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MAP Archaeological Practice



Land to the Rear of 32-64 Humberston Avenue
Humberston
North East Lincolnshire

Archaeological Strip, Map and Record.

MAP 05.15.17

DC/ 268/13/HUM

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Summary

An Archaeological Strip, Map and Record was carried out by MAP Archaeological Practice Ltd., on land to the rear of 32-64 Humberston Avenue, Humberston, North East Lincolnshire (Centred TA 29630 04486) between October and November 2019 on behalf of Persimmon Homes. The work was undertaken in advance of the construction of a residential development (Application Ref. DC/268/13/HUM). The site had previously been subject to a Desk Based Assessment, Geophysical Survey and Evaluation by Trial Trenching.

A single sub-circular enclosure, located atop of a small natural hillock, was present within the excavation area. The enclosure is likely to have been established during the mid-Iron Age, with activity on the site flourishing during the late Iron Age. A single pit, which had been dug into the enclosure ditch contained Roman period pottery suggesting the enclosure had fallen out of use by the 2nd century AD.

The lack of evidence for structures on the site and the arrangement of internal features suggest a largely agricultural function for the site although the quantity of domestic pottery is suggestive of nearby settlement, probably to the south or east of the enclosure.

The remains of two adult women, who appeared to have been buried in coffins, were recovered from the enclosure ditch. The skeletons are likely to date to Roman period, having been interred following the abandonment of the enclosure.

1. Introduction

1.1 This report sets out the results of an Archaeological Strip, Map and Record, carried out by MAP Archaeological Practice Ltd., between October and November 2019, on land to the rear of 32-64 Humberston Avenue, Humberston, north east Lincolnshire (NGR TA 29630 04486) The work was carried out in advance of the commencement of a residential development with associated infrastructure.

1.2. Condition 8 attached to planning application DC/268/13/HUM states that;
No development shall take place outside phase 1 until a written Scheme of Investigation (or Specification of Works) for a programme of archaeological work in respect of the south-eastern quarter of the site has been submitted to and approved in writing by the local planning authority, and the Scheme of Investigation (or Specification of Works) has been implemented in accordance with the approved details. None of the dwellings hereby permitted outside of phase 1 shall be occupied until the findings resulting from the programme of archaeological work have been published and the archive resulting from the programme of archaeological work deposited with an organisation first approved in writing by the local planning authority.

1.3. The Strip, Map and Record was the final stage in a programme of archaeological work which has included a Desk-Based Assessment (Allen Archaeology Limited. 2011), Geophysical Survey (Allen Archaeology Limited 2013), and Evaluation by Trial Trenching (MAP 2018).

1.4. The work was carried out in accordance with the recommendations of the National Planning Policy Framework (February 2019) on 'Archaeology and

Planning' and according to a Written Scheme of Investigation (WSI) prepared by MAP (Appendix 11) and approved by the Archaeology Officer at North East Lincolnshire Council.

- 1.5. The results of the Strip, Map and Record are intended to record and advance understanding of the archaeology, in accordance with the National Planning Policy Framework (NPPF, February 2019) and policy 39 (Conserving and Enhancing the Historic Environment) of the North East Lincolnshire Local Plan which states that;
Development will be supported, and planning permission granted, where proposals.....make appropriate provision to record, and where possible preserve in situ features of archaeological significance.
- 1.6. MAP adhered to the general principles of both the ClfA (2019) 'Code of Conduct' and 'Standard and Guidance for Archaeological Field Excavation' throughout the work.
- 1.7. The site code for the project was MAP 05.15.17.
- 1.8. All work was funded by Persimmon Homes.
- 1.9. All maps within this report have been produced from the Ordnance Survey with the permission of the Controller of Her Majesty's Stationery Office, Crown Copyright, Licence No. AL 50453A or via OpenStreetMap (<https://www.openstreetmap.org/copyright>).

2. Site Description

- 2.1 The site is located on land off Humberston Avenue, Humberston, North East Lincolnshire, approximately 5km south-east of Grimsby (Fig 1).
- 2.2 The site was bounded to the north and west by land associated with ongoing development, to the south by a public footpath and to the east by a bridleway.
- 2.3 The bedrock geology comprises Burnham Chalk, with a superficial geology of glacial till, and an outcrop of lacustrine alluvium at the south-eastern corner of the site (British Geological Survey 2019).
- 2.4 The total area of the Strip, Map and Record was 0.6ha.

3. Previous Archaeological Work.

3.1 Desk-Based Assessment

- 3.1.1 A Desk-Based Assessment was carried out prior to the commencement of the development on the site (Allen Archaeology Limited 2011).
- 3.1.2 The assessment highlighted a lack of known archaeological activity in the area, although the cropmark remains of a likely prehistoric enclosure had been identified to the north of the site. The report concluded that the site had low archaeological potential and that any archaeological remains present would be of local significance.

3.2 Geophysical Survey

3.2.1 A geophysical Survey was undertaken on the site in 2013 by Allen Archaeology and revealed a potential sub-circular archaeological anomaly within the south-eastern corner of the site. The anomaly was likely to represent an enclosure with associated internal features and possible external features also. The survey provided evidence that the enclosure had been cut by later ridge and furrow activity, and therefore likely to be earlier in date, either later prehistoric or Romano-British. No other archaeological anomalies were identified across the remainder of the site.

3.3 Evaluation by Trial Trenching

3.3.1 A programme of Evaluation by Trial Trenching took place on the site in order to assess the nature of the anomalies identified in the results of the Geophysical Survey (MAP 2018).

3.3.2 The evaluation consisted of four 20x2m trenches, appropriately positioned over geophysical anomalies and adjacent neutral areas.

3.3.3 The limited archaeological remains revealed by the evaluation, corroborated the results of the geophysical survey, and further infer those features as part of a small rural settlement, in use during the Iron-Age/pre-Roman period

3.3.4 The larger circular ditch presented as a deep and wide feature, possibly defensive feature, allowed to fill gradually with no evidence of later maintenance. The internal feature equally saw very little evidence for maintenance and was subjected to three separate phases of deposition,

dated specifically to that pre-roman period and would seemingly have derived from the use of interior of the enclosure.

- 3.3.5 Further work was recommended in order gain more information regarding the purpose and demise of the site.

4. Archaeological and Historical Background

- 4.1 There is very limited known prehistoric and Roman activity recorded nearby. A possible late prehistoric enclosure has been identified approximately 1.2km north of the development site (NHRE ref. 1566529). The site was identified through aerial photography and consists of a 3-sided enclosure with internal subdivisions. A complex of rectilinear and curvilinear enclosures has been identified to the south of the site through aerial photography (NHRE ref. 1566532). The site primarily consists of single ditched enclosures although one double ditched example has been identified. Other Prehistoric activity within the vicinity has been recorded c. 2km north-west and north of the development and is restricted to scatters of Mesolithic and Neolithic flint implements

- 4.2 The route of Humberston Avenue has been identified as a possible Roman Road. Excavation carried out by Allen Archaeology to the west of the site identified a number of ditches suggestive of a nearby Roman settlement. Similarly to prehistoric activity there are records of dispersed scatters of Roman material within the surrounding areas of the development site.

- 4.3 There is no archaeological evidence for Anglo-Saxon activity in the area although documentary evidence suggests that there may have been some

form of settlement here prior to the Norman Conquest. The place name Humberston means 'stone by the River Humber', the stone element deriving from the Old English '*stan*' (Cameron 1998). The village also appears in the Domesday Book, at which time it was part of a manor at Tetney owned by Ivo Tallboys. It was a relatively large settlement with 67 freemen listed, along with their dependents (Morgan and Thorne 1986). The site is however, well beyond the historic core of the village where settlement activity of this date is most likely to be encountered.

5. Aims and Objectives

5.1 Aims

5.1.1 In accordance with the '*Standard and Guidance for Archaeological Excavation*' (ClfA 2014) the aims of the Archaeological Strip and Record were to:

- Examine the archaeological resource within a given area or site within a framework of defined research objectives.
- To seek a better understanding of the resource.
- To compile a lasting record of the resource; and
- To analyse and interpret the results of the excavation and disseminate them.

5.2 Research Objectives.

5.2.1 After consideration of the results of the Geophysical Survey and Archaeological Evaluation by Trial Trenching, the following research objectives have been set.

- Determine the nature, extent and character of late prehistoric activity within the site

6. Methodology

6.1 Excavation

6.1.1 The Archaeological Strip, Map and Record area measured 0.6ha and was positioned in order to assess archaeological features targeted during the Evaluation by Trial Trenching and highlighted in the results of the Geophysical Survey.

6.1.2 Overburden, topsoil and subsoil were removed by a 360° tracked mechanical excavator, fitted with a toothless bucket, operating under close archaeological supervision. Machining ceased at the top of either archaeological or naturally formed deposits, depending upon which was located soonest. The exposed surfaces were cleaned by shovel, hoe or trowel as appropriate and all subsequent excavation was carried out by hand.

6.1.3 A sufficient sample of archaeological features and deposits were hand excavated, in order to address the aims of the Archaeological Strip, Map and Record. As a minimum the following samples were excavated from features.

- 50% is all discrete archaeological features (e.g. pits and post-holes).
- 50% of all structural features (ego ring ditches, roundhouse gullies and beam slots) including all terminals and feature intersections.
- 100% of all funerary monuments
- 10% of all linear features (e.g. ditches and gullies), including all terminals and feature intersections over 5m in length, 20% of any linear feature shorter than 5m.

6.1.4 For the purpose of finds retrieval, soil from both the machine stripping and hand excavation was visually scanned.

6.1.5 All work was carried out in line with the Chartered Institute of Field Archaeologists 'Code of Conduct' (CIfA 2019) and the 'Standard and Guidance for Archaeological Excavation' (CIfA 2014)

6.1.6 All artefacts were retained for specialist analysis.

6.1.7 One Hundred soil samples were taken from ditch and pit deposits for analysis (Appendix 4)

6.2 On-site Recording

6.2.1 All archaeological deposits were recorded according to correct principles of stratigraphic excavation on MAP's *pro forma* context sheets which are compatible with the MOLA recording system. A total of 145 separate contexts were recorded (Appendix 1).

6.3 Plans and Sections

6.3.1 The full extent of all archaeological deposits was recorded in plan on drawing film at an appropriate scale (generally 1:20 or 1:50 for plans and 1:10 for sections). All drawings include an AOD height and their locations were plotted using a Trimble DGPS in order to tie to the Ordnance Survey National Grid. There were 59 drawings (Appendix 2).

6.4 Photographic Record

6.4.1 The photographic record consisted of 112 high-resolution digital images, recording all archaeological features and deposits encountered (Appendix 3).

6.5 Finds

- 6.5.1 Finds were processed in accordance with English Heritage Guidelines (EH 1995). All finds were cleaned, identified, assessed, dated (where possible), marked (where appropriate), and properly packed and stored according to national guidelines.
- 6.5.2 A total of 661 objects were recovered from the excavated features and deposits. This included 354 sherds of pottery and 278 fragments of animal bone and 29 iron nails (Appendices 5, 7-9)
- 6.5.3 In accordance with the Burial act of 1857 a Licence for the Removal of Human Remains was obtained from the Ministry of Justice (Burial Licence no. 19-0271, Appendix. 10).

7. Results

7.1 Period 1-Mid/ Late Iron Age (Figures 3 & 6, Plates 1-11)

- 7.1.1 The sub-circular enclosure which was identified in the results of the Geophysical Survey and evaluated by Trial Trenching was present in its entirety within the excavation area. The enclosure measured approximately 50m by 40m with an entrance measuring approximately 1.59m, in the south-western side. The enclosure was excavated in 13 segments (cuts 014, 019, 026, 029, 039, 045, 047, 058, 070, 076, 087, 110 and 144). The 'V' shaped ditch measured between 3.58m and 2m wide and between 1.37m and 0.92m deep, generally being wider and deeper along the western length of the enclosure. The ditch, for the most part, contained 4 consistent fills although localised deposits representative of natural weathering were also identified in several segments. The basal fill of the feature consisted of

a dark reddish-brown silty clay which contained a total of 18 sherds of pottery which dated to the mid to late Iron Age and a single sherd dating to between AD 1-70 and animal bone including cattle, sheep or goat and horse. Environmental samples taken from the deposit contained a single barley grain and 17 rye grains which are likely to have been deliberately dumped or swept into the ditch from nearby cereal drying or cooking activity. Above the basal fill a deposit of mid grey brown silty clay was identified which contained no archaeological material. A dark grey brown silty clay formed the main fill of the feature and contained pottery dating to the mid to late Iron Age and the late 1st century AD. The upper fills consisted of mid to dark grey brown silty clays which also contained a small amount of mid to late Iron Age pottery.

7.1.2 The terminal segments of the enclosure ditch revealed that the feature to be between 3m and 2.6m wide at the point at which it terminated and between 1.37 and 1.2m deep. A small amount of mid to late Iron Age pottery was recovered from the terminal segments but nothing to suggest any intentional deposition had taken place when the feature fell out of use.

7.1.3 Two inhumations (skeletons 100 and 102) were identified within cut 144 of the sub-circular enclosure ditch. Unfortunately, owing to adverse weather conditions during excavation and despite repeated cleaning of the area, no obvious grave cuts were identified within the ditch fills. The inhumations had been placed into the fill of the ditch and the presence of a number of nails (17 found associated with Skeleton 102 and 3 around Skeleton 100) suggest possible coffin burials but this cannot be confirmed due to the conditions during excavation. Skeleton 100 was located to the east of Skeleton 102 and was laid in a supine position, orientated north to south

with the head to the south facing west. The skeleton was that of female of between 26-35 years of age who appears to have had periods of ill health during childhood. A small fragment of cattle horncore was identified close to the right shoulder of the individual. Skeleton 102 was also laid in a supine position. Seventeen nails were located around the individual suggesting a coffin had been present although not identified during excavation. The skeleton, which was orientated almost east to west, with the head to the east, although the skull was so fragmented it was unclear which way it was facing. The skeleton was that of a female, aged between 36-45 years of age who likely suffered from spinal issues and possible childhood anemia.

7.1.4 Ditch A was located in the interior of the sub-circular enclosure, close to its eastern limit. The ditch was likely to have been contemporary with the enclosure although appears to have ceased to be functional prior to the total abandonment of the outer enclosure ditch. Ditch A ran on a south-east to north-west orientation for approximately 21m before terminating close to the centre of the enclosure. Ditch A was excavated in 4 segments (cut 034, which examined the relationship between the ditch and the enclosure, 094, 124 and 131 which examined the terminal of the feature. The flat based, 'U' shaped ditch measured between 1.39 and 1.9m wide and was between 0.65m and 0.74m deep. The ditch, for the most part, contained three main fills, consisting of naturally accumulated mid to dark reddish-brown and grey-brown silty clays. Pottery dating to the late Iron Age was recovered from the feature. An environmental sample taken from the segment contained 3 pieces of oak charcoal.

7.1.5 Ditch B was also located in the interior of the enclosure and was also shown to have fallen out of use earlier than the sub-circular enclosure. The ditch

ran on a north to south orientation for approximately 20m before terminating 3.85m north of Ditch A. Ditch B, which had a flat based 'U' shaped profile, was excavated in 5 segments (042, 091, 096, 098 and 120) and measured between 1.48m wide and 0.79m wide and between 0.78m and 0.29m deep, generally getting shallow close to the terminal. A single fill consisting of a dark grey brown silty sand which contained a small amount of pottery dating to the mid to late Iron Age. A single charred bread wheat grain was identified within an environmental sample taken from cut 096. When considered together ditches A and B form an internal division within the sub-circular enclosure with an entrance to its south-west.

7.1.6 Ditch C was located in the north-western portion of the sub-circular enclosure and was shown to have been abandoned before the enclosure ditched stopped being maintained. The 'V' shaped ditch ran on a north-west to south-east orientation for approximately 4m before turning east and continuing for a further 13m where it terminated 1.07m to the west of Ditch B. Ditch C, which excavated in three segments (116, 135 and 139), measured between 1.97m and 1.36m and up to 1.04m deep. At its deepest, the ditch contained 2 fills and a small amount of redeposited natural clay. The basal fill of the ditch consisted of a dark grey brown silty clay. The main fill of the ditch consisted of a dark reddish-brown silty clay which contained 156 sherds of late Iron Age pottery. This fill was consistent with the single fill of the feature (cut 139) which contained 36 sherds of late Iron Age pottery and a single piece of sheep or goat bone. The arrangement of ditches B and C also form a small internal division within the enclosure, with a narrow entrance to its south east.

7.1.7 Gully A was positioned 3.51m west of Ditch A and ran on an almost north to south orientation for approximately 8.5m before terminating approximately 2.5m south of Ditch C. The 'U' shaped gully measured between 1.55m and 0.55m wide and between 0.56m and 0.56m deep. The gully, which was excavated in 3 segments (007, 126 and 133) contained a single dark grey brown silty clay fill which contained 52 sherds of mid to late Iron Age pottery. A small amount of charred oat and rye grains were recovered from environmental samples taken from the gully.

7.1.8 Gully B was identified during the excavation of Ditch B and was located immediately to the west of the ditch. The gully, which was earlier in date than the ditch, measured between 0.5m and 0.36m wide and survived to a maximum depth of 0.34m. The gully contained a single mid grey brown silty clay fill which contained no datable material. The Gully has been assigned to Period 1 because of its association with the enclosure and internal features.

7.2 Period 2. Roman features (Figures 7 & 8, Plate 12)

7.2.1 Pit 053 was located close to the southern limit of excavation and was found to be later in date than the circular enclosure, into which the pit had been cut. The pit had a diameter of approximately 2m and was 0.74m deep. The pit contained 4 fills; the basal fill consisted of a dark yellowish-brown silty clay which contained no archaeological material, this lay beneath a very dark brown silty clay which contained 13 sherds of pottery dating to the mid-2nd century AD. An environmental sample taken from the deposit contained a single spelt wheat grain and a small amount of birch charcoal. The upper fills of the pit consisted of a mid-yellowish grey and mid grey brown silty clay, neither of which contained any archaeological material.

7.3 Undated features. (Figure 2)

7.3.1 Pit 003 was located inside the circular enclosure, close to the western boundary. The pit had a diameter of 1.4m and was 0.15m deep. The fill of the pit, a light grey brown silty clay contained no material to suggest a date or purpose for the feature.

7.3.2 Pit 005 was positioned to the south-west of Pit 003 and had a diameter of 0.75m and a depth of 0.08m. the fill, a dark grey brown silty clay contained no archaeological material.

8 Discussion

8.1 The Archaeological Strip, Map and Record on land to the rear of 32-64 Humberston Avenue, Humberston, North-east Lincolnshire was successful in examining and determining the nature of the archaeological deposits within the development area, previously identified by the Geophysical Survey and Trial Trenching. The excavated features suggest a site which was rural in character, which flourished during the mid to late Iron Age but is unlikely to have continued far into the Roman Period.

8.2 The earliest activity recorded on the site was represented by the sub-circular enclosure and its associated internal features. It is likely that the enclosure was primarily concerned with livestock management with narrow entrances and internal divisions allowing for the controlled movement of animals. Gates or temporary barriers could have been used to contain animals although no archaeological evidence of this was identified. The lack of evidence for any structures within the interior of the enclosure also suggest an agricultural purpose for the feature although the presence of

domestic pottery and a quern stone on the site is suggestive of domestic settlement in the vicinity of the enclosure, possibly to the south or east, in areas not covered by the Geophysical Survey.

- 8.3 The sub-circular enclosure ditch appears to have been well maintained throughout the duration of its use and appears to have been allowed to fill gradually with weathered clay deposits. The internal features also displayed little evidence of maintenance and were likely filled fairly quickly after the abandonment of the enclosure, certainly at a much quicker rate than the enclosure ditch, as was recognised within all segments which investigated the relationship between the enclosure ditch and the internal features.
- 8.4 Analysis of the human remains showed both skeletons were those of adult females. The level of analysis was limited due to the fragmentary nature and poor preservation of the remains, however both skeletons displayed evidence of ill health during childhood, possibly caused by anemia and spinal stress.
- 8.5 The skeletons recovered from the site conform largely with Iron Age burial practices, burials within boundary ditches are relatively common, as are the orientations to which the remains were interred. The extended position however is slightly unusual when compared to other Iron Age burials which are more commonly flexed or crouched although burial in coffins are seen with the emergence of organised cemeteries (Peterson-Gordina & Holst, 2020). Although there are similarities in the between both Iron Age and Roman period burials, the presence of coffin nails and the position within the fills of the enclosure ditch suggest the skeletons may be of Roman date,

or later, forthcoming radiocarbon dates will give a more precise date for the burials.

- 8.6 Two skeletons were recovered within a meter of each other, from an inner enclosure ditch at Saxby Wold, north Lincolnshire (Caffell & Holst, 2010). The skeletons were those of a child of about 13 and a young adult female, both of whom had been buried in a crouched position. The skeletons were identified at similar alignments to the individuals from Humberston, one was on a north-east to south-west alignment whilst the other was aligned north-west to south-east. Human remains were also recovered from close to the base of a large Iron Age defensive ditch, which also contained animal bone and Iron Age and Roman pottery, at Habrough, Lincolnshire. The single individual, a male, had been interred in a flexed position on a south to north orientation (Holst 2016).
- 8.7 Pit 053 is the latest archaeological feature on the site, containing the only assemblage of Roman pottery. The pit, for which no definitive purpose has been ascertained, was cut into the circular enclosure ditch, suggesting its main period of use had ceased and the ditch was at least partly silted up by the middle of the 2nd century AD.
- 8.8 The site is located on top of a hillock which overlooks the surrounding, relatively flat, landscape and possibly explains the sub-circular nature of the enclosure and size of the ditches, which may have also had a defensive purpose. The curation of the enclosure ditch and the apparent isolation of the site also indicates a level of investment and commitment to the site.

