leeming Bar to Scotch Corner section of the A1 road.

Analysis of a selection of slag from Site 58 could help to determine whether copper alloys were being produced from ore, or whether they were being produced by remelting existing copper alloy.

Site 122

The potential for further analysis is very limited and no further work is recommended on the material from this site.

Recommendations

Site 58

The assemblage should be retained for further analysis and more thorough separation and quantification of metallurgical micro-residues from the bulk samples.

It is recommended that metallurgical (including chemical) analysis of a selection of the copper alloy metal/metalworking residues is carried out. The analysis should prioritize the scraps of worked metal and small lumps of solidified casting debris present in the small finds assemblage. In conjunction with the relevant curators, an archaeometallurgist will also be able to advise on the most appropriate analytical method(s).

A selection of the slag provisionally identified as non-ferrous related should be characterized by metallurgical analysis to try and identify what process it is the by-product of (i.e. smelting, remelting of copper/lead alloys).

The production residues and metal small finds should be plotted on relevant site plans to explore the spatial distribution of the material and how it relates to archaeological features and other materials excavated. It is suggested that the ferrous and non-ferrous residues and metals are identified as different material types on plots.

The results of analysis of the metals should be presented in a written report, which should include a comparison with other relevant metal production sites from the same period in the region.

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Site no.	Context no.	Slot no.	Phase	Sample no.	Small find no.	Undiagnostic Slag		Possible Cu-alloy casting residues		Iron Smithing Residues		Possible Fuel Ash Slag		Fired Clay - possible hearth		Other		Description
						No	Wt (g)	No	Wt(g)	No	Wt(g)	No	Wt(g)	No	Wt (g)	No. or volume (ml)	Wt (g)	
58	2020	4	3.3	108												c.200ml	200	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag; subsample contains large hammerscale flakes
58	2020	4	3.3	108												c.200ml	270	Microresidue sample - low to moderate abundance of flake hammerscale, with lower level of spheroidal hammerslag; sub-sample contains 5 fragments of possible iron smithing slag
58	2021			109												c.250ml	405	Microresidue sample - low to moderate abundance of flake hammerscale, with lower level of spheroidal hammerslag
58	2021			109		8	14											Potentially metallurgical
58	2021			109										1	53			Slagged clay
58	2021			109										1	12			Burnt clay without slag layer
58	2021			109		8	13											Potentially metallurgical
58	2021			109						2	<1							Spheroidal hammerslag c.3mm diameter
58	2021			109												c.200ml	260	Microresidue sample - low to moderate abundance of flake hammerscale and spheroidal hammerslag
58	2022	4	3.3	110												c.100ml	136	Microresidue sample - low abundance of flake hammerscale
58	2022	4	3.3	110												2	1	Fragments of ferrous metal nail
58	2022	4	3.3	110												c.250ml	277	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag; subsample contains probable smithing slag and large hammerscale flakes
58	2023		3.3	119												c.150ml	178	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag; subsample contains large hammerscale flakes
58	2023	4	3.3	119												c.450ml	560	Microresidue sample - very low abundance of flake hammerscale and spheroidal hammerslag
58	2024	4	3.3	120												c.500ml	590	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag; subsample contains large hammerscale flakes
58	2024	4	3.3	120												c.200ml	250	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag
58	2026	4	3.2	122												c.350ml	424	Microresidue sample - very low abundance of flake hammerscale
58	2026	4	3.2	122										1	23			Heavily slagged fragment of possible hearth/kiln/furnace lining
58	2026	4	3.2	122								1	2					Fragment of hearth lining slag
58	2029	5	3.3			1	13											Vesicular slag with flow/run morphology - possibly metallurgical
58	2029	5	3.3											1	19			Slagged clay
58	2033	2	3.3							1	185							Fragment of possible smithing hearth slag with two flakes of hammerscale on surface
58	2033	2	3.3											1	6			Slagged clay
58	2034	2	3.3	142												4	37	Fragments of used clay crucible with possible copper alloy residues
58	2034	2	3.3			2	79											Potentially metallurgical slag with flow/run morphology
58	2035	2	3.3													1	4	Coal
58	2040	3	3.3	123		6	25											Potentially metallurgical - possibly relates to non-ferrous metal production
58	2040	3	3.3	123						6	<1							Flakes of hammerscale
58	2040	3	3.3													1	227	Possibly natural geological material (limestone?)
58	2040	3	3.3													1	127	Fired clay(?)
58	2040	3	3.3													2	23	Fragments of heavily oxidised ferrous metal (Action - X-RAY)
58	2040	3	3.3			1	42											Potentially metallurgical
58	2041	3	3.3	124						10	<1							Flakes of hammerscale
58	2041	3	3.3											1	12			Slagged clay
58	2041	3	3.3											1	12			Burnt clay without slag layer
58	2041	3	3.3											1	328			Slagged clay (Action - clean up, inspect and possibly record)
58	2041	3	3.3											1	102			Relatively large fragment of fired/heat affected clay that appears to have been deliberately flattened on one side - possible kiln/hearth lining
58	2041	3	3.3													5	41	Fragments of possible metallurgical crucible; the edges are not heavily abraded and there are no visible traces of metal residues
58	2041	3	3.3													3	40	Fragments of possible metallurgical crucible. One fragment is possibly part of a pouring spout and one has traces of possible metallic residues; all fragments have abraded edges
58	2041	3	3.3			5	137											Potentially metallurgical - both ferrous and non-ferrous related
58	2041	3	3.3													2	71	Fragments of heavily oxidised ferrous metal (Action - X-RAY)
58	2042	3	3.3	125												c.500ml	600	Microresidue sample - significant (moderate to high) abundance of flake flake hammerscale and spheroidal hammerslag

Site no.	Context no.	Slot no.	Phase	Sample n	Small find no.	Undiagnostic Slag		Possible Cu-alloy casting residues		Iron Smithing Residues		Possible Fuel Ash Slag		Fired Clay - possible hearth		Other		Description
						No	Wt (g)	No	Wt(g)	No	Wt(g)	No	Wt(g)	No	Wt (g)	No. or volume (ml)	Wt (g)	
58	2042	3	3.3	125												c.150	50	Microresidue sub-sample - fragments of possible iron smithing slag and flakes of hammerscale
58	2043	3	3.3	6 (<1mm)												c.250ml	20	Significant abundance of flake hammerscale and spheroidal hammerslag
58	2043	3	3.3	6 (<2mm)												c.1000ml	982	Significant abundance of flake hammerscale and spheroidal hammerslag; possible non-ferrous metal production residues, also fragments of fired/burnt clay (possible hearth/kiln/furnace material)
58	2043	3	3.3	6 (<2mm)												c.1500ml	1233	Significant abundance of flake hammerscale and spheroidal hammerslag; possible non-ferrous metal production residues, also fragments of fired/burnt clay (possible hearth/kiln/furnace material)
58	2043	3	3.3	6 (<2mm)												c.1500ml	1044	Significant abundance of flake hammerscale and spheroidal hammerslag; possible non-ferrous metal production residues, also fragments of fired/burnt clay (possible hearth/kiln/furnace material)
58	2043	3	3.3	6 (<2mm)												c.1500ml	1240	Significant abundance of flake hammerscale and spheroidal hammerslag; possible non-ferrous metal production residues, also fragments of fired/burnt clay (possible hearth/kiln/furnace material)
58	2043	3	3.3	6 (<2mm)												c.1000ml	1050	Significant abundance of flake hammerscale and spheroidal hammerslag
58	2043	3	3.3											4	138			Slagged clay
58	2043	3	3.3											1	14			Burnt clay without slag layer
58	2043	3	3.3			13	887											Potentially metallurgical
58	2043	3	3.3			3	59											Potentially metallurgical - possibly relate to non-ferrous production
58	2045	3	3.2	27												c.650ml	750	Microresidue sample - moderate abundance of flake hammerscale
58	2046	3	3.2	128												c.600ml	690	Microresidue sample - low/trace abundance of flake hammerscale plus sub-sample of fragments of undiagnostic slag
58	2046	3	3.2	128		5	20											Two fragments are potentially metallurgical
58	2047	3	3.2	129												c.20ml	27	Microresidue sample - moderate abundance of flake hammerscale
58	2048	3	3.2	130												c.20	<1	Flakes of hammerscale plus one sphere of hammerslag
58	2049	3	3.2	131												c.360ml	470	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag
58	2058	6	3.3		107											2	27	Fragments of pale buff-grey crucible, one with possible copper alloy residues; the other fragment has very abraded edges
58	2058	6	3.3		108											1	31	Fragments of pale buff-grey crucible with abraded fracture surfaces and no visible traces of metal residues
58	2074	17	3.3	3 (<2mm)												c.450ml	576	Microresidue sample - trace level of flake hammerscale
58	2074	17	3.3									1	11					Vesicular fuel ash slag
58	2075		3.3											1	37			Heavily slagged fragment of possible hearth/kiln/furnace lining
58	2075		3.3													2	22	Fragments of heavily corroded ferrous metal strip
58	2075		3.3													1	3	Iron rich concretion
58	2084	19	3.3											1	58			Slagged clay
58	2086	19	3.3											1	7			Slagged clay
58	2086	19	3.3											1	5			Burnt clay without slag layer
58	2092	20	3.3	170												c.450ml	608	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag
58	2112	20	3.3	164												c.700ml	840	Microresidue sample - very low abundance of flake hammerscale and spheroidal hammerslag; sub-sample has 3 fragments of undiagnostic slag
58	2115	20	3.3	167												c.700ml	916	Microresidue sample - trace level of flake hammerscale
58	2116	20	3.2	168												c.750ml	950	Microresidue sample - very low abundance of flake hammerscale and spheroidal hammerslag; sub-sample includes possible iron tack
58	2128	12	3.3											2	31			Burnt clay without slag layer
58	2141	14	3.3	180												c.500ml	450	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag
58	2141	14	3.3	180		1	13											Potentially metallurgical - possibly relates to iron smithing
58	2141	14	3.3	180						3	<1							Flakes of hammerscale
58	2141	14	3.3	180						6	<1							Spheres of hammerslag
58	2145	14	3.2	183												c.100ml	160	Microresidue sample - trace level of hammerscale (<10 flakes) plus two small fragments fo possible coal derived fuel ash slag
58	2152	21	3.3													3	19	Natural stone
58	2153	21	3.3		128											4	17	Fragments of used clay crucible (2 fragments from same crucible)
58	2153	21	3.3			3	9											Potentially metallurgical
58	2169	15	3.3											1	28			Heavily slagged fragment of possible hearth/kiln/furnace lining
58	2238	posthole	3.5									1	7					Fuel ash slag
58	2238	posthole	3.5			1	45											Potentially metallurgical slag with flow/run morphology

Site no.	Context no.	Slot no.	Phase	Sample n	Small find no.	Undiagnostic Slag		Possible Cu-alloy casting residues		Iron Smithing Residues		Possible Fuel Ash Slag		Fired Clay - possible hearth		Other		Description
						No	Wt (g)	No	Wt(g)	No	Wt(g)	No	Wt(g)	No	Wt (g)	No. or volume (ml)	Wt (g)	
58	2255	30 G34	3.4			3	55											Vesicular slag, possibly metallurgical
58	2264	32 G34	3.4		363											1	64	Natural stone (possibly iron rich oolitic limestone)
58	2289	G24 pit	3.4			1	24											Potentially metallurgical - black glassy fracture and run/flow morphology
58	2294	24	3.3	3 (<2mm)												c.450ml	535	Microresidue sample - trace level of flake hammerscale and spheroidal hammerslag
58	2294	24	3.3			1	18											Potentially metallurgical
58	2294	24	3.3													1	2	Small piece of corroded ferrous metal strip
58	2295	24	3.3	-	-									6	148			Slagged clay
58	2295	24	3.3	4 (<2mm)												c.600ml	710	Microresidue sample - trace level of flake hammerscale and spheroidal hammerslag
58	2295	24	3.3			8	217											Potentially metallurgical
58	2295	24	3.3							2	338							Possible smithing hearth slag
58	2295	24	3.3													1	16	Burnt ironstone (intentionally roasted?)
58	2297	24	3.3	6 (<2mm)												c.350ml	395	Microresidue sample - No obvious metallurgical residues present
58	2339	23	3.3			1	75											Potentially metallurgical porous slag
58	2344	23	3.5			13	261											Potentially metallurgical
58	2351	between	3.3			2	10											Potentially metallurgical
58	2356	between	3.3											1	19			Slagged clay
58	2356	between	3.3			2	22											Potentially metallurgical
58	2357	between	3.3											1	88			Slagged clay
58	2357	between	3.3			1	101											Potentially metallurgical (possibly relates to ferrous metal production)
58	2357	between	3.3			2	137											Potentially metallurgical
58	2357	between	3.3									1	16					Vesicular fuel ash slag
58	2357	between	3.3							1	363							Possible smithing hearth slag
58	2357	between	3.3											4	405			Slagged clay
58	2357	between	3.3			3	17											Potentially metallurgical
58	2357	between	3.3							1	20							Potentially metallurgical (possibly relates to ferrous metal production)
58	2357	between	3.3											1	151			Slagged clay
58	2357	between	3.3			3	113											Potentially metallurgical
58	2357	between	3.3							1	260							Potentially metallurgical (possibly relates to ferrous metal production)
58	2357	between	3.3		324											21	120	Fragments of pale buff-grey crucible with comparatively fresh fracture surfaces; 2 fragments from same crucible and at least 6 have traces of possible copper alloy residues)
58	2357	between	3.3		324											7	37	Fragments of pale buff-grey crucible with abraded fracture surfaces and no visible traces of metal residues
58	2357	between	3.3		324											8	29	Fragments of possible crucible with pale buff-pink outer surface and dark grey inner surface; the edges on several pieces are abraded. No visible traces of metal residues
58	2357	between	3.3		324	1	4											Potentially metallurgical
58	2359	between	3.3											1	33			Heavily slagged fragment of possible hearth/kiln/furnace lining
58	2359	between	3.3			1	7											Potentially metallurgical
58	2362	23	3.3											1	104			Slagged clay
58	2362	23	3.3			5	89											Potentially metallurgical
58	2362	23	3.3			8	186											Potentially metallurgical - both ferrous and non-ferrous related
58	2365	between	3.3			1	4											Potentially metallurgical
58	2367	24	3.3	269												c.200ml	236	Microresidue sample - low abundance of flake hammerscale and spheroidal hammerslag
58	2369		3.3											1	39			Slagged clay
58	2369	between	3.3			1	225											Potentially metallurgical (possible hearth bottom slag)
58	2382		2											1	38			Slagged clay
58	2383		2	275												c.200ml	235	Microresidue sample - trace level of flake hammerscale (c.3 pieces)
58	2408	1	3.3											1	36			Slagged clay
58	2408	1	3.3			4	231											Potentially metallurgical
58	2408	1	3.3			1	3											Potentially metallurgical - possibly relate to non-ferrous production
58	2408	1	3.3													5	14	Fragments of heavily oxidised ferrous metal/ferruginous concretion (Action - review and possibly X-RAY)
58	2415	between	3.3			3	153											Potentially metallurgical porous slag
122	121		4													1	287	Ferruginous material, possibly natural
122	127		4			1	49											Potentially metallurgical slag with flow/run morphology
122	206		5	27								1	<3					Fuel ash slag
122	284		4.2	24												c.650ml	740	Microresidue sample - natural geological material, no obvious metallurgical residues present
122	284		4.2	24		2	<1											Possibly metallurgical or fuel ash slag
122	285	floor dep	4.2	25												30	<2	Two flakes of hammerscale, remainder natural

Site no.	Context no.	Slot no.	Phase	Sample n	Small find no.	Undiagnostic Slag		Possible Cu-alloy casting residues		Iron Smithing Residues		Possible Fuel Ash Slag		Fired Clay - possible hearth		Other		Description
						No	Wt (g)	No	Wt(g)	No	Wt(g)	No	Wt(g)	No	Wt (g)	No. or volume (ml)	Wt (g)	
122	291		4.3	31												1	1	Corroded head of ferrous metal nail
122	291		4.3	31		4	6											Undiagnostic
122	291		4.3	31		2	1											Possibly metallurgical or fuel ash slag
122	291		4.3	31												1	10	Fragment of iron oxide
122	365		3.5	57												c.150ml	180	Microresidue sample - natural geological material, no obvious metallurgical residues present
122	369		3.5	54												c.250ml	310	Microresidue sample - natural geological material, no obvious metallurgical residues present
																		Key to colour codes:
																		Slagged clay
																		Evidence of non-ferrous metal production
																		Evidence of ferrous metal production
																		Pink to red colour range above indicates relative abundance of iron/steel smithing microresidues, shade darkens with increasing abundance.

APPENDIX 18

A STUDY OF THE HUMAN REMAINS EXHUMED FROM SITE 58

James Young Langthorne

Introduction

Two crouched burials and a small amount of disarticulated human bone was recovered during archaeological investigations at Site 58 located on the south western end of the A684 Bedale, Aiskew, and Leeming Bar Bypass scheme. The two crouched burials, [2091] and [2099], were found at the base of a U-shaped ditch that constituted the final Phase 3.3 recutting of the large enclosure ditch. All of the disarticulated material was found within backfills of the same ditch with the exception of [2265] which came from the trackway [2259] and [2289] which was the fill of pit [2288]. The upper ditch fills contained a large quantity of occupational debris, such as animal bone, dated this phase of the ditch to c. 2nd century AD.

The decision was taken to fully analyze both articulated individuals from the crouched burials at post-excavation assessment phase in order to create complete inventories, record extant pathologies and collect metric and non-metric data for each skeleton. A catalogue of disarticulated bone was also to be compiled.

The aim of this report is principally to provide a description of the demography and pathology for each individual. A skeletal catalogue of the analyzed human remains is included at the end of the report.

Methodology

Inventory

The analysis of each skeleton required that the presence or absence of each element to be recorded in tabular form within the PELICAN database.

In the case of the long bones these elements were further sub-divided into five components: proximal joint surface, proximal third of the shaft, middle third of the shaft, distal third of the shaft and distal joint surface.

Certain elements of adult individuals specifically the sternum, scapula, clavicle, ilium, ischium, pubis, sacrum, coccyx and patella were categorised as to the percentage of the element that was present: <25%, 25-50%, 50-75% or >75%.

The dentition was recorded using the Zsigmondy system (Hillson 1996) with specific notations made using Brothwell's recording standards and terminology (Brothwell 1981).

Condition and Completeness

The condition and completeness of skeletal remains has a direct impact on the quantity and quality of information that can be recovered from them. The condition of the bone was recorded according to the stages of surface preservation suggested by McKinley (2004):

- **Very good:** Surface morphology clearly visible with fresh appearance to the bone and no modifications.
- **Good:** Slight erosion and patchy surface.
- **Good-Moderate:** More extensive surface erosion than grade 1 with deeper surface penetration.
- **Moderate:** Most of bone surface affected by some degree of erosion; general morphology maintained but details of parts of surface masked by erosive action.
- **Moderate-Poor:** All of bone surface affected by erosive action; general profile maintained and depth of modification not uniform across whole surface.
- **Poor:** Heavy erosion across whole surface, completely masking normal surface morphology, with some modification of profile.
- **Very Poor**: As grade 5 but with extensive penetrating erosion resulting in modification of profile.

Completeness of both skeletons was calculated based on the percentage of the entire skeleton that was extant. Completeness can be affected by a variety of factors including intercutting graves, truncation by later features as well as the state of preservation of the skeleton itself.

Age Estimation

The age of both of the individuals were assessed using the stages of epiphyseal fusion (Buikstra and Ubelaker 1994, chapter 4), dental eruption (Ubelaker 1989, chapter 5 or Hillson 1996, chapter 5), and, additionally for adults, dental attrition (Brothwell 1981), changes within the pubic symphysis (Brooks and Suchey 1990) and the auricular surface (Lovejoy 1985) were used. On the two individuals where aging data could be collected and collated, were placed into one of the following age ranges (Based on categories outlined in Buikstra and Ubelaker 1994):

- Neonate birth
- Infant birth - one year
- Juvenile 1 - 11 years
- Adolescent (Adol) 12 - 20 years
- Young Adult (YA) 20 – 34 years
- Middle Adult (MA) 35 – 49 years

- Old Adult 50+ years
- Unspecified Adult 20+ years

The unspecified adult category is applied to adults that lack the necessary attributes which would allow for further refinement of the age of that individual.

Sex Determination

Sexually dimorphic traits in the pelvis and skull were used to ascertain the sex of adult individuals, based on the work of Acsádi and Nemeskeri (1970), Buikstra and Mielke (1985), Milner (1992) and Phenice (1969). Each individual was placed into one of six categories:

- Male A positively identified male adult individual
- Female A positively identified female adult individual
- Male? The individual compared favourably to the male sex but not conclusively
- Female? The individual compared favourably to the female sex but not conclusively
- Indeterminate The survey of the individual has proved inconclusive
- Unknown. The individual lacks the necessary elements that would determine its sex.

Biometry and stature estimation

Cranial and post-cranial measurements were recorded using the using guidelines established in Buikstra and Ubelaker (1994, chapter 7). Principally the biometric survey was undertaken in order to estimate the living stature of the adult skeletons. Each individual's stature would have been calculated from femur lengths using the regression equations devised by Trotter and Gleser (Trotter & Gleser 1958 and Gentry Steele & Bramblett 1988) and revised by Trotter (1970). No adult individuals of indeterminate sex or displaying severe pathology of the femur were used within this part of the analysis.