- 8.9 Given that the site falls within a landscape in which complexes of late prehistoric or Roman period enclosures have been identified (NRHE refs; 1083165, 1566529 and 1566532) it is possible that the sub-circular enclosure identified within the excavation area represents an earlier feature which was abandoned in favour of more formalised domestic and agricultural settings. The cropmark data in the region suggests that such complexes are multi-phased sites, some of which contain rectilinear and curvilinear enclosures. Unfortunately a lack of archaeological work on such sites in the vicinity means that the dating and chronology of the features are, as yet, unclear.
- 8.10 Environmental evidence from the site produced a small amount of carbonised plant remains which mainly consisted of charcoal fragments and cereal grain recovered from ditch features. Rye was the predominant cereal grain along with smaller quantities of oat, barley, bread wheat and spelt wheat, all of which are likely to have been grown in the vicinity of the site.
- 8.11 The majority of the pottery assemblage Iron Age in character, starting around the 2nd century BC and continuing into the 1st century AD. The most common form identified within the assemblage were cooking pots with bead or stubby everted rims, which are typical Iron-Age vessels. The small amount of Roman pottery recovered from pit 053 included a sherd of a greyware straight sided beaded rim bowl which is likely to be mid-2nd century in date. The deposition of the Roman pottery is likely to have taken place after the main period of settlement had ceased.
- 8.12 The animal bone assemblage consisted of heavily fragmented bone which was otherwise in good condition. The main species present within the assemblage were cattle sheep or goat and horse. Both adult and sub-adult

animals were represented, which may reflect animals which were being slaughtered specifically for their meat whilst the older animals may have been used for their wool, milk or for reproduction, although there were no obvious signs of butchery. A sub-adult horse bone was also identified with the assemblage which may be suggestive of local breeding.

9 Recommendations

- 9.1 The specific recommendations for finds categories are set out in the various appendices. As a general requirement, all the finds should be retained.
- 9.2 No further work has been recommended regarding the carbonised plant macrofossils and charcoal (Appendix 6) although it has been suggested that birch charcoal recovered from pit 053 would be suitable for radiocarbon dating.
- 9.3 The pottery assemblage (appendix 7) has the potential to allow for a greater understanding of the nature of rural Iron Age sites in Lincolnshire, in particular to the use and supply of pottery. The scope of proposed further work with the assemblage is outlined in Appendix 7.
- 9.4 Given the small size of the assemblage, no further analysis of the animal bone assemblage is recommended.
- 9.6 No further work is recommended for the Human remains, radiocarbon dating of the burials is forthcoming.

10. Bibliography

Allen Archaeology Limited. 2011. Archaeological Desk-Based Assessment. Land to the South of Humberston Avenue, Humberston, North-East Lincolnshire

Allen Archaeology Limited. Archaeological Geophysical Survey. Land to the South of Humberston Avenue, Humberston, North-East Lincolnshire

British Geological Society. Geology Viewer. Available at.
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html?>
[accessed 10.03.2020]

Caffell, A. and Holst, M. 2010. 'Osteological Analysis, Saxby Wold Windfarm, Lincolnshire', York Osteoarchaeology, No. 0510, Unpublished Osteological Report

Chartered Institute for Archaeologists. (2019) Code of Conduct.
<https://www.archaeologists.net/sites/default/files/CodesofConduct.pdf>

Chartered Institute for Archaeologists. (2014b) Standard and Guidance for Archaeological Excavation
https://www.archaeologists.net/sites/default/files/CIfAS&GExcavation_1.pdf

Holst, M. 2016. 'Osteological Assessment Report, Immingham Improvement, Lincolnshire', York Osteoarchaeology, No. 1116, Unpublished Osteological Report

MAP. 2018. Land to the Rear of 32-64 Humberston Avenue, Millennium Park, Humberston, North East Lincolnshire. Archaeological Trial Trenching

Petersone-Gordina E, and Holst, M. 2020. Osteological Analysis, New Walthan, Grimsby, North Lincolnshire. York Osteoarchaeology, No. 0820, Unpublished Osteological Report

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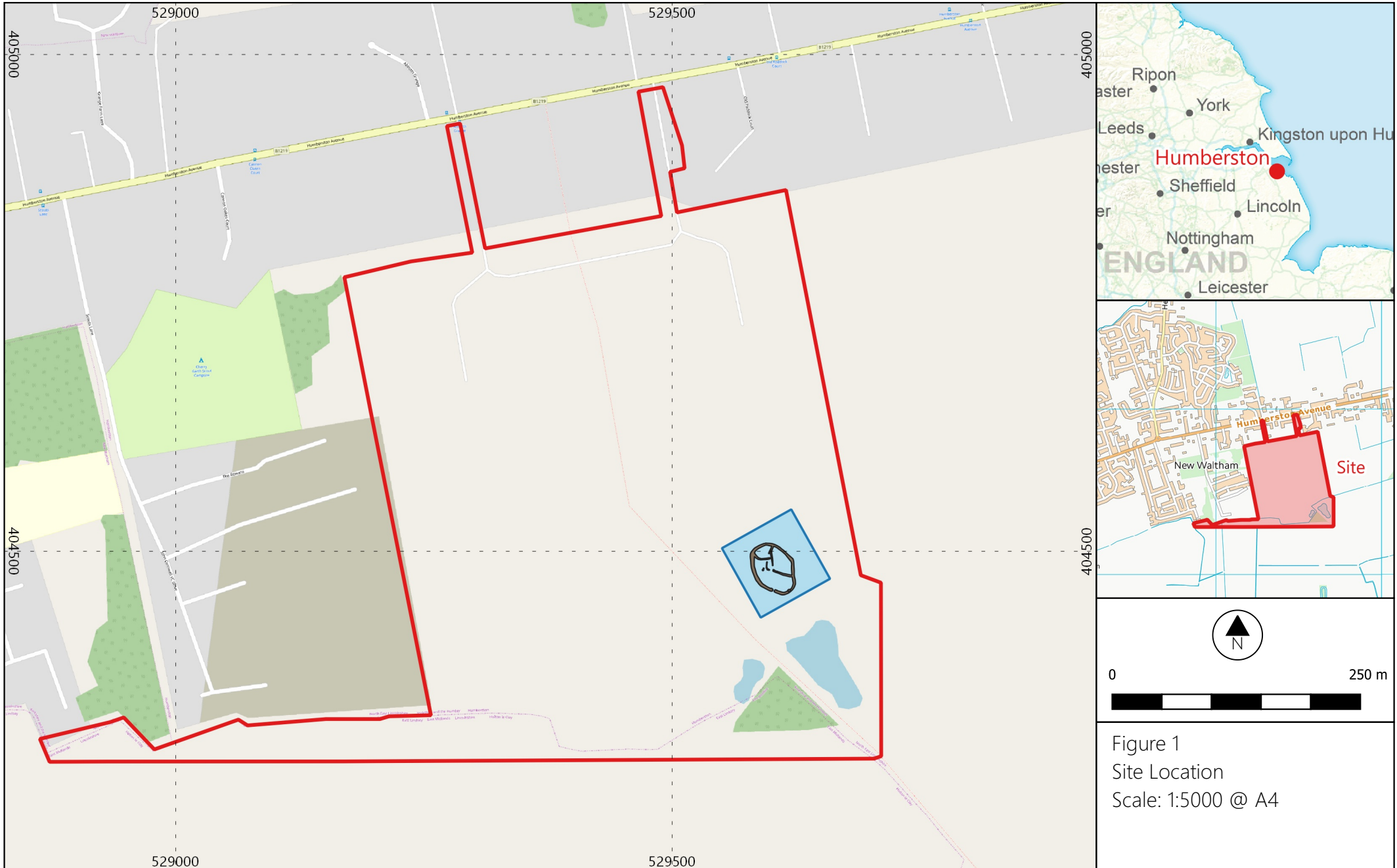
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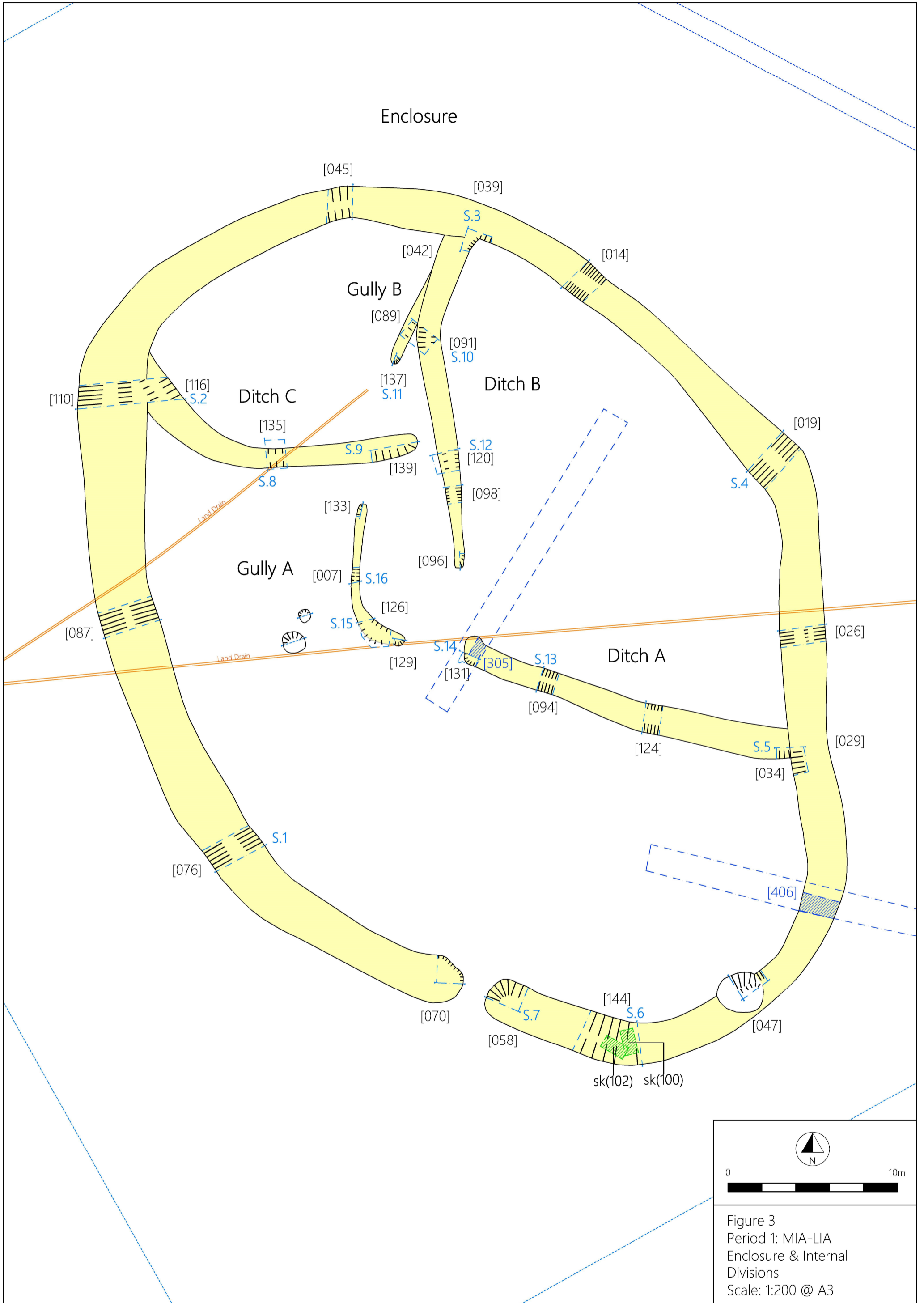
Appendices: Charlotte Stodart

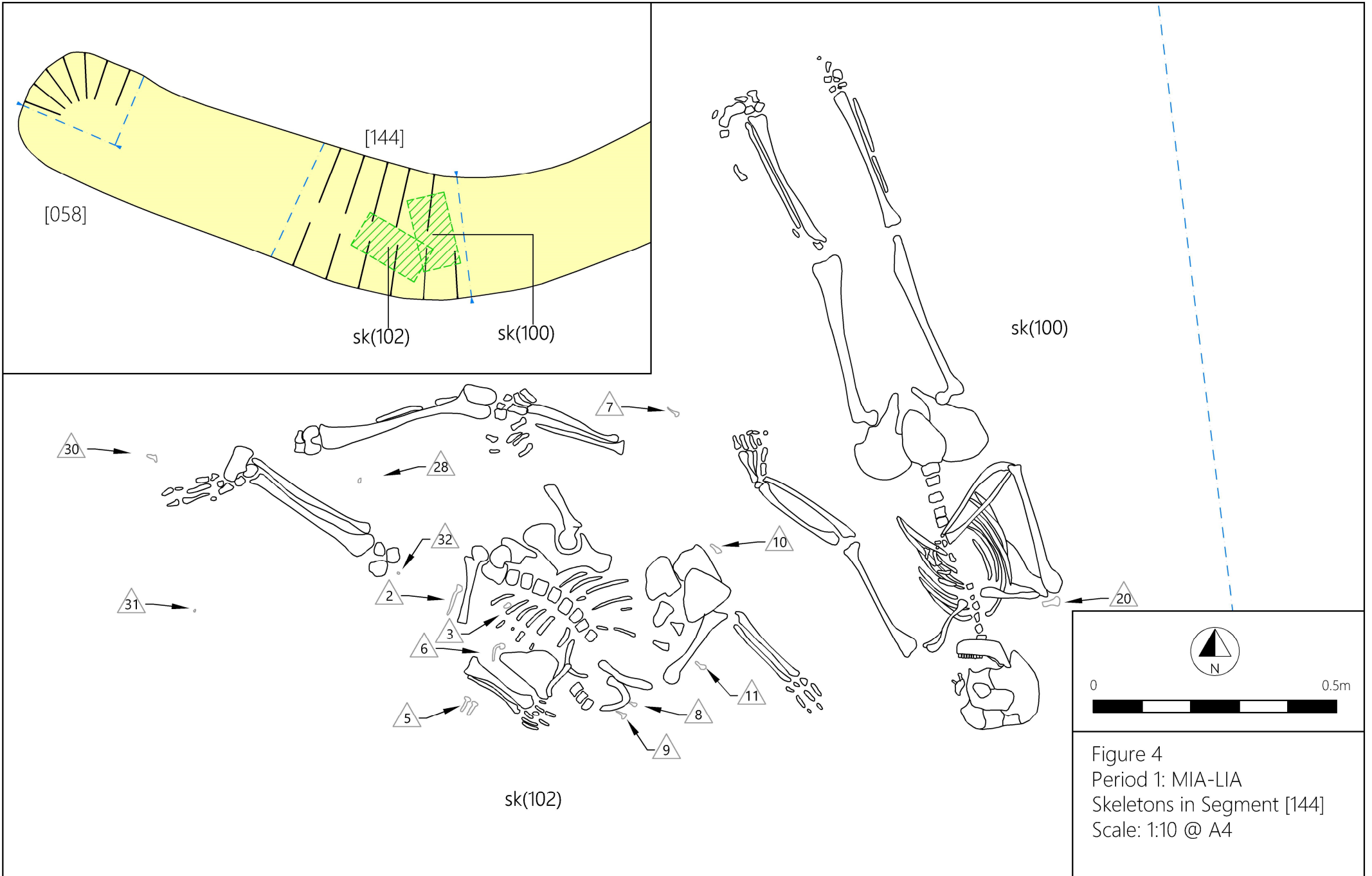
Surveying and Illustrations: Max Stubbings

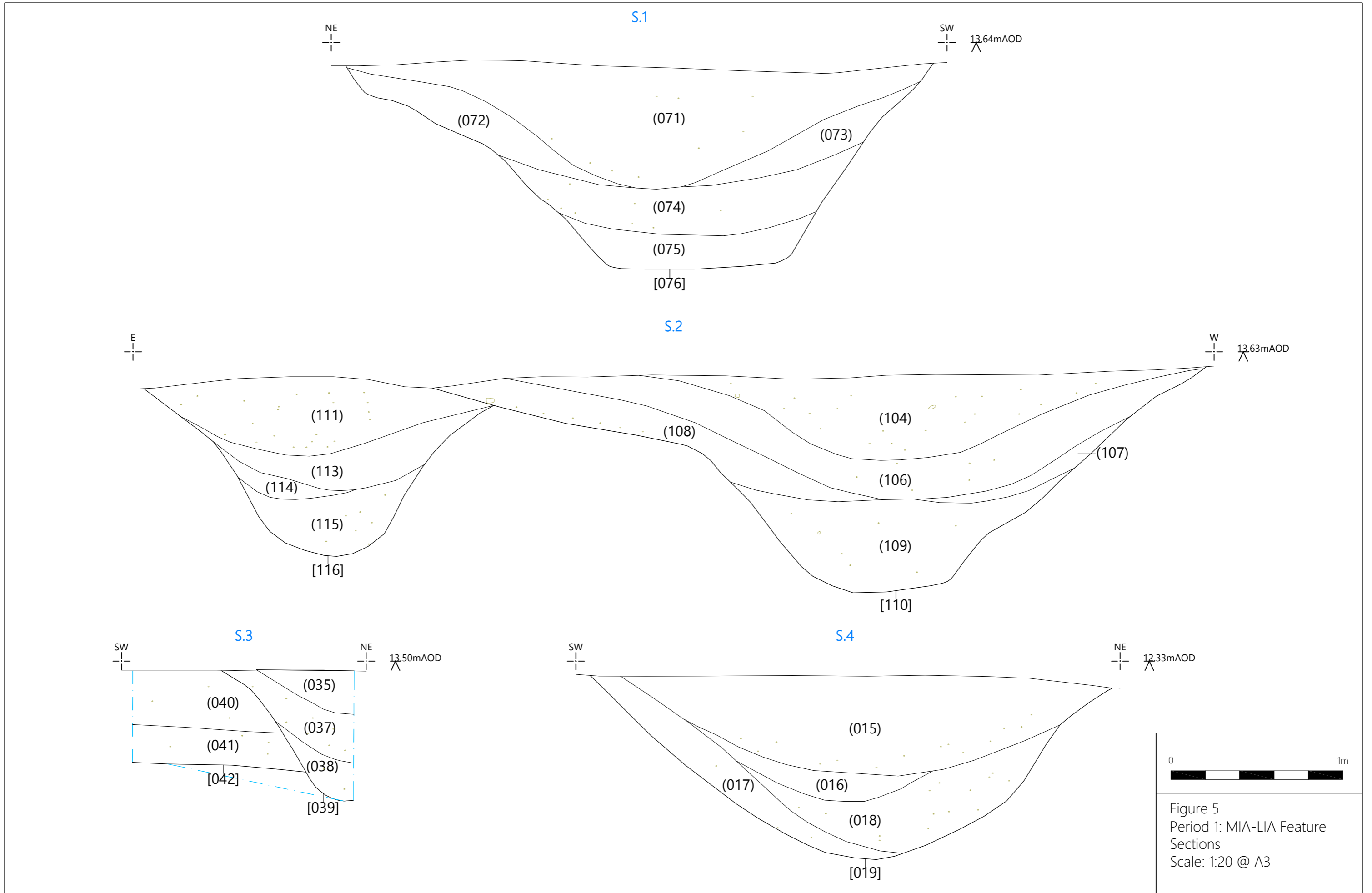
Editor: Paula Ware

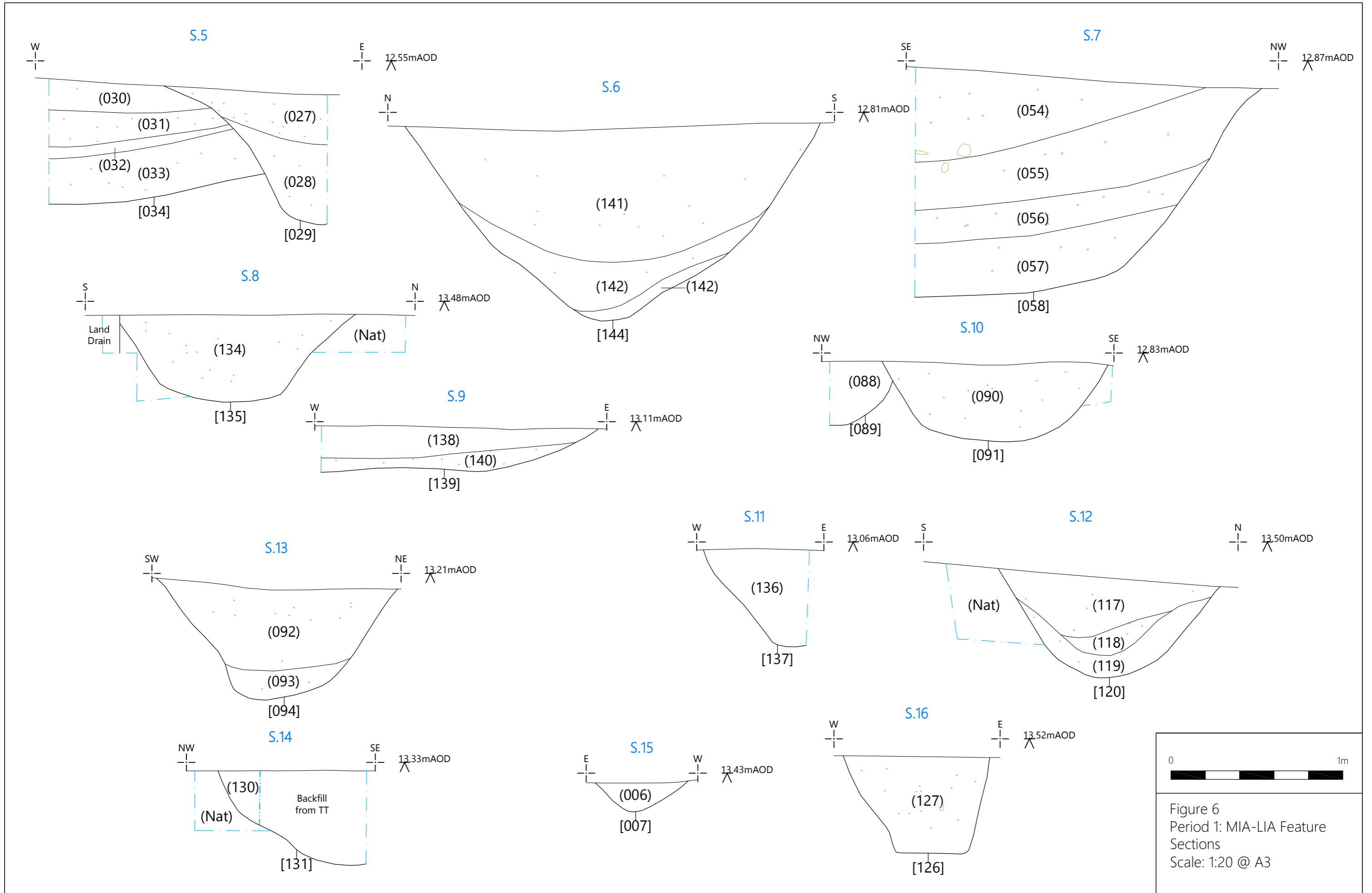












0 1m
Figure 6
Period 1: MIA-LIA Feature
Sections
Scale: 1:20 @ A3

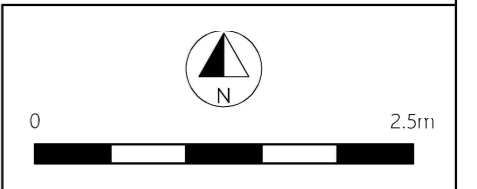
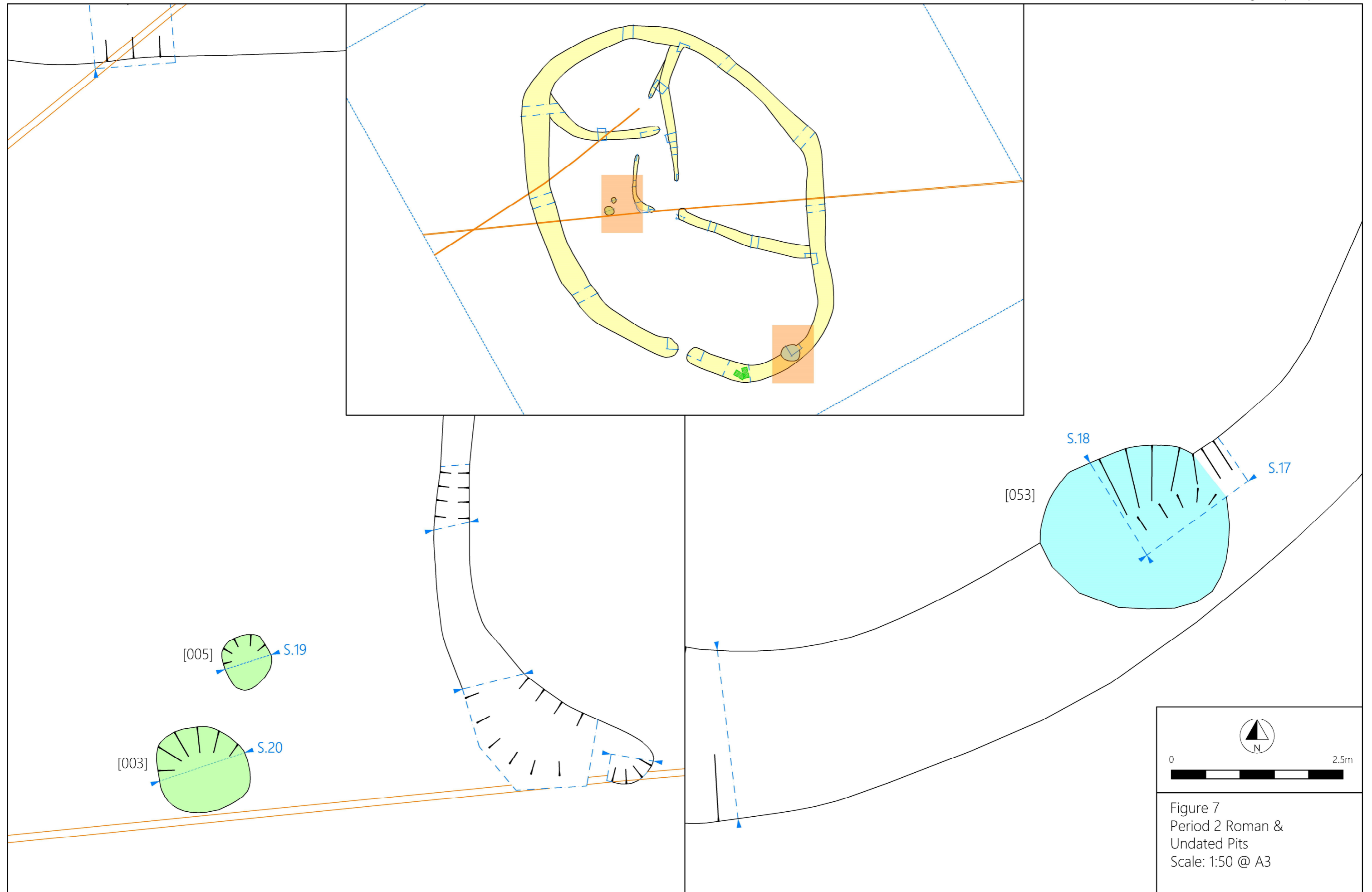
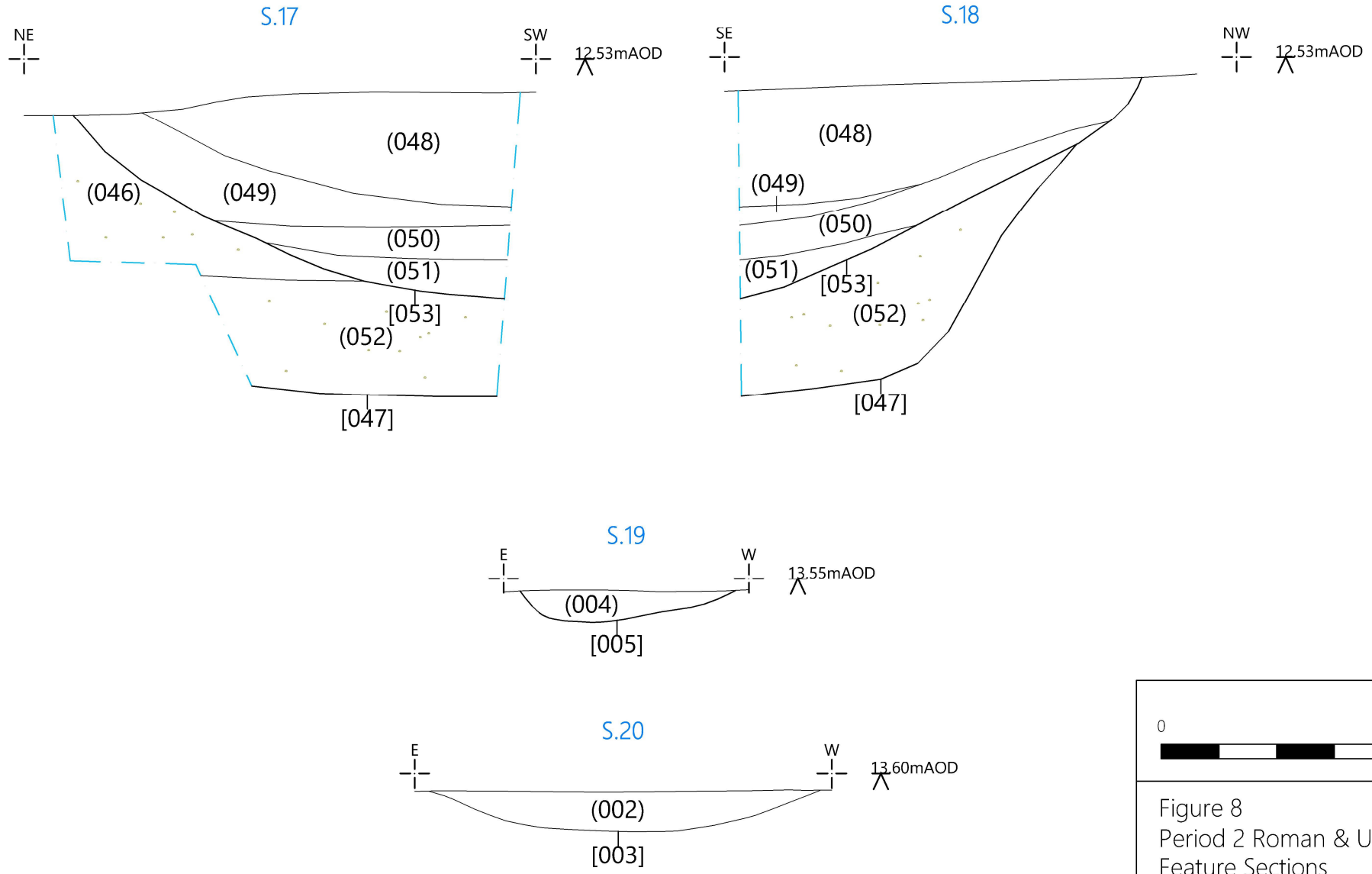


Figure 7
Period 2 Roman &
Undated Pits
Scale: 1:50 @ A3



0 1m
Figure 8
Period 2 Roman & Undated
Feature Sections
Scale: 1:20 @ A4



Plate 1. Period 1. Sub-Circular Enclosure Ditch. Cut [014]



Plate 2. Period 1. Sub-Circular Enclosure Ditch. Cut [026]



Plate 3. Period 1. Sub-Circular Enclosure Ditch. Cut [087]



Period 1. Sub-Circular Enclosure Ditch. Cut [058]



Plate 5. Period 1. Sub-Circular Enclosure Ditch. Cut [144]



Plate 6. Period 1. Skeleton <100>



Plate 7. Period 1. Ditch A Cut [094]



Plate 8. Period 1. Ditch B Cut [096]



Plate 9. Period 1 Ditch B Cut [098]



Plate 10. Period 1. Ditch C Cut [116]



Plate 11. Period 1. Gully A Cut [007]



Plate 12. Period 2, Pit [053] & Enclosure Ditch Cut [047]

APPENDIX 1

Land to the Rear of 32-64 Humberston Avenue

Site Code: 05.15.2017

Context Listing

Context No.	Type	Description
001	Deposit	Topsoil
002	Fill	Light Grey-Brown Silty Clay. Fill of Pit [003]
003	Fill	Cut of Pit
004	Fill	Dark Grey-Brown Silty Clay. Fill of Pit [005]
005	Cut	Cut of Pit
006	Fill	Dark Brown Silty Clay. Fill of Gully Cut [007]
007	Cut	Cut of Gully
008	Fill	Dark Grey Silty Clay. Fill of Gully Cut [009]
009	Cut	Cut of Gully
010	Fill	Mid Brown Silty Clay. Fill of Ditch Cut [012]
011	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [012]
012	Cut	Cut of Ditch
013	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [014]
014	Cut	Cut of Ditch
015	Fill	Light Brown Silty Clay. Fill of Ditch Cut [019]
016	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [019]
017	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [019]
018	Fill	Light Grey-Brown Silty Clay. Fill of Ditch Cut [019]
019	Cut	Cut of Ditch
020	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [026]
021	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [026]
022	Fill	Mid Grey Clay. Fill of Ditch Cut [026]
023	Fill	Mid Reddish-Brown Clay. Fill of Ditch Cut [026]
024	Fill	Mid Reddish-Brown Silty Clay. Fill of Ditch Cut [026]
025	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [026]
026	Cut	Cut of Ditch
027	Fill	Mid Reddish-Brown Silty Clay. Fill of Ditch Cut [029]
028	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [029]
029	Cut	Cut of Ditch
030	Fill	Mid Reddish-Brown Silty Clay. Fill of Ditch Cut [034]
031	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [034]
032	Fill	Mid Reddish-Brown Silty Clay. Fill of Ditch Cut [034]
033	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [034]

Context No.	Type	Description
034	Cut	Cut of Ditch
035	Fill	Dark Grey Silty Clay. Fill of Gully Cut [036]
036	Cut	Cut of Gully
037	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [037]
038	Fill	Mid Grey Silty Clay. Fill of Ditch Cut [039]
039	Cut	Cut of Ditch
040	Fill	Mid Grey Silty Clay. Fill of Ditch Cut [042]
041	Fill	Mid Grey Silty Clay. Fill of Ditch Cut [042]
042	Cut	Cut of Ditch
043	Fill	Mid Brown Silty Clay. Fill of Ditch Cut [045]
044	Fill	Light Brown Clay. Fill of Ditch Cut [045]
045	Cut	Cut of Ditch
046	Fill	Mid Reddish-Brown Silty Clay. Fill of Ditch Cut [047]
047	Cut	Cut of Ditch
048	Fill	Mid Grey-Brown Silty Clay. Fill of Pit [053]
049	Fill	Light Brown Silty Clay. Fill of Pit [053]
050	Fill	Dark Brown Silty Clay. Fill of Pit [053]
051	Fill	Light Reddish-Brown Silty Clay. Fill of Pit Cut [053]
052	Fill	Light Grey-Brown Silty Clay. Fill of Pit [053]
053	Cut	Cut of Pit
054	Fill	Dark Grey-Brown Silty Clay. Fill of Pit [059]
055	Fill	Mid Brown Silty Clay. Fill of Ditch Terminal Cut [058]
056	Fill	Dark Grey Silty Clay. Fill of Ditch Terminal Cut [058]
057	Fill	Dark Reddish-Brown Clay. Fill of Ditch Terminal Cut [058]
058	Cut	Cut of Ditch Terminal
059	Cut	Cut of Pit
060	VOID	
061	VOID	
062	VOID	
063	VOID	
064	VOID	
065	Fill	Fill of Field Drain
066	Cut	Cut of Field Drain
067	Fill	Mid Brown Silty Clay. Fill of Ditch Terminal Cut [070]
068	Fill	Dark Grey Silty Clay. Fill of Ditch Terminal Cut [070]
069	Fill	Dark Reddish-Grey Clay. Fill of Ditch Terminal Cut [070]
070	Cut	Cut of Ditch Terminal
071	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [076]
072	Fill	Mid Reddish-Brown Clay. Fill of Ditch Cut [076]
073	Fill	Mid Reddish-Brown Clay. Fill of Ditch Cut [076]
074	Fill	Dark Grey-Brown Silty Clay. Fill of Ditch Cut [076]

Context No.	Type	Description
075	Fill	Dark Reddish-Brown Silty Clay. Fill of Ditch Cut [076]
076	Cut	Cut of Ditch
077	Fill	Mid Grey-Brown Silty Clay. Fill of Ditch Cut [087]
078	Fill	Dark Brown Silty Clay. Fill of Ditch Cut [087]
079	Fill	Very Dark Brown Clayey Silt. Fill of Ditch Cut [087]
080	Fill	Mid Yellowish Brown Clay. Fill of Ditch Cut [087]
081	Fill	Mid Reddish Brown Silty Clay. Fill of Ditch Cut [087]
082	Fill	Mid Grey Brown Silty Sand. Fill of Ditch Cut [087]
083	Fill	Mixed Yellowish Brown & Very Dark Brown Silty Clay Fill of Ditch Cut [087]
084	Fill	Mid Grey Brown silty Clay. Fill of Ditch Cut [087]
085	Fill	Mid Brown Silty Clay. Fill of Ditch Cut [087]
086	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [087]
087	Cut	Cut of Ditch
088	Fill	Fill of Land Drain
089	Cut	Cut of Land Drain
090	Fill	Mid Pinkish Grey Silty Clay. Fill of Gully Cut [091]
091	Cut	Cut of Ditch
092	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [094]
093	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [094]
094	Cut	Cut of Ditch
095	Fill	Dark Blue Grey Sandy Clay. Fill of Gully Terminal Cut [096]
096	Cut	Cut of Gully Terminal
097	Fill	Dark Blue Grey Sandy Clay. Fill of Gully Cut [098]
098	Cut	Cut of Gully
099	Fill	Dark Grey Clay. Fill of Grave Containing SK 100
100	Skeleton	Human Remains
101	Fill	Dark Grey Clay. Fill of Grave Containing SK 102
102	Skeleton	Human Remains
103		Land Drain
104	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [105]
105	Cut	Cut of Ditch Re-cut
106	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [107]
107	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [110]
108	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [110]
109	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [110]
110	Cut	Cut of Ditch
111	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [112]
112	Cut	Cut of Ditch Recut
113	Fill	Dark Grey Brown Salty Clay. Fill of Ditch Cut [116]
114	Fill	Dark Yellowish Brown Clay. Fill of Ditch Cut [116]
115	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [116]

Context No.	Type	Description
116	Cut	Cut of Ditch
117	Fill	Dark Grey Brown Sandy Clay. Fill of Ditch Cut [120]
118	Fill	Mid Reddish Brown Clay. Fill of Ditch Cut [120]
119	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [120]
120	Cut	Cut of Ditch
121	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [124]
122	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [124]
123	Fill	Dark Reddish Brown Silty Clay. Fill of Ditch Cut [124]
124	Cut	Cut of Ditch
125	VOID	
126	Cut	Cut of Ditch
127	Fill	Dark Grey Brown Silty Clay. Fill of Ditch Cut [126]
128	Fill	Mid Grey Brown sandy Clay. Fill of Ditch Cut [129]
129	Cut	Cut of Ditch
130	Fill	Dark Blue Grey Sandy Clay. Fill of Gully Terminal Cut [131]
131	Cut	Cut of Gully Terminal
132	Fill	Dark Grey Brown Silt Clay. Fill of Gully Terminal Cut [133]
133	Cut	Cut of Gully Terminal
134	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [135]
135	Cut	Cut of Ditch
136	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [137]
137	Cut	Cut of Ditch Terminal
138	Fill	Mid Yellowish Brown Silty Clay. Fill of Gully Terminal Cut [139]
139	Cut	Cut of Gully Terminal
140	Fill	Mid Yellowish Brown Silty Clay. Fill of Gully Terminal Cut [139]
141	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [144]
142	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [144]
143	Fill	Mid Yellowish Brown Sandy Clay. Fill of Ditch Cut [144]
144	Cut	Cut of Ditch
145	Fill	Mid Grey Brown Silty Clay. Fill of Ditch Cut [124]

APPENDIX 2

Land to the Rear of 32-64 Humberston Avenue

Site Code: 05.15.2017

Drawing Index

Drawing No.	Context No.	Scale	Description
001	(002)-[003]	1:10	N Facing Section of Pit [003]
002	(004)-[005]	1:10	N Facing Section of Pit [005]
003	[003] & [005]	1:20	Plan of Pits [003] & [005]
004	(006)- [007]	1:10	N Facing Section of Gully Cut [007]
005	(006)- [007]	1:20	Plan of Gully Cut [007]
006	(008)-[014]	1:10	S Facing Section of Ditch Cut [014]
007	(008)-[014]	1:20	Plan of Ditch Cut [014]
008	(015)-[019]	1:10	S Facing Section of Ditch Cut [019]
009	(015)-[019]	1:20	Plan of Ditch Cut [019]
010	(020)-[026]	1:10	S Facing Section of Ditch Cut [026]
011	(020)-[026]	1:20	Plan of Ditch Cut [026]
012	(027)-[034]	1:10	S Facing Section of Ditch Cuts [029] & [034]
013	(027)-[034]	1:20	Plan of Ditch Cuts [029] & [034]
014	{035}-[042]	1:10	SE Facing section of Ditch Cuts [039] & [042]
015	(035)-[042]	1:10	SW Facing section of Ditch Cuts [039] & [042]
016	(035)-[042]	1:20	Plan of Ditch Cuts [039] & [042]
017	(043)-[045]	1:10	NW Facing Section of Ditch Cut [045]
018	(043)-[045]	1:20	Plan of Ditch Cut [045]
019	(046)-[053]	1:10	N Facing Section of Ditch Cut [0487] & Pit [053]
020	(048)-[053]	1:10	E Facing Section of Pit [053]
021	[048] & [053]	1:20	Plan of Ditch Cut [048] & [053]
022			
023			
024	[144]	1:20	Plan of Ditch Cut [144]
025	(054)-[058]	1:10	NW Facing Section of Ditch Terminal Cut [058]
026	(054)-[058]	1:20	Plan of Ditch Terminal [058]
027	(065)-[070]	1:10	N Facing Section of Ditch Terminal Cut [070]
028	(065)-[070]	1:20	Plan of Ditch Terminal Cut [070]
029	(071)-[076]	1:10	NE Facing Section of Ditch Cut [076]
030	(071)-[076]	1:20	Plan of Ditch Cut [076]
031	(077)-[087]	1:10	N Facing Section of Ditch Cut [087]
032	(077)-[087]	1:20	Plan of Ditch Cut [087]
033	(088)-[091]	1:10	SW Facing Section of Ditch Cuts [089] & [091]
034	(088)-[091]	1:20	Plan of Ditch Cuts [089] & [091]
035	(092)-[094]	1:10	SE Facing Section of Ditch Cut [094]
036	(092)-[094]	1:20	Plan of Ditch Cut [094]
037	(095)-[096]	1:10	E Facing Section of Ditch Terminal [096]

Drawing No.	Context No.	Scale	Description
038	(095)-[095]	1:20	Plan of Ditch Terminal Cut [095]
039	(097)-[098]	1:10	S Facing Section of Ditch Cut [095]
040	(097)-[098]	1:20	Plan of Ditch Cut [095]
041	<SK100>	1:10	Plan of Skeleton 100
042	(104)-[116]	1:10	N Facing Section of Ditch Cuts [110] & [116]
043	(104)-[116]	1:20	Plan of Ditch Cuts [110] & [116]
044	(117)-[120]	1:10	S Facing Section of Ditch Cut [120]
045	(121)-[124]	1:10	SE Facing Section of Ditch Cut [124]
046	[124]	1:20	Plan of Ditch Cut [124]
047	[126] & [129]	1:20	Plan of Ditch Cuts [126] & [129]
048	(130)-[131]	1:10	S Facing Section of Ditch Terminal Cut [131]
049	(130)-[131]	1:20	Plan of Ditch Terminal Cut [131]
050	(128)-[129]	1:10	S Facing Section of Ditch Cut [129]
051	[127]	1:10	S Facing Section of Ditch Cut [127]
052	(134)-[135]	1:10	E Facing Section of Ditch Cut [135]
053	(136)-[137]	1:10	SE Facing Section of Ditch Terminal Cut [137]
054	[139]	1:10	S Facing Section of Ditch Terminal Cut [139]
055	(135)-[139]	1:25	Plan of [135], [137], [139]
056	(141)-[144]	1:10	NW Facing Section of Ditch Cut [144]
057	(132)-[133]	1:10	NW Facing Section of Gully Terminal Cut [133]
058	<102>	1:10	Plan of Skeleton <102>. Legs and Arms
059	<102>	1:10	Plan of Skeleton <102>