Non-metric analysis

Every adult individual was examined for 64 specific non-metric traits using the criteria defined in Buikstra and Ubelaker (1994, chapter 8). These traits were previously believed to be principally determined by genetic inheritance, and so an examination of the clustering of traits could be used to indicate familial or other cultural groups, but it is increasingly considered that at least some of these traits are influenced more by modification due to activity undertaken by an individual or the environmental circumstances in which they lived (Saunders 1989 and Tyrrell 2000).

Recording of pathology

During the osteological analysis pathological alterations of bones were recorded by describing the type and location of the changes to individual bones, their distribution within the skeleton and potential differential diagnoses. These descriptions are based on the standards defined by Roberts and Connell

(2004). Classifications of pathology were based on Roberts and Manchester (1995), Auferderheide and Rodríguez-Martín (1998), and Walker (2012).

Comparative assemblages

Given that the entire assemblage of articulated human bone recovered from Site 58 totaled 2 individuals it was not viable to compare the results of the analysis of the Site 58 population with other contemporaneous sites in order to establish potential differences between people of different socio-economic environments.

Articulated bone; the crouched burials

Demography

Skeleton [2091]

Skeleton [2091] was 90% complete and in a good-moderate condition enabling the analysis to reveal that it was a mid-adult probable male individual. Unfortunately, due to fragmentation of the long bones it was not possible to gauge the stature of the individual.

Skeleton [2099]

Skeleton [2099] was 90% complete and in a good-moderate condition which allowed the analysis to ascertain that it an adolescent-young adult of indeterminate sex. Unfortunately, due to fragmentation of the long bones and the individual's indeterminate sex it was not possible to calculate the stature of the individual.

Non-metric traits

Non-metric traits are normally occurring variations in the skeleton. Many of these traits are bilateral, i.e. they can appear on the left, right or both sides of the body. Part of the osteological analysis involved the assessment of 44 cranial non-metric traits and 20 post-cranial non-metric traits. The results of this survey are presented in Table 1 below:

Table 1: Distribution of non-metric traits

Non-metric trait	Observed No.	Total skeletal element present	% of possible cases
Metopic Suture	1	2	50%
Supraorbital Notch (L/R)	1/1	1/1	100%/100%
Supraorbital Foramen (L/R)	1/1	1/1	100%/100%
Infraorbital suture (L/R)	0/0	0/0	0%/0%
Multiple Infraorbital Foramina (L/R)	0/0	0/0	0%/0%
Zygomatico-facial Foramina (L/R)	1/1	1/1	100%/100%

Parietal Foramen (L/R)	1/1	1/1	100%/100%
Epipteric Bone (L/R)	0/0	0/0	0%/0%
Coronal Ossicle (L/R)	0/0	0/0	0%/0%
Bregmatic Bone	0	0	0%
Sagittal Ossicle	0	0	0%
Apical Bone	0	0	0%
Lambdoid Ossicle (L/R)	0/0	0/0	0%/0%
Asterionic Bone (L/R)	0/0	0/0	0%/0%
Ossicle in Occipito-Mastoid Suture (L/R)	0/0	0/0	0%/0%
Parietal Notch Bone (L/R)	0/0	0/0	0%/0%
Inca Bone	0	0	0%
Condylar Canal (L/R)	0/0	0/0	0%/0%
Divided Hypoglossal Canal (L/R)	0/0	0/0	0%/0%
Flexure of Superior Sagittal Sulcus (R/L/B)	0/0/0	0/0/0	0%/0%/0%
Foramen Ovale Incomplete (L/R)	0/0	0/0	0%/0%
Foramen Spinosum Incomplete (L/R)	0/0	0/0	0%/0%
Pterygo-spinous Bridge (L/R)	0/0	0/0	0%/0%
Pterygo-alar Bridge (L/R)	0/0	0/0	0%/0%
Tympanic Dihiscence (L/R)	0/0	0/0	0%/0%
Auditory Exostosis (L/R)	0/0	2/2	0%/0%
Mastoid Foramen (L/R)	1/1	1/1	100%/100%
Mental Foramen(L/R)	1/1	1/1	100%/100%
Mandibular Torus (L/R)	2/2	2/2	100%/100%
Frontal grooves (L/R)	0/0	2/2	0%/0%
Ethmoidal foramina (L/R)	0/0	2/2	0%/0%
Supratrochlear Notch or foramen (L/R)	0/0	0/0	0%/0%
Trochlear Spine (L/R)	0/0	0/0	0%/0%

Double occipital condylar facets (L/R)	0/0	0/0	0%/0%
Paracondylar process	0/0	1/1	0%/0%
Bridging of Jugular foramen (L/R)	0/0	0/0	0%/0%
Pharyngeal tubercle	0/0	0/0	0%/0%
Clinoid bridges or spurs (L/R)	0/0	0/0	0%/0%
Accessory lesser palatine foramina (L/R)	0/0	0/0	0%/0%
Palatine torus (L/R)	0/0	0/0	0%/0%
Maxillary torus (L/R)	0/0	1/1	0%/0%
Divided parietal bone (L/R)	0/0	1/1	0%/0%
Os Japonicum (L/R)	0/0	1/1	0%/0%
Marginal tubercle (L/R)	0/0	0/0	0%/0%
Mylohyoid Bridge (L/R)	0/0	0/0	0%/0%
Atlas Lateral Bridging (L/R)	0/0	1/2	0%/0%
Atlas Posterior Bridging (L/R)	0/0	1/2	0%/0%
Accessory Transverse Foramina in 7th cervical vertebrae (L/R)	0/0	1/2	0%/0%
Septal Aperture	0/0	1/2	0%/0%
Sixth Lumbar vertebrae	0	2	0%
Accessory sacro-illiac articulation (L/R)	0/0	1/1	0%/0%
Supra scapular Foramen or notch form (L/R)	0/0	0/0	0%/0%
Accessory acromial articular facet (L/R)	0/0	0/0	0%/0%
Unfused acromial epiphysis (L/R)	0/0	0/0	0%/0%
Glenoid fossa extension (L/R)	0/0	1/1	0%/0%
Circumflex Sulcus (L/R)	0/0	0/0	0%/0%
Sternal foramen	0	1	0%
Supratrochlear	0/0	1/2	0%/0%

Spur (L/R)			
Trochlear notch form (L/R)	0/0	2/2	0%/0%
Allen's fossa (L/R)	0/0	2/2	0%/0%
Poirier's facet or extension (L/R)	0/0	2/2	0%/0%
Third trochanter (L/R)	0/0	2/2	0%/0%
Vastus notch (L/R)	1/0	2/0	50%/0%
Tibia Squatting facets (L/R)	0/0	1/1	0%/0%
Talus Squatting facets (L/R)	0/0	1/1	0%/0%

Skeletal pathology

A complete analysis of all skeletal pathologies was performed on both skeletons. Pathological lesions may reveal something of the overall health and diet of a population, with the caveat that most illnesses or trauma would only be manifest in the soft tissue and so are not visible in the skeletal remains (Wood *et al* 1992).

Skeleton [2091]

A number of different skeletal pathologies were recorded on [2091], including joint disease, trauma and dental disease. Joint disease was the most widespread condition in this individual; degeneration of this kind is associated with a range of factors such as wear and tear, age, genetic predisposition and occasionally being the result of other pathological conditions such as rickets or trauma (Aufderheide & Rodríguez-Martín 1998 and Walker 2012). Joint disease can result in pain, stiffness, limited movement within the joint and abnormal appearance of the joint (Roberts & Manchester 1995, 99). The condition was seen to manifest as pitting and osteophytic activity on the first, second and fourth cervical vertebrae (C1, C2 and C4), on the fifth thoracic vertebra (T5), first, second and fifth lumbar vertebrae (L1, L2 and L5) and the articular facets of the first sacral vertebra (S1). Additionally, Schmorl's nodes were found on the superior body surfaces of L1 and L2, the result of a herniation of the intervertebral discs (Aufderheide & Rodríguez-Martín 1998, 97).

Perhaps most seriously, T12 and possibly T11 had suffered compression fractures of the vertebral bodies, potentially an indicator of osteoporosis, an idiopathic condition that leads to demineralisation of the bone (Krane & Holick 1991, p.1921 and Aufderheide & Rodríguez-Martín 1998, 314).

A small degree of pitting and severe osteophytic lipping was also observed around the margins of the rib head articular facets of five right ribs indicating the presence of further degenerative joint disease

The single instance of trauma on skeleton [2091] was a well healed fracture of the distal shaft of the right ulna; probably the result of putting an arm out to arrest a fall.

Skeleton [2099]

The only skeletal pathology witnessed on skeleton [2099] was a Schmorl's node recorded on the twelfth thoracic vertebra (T12).

Dental pathology

Dental pathology can provide information about dental hygiene, diet to a certain degree, and can indicate when the body has been under stress due to either illness or malnutrition during childhood when the teeth are growing (Aufderheide & Rodríguez-Martín 1998, 393). A complete inventory of both individuals' dentition can be found in the skeletal catalogue.

Skeleton [2091]

The dentition of skeleton [2091] was seen to be marked by severe wear on the maxillary right first pre-molar (PM1) and the left first molar (M1) and on all extant mandibular dentition. Several carious lesions were found on the mandibular dentition, notably the right and left third molars (M3) and the left first molar (M1). Caries occurs as a result of oral bacteria in plaque fermenting sugars from an individual's diet (Roberts & Manchester 1995, 45-46). The acid produced as a result of the fermentation demineralises the structure of the tooth, creating a void (Aufderheide & Rodríguez-Martín 1998, 403-404). The condition is progressive, enlarging the hole in the tooth, attacking the dentine beneath and ultimately the entire crown of a tooth can be destroyed. This condition may have led to the second left molar (M2) being lost prior to death.

Skeleton [2099]

The majority of pathologies seen on skeleton [2099] were dental in nature. Enamel hypoplasia was seen on the left and right maxillary and mandibular first and second incisors (I1 and I2) and left and right maxillary canines (C1). Enamel hypoplasia, or defects in the dental enamel, is an indicator of stress, such as disease or nutritional deficiency experienced during childhood, and a lesion that is retained into adulthood (Aufderheide & Rodríguez-Martín 1998, 405). Additionally, a single carious lesion was recorded on the right mandibular first molar (M1).

Disarticulated Bone

Disarticulated human bone was present in 12 contexts, [2029], [2092], [2133], [2141], [2154], [2204], [2210], [2265], [2289], [2362], [2369] and [2389] all of which were fills of the enclosure ditch with the exception of [2265] which came from trackway [2259] and [2289] which was the fill of pit [2288]. Table 2 summarizes the individual elements of human bone found within each context:

Table 2 Disarticulated human bone

Context no.	Skeletal element	Condition	Sex	Age
2029	Femur (shaft fragment)	Moderate-Poor	Undeterminate	Adult
2092	Femur (distal condyle fragments x 2)	Moderate	Undeterminate	Unknown
2092	Tibia (Left proximal head and proximal shaft)	Good	Undeterminate	Adult?
2133	Femur (shaft fragment)	Good	Undeterminate	Adult?
2141	Clavicle (right midshaft-sternal end x 1)	Good	Undeterminate	Juvenile?
2154	Skull (parietal fragments)	Good-Moderate	Undeterminate	Adult?
2204	Skull (zygomatic right x 2)	Good	Undeterminate	Adult?
2210	Skull (parietal fragment)	Good	Undeterminate	Adult?
2265	Foot (MT2 left x 1)	Good-Moderate	Undeterminate	Unknown
2265	Foot (proximal phalanx)	Good-Moderate	Undeterminate	Unknown
2289	Skull (fragments)	Good	Undeterminate	Adult
2362	Femur (shaft fragment)	Good	Undeterminate	Unknown
2369	Humerus (distal shaft fragment)	Good-Moderate	Undeterminate	Unknown
2389	Humerus (mid-distal shaft)	Good-Moderate	Undeterminate	Juvenile

No pathological traces were found on any of the disarticulated elements and the entire collection of disarticulated bone represented a minimum of 2 individuals.

Conclusion

The most distinctive Iron Age burials in Northern England are the chariot and square barrow burials associated with the Arras culture in Yorkshire (Cunliffe 2005, 84). However, the crouched burials found during the investigations at Site 58 are more akin to traditions seen in East Yorkshire cemeteries in the 3rd and 2nd centuries BC and for bodies interred at Iron Age settlements in the Vale of York such as Micklefield (Brown et al 2007, 99-103) and Wattle Syke (Martin *et al* 2013, 39-41), remaining so into the Roman period (Haselgrove 2016, 440). Furthermore, burial of this tradition are also observed in the southern part of the country with disposal of the dead within pits, hillfort ramparts and enclosure ditches (Cunliffe 2005, 552).

This may indicate a somewhat casual attitude to the deceased in comparison with the formality of the square barrow cemeteries such as Arras, Burton Fleming and, most recently, Pocklington. However, the deliberate crouched posture of the body itself and, perhaps, the presence of large stones in very close proximity to skeleton [2091] is highly suggestive of a considered burial tradition rather than extempore dumping of the corpse. At Danebury (Cunliffe 1995, 100) and Rushey Mead (Pollard 2001, 26) layers of

large stones were seen to overlay some of the skeletons perhaps as a way of restraining the deceased's restless spirit (Aldhouse Green 1998, p9).

The skeletons themselves were almost complete and in a relatively good condition so that despite a degree of fragmentation that prevented the collection of much of the metric and non-metric data it was possible to extrapolate some details about the individuals and their lifestyle. The joint disease seen to affect various elements of mid-adult male [2091] may be seen to be the product of a physically active life that had taken its toll upon his body (Cowie *et al* 2008, 48) a condition that was not shared by [2099], a significantly younger individual of indeterminate sex. A well-healed fracture of the right ulna of [2091] indicated a level of care that helped prevent further complications, such as infection or significant malformation of the bone, from occurring.

Equally the dentition of both individuals is suggestive of the condition of life that they experienced. The severe wear present on the bulk of [2091]'s extant teeth and presence of several carious lesions reflected poor dental hygiene and perhaps a coarse diet that would have abraded the teeth (Aufderheide & Rodríguez-Martín 1998, p399). Similarly, the well-defined lesions of enamel hypoplasia on the anterior dentition of [2091] were a clear indicator of childhood stress that that individual had undergone (Aufderheide & Rodríguez-Martín 1998, 405).

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APPENDIX 19

ASSESSMENT OF FAUNAL REMAINS

Kevin Rielly

Introduction

This report features a description of the animal bones recovered from two sites (58 and 122) excavated ahead of the construction of Bedale, Aiskew, and Leeming Bar Bypass Scheme in North Yorkshire. Site 58 was to the south of Site 122, these roughly in the south-western and central parts of the new road. The former encompassed a rectilinear ditch and enclosure, excavation revealing a sequence of activity between the Late Iron Age (Phase 2) through the Late Iron Age to Early Roman (Phase 3), sub-phased according to observed alterations to the ditches (3.1-3.3) and culminating with a series of trackways (3.4) and pits/postholes (3.5); while Site 122 provided the remains of an early field system (Phase 3.5) followed by a large hypocausted winged Roman villa (122) dating to the 3rd and 4th centuries associated with a probably contemporary field system (122N), essentially Phase 4. There is some evidence for at least two phases of activity associated with the villa but these phase adjustments will need to be added at a later stage. Abandonment of the villa (Phase 5) is followed by some medieval (Phase 6) and post-medieval activity, the former comprising robber trenches associated with the removal of the villa building walls and the latter including post-medieval agricultural features and deposits (Phase 8) and a series of colluvial and ploughsoil deposits (Phase 7 and 9). The later phases, with similar attributes, are also in evidence at site 58.

Animal bones were principally recovered from the enclosure ditches in Site 58 and from Site 122 a large quarry pit as well as ditches enclosing the villa on the north and western sides. These features were excavated using a series of slots, the fills subdivided stratigraphically, from which all the bones were recovered by hand. On Site 58, the baulks between the slots were partially excavated (the upper fills) and the bones and other finds were hand collected. Further excavation then proceeded by machining the remainder of the Site 122 quarry pit; the bones and other finds were collected from the machined soil by sieving the soil through a 10mm mesh. To differentiate properly excavated from partially excavated and machined areas, the latter collections were given individual context numbers, that is between each slot from the enclosure ditch and amalgamated into a single deposit from the quarry pit. Excavation of the finds recovered from the enclosure ditch and the quarry pit revealed a sequential recutting/depositional history. While the machined levels obviously encompass an amalgamation of this sequence, they can nevertheless be reasonably well dated, covering principally the 3rd/4th century occupation of the villa respectively. The purpose of this secondary stage of excavation was essentially to provide additional information to that recovered stratigraphically. With this in mind, the faunal specialist was tasked with performing a quick scan of this extra material in order to identify any obvious differences to the primary collection (additional species and/or the recognition of bone groups, be they articulations or concentrations of specific types of waste).

While the great majority of the bones were recovered by hand, a large quantity was also provided by wet sieving numerous bulk samples (using a 1mm mesh). These were taken from a variety of deposits across the two sites, with a notable concentration within the hypocaust levels of the Site 122. The samples provided some fish bones and a large number of amphibian fragments, these identified by Philip Armitage.

It should also be stated that this work follows an initial evaluation stage, with excavations at both sites providing a moderate quantity of animal bones (Jacques 2009). Various relevant details from this report will be discussed below (see Conclusion and recommendations for further work).

Quantity and Methodology

Site 58 provided a grand total of 10,087 bone fragments by hand collection, while 3,059 were provided by Site 122, of which 7,387 and 1,866 respectively were recovered from the primary excavation (see Table 1). The extra bones, taken from the deposits between the slots are referred to under H for hand collected at Site 58 and S for scanned for the sieved part of the quarry pit at Site 122 within Table 1. An additional 837 (Site 58) and 7,355 (Site 122) fragments were recovered from the wet sieve residues provided from the bulk samples. The sample collections were washed through a modified Siraf tank using a 1mm mesh and the subsequent residues were air dried and sorted. As mentioned above, the extra bones from the machined out part of the Site 122 quarry pit were collected using a somewhat larger mesh (10mm).

The recording and analysis of this collection was necessarily limited due to the available resources. While certain aspects were fully recorded, as species, skeletal part, proportion, sex, age and size; the various 'modifications' received less attention, thus butchery was described in terms of utensil (cleaver, knife or saw) and interpretation (jointing, skinning etc), while condition was simply noted as poorly preserved or other. Topics as pathology, burning and gnawing were ignored, as indeed were all aspects of the unidentifiable portion in each collection, here including vertebrae, ribs and various limb bone shaft and indeterminate pieces. However, such unidentifiables were counted and listed according to size, so cattle- or sheep-sized (or smaller when necessary as small mammal and chicken-sized). This procedure was undertaken with both the hand collected and sieved bones, although no attempt was made to measure any bones within the latter collections. The bones from the aforementioned secondary excavations were recorded to species and unidentifiable only, although notes were made concerning certain characteristics, as notably large or small specimens and if individual collections (note the numbering system described above) provided bone groups (articulations) and/or a notable proportion of butchers (head and feet bones) or dressed (the other parts) waste.

The potential value of the various phase collections will depend on their condition (see below), quantity, good dating (generally within 100 to 200 years) and on a variety of attributes concerning in particular the major domesticates, which can convey data pertaining to their age and size, and then how they were processed following their demise. These latter

attributes can be judged by counting the quantity of mandibles (including at least two teeth between the deciduous fourth premolar/fourth adult premolar and the third adult molar), of limb bone articular ends (epiphyses), of measurable bones (all complete limb bones and certain fused articular ends – those fusing by at least 2 years of age) and finally of all bones with butchery marks.

Condition of the bones

The fully recorded bones included assessing their state of preservation, this restricted to noting bones with severe surface damage i.e. up to 75% surface removal of the entire bone or a specific portion. Such damage was observed throughout the various collections (see Tables 2 and 3), notably amongst the latest Roman features at Site 58 (the trackway - Phase 3.4) and in particular from the ditches predating and possibly contemporary with the villa, namely from Phases 3.5-6 (122) and Phase 4 (122N). As the great majority of the poorly preserved bones demonstrate areas of damage, as for example on one side or at the proximal or distal end, it can perhaps be assumed that this damage is related to weathering. This in turn suggests these bones were in open conditions for some period, following initial deposition or possibly redeposition, prior to their eventual burial. Clearly such collections will be biased towards those bones which can better survive such conditions, as those derived from the larger animals. A similar bias can be proposed for assemblages demonstrating a greater degree of fragmentation. The level of breakage was tested at this site by noting the proportion of loose teeth amongst the major domesticate collections (Tables 2 and 3), the quantity of such bones being directly proportional to the degree of fragmentation. The largest proportions of loose teeth were observed amongst the Site 58 trackway and Site 122N ditchfills, here following the preservation evidence, although the ditch fills from the villa (Phases 3.5 & 4.2) also provided a notable degree of fragmentation. While of course these spatial and temporal variations will need to be accommodated when discussing the bones from these two sites, it should be stated that the general condition of the site collections is moderate to good.