Appendix 3

Land to the Rear of 32-64 Humberston Avenue

Site Code: 05.15.2017

Photographic Index

Frame No.	Context No.	Scales	Facing	Comments
1803				General View of Site
1804				General View of Site
1805				General View of Site
1806				General View of Site
1807	[003]	1m	S	N Facing Section of Pit [003]
1808	[003]	1m	S	N Facing Section of Pit [003]
1809	[005]	1m	S	N Facing Section of Pit [005]
1810	[005]	1m	S	N Facing Section of Pit [005]
1811	[007]	1m	S	N Facing Section of Gully Cut [007]
1812	[007]	1m	S	N Facing Section of Gully Cut [007]
1813	[014]	1m	N	S Facing Section of Ditch Cut [014]
1814	[014]	1m	N	S Facing Section of Ditch Cut [014]
1815	[019]	2m	N	S Facing Section of Ditch Cut [019]
1816	[019]	2m	N	S Facing Section of Ditch Cut [019]
1817	[039] & [042]	1m	N	S Facing Section of Ditch Cuts [039] & [042]
1818	[039] & [042]	1m	N	S Facing Section of Ditch Cuts [039] & [042]
1819	[039] & [042]	1m	N	S Facing Section of Ditch Cuts [039] & [042]
1820	[039] & [042]	1m	W	E Facing Section of Ditch Cuts [039] & [042]
1821	[039] & [042]	1m	W	E Facing Section of Ditch Cuts [039] & [042]
1822	[039] & [042]	1m	W	E Facing Section of Ditch Cuts [039] & [042]
1823	[029] & [034]	1m	N	S Facing Section of Ditch Cuts [029] & [034]
1824	[029]	1m	E	W Facing Section of Ditch Cut [029]
1825	[029] & [034]	1m	E	W Facing Section of Ditch Cut [029] & [034]
1826	[026]	2m	N	S Facing Section of Ditch Cut [026]
1827	[026]	2m	N	S Facing Section of Ditch Cut [026]
1828	[026]	2m	N	S Facing Section of Ditch Cut [026]
1829	[045]	1m	SE	NW facing Section of Ditch Cut [045]
1830	VOID			
1831	[045]	1m	SE	NW facing Section of Ditch Cut [045]
1832	[045]	1m	SE	Plan of Ditch Cut [045]
1833	[047] & [053]	2m	S	N Facing Section of Ditch Cut [043] & Pit [053]
1834	[053]	2m	W	E Facing Section of Pit [053]
1835	[047]	2m	E	W Facing Section of Ditch Cut [047]
1836	VOID			
1837	SK <102>	1m	E	Skeleton <102>
1838	SK <102>	1m	E	Skeleton <102>
1839	[087]	2m	S	N Facing Section of Ditch Cut [087]
1840	[087]	2m	S	N Facing Section of Ditch Cut [087]

Frame

No.	Context No.	Scales	Facing	Comments
1841	[087]	2m	S	N Facing Section of Ditch Cut [087]
1842	[087]	2m	S	N Facing Section of Ditch Cut [087]
1843	[087]	2m	S	N Facing Section of Ditch Cut [087]
1844	[047] & [053]	2m		Ditch Cut [047] & Pit [053]
1845	[047] & [053]	2m		Ditch Cut [047] & Pit [053]
1846	[058]	1m	SW	NE Facing Section of Ditch Terminal Cut [058]
1847	[058]	1m	SE	NW Facing Section of Ditch Terminal Cut [058]
1848	[070]	1m	SW	NE Facing Section of Ditch Terminal Cut [070]
1849	[070]	1m	SW	NE Facing Section of Ditch Terminal Cut [070]
1850	VOID			
1851		1m	W	E Facing Section of Gully Terminal Cut
1852		1m	W	E Facing Section of Gully Terminal Cut
1853		1m	W	E Facing Section of Gully Terminal Cut
1854		1m	W	E Facing Section of Gully Terminal Cut
1855	[076]	2m	S	N Facing Section of Ditch Cut [076]
1856	[076]	2m	S	N Facing Section of Ditch Cut [076]
1857	[076]	2m	S	N Facing Section of Ditch Cut [076]
1858	VOID			
1859	SK <100> & [144]	2 x 1m	E	Ditch Cut [144] & SK <100>
1860	SK <100> & [144]	2 x 1m	E	Ditch Cut [144] & SK <100>
1861	SK <100> & [144]	3 x 1m	N	Ditch Cut [144] & SK <100>
1862	SK <100> & [144]	4 x 1m	N	Ditch Cut [144] & SK <100>
1863	SK <100> & [144]	5 x 1m	NW	Ditch Cut [144] & SK <100>
1864	SK <100> & [144]	6 x 1m	E	Ditch Cut [144] & SK <100>
1865	SK <100> & [144]	1m	E	Ditch Cut [144] & SK <100>
1866	SK <100> & [144]	1m	SE	Ditch Cut [144] & SK <100>
1867	VOID			
1868	[098]	0.2m	NW	SE Facing Section of Gully Cut [098]
1869	[094]	1m	NW	SE Facing Section of Ditch Cut [094]
1870	[096]	1m	W	E Facing Section of Ditch Terminal Cut [096]
1871	[110] & [116]	2m	S	N Facing Section of Ditch Cuts [110] & [116]
1872	[110] & [116]	2m	S	N Facing Section of Ditch Cuts [110] & [116]
1873	[110] & [116]	2m	S	N Facing Section of Ditch Cuts [110] & [116]
1874	[110] & [116]	2m	S	N Facing Section of Ditch Cuts [110] & [116]
1875	[110] & [116]	2 x 1m	S	N Facing Section of Ditch Cuts [110] & [116]
1876	[110]	2 x 1m	S	N Facing Section of Ditch Cut [110]
1877	[110]	2 x 1m	S	N Facing Section of Ditch Cut [110]
1878	[110] & [116]	2m & 1m	SE	Ditch Cuts [110] & [116]
1879	[110] & [116]	2m & 1m	SE	Ditch Cuts [110] & [116]
1880	[116]	1m	S	N Facing Section of Ditch Cut [116]
1881	[110] & [116]	2m & 1m	SW	Ditch Cuts [110] & [116]
1882	VOID			
1883	[110] & [116]	2m & 1m	SW	Ditch Cuts [110] & [116]
1884	VOID			
1885	SK <100> & [144]	1m	S	Skeleton <100>
1886	SK <100> & [144]	1m	S	Skeleton <100>

Frame

No.	Context No.	Scales	Facing	Comments
1887	SK <100> & [144]	1m	S	Skeleton <100>
1888	[094]	1m	NW	SE Facing Section of Ditch Cut [094]
1889	VOID			
1890	[089] & [091]	1m	NE	SW Facing Section of Ditch Cuts [089] & [091]
1891	[089] & [091]	1m	NE	SW Facing Section of Ditch Cuts [089] & [091]
1892	SK <100>			Skeleton <100>
1893	VOID			
1894	VOID			
1895	VOID			
1896	[126]	1m	N	S Facing Section of Ditch Cut [126]
1897	[126]	1m	N	S Facing Section of Ditch Cut [126]
1898	SK <102>	1m	N	Skeleton <102>
1899	SK <102>	1m	N	Skeleton <102>
1900	SK <102>	1m	N	Skeleton <102>
1901	SK <102>	1m	N	Skeleton <102>
1902	[129]	0.2	N	S Facing Section of Ditch Terminal Cut [129]
1903	Pottery			
1904	Pottery			
1905	Pottery			
1906	Pottery			
1907	Pottery			
1908	Pottery			
1909	Pottery			
1910	Pottery			
1911	[135]	1m	W	E Facing Section of Ditch Cut [135]
1912	[135]	1m	W	E Facing Section of Ditch Cut [135]
1913	[144]	2m	E	W Facing Section of Ditch Cut [144]
1914	[144]	2m	E	W Facing Section of Ditch Cut [144]
1915	[144]	2m	E	W Facing Section of Ditch Cut [144]
1916	[139]	1m	N	S Facing Section of Ditch Terminal Cut [139]
1917	[139]	1m	N	S Facing Section of Ditch Terminal Cut [139]

APPENDIX 4

Land to the Rear of 32-64 Humberston Avenue

Site Code: 05.15.2017

Environmental Listing

No.	Context	Description/ Notes	Type
1	002	Fill of Pit [003]	Bulk
2	004	Fill of Pit [005]. Contained Animal Bone	Bulk
3	006	Fill of Gully Cut [007]. Contained Pottery and Animal Bone	Bulk
4	013	Fill of Ditch Cut [014]. Contained Pottery and Animal Bone	Bulk
5	025	Fill of Ditch Cut [026]. Contained Animal Bone	Bulk
6	041	Fill of Ditch Cut [042]	Bulk
7	043	Fill of Ditch Cut [045]. Contained Pottery and Animal Bone	Bulk
8	017	Fill of Ditch Cut [019]. Contained Pottery and Animal Bone	Bulk
9	050	Fill of Pit [053]. Contained possible Charcoal, Pottery and Animal Bone.	Bulk
10	052	Fill of Pit [053].	Bulk
11	054	Fill of Ditch Terminal [058]. Contained Pottery	Bulk
12	055	Fill of Ditch Terminal [058]. Contained Pottery and Animal Bone	Bulk
13			
14	068	Fill of Ditch Terminal Cut [070]. Contained Pottery	Bulk
15	095	Fill of Ditch Terminal Cut [096]. Contained Animal Bone	Bulk
16	097	Fill of Ditch Cut [098]	Bulk
17	099	Fill of Grave. Contained Fe Nail	Bulk
18	100	Skeleton Sample. <SK102>	Bulk
19	106	Fill of Ditch Cut [110]. Contained Pottery and Animal Bone	Bulk
20	107	Fill of Ditch Cut [110]. Contained Pottery and Animal Bone	Bulk
21	109	Fill of Ditch Cut [110]. Contained Pottery and Animal Bone	Bulk
22	115	Fill of Ditch Cut [116]. Contained Pottery and Animal Bone	Bulk
23	130	Fill of Ditch Terminal Cut [131]	Bulk
24	127	Fill of Ditch Cut [127]. Contained Pottery and Animal Bone	Bulk

No.	Context	Description/ Notes	Type
25	122	Fill of Ditch Cut [124]. Contained Pottery and Animal Bone	Bulk
26	142	Fill of Ditch Cut [144]. Contained Pottery and Human Remains	Bulk
27	136	Fill of Ditch Terminal Cut [137]. Contained Animal Bone	Bulk
28	101	Soil Sample from around <SK102>	Bulk

Appendix 5

Land to the Rear of 32-64 Humberston Avenue

Site Code: 05.15.2017

Context	Material	Total	Description
004	Animal Bone	4	1 Animal Tooth 3 Animal Bone Fragments
	Animal Bone (Flot 002)	1	1 Animal Tooth
006	Pottery	1	1 Body Sherd
	Animal Bone	2	2 Animal Bone Fragments
011	Pottery	3	3 Body Sherds
	Animal Bone	3	1 Animal Tooth 2 Animal Bone Fragments
013	Pottery	6	6 Body Sherds
	Animal Bone	15	1 Animal Tooth 1 Maxilla Fragment 13 Animal Bone Fragments
	Animal Bone (Flot 004)	1	1 Animal Bone Fragment
017	Pottery	13	3 Rim Sherds 10 Body Sherds
	Animal Bone	8	2 Animal Teeth 6 Animal Bone Fragments
021	Animal Bone	17	17 Animal Bone Fragments
	Fired Clay	1	1 Fired Clay Fragment
024	Animal Bone	1	1 Animal Bone
025	Animal Bone	1	1 Animal Bone Fragment
028	Pottery	2	2 Body Sherds
	Animal Bone	5	1 Animal Tooth 4 Animal Bone Fragments
030	Animal Bone	7	2 Animal Teeth 5 Animal Bone Fragments
033	Pottery	2	2 Body Sherds
	Animal Bone	5	3 Mandible Fragments 2 Animal Bone Fragments
043	Pottery	2	2 Body Sherds
	Animal Bone	6	1 Animal Tooth 1 Mandible Fragment 4 Animal Bone Fragments
050	Pottery	10	2 Rim Sherds 8 Body Sherds
	Pottery (Flot 009)	1	1 Body Sherd
	Animal Bone	51	1 Animal Tooth 50 Animal Bone Fragments
	Animal Bone (Flot 009)	5	5 Animal Bone Fragments
052	Pottery	2	2 Body Sherds
054	Pottery	2	2 Body Sherds

Context	Material	Total	Description
055	Metal (SF 001)	1	1 Fe Nail
	Pottery	5	5 Body Sherds
	Animal Bone	20	4 Animal Teeth
			1 Maxilla Fragment
			15 Animal Bone Fragments
056	Animal Bone (Flot 012)	3	3 Animal Bone Fragments
	Shell (Flot 012)	1	1 Oyster Shell Fragment
	Pottery	1	1 Body Sherd
	Animal Bone	21	21 Animal Bone Fragments
057	Animal Bone	1	1 Animal Bone Fragment
			Shell
068	Pottery	6	6 Body Sherds
088	Animal Bone	1	1 Mandible Fragment
090	Pottery	5	5 Body Sherds
	Animal Bone	13	1 Animal Tooth
			11 Animal Bone Fragments
095	Pottery (Flot 015)	1	1 Body Sherd
	Animal Bone	4	4 Animal Bone Fragments
	Animal Bone (Flot 015)	1	1 Animal Bone Fragment
099	Animal Bone (SF 020)	1	Horn Core (assoc. with sk <100>)
	Animal Bone (Flot 018)		Many small Fragments
	Metal (SF 015)	1	1 Fe Nail
<100>	Metal (SF 016)	1	1 Fe Nail
	Metal (SF 017)	1	1 Fe Nail
	Human Bone		82 Skull Fragments
			20 Loose Teeth
			4 Mandible Fragments
			1 Right Clavicle
			1 Left Clavicle
			2 Right Scapula Fragments
			7 Left Scapula Fragments
			46 Right Rib Fragments
			37 Left Rib Fragments
			63 Vertebrae Fragments
			15 Pelvis Fragments
			3 Right Humerus Fragments
			3 Right Radius Fragments
			4 Right Ulna Fragments
			20 Right Hand Fragments
			3 Left Humerus Fragments
			3 Left Radius Fragments
			3 Left Ulna Fragments
			23 Left Hand Fragments
			3 Right Femur Fragments
			1 Right Patella Fragment
			16 Right Tibia Fragments

Context	Material	Total	Description
			13 Right Fibula Fragments
			7 Right Foot Fragments
			4 Left Femur Fragments
			4 Left Tibia Fragments
			6 Left Fibula Fragments
			12 Left Foot Fragments
			12 Misc Fragments
101	Metal (SF 002)	1	1 Fe Nail
	Metal (SF 003)	1	1 Fe Nail
	Metal (SF 004)	1	1 Fe Nail
	Metal (SF 005)	1	1 Fe Nail
	Metal (SF 006)	1	1 Fe Nail
	Metal (SF 007)	1	1 Fe Nail
	Metal (SF 008)	1	1 Fe Nail
	Metal (SF 009)	1	1 Fe Nail
	Metal (SF 010)	1	1 Fe Nail
	Metal (SF 011)	1	1 Fe Nail
	Metal (SF 012)	1	1 Fe Nail
	Metal (SF 013)	4	4 Fe Nail Fragments
	Metal (SF 014)	1	1 Fe Nail
	Metal (SF 018)	1	1 Fe Nail in Wood
	Metal (SF 021)	1	1 Fe Nail in Wood
	Metal (SF 022)	1	1 Fe Nail
	Metal (SF 023)	1	1 Fe Nail
	Metal (SF 024)	1	1 Fe Nail
	Metal (SF 025)	1	1 Fe Nail
	Metal (SF 026)	1	1 Fe Nail
	Metal (SF 027)	1	1 Fe Nail
	Metal (SF 028)	2	2 Fe Nails
	Metal (SF 029)	3	3 Fe Fragments
	Metal (SF 030)	1	1 Fe Nail
	Metal (SF 031)	1	1 Fe Nail
	Metal (SF 032)	1	1 Fe Nail
<102>	Human Bone		62 Skull Fragments
			8 Teeth
			2 Mandible Fragments
			5 Clavicle Fragments
			3 Left Scapula Fragments
			41 Vertebrae Fragments
			43 Rib Fragments
			3 Right Humerus Fragments
			3 Right Radius Fragments
			4 Right Ulna Fragments
			14 Right Hand Fragments
			3 Left Humerus Fragments
			4 Left Radius Fragments
			4 Left Ulna Fragments

Context	Material	Total	Description
			14 Left Hand Fragments
			16 Pelvis Fragments
			13 Sacrum Fragments
			4 Right Femur Fragments
			1 Right Patella Fragment
			3 Right Tibia Fragments
			6 Right Fibula Fragments
			21 Right Foot Fragments
			11 Left Femur Fragments
			3 Left Tibia Fragments
			2 Left Fibula Fragments
			14 Left Foot Fragments
			26 Misc Fragments
104	Pottery	8	8 Body Sherds
106	Pottery	32	3 Rim Sherds
			29 Body Sherds
107	Pottery	4	4 Body Sherds
	Animal Bone	7	1 Animal Tooth
			6 Animal Bone Fragments
111	Pottery	159	14 Rim Sherds
			132 Body Sherds
			5 Base Sherd
	Animal Bone	8	8 Animal Bone Fragments
117	Animal Bone	2	2 Animal Bone Fragments
119	Animal Bone	18	4 Animal Teeth Fragments
			14 Animal Bone Fragments
122	Pottery	3	3 Body Sherds
127	Pottery	46	5 Rim Sherds
			39 Body Sherds
			2 Base Sherds
127	Animal Bone	45	1 Animal Tooth
			44 Animal Bone Fragments
	Animal Bone (Flot 024)	1	1 Animal Bone Fragment
136	Animal Bone	4	2 Animal Teeth
			2 Animal Bone Fragments
138	Pottery	27	26 Body Sherds
	Animal Bone	3	3 Animal Bone Fragments
141	Animal Bone	2	1 Animal Tooth
			1 Mandible Fragment

Appendix 6.

New Waltham, Humberston, NE Lincolnshire MAP 05-15-17

Carbonised Plant Macrofossils and Charcoal

Diane Alldritt

1: Introduction

Twenty five environmental sample flots taken during archaeological excavation work on land at New Waltham, Humberston, NE Lincolnshire (MAP 05-15-17, were examined for carbonised plant macrofossils and charcoal.

The samples were taken from a number of ditch and pit features as well as from two grave burials, with small quantities of charred material recovered.

2: Methodology

The bulk environmental samples were processed by MAP Archaeological Practice Ltd. using a Siraf style water flotation system (French 1971). The samples were 20litres up to 40litres in volume. The flots were dried before examination under a low power binocular microscope typically at x10 magnification. All identified plant remains including charcoal were removed and bagged separately by type.

Wood charcoal was examined using a high powered Vickers M10 metallurgical microscope at magnifications up to x200. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).

3: Results

The environmental samples produced small quantities of carbonised plant remains <2.5ml up to 20ml in volume consisting of charcoal and cereal grain mostly preserved in good condition. Modern remains were recorded in low amounts <2.5ml in volume mainly root detritus with occasional finds of modern seeds and earthworm egg capsules suggesting a low degree of bioturbation occurring through the deposits. Crushed fragments of clinker and coal were found in four samples indicating some Post Medieval / modern disturbance taking place.

Results are given in table 1 and discussed below.

4: Discussion

Pit Features

Pit [053] (050) contained a 1.0cm fragment of *Betula* (birch) charcoal in good condition together with a slightly degraded grain of *Triticum spelta* (spelt wheat) perhaps hearth waste from cooking or cereal drying deposited as rubbish in the pit.

Pits [003] (002), [005] (004), [059] (054) produced small quantities of crushed charred detritus probably degraded charcoal, with nothing identifiable. These were probably trace remains from burning activity.

Ditch and Gully Features

Gully [007] (006) produced a small concentration of cereal grain in good condition, consisting mainly of *Secale cereale* (rye) with a single *Avena* sp. (oat) also present.

Similarly ditch [110] (109) also produced a deposit of rye grains in good condition. These were probably deliberately dumped or swept deposits from cereal drying or cooking processes taking place nearby. Ditch [014] (013) held a single indeterminate cereal grain, possibly wheat type, but degraded and probably wind-blown into the deposit from nearby burning activity, whilst ditch [019] (017) had a single *Hordeum vulgare* sl. (barley) also in poor condition. Ditch [096] (095) contained a poorly preserved *Triticum aestivum* (bread wheat) and an indeterminate cereal grain, whilst enclosure ditch [045] (043) contained half a grain of rye cereal, probably all stray inclusions.

The second fill of ditch [124] (122) had a small concentration of *Quercus* (oak) charcoal in fragment sizes 1.0cm to 2.0cm probably fuel waste from a nearby hearth. Ditch terminus [058] (055) had captured a 1.0cm fragment of charcoal which was too poorly preserved to identify and perhaps had been washed or trampled into the feature.

Enclosure ditch [026] (025) and ditch features [?] (041), [076] (075), [110] fills (106) and (107), [116] (115) and [137] (136) contained a few traces of crushed charred detritus with nothing identifiable, probably general background burnt material.

Ditches [070] (068), [126] (127) and [144] (142) were sterile.

Graves

Two samples from grave Sk <100> (099) contained a few trace crushed charred fragments along with coal and geological material, probably a mixture of general background remains and natural. Grave Sk <102> held a similar mixture of geological remains.

5: Conclusion

The environmental samples produced small amounts of cereal grain and charcoal recovered mainly as dumped waste deposits in the ditch and gully features, with fewer burnt remains recovered from the pit features. Rye was the main type of cereal grain recorded together with smaller quantities of oat, barley, bread and spelt wheat encountered suggesting perhaps multiple phases of occupation and use of the site. Identifiable charcoal was quite rare although oak and birch were recorded and these were probably fuel waste from domestic burning activity associated with the settlement. The birch charcoal from pit [053] (050) could be radiocarbon dated if required.

Further excavation work at the site has a good potential to continue to produce small volumes of carbonised plant remains.

References

French, D. H. 1971 An Experiment in Water Sieving. *Anatolian Studies* 21 59-64.

Schweingruber, F. H. 1990 *Anatomy of European Woods*. Paul Haupt Publishers Berne and Stuttgart.

Stace, C. 1997 *New Flora of the British Isles*. 2nd Edition Cambridge University Press.

Zohary, D. and Hopf, M. 2000 *Domestication of Plants in the Old World*. 3rd Edition Oxford University Press.

New Waltham, Humberston, NE Lincolnshire	Context	2	4	6	13	17	43	54	55	
MAP 05-15-17	Sample	1	2	3	4	8	7	11	12	
	Feature	pit [003]	pit [005]	gully [007]	ditch [014]	ditch [019]	enc ditch [045]	pit [059]	ditch term [058]	
	Sample Volume (litres)	40	40	40	40	40	40	20		
	Total CV	<2.5ml	<2.5ml	<2.5ml	<2.5ml	<2.5ml	5ml	5ml		
	Modern	0	<2.5ml	<2.5ml	<2.5ml	<2.5ml	<2.5ml	<2.5ml		
Carbonised Cereal Grain	Common Name									
<i>Avena sp.</i>	oat		1							
<i>Triticum aestivum</i>	bread wheat									
<i>Triticum spelta</i>	spelt wheat						1			
<i>Hordeum vulgare sl.</i>	barley				1					
<i>Secale cereale</i>	rye		5			1				
Indeterminate cereal grain (+embryo)				1						
Charcoal										
<i>Quercus</i>	oak									
<i>Betula</i>	birch						1 (0.14g)			
Indeterminate								1 (0.10g)		
Other Remains										
Clinker										
Coal		1								
Modern seeds				1	4					
Earthworm egg capsules			1							
New Waltham, Humberston, NE Lincolnshire	Context	75	95	99	99	101	122	127	136	142
MAP 05-15-17	Sample	13	15	17	18	28	25	24	27	26
	Feature	ditch [076]	ditch [096]	grave sk<100>	grave sk<100>	grave sk<102>	ditch [124]	ditch [126]	ditch term [137]	ditch [144]
	Sample Volume (litres)	40	40	20	30	30	40	20	10	40
	Total CV	<2.5ml	<2.5ml	<2.5ml	0	<2.5ml	20ml	0	<2.5ml	0
	Modern	<2.5ml	<2.5ml	0	<2.5ml	0	<2.5ml	<2.5ml	<2.5ml	0
Carbonised Cereal Grain	Common Name									
<i>Avena sp.</i>	oat									
<i>Triticum aestivum</i>	bread wheat		1							
<i>Triticum spelta</i>	spelt wheat									
<i>Hordeum vulgare sl.</i>	barley									
<i>Secale cereale</i>	rye						17			
Indeterminate cereal grain (+embryo)			1							
Charcoal										
<i>Quercus</i>	oak									
<i>Betula</i>	birch									
Indeterminate										
Other Remains										
Clinker		1								
Coal		1	1	2						
Modern seeds										

Appendix 7.

The Pottery from New Waltham (05-15-17)

Dr Phil Mills MCIfA (February 2020)

Introduction

There were 354 sherds weighing 7749g presented for assessment. This included 2 fragments, 9g collected as residues from samples and 352 sherds weighing 77499g of stratified material recovered as bulk finds from deposits.

The data was collected from rapid recording by context. Recording was made following the Oxford Archaeology/ Warwick museum recording system (Booth 2000) with sherds grouped to ware class. Metrics recorded were number of sherds. NoSh, weight in grams, Wt, minimum number of rims, MNR, rim equivalent, RE, rim diameter in cm, RD. Derived measures were mean sherd weight, MSW as Wt/NoSh and ,mean percentage rim, MPR, as RE/MNR.

Dating

The majority of the fabrics were coarse stone gritted wares (class P) with a smaller amount of shell tempered wares (Class C) which were typical of Iron age pottery of the region. The most common form were cooking pots with bead or stubby everted rims (c.f. Darling and Precious 2014 nos 690-694, 804) which are an Iron age cooking pot which continues into the Roman period. There are two examples of a related form (c.f. Elsdon 1996 no 67) which are probably of 1st century BC or later date.

There is a small group of class E wares, Aylesford -Swarling or 'Belgic' tradition which are wheel made with a likely AD1-70 date. There is a small group of Roman pottery all from pit [053] which includes a greyware straight sided beaded rim bowl, related to the BB range which is of probably mid-2nd century date.

Taphonomy

Table 1 Pottery by context type

Context Type	No%	Wt%	MNR%	RE%	MSW	MPR
Ditch	93.2%	94.5%	93.8%	84.4%	22.31	10.13
Gully	2.3%	0.7%			6.38	
Pit	4.3%	4.7%	6.3%	15.6%	24.07	28.00
Unknown	0.3%	0.1%			11.00	
N/AVG	352	7740	16	180	21.99	11.25

Table 1 shows the breakdown by context type for the assemblage. The majority of the material is from ditches and gullies suggesting the site was rural in character. The majority of the material from pits all came from pit [053] which was of Roman, probably mid-2nd century date. Although there was a single class P sherd from pit [054].

Supply

Table 2 Pottery by ware class

Class	Ware	No%	Wt%	MNR%	RE%	MSW	MPR
C	Shell	35.2%	28.2%	31.3%	35.6%	17.60	12.80
E	Belgic	1.7%	0.5%	6.3%	2.2%	6.33	4.00
O	Oxidised	0.6%	0.2%			6.50	
P	Prehistoric	61.9%	68.8%	56.3%	46.7%	24.42	9.33
R	Reduced	0.6%	2.4%	6.3%	15.6%	91.50	28.00
	N/AVG	352	7740	16	180	21.99	11.25

Table 2 shows the breakdown by ware type for the stratified assemblage. The most common is the material in class P, equivalent to the native tradition grit tempered ware (IAGR. Darling and Precious 2014) followed by class C wares, as the native tradition shell tempered wares (IASHC and IASHF, Darling and Precious 2014) which is somewhat lower than sites to the west but is in line with other sites from the East.

There is a small group of Roman pottery (Class O and Class R) but this is confined to a single pit which would appear to represent deposition after the main period of settlement has ceased.

Discussion

This is a medium sized group of pottery from North East Lincolnshire. The majority of the pottery is of Iron age in character starting perhaps in the 2nd century BC and continuing into the 1st century AD. There is a small group of Aylestone-Swarling tradition pottery of perhaps AD 1-70 date, but there is no real evidence of the site continuing into the Roman period, apart from mid 2nd century material confined to a single pit.

The majority of the pottery was from ditches and gullies, suggesting that the site was rural in character, which is underlined by the utilitarian nature of the vessels noted.

Conservation and retention

No special conservation methods are required, beyond storing in an ordered stable and accessible archive. All the material should be retained.

Further work

The size of the group and the small amount of Roman material confined onto a single feature makes this a site which more detailed examination of the pottery could help yield a greater understanding of the nature of rural Iron Age sites in North Lincolnshire in particular to the use and supply of pottery in its regional context. In particular groups from North East Lincolnshire are scarce.

Methods

The entire assemblage should be recorded to a fabric series with a concordance to the regional fabric series. Forms are most efficiently illustrated using a type series. The proportions of fabrics and wares present can be then compared to those from other Iron Age sites in the region.

Task

- | | |
|-------------------|----------|
| 1. Code Pottery | 2 Days |
| 2. Analyse Data | 1 Day |
| 3. Draft Report | 3 Days |
| 4. Check drawings | 0.5 Days |

Cost

Costing valid until 1/3/2021 at a base rate of £280 a day

- | | | |
|-------------------|----------|------|
| 1. Code Pottery | 2 Days | £560 |
| 2. Analyse Data | 1 Day | £280 |
| 3. Draft Report | 3 Days | £840 |
| 4. Check drawings | 0.5 Days | £140 |

Total	6.5 Days	£1820
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NB Provision should be made for 16 pottery drawings

Postage to and from Leicestershire is not covered in this costing

Bibliography

Booth 2000 The Oxford Archaeology pottery recording system. Unpublished Oxford Archaeology manual

Darling, M and Precious, B 2014 **A corpus of Roman Pottery from Lincoln**, Oxbow
Elsdon, S.. 1996 **The Iron Age Pottery in May, J. Dragonby report on Excavations as an Iron
Age and Romano-British Settlement in North Lincolnshire** Exeter: Oxbow books. PP 397-
511

Appendix 1 Spot Dates

Context	Context Type	Spot Date	NoSh	Wt	MNR
006	Gully	MIA-LIA	1	19	0
011	Ditch	M/LIA	3	37	0
013	Ditch	M/LIA	6	7	1
017	Ditch	AD 1-70	13	111	3
021	Unknown	M/L IA	1	11	0
028	Ditch	M?L IA	2	13	0
033	Ditch	LIA	2	30	0
043	Ditch	LIA	2	27	0
050	Pit	MC2?	12	269	1
052	Pit	LIA	2	64	0
054	Pit	MIA/LIA	2	33	0
055	Terminus	MIA/LIA	5	43	0
056	Terminus	AD 1-70	1	14	0
068	Terminus	MIA/LIA	6	28	0
090	Gully	MIA/LIA	7	32	0
095	Terminus	MIA/LIA	1	4	0
104	Ditch	MIA/LIA	8	173	1
106	Ditch	LC1	33	605	3
107	Ditch	LIA	4	51	0
111	Ditch	LIA	156	4483	6
127	Ditch	LIA	51	1374	1
138	Ditch	LIA	36	321	0

Appendix 2 Full Catalogue

Context	Fabric Code	Part	Function	Form Type	Confidence	NoSh	Wt	MNR	RE	RD	Base	BD	BE	Period	Comments
006	C00	Body				1	19	0	0						
011	P00	Body				3	37	0	0						
013	P00	Rim	J			6	7	1	3	15				MIA	fragments form a jar with an everted tapering rim
017	C00	Body				7	49	0	0						
017	C00	Rim	J			1	21	1	5	20				LIA	bead rim
017	E00	Body				1	7	0	0					AD1-70	cordons
017	E00	Rim	J			1	6	1	4	15				MIA	everted st rim with rounded tip
017	P00	Body				2	9	0	0						
017	P00	Rim	J			1	19	1	5	20				LIA	bead rim
021	P00	Body				1	11	0	0						oxidised
028	C00	Body				1	9	0	0						
028	P00	Body				1	4	0	0						
033	C00	Body				2	30	0	0						
043	C00	Body				2	27	0	0						carination poss.
050	C00	Base				1	35	0	0		11				
050	C00	Body				2	18	0	0						
050	C00	Body				1	4	0	0						
050	E00	Body			1	2	6	0	0						
050	E00	Body				1	5	0	0						
050	O00	Body				2	13	0	0						
050	R00	Body				1	5	0	0						
050	R00	Rim	B	brb		2	183	1	28	21				MC2	Bead rim bowl with straight sides, bb copy
052	C00	Body				2	64	0	0						
054	C00	Body				1	3	0	0						
054	P00	Body				1	30	0	0						
055	C00	Body				2	17	0	0						
055	P00	Body				3	26	0	0						
056	E00	Body				1	14	0	0					AD1-70	neck with cordons on base
068	C00	Body				2	13	0	0						

Context	Fabric Code	Part	Function	Form Type	Confidence	NoSh	Wt	MNR	RE	RD	Base	BD	BE	Period	Comments
068	P00	Body				4	15	0	0						
090	C00	Body				3	11	0	0						
090	P00	Body				2	14	0	0						oxidised poss. burnt clay
090	P00	Body				2	7	0	0						
095	C00	Body				1	4	0	0						
104	C00	Body				5	11	0	0						
104	P00	Body				2	149	0	0						
104	P00	Rim	J			1	13	1	5	15				MIA	slightly everted straight tip
106	C00	Body				2	23	0	0						
106	C00	Rim	J	Elsdon 1996 no 264		1	67	1	6	25				LC1	lc1 stubby everted rim
106	C00	Rim	J			1	93	1	12	25				E C1+	class 20 D globular body with everted rim with slight lid seating EC1+
106	P00	Body				28	414	0	0						
106	P00	Rim	J			1	8	1	3	15				MIA	everted with a flattened tip
107	P00	Body				4	51	0	0						
111	C00	Body				2	45	0	0						
111	C00	Rim	J			1	6	1	4	14				MIA	s; everted flattened at tip
111	P00	Base				3	369	0	0		12	15			
111	P00	Base				1	31	0	0		12				
111	P00	Base				1	62	0	0		12				
111	P00	Base				1	63	0	0		12				
111	P00	Base				1	132	0	0		11				
111	P00	Body				42	214	0	0						
111	P00	Body				20	549	0	0						
111	P00	Body				20	548	0	0						
111	P00	Body				17	869	0	0						
111	P00	Body				14	152	0	0						
111	P00	Body				11	170	0	0						oxidised
111	P00	Body				6	613	0	0						

Context	Fabric Code	Part	Function	Form Type	Confidence	NoSh	Wt	MNR	RE	RD	Base	BD	BE	Period	Comments
111	P00	Body				3	18	0	0						
111	P00	Body				1	61	0	0						drilled hole
111	P00	Body				1	22	0	0						
111	P00	Body				1	128	0	0						
111	P00	hand;				1	10	0	0						handle or spout
111	P00	Rim	J	Elsdon 1996 no 87		3	54	1	18	19					
111	P00	Rim	J	Elsdon 1996 no 87		1	33	1	12	16				C2BC+	everted slightly out curving rim squared a tip C2BC
111	P00	Rim	J	Elsdon 1996 125		1	23	1	8	16				MIA	globular jar with stubby everted rim straightened at tip
111	P00	Rim	J	Elsdon 1996 no 67		3	265	1	25	25				EC1 AD	globular bowl with sub bead rim early 1st century
111	P00	Rim	J	Elsdon 1996 no 67		1	46	1	5	20					
127	C00	Base				4	156	0	0		11				
127	C00	Base				1	22	0	0		11				
127	C00	Body				20	699	0	0						
127	C00	Body				16	107	0	0						
127	C00	Body				2	54	0	0						fine shell rilled surface
127	C00	Body				2	16	0	0						
127	C00	Rim	J			6	320	1	37	30					rounded body with beaded rim
138	C00	Base				3	71	0	0		11				
138	C00	Body				30	173	0	0						
138	P00	Body				3	77	0	0						

Appendix 8

Animal bone and shell assessment: New Waltham Road (05.15.17)

by Jane Richardson

05/03/2020

In total, 287 bone fragments and two oyster shells (both from ditch 058) were recovered from hand-excavated features and the sieving of soil samples. Non-repeatable diagnostic bone zones were noted, with the remaining assemblage only rapidly quantified and scanned. Bone zones were identified to taxa wherever possible.

Diagnostic bone zones amount to just over 11% of the assemblage, as tabulated below (Table 1). Cattle, horse, pig, sheep/goat and dog are represented, although dog and pig bones are rare. For cattle, horse and sheep, a range of body parts appear to be present.

Table 1. Diagnostic bone zones from hand-excavated deposits and soil samples by feature

	Cattle	Horse	Pig	Sheep/goat	Dog
Pit 005				1	
Ditch 012	1				
Ditch 014	1	4		1	
Ditch 026	1				
Ditch 034	1			1	
Ditch 045					1
Pit 053			1	2	
Ditch 058	2	2		1	1
Ditch 112		1			
Ditch 126	3	3		2	
Ditch 137				1	
Ditch 144				1	
Total	9	10	1	10	2

The assemblage is heavily fragmented, but eroded surfaces are relatively rare and the assemblage is generally in good condition. Only one burnt bone was noted, six were gnawed but none had been obviously butchered.

Despite the small sample size, some age data are available. Both sub-adult and adult cattle and sheep are represented, and unusually a sub-adult horse bone is present. The latter might indicate local breeding, while the sub-adult cattle and sheep might reflect animals slaughtered specifically for their meat, with older animals maintained for wool, milk or reproduction.

Given the small assemblage size, no further analysis is recommended, but it should be retained as part of the site archive.

APPENDIX 9

Osteological Analysis

New Waltham

Grimsby

North Lincolnshire

Site Code: 05-15-17

NGR: TA 29360 04486

Report No 0820

April 2020

Prepared for

MAP Archaeological Practice
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Summary

York Osteoarchaeology Ltd was commissioned by MAP Archaeological Practice to carry out the osteological analysis of two inhumation burials discovered during the 2019 excavations at New Waltham, Grimsby, North Lincolnshire (NGR TA 29360 04486).

Skeletons 100 and 102 were mostly complete (70% and 75%, respectively), with moderate fragmentation, and poor to very poor surface preservation, thus somewhat limiting a comprehensive osteological and palaeopathological analysis. Both skeletons were females, and Skeleton 100 was a young middle adult, while Skeleton 102 was an old middle adult. Both had been buried near the boundary ditch of a sub-circular Iron Age enclosure, in a supine, extended positions, and possibly in coffins; Skeleton 100 was in a south-north orientation, with the head to the north, and Skeleton 102 was in a similar, south-eastern to north-western orientation, with her head to the south-east. Due to the fragmentary nature of both skeletons, it was not possible to calculate stature for either of them. However, osteological analysis revealed evidence for a number of non-metric traits and several pathological lesions in the skeletons. Both women had evidence for periods of poor childhood health, expressed in the presence of cribra orbitalia, and lesions in the spine possibly associated with spinal stress – Skeleton 100 had Schmorl's nodes in five lower thoracic and one upper lumbar vertebra, while Skeleton 102 had spondylolysis in the lowest lumbar vertebra (L5). Both women had dental plaque deposits on their teeth, periodontal disease, dental cavities and associated abscesses, as well as ante-mortem tooth loss.

The skeletons probably date to mid to late Iron Age, similar to the boundary ditch of the same period, with which the burials are thought to be associated. No other burials were found at this site.

Although the burials from New Waltham, Grimsby, are thought to date to the Iron Age, AMS dating of human remains is recommended to accurately assign the burials to a time period.

Acknowledgements

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1.0 INTRODUCTION

In February 2020 York Osteoarchaeology Ltd was commissioned by MAP Archaeological Practice to carry out the osteological analysis of two inhumation burials discovered during the 2019 excavations at New Waltham, Grimsby, North Lincolnshire (NGR TA 29360 04486).

Two inhumations were found on the site (Table 1). The burials were associated with a sub-circular enclosure, thought to be from mid- to late Iron Age. Burial 100 was undisturbed, but fragmented, with very poor surface preservation. Burial 102 had been disturbed, possibly by a nearby land drain, which displaced the legs and feet of the skeleton, although most elements were still present. Both skeletons were in supine and extended positions, with slightly different orientations (Skeleton 100 was oriented S-N, while the orientation of Skeleton 102 was SE-NW). A horn core was found above the right shoulder of Skeleton 100, while some fragments of butchered animal bone was found with Skeleton 102. Both burials might have originally been in coffins; some iron nails were found in close proximity of Burial 100, while seventeen nails were found around Skeleton 102.

Table 1 Summary of the burials

Context	Burial position	Position of hands	Period	Artefacts and Inclusions	Orientation (head first)	Preservation	Completeness
100	Supine, extended	R arm slightly bent in elbow, hand resting on the chest; L arm extending slightly away from the body, hand at pelvis level	Mid-late Iron Age	Horn core	S-N	Very poor	70%
102	Supine, extended	R arm and hand extended away from the body; L arm tightly bent in elbow, hand at shoulder level	Mid-late Iron Age	Animal bone	SE-NW	Poor	75%

1.1 AIMS AND OBJECTIVES

The aim of the skeletal analysis was to determine the age, sex and stature of the skeletons, as well as to record and diagnose any skeletal manifestations of disease and trauma.

1.2 METHODOLOGY

The skeletons were analysed in detail, assessing the preservation and completeness, as well as determining the age, sex and stature of the individuals. All pathological lesions were recorded and described.

2.0 OSTEOLOGICAL ANALYSIS

Osteological analysis is concerned with the determination of the demographic profile of the assemblage based on the assessment of sex, age and non-metric traits. This information is essential in order to determine the prevalence of disease types and age-related changes. It is also crucial for identifying sex dimorphism in occupation, lifestyle and diet, as well as the role of different age groups in society. A summary of the osteological and palaeopathological data for Skeletons 100 and 102 are given in Table 2, with a detailed catalogue provided in Appendix A.

Table 2 Summary of osteological and palaeopathological data

Sk No	Preservation*			Age	Sex	Stature (cm)	Dental Pathology	Pathology
	SP	F	C					
100	Very poor (Grade 5)	Moderate	70%	YMA	F	-	Calculus, caries, abscess, AMTL, periodontal disease	Cribriform orbitalia, spondylolysis, slight spinal and extraspinal joint disease
102	Poor (Grade 4)	Moderate	75%	OMA	F	-	Calculus, caries, abscess, AMTL, periodontal disease	Cribriform orbitalia, Schmorl's nodes

SP = Surface preservation: grades 0 (excellent), 1 (very good), 2 (good), 3 (moderate), 4 (poor), 5 (very poor), 5+ (extremely poor) after McKinley (2004)

C = Completeness

F = Fragmentation: min (minimal), slight, mod (moderate), sev (severe), ext (extreme)

Non-adult age categories: f (foetus, <38weeks *in utero*), p (perinate, c. birth), n (neonate, 0-1m), i (infant, 1-12m), yj (young juvenile, 1-5 years), oj (older juvenile, 6-11 years), j (juvenile, 1-11y), ad (adolescent 12-17y)

Adult age categories: ya (young adult, 18-25y), yma (young middle adult, 26-35y), oma (old middle adult, 36-45y), ma (mature adult, 46+y), a (adult, 18+y)

2.1 PRESERVATION

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition. Preservation of human skeletal remains is assessed subjectively, depending upon the severity of bone surface erosion and post-mortem breaks, but disregarding completeness. Preservation is important, as it can have a large impact on the quantity and quality of information that it is possible to obtain from the skeletal remains.