Description of faunal assemblage by site and phase/feature

Site 58

Iron Age (Phase 2)

A single ditch in the south-east corner of the site (Group 1), this intersected by a number of slots, provided a moderate collection of animal bones by hand collection and a few fragments from a single sample (Tables 1, 4 and 5). Most of the bones were taken from Group 3 fill [2382] with 134 bones, this featuring in common with the other fills, a general array of cattle, sheep/goat and pig skeletal parts. Cattle is clearly dominant as also indicated by the wealth of cattle-size fragments. The other species represented include equid and raven, the latter (an ulna) and most of the former recovered from [2382]. There are no obvious pairs amongst the equid bones and they appear to represent a number of adult individuals. Sawing around the shaft of three equid metatarsals as well as a cattle metatarsal is clearly indicative of bone working waste (and see below **Animal Bone Working waste**). While there are no butchered

equid specimens in this phase it can perhaps be assumed from the working evidence and the degree of disarticulation that this species was at least partially exploited for its post-mortem products.

Late Iron Age (Phase 2)

Iron Age Group 4 ditch [2221] provided just 15 bones comprising major domesticates and the partial remains of a minimum of one adult dog.

Late Iron Age to Early Roman (Phase 3)

Phases 3.1 to 3.3

The earliest phase provided one of the smaller collections, these taken from [2353], the narrow and deep V-shaped ditch at the east side of the enclosure. There is again prevalence of cattle and in particular of cattle-size bones accompanied by a few equid and pig fragments. This assemblage follows the general pattern for moderate to good preservation, without any obvious signs of heavy fragmentation. Thus the scarcity of the smaller species, as sheep/goat and pig, may well reflect the make-up of the bones originally deposited into this feature. The equid bones are similarly disarticulated and widespread, although unlike the previous bones, without any butchery/working marks.

These are followed by the larger collections taken from the next two stages of the enclosure ditch, a notably deep and wide cut (Phase 3.2) and the later recut (Phase 3.3) with bones taken from the numerous slots around the circumference of this feature. A large proportion of the Phase 3.2 collection was taken from the enclosure slot 21 with 209 fragments, the remaining slots providing no more than 50 bones. The overall collection and indeed that taken from slot 21 demonstrate a notably high proportion of cattle (see Tables 4 and 8), all three major domesticates exhibiting a wide distribution of skeletal parts. A concentration of equid bones was seen in slot 2 (11 out of 29 bones in total) again including a mix of parts and no evidence for bone working. A craft interpretation could account for the single roe deer fragment, an antler piece from slot 11, while a mallard humerus from slot 21 could represent the first indication of the use of wild game.

There is a notably larger array of species, compared to previous phases, from the recut enclosure ditch (Phase 3.3). This may well relate more to the quantity of bones rather than a broader usage of domesticates and wild resources. Both large and small game species are represented, however, 13 out of the 14 red deer fragments are antler pieces, all of which have been cut and/or sawn, indicative of antler working waste. Poultry is certainly better represented and there are also a few fish bones taken from the samples, including gadidae (probably cod) and freshwater eel. Note also the presence of swan and woodcock retrieved from the hand collected deposits (see Table 4). The abundance of equid remains may be suggestive of a similar usage, at least ultimately, with again a broad array of disarticulated parts and several sawn items (9 metapodials). In addition there are 4 butchered bones, including probable dressing and skinning cuts (see later). Dog is also relatively abundant in this phase, also comprising various disarticulated parts, although with a concentration of 6

bones, possibly from the same adult individual, within slot 14. There is also a reasonable quantity of incidental species following on from the previous phases, as small rodents and amphibians, these recovered from the sample collections (see Table 5). Of interest is the presence of house mouse, a species which was certainly present in this country from the Iron Age period but notably better represented by the Roman era (Yalden 1999, 124).

The proportion of cattle has markedly decreased by this phase accompanied by a notable increase in sheep/goat, this shown by both the fully recorded (F) and hand collected (H) portions of the Phase 3.3 assemblage (see Table 8). An approximately similar abundance pattern can be seen amongst the better represented slot collections and including the bones from pit [2288], however, there are also notable variations (Figure 1). The aforementioned pit provided the largest proportion of pig bones, while the adjacent collections from slots 17 and 18 demonstrate somewhat different results, the former clearly dominated by sheep/goat. A sample taken from the same deposit in slot 17 also provided a wealth of sheep/goat fragments accompanied by a notably large collection of sheep-size bones. None of these assemblages vary dramatically from the general evidence concerning a wide array of skeletal parts and thus these differences cannot be explained by the preferential dumping of particular waste items as for example head and foot bones signifying processing waste. It can perhaps be suggested that these differences represent some variation in consumption habits, either spatially or temporally, maybe related to availability.

There is a notably large quantity of age and size data within the Phase 3 collections, although in particular from Phase 3.3 (see Table 10), allowing for extensive analyses of the cattle and sheep collections as well useful evidence concerning the exploitation of pigs. Almost all the butchered bones were within the cattle component of these assemblages, here indicative of a general usage of the cleaver and the knife. Though recording of this aspect was limited, it should be possible to calculate where butchery was most concentrated, in terms of parts of the carcass and which stages of the butchery process. Of particular interest concerning the age data is the notably large proportion of 1st year cattle and to a lesser extent, of similarly aged sheep. This certainly includes animals which can be equated with infant mortalities, signifying local stock breeding.

Phase 3.4 and 3.5

The ditches (Phase 3.4) either side of the trackway leading up to the now infilled enclosure produced a reasonably sized collection, this revealed via another series of slots. Most of these provided up to about 50 bones with just one larger assemblage, from slot 34, with 212 fragments. The good representation of cattle continues with a major domesticate abundance pattern approximately returning to that observed in Phase 3.2 (see Table 8). There was a notable proportion of loose teeth within these ditches perhaps suggestive of a greater level of fragmentation. However, the difference compared to the previous phases is not great, at least not sufficiently greater to account for the observed change in abundance of cattle compared to sheep/goat and pig. Neither can the explanation be found in the make-up of the various collections, where a similar diverse array of skeletal parts is again apparent. There is also a

continuation of the general scatter of equid fragments, though here without any worked items but with one butchered bone, a radius with a dressing cut from slot 34. In addition and in comparison to the last phase, there is a notable collection of dog bones. These were mainly retrieved from fill [2267] slot 40 (28 out of 29 bones) forming the remains of at least three adult individuals.

Finally, a small number of bones were retrieved from the Phase 3.5 features, here including a ditch and a posthole

Post Roman (Phase 8)

A single equid fragment, a tibia, was recovered from a Phase 8 posthole [2187].

Site 122

An early field system (Phase 3)

Consisting of a series of ditches, it would appear that these represent agricultural features predating the construction of the villa with a possible date sometime in the 2nd century. These features provided a small collection of cattle, sheep/goat and equid bones, largely contained within ditch slots [267] and [364] Group 121 (30 bones). Cattle is by far the best represented species, which can perhaps be interpreted in terms of the poorer condition of these bones (see Table 3) with the associated fragmentation and survival biases. However, the data is sufficient to demonstrate that the cattle component consists of a wide array of skeletal parts, suggestive of a mixed deposition.

3rd/4th-century occupation of the villa (Phase 4.2-4.3)

The structures, features and deposits included in this phase comprise the villa itself, the northern and western parts of an enclosure ditch which presumably bounded the villa and quarry pits at the southern extent of the site located to the west of the villa building. Although the quarry pits pre-dated the enclosure ditch, it was to some extent still open, with this clearly showing at least two phases of activity – the pit cut and early fills followed by the ditch cut and then an intermingling of pit and ditch fills. There is undoubtedly potential for sub phases within the villa occupation period as indeed is demonstrated by the dating evidence (see Gerrard Appendix 6). However, there will be no attempt to differentiate the bones by date at this stage, although the collection will be divided according to the three main spatial elements – the quarry pit, the ditch and the villa. A further subdivision is necessary due to the two stage excavation, as mentioned above, of the quarry pit. Following the method describing the Site 58 enclosure ditch, the bones taken from the initial excavation will be described as F (fully excavated and recorded) and those from the machined out parts as S (scanned).

Most of the bones were taken from the quarry pit and the enclosure ditch and the collections from both of these displays the usual dominance of major domesticates with cattle best represented followed by sheep/goat and then pig (Tables 6 and 8). Contrasting with the Site 58 results, there is a notably good proportion of pig, at least within the ditch and the S portion of the quarry pit. It could be stated that the smaller quantity of bones from the QP(F) deposits

may not be representative of this feature, although it should also be pointed out that a greater proportion of the smaller two domesticates (sheep/goat and pig) would be expected in a sieved collection. Note that the QP(S) bones were collected by passing the soils through a 10mm mesh. Yet the similarly good proportion of pig bones from the ditch would strongly suggest that pig abundance is not just dependant on the recovery technique. It is unfortunate that so few bones were recovered from the villa deposits, although it follows that dumps of food waste are more likely to occur outside rather than inside a domestic structure. It should also be pointed out that the villa bones clearly include material from demolition deposits which could therefore post date its occupation (and see below, Phase 5). Differences in domestic abundance could also relate to the aforementioned phasing and this of course should be explored in any later analysis of these 3rd- and 4th-century collections. Any differences are clearly not related to specific disposal practices relating to carcass processing, as in common with the previous collections and those from Site 58, each of the domesticates is represented by a general mix of skeletal parts. A partial cattle articulation was discovered within ditch fill [299] comprising the major part of a right hindlimb with the tibia, a full set of tarsals, the metatarsus and three phalanges. Rather than processing waste, however, this could perhaps be interpreted as the remains of a dumped carcass (possibly diseased). Dismemberment may have occurred due to the attention of scavengers, here assuming that the carcass had been either dumped on the surface or had received a rather scant burial. The various remaining parts of the carcass could then have been buried at some later date.

The domesticate collection is moderately sized with some potential for age, size and processing studies (see Table 10). Most of this data was provided by the cattle component although there is also a reasonable quantity of sheep/goat epiphyses.

There is a diverse range of other food species, in particular from QP(S) (see Table 6); with hare and a variety of game birds (the same deposit also providing a single mussel shell and part of a lobster/crab claw). Deer bones were recovered from each of the larger collections, all postcranial pieces and therefore food waste, with the exception of the single antler pieces making up the deer component from QP(F) and QP(S). Poultry was relatively well represented, while a few fish bones, all identified as plaice/flounder, were recovered from a sample taken from ditch fill [249]. This range of species and in particular the presence of deer may be indicative of some affluence, although there are also arguments to suggest that such species were simply used according to their availability (see Conclusions). The same ditch fill deposit also provided a notable quantity of small rodents, shrew and amphibian bones. Of interest amongst these small non-food items was the recovery of a rat femur from a villa floor deposit [179]. While contamination cannot be entirely ruled out, the villa was found just below the topsoil, it can be proposed that this bone represents further evidence for the distribution of the black rat in Roman Britain. This species was introduced within the first few decades of the Roman occupation and had managed to spread throughout the country by the 3rd and 4th centuries (see Rielly 2010, 136-40).

Equid bones were scattered throughout these deposits although there was a concentration within the fills of quarry pit slot [314] with 13 bones, including parts of the vertebral column

and both the fore and hind legs. Four out of the 6 dog bones (all from ditch fills) were taken from fill [249], these undoubtedly representing the same juvenile, comprising a pelvis, a pair of femurs and a tibia.

Villa abandonment (Phase 5)

This phase provided a large number of bones, largely taken from [167] (136 hand collected and all the sieved bones, see Tables 6 and 7), described as a demolition deposit within the hypocaust, the remainder arising from other demolition layers associated with the villa. While the dating is unclear, there is a notably similar domesticate abundance to the previous villa collections (see Table 8), perhaps suggesting the major source of this material. In addition, there are continuing indications of a probably affluent lifestyle or at least of the use of a diverse range of meats, with poultry accompanied by red deer (2 postcranial bones), hare, dove, teal and pike. Species which may also have derived from villa occupation could include equid and dog, the latter possibly represented by the partial remains (9 bones) of a moderately sized slender sub-adult individual, perhaps suggestive of some form of 'running' hound. The 'small raptor', also from the hypocaust deposit, could equally be associated with the villa. This bird may potentially have been used for hunting purposes, perhaps as a decoy (see Conclusions).

There were also a number of species which can be equated with the abandonment of the villa. The sieved collection provided a very large quantity of amphibian bones (no doubt consisting of 100s of individuals with this sample providing at least 60 frogs and/or toads) and here it can be proposed that damp conditions, perhaps even standing water, prevailed for some period within the hypocausted part of the villa. A portion of these remains were sent to Philip Armitage for identification, essentially limited to three skeletal parts, the humerus, the urostyle and the ilium, amounting to 107, 9 and 78 fragments respectively, all identified as common frog. Amongst the humerii there were 54 right, 45 left and 8 indeterminate pieces (including 4 immature) while the iliums included 35 right and 43 left bones. This area may have also acted as a dead-fall trap, hence the variety of insectivores (shrew) and small rodents (mice and voles). The same derivation cannot be equated with the badger remains (6 bones from an adult individual), although it could perhaps represent scavenger activity, the remains of a carcass dragged into the relative shelter of the abandoned villa. Alternatively, this animal may relate to the occupation period, perhaps captured for its skin and/or its meat. Badger bones have been found at a small number of Roman sites, note for example the near complete skeleton form a 3rd-century deposit at Exeter (Maltby 1979, 65) as well as a number of bones scattered amongst the 3rd- and 4th-century ditchfills associated with the Roman fort at Piercebridge on the Tees (Rackham 2008, 271). As such remains were found with human derived waste, it follows that these animals may have also benefitted the local population. Various probable uses were described in connection with a concentration of badger bones, representing 4 adults and one immature animal from 3rd/4th-century levels within the Roman fort at Caister-on-Sea in Norfolk. It would appear that butchery marks were found on one of the older specimens, here indicative of skinning; the presence of the youngster could suggest

a food use; while otherwise, these animals may have been kept for sporting purposes i.e. badger baiting (Harman 1993, 226).

Medieval (Phase 6)

A small quantity of bone was hand collected from a series of robber cuts (associated with the villa) and a single ditch/gully [281], with a somewhat larger collection retrieved from the sample taken from the latter feature (40 bones) and in particular from robber cut [268] with 120 bones (see Tables 1 and 7). The hand collected portion consisted of a few major domesticate bones alongside single post-cranial red deer and roe deer fragments. It could perhaps be conjectured whether these bones were also ultimately derived from the underlying villa levels. The sample collections were mainly composed of amphibian and small rodent (plus shrew) bones, again perhaps indicative of some combination of pit fall traps and beneficial habitats.

Post-medieval features (Phase 7)

Colluvial deposit [200] provided a few bones, of which the most interesting was a near complete femur from a very large horse. This has a shaft diameter of 60.3mm and a distal breadth of 120.8mm. Comparing these dimensions with those from complete equid femurs from 17th/18th-century levels at the British Museum (taken from PCA records and Rielly in prep) it can be seen that this animal probably stood somewhere between 16.5 and 18 hands and was notably broad of girth. This animal was undoubtedly a cart horse, probably a shire, these reaching heights between 17 and 18 hands. An archaeological example of a similarly sized very large horse was found in a late 19th to early 20th-century deposit at Whitby Abbey, this with an estimated shoulder height between 1.64 and 1.78m or 16.5 to 18 hands (Daulby and Baker 2003). It can perhaps be suggested, from this evidence, that the Bedale example would date from at least the early 19th century, conforming with the ‘creation’ of the Shire horse, although it wasn’t named as such until much later in that century (Hall and Clutton-Brock 1995, 226).

Site 122N

Field and enclosure system (Phase 4)

This assemblage was taken from a series of shallow ditches and two refuse pits, the majority providing fewer than 20 bones with the exception of the ditch included in Group 115 with 54 bones. The high proportion of cattle compared to sheep/goat and pig may again relate to preservation and fragmentation biases (see Table 3). While the phasing of these deposits in relation to the villa should also be considered (see above), the absence of any further species, in particular those of a more friable nature would perhaps highlight the aforementioned biases. Notably, the domesticate collections continue to demonstrate a rather wide diversity of skeletal parts.

Working waste from Site 58 and 122

There is a clearly larger collection of working waste from Site 58 (see Table 11), those from Site 122 entirely composed of red deer fragments. All the antler pieces recognised as working waste have been sawn through while the single skull piece, from Site 122, demonstrates a sawn antler pedicle. The various limb bones, generally comprising metapodials, were sawn through the shaft close to the proximal or distal articular ends, usually sawing clean through or occasionally partly sawn from numerous directions and then snapped. This type of cut was noticed on 2 out of the 5 sawn sheep/goat tibias and a proportion of the cattle and equid limb bones. One of the sheep/goat pieces, a metatarsus, has a large hole drilled through the proximal end. Finally, each of the cattle horncores included in this section was sawn through at the base.

Conclusion and recommendations for further work

Both sites provided a wealth of animal bones, the great majority of which are clearly derived from well dated levels with notable concentrations within the 1st and 2nd centuries (Site 58) and the 3rd and 4th centuries (Site 122). Alongside their relatively good condition and the sampling strategies practised at these sites, it can be proposed that these collections offer a high potential value concerning the appraisal of animal usage in this area during the Roman era. It should be stated that bones were found from earlier and later levels, those dated to the Iron Age (Phase 2) from Site 58 as well as the medieval and post-medieval collections from Site 122. However, the priority regarding any further work should obviously lie with the Roman period assemblages. There is clearly additional work to be done regarding the phasing of the Roman deposits, aimed at fixing the dating evidence of the described Site 58 Phase 3 sub-phases and also separating the various fills of the Site 122 quarry pit and enclosure ditch into at least two phases (sub-phases) contemporary with the occupation period of the villa. A further potential phasing problem relates to the bones recovered from abandonment deposits within the villa (Phase 5). Here it should be determined whether this collection can be equated with the latest occupation of the villa or to some usage following the abandonment of this structure.

The Site 58 assemblage is clearly the larger of the two assemblages with potential for in depth studies of cattle and sheep/goat usage, concerning exploitation practices, their size (and possibly type, here looking at the notable collection of cattle horn cores) as well as butchery methods (largely limited to cattle). It can be suggested that the large collection of bones denotes a sizeable population, largely involved in cattle herding. It will of course be of some interest to learn whether these animals were principally used for their meat and/or for some secondary product as milk. There is certainly evidence for local production as demonstrated by the presence of young calves, although also of interest here was the high proportion of older calves. This could also be indicative of a production centre, the culled youngsters representing those animals not required for breeding or working purposes. Such age distributions have been noted at other rural Romano-British sites (see Maltby 1981, 182 and Maltby 1994, 90). Further analysis of the age structure is recommended in order to determine whether this site also functioned as a supply centre. Evidence compiled from the bone collections taken from sites within the environs of Roman Winchester and Dorchester clearly demonstrated age differences between the associated rural and urban sites (*ibid*), the former as mentioned providing a greater proportion of immature stock plus a greater number of older individuals. Rural or urban traits can be tested for within the Site 58 collections and it would obviously be important to compare these results with the evidence provided by nearby urban centres, most notably from Catterick (Cataractonium). However, while still comparable, the collections from sites associated with this Roman town tend to date to the 3rd and 4th centuries (see Meddens 1990a and Stallibrass 1997). A final point concerning the Site 58 assemblage concerns the preponderance of cattle, which conforms to the pattern of Romanization found within numerous sites, not just villa or urban settlements, moving further into the Roman era (see King 1984).

It can perhaps be assumed that the villa collection was taken from an affluent household, one that could afford such a large hypocausted building. The bone evidence could be used to confirm this impression with a good collection of deer (note this postcranial collection is in marked contrast to the majority of antler pieces found in Site 58) and various game species including majestic birds as swan, crane and heron, as well as the generally occurring game as hare and woodcock. There is perhaps an argument to suggest that the Romans ate such meats if they were available rather than their presence being an indication of expensive tastes (in terms of purchase or time spent on a hunt), as expounded by Cool (2006, 115). However, this disregards the obvious affluent association, as found here, and the evidence provided by notably high status urban sites (see Rielly 2005, 166-7). It is to be wondered if the few fish bones may also be indicative of affluence, here including the recovery of a large pike from the villa enclosure ditch. However, rather than pointing out particular species, it would appear that fish provided a very small part or indeed no part of the pre-Roman diet (see Dobney and Ervynck 2006 in Locker 2007, 154). Fish consumption undoubtedly increased with Romanisation or rather, greater quantities of fish bones have been found at recognisably Romanised sites, in particular those in urban areas and also from villas (*ibid*, 155). However, in the north-east, the quantities are rather small even within such ‘specialised’ sites, as shown

here at Site 122 and also within Catterick, from the Thornborough Farm site (see Stallibrass 1997, 38). Rarer still are Romano-British sites with fish bones, with the notable exception of certain sites in south-east England as Great Holts Farm (Locker 2007, 155). It is therefore of some significance that a few fish bones were recovered from Site 58, with an additional small collection taken from the evaluation excavations at this site (Jacque 2009, 52).

It is of interest that the fish bones, alongside the game species (principally taken from Site 122), suggest the exploitation essentially of freshwater and/or estuarine habitats. This may provide evidence for trade and/or the availability of particular environs for hunting purposes.