Surface preservation, concerning the condition of the bone cortex, was assessed using the seven-category grading system defined by McKinley (2004), ranging from 0 (excellent) to 5+ (extremely poor). Excellent preservation implied no bone surface erosion and a clear surface morphology, whereas extremely poor preservation indicated heavy and penetrating erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. The degree of fragmentation was recorded, using categories ranging from 'minimal' (little or no fragmentation of bones) to 'extreme' (extensive fragmentation with bones in multiple small fragments). Finally, the completeness of the skeletons was assessed and expressed as a percentage: the higher the percentage, the more complete the skeleton.

Skeleton 100 was mostly complete, with around 70% of skeletal elements present. These included fragments of the cranium, mandible, right and left arms and hands, ribs, pelvis and the right and left legs, but only a few fragmented bones remained from the feet. The skeleton had experienced moderate fragmentation, so much so that only a few elements were complete, but all were fragmented. The surface preservation was very poor (Grade 5), limiting a thorough observation of the surface of the bones and thus, pathology on them. Skeleton 102 was also mostly complete, with 75% of skeletal elements present. These included partial cranium and mandible, right and left arms and hands, ribs, pelvis, and the right and left legs and feet. The fragmentation was also moderate, with a lack of intact long bones preventing stature estimation. The surface preservation for Skeleton 102 was slightly better than in Skeleton 100, Grade 4 (poor).

2.3 MINIMUM NUMBER OF INDIVIDUALS

A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons which would have been interred on the site but represents the minimum number of individuals which can be scientifically proven to be present.

The inhumed skeletal remains represented the remains of a minimum of two adult individuals, based on the presence of double left and right skeletal elements, including two right proximal humeri and two right proximal femora.

2.4 ASSESSMENT OF AGE

Age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). For non-adults age was estimated using the stage of dental development (Moorrees *et al.* 1963a; 1963b), dental eruption (Ubelaker 1989), measurements of long bones and other appropriate elements and

the development and fusion of bones (Scheuer and Black 2000b). In adults, age was estimated from stages of bone development and degeneration in the pelvis (Brooks and Suchey 1990, Lovejoy *et al.* 1985) and ribs (modified version of methods developed by İşcan *et al.* 1984; 1985 and İşcan and Loth 1986 provided in Ubelaker 1989), supplemented through examination of patterns of dental wear (Brothwell 1981). Age is split into a number of categories. Non-adults are subdivided into 'foetus' (f: where the age estimate clearly falls below 38-40 *weeks in utero*), 'perinate' (p: where the age estimates converge around birth), 'neonate' (n: where the age estimate suggests 0-1 month), 'infant' (i; 1-12 months), juvenile (j; 1-12 years) and adolescent (ad; 13-17 years). Adults are divided into 'young adult' (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years) and mature adult (46+ years). A category of 'adult' (a) is used to designate those individuals whose age could not be determined beyond the fact that they are eighteen or older.

Skeleton 100 fell into the age category of a young middle adult (26-35 years). This age estimate was based on the degeneration of the auricular surface, although the surface preservation was poor. However, this estimate was supported by dental wear, which also suggested an age between 25 and 35 years old, as well as by the completely fused sternal ends of the clavicles. This fusion takes place between 22 and 30 years of age (Scheuer and Black 2000b, 251). Skeleton 102 was an old middle adult (36-45 years old), based on the degeneration of the auricular surface. Unlike in Skeleton 100, this element was sufficiently preserved in Skeleton 102 for an accurate estimate.

2.5 SEX DETERMINATION

Sex determination was carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex involves examination of the shape of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. Evidence from the pelvis was favoured as its shape is directly linked to biological sex (the requirements of childbirth in females) whereas the shape of the skull can be influenced by factors such as age (Walker 1995). Measurements of certain bones were used to supplement the morphological assessment (Bass 1987). As with estimation of age, sex estimation in disarticulated remains could only be carried out where appropriate bones were preserved (i.e. pelvis and skull). Metrics alone are an unreliable method for estimating sex.

The sex of both, Skeleton 100 (young middle adult) and Skeleton 102 (old middle adult) was determined to be female, based mainly on pelvic traits, since the crania were fragmented and thus, cranial traits were more difficult to observe.

2.6 METRIC ANALYSIS

Measurements were taken of the skeletons where preservation allowed, but the fragmentation prevented

most measurements from being taken in this assemblage.

Stature depends on two main factors, heredity and environment; it can also fluctuate between chronological periods. Stature can only be established in skeletons if at least one complete and fully fused long bone is present, but preferably using the combined femur and tibia. Knowing the sex of the individual is also necessary, which is an issue with disarticulated long bones where sex cannot be determined. The bone is measured on an osteometric board and stature is then calculated using a regression formula developed upon individuals of known stature (Trotter 1970). Where possible, bones from the legs were used in preference to those of the upper limb as these carry the lowest error margin (*ibid*).

All long bones in both skeletons from this assemblage were either incomplete, or fragmented, thus preventing taking accurate measurements for stature estimation.

The *platymeric* index is a method of calculating the shape and robusticity of the femoral shafts, while the *eurycnemic* index describes the shape of the tibial shafts (Bass 1987). It was possible to calculate the platymeric index for the right and left femora and the eurycnemic index for the right and left tibiae of both skeletons. The femora fell into the *platymeric* (flattened) range, and the tibiae were within the *eurycnemic* (flattened) range (Table 3).

Table 3 *Platymeric* and *eurycnemic* index

Sk No.	Sex	Platymeric Index		Eurycnemic Index	
		R	L	R	L
100	F	69.2	66.1	77.6	82.0
102	F	76.5	80.4	80.2	81.4

These post-cranial measurements are summarised in Table 4.

Table 4 Post-cranial measurements

Measurement type	Side	Measurement in mm	
		Skeleton 100	Skeleton 102
Femoral AP Diaphysis Width	R/L	21.6/21.5	22.5/23.5
Femoral ML Diaphysis Width	R/L	31.2/32.5	29.4/29.2
Tibia AP Diaphysis Width	R/L	25.0/19.4	24.7/23.7
Tibia ML Diaphysis Width	R/L	19.4/19.1	19.8/19.3

AP-antero-posterior; ML-medio-lateral

2.7 NON-METRIC TRAITS

Non-metric traits are additional sutures, facets, bony processes, canals and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978). A total of thirty cranial (skull) and thirty post-cranial (bones of the body and limbs) non-metric traits were selected from the osteological literature (Buikstra and Ubelaker 1994; Finnegan 1978; Berry and Berry 1967) and recorded.

Despite fragmentation, it was possible to observe a few cranial and post-cranial non-metric traits in this skeletal assemblage (Tables 5 and 6, respectively). With regard to cranial non-metric traits, both skeletons had parietal foramina and extra-sutural mastoid foramina. Skeleton 100 had small ossicles in the right lambdoid suture. Bennett (1965) has suggested that the formation of *ossicles* in the lambdoid suture may be in response to stresses placed on the growing cranium during foetal life and early infancy. Skeleton 102 also had a mandibular torus in the left mandible, while bridging of supraorbital notch was observed in Skeleton 100 (Table 5). There were only three post-cranial non-metric traits present on the observable elements: a *septal aperture* on both humeri (small hole in the elbow joint) and *double anterior calcaneal facet* (a joint surface that is normally single) on both calcanei of Skeleton 102, while Skeleton 100 only had a *medial talar facet* in the right talus (Table 6).

Table 5 Cranial non-metric traits

Midline Traits	Trait Present	Part Present	%			
Ossicle at Lambda	-	-	-			
Ossicle at Bregma	0	1	0.0			
Metopic Suture	0	1	0.0			
Palatine Torus	-	-	-			
Precondylar Tubercle	-	-	-			
Paired Traits	Right			Left		
	Trait Present	Part Present	%	Trait Present	Part Present	%
Highest Nuchal Line	-	-	-	-	-	-
Lambdoid Ossicle	1	1	100.0	0	1	0.0
Coronal Ossicle	0	2	0.0	0	1	0.0
Ossicle at Asterion	-	-	-	-	-	-
Ossicle at Parietal Notch	-	-	-	-	-	-
Ossicle at Pterion	-	-	-	-	-	-
Parietal Foramen	1	1	100.0	1	1	100.0
Auditory Torus	0	1	0.0	0	1	0.0
Foramen of Huschke	0	1	0.0	0	1	0.0
Mastoid For. Extrasutural	2	2	100.0	1	1	100.0
Sutural Mastoid Foramen	-	-	-	-	-	-
Open Post. Condylar Canal	-	-	-	-	-	-
Double Ant. Condylar Canal	0	1	0.0	-	-	-
For. Ovale Incomplete	-	-	-	0	2	0.0

Open For. Spinosum	-	-	-	-	-	-
Access. Less. Palat. For.	-	-	-	-	-	-
Maxillary Torus	0	1	0.0	-	-	-
Mandibular Torus	0	1	0.0	1	2	50.0
Zygomatic. Facial For. Abs.	0	1	0.0	0	1	0.0
Access. Infra-orb. For.	-	-	-	-	-	-
Access. Supraorbital For.	0	1	0.0	0	1	0.0
Bridging Supraorbital Notch	1	1	100.0	-	-	-
Anterior Ethmoid For. Ex.	-	-	-	-	-	-
Posterior Ethmoid For. Ex.	-	-	-	-	-	-

Table 6 Post-cranial non-metric traits

Midline Traits	Trait Present	Part Present	%			
Sternal Foramen	-	-	-			
Paired Traits	Right			Left		
	Trait Present	Part Present	%	Trait Present	Part Present	%
Lateral Atlas Bridging	0	1	0.0	-	-	-
Double Atlas Facet	0	2	0.0	0	1	0.0
Posterior Atlas Bridging	0	1	0.0	-	-	-
Transverse For. Bipartite	-	-	-	-	-	-
Suprascapular Foramen	-	-	-	-	-	-
Accessory Acromial Facet	-	-	-	-	-	-
Circumflex Sulcus	0	2	0.0	0	2	0.0
Supracondyloid Process	0	2	0.0	0	2	0.0
Septal Aperture	1	2	50.0	1	1	100.0
Accessory Sacral Facet	0	1	0.0	0	1	0.0
Acetabular Crease	0	1	0.0	0	1	0.0
Allen's Fossa	0	1	0.0	0	1	0.0
Poirier's Facet	0	1	0.0	0	1	0.0
Plaque	0	2	0.0	0	2	0.0
Hypotrochanteric Fossa	0	2	0.0	0	2	0.0
Exostosis in Troch. Fossa	-	-	-	-	-	-
Third Trochanter	0	2	0.0	0	2	0.0
Emarginate Patella	0	1	0.0	-	-	-
Vastus Notch	0	1	0.0	-	-	-
Vastus Fossa	0	1	0.0	-	-	-
Med. Tib. Squatting Facet	0	2	0.0	0	1	0.0
Lat. Tib. Squatting Facet	0	2	0.0	0	1	0.0
Peroneal Tubercle	-	-	-	-	-	-
Double Ant. Calc. Facet	1	1	100.0	1	1	100.0
Absent Ant. Calc. Facet	0	1	0.0	0	1	0.0
Double Inf. Talar Facet	0	1	0.0	-	-	-
Med. Talar Facet	1	2	50.0	0	1	0.0
Lat. Talar Extension	0	1	0.0	0	1	0.0
Os Trigonum	0	1	0.0	0	1	0.0

2.8 CONCLUSION

Preservation of Skeletons 100 and 102 from New Waltham, Grimsby was variable, and although more than 70% of skeletal elements were present, the remains were fragmentary and the surface preservation poor. Osteological analysis established that both individuals were females, with Skeleton 100 aged 26 to 35 years (young middle adult) and Skeleton 102 aged 36 to 45 years (old middle adult). The fragmentation prevented most measurements for metric analysis, including stature estimation, but it was possible to measure and calculate the *platymeric* and *eurycnemic* (robusticity) index for femora and tibiae, respectively. Both had flattened femora, and flattened tibiae (normal morphological variants). A few non-metric traits were also observed, including *parietal foramina*, a *mandibular torus*, and *septal apertures*.

3.0 PATHOLOGICAL ANALYSIS

Pathological conditions (disease) can manifest themselves on the skeleton, especially when these are chronic conditions or the result of trauma to the bone. The bone elements to which muscles attach can also provide information on muscle trauma and excessive use of muscles. All bones were examined macroscopically for evidence of pathological changes.

3.1 CONGENITAL CONDITIONS

Heredity and environment can influence the embryological development of an individual, leading to the formation of a congenital defect or anomaly (Barnes 1994). The most severe defects are often lethal and if the baby is not miscarried or stillborn, it will usually die shortly after birth. Such severe defects are rarely seen in archaeological populations, but the less severe expressions often are, and these individuals will usually have been unaware of their condition. The frequency with which these minor anomalies occur may provide information on the occurrence of the severe expressions of these defects in the population involved (*ibid*). It may also provide information on levels of maternal health (Sture 2001).

3.1.1 *Spondylolysis*

Spondylolysis refers to the separation of the neural arch of a vertebra from the body just beneath the superior articular facets at the *pars interarticularis*. Debate has focussed on whether the condition is congenital, develops as a result of trauma, or requires a combination of trauma and an underlying developmental weakness (Ortner 2003). It is possible that repeated stress placed on the lower back, for example through bending and lifting, or movements associated with activities such as dancing, gymnastics, weight lifting, kayaking, wrestling, long jumping and playing football may lead to the development of *spondylolysis* (Roberts and Manchester 2005, 106; Galloway 1999, 101). Dandy and Edwards (2003, 433) also indicate that *spondylolysis* may be more common in young, active individuals, particularly athletes. The affected individual

may suffer from slight discomfort in their lower back (Roberts and Manchester 2005, 107).

Spondylolysis was observed in the fifth lumbar vertebra of Skeleton 100, a young middle adult female. Both neural arches had separated from the body (Plate 1).

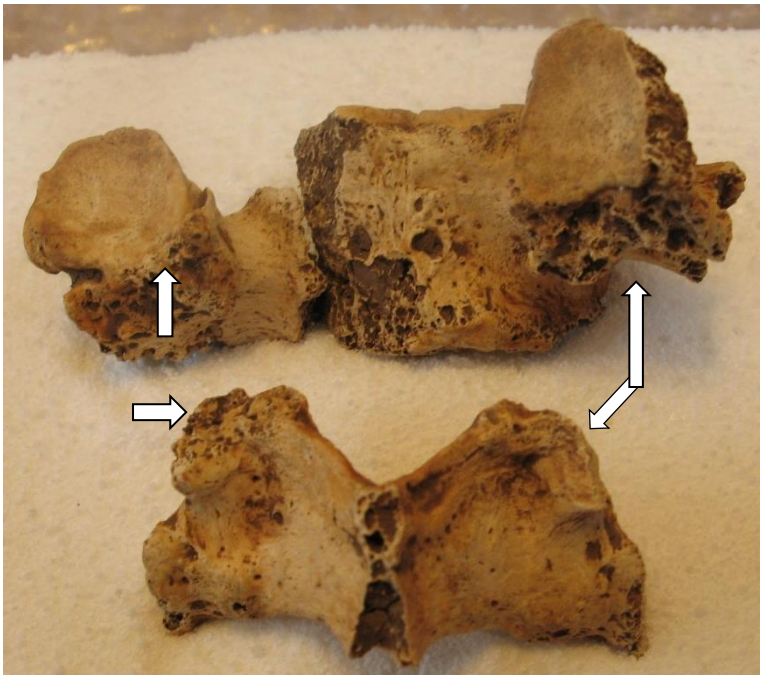


Plate 1 *Spondylolysis* in the fifth lumbar vertebra of Skeleton 100

3.2 METABOLIC CONDITIONS

Humans require an adequate supply of nutrients during childhood to support normal growth and development. Particular conditions are associated with the lack of specific nutrients, for example scurvy results from a diet lacking in vitamin C (found in fresh fruit and vegetables and marine fish) and rickets from a lack of vitamin D (produced by the body during exposure to sunlight). Diagnosis of nutritional deficiencies in ancient populations is complicated by the fact that the skeletal changes can be difficult to diagnose and that nutritional deficiencies tend not to occur in isolation (a diet deficient in one nutrient is very often deficient in others). In addition, many of the skeletal changes that develop in a child as a response to nutritional deficiency will be largely remodelled by the time the individual reaches adulthood (Ortner 2003, Lewis 2007).

3.2.1 *Cribra Orbitalia*

Cribra orbitalia is a term used to describe fine pitting in the orbital roof, which develops during childhood and often recedes during adolescence or early adulthood. Until recently, iron deficiency anaemia was the accepted cause of these lesions (Stuart-Macadam 1992), but a strong case has been made by Walker *et al.* (2009) for different types of anaemia as the causative factor. These include megaloblastic anaemia in the New World,

suggesting a diet deficient in Vitamin B₁₂ (i.e. plant-based and lacking in animal products) and/or folic acid. Such dietary deficiency could have been exacerbated through poor sanitation leading to infection and infestation with gut parasites (*ibid*). In malarious areas of the Old World, haemolytic anaemia (e.g. sickle cell anaemia and thalassaemia) may be important in the development of *cribra orbitalia* (*ibid*). However, for areas such as northern Europe they have proposed that *cribra orbitalia* may be more likely related to conditions such as scurvy (Vitamin C deficiency) or chronic infections (*ibid*). The argument was countered by Oxenham and Cavill (2010) who stated that iron deficiency anaemia should still be considered in a differential diagnosis. A study in 2016, albeit based on a small sample, conducted by Zariņa *et al.* found a correlation between individuals with *cribra orbitalia* and decreased levels of copper and lead in their bone. The same individuals also exhibited significantly lower levels of $\delta^{15}\text{N}$ isotope, suggesting their diet consisted, to a greater degree, of lower trophic level food sources. *Cribra orbitalia* is often used as an indicator of general stress (Lewis 2000, Roberts and Manchester 2005) and is frequently found associated with agricultural economies (Roberts and Cox 2003).

Cribra orbitalia was present in both females from New Waltham; in Skeleton 100, both orbits were observable and affected (Plate 2), while in Skeleton 102, the lesions were present in the left orbit, while the right bone was not observable.



Plate 2 *Cribra orbitalia* in the right orbit of Skeleton 100

3.3 JOINT DISEASE

The term joint disease encompasses a large number of conditions with different causes, which all affect the articular joints of the skeleton. Factors influencing joint disease include physical activity, occupation, workload

and advancing age, which manifest as degenerative joint changes and osteoarthritis. Alternatively, joint changes may have inflammatory causes in the *spondyloarthropathies*, such as septic or rheumatoid arthritis. Different joint diseases affect the articular joints in a different way and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis (Rogers 2000; Roberts and Manchester 2005).

In Skeletons 100 and 102, it was possible to observe both, spinal and extra-spinal joint disease.

3.3.1 Degenerative Joint Changes

The most common type of joint disease observed tends to be degenerative joint changes (DJC). Degenerative joint changes are characterised by both bone formation (osteophytes) and bone resorption (porosity) at and around the articular surfaces of the joints, which can cause great discomfort and disability (Rogers 2000).

Slight marginal osteophytes, accompanied with slight porosity, were present on two thoracic inferior spinous processes of Skeleton 100; in Skeleton 102, rib facets of the twelfth thoracic vertebra, and six superior and six inferior lumbar facets, as well as both sacral facets, had slight marginal osteophytes. No other degenerative joint changes were observed. In total, 21 cervical, twenty thoracic superior and inferior, and six rib facets, and 34 lumbar facets, were observed. With regard to vertebral bodies, there were 21 cervical (superior and/or inferior margins), 22 thoracic, fourteen lumbar, and one sacral body.

In the extra-spinal joints, both women had slight osteophytes in their auricular surfaces (all four were observable). In Skeleton 100, both acetabula and proximal femora were also affected by slight marginal osteophytes, and a slight porosity was also present in the right acetabulum of this person. In Skeleton 102, apart from auricular surface, slight marginal osteophytes were only observed in both navicular bones. Right and left acetabulae and proximal femora were observable in both skeletons, while only Skeleton 102 had the navicular bones.

3.3.2 Schmorl's Nodes

Schmorl's nodes are another condition that can affect the spine. They manifest as indentations in the upper and lower surfaces of the vertebral bodies caused by the pressure of herniated vertebral discs (Aufderheide and Rodríguez-Martín 1998). Discs may rupture due to trauma, but vertebrae weakened by infection, osteoporosis or neoplastic disease may be more vulnerable (Roberts and Manchester 2005). Schmorl's nodes are often associated with degenerative changes to the vertebral bodies (Aufderheide and Rodríguez-Martín 1998, Hilton *et al.* 1976) and are most commonly seen in the lower thoracic vertebrae (Hilton *et al.* 1976).

Schmorl's nodes affected five superior and five inferior lower thoracic vertebral bodies, and two superior and

one inferior lumbar vertebral body of Skeleton 102, an old middle adult female (Plate 3).



Plate 3 Schmorl's nodes in a lower thoracic vertebral body of Skeleton 102

3.4 CONCLUSION

Despite the fragmentary nature of the skeletal remains in this assemblage, as well as the poor surface preservation, a number of pathological lesions were observed, including evidence for poor childhood health, in the form of cribra orbitalia, and slight DJC in the spine and hips of both women, spondylolysis of the fifth lumbar vertebra in Skeleton 100, and Schmorl's nodes in the lower thoracic and upper lumbar vertebrae of Skeleton 102. The fact that both, spondylolysis and Schmorl's nodes may have traumatic aetiology is intriguing in terms of the possible activities these women were involved in. However, with only two individuals present, and with a number of other possible aetiologies for both conditions, a further discussion is currently not possible.

4.0 DENTAL HEALTH

Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005). All teeth and jaws were examined macroscopically for evidence of pathological changes.

The dentition of Skeletons 100 and 102 was relatively well preserved, with 24 and fourteen of possible 32 teeth recovered in each individual, respectively (75.0% and 43.7%), and fourteen and twenty tooth positions preserved, respectively. A number of teeth were loose, with their original alveolar positions not preserved for observation.

4.1 CALCULUS

If plaque is not removed from the teeth effectively (or on a regular basis) then it can mineralise and form concretions of calculus on the tooth crowns or roots (if these are exposed), along the line of the gums (Hillson 1996, 255–257). Mineralisation of plaque can also be common when the diet is high in protein (Roberts and Manchester 2005, 71). Calculus is commonly observed in archaeological populations of all periods, although poor preservation or damage caused during cleaning can result in the loss of these deposits from the teeth (Roberts and Manchester 2005, 64).

Calculus deposits were observed on nineteen teeth from Skeleton 100, and eleven teeth from Skeleton 102, providing an overall prevalence of 79.2% and 78.6%, respectively. In Skeleton 100, the calculus deposits ranged from flecks to heavy, but most were slight to moderate; in Skeleton 102, the deposits ranged from flecks to medium. The prevalence of calculus in these two individuals is substantially higher than in other Iron Age sites, with the average prevalence of affected teeth at just 16.0% (Roberts and Cox 2003, 101). It has to be taken into account, however, that the true prevalence of calculus deposits was only available for two Iron Age sites. The high prevalence of calculus in the New Waltham assemblage might be due to both, differential diet, and a better preservation of calculus deposits on the teeth. It also has to be taken into account that two individuals cannot be representative of prevalence of any pathological condition in the whole population.

4.2 PERIODONTAL DISEASE

Calculus deposits in-between and around the necks of the teeth can aggravate the gums leading to inflammation of the soft tissues (gingivitis). In turn, gingivitis can progress to involve the bone itself, leading to resorption of the bone supporting the tooth and the loss of the periodontal ligament that helps to anchor the tooth into the socket (Roberts and Manchester 2005, 73). It can be difficult to differentiate between periodontal disease and continuous eruption (whereby the teeth maintain occlusion despite heavy wear) in skeletal material, since both result in exposure of the tooth roots (*ibid*, 74).

Moderate periodontal disease was present on the mandible, affecting the molars, in both individuals. Due to the high prevalence of calculus deposits, it is likely that plaque was the main cause of periodontal disease in these women. A softer diet might also have been a factor (Barnes, 1977, Cutress *et al.*, 1982), while ante-mortem tooth loss of adjacent teeth might also have caused the resorption and remodelling of alveolar bone (see Section 4.5 below).

4.3 DENTAL CARIES

Dental caries (tooth decay) forms when bacteria in the plaque metabolise sugars in the diet and produce acid, which then causes the loss of minerals from the teeth and eventually leads to the formation of a cavity (Zero 1999). Simple sugars can be found naturally in fruits, vegetables, dried fruits and honey, as well as processed, refined sugar; since the latter three contain the most sucrose they are most cariogenic. Complex sugars are

usually less cariogenic and are found in carbohydrates, such as cereals. However, processing carbohydrates, including grinding grains into fine powders or cooking them, will usually increase their cariogenicity (Moynihan 2003).

Dental caries affected two teeth in Skeleton 100 (8.3%), and one tooth in Skeleton 102 (7.1%). Although the prevalence of caries at New Waltham is higher than the Iron Age average, 2.9% (Roberts and Cox 2003, 101), higher rates were reported from a number of sites, and thus the prevalence of caries in this assemblage is not considered unusual.

4.4 ABSCESSSES

Dental abscesses occur when bacteria enter the pulp cavity of a tooth causing inflammation and a build-up of pus at the apex of the root. Eventually, a hole forms in the surrounding bone allowing the pus to drain out and relieve the pressure. They can form as a result of dental caries, heavy wear of the teeth, damage to the teeth (e.g. fractures), or periodontal disease (Roberts and Manchester 2005).

Dental abscesses were observed in both individuals, and both were associated with carious teeth. One tooth position in each individual was affected (7.1% and 5.0% in Skeletons 100 and 102, respectively). In Skeleton 100, new woven bone was observed below the affected tooth, indicating that there was an active process of inflammation at the time of her death (Plate 4).



Plate 4 New woven bone below the abscess in the right first mandibular molar, which also had a large caries lesion in the distal-occlusal aspect

The prevalence of the tooth positions affected by abscesses at New Waltham is similar to that observed in several other Iron Age populations, although the average is lower, at 1.1% (Roberts and Cox 2003, 102).

4.5 ANTE-MORTEM TOOTH LOSS

Ante-mortem tooth loss (AMTL), or the loss of teeth during life, can occur as a result of a variety of factors, including dental caries, pulp-exposure from heavy tooth wear, or periodontal disease (occurring when inflammation of the gums, gingivitis, spreads to the underlying bone). Gingivitis can result when deposits of calculus on the teeth aggravate the gums. Once the tooth has been lost, the empty socket is filled in with bone (Hillson 1996, Roberts and Manchester 2005).

Both women had lost teeth before they died: Skeleton 100 had lost three, while Skeleton 102 had lost two teeth (there could be more in both individuals, since a number of tooth positions were not observable), with the overall prevalence of 21.4% for Skeleton 100, and 10.0% for Skeleton 102. As with most other dental diseases in this assemblage, while the prevalence for this condition was higher than the Iron Age average, 3.2%, it was similar with a number of other sites (Roberts and Cox 2003, 102). Given the presence of other destructive dental diseases in both women, it is likely that these contributed to tooth loss during life: for example, caries and periodontal disease can both lead to AMTL.

4.6 DENTAL CONCLUSIONS

Due to relatively good preservation of the dentition of Skeletons 100 and 102, oral health could be assessed and discussed for these individuals. The various severity of deposits of mineralised plaque on the teeth might be related to diet and also good preservation in the burial environment, but its presence indicates poor oral hygiene practices. Moderate periodontal disease was affecting the mandibular molar teeth in both individuals, and it might have been influenced by heavier deposits of calculus, or indeed adjacent teeth missing ante-mortem. Dental caries also was observed in both individuals, and two of the lesions were in advanced stages, enough to result in dental abscesses: each woman had a single abscess, associated with advanced caries. Finally, both women also had lost some teeth during their lives, which is not surprising in the presence of other dental diseases which might contribute to tooth loss.

5.0 MORTUARY PRACTICE

Two skeletons were recovered from the vicinity of a sub-circular enclosure ditch in New Waltham, Grimsby, thought to date from mid-late Iron Age. Both skeletons were females, and one was a young middle adult (Skeleton100), while the other was an old middle adult (Skeleton 102). Both had been buried in a supine, extended position, although the orientation differed slightly: Skeleton 100 was oriented south to north, while the orientation of Skeleton 102 was southeast to northwest. A horn core was found above the right shoulder of Skeleton 100, while some fragments of butchered animal bone were found with Skeleton 102. Both burials might have originally been in coffins; some iron nails were found in close proximity of Burial 100, while 17 nails were found around Skeleton 102.

Iron Age funerary practices vary considerably by region and through time, and the examination of trends is hampered by poor dating and the relatively small numbers of burials recovered. The sparse nature of burials probably reflects the likelihood that most bodies in this period were being exposed, with any remains disposed of through scattering or depositing in water; practices which would leave little evidence in the archaeological record (Megaw and Simpson 1979, 406; O'Brien 1999, 1; Hope 1999, 41-43). Since Iron Age burial traditions continued into the Roman period, in some cases burials dating from the Roman period can provide a very useful reference to Iron Age burial traditions, especially because there are more burials from the Roman period.

From the evidence that does exist of Iron Age burials, or those Roman period burials which continued Iron Age traditions, it is clear that burial within boundary ditches is quite common: at Saxby Wold, Lincolnshire, two skeletons were found buried in an inner enclosure ditch within a metre of each other (Caffell and Holst 2010). Both were buried in a crouched position. Skeleton 1 was a young adult female, while Skeleton 2 was an eleven to thirteen year old child. The alignment of the skeletons at Saxby Wold were somewhat similar, albeit inverted to those at New Waltham: Skeleton 1 was aligned north-east to south-west, following the alignment of the ditch, whereas Skeleton 2 was oriented north-west to south-east, and thus cut across the alignment of the ditch. These skeletons were assumed to be Roman in date, although they could potentially be Iron Age (Caffell and Holst 2010).

Among Roman rural burials, a north-south (or inverted) burial orientation seems to have been favoured, compared to more formal Roman cemeteries near towns and cities, and this was probably indicating the preservation of Iron Age traditions (O'Brien 1999, 5). For example, the majority (94.1%) of the burials at the Roman cemetery at Horncastle, East Lincolnshire, were placed with their head to the south and feet to the north (or vice versa; Caffell and Holst 2008). Another Roman burial which followed Iron Age burial traditions was found near the village of Habrough, Lincolnshire: a single flexed male skeleton was recovered from near the base of a large Iron Age defensive ditch, and he was interred in a south to north orientation. The ditch also contained animal bone from livestock and Iron Age and Roman pottery (Holst 2016).

With regard to the New Waltham assemblage, the location of both burials near a boundary ditch, as well as their orientation, fits with the burial traditions of Iron Age. Their extended position might seem slightly unusual, compared to other burials from this period, which were crouched, or flexed. However, there is evidence for a wide variety of Iron Age burial traditions, depending on the time period, as well as the region: during this period, organised cemeteries emerged, and there was also evidence for burials in coffins (Megaw and Simpson 1979, 407). The individuals at New Waltham might have both been placed in coffins, as suggested by the numerous iron nails. Taken together, the burials of both women represent diverse Iron Age burial traditions. For further discussion, and to place the burials in a particular time period, obtaining AMS dates is recommended.

6.0 DISCUSSION AND SUMMARY

Two inhumation burials were found during the 2019 excavations at New Waltham, Grimsby, North Lincolnshire (NGR TA 29360 04486). Both burials were associated with a sub-circular enclosure ditch. Burial 100 was undisturbed, but fragmented, with very poor surface preservation. Burial 102 had been disturbed by a nearby land drain, which displaced the legs and feet of the skeleton, but most skeletal elements were still present. Both skeletons were buried supine and extended; Skeleton 100 was oriented south to north, and Skeleton 102 was oriented southeast to northwest. A horn core was found with Skeleton 100, and some fragments of butchered animal bone were found with Skeleton 102. Both burials might have originally been in coffins, as suggested by the presence of iron nails.

Preservation of Skeletons 100 and 102 from New Waltham, Grimsby was variable, and although more than 70% of skeletal elements were present, the remains were fragmentary and the surface preservation poor. The fragmentation prevented most measurements for metric analysis, including stature estimation. However, osteological analysis established that both individuals were females, with Skeleton 100 aged 26 to 35 years (young middle adult) and Skeleton 102 aged 36 to 45 years (old middle adult). Both had flattened femora, and flattened tibiae (normal morphological variants). A few non-metric traits were also observed, including *parietal foramina*, *mandibular torus*, and *septal apertures*.

Despite the fragmentary nature of the skeletal remains in this assemblage, as well as the poor surface preservation, a number of pathological lesions were observed, including evidence for poor childhood health, in the form of pitting in the eye orbits (*cribra orbitalia*), and slight degenerative joint changes in the spine and hips of both women, a fracture (spondylolysis) of the lowermost lumbar vertebra in Skeleton 100, and Schmorl's nodes in the lower thoracic and upper lumbar vertebrae of Skeleton 102. The fact that both, *spondylolysis* and Schmorl's nodes may have traumatic cause is intriguing in terms of the possible activities these women were involved in.

The relatively good preservation of the dentition of Skeletons 100 and 102, allowed for comprehensive oral health assessment in these individuals. The deposits of mineralised plaque on the teeth might be related to diet and also good preservation in the burial environment. Moderate periodontal disease was affecting the mandibular molar teeth in both individuals, and it might have been influenced by heavier deposits of calculus, or adjacent teeth missing ante-mortem. Dental caries also was observed in both individuals, and two of the lesions were in advanced stages: each woman also had a single abscess, associated with advanced caries. Finally, both women had lost some teeth during their lives, which is not surprising in the presence of other dental diseases which might contribute to tooth loss.

7.0 FUTURE RECOMMENDATIONS

Obtaining AMS dates for skeletal remains from New Waltham is highly recommended to better understand the significance of the funerary, osteological and palaeopathological data presented in this report.

References

- Aufderheide, A. C. and Rodríguez-Martín, C. 1998. *The Cambridge Encyclopedia of Human Paleopathology* (Cambridge)
- Barnes, D. E. 1977. 'Epidemiology of dental disease', *Journal of Clinical Periodontology*, 4, 80-93
- Barnes, E. 1994. *Developmental Defects of the Axial Skeleton in Paleopathology* (Niwot, Colorado)
- Bass, W. M. 1987. *Human Osteology: A Laboratory and Field Manual* (Columbia)
- Bennett, K. A. 1965. 'The etiology and genetics of wormian bones', *American Journal of Physical Anthropology* 23: 255-260
- Berry, A.C. and Berry, R.J. 1967. 'Epigenetic variation in the human cranium', *Journal of Anatomy* 101 (2): 361-379
- Brooks, S. T. and Suchey, J. M. 1990. 'Skeletal age determination based on the os pubis: a comparison of the Acsádi-Nemeskéri and Suchey-Brooks methods' *Human Evolution* 5: 227-238
- Brothwell, D. R. 1981. *Digging Up Bones* (New York)
- Buikstra, J.E. and Ubelaker D.H. (eds) 1994. *Standards for Data Collection from Human Skeletal Remains* (Fayetteville)
- Caffell, A. and Holst, M. 2008. 'Osteological Analysis, Horncastle, East Lincolnshire', York Osteoarchaeology, No. 1607, Unpublished Osteological Report
- Caffell, A. and Holst, M. 2010. 'Osteological Analysis, Saxby Wold Windfarm, Lincolnshire', York Osteoarchaeology, No. 0510, Unpublished Osteological Report
- Cox, M. 2000. 'Ageing adults from the skeleton', in M. Cox and S. Mays (eds), *Human Osteology in Archaeology and Forensic Science* (London): 61-82
- Cutress, T. W., Powell, R. N. and Ball, M. E. 1982. 'Differing profiles of periodontal disease in two similar South Pacific island populations', *Community Dentistry and Oral Epidemiology*, 10: 193-203
- Dandy, D. J. and Edwards, D. J. 2003. *Essential Orthopaedics and Trauma* (Edinburgh)
- Finnegan, M. 1978. 'Non-metric variation of the infracranial skeleton', *Journal of Anatomy* 125: 23-37
- Galloway, A. 1999. 'Fracture patterns and skeletal morphology: The axial skeleton', in A. Galloway (ed) *Broken Bones: Anthropological Analysis of Blunt Force Trauma* (Springfield, Illinois): 81-112
- Hillson, S. 1996. *Dental Anthropology* (Cambridge)
- Hilton, R.C., Ball, J. and Benn R.T. 1976. 'Vertebral end-plate lesions (Schmorl's nodes) in the dorsolumbar spine', *Ann Rheum. Dis.* 35: 127-132
- Holst, M. 2016. 'Osteological Assessment Report, 'A160/A180 Immingham Improvement, Lincolnshire', York Osteoarchaeology, No. 1116, Unpublished Osteological Report
- Hope, V. M. 1999. 'The Iron and Roman ages: c. 600 BC to AD 400', in P. C. Jupp and C. Gittings (eds) *Death in England: An Illustrated History* (Manchester): 40-64
- İşcan, M. Y. and Loth, S. R. 1986. 'Determination of age from the sternal rib in white females: a test of the phase method' *Journal of Forensic Sciences* 31: 990-999

- Işcan, M. Y., Loth, S. R. and Wright, R. K. 1984. 'Age estimation from the rib by phase analysis: white males' *Journal of Forensic Sciences* 29: 1094-1104
- Işcan, M. Y., Loth, S. R. and Wright, R. K. 1985. 'Age estimation from the rib by phase analysis: white females' *Journal of Forensic Sciences* 30: 853-863
- Kennedy, K.A.R. 1989. 'Skeletal markers of occupational stress', in M.Y. Işcan. and K.A.R. Kennedy (eds), *Reconstruction of Life from the Skeleton* (New York):129-160
- Lewis, M. E. 2000. 'Non-adult palaeopathology: current status and future potential', in M. Cox and S. Mays (eds) *Human Osteology in Archaeology and Forensic Science* (London): 39-57
- Lewis, M. E. 2007. *The Bioarchaeology of Children: Perspectives from Biological and Forensic Anthropology*. (Cambridge)
- Lovejoy, C. O., Meindl, R. S., Pryzbeck, T. R. and Mensforth, R. P. 1985. 'Chronological metamorphosis of the auricular surface of the ilium: a new method for the determination of adult skeletal age at death' *American Journal of Physical Anthropology* 68: 15-28
- Mays, S. and Cox, M. 2000. 'Sex determination in skeletal remains', in M. Cox and S. Mays (eds), *Human Osteology in Archaeology and Forensic Science* (London): 117-130
- McKinley, J. I. 2004. 'Compiling a skeletal inventory: disarticulated and co-mingled remains', in M. Brickley and J. I. McKinley (eds), *Guidelines to the Standards for Recording Human Remains. IFA Paper No. 7* (Southampton and Reading): 14-17
- Megaw, J. V. S. and Simpson, D. D. A. (eds) 1979. *Introduction to British Prehistory* (Leicester)
- Moorrees, C. F. A., Fanning, E. A. and Hunt, E. E. 1963a 'Formation and resorption of three deciduous teeth in children' *American Journal of Physical Anthropology* 21: 205-213
- Moorrees, C. F. A., Fanning, E. A. and Hunt, E. E. 1963b 'Age variation of formation stages for ten permanent teeth' *Journal of Dental Research* 42: 1490-1502
- Moynihan, P. 2003. 'Diet and dental caries', in J. J. Murray, J. H. Nunn and J. G. Steele (eds) *The Prevention of Oral Disease* (Oxford): 9-34
- O'Brien, E. 1999. *Post-Roman Britain to Anglo-Saxon England: Burial Practices Reviewed*. British Archaeological Reports British Series 289 (Oxford)
- Ortner, D. J. 2003. *Identification of Pathological Conditions in Human Skeletal Remains* (Amsterdam)
- Oxenham, M. F. and Cavill, I. 2010. 'Porotic hyperostosis and cribra orbitalia: the erythropoietic response to iron-deficiency anaemia', *Anthropological Science* 118 (3): 199-200
- Roberts, C.A. and Cox, M. 2003. *Health and Disease in Britain from Prehistory to the Present Day* (Stroud)
- Roberts, C.A. and Manchester, K. 2005. *The Archaeology of Disease* (third edition) (Stroud)
- Rogers, J. 2000. 'The palaeopathology of joint disease', in M. Cox and S. Mays (eds) *Human Osteology in Archaeology and Forensic Science* (London): 163-182
- Saunders, S.R. 1989. 'Non-metric variation', in M.Y. Işcan and K.A.R. Kennedy (eds) *Reconstruction of Life from the Skeleton* (New York): 95-108
- Scheuer, L. and Black, S. 2000a. 'Development and ageing of the juvenile skeleton', in M. Cox and S. Mays (eds), *Human Osteology in Archaeology and Forensic Science* (London): 9-22

- Scheuer, L. and Black, S. 2000b. *Developmental Juvenile Osteology* (San Diego)
- Stuart-Macadam, P. 1992. 'Anemia in past populations', in P. Stuart-Macadam and S. Kent (eds) *Diet, Demography and Disease: Changing Perspectives of Anemia* (New York): 151-170
- Sture, J. F. 2001. *Biocultural Perspectives on Birth Defects in Medieval Urban and Rural English Populations*, Unpublished PhD Thesis (Durham)
- Trinkhaus, E. 1978. 'Bilateral asymmetry of human skeletal non-metric traits', *American Journal of Physical Anthropology* 49: 315-318
- Trotter, M. 1970. 'Estimation of stature from intact limb bones', in T.D. Stewart (ed), *Personal Identification in Mass Disasters* (Washington D.C.): 71-83
- Ubelaker, D. H. 1989. *Human Skeletal Remains; Excavation, Analysis, Interpretation* (Washington)
- Walker, P. L. 1995. 'Problems of preservation and sexism in sexing: some lessons from historical collections for palaeodemographers', in S. R. Saunders and A. Herring (eds) *Grave Reflections: Portraying the Past Through Cemetery Studies* (Toronto): 31-47
- Walker, P. L., Bathurst, P. R., Richman, R., Gjerdrum, T. and Andrushko, V. A. 2009. 'The causes of porotic hyperostosis and *cribra orbitalia*: a reappraisal of the iron-deficiency-anemia hypothesis' *American Journal of Physical Anthropology* 139: 109-125
- Zariņa, G., Sholts, S.B., Tichinin, A., Rudovica, V., Vīksna, A., Engīzere, A., Muižnieks, V., Bartelink, E.J. and Wärmländer, S.K., 2016. 'Cribra orbitalia as a potential indicator of childhood stress: Evidence from paleopathology, stable C, N, and O isotopes, and trace element concentrations in children from a 17th-18th century cemetery in Jekabpils, Latvia', *Journal of Trace Elements in Medicine and Biology*, 38: 131-137
- Zero, D. T. 1999. 'Dental caries process', *Dental Clinics of North America* 43: 635-664

APPENDIX A: OSTEOLOGICAL AND PALAEOPATHOLOGICAL CATALOGUE

Skeleton Number	100															
Preservation	Very poor (5)															
Completeness	70% Cranium, mandible; 7 cervical, 6 thoracic, 4 lumbar vertebrae; fragmentary sacrum; 7 right and 11 left ribs; clavicles; partial scapulae; humeri; radii; ulnae; partial right hand; partial left hand; right and left pelvis; femora; tibiae; partial fibulae; left talus and first metatarsal; partial right foot															
Age	26-35 years (young middle adult)															
Sex	Female															
Stature	-															
Non-Metric Traits	<i>Ossicle at lambdoid (right), parietal foramen (right), extrasutural mastoid foramen (bilateral), bridging of supraorbital notch (right), medial talar facet (right)</i>															
Pathology	Cribra orbitalia, spondylolysis of L5, slight DJD in the hip and two thoracic vertebral facets															
Dental Health	14 tooth positions, 24 teeth present, 3 lost ante-mortem, 2 lost post-mortem; 19 teeth with calculus (flecks-heavy), moderate periodontal disease affecting molars, caries (2 teeth), abscess (1 tooth)															
	Right Dentition								Left Dentition							
Present	L	L	L	L	L	L	PM	P	PM	P	PM	AM	L	L	L	L
Calculus	Fd	Flb	Mlbn	Fm	Mbd	-	-	Fm	-	Fl	-	-	Fb	Mdbm	Sbm	Sdl
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	So
Wear	3	4	4	3	3	3	-	4	-	4	-	-	3	4	3	3
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	P	P	P	P	P	P	P	-	-	P	P	P	P	AM	AM	P
Calculus	Sld	Fl	Mlb	HI	Mld	SI	-	-	-	-	-	Sd	-	-	-	Fmd
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	Ldo	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	4	4	3	3	3	3	-	-	3	3	3	3	-	-	3