In contrast to Site 58, the villa collection provided a lesser proportion of cattle with a corresponding increase in pig bones. Rather than suggesting a lesser degree of Romanization, this may well equate with the more affluent Roman sites, here following, to a certain extent, the diet practised in the Roman heartlands, in Italy (following King 1984 and see Rielly 2005, 167). A notably high proportion of pig bones were observed within the 1st and 2nd-century levels at Holme House villa, somewhat to the north on the Tees, although the meat diet changes to a Site 58 pattern by the 4th century (see Rackham 2008, 273 and Gidney 2008). Also in contrast to Site 58, there is a lesser proportion of age, size and butchery evidence. The data concerning cattle and sheep/goat, however, is sufficient to attempt some analysis of exploitation practices as well as changes in size/type.

The small raptor recovered from the Phase 5 hypocaust fill may be of some considerable interest. If dating to the occupation period, it can be suggested that this bird is unlikely to represent an accidental inclusion as perhaps might occur if this bird had been either scavenging the local area or perhaps roosting or nesting within the villa buildings. Neither scenario can be claimed for this small raptor, the most likely identification being a sparrowhawk. This species has been identified amongst bone collections from a small number of Roman sites, including from 4th-century levels at Gresham Street in London (Rielly 2014, 199) and from a 3rd-century deposit within a well at Great Holts Farm in Essex (Murphy et al 2000, 40), the latter associated with a large number of thrush bones. The relevance of this association relates to the manner in which these small raptors may have been used, essentially as decoys, driving small birds (as thrushes) in a particular direction, essentially towards one or more trees in which the wildfowler has already placed a number of limed twigs, to which the birds then adhere and are easily caught. This method of capture is well illustrated in the ‘small hunt’ mosaic from the Villa Romana del Casale near Piazza Armerina in Sicily (see Figure 2), this dated to the 4th century, which shows two hunters with what appear to be small birds of prey, on the shoulder of one and carried in the hand of the other. In this illustration the hunters carry rods on their backs and a bag of lime over their shoulder and they are clearly progressing towards a tree with a full complement of captured thrushes (Carandini et al 1982, fig 91; Lindner 1973, 30-3). A small number of thrush-sized birds were found in the same hypocaust deposit, perhaps suggestive of predator/decoy and prey. It is also worth noting that the evaluation excavations at the villa site also provided a single bone from a small raptor, here tentatively identified as a peregrine falcon (Jacques 2009, 52).

As clearly stated in this discussion, there are several contemporary bone collections from sites within this general area. These should also include the large and well preserved assemblage principally dated to the 3rd and 4th centuries from the Roman fort at Piercebridge (Rackham 2008), just across the River Tees from Holme House villa, and the bones from the Romano-British settlement at Faverdale, also near the Tees, this largely contemporary with Site 58 (see Rielly 2012). However, though large, this collection was generally in poor condition. It should also be mentioned that a very large bone collection, amounting to just over 25,000 fragments, was recovered from Bainesse Farm, near Catterick (Meddens 1990b). However, while certainly dated to the Roman era, covering the period from the 1st through to the 3rd centuries, no attempt was made to phase this collection, thus severely limiting its potential for comparison.

In conclusion the complimentary collections from Sites 58 and 122 are more than worthy of further analysis with the major aims of demonstrating the local and perhaps traded use of domesticates from the former site and evidence pertaining to status from the latter site. Both collections will undoubtedly provide additional evidence concerning the size and type of cattle and sheep/goat which can be compared to similar information gleaned from contemporary excavations within this general area. There is also some scope for an environmental analysis of the villa site as demonstrated by the presence of the incidental species, namely the small rodents and the amphibians. These studies should also include the collections recovered from the evaluation trenches at both these sites, here requiring that each of the associated deposits should be allocated a position according to the final stratigraphic phasing of Sites 58 and 122.

A final point concerns the work yet to be undertaken on specific bone groups. This includes some additional analysis of the amphibian bones from the hypocaust deposit within the villa (Site 122) to be undertaken by Philip Armitage. There are also a few bird bones requiring positive identification, which can be achieved by a visit to the bird bone reference collections at Tring Natural History Museum.

Additional recommendations

The aforementioned constraints limiting the time available for recording the bones has undoubtedly reduced the potential value of these collections. Given more resources, it is recommended that certain sections of the Site 58 and 122 collections should be re-recorded, either fully (following the methods already described) or accounting for specific attributes (as butchery) and/or specific skeletal parts (as cattle-size vertebrae and ribs). An additional two aspects of the site collections should also be considered, which will be described below. The ultimate aim of these recommendations is to increase the available dataset without necessarily overtaxing these extra resources, if they become available.

Taking each site in turn, it is recommended that the sieved animal bone collection from the Site 122 quarry pit should be fully recorded. This amounts to 1,187 bones with 237 identifiable to species. The completion of this task should significantly increase the available age and size data related to the occupation phase of the villa. While butchery should be recorded in a

similar fashion to other fully recorded collections, it would be useful to provide a little more detail – here recommending a pictorial representation drawing the position of the cut and the direction of chop (if relevant) onto bone proformas as described for example by Popkin (2004). In addition, similar techniques should be employed to record the cattle- and sheep-sized vertebrae and rib butchery accompanied by a quantification of these skeletal parts. 50 butchered bones were recorded from the villa. The extra information related to these parts as well as other butchered items should also extend to the fully recorded bones from other parts of the villa. Including this part of the axial skeleton is important, not only because they occupy a large part of the skeleton but also due to the information they can provide concerning status (some of the best cuts of meat are in this part of the carcass) as well as butchery practices.

Site 58 provided a large quantity of data from the fully recorded (F) assemblage and it is therefore not necessary to re-record the Scanned section as recommended with the villa collections. However, while there is a good quantity of age and size data amongst the F bones, the credibility of the interpretation of this data relating to exploitation practices and the size/stature of the domestic stock will undoubtedly be improved with a larger dataset. Thus it is recommended that the age and size parts of the S fraction should be recorded. This will involve sorting through approximately 1,000 bones (cattle, sheep/goat and pig). It should of course be mentioned that such an analysis is possible due to the relatively close dating of the combined phasing within the Site 58 slotted features i.e. within 200 years. In addition to this, the extra butchery recording suggested for the villa collection should equally apply to the bones from this site, although here limited to the well dated and better represented Phase 3.3 collection. This provided 159 butchered items. Further work on this aspect should also include the vertebrae and ribs, accompanying quantification of these skeletal parts.

The additional two aspects include one local and one probable extraneous recommendation. A small amount of fish bones were recovered from the sieved samples from both sites as well as some potential other food species. It would obviously be useful to wash and sort the majority if not all of the remaining samples in order to hopefully increase the quantity of such species. Finally, a small quantity of bones, contained in two boxes, one each from each site, was recovered during the evaluation stage of this project (Jacques 2009, 32). The findings from these collections were briefly mentioned above, these providing notably comparable attributes with the larger assemblages recovered from these later excavations. In order to provide a more comparable dataset and as the quantity is not large, it is recommended that these bones should be re-recorded using the full recording system.

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Site:	58	122N	122	58	122
Method:	**F**	**F**	**F**	**H**	**S**
Phase					
2	199				
3.1	107				
3.2	512				
3.3	5969			2700	
3.4	579				
3.5	5		34		
3.6			2		
4		178	1327		1186
5	15		293		
6			22		
7			9		
8	1		1		
Grand Total	**7387**	**178**	**1688**	**2700**	**1187**

Table 1. Distribution of hand collected bones by site, recording method and phase, where F is fully recorded (full excavation), H is hand collected through partial excavation of the baulks between slot at Site 58 and S is scanned (machined).

Site	**58**				
Phase	**2**	**3.1**	**3.2**	**3.3**	**3.4**
N Poor	1	0	6	117	43
N bones	199	107	512	5970	579
%poor	0.5	0.0	1.2	2.0	7.4
N Loose teeth	9	2	13	103	30
N bones	98	19	239	2396	231
%loose teeth	9.2	10.5	5.4	4.3	13.0

Table 2. Analysis of preservation and fragmentation in Site 58 by phase using fully recorded bones, the former using the proportion of poorly preserved bones within the phase collections (%poor equals N poor/N bones x100) and the latter, the percentage abundance of loose teeth amongst the combined cattle, sheep/goat and pig assemblages (%loose teeth equals N loose teeth/N bones x 100) where N is the number of bones.

Site	**122N**	**122**				
Phase	**4**	**3.5-6**	**4**			**5**
			QP	**D**	**V**	
N Poor	28	7	6	21	1	41
N bones	170	36	140	1065	78	295
%poor	16.5	19.4	4.3	1.9	1.3	13.9
N Loose teeth	16	1	1	38	1	5
N bones	90	22	54	290	12	100
%loose teeth	17.8	4.5	1.9	13.1	8.3	5.0

Table 3. Analysis of preservation and fragmentation in Site 122 by phase and feature using fully recorded bones (for method see Table 2), where QP is quarry pit, D is enclosure ditch and V are the villa deposits.

Phase:	2	3.1	3.2	3.3	3.3	3.4	3.5	5
Recovery:	F	F	F	F	H	F	F	F
Species								
Cattle	68	18	197	1349	676	178	1	1
Equid	8	3	29	144	47	25		
Cattle-size	83	83	219	2547	1219	255		3
Sheep/Goat	25		36	864	359	47	3	1
Sheep			2	12				
Goat			1	4				
Pig	5	1	6	182	90	6		
Sheep-size	9	2	17	824	298	39	1	7
Red deer				13	1			
Roe deer			1					
Dog			2	17	5	29		3
Small mammal				1				
Chicken				3				
Chicken-size				1				
Goose				1	1			
Mallard			1	4	2			
Swan					2			
Crow				2				
Raven	1		1					
Woodcock					1			
Grand Total	199	107	512	5968	2701	579	5	15

Table 4. Species abundance in Site 58 by phase (hand collected bones) where F is fully recorded, H is hand collected through partial excavation of the baulks between slots at Site 58 and S is scanned.

Phase:	**2**	**3.1**	**3.2**	**3.3**	**3.4**	**5**
Species						
Cattle	1	1	7	24	6	
Equid				1		
Cattle-size	3	5	42	171	26	5
Sheep/Goat		4	12	52	5	1
Pig		1		6	1	
Sheep-size	10	38	101	672	40	15
Hare				1		
Small mammal			1	1		
House mouse				3		
Mouse			1	1		
Field vole			3	1		
Vole			1	3		
Small rodent		13	5	27	5	
Small passer			1	1		
cf Cod				1		
Freshwater eel				1		
Amphibian	3	10	86	61		
Grand Total	**17**	**72**	**260**	**1027**	**83**	**21**

Table 5. Species abundance in Site 58 by phase (sieved bones)

Site:	122N	122					
Phase:	4	3.5-6	4				5
	D	D	QP	QP	D	V	V
	F	F	F	S	F	F	F
Species							
Cattle	76	21	44	89	159	7	58
Equid	9	2	19	2	12		2
Cattle-size	76	11	63	550	657	10	109
Sheep/Goat	9	1	7	46	78	3	23
Sheep					2		
Pig	5		3	39	51	3	19
Sheep-size	3	1	2	400	76	50	46
Red deer			1	1	7		2
Dog					6		10
Hare				4	1		1
Small mammal							3
Chicken			1	20	10	4	5
Chicken-size					1	1	1
Goose				1			
Mallard				11	5		
Swan				3			
Badger							6
Crane				1			
Dove							1
Heron				1			
Teal				4			1
Vole							6
Widgeon				1			
Woodcock				14			
Grand Total	178	36	140	1187	1065	78	293

Table 6. Species abundance in Site 122N and 122 by phase and feature (hand collected bones) where D is ditch and QP is quarry pit, and F is fully recorded and S is scanned

Phase:	**4**	**4**	**5**	6
Feature:	**D**	**V**	**V**	
Species				
Cattle	5			15
Cattle-size	152	15	10	1
Sheep/Goat	1	2	1	
Pig	6		1	
Sheep-size	139	71	28	13
Dog		1	4	
Weasel		1		
Small mammal				
Common shrew	2	1	4	6
House mouse		1	2	
Mouse			3	
Field vole	2	1	2	1
Vole	1	3	20	
Rat		1	3	
Small rodent	30	20	89	73
Chicken	3	1	1	
Small raptor			1	
Woodcock	3			
Small thrush		1	1	
Large thrush			1	
Small passer			1	
pike			1	
plaice/flounder	2		1	
cf.flounder	1			
cf.plaice	1			
unidentified fish	3			
Amphibian	41	1	7520	55
Grand Total	392	120	7694	164

Table 7. Species abundance in Site 122 by phase (sieved bones), where D is enclosure ditch and V is villa

Site	Phase/Feature	Cattle	Sheep/Goat	Pig	N
58	3.2	81.4	16.1	2.5	242
	3.3	56.0	36.5	7.5	2411
	3.3(H)	60.1	31.9	8.0	1125
	3.4	77.1	20.3	2.6	231
122N	4	84.4	10.0	5.6	90
122	4/QP	81.5	13.0	5.6	54
	4/QP(S)	51.1	26.4	22.4	174
	4/D	54.8	27.6	17.6	290
	5	58.0	23.0	19.0	100

Table 8. Percentage abundance of cattle, sheep/goat and pig at Sites 58 and 122 by phase and feature using fully recorded totals except where otherwise stated (H hand collected material from baulks at Site 58 and S scanned at Site 122) and where QP is quarry ditch, D is ditch and N is the number of domesticate bones.

Feature	Cattle	Sheep/Goat	Pig	N
pit 2288	50.7	33.6	15.7	134
Encl slot 3	55.5	36.4	8.2	110
Encl slot 4	54.2	35.2	10.6	142
Encl slot 5	63.4	29.6	7.0	142
Encl slot 14	56.6	36.8	6.6	106
Encl slot 17	29.2	64.9	5.8	171
Encl slot 18	45.8	43.4	10.8	166

Table 9. Percentage abundance of major domesticates within selected features dated to Phase 3.3 where encl is enclosure and N is the combined number of bones in each feature.

Site	Phase	N mand	N epi	N meas	N butch
58	2	6	50	20	4
	3.3	170	1125	344	159
	3.2-3.5	198	1315	429	183
122	4	26	169	58	41
	5	4	52	19	9

Table 10. The quantity (N) of cattle, sheep/goat and pig mandibles (mand); limb bone articular ends - epiphyses (epi); measurable (meas) and butchered (butch) bones from a selection of Site 58 and Site 122 phase assemblages. See methodology for a description of the selection process.

Species	Bone	Site/Phase		
		58		122
		2	3.3	4
Cattle	Horncore		3	
	Radius		4	
	Metatarsus	1	1	
	All	1	8	
Equid	Metacarpus		4	
	Metatarsus	3	5	
	All	3	9	
Cattle-size	Limb bone frg		3	
Sheep/Goat	Tibia		5	
	Metatarsus		1	
	All		6	
Red deer	Antler		10	2
	Skull			1
	Metacarpus		1	
	Metatarsus		1	
	All		12	3

Table 11. Animal bones with working marks (sawing, carefully chopped or drilled).

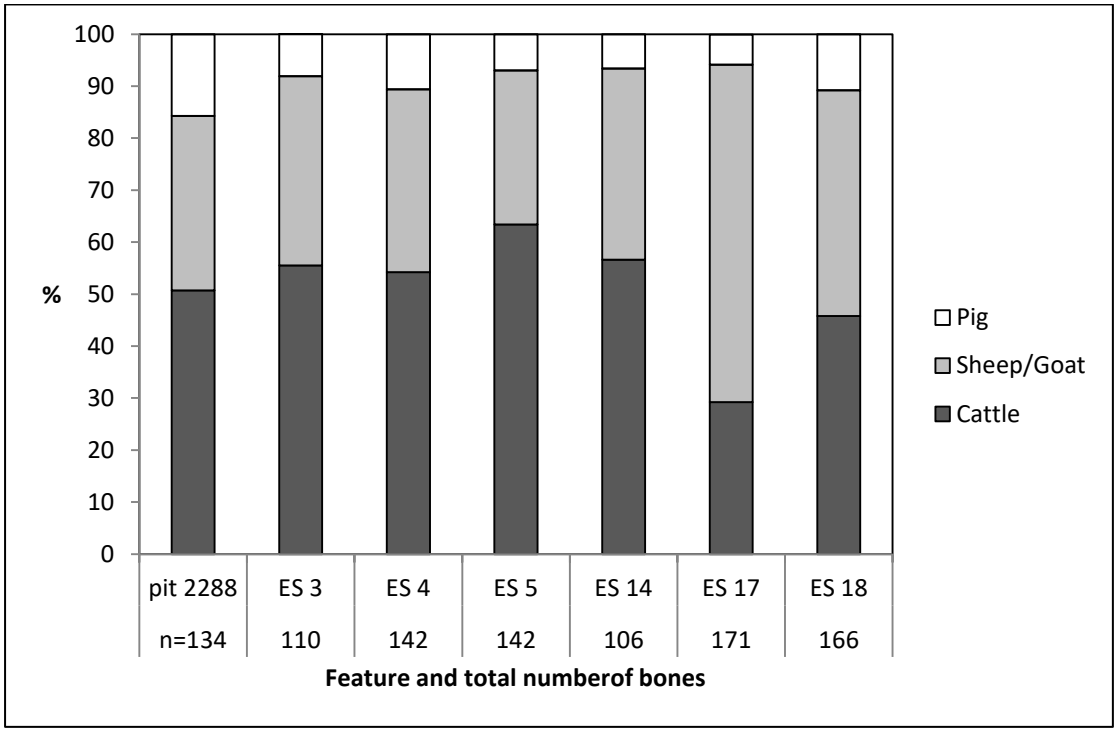

Figure 1. Percentage abundance of major domesticates within selected features dated to Phase 3.3 where ES is enclosure slot and N is the combined number of bones in each feature.

Figure 2. Part of the 'small hunt' mosaic at the Villa Romana del Casale in Sicily, dated to the 4th century.

APPENDIX 20

ENVIRONMENTAL ARCHAEOLOGICAL ASSESSMENT REPORT

Kate Turner and Dr Marta Pérez.

Introduction

This report summarises the findings from the rapid assessment of 103 bulk samples taken from sites excavated ahead of the A684 Bedale, Aiskew, and Leeming Bar Bypass Scheme, North Yorkshire*;* Site 58 an Iron Age/Roman period enclosure and associated trackway, Site 122, a Roman villa and Site 122 N, an area of field systems to the north of the villa. The aim of this assessment is to provide an overview of the content of the bulk samples, to determine the environmental potential of these samples and finally to establish whether any further analysis needs be undertaken.

This report also presents the results of the analysis of 21 handpicked samples of oyster shell from Site 122, that were collected during the course of the excavation.

Methodology

103 bulk samples of between 7 and 40 litres of sediment were processed using the flotation method; material was collected using a 300µm mesh for the light fraction and a 1mm mesh for the heavy residue. The heavy residue was then dried, sieved at 1, 2 and 4mm and sorted to extract artefacts and ecofacts. Residues were also scanned with a magnet to find hammer-scale and/or metal work and, if present, were retained and sent to a specialist for analysis (Dr Rod MacKenzie; Appendix 17). The abundance of each class of artefacts was recorded using a non-linear scale where '1' indicates occasional occurrence (1-10 items), '2' indicates occurrence is fairly frequent (11-30 items), '3' indicates presence is frequent (31-100 items) and '4' indicates an abundance of material (>100 items). The results for this stage of the assessment are presented in **table 2** and **table 4**.

The flot material (>300 µm), once dried, was scanned under a low-power binocular microscope in order to quantify the level of environmental material, such as seeds, chaff, charred grains, molluscs and charcoal. Abundance was recorded as above. A note was also made of any other significant inclusions, for example roots and modern plant material. The results of this assessment are shown in **table 3** and **table 5**.

Results Site 58

Residues

All bulk samples produced artefacts and/or environmental material, with the exception of samples <105>, <107>, <121>, <145>, <172>, <273> and <281> which were sterile.

Out of the 61 samples processed, 37 contained wood charcoal (**table 4**), of these only <109>, <119>, <120>, <126>, <127>, <130>, <160>, <253>, <269>, <279> and <280> produced fragments of a suitable size and abundance for identification. A selection of specimens from the most stratigraphically significant contexts has been sent to an external specialist (QUEST; Appendix 21), comprising samples <126>, <127>, <130>, <159>, <269>, <279> and <280>. Of these samples <127>, <130>, <279> and <280> have been used for AMS dating (SUERC; Appendix 22).

Animal bone was present in all but 10 samples (Reilly Appendix 19); both large and small mammals were well represented, with the former found in over 50% of samples and the latter in around 74%. Fragments of animal bone were also identified in 29 samples (**table 4**), fish in 6 (<108>, <160>, <168>, <170>, <271> and <272>) and small pieces of burnt bone in 3 (<108>, <110> and <159>). Generally the concentration of skeletal material is relatively low (<30 specimens per category, per sample) with the exception of samples <109> and <127> which contained between 30 and 100 individuals.

Aside from charcoal and bone, the assemblage was relatively poor in environmental remains; low frequencies of seeds were found in samples <104>, <159>, <195>, <237>, <271> and <272>. A single nut fragment was discovered in sample <103>, though this was too small to be properly identifiable. Samples <167>, <168>, <226> and <246> also contained small amounts of land and/or freshwater molluscs, though the assemblage size was not large enough to be statistically significant and indeed it should be noted that these samples were not specifically taken with the intention of using then for the recovery of mollusca.

Metal-working debris such as hammerscale and slag was abundant in 31 of the assessed samples (**table 4**). Sieving resides were kept from the majority of these due to the presence of hammer-scale fragments (<2mm) and, along with the larger material and that from Site 122 these were then sent to a specialist for further analysis. Notably all of the samples from feature [2019], a Romano-British ditch (samples <108>, <109>, <110>, <119>, <120> and <122>) contained hammerscale and slag, as did the majority of samples from the fill of feature [2044], a ditch of a similar date. Sample <126> contained such a wealth of metalworking debris, hammer-scale, slag and coal that the whole sample was kept for further analysis, after being scanned to recover charcoal, bone and other finds. The metallurgical residues have been assessed by Dr MacKenzie (Appendix 17).

A small amount of building material; brick, stone, daub, mortar, tile and plaster was present in the assemblage (refer to Appendix 9 & 10), as shown in **table 4**; samples <101> and <104> were, however, the only ones that contained more than a handful of material. Aside from this, pottery fragments (Appendix 4, 5 & 6) were found in samples <124>, <158>, <161>, <164>, <170>, <180> and <232>, glass in samples <129> and <131>, copper in <170> and <256> and struck/burnt flint pieces in samples <173>, <196>, <269> and <279>.

As before all artefacts were separated out, and then passed onto the finds department for distribution to the relevant specialists for assessment.

Flots

Of the 61 samples processed using the floatation method, 58 produced flots; ranging in volume from 1 to 59ml.

All of the flots with the exception of samples <101>, <104>, <107>, <120>, <121>, <167>, <172> and <173> produced wood charcoal; however the majority of this was too fragmented to be identifiable. Samples <158>, <160>, <170>, <195>, <256> and <279> did contain pieces of a suitable size, however these are in very low concentrations and may not, therefore, provide a representative sample.

The vast majority of samples contained relatively little in the way of environmental remains; seeds were present in all but 11 samples, but in low concentrations (<30 individual specimens). Samples <159> and <160>, from the fill of feature [2078], a Romano-British re-cut of the enclosure ditch, did however contain larger amounts of un-charred seeds. The main species represented in these samples were *Carex spp.* (sedges), *Rumex spp.* (dock/sorrel) and *Atriplex hortensis* (garden orache), all wild plants though garden orache has also been domestically grown for consumption (Dickinson, 1991). Samples <127> <269>, <271> and <272> also contained higher concentrations of seeds when compared to the rest of the assemblage, including specimens of *Sambucus spp.* (elder) and *Hyoscyamus niger* (henbane), the level of preservation of which suggests that they may be modern intrusions. Along with this, seeds of the plant *Chenopodium album* (fat-hen) were identified throughout the assemblage in low concentrations; in the archaeological record this species is also generally interpreted to be a modern intrusion and may be a signifier of bioturbation. Sample <269> contained a wealth of both charred and un-charred specimens of fat-hen which, when in conjunction with charred grain and rachis/glume fragments, could be interpreted as weeds of arable crop cultivation (Smith & Davis, 2006). Preliminary identification of the material in this sample has suggested *Triticum spp. (*indeterminate wheat), *Hordeum spp.* (barley) and *Secale cereal* (rye) are present. The remainder of the

charred seed remains in the sample set were, for the most part, too burnt and fragmented to be correctly identified.

Charred grain was found in 21 of the 58 flot residues (**table 5**). Generally concentrations were low (<30 individual specimens), with the exception of sample <269>, as previously mentioned. Further study of this material could be carried out to determine whether these samples represent primary or secondary deposits; for example whether material has been processed in situ, or was dumped intentionally (Smith & Davis, 2006).

37 samples contained molluscs, mostly land snails; peak concentrations were in samples <160>, <164>, <226>, <235>, <236>, <237>, <272>, <276>, <277>, <278>, and <279>. Species present included *Aegopinella pura* (delicate glass snail), *Nesovitrea hammonis* (rayed glass snail) and *Trichia hispidia* (hairy snail), all species associated with vegetation or ground litter. Freshwater taxa were also present in samples <129>, <130>, <160>, <226>, <235>, <272>, <276>, <277> and <278> . As these samples were not taken specifically with the intention of mollusc recovery the value of this material recovered through flotation is limited.

Low frequencies of small animal bone were identified in several samples (**table 5**); this is likely to belong to amphibians and/or small mammals, and has been passed onto a relevant specialist for further identification.

As expected from study of the heavy residues, all of the flot material for samples <108> to <160> contained coal, clinker, hammer-scale and/or slag; along with 50% of the remaining samples. As substantial concentrations of charcoal were also present in the majority of these it is likely that the deposits are the by-product of metal working activities; analysis and identification of suitable elements of the charcoal should clarify which types of wood were being used for fuel during the occupation of the site and help to broaden our understanding of local resource exploitation.

Evidence of contamination in the form of modern roots, seeds, grasses, modern insects and insect eggs was found in 49 out of 58 samples; as suggested in section 3.1.2. this indicates that the sediments may have been subjected to post depositional re-working and thus the information they contain is potentially unreliable. Heavily contaminated samples such as <131>, <144> and <145> should be discarded entirely; the level of modern material severely compromises any use they would be in creating an environmental reconstruction.

Results Sites 122 and 122N

41 bulk samples were processed from Sites 122 and 122N; all produced flot material except for sample <18>.

Residues

With the exception of charcoal and molluscs, the residues from area 122 contained a relatively small amount of environmental material. Varying amounts of charcoal were identified in 27 out of 41 samples and of these 10 (<7>, <10>, <11>, <13>, <24>, <25>, <30>, <31> and <34> and <52>) contained fragments of a significant size to be identifiable to species level, the analysis of which could provide information on local environment and resource use during the occupation of the site.

Samples <7>, <10>, <14>, <24>, <25>, <30> and <31> yielded low concentrations of charred grain, the preliminary identification of which indicates that the main species present are *Hordeum spp*. (barley) and *Triticum spp*. (undetermined wheat). Sample <31>, a burnt deposit, contained the highest concentration of grain; though these specimens proved difficult to identify as, in many cases, the outer layer had been totally charred. No chaff was discovered, suggesting that grain processing may not have been carried out in the immediate vicinity of the sampled area, or off-site.

Low concentrations of seeds were present in four samples, <19>, <24>, <25> and <45>; these mainly belong to weed species, including *Cheopodium album* (fat-hen), and are in such low concentrations that it is reasonable to assume that they represent a background signal.

Apart from samples <12>, <18>, <22>, <53> and <56> the majority of the heavy residues contained animal bone, in the form of whole specimens or fragments. In <1>, <9>, <10>, <11>, <21> and <31> burnt fragments were also present, generally in low concentrations, except in sample <1> which contained over 30 individual fragments (**table 2**). Both large and small mammal species are well represented in this assemblage, with complete bones of the former found in 18 samples out of 41, and the latter in 24; the bulk of the fragmentary bone material is thought to be from larger mammals. A preliminary assessment by the in-house bone specialist Kevin Rielly has confirmed that the small mammalian assemblage is largely made up of bones of voles, mice, and amphibians (frogs), which may be an indication of a shift towards wetter conditions at the site during periods of disuse. *S*amples <3>, <9>, <10>, <15>, <17>, <19>, <24>, <25> <30>, <31> and <57> were also found to contain fish bone.

Nearly 50% of the assessed samples contained land and/or freshwater molluscs, which are an excellent proxy for reconstructing past environmental change. Species present include *Discus Rotundatus* (radiated snail) and *Vallonia excentrica* (eccentric grass snail).

Metal working by-products including hammer-scale, slag and iron fragments were identified in samples <1>, <4>, <9>, <10>, <11>, <13>, <14>, <21>, <24>, <25>, <27>, <34>, <35> <53>, <54> and <57>. In four of these samples (<24>, <53>, <54> and <57>) the concentration of hammer-scale was deemed significant enough that any residual material from the sieving process was retained and sent to a specialist for further analysis. Iron nails were also present in samples <1>, <7>, <10> and <31>.

Building material in the form of daub, brick, plaster and tile fragments and burnt clay, was found in more than half of the processed samples (**table 2**). Particularly of note is the plaster in samples <15>, <17> and <18>, which had retained part of its original, often highly pigmented, decoration. Some residues, particularly those made up of ditch-fill, also contained a large number of stones deemed to have been used as construction material. Due to the bulk of this material a building materials specialist (Dr Kevin Hayward) was consulted, and it was determined that only the larger and more 'unusual' pieces would be retained for further analysis.

With regard to material culture; low concentrations of fragmented pottery were identified in 9 out of 40 samples (samples <5>, <7>, <9>, <10>, <11>, <13>, <21>, <22> and <31>), which in sample <11> appears to have been burnt. Fragments of glass were found in samples <9>, <14>, <27>, <31>, <45>, along with a small glass bead in the residue of sample <11> and pieces of a jet bracelet in sample <34>. A small piece of worked flint was also discovered in sample <55>, a piece of cut bone in sample <9> and part of a shale bracelet in sample <10>.

Sample <10>, taken from the fill of feature 248 (a boundary ditch) consists of 120 litres of sediment, of which 40 have been processed, and have produced a large amount of environmental evidence and artefacts. It is not recommended to process more of this sample volume for environmental purposes, however, a decision should be made about whether to process the remaining sample for the retrieval of small finds.

All the material collected from the residues has been catalogued and passed to the relevant specialists for further assessment.

Flots

All of the samples processed produced flots ranging from 1ml to 256ml in volume, with the exception of sample <18>; a floor surface. Samples <30> and <31> were not assessed due to potential cross-contamination.

Wood charcoal was present in all flots apart from samples <6>, <18>, <20>, <22>, <27>, <28>, <35> and <38>. The majority of samples contained material that was too small to be identified to species level, however samples <3>, <5>, <8>, <10>, <12>, <13>, <23>, <24> <25> and <34> contained fragments of a size that could be sent to a specialist for further analysis.

Charred grain was present in nearly 50% of the samples (**table 3**), the highest concentration being in sample <10>. Where possible this has been identified as *Hordeum spp.* (barley) and *Triticum spp.* (indeterminate wheat), though in some cases the material was highly fragmented and completely charred, disfiguring any distinguishing features. This sample also contained glume fragments in large quantities, seeming to indicate the presence of *Triticum spelta* (spelt wheat). Chaff fragments were identified in sample <52> but were too degraded to be identified. The presence of material such as this indicates that some form of processing may have been carried out in the local area, rather than off site, and/or that the grains were carbonised as complete spikelets in storage. In areas where very low concentrations of charred grain were identified, for example samples <32>, <33> and <34> it is possible that specimens represent deposits of un-threshed material, rather than waste bi-products.

As well as charred grain, sample <10> contained a substantial number of charred seeds, including those of *Fabaceae spp*. (legumes), *Rumex spp.* (dock/sorrels) and *Chenopodium album* (fat-hen). Lower concentrations were also discovered in samples <4>, <10>, <23>, <24> and <45> with, as before, a strong presence of *Rumex spp.* (dock/sorrels), as well as specimens of several weed species such as *Stellaria spp.* (chickweed) and *Rubus spp.* (brambles).

Uncharred seeds were identified in roughly 75% of the assemblage, with the exception of samples <1>, <3>, <5>, <6>, <8>, <14>, <15>, <18>, <21>, <28>, <56> <57> and <55>. Among the uncharred seeds other samples the most representative species include *Brassica spp.* (mustards), *Chenopodium album, Stellaria spp., Sambucus spp.* (elder), *Rumex spp.* and *Silene spp.* (campion).

The majority of the flot residues contained well preserved molluscan remains, in varying frequencies (**table 3**); most of which are land snails. Among the terrestrial snail species identified were: *Vertigo pygmaea* (crested vertigo snail), *Carychium tridentatum* (slender

herald snail), *Vallonia excentrica* (eccentric grass snail), *Cochlicopa lubrica* (slippery moss snail) and *Discus rotundatus* (radiated snail), which are, for the most part, indicative of a sheltered, moist environment. Samples <9>, <12>, <13>, <20>,<31>, <34> and <38> also contained freshwater snails including *Anisus leucostoma* (button ram's-horn) and*, Succinea putris* (amber snail) indicating that the features these samples drive from may at some point have been filled with water. Snail eggs were also discovered in samples <15>, <17> and <28> which, along with several occurrences of *Cecilioides acicula* (agate snail) a burrower species in these and other samples, and this may be an indicator of modern contamination via bioturbation.

Samples <4>, <7>, <9>, <10>, <11>, <15>, <17>, <23>, <24>, <25>, <34>, <38> and <52> all produced small complete bones, or fragments of bone. These are likely to belong to small mammals or amphibians, and have been passed onto a bone specialist (Philip Armitage) for proper identification. A small amount of fish bone was also found in sample <11>. The assessment of amphibian and fish bone can be seen observed in Appendix 19: the faunal remains assessment.

Some of the samples (**table 3**) appeared to be heavily contaminated with modern intrusions; there were considerable quantities of roots and modern seeds in some residues, as well as insect eggs and grass. These may be indicative of stratigraphic movement, reworking or a degree of contamination by later intrusive elements and, due to this indicator it is unadvisable to use any of the material derived from samples which suggest such disturbance when attempting to reconstruct the local environment.

OYSTERS AND MARINE SHELL

Methodology

The oyster shell assemblage comprises material hand collected during the excavation process, and specimens extracted from the sieving residue of bulk samples processed off-site. Material has been sorted into two sub-categories; samples that were taken from context (395), the fill of a quarry pit which was excavated by machine, and samples taken from contexts in the area of the villa covering the initial periods of construction and occupation, as well as post abandonment (**table 1**). One sample from Site 58, the enclosure ditch, has also been included; this was the only sample extracted by floatation rather than being hand-picked. All specimens were recorded using the standard procedure, outlined in Winder (2011). Due to the fact that context (395) is potentially a mixture of several fills, the samples have only been counted and weighted; though as they represent a statistically significant sample set it may be useful to record them properly in the future.

There were no other statistically significant deposits (over 100 left and right valves) so detailed recording was only carried out on context (350), which contained the highest proportion of complete shells or fragments of a size suitable for measurement. This is defined as being any specimen whereupon the umbo/ligament scar is present, alongside the internal adductor muscle scar and at least two thirds of the original shell (Winder, 2011).

Firstly individuals were sorted by valve orientation, identifying which individuals are left valve and which are right valve, in order to determine the minimum number of individuals in the assemblage (MNI). Specimens were then placed on a plain white piece of paper, and the maximum widths and lengths recorded for each valve. Graph paper was used to extrapolate the size of any incomplete specimens (indicated by '>'). Characteristics related to the growing conditions of the oyster were then recorded; these include shell thickness, shape and evidence of infestation. Post-mortem data was also collected, such as staining, surface wear and any man-made notches and cuts. These observations are recorded in **table 6**.

Results and discussion

A total of 539 left and right valves and 162 un-sided fragments were identified across both areas, all appear to be of the species *Ostrea edulis* (common oyster). The Oyster shell from Site 122 was highly fragmented and generally poorly preserved; as a result just contexts (350) and (395) produced a noteworthy assemblage. Of these only (350) was record fully, though no statistical analysis was carried out as this sample had limited viability (**section 3.3.1**). Quantification data for the assemblage is presented in **table 1**.

Context number	Site	Provisional phasing	Dating and Notes	Oyster (LV)	Oyster (RV)	Total Weight (kg)	Fragmented Shells (lacking umboes)	Total Number of Left and Right Valves	MNI
181	122	5	Early Medieval	4	5	N/A	3	9	5
185	122	5	Early Medieval	3	6	N/A	12	9	6
206	122	5	Early Medieval	2	1	N/A	2	3	2
230	122	6	Medieval	0	0	N/A	2	0	0
235	122	4.2	Roman	0	1	N/A	1	1	1
249	122	4.2	Roman	3	4	N/A	6	7	4
260	122	4.2	Roman	1	0	N/A	16	1	1
291	122	4.3	Roman	2	3	N/A	1	5	3
296	122	4.2	Roman	0	0	N/A	1	0	0
307	122	4.3	Roman	0	0	N/A	10	0	0
309	122	4.2	Roman	4	4	N/A	0	8	4

311	122	4.2	Roman	6	6	N/A	0	12	6
324	122	4.2	Roman	0	0	N/A	13	0	0
350	122	4.2	Roman	42	60	N/A	26	102	60
352	122	4.2	Roman	1	0	N/A	0	1	1
373	122	4.2	Roman	1	0	N/A	0	1	1
395	122	4.2	Roman	173	203	9.514	34	376	203
448	122	4.2	Roman	0	0	N/A	1	0	0
451	122	4.2	Roman	0	1	N/A	0	1	1
459	122	4.2	Roman	0	0	N/A	1	0	0
2022	58	3.3	LIA to Early Roman	1	2	N/A	33	3	2
TOTALS				**243**	**296**		**162**	**539**	**300**

Table 1: Quantification of Oyster Shell from the Bedale, Aiskew and Leeming Bypass site, arranged by Context

The sample from (350) was found to contain 102 left and right valves, which is equal to an MNI of 60 specimens. As shown in **table 6**, the shells from this context exhibit signs of parasitic infestation, as well as post-mortem staining and clearly man-made notches and cuts that may be artefacts of the processing method used. Three specimens also appear to be burnt. Whilst not statistically significant, this evidence can still be used to aid our understanding of diet and technology in this area during the Roman period.

Small concentrations of marine shell were also present in some of the bulk samples residues from Site 122 (**table 2**); the majority of these were fragmented in nature, with very few complete shells present. Species that could be identified include; *Cerastoderma edule* (common cockle), *Littorina spp.* (periwinkle), *Patella vulgata* (common limpet), *Mytilus edulis* (common mussel) and *Ostrea edulis* (common oyster). Examples of these species were also found in varying concentrations in the handpicked samples from several other contexts (**table 7**). Initial hypotheses would suggest that these contexts, which are mostly backfill and demolition layers, may contain redeposited material originally from features that were utilised as refuse dumps. The amount of marine shell in these deposits may also indicate a significant dietary component and, as with the oyster shells, could be a sign of trade with other areas or local markets during the phase of occupation.

Recommendations for further work

Due to the lack of other viable datasets it is recommended that the assemblage from context (395) be properly analysed prior to publication as, despite issues with stratigraphy, there may still be information to be gained regarding the origin of the shells and the way in which

they were collected and processed. This could, in turn, enhance our understanding of trade routes servicing the residents of the villa.

DISCUSSION AND RECOMMENDATIONS FOR FURTHER WORK

Site 58

All of the contexts sampled from Site 58 are fills of ditches taken from the site of the ditched enclosure, which has evidence of settlement activity from the Iron Age through to the end of the 2nd century AD. The environmental bulks samples were mainly collected from contexts dated to the subgroups of phase 3; covering the late Iron Age to the middle of the Roman occupation, though three samples was also taken Phase 2 Iron Age ditches [2222] and [2380]. Excavation of the enclosure has revealed several periods of infilling and subsequent re-use; starting with a probably palisade ditch, moving onto a relatively sterile ditch and bank, and a final U-shaped ditch rec-cut, which has been back-filled with occupation debris and finally a ditched trackway. It is reasonable to expect that we would see this pattern of usage reflected in the environmental sequence.

When compared to the assemblage from Site 122, the samples from Site 58 contain a greater amount of environmental material, particularly with regard to seeds and charcoal. Considering the size of the assemblage, and the amount of material processed, the concentration of ecofacts is still relatively poor. As is the case in Site 122, this may be related to the way in which the ditches were used by the occupants of the enclosure, though considering the wealth of animal bone and other occupational debris that has been found in these features, that seems unlikely.

As mentioned in section **3.2**, high concentrations of charcoal were found throughout the assemblage, though the majority of pieces were too small for a proper identification to be carried out. This indicates that the site was under constant occupation; with low levels of charcoal indicating burning as a function of everyday life, as well as perhaps for small-scale industrial purposes. In several areas, peaks in charcoal concentration coincide with the presence of hammerscale, slag and other industrial materials which suggests that iron and other metal working may have been practiced in the immediate vicinity. With one exception (sample <275>), all of the contexts featuring this pattern are dated to phases 3.2 and 3.3, the Late Iron Age – early Roman occupation of the area which would be in line with previous work carried out in the area by ASDU. As stated in section **4.1**, based on the potential of the metalworking evidence found on site it would be advisable to send a selection of the viable charcoal material to a specialist for identification, as this may shed light in the types of wood that are being used for fuel during in this area during the Late Iron Age (refer to Appendix 21).

It is during the same period that the highest concentrations of seeds and grain are observed in the assemblage, in features [2044], [2078], [2110], [2298] and [2353]. This, and the low concentrations of charred grain that occur throughout the sample set, are a further indication of near constant occupation, though the lack of glume and base fragments indicates that whilst cereals may be being consumed at the site, they are being processed elsewhere, perhaps even traded for locally. Due to the importance of this material in understanding the diet and economy of the area, it is recommended that where samples contain greater than 30 grain fragments, these are used for further specialist analysis. Of particular interest in this case is sample <269> which, as mentioned previously, contains a substantial concentration of grain and both charred and un-charred seeds; full qualification of the species present may shed light on the types of agriculture undertaken in locally. Similarly, samples <159> and <160> would benefit from further study, as they contain the highest frequencies of uncharred seed remains; identification of the taxa could be an important step in understanding the make-up of the local landscape during the Late Iron Age and, in conjunction with the evidence from the material assemblage, hypothesising how this may have altered over time.

Comparably to Site 122, though to a lesser scale, molluscs were present throughout the assemblage though again, as before, an intact stratigraphic sequence would be necessary in order to develop an environmental reconstruction using this proxy. The results of such analysis could prove of interest for both sites, as both land and freshwater taxa were discovered in several ditches, suggesting substantial hydrological change in these features during their periods of use. The use of pH testing is recommended to assess the viability of available column samples for mollusc and pollen sampling.

As with previous work on the enclosure, carried out by Archaeological Services Durham University (ASUD), modern contamination in the form of roots and modern plant materials was present in several contexts. Due to this, and the sandy nature of the sediment, it is likely that substantial post-depositional bioturbation has taken place and, as before, a cautionary approach should be taken when using any of the material, such as the uncharred seeds; as they may represent modern contamination.

Sites 122 and 122N

The contexts sampled from Site 122 are a mixture of ditch and pit fills, layers and floor surfaces taken from the area of and immediately surrounding the site of a Roman villa complex. The majority are related to sub groups of phase 4, provisionally dated to the mid to late Roman period, covering the time from when the villa was constructed through to its abandonment in the Early Medieval period. Six samples were taken from Site 122 N, a series of pits and ditches to the north of the villa that are part of a larger group of field

enclosures. These have been assigned a date in the early 3rd century, though it is currently uncertain whether the features predate the villa or are contemporary with it. Three samples were also taken from contexts in phase 3; two from the fills of 'U' shaped ditches (features [364] and [368]) dated to the Early Roman period, and one from a soil layer of similar date.

As mentioned in section **3.1**, the majority of samples were relatively poor in terms of environmental material, and what plant remains are present are poorly preserved and in very low concentrations. This presents a level of difficulty with regard to building any comparisons between period of use of the site using environmental indicators as a proxy. With regard to the ditches the paucity of environmental material could be a sign that they were kept fairly clean during the occupation and use of the site, and with the pits that the majority of refuse being disposed of may have been organic, and has subsequently decomposed (Huntley & O'Brien, 2013). It is not unexpected that the samples taken from floor surfaces contain little material, as they are likely to have been kept clear of debris whilst in use.

Of note are two charred layers, contexts (291) and (292), from the north side of the villa complex. The associated samples (<31> & <34>) contain seeds and charred grain contemporary with possible metalworking residue, along with charcoal; a potential fuel source. It is likely that the level of grain preservation in these samples is as a result of the burning process and, in conjunction with other finds in these samples. The seed, grain and charcoal should be subjected to further specialist analysis.

Sample <10>, the fill of feature [246], a Roman ditch similarly featured higher concentrations of charred grains, glume fragments and charcoal, which would be promising for further analysis. That glume and bases were found in situ with whole grains in this sample may be indicative not only of domestic activity but also of crop processing in the vicinity. Sample <35>, interpreted to be from a demolition layer, contains uncharred weed seeds, which may likewise provide information on the background vegetation of the site.

Due to the preferential preservation of wood charcoal in this assemblage, samples were picked from the other, most promising, contexts and further identified. Four samples were sent for analysis; <31>, <10>, <52>, and <34>. The findings of the charcoal assessment can be observed in Appendix 21.

Mollusca remains were abundant throughout the assemblage, however, for a detailed environmental reconstruction of the site to be established, targeted sampling from an intact stratigraphic sequence would be required.

It is important, to take into account that there are clear signs of contamination in a large proportion of the samples. Whilst it is impossible to adequately quantify the level of post-depositional movement that may have occurred it is essential that a cautionary approach is taken when utilising, specifically the smaller macroscopic components in any form of environmental reconstruction.

Conclusion

This assessment has confirmed that the preservation of environmental material across both Sites 122 and 58 is patchy, and often associated with modern contamination. Due to this, no further processing of bulk samples for environmental material is necessary but further targeted processing of a small number of samples may be required for artefact and ecofactual retrieval and recovery of material suitable for AMS dating. Initial observations support the presence of open areas of grassland and the consumption of cereals on the sites, along with possible blacksmithing or other metalworking. Further analysis would be required to corroborate this hypothesis. As recommended in the discussion there is value to be had from additional assessment of viable macrobotanical samples, for both the information that can be gained regarding land use, trade and environment in the area, as well as the potential for creating a better chronology for the site using radiocarbon dating. Statistically significant samples, those containing over one-hundred specimens of grain, seeds or charcoal, should therefore be submitted for specialist analysis. When undertaking assessment of the charcoal record it must be considered however that, whilst this may be a useful proxy for reconstructing local flora, selection bias may be a factor, and consequently only a fraction of the locally available species may be represented.

A more detailed study of the available column samples for pollen and molluscs could also have the potential for targeted contexts to improve our environmental understanding of the local environment. However, initial observations of column samples <67> and <69>, both taken from a quarry pit at the site of the Roman villa, suggests that the potential for the preservation of pollen and malacological remains in the sampled contexts is limited; therefore further assessment of these samples is not recommended. Sample <66>, taken from deposits adjacent to the villa, appears similarly barren, and as a result should be discarded. It is however suggested that sample <68>, comprised of four 14cm tins taken through a sequence inside the villa, be submitted for soil micromorphology which may shed light on the nature of activity taking place within this room of the villa.

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Table 2: Assessment of residues, BALB 14 Site 122

Sample number	Context number	Site	Phase	Feature	Volume (litres)	Residue					
						Charcoal	Seeds/ grain	Shells	Bone	Building material	Artefacts
1	121	122N	4	Pit	7	2			Fragments (3) Burnt bone (3)		Iron nail (1) Iron (3)
2	136	122N	4	Pit	18				Fragments (2)		
3	131	122N	4	Ditch	15	1			Fragments (1) Fish (1)		Coal (2)
4	117	122N	4	Ditch	15	2			Large animal (2)		Iron (2) Slag (1)
5	110	122N	4	Ditch	16	2			Large animal (2)	CBM (2)	Pot (2)
6	147	122N	4	Ditch	13			Fragments (1)	Fragments (1)		
7	245	122	4.2	Pit	32	4	Grain (1)	Land (1)	Large animal (2) Small animal (2)	Stone (2) Daub (2)	Pot (1) Clay (1) Iron nails (1)
8	244	122	4.2	Pit	24	1			Small animal (1)	Daub (1)	
9	247	122	4.2	Ditch	30	2		Land (2) Freshwater (2) Marine (1)	Large animal (2) Small animal (2) Fish (2) Burnt bone (1)	CBM (2) Stone (2) Daub (1)	Glass (1) Pot (2) Iron (1) Cut marked bone (1)
10	249	122	4.2	Ditch	29	4	Seeds (2) Grain (2)	Land (2) Marine (2) Freshwater (2) Fragments (1)	Large animal (3) Small animal (3) Fish (3) Burnt (1)	Stone (2) Daub (1)	Pot (2) Iron (2) Iron nails (1) Shale bracelet (1)
11	237	122	4.2	Pit	27	3			Fragments (1) Burnt bone (1) Small animal (1)	CBM (2)	Burnt pot (1) Glass bead (1) Slag (1) Iron (1)
12	253	122	4.2	Pit	7	2				Daub (1)	
13	260	122	4.2	Ditch	28	2		Land (2) Marine (2) Fragments (1)	Large animal (2) Small animal (2) Fragments (1)	CBM (2) Stone (1) Daub (1)	Pot (2) Iron (1) Slag (1)
14	261	122	4.2	Ditch	21	2	Grain (1)	Land (2) Fragments (3)	Large animal (1) Small animal (1)	CBM (1)	Iron (1) Glass (1)

15	268	122	6	Robber cut	34	2		Land (2)	Large animal (1) Small animal (4) Fish (1)	Stone (3) Daub (3)	Painted plaster (2)
17	167	122	5	Layer	32			Land (2)	Large animal (1) Small animal (4) Fish (1)	Stone (2) Daub (2)	Painted plaster (2)
18	167	122	5	Layer	7					Stone (2) Daub (2)	Painted plaster (1)
19	179	122	4.2	Floor	23				Large animal (1) Small animal (1) Fish (1)	Daub (2) Tile (1)	
20	282	122	4.2	Ditch	27	1			Large animal (1)	Daub (1)	
21	283	122	4.2	Ditch	35				Large animal (1) Burnt bone (1)		Iron (1) Pot (1)
22	278	122	8	Layer	36					Roofing material (1)	Pot (1)
23	181	122	5	Layer	16	1		Fragments (1)	Small animal (3) Fragments (1)	Stone (1)	
24	284	122	4.2	Floor surface	31	4	Seeds (1) Grain (1)	Land (1) Marine (1)	Small animal (1) Fish (1) Fragments (2)	Daub (2)	Slag (1) Iron (1) Hammerscale (1) <2mm residue kept for hammerscale
25	285	122	4.2	Floor surface	24	3	Grain (2) Seeds (2)	Land (2) Marine (1)	Small animal (1) Fish (1)	Brick (2) Stone (3) Daub (2)	Iron (1)
27	206	122	5	Layer	36	1		Land (1) Marine (1)	Small animal (2)	Brick (1) Daub (1)	Slag (1) Glass (1)
28	288	122	3.6	Layer	27	1		Land (3)	Small animal (2) Fragments (2)		
30	269	122	4.3	Burnt deposit	22	3	Grain (2)	Land (2)	Large animal (2) Small animal (2) Fish (3) Burnt bone (2)	Daub (3)	
31	291	122	4.3	Burnt deposit	22	3	Grain (3)	Marine (1)	Large animal (2) Small animal (2) Fish (1)	Daub (2)	Pot (1) Iron nail (1) Glass (1)
32	296	122	4.2	Ditch	24				Small animal (1)		

33	299	122	4.2	Ditch	17	2		Marine (1)	Large animal (2) Small animal (2) Fragments (2)	Stone (1)	
34	292	122	4.2	Floor surface	30	4		Land (1) Marine (1)	Large animal (1) Small animal (1)	Stone (2) Daub (2)	Slag (1) Jet bracelet fragment (1)
35	300	122	5	Layer	30			Land (1) Marine (1) Freshwater (1)	Small animal (2) Fragments (2)	Brick (1) Tile (1) Daub (1)	
38	301	122	5	Layer	10				Large animal (1) Small animal (2)	Daub (2)	Worked flint (1)
39	303	122	4.2	Layer	10				Small animal (1) Fragments (1)	Stone (1)	
45	350	122	4.2	Ditch	36	3	Seeds (1)	Land (2) Marine (2) Freshwater (2)	Large animal (2) Small animal (2)		Pot (2) Slag (2) Glass (1)
52	360	122	4.2	Pit	7	4			Fragments (2)		
53	361	122	4.2	Pit	21						<2mm residue kept for hammerscale
54	369	122	3.5	Ditch	27			Land (1)	Fragments (2)		<2mm residue kept for hammerscale
55	373	122	4.2	Ditch	26	2			Large animal (1) Small animal (2) Fragments (1)	CBM (1) Daub (1)	Worked flint (1) Pot (1)
56	355	122	4.2	Pit	16						NO FINDS
57	365	122	3.5	Ditch	37	3		Land (4)	Fish (1) Fragments (3)		<2mm residue kept for hammerscale

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Table 3: Assessment of flots, BALB 14 Site 122

Sample number	Context number	Site	Phase	Feature	Volume (litres)	Vol (ml)	Flot					
							Charcoal	Seeds (uncharred)	Seeds (charred)	Grains	Mollusca	Other
1	121	122N	4	Pit	7	1	1					Poss mod. contamination (Plastic (2) Grass (2))
2	136	122N	4	Pit	18	8	1	1				Poss mod. contamination (Plastic (2) Grass (2))
3	131	122N	4	Ditch	15	165	1				Land (1)	Coal (3) Clinker (3)
4	120	122N	4	Ditch	15	18	1	1	1		Land (1)	Bone fragments (2)
5	110	122N	4	Ditch	16	1	1					Modern insects (2/3)
6	147	122N	4	Ditch	13	1						Grass (3)
7	245	122	4.2	Pit	32	22	3	1		1	Land (3)	Bone (2) Poss mod. contamination (Plastic (2) Grass (2))
8	244	122	4.2	Pit	24	1	1				Land (2)	Poss mod. contamination (Plastic (3) Grass (3) Roots (3))
9	247	122	4.2	Ditch	30	56	4	2		2	Land (4) Freshwater (3)	Burnt bone (2) Bone fragments (2)
10	249	122	4.2	Ditch	29	256	4	2	3	4	Land (3)	Glume fragments (3) Burnt bone (2) Bone fragments (2) Jet bead (1)
11	237	122	4.2	Ditch	27	119	4	1		1	Land (2)	Burnt bone (2) Bone fragments (2) Fish bone (1) Coal (2) Clinker (2)
12	253	122	4.2	Pit	7	6	2	1		1	Land (2) Freshwater (2)	Poss mod. contamination (Grass (3))
13	260	122	4.2	Ditch	28	27	2	1			Land (2) Freshwater (2)	

14	261	122	4.2	Ditch	21	4	2			1	Land (2)	
15	268	122	6	Robber cut	34	36	1			1	Land (4)	Small animal bone (2) Poss mod. contamination (Grass (3) Snail eggs (3) Insect eggs (3))
17	167	122	5	Layer	32	39	1	2		2	Land (4)	Small animal bone (2) Poss mod. contamination (Grass (3) Snail eggs (3) Insect eggs (3) Roots (2))
18	167	122	5	Layer	7							NO FLOT
19	179	122	4.2	Floor	23	2	1	2			Land (1)	Poss 100% mod. contamination
20	282	122	4.2	Ditch	27	2		1		1	Land (1) Freshwater (1)	Grass (3)
21	283	122	4.2	Ditch	35	1	1					Grass (3)
22	278	122	8	Layer	36	22		3				Poss 100% mod. contamination (Grass (3) Insects (3) Seeds (3))
23	181	122	5	Layer	16	35	3	1	1	2	Land (3)	Small animal bone (2) Roots (3)
24	284	122	4.2	Floor surface	31	123	4	1	2		Land (2)	Small animal bone (2)
25	285	122	4.2	Floor surface	24	250	4	1			Land (2)	Small animal bone (2) Roots (3)
27	206	122	5	Layer	36	160		2			Land (2)	Coal (2) Roots (3)
28	288	122	3.6	Layer		8					Land (4) Fragments (3)	Roots (1) Modern insects (1)
32	296	122	4.2	Ditch	24	4	1	1		1		Roots (3)
33	299	122	4.2	Ditch	17	7	3	1		1	Land (1)	Roots (3)
34	292	122	4.2	Floor surface	30	120	4	2		1	Land (3) Freshwater (1)	Small animal bone (1) Roots (2)
35	300	122	5	Layer	30	30		3		1	Land (2)	Roots (3)

38	301	122	5	Layer	10	5		2			Land (2) Freshwater (1)	Small animal bone (1) Roots (2)
39	303	122	4.2	Layer	10	1	2	1			Land (2)	Roots (3)
45	350	122	4.2	Ditch	36	48	3	1	2	2	Land (3)	Roots (2) Insect eggs (2) Worms (2)
52	360	122	4.2	Pit	7	7	4	2				Chaff (2) Bone fragments (1)
53	361	122	4.2	Pit	21	5	2	1		1	Land (1)	Roots (3)
54	369	122	3.5	Ditch	27	6	1	1			Land (2)	Roots (3)
55	373	122	4.2	Ditch		8	3	1				Roots (1) CBM (1)
56	355	122	4.2	Quarry	16	3	2					Roots (3)
57	365	122	3.5	Ditch	7	1	1				Land (2)	Roots (3)

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Table 4: Assessment of residues, BALB 14 Site 58

Sample number	Context number	Site	Phase	Feature	Volume (liters)	Residue					
						Charcoal	Seeds/grain	Shells	Bone	Building material	Artefacts
101	2007	58	3.4	Ditch	12					Stone (4)	
103	2010	58	3.4	Ditch	24	1	1 (nut)	Fragments (1)	Large animal (1) Small animal (1)	Stone (1)	
104	2005	58	3.4		24		1			Brick (1) Stone (4)	
105	2012	58	3.4	Ditch	6						NO FINDS
107	2015	58	3.4	Ditch	16						NO FINDS
108	2020	58	3.3	Ditch	28	1			Large animal (1) Small animal (1)Fish (1) Fragments (2) Burnt bone (1)		Slag (1) <2mm residue kept for hammerscale
110	2022	58	3.3	Ditch	14	1			Large animal (2) Small animal (1) Burnt bone (1)	Brick (1)	Coal (2) Hammerscale (2) Slag (1) <2mm residue kept for hammerscale
119	2023	58	3.3	Ditch	22	1			Large animal (1) Small animal (1) Fragments (2)		Hammerscale (2) Slag (1) <2mm residue kept for hammerscale
120	2024	58	3.3	Ditch	32	1			Large animal (1) Small animal (1)		Hammerscale (2) Slag (1) <2mm residue kept for hammerscale
121	2025	58	3.2	Ditch	21						NO FINDS
122	2026	58	3.2	Ditch	12				Large animal (2) Small animal (1)		Hammerscale (1) Slag (1) <2mm residue kept for hammerscale
123	2040	58	3.3	Ditch	33	1			Small animal (1) Fragments (2)		Hammerscale (1) Slag (1) Coal (1)

124	2041	58	3.3	Ditch	40	1			Large animal (1) Small animal (2) Fragments (2)		Pot (1) Hammerscale (1) Slag (1)
125	2042	58	3.3	Ditch	18	2			Small animal (2) Fragments (2)		Slag (3) All residue kept for hammerscale
126	2043	58	3.3	Ditch	34	2			Fragments (2)	Daub (1)	Hammerscale (4) Slag (4) All residue kept for hammerscale
127	2045	58	3.2	Ditch	20	2			Large animal (2) Small animal (3) Fragments (3)	Daub (1)	Hammerscale (1) Slag (1) All residue kept for hammerscale
128	2046	58	3.2	Ditch	20	1			Large animal (1) Small animal (1)		Hammerscale (1) All residue kept for hammerscale
129	2047	58	3.2	Ditch	37	1			Small animal (2) Fragments (1)	Daub (1)	Hammerscale (1) Glass (1) All residue kept for hammerscale
130	2048	58	3.2	Ditch	40	1			Small animal (2) Fragments (1)	Daub (1)	Hammerscale (1)
131	2049	58	3.2	Ditch	32	2			Large animal (1) Small animal (1) Fragments (1)		Glass (1) Hammerscale (1) All residue kept for hammerscale
144	2063	58	3.2	Enclosure ditch	28				Small animal (1)		
145	2064	58	3.2	Enclosure ditch	10						NO FINDS
158	2074	58	3.3	Ditch	32	1			Large animal (2) Small animal (2)		Pot (1) Slag (1) <2mm residue saved for hammerscale
159	2075	58	3.3	Ditch	34	2	1		Small animal (1) Bone frags (3) Burnt bone (3)		Hammerscale (1) Slag (1)
160	2076	58	3.3	Ditch	36	1			Large animal (2) Small animal (3) Fish bone (1) Bone frags (1)	CBM (1) Mortar (1)	<2mm residue saved for small bone

161	2077	58	3.2	Ditch	32	1			Large animal (2) Small animal (2)	Tile (1) Stone (1) Daub (1)	Pottery (1)
164	2112	58	3.3	Ditch	27	1			Large animal (1) Small animal (1) Fragments (2)		Pot (1) Slag (1) Hammerscale (2) <2mm residue kept for hammerscale
167	2115	58	3.2	Ditch	34			Land (1) Freshwater (1)	Large animal (1) Small animal (2) Fragments (1)		Hammerscale (1) <2mm residue kept for hammerscale
168	2116	58	3.2	Ditch	32	1		Land (2) Fragments (1) Freshwater (1)	Large animal (1) Small animal (1) Fish (1) Fragments (1)		Hammerscale (1) <2mm residue kept for hammerscale
170	2092	58	3.3	Ditch	31	1			Large animal (1) Small animal (1) Fish (1) Fragments (3)		Pot (1) Iron (1) Copper (1) Hammerscale (2) <2mm residue kept for hammerscale
172	2121	58	3.2	Ditch	26						NO FINDS
173	2124	58	3.2	Ditch	26				Small animal (1)	Daub (2)	Struck flint (1)
180	2141	58	3.3	Ditch	32	1			Large animal (1) Small animal (1) Fragments (2)		Pot (1) Slag (1) Hammerscale (2) <2mm residue kept for hammerscale
182	2144	58	3.2	Ditch	28	1			Small animal (1) Fragments (2)		Hammerscale (1)
183	2145	58	3.2	Ditch	27						Hammerscale (1) Slag (1) <2mm residue kept for hammerscale
194	2174	58	3.4	Ditch	30	1			Fragments (1)		
195	2175	58	3.4	Ditch	33	1	1		Large animal (2) Small animal (1) Fragments (3)	CBM (1)	
196	2176	58	3.4	Ditch	31					Mortar (1)	Coal (1) Burnt flint (1)
226	2222	58	2	Ditch	33			Land (1)	Large animal (1) Small animal (1) Fragments (1)	Mortar (1)	Iron (1)

231	2251	58	3.4	Ditch	20	1			Fragments (1)		
232	2250	58	3.4	Ditch	27	1			Small animal (1) Fragments (1)		Pot (1)
235	2249	58	3.4	Ditch	21				Fragments (1)	Mortar (2)	
236	2256	58	3.4	Ditch	32				Large animal (2) Small animal (1) Fragments (1)	Daub (1) Tile (1)	
237	2257	58	3.4	Ditch	31		1	Land (1)	Small animal (1)	CBM (1)	
246	2278	58	3.4	Ditch	32				Large animal (1)		
253	2294	58	3.3	Ditch	32	1			Large animal (1) Small animal (1) Fragments (2)	CBM (1) Plaster (1) Mortar (1)	Hammerscale (2)<2mm residue saved for hammerscale
254	2295	58	3.3	Ditch	27				Large animal (2) Small animal (1) Fragments (2)	Mortar (1)	Hammerscale (1) <2mm residue saved for hammerscale
256	2297	58	3.3	Ditch	30	1			Large animal (1) Fragments (2)		Copper (1)<2mm residue saved for hammerscale
259	2301	58	3.2	Ditch	34				Large animal (1) Small animal (1)	CBM (1) Mortar (1)	
269	2367	58	3.3	Ditch	30	2			Large animal (2) Small animal (1)	Tile (1) Mortar (1) CBM (1)	Hammerscale (1) Slag (1) Burnt flint (1) <2mm residue saved for hammerscale
271	2371	58	3.2	Ditch	21		1		Large animal (1) Fish bone (1) Fragments (1)	Daub (1) Mortar (1)	
272	2372	58	3.2	Ditch	16		1		Small animal (1) Fish bone (1)	Mortar (2)	
273	2381	58	2	Ditch	20						NO FINDS
275	2383	58	2	Ditch	17	1			Large animal (1) Small animal (1)	Daub (1)	Slag (1) <2mm residue saved for hammerscale

276	2374	58	3.1	Ditch	27	1		Fragments (1)	Large animal (1) Small animal (1)	Mortar (1) CBM (1)	Burnt flint
277	2375	58	3.1	Ditch	27			Fragments (2)	Small animal (1)	Stone (1) Tile (1)	
278	2376	58	3.1	Ditch	32			Fragments (1)	Large animal (1) Small animal (1) Fragments (1)	CBM (1) Mortar (1)	
279	2377	58	3.1	Ditch	33	1			Small animal (1) Fragments (2)		
280	2378	58	3.1	Ditch	32	2			Large animal (1) Small animal (1)	CBM (1)	
281	2379	58	3.1	Ditch	21						NO FINDS

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Table 5: Assessment of flots, BALB 14 Site 58

Sample number	Context number	Site	Phase	Feature	Volume (litres)	Vol (ml)	Flot					
							Charcoal	Seeds (uncharred)	Seeds (charred)	Grains	Mollusca	Other
101	2007	58	3.4	Ditch	12	1		1				Roots (4) Grass (4)
103	2010	58	3.4	Ditch	24	4	2	1			Land (1)	Roots (4) Grass (4)
104	2005	58	3.4		24							NO FLOT
105	2012	58	3.4	Ditch	6	2	1	1				Roots (3)
107	2015	58	3.4	Ditch	16							NO FLOT
108	2020	58	3.3	Ditch	28	4	2	2				Roots (3) Modern insects (2) Hammerscale (2) Coal (2)
110	2022	58	3.3	Ditch	14	11	3			1	Land (1)	Smal animal bones (2) Hammerscale (2) Coal (2) Poss. contamination
119	2023	58	3.3	Ditch	22	2	1	1				Roots (3) Grass (3) Hammerscale (2) Coal (2)
120	2024	58	3.3	Ditch	32							NO FLOT
121	2025	58	3.2	Ditch	21	2				1		Poss mod. contamination (Plastic (2) Roots (3)) Hammerscale (2) Coal (2)
122	2026	58	3.2	Ditch	12	1	2					Hammerscale (2) Coal (2) Poss. contamination.
123	2040	58	3.3	Ditch	33	45	3	2		1	Land (1)	Coal/clinker (3) Hammerscale (3) Roots (2)
124	2041	58	3.3	Ditch	40	70	4	2		2		Coal/clinker (3) Hammerscale (3) Slag (1)
125	2042	58	3.3	Ditch	18	5	2	1		1		Coal/clinker (3) Hammerscale (3) Small animal bones (1)

126	2043	58	3.3	Ditch	34	85	2	2		2		Coal/clinker (4) Hammerscale (4) Slag (3)
127	2045	58	3.2	Ditch	20	5	2	3			Land (1)	Coal/clinker (3) Hammerscale (2) Small animal bones (2)
128	2046	58	3.2	Ditch	20	3	2	1	1		Land (1)	Coal/clinker (3) Hammerscale (2) Roots (3)
129	2047	58	3.2	Ditch	37	9	2				Land (2) Freshwater (1)	Coal/clinker (2) Small animal bones (1) Roots (3)
130	2048	58	3.2	Ditch	40	6	3	1		1	Land (1) Freshwater (1)	Coal (3) Hammerscale (1) Small animal bones (2) Roots (3)
131	2049	58	3.2	Ditch	32	30	2	1				Coal (2) Roots (3)
144	2063	58	3.2	Enclosure ditch	28	10	1					Coal (1) Roots (1)
145	2064	58	3.2	Enclosure ditch	10	5	1				Land (1)	Coal (1) Roots (1)
158	2074	58	3.3	Ditch	32	60	4	1				Coal (1) Small animal bone (1)
159	2075	58	3.3	Ditch	34	43	4	4	1	1		Moss/weed (2) Coal (2) Hammerscale (1) Modern insects (2)
160	2076	58	3.3	Ditch	36	89	4	3	1		Land (3) Freshwater (1)	Moss/weed (3) Coal (1) Charred plant remains (2)
161	2077	58	3.2	Ditch	32	15	4	1		1		Roots (2) Small animal bone (1)
164	2112	58	3.3	Ditch		45	3	2	1	1	Land (3)	Roots (4) Coal/clinker (4) Hammerscale (1) Animal bone (1) Modern insects (1) Insect eggs (2) Straw (1)
167	2115	58	3.2	Ditch	34	15		1		1	Land (2)	Roots (3) Poss mod. contamination

168	2116	58	3.2	Ditch	32	30	2	2			Land (2)	
170	2092	58	3.3	Ditch	31	15	1	2		2	Land (1)	Hammerscale (1) Roots (3) Poss mod. contamination
172	2121	58	3.2	Ditch	26	10		1			Land (1)	Roots (3) Poss mod. contamination
173	2124	58	3.2	Ditch	26	7						Roots (4) Poss mod. contamination
180	2141	58	3.3	Ditch	32	30	1	2		2		Roots (3) Poss mod. contamination
182	2144	58	3.2	Ditch		20	3	1		1	Land (1)	Modern insects (1) Coal (1) Plastic (1) Roots (4)
183	2145	58	3.2	Ditch	27	5	2	2				Roots (3) Poss mod. contamination
194	2174	58	3.4	Ditch	30	11	3	1				Moss/weed/roots (2) Coal (1)
195	2175	58	3.4	Ditch	33	31	4	1		2	Land (1)	Moss/weed/roots (2) Coal (2)
196	2176	58	3.4	Ditch	31	19	4	1				Coal (2) Roots (2)
226	2222	58	2	Ditch	33	19.1	4	1			Fragments (4) Land (4) Freshwater (1)	Moss/Weed/Roots (2)
231	2251	58	3.4	Ditch	20	46	4	2				Coal (1) Small animal bone (1)
232	2250	58	3.4	Ditch	27	22	4	1		1	Land (1)	Moss/weed (2) Coal (3) Modern insects (1)
235	2249	58	3.4	Ditch	21	20	4	1			Fragments (4) Land (3) Freshwater (1)	Roots/weed (1) Insect remains (1)
236	2256	58	3.4	Ditch	32	28	4	1	1	1	Fragments (3) Land (2)	Roots/moss (2) Coal (2) Insect remains (1)
237	2257	58	3.4	Ditch	31	16.5	4	1		1	Land (3)	Moss/weed/roots (2) Coal (2)

246	2278	58	3.4	Ditch	32	5	3				Land (1)	Roots/weed (1)
253	2294	58	3.3	Ditch	32	74	4	2		1		Moss/weed (2) Coal (3) Hammerscale (2) Small animal bone (1) Insect remains (1)
254	2295	58	3.3	Ditch	27	61	4			1	Land (1)	Moss/weed (2) Coal (2)
256	2297	58	3.3	Ditch	30	26	4	2		1		Moss/weed/roots (2) Coal (2) Small animal bone (1) Modern insects (1)
259	2301	58	3.2	Ditch	34	7	4	1				Insect remains (2) Small animal bone (1) Roots (1)
269	2367	58	3.3	Ditch	30	30	4	4	3	3	Fragments (1)	Pond weed (1) Coal (2) Hammerscale (1) Clinker (1) Insect remains (1) Small animal bone (1)
271	2371	58	3.2	Ditch	21	10	4	3			Land (1)	Small animal bone (1)
272	2372	58	3.2	Ditch	16	3	3	3			Land (3) Freshwater (2)	Moss/weed (1)
273	2381	58	2	Ditch	20	1	1					Moss/weed (2)
275	2383	58	2	Ditch	17	10	4	1			Land (1)	Moss (2) Coal (2) Modern insects (1)
276	2374	58	3.1	Ditch	27	10	4	2			Land (3) Freshwater (3)	Moss/weed (2) Coal (1)
277	2375	58	3.1	Ditch	27	10	3	1			Land (3) Freshwater (2)	Moss/weed (3) Coal (1) Modern insects (1)
278	2376	58	3.1	Ditch	32	7	4				Fragments (3) Land (4) Freshwater (3)	Moss/weed (1) Small animal bone (1)

279	2377	58	3.1	Ditch	33	8	3				Fragments (3) Land (3)	Roots/weed/moss (2)
280	2378	58	3.1	Ditch	32	11	4	1			Land (2)	Roots/moss (1) Small animal bone (1)
281	2379	58	3.1	Ditch	21	1.1	4	1			Land (2)	Moss/roots (1)

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

Table 6: Detailed Quantitative and Qualitative Analysis of Oyster Shell from BALB 14, Site 122, context 350

BALB 14: Context 350																								
Quantitative Data					**Parasitic Infestations**								**Qualitative Observations**											
Left valve	**Right valve**	**Maximum width**	**Maximum length**	**Age**	***Polydora ciliata***	***Polydora hoplura***	***Cliona celata***	**Calcareous tubes**	**Barnacle scar**	**Bryozoa**	**Bore holes**	**Sand tubes**	**Thin**	**Thick**	**Heavy**	**Chambered**	**Chalky deposit**	**Worn**	**Flaky**	**Colour/stain**	**Oysters attached (shell)**	**Irregular shape**	**Notches/cuts**	**Ligament**	**COMMENTS**
1		66	74				1				1												1		
1		>58	>67																				1		
1		63	69																				1		
1		>62	>66		1																		1		
1		69	68		1																		1		

1		51	56																		1				
1		74	73																						
1		63	78		1	1	1				1														
1		72	63		1									1											
1		64	82		1		1				1			1											
1		66	62		1																				
1		70	68		1																				
1		66	66		1															1					
1		80	83		1	1	1							1									1		
1		39	48				1																		
1		53	67		1																				
1		82	85				1							1											
1		>67	76		1		1							1											
1		61	75		1	1			1																
1		46	57																						
1		62	73																				1		Burnt
1		55	66		1																		1		
1		59	63														1								
1		57	64				1				1						1								
1		71	76																						

1		68	78																	1					
1		62	73																	1					
1		63	73		1												1			1					
1		52	68										1			1	1								
1		58	63		1																				
1		63	68																			1	1		
1		66	69				1														1				
1		65	74		1																				
1		58	61			1														1					
1		68	>62		1																				
1		56	>55														1								
1		79	84										1							1					
1		70	91		1															1		1			
1		57	73																	1	1				
1		59	63																						
	1	53	65																	1					
	1	52	59										1												
	1	53	60		1								1												
	1	59	70																	1					
	1	66	74																	1		1			

	1	66	60																					
	1	57	65		1								1											
	1	55	58		1																			
	1	55	56										1							1				
	1	54	58																	1				
	1	63	59															1						
	1	66	71																				1	
	1	53	66									1										1	1	
	1	55	54																	1				
	1	56	67									1												
	1	60	60									1					1							
	1	54	63				1																	
	1	57	68									1												
	1	55	63				1																	
	1	66	76									1												
	1	53	59										1				1							
	1	59	62									1												
	1	59	>64											1										
	1	66	70		1															1				
	1	62	72																	1				

	1	72	>71									1												Burnt
	1	59	65																	1				
	1	>58	74														1			1				
	1	64	71																	1				
	1	61	61									1								1				
	1	60	67																					
	1	65	70		1																			
	1	54	61		1							1												
	1	59	60									1												
	1	45	61																			1		
	1	64	69									1								1				
	1	65	65																					
	1	67	79															1						
	1	60	64																	1				
	1	61	64																					
	1	51	60																			1		
	1	53	61																			1		
	1	59	59											1										
	1	>64	69																				1	
	1	68	68									1												

	1	59	65															1							
	1	54	>55										1							1					
	1	51	58																						
	1	>65	>71									1													
	1	>55	62																						
	1	62	58																			1	1		Burnt
	1	49	56										1							1					
	1	54	65															1				1			
	1	47	61								1				1								1		
	1	52	58									1													
	1	64	62															1		1		1			
	1	28	37										1												
	1	51	>55																			1			
	1	42	43										1												
	1	42	41										1												
1		59	65								1														
1		63	69		1																		1		

Table 7: Summary of marine shell found in hand-picked samples from BALB 14, Site 122

Context number	164	167	181	185	206	249	286	288	292	350	395
Species											
Cerastoderma edule											1
Littorina spp.										1	4
Mytilus edulis (complete valve)		1		1					1		3
Mytilus edulis (fragments)	1	1	1	1	1	1		1		1	3
Patella vulgata										1	4
Marine shell fragments						1	1			1	2

Key: 1- Occasional, 2- fairly frequent, 3- frequent, 4- abundant

APPENDIX 21

CHARCOAL ASSESSMENT

P. Austin & D.S. Young

This report summarises the findings arising out of the charcoal assessment undertaken by Quaternary Scientific (University of Reading) in connection with the archaeological investigation of the Bedale, Aiskew and Leeming Bypass, North Yorkshire (Site Code: BALB14) site. Quaternary Scientific were commissioned by PCA Archaeology to undertake the assessment. This assessment was undertaken to determine the suitability of the samples for further detailed investigation and to identify fragments suitable for radiocarbon dating. Wood charcoal macro-remains provide direct information about the contemporary local vegetation and modes of wood exploitation, most often the use of wood as fuel, and are thus a valuable contribution to better understanding local environmental history and plant exploitation.

Fragments >4mm typically retain the highest levels of anatomic and structural integrity necessary for secure identification. Fragments <2mm are too small to enable identification. Fragments 4-2mm can sometimes retain enough information to enable identification, and this size category may contain wood elements (e.g. small twigwood) not represented among larger fragments, therefore all the fragments assessed were >2mm. Ten fragments from each of the seven samples submitted for assessment were examined to determine the identity of the wood and to evaluate probable pre-charring wood form (branch, twig etc.), relative age, and quality of fragment preservation. The following features were recorded during examination: growth ring curvature, pattern, and quantity; presence and extent of biodegradation (e.g. fungal hyphae); degree of thermal degradation; presence of radial splits, and other forms of physical distortion. As a measure of relative abundance both weight (g) and fragment count for each taxon identified in each sample was recorded. An estimate of the quantity of unexamined fragments in each sample was made for all >2mm fragments.

An additional four samples were submitted for the identification of charcoal suitable for radiocarbon dating; samples <127>, <130>, <279> & <280>. These did not undergo full assessment, but fragments of charcoal suitable for dating were identified in each sample with each taxon observed noted in Table 2. Preparation and examination of the charcoal

fragments followed standard procedures as described in Hather (2000). Nomenclature follows Stace (1997).

The seven taxa identified from among the 70 fragments examined from the seven samples submitted for assessment are listed below in Table 1, alongside aggregate values and ranking of taxa by fragment count and weight. Though no more than an indication given the low quantity of samples examined, ranking of taxon ubiquity is also provided. Detailed results for each sample are presented in Table 2. Table 2 also lists the identity of four fragments, one from each of the four samples submitted for identification prior to radiocarbon dating.

The taxa identified in this assessment are all hardwoods (angiosperms) native to England. Neither softwoods (gymnosperms) nor alien taxa were identified among the fragments examined. Sample <52>, Context (360), Site 122, is the least taxon-rich sample, in that only two taxa were identified (Maloideae and hazel). The other six samples each contained four to six taxa of much the same range of woods. Both alder and willow/poplar, are poorly represented in all respects. Each are present in three of the seven samples, and represented by only four and three fragments respectively. The quality of fragment preservation in the assemblage is variable from good to just sufficient to enable identification. The condition of fragments has been negatively affected by mineral deposits (including iron) and thermal degradation. Mineral deposition was observed within many examined fragments. Fragments in sample <52> were particularly affected by heavy mineral deposition. Typically, mineral deposition was greatest in, but not restricted to, vessel elements; other anatomical elements, rays for example, were also obscured. Similarly, thermal degradation was sufficiently acute in many of the examined fragments to have removed some anatomic details. However, none of the fragments exhibited signs of very acute thermal degradation or vitrification. Radial splitting, a phenomenon closely associated with the charring process, was noted in some fragments of oak in various samples. Fungal mycelium was present but not conspicuous or extensive in any of the fragments. Insect bore-holes were noted in the TS of two alder fragments in sample <159>, one hazel fragment in sample <126>, and one fragment of *Prunus* in sample <31>. The presence of both fungal infection and insect infestation indicates that the wood was undergoing the processes of biodegradation when used as fuel.

Growth ring characteristics (i.e. ring curvature) and overall fragment form suggest that the fragments examined reflect the use of a mix of immature and mature wood in the form of large and small diameter round-wood (most likely branches) and, less often, twig-wood.

Table 1: BALB14. Summary of taxon IDs – All samples.

Taxon	Common Name	Frag count		Weight (g)		Ubiquity	
		Qty	Rank	Wt.	Rank	Samples	Rank
Alnus glutinosa	alder	4	5	0.782	7	3	=4
Corylus avellana	hazel	16	1	2.252	4	6	=1
Fraxinus excelsior	ash	14	=2	5.188	3	6	=1
Maloideae : *Sorbus* spp; *Crataegus* spp; *Malus* sp; *Pyrus* sp.	rowan, whitebeams, wild service tree; hawthorns; apple; pear.	14	=2	6.22	1	5	=2
Prunus sp.	blackthorn; cherries	8	4	1.011	6	4	=3
Quercus sp.	oak	10	3	5.518	2	5	=2
Salix/Populus sp.	willow/poplar	3	6	1.934	5	3	=4

Table 2: BALB14. Taxon IDs, fragment count, and weight, by sample.

Area	Context	Sample	Taxon	Qty	Wt (g)	^{14}C?
58	2075	159	*Alnus glutinosa*	2	0.108	
			Corylus avellana	1	0.468	Y
			Fraxinus excelsior	2	0.121	
			Prunus sp	3	0.315	
			Quercus sp.	2	0.184	
			Unexamined frags (>2mm)	≈200	-	-
58	2367	269	*Alnus glutinosa*	1	0.245	
			Corylus avellana	5	0.556	Y
			Fraxinus excelsior	1	0.08	
			Maloideae	1	0.174	
			Prunus sp	2	0.302	
			Unexamined frags (>2mm)	≈150	-	-
58	2043	126	*Corylus avellana*	4	0.255	Y
			Fraxinus excelsior	1	0.109	
			Maloideae	1	0.041	
			Quercus sp.	4	0.430	
			Unexamined frags (>2mm)	≈150	-	-

Area	Context	Sample	Taxon	Qty	Wt (g)	^{14}C?
122	291	31	*Fraxinus excelsior*	2	0.399	
			Maloideae	3	0.629	
			Prunus sp.	2	0.218	
			Quercus sp.	2	3.878	
			Salix/Populus sp.	1	0.031	Y
			Unexamined frags (>2mm)	≈650	-	-
122	249	10	*Corylus avellana*	2	0.226	
			Fraxinus excelsior	4	1.443	Y
			Maloideae	1	0.283	
			Prunus sp	1	0.266	
			Quercus sp.	1	0.123	
			Salix/Populus sp.	1	1.129	
			Unexamined frags (>2mm)	>2000	-	-
122	360	52	*Corylus avellana*	3	0.507	Y
			Maloideae	7	4.050	
			Unexamined frags (>2mm)	≈100	-	-
122	292	34	*Alnus glutinosa*	1	0.429	
			Corylus avellana	1	0.240	Y
			Fraxinus excelsior	4	3.036	
			Maloideae	2	1.084	
			Quercus sp.	1	0.903	
			Salix/Populus sp	1	0.774	
			Unexamined frags (>2mm)	>2500	-	-
58	2377	279	Indeterminate (Diffuse porous hardwood)	1	-	(Y)
-	2371	280	*Corylus avellana*	1	-	Y
58	2048	130	Maloideae (Twig-wood: ≤5yo)	1	-	Y
58	2045	127	*c.f. Prunus* sp. (Twig-wood: ≤5yo)	1	-	Y

The assemblage is moderately taxon-rich and the range of taxa is fairly evenly distributed between samples. The apparent lack of dominance of any particular taxon suggests that fuel-wood use may not have been especially selective, although this remains uncertain. Alder and willow/poplar are present in small quantities indicating the presence of wetland or riverine habitats along with deciduous woodland and scrub, the latter of which was, it seems, more conspicuously exploited. Further detailed analysis of the samples may only modestly

improve upon the data recovered in this assessment. Further analysis may identify taxa not recorded in this study and would make it possible to better determine if any taxa were used preferentially or not. Whilst most samples examined here could yield further information, further work on Sample <52>, context (360), is not recommended because it is a small sample (<100 fragments) of poorly preserved fragments almost certainly dominated by the two taxa identified in this study. Of the four samples submitted for identification prior to radiocarbon dating, all four samples contain specimens suitable for dating.

References

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

Stace, C. (1997) *New Flora of the British Isles. 2nd edition*. Cambridge: Cambridge University Press.

Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor R M Ellam Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

22 September 2016

Laboratory Code	SUERC-69113 (GU41743)
Submitter	Kate Turner Pre-Construct Archaeology Unit 54, Brockley Cross Business Centre 96 Endwell Road.Brockley London, SE4 2PD
Site Reference	Bedale, Aiskew and Leeming Bypass (site 58)
Context Reference	(2048)
Sample Reference	BALB 14 Site 58 <130>
Material	Charcoal : Maloideae
δ ^{13}C relative to VPDB	-25.3 ‰
Radiocarbon Age BP	2209 ± 33

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

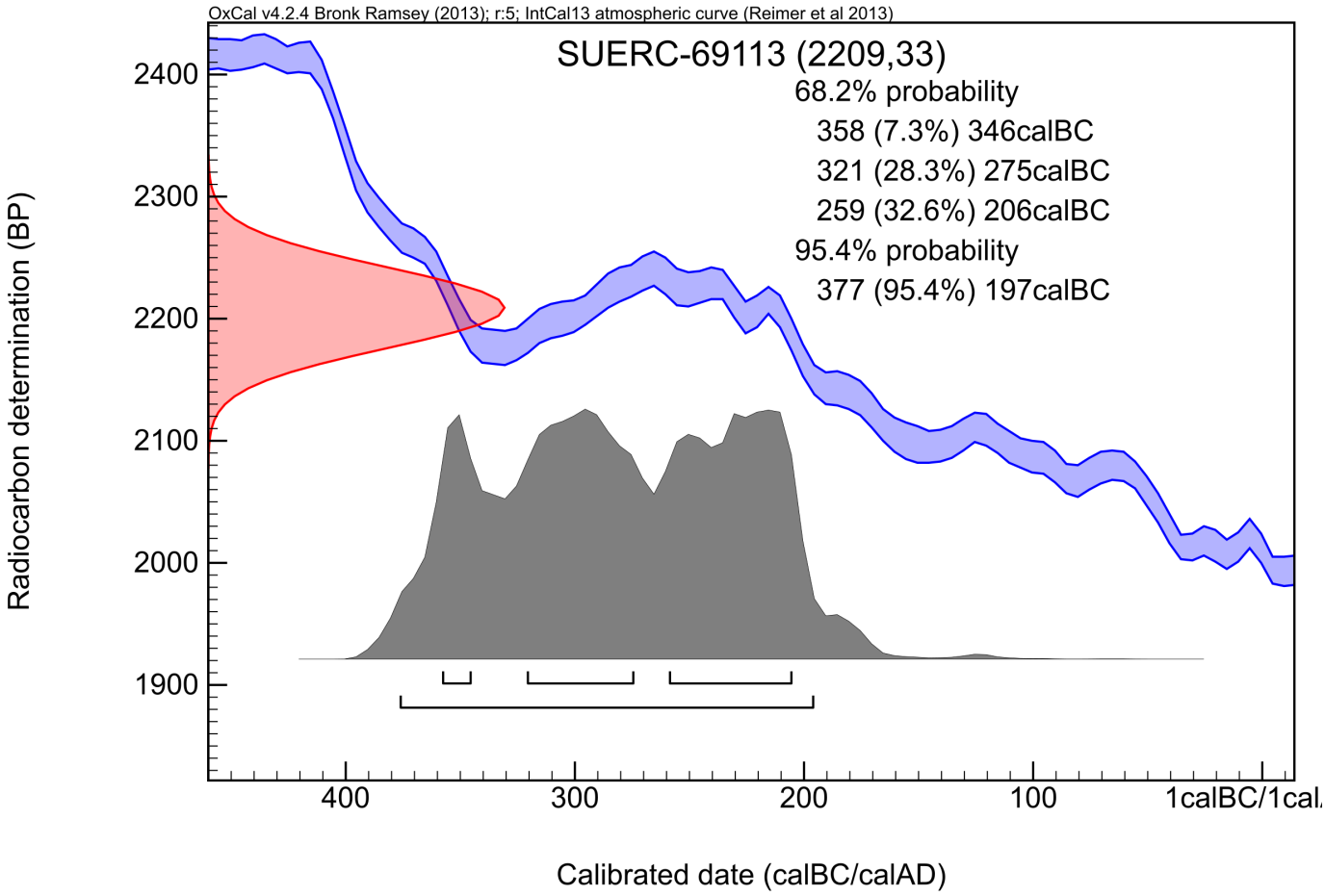
The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email Gordon.Cook@glasgow.ac.uk or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- E. Dunbar Date :- 22/09/2016

Checked and signed off by :- P. Naysmith Date :- 22/09/2016

Calibration Plot



Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor R M Ellam Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

22 September 2016

Laboratory Code	SUERC-69114 (GU41744)
Submitter	Kate Turner Pre-Construct Archaeology Unit 54, Brockley Cross Business Centre 96 Endwell Road.Brockley London, SE4 2PD
Site Reference	Bedale, Aiskew and Leeming Bypass (site 58)
Context Reference	(2378)
Sample Reference	BALB 14 Site 58 <280>
Material	Charcoal : Corylus
δ ^{13}C relative to VPDB	-25.5 ‰
Radiocarbon Age BP	2293 ± 33

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

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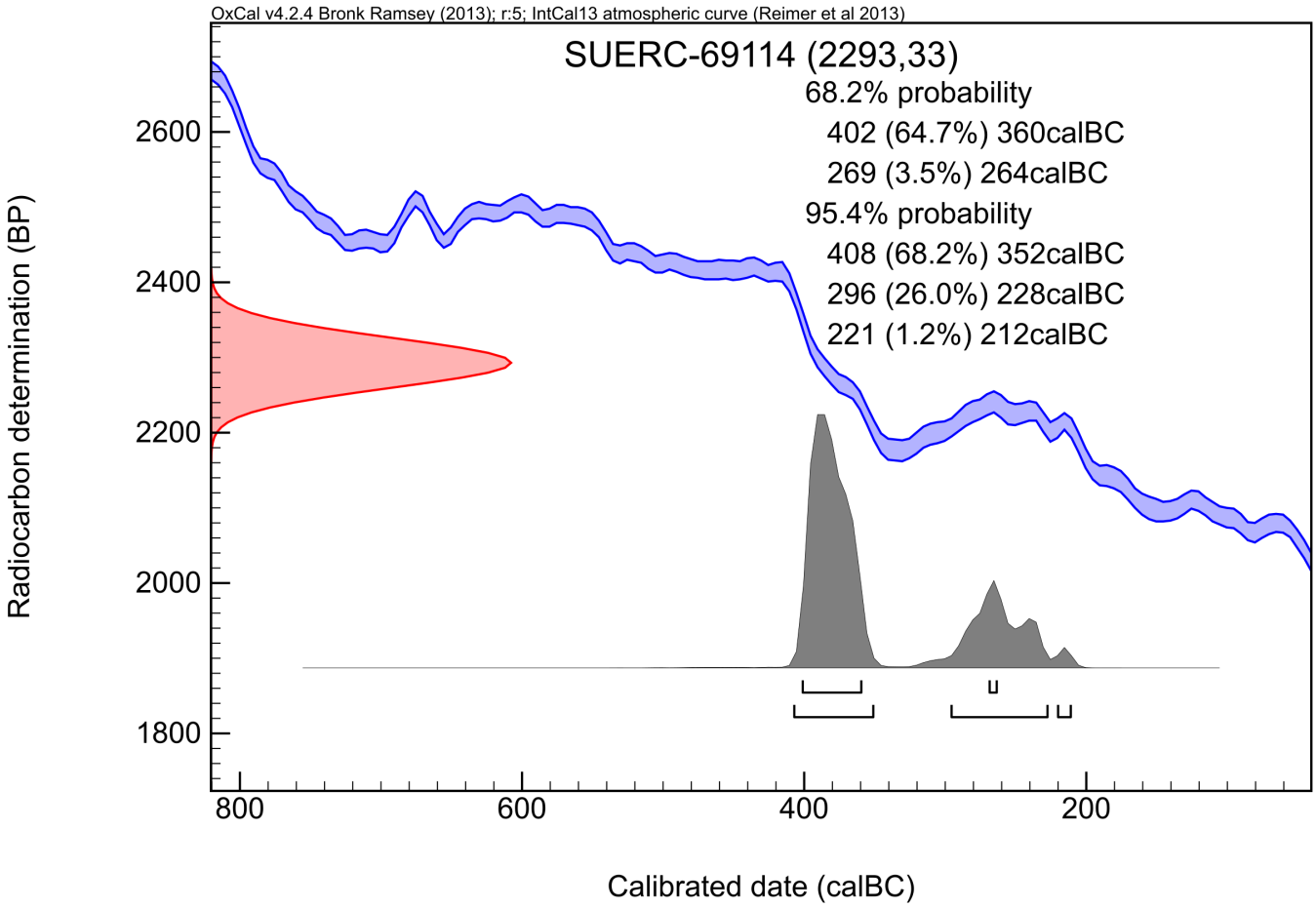
Conventional age and calibration age ranges calculated by :- E. Dunbar Date :- 22/09/2016

Checked and signed off by :- P. Naysmith Date :- 22/09/2016

Calibration Plot



Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor R M Ellam Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

22 September 2016

Laboratory Code	SUERC-69115 (GU41745)
Submitter	Kate Turner Pre-Construct Archaeology Unit 54, Brockley Cross Business Centre 96 Endwell Road.Brockley London, SE4 2PD
Site Reference	Bedale, Aiskew and Leeming Bypass (site 58)
Context Reference	(2045)
Sample Reference	BALB 14 Site 58 <127>
Material	Charcoal : Cf. Prunus
δ ^{13}C relative to VPDB	-25.0 ‰ assumed
Radiocarbon Age BP	2362 ± 33

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

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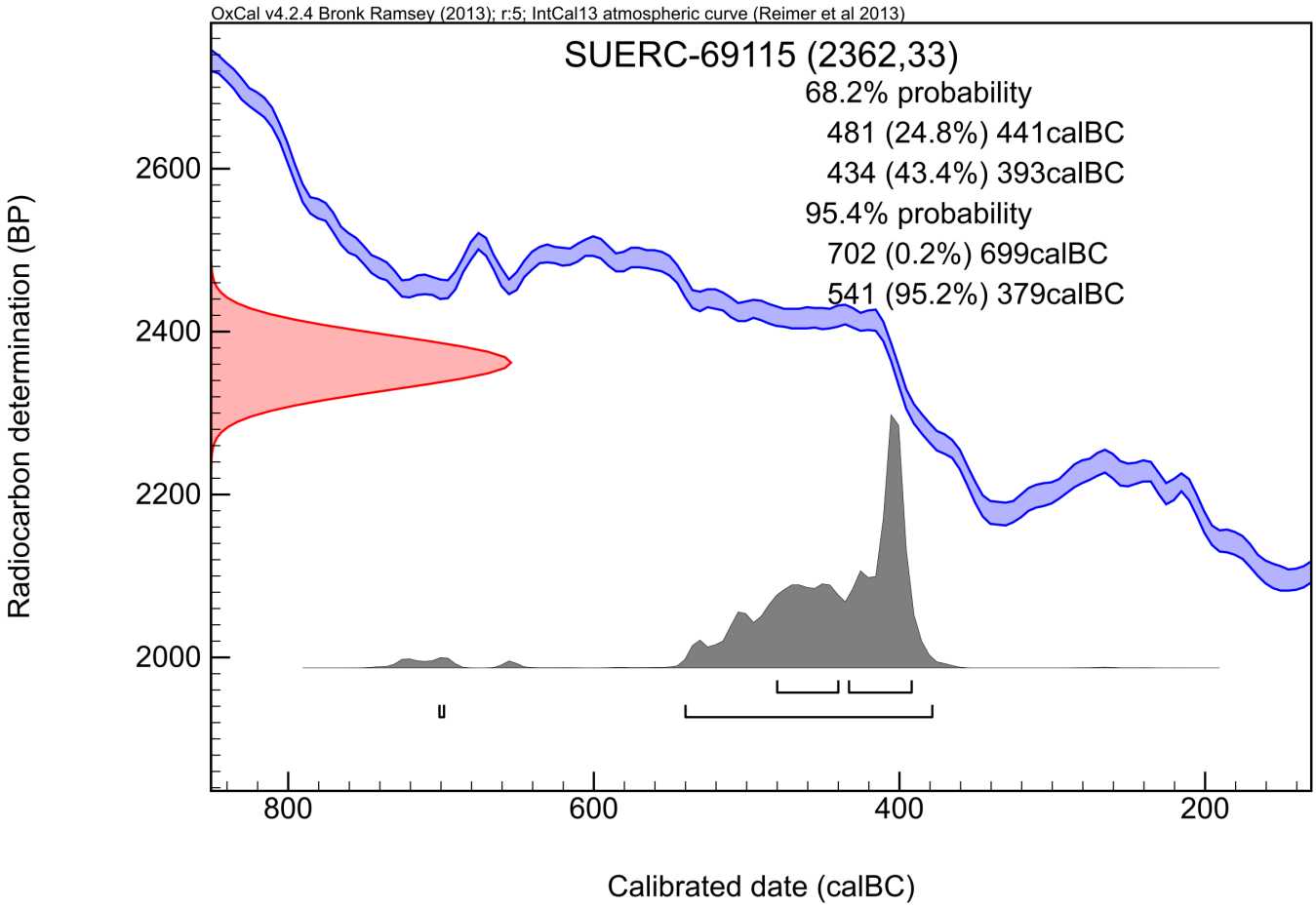
Conventional age and calibration age ranges calculated by :- E. Dunbar Date :- 22/09/2016

Checked and signed off by :- P. Naysmith Date :- 22/09/2016

Calibration Plot



Scottish Universities Environmental Research Centre

Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor R M Ellam Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

22 September 2016

Laboratory Code	SUERC-69116 (GU41746)
Submitter	Kate Turner Pre-Construct Archaeology Unit 54, Brockley Cross Business Centre 96 Endwell Road.Brockley London, SE4 2PD
Site Reference	Bedale, Aiskew and Leeming Bypass (site 58)
Context Reference	(2377)
Sample Reference	BALB 14 Site 58 <279>
Material	Charcoal : Indeterminate hardwood
δ ^{13}C relative to VPDB	-27.7 ‰
Radiocarbon Age BP	2221 ± 33

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

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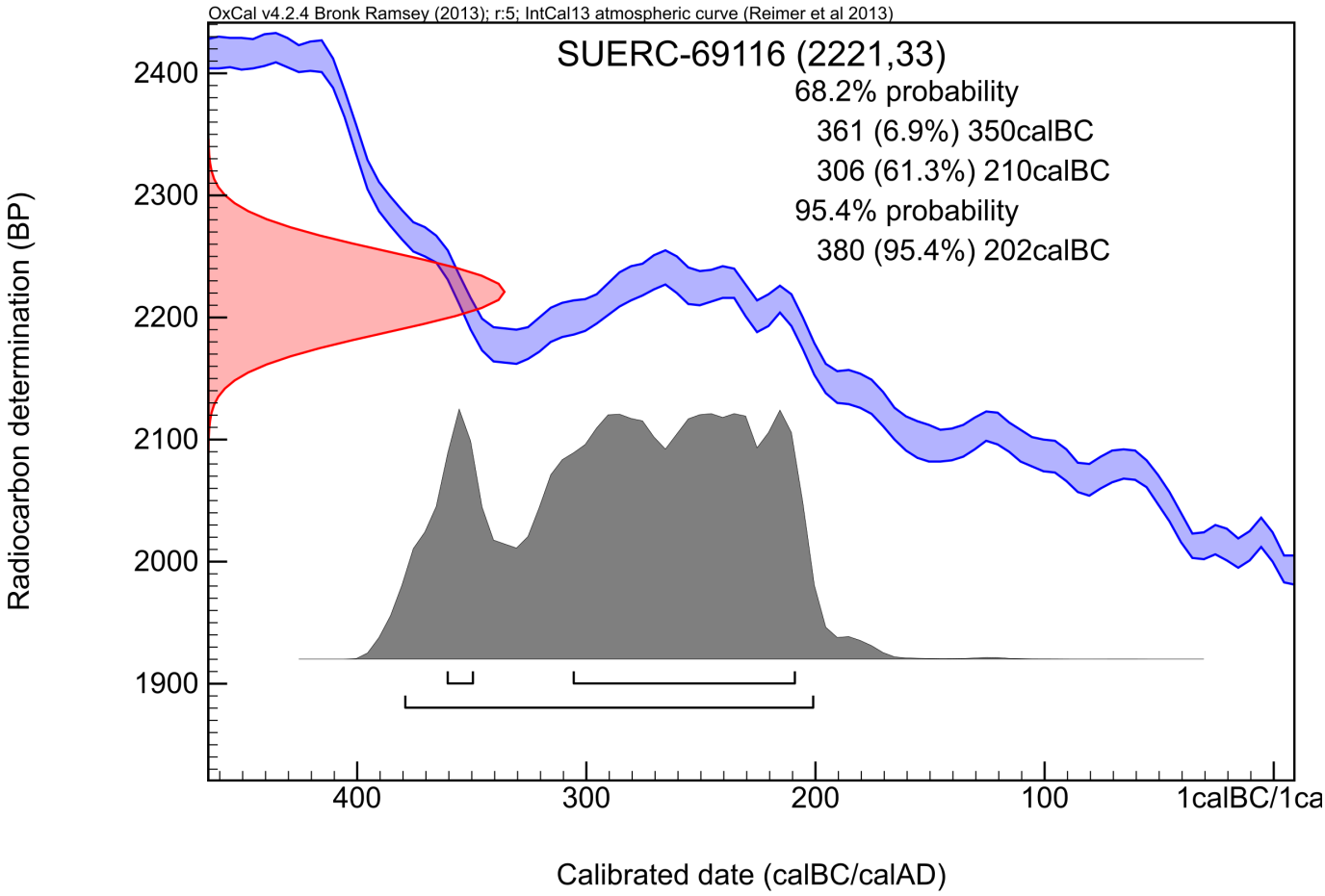

APPENDIX 23: COMMUNITY INVOLVEMENT

13th Jan 2015: Introductory talk about site to Bedale Archaeology and History Society

February 2015: Production of posters for Wills opening ceremony and display at Bedale Hall

February to June 2015: Finds processing at PCA's offices by members of the Swaledale and Arkengarthdale Archaeology Group (SWAAG)

March 2015: Ten Year 1 students and one PhD student from Newcastle University each provided with 4 days each fieldwork experience at Site 58

March 2015: One Year 3 Newcastle University student two weeks fieldwork experience

16th and 17th March 2015: Roman finds Group Conference, poster and finds display and talk

23rd March 2015: Bedale School site visit; finds display and talk and site tour

March-April 2015: Sieving of quarry pit deposits by members of Bedale Archaeology & History Society

May 14th 2015: Mowbray School: afternoon sessions with Key stage 3 children, talk and finds display

June 11th 2015: Mowbray School finds processing with Key stage 3 children

June 20th 2015: Open day at Bedale Hall, finds and poster display

15th December 2015: Talk on preliminary findings to SWAAG

9 February 2016: Talk and finds display Northallerton and District Historical Society

4th September 2016: Talk Current Archaeology Conference

12th September 2016: Talk and finds display Kirby, Great Broughton and Ingleby Greenhow Local History Group

22nd October 2016: Talk Hadrian's Wall Research Forum

1st November 2016: Talk and finds display Bedale Archaeology & History Society

10th January 2017: Talk and finds display SWAAG

21st April 2017: Talk and finds display Friends of the Dales Countryside Museum

PCA

PCA SOUTH
UNIT 54
BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD
BROCKLEY
LONDON SE4 2PD
TEL: 020 7732 3925 / 020 7639 9091
FAX: 020 7639 9588
EMAIL: info@pre-construct.com

PCA NORTH
UNIT 19A
TURSDALE BUSINESS PARK
DURHAM DH6 5PG
TEL: 0191 377 1111
FAX: 0191 377 0101
EMAIL: info.north@pre - construct.com

PCA CENTRAL
THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN
TEL: 01223 845 522
FAX: 01223 845 522
EMAIL: info.central@pre - construct.com

PCA WEST
BLOCK 4
CHILCOMB HOUSE
CHILCOMB LANE
WINCHESTER
HAMPSHIRE SO23 8RB
TEL: 01962 849 549
EMAIL: info.west@pre - construct.com

PCA MIDLANDS
17-19 KETTERING RD
LITTLE BOWDEN
MARKET HARBOROUGH
LEICESTERSHIRE LE16 8AN
TEL: 01858 468 333
EMAIL: info.midlands@pre-construct.com

REGISTERED ORGANISATION CIfA