Skeleton Number	102															
Preservation	Poor (4)															
Completeness	75% Partial cranium, mandible; 5 cervical, 5 thoracic, 3 lumbar vertebrae; fragmentary sacrum; 7 right and 6 left ribs; clavicles; incomplete scapulae; humeri; radii; ulnae; right hand; left hand; right and left pelvis; femora; tibiae; fibulae; left foot; right foot															
Age	36-45 years (old middle adult)															
Sex	Female															
Stature	-															
Non-Metric Traits	<i>Parietal foramen (left), extrasutural mastoid foramen (right), mandibular torus (left), septal aperture (bilateral), Double anterior calcaneal facet (bilateral)</i>															

Pathology	Cribra orbitalia, Schmorl's nodes, slight DJC in auricular surface															
Dental Health	20 tooth positions, 14 teeth present, 2 lost ante-mortem, 6 lost post-mortem; 11 teeth with calculus (flecks-medium), moderate periodontal disease affecting molars, caries (1 tooth), abscess (1 tooth)															
	Right Dentition								Left Dentition							
Present	L	-	P	P	P	B	PM	PM	-	-	-	-	-	-	L	-
Calculus	Fd	-	Slm	Fdm	Fdlb	-	-	-	-	-	-	-	-	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wear	3	-	5	5	5	-	-	-	-	-	-	-	-	-	3	-
Maxilla	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Mandible	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
Present	-	AM	P	P	P	PM	PM	PM	PM	P	P	P	P	P	AM	-
Calculus	-		Fl	Sdlm	Mlmb	-	-	-	-	Mb	Smd	Mlbdm	Mlbdm	-	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	Ld	-	-	-
Wear	-	-	5	3	3	-	-	-	-	4	4	3	3	5	-	-

KEY:

Present - Tooth presence; am - ante-mortem tooth loss; pm - post-mortem tooth loss; p - tooth present; b-broken; - - jaw not present; e - erupting; (l) - loose, i.e. socket not present

Caries - Calculus; F - flecks of calculus; S - slight calculus; M - moderate calculus; H - heavy calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface

DEH - dental enamel hypoplasia; l - lines; g - grooves; p - pits

Caries - caries; s - small lesions; m - moderate lesions; l - large lesions

Wear - dental wear; numbers from 1-8 - slight to severe wear



LICENCE FOR THE REMOVAL OF HUMAN REMAINS

The Secretary of State, in exercise of the power vested in him by section 25 of the Burial Act 1857 (20 & 21 Vic., cap.81), grants a licence for the removal of the remains of **persons unknown** from or within the place in which they are now interred at **Land to the Rear of 32-64 Humberston Avenue, Huberston, North East Lincolnshire**

2. It is a condition of this licence that the following precautions shall be observed:
 - (a) Any removal or disturbance of the remains shall be effected with due care and attention to decency;
 - (b) The ground in which the remains are interred shall be screened from the public gaze while the work is in progress;
 - (c) The remains shall, no later than **30 October 2024**, be reinterred within a burial ground in which interments may legally take place. In the meantime shall be kept safely, privately and decently by MAP Archaeological Practice Ltd under the control of a competent member of staff.
3. This licence merely exempts those from the penalties, which would be incurred if the removal took place without a licence. It does not in any way alter civil rights. It does not confer the right to bury the remains in any place where such right does not already exist.
4. This licence expires on **30 October 2024**

A handwritten signature in black ink, appearing to be 'S. Parbat'.

Sarla Parbat
on behalf of the Secretary of State for Justice

Ministry of Justice

Licence Number: **19-0271**
File Number: **OPR/072/153**
Date: **31 October 2019**



Land to the Rear of 32-64 Humberston Avenue (Millennium Park)

Humberston

North East Lincolnshire

TA 2944 0460

Project Design for Archaeological Strip, Map and Record

Planning No: DC/268/13/HUM

1. SUMMARY

- 1.1 This document sets out the details for the further archaeological work required on land to the rear of 32-64 Humberston Avenue, Humberston, North East Lincolnshire (Application Number DC/286/13/HUM), to satisfy Condition 8 of the Outline Consent and C5 of the Reserved Matters. The Written Scheme of Works has been commissioned by Persimmon Homes Yorkshire.
- 1.2 The Strip, Map and Record is the final phase of what has been a staged programme of archaeological mitigation which has previously included Geophysical Survey and Evaluation by Trial Trenching as agreed by the Archaeological Officer at North East Lincolnshire Council.
- 1.3 All work will be carried out in accordance with the recommendations of the National Planning Policy Framework (July 2018).

2. SITE DESCRIPTION

- 2.1 The site is located on land off Humberston Avenue, Humberston, North East Lincolnshire, approximately 5km south-east of Grimsby (centred at NGR TA 2944 0460) and covers an area of approximately 21.4 ha (Figure 1).

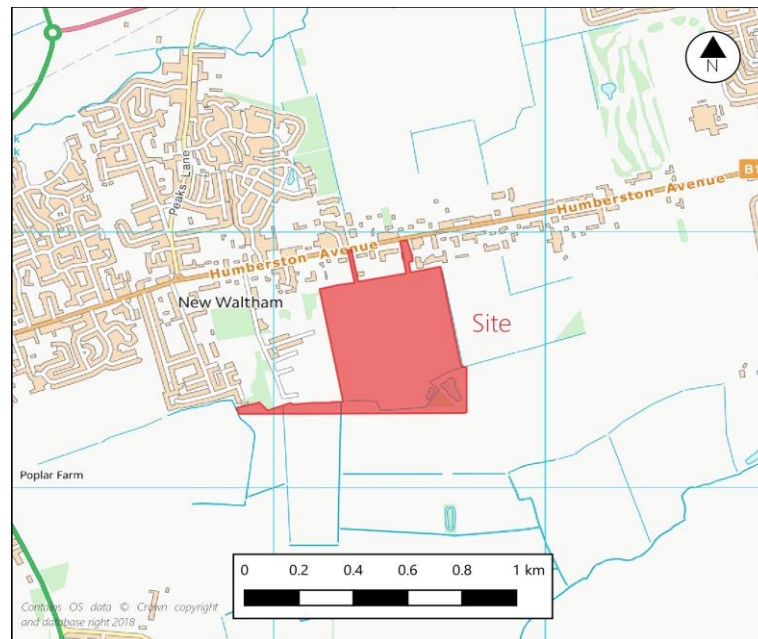


Fig 1. Site Location.

- 3.2 The bedrock geology comprises Burnham Chalk, with a superficial geology of glacial till, and an outcrop of lacustrine alluvium at the south-eastern corner of the site (British Geological Survey 1990).
- 3.3 This Written Scheme of Investigation for Archaeological Strip, Map and Record is applicable only to the area shaded in blue, which falls within phases 4 and 5 of the development (Figure 2). The total area of the proposed Strip, Map and Record is 0.6ha.

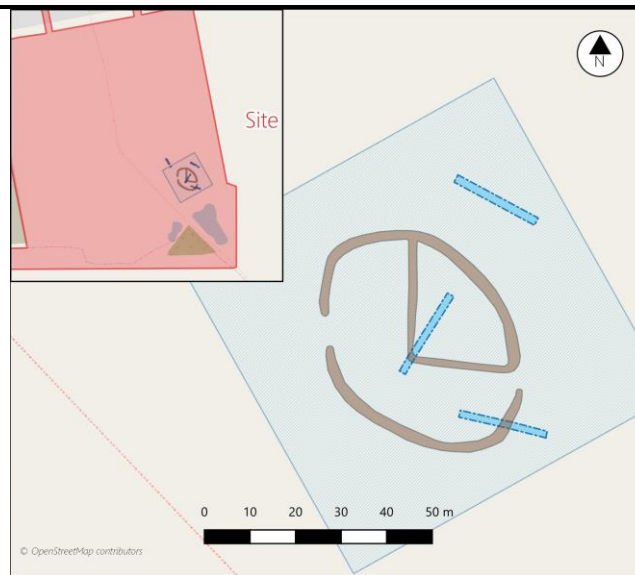


Fig 2. Proposed Strip, Map and Record area.

3. ARCHAEOLOGICAL BACKGROUND

- 3.1 There is very limited prehistoric and Roman activity recorded nearby. A possible later prehistoric enclosure has been identified just to the north of the development site. Excavation carried out in 2014 investigated ditches which were found to be part of an Iron Age field system with associated enclosures. Evidence of bronze working was also identified. Other Prehistoric activity within the vicinity has been recorded c. 2km north-west and north of the development and is restricted to scatters of Mesolithic and Neolithic flint implements.
- 3.2 The route of Humbertson Avenue has been identified as a possible Roman Road. Excavation carried out by Allen Archaeology to the west of the site identified a number of ditches suggestive of a nearby Roman settlement. Similarly, to prehistoric activity there are records of dispersed scatters of Roman material within the surrounding areas of the development site.

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- 3.3 There is no archaeological evidence for Anglo-Saxon activity in the area although documentary evidence suggests that there may have been some form of settlement here prior to the Norman Conquest. The place name Humberston means 'stone by the River Humber', the stone element deriving from the Old English 'stan' (Cameron 1998). The village also appears in the Domesday Book, at which time it was part of a manor at Tetney owned by Ivo Tallboys. It was a relatively large settlement with 67 freemen listed, along with their dependents (Morgan and Thorne 1986). The site is however, well beyond the historic core of the village where settlement activity of this date is most likely to be encountered.
- 3.4 A Geophysical Survey was undertaken on the site in 2013 by Allen Archaeology and revealed a potential sub-circular archaeological anomaly within the south-eastern corner of the site. The anomaly was likely to represent an enclosure with associated internal features and possible external features also. The survey provided evidence that the enclosure had been cut by later ridge and furrow activity, and therefore likely to be earlier in date, either later prehistoric or Romano-British. No other archaeological anomalies were identified across the remainder of the site.
- 3.5 A scheme of archaeological evaluation by Trial Trenching was undertaken by MAP Archaeological Practice Ltd in October 2018. The scheme was proposed to examine a large circular enclosure and an internal partition revealed by a Geophysical Survey undertaken in 2013 by Allen Archaeology. This trenching revealed two linears evidencing the identified geophysical features, targeted by trenches three and four of this investigation. Pottery evidence from the fills of the internal partition ditch segment has suggested

a date of early to mid-1st century AD, with fired clay, birch/peat charred remains from a nearby oven also present; similar fired clay was present within an upper fill of the circular enclosure ditch.

4. AIMS AND OBJECTIVES

4.1 The aim of this archaeological evaluation is to gather sufficient information to establish the presence/absence, date, sequence, nature depth, quality of survival and importance of any archaeological deposits to enable an assessment of the potential and significance of the archaeology of the site to be made, and the impact which development will have upon them.

a) To locate, sample, record and interpret any archaeological features and deposits exposed during topsoil stripping and any excavation associated with the development.

b) To locate, recover, identify and conserve (as appropriate) any archaeological artefacts exposed.

c) Provision should be made for the full Post-excavation, recovery and analysis of any finds or eco-facts recovered from the excavations. Where appropriate it is intended to undertake a Post-excavation assessment after completion of fieldwork to assess the potential for further analysis and publication, and to undertake such analysis, reporting and publication as appropriate.

d) To prepare and submit a suitable archive to the appropriate museum.

e) An informed decision can then be taken regarding the future treatment of the remains and to establish any mitigation strategy in advance of any groundworks should significant archaeological finds deposits be encountered.

5. METHODOLOGY

5.1 The first stage will be to strip all of the topsoil from the area of the proposed development area. The exposed surface will then be thoroughly cleaned, in order to assist the identification of any features. A detailed plan will be made of all features, which are showing, to an appropriate scale (e.g. 1:50, or 1:20).

5.2 The topsoil and any recent overburden can be removed using a rear-acting or 360° mechanical excavator with a wide, toothless ditching bucket. Mechanical excavation equipment will be used judiciously under direct archaeological supervision down to the first significant archaeological horizon or natural subsoil.

5.3 If archaeological features were indeed shown to be present, then a targeted second archaeological excavation would need to take place on, in order to establish their nature, significance, date, depth, and quality of survival. The start of this second stage will be preceded by a site meeting between, the client, MAP and North East Lincolnshire Historic Environment Record Office, to agree the scope of the next stage of works.

5.4 A sufficient sample of any archaeological features and deposits revealed will be excavated in an archaeologically controlled and stratigraphic manner, in

order to establish the aims of the evaluation. The complete excavation of features is not regarded as necessary; a sufficient sample will be investigated to understand the full stratigraphic sequence in each trench, down to naturally occurring deposits. The sampling policy is as follows:

- a. A 100% sample of stakeholes
- b. An initial 50% sample should be taken of all postholes, but where they are part of a building these should be 100% excavated
- c. A 50% sample of pits with a diameter up to 1.5m (where justified, these should be 100% excavated,
- d. A minimum 25% sample of all pits over 1.5m in diameter, but this should include a complete section across the pit to record a full profile (where justified, these should be 100% excavated)
- e. A minimum 20% sample of all linear features, up to 5m in length, for features greater than this, a 10% sample would be taken.
- f. All junctions/intersections and corners of linear features will be investigated and their stratigraphic relationships determined – if necessary using box sections and all ditch terminals will be examined,
- g. All funerary contexts, all buildings and all industrial features will be subject to 100% excavation. As noted above, postholes and the enclosing ditches around barrows and roundhouses would be first subject to sample excavation, sectioning and recording, but then should be fully excavated

- 5.5 In certain cases, the use of mechanical excavation equipment may also be appropriate for removing deep intrusions (e.g. modern brick and concrete floors or footings), or for putting sections through major features after partial excavation (e.g. ditches), or through deposits to check that they are of natural origin

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- 5.6 A full written, drawn and photographic record will be made of all material revealed during the course of the trial excavation. Plans should be completed at a scale of 1:50 or 1:20 (as appropriate), whilst section drawings should be at a scale of 1:10. A minimum 35mm format for photography is required (in monochrome) and high resolution digital.
- 5.7 Deposits must be sampled for retrieval and assessment of the preservation conditions and potential for analysis of all biological remains. Deposits will be sampled for retrieval and analysis of all biological remains. The sampling strategy will include a reasoned justification for selection of deposits for sampling, and will be developed in collaboration with the recognised bioarchaeologist (D. Alldritt). Sampling methods will follow the guidance of the Association for Environmental Archaeology (1995) and English Heritage (2011). Flotation samples and samples taken for coarse-mesh sieving from dry deposits will be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies if necessary, but also because processing at a later stage could cause delays.
- 5.8 Deposits will be sampled for retrieval and assessment of the preservation conditions and potential for analysis of all biological remains. The strategy for the recovery and sampling of environmental remains from the site is subject to agreement with an environmental consultancy (D.Alldritt) in advance of the project. The sampling strategy will include a reasoned justification for selection of deposits for sampling, and will be developed in collaboration with a recognised bioarchaeologist (D.Alldritt). Sampling methods will follow the guidance of the Association for Environmental

Archaeology (1995) and English Heritage (2011). Copies of the strategy will be submitted to the Historic England Regional Science Advisor (Dr Andy Hammon) at the York Office, prior to commencement of site works. Copies of the strategy are attached at Appendix 1. Opportunity will be afforded for an environmental specialist to visit the site during the evaluation and to discuss the strategy.

5.9 Samples will be collected from primary and secondary contexts, where applicable, from a range of representative features, including pit and ditch fills, postholes, floor deposits, ring gullies and other negative features. Positive features will also be sampled. Sampling will also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Animal bones will be hand collected, and bulk samples collected from contexts containing a high density of bones. Spot finds of other material will be recovered where applicable. Flotation samples and samples taken for coarse-mesh sieving from dry deposits will be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies if necessary, but also because processing at a later stage could cause delays.

5.10 In accordance with the EH guidelines (*'Environmental Archaeology'*, English Heritage, 2011), all securely stratified deposits considered suitable for environmental analysis (i.e. those not consisting of building debris, rubble mortar etc.) will be sampled (40-60 litres in volume, where deposits allow) in order that their potential and interpretative value can be fully assessed, and a suitable sampling strategy can be formulated in case of further mitigation. Entire contexts will be sampled if the volume is low, and

specialist samples, such as for General Biological Analysis (GBA) will be of the order of 20 litres. Allowance has been made for a site visit from D.Aldritt specialists and for this excavation, a minimum of 12 bulk samples should be taken from suitable contexts.

5.11 If human remains are encountered during the course of this evaluation, it may be necessary to remove these, under the conditions of burial licence (issued by the Ministry of Justice, to ensure that they are treated with due dignity. The preferred option would be for them to be adequately recorded before lifting, and then carefully removed for scientific study, and long term storage with an appropriate museum; however, the burial licence may specify reburial or cremation as a requirement.

5.12 A finds recovery and conservation strategy will be discussed with the Archaeology Manager and recipient museum in advance of the project commencing, and a policy for finds recording should be agreed and submitted to the Archaeology Manager, before commencement of site works. Any recording, marking and storage, materials will be of archive quality, and recording forms and manuals will be submitted to the Archaeology Manager, prior to the commencement of on site works, if these have not been supplied previously. Allowance will be made for preliminary conservation and stabilisation of all objects and an assessment of long-term conservation and storage needs. We have made an allowance for a minimum four boxes in calculating estimates for museums storage grant.

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- 5.13 All finds (artefacts and ecofacts) visible during excavation will be collected and processed, unless variations in this principle are agreed with the Local Authority. Finds will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds. In accordance with the procedures outlined in MAP2, all iron objects, a selection of non-ferrous artefacts ~ (including all coins), and a sample of any industrial debris relating to metallurgy will be X-radiographed before assessment.
- 5.14 We will demonstrate that we possess the necessary levels of professional experience and technical expertise, to undertake rural excavations, and are familiar with the prehistoric, Romano-British, medieval and post medieval wares from this area. We will ensure that the pottery and CBM reports use the fabric classifications established on published Beverley and Hull sites.
- 5.15 We will make provision within our excavation strategies, where necessary, for use of shoring, pumps or artificial lighting. Such strategies will also follow for sampling for radiocarbon, archaeomagnetic and/or dendrochronological determinations, as appropriate: where in situ timbers are found to survive in good condition, samples should be taken for dendrochronological assay.
- 5.16 Arrangements for site access and reinstatement are to be agreed with the commissioning body.
- 5.17 Should the contractor or commissioning body wish to vary the survey strategy, if, for example, a part or the whole of the site is not amendable to evaluation as outlined above, or trench positions conflict with development

proposals; or an alternative evaluation technique may be more appropriate or likely to produce more informative results, it is expected that a proposal for amended/additional work would be drafted by ourselves and discussed urgently with the Archaeological Manager to resolve the matter.

6. REPORT PREPARATION, CONTENTS AND DISTRIBUTION

6.1 Upon completion of the evaluation, the artefacts, soil samples and stratigraphic information will be assessed as to their potential and significance for further analysis.

6.2 A report will be prepared to include the following:

- a) A non-technical summary of the results of the work, Introduction and aims and objectives.

- b) An introduction which should include
 1. the site code/project number
 2. planning reference number and SMR Casework number
 3. dates when fieldwork took place
 4. grid reference

- c) An account of the methods and results of the evaluation, describing structural data and associated finds and/or environmental data recovered.

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- d) Interpretation, including phasing of the site sequence and spot-dating of ceramics (Descriptive material should be clearly separated from interpretive statements). This shall be supported by the use of photographs and drawings, to include an overall plan of the site accurately identifying the location of trenches; individual trench plans as excavated indicating the location of archaeological features, with at least one section detailing the stratigraphic sequence of deposits within each trench.
- e) A specialist assessment of the artefacts recovered with a view to their potential for further study. Allowance should be made for preliminary conservation and stabilisation of all objects and an assessment of long term conservation and storage needs.

Assessment of artefacts must include inspection of X-radiographs of all iron objects, a selection of non-ferrous artefacts (including coins), and a sample of any industrial debris relating to metallurgy. A rapid scan of all excavated material should be undertaken by conservators and finds researchers in collaboration. Material considered vulnerable will be selected for stabilisation after specialist recording. Where intervention is necessary, consideration will be given to possible investigative procedures (e.g. glass composition studies, residues in or on pottery, and mineral preserved organic material). Once assessed, all material will be packed and stored in optimum conditions, as described in *First Aid For Finds*. Waterlogged organic materials should be dealt with, following the English Heritage documents, *Guidelines for the care of waterlogged archaeological*

leather, and guidelines on the recording, sampling, conservation and curation of waterlogged wood.

- f) A specialist assessment of environmental samples taken, with a view to their potential for subsequent study.

Processing of all samples collected for biological assessment, or sub-samples of them, will be completed. Bulk and site-riddled samples from dry deposits should have been processed during excavation, where possible. The preservation state, density and significance of material retrieved must be assessed, following methods presented in Environmental Archaeology and archaeological evaluations, or existing local guidelines, until national guidelines are available. Unprocessed sub-samples must be stored in conditions specified by the appropriate specialists.

Assessments for any technological residues will be undertaken. Samples for dating must be submitted to laboratories promptly, so as to ensure that results are available to aid development of specifications for subsequent mitigation strategies.

- g) The results from investigations in archaeological sciences will be included in the Site Archive and presented in the Evaluation Report. Reports must include sufficient detail to permit assessment of potential analysis. They will include tabulation of data in relation to site phasing and contexts, and must include non-technical summaries. The objective presentation of data must be clearly

separated from interpretation. Recommendation for further investigation (both on samples already collected, and at future excavations) must be clearly separated from the results and interpretation.

- h) An assessment of the archaeological significance of the deposits identified, in relation to other sites in the region.
- i) A conclusion with recommendations for further post-excavation work, if required.
- j) Detailed archive location and destination.
- k) Appendices and figures, as appropriate, including a copy of the specification and/or project design.
- l) References and bibliography of all sources used

6.3 Copies of the report will be submitted to the commissioning body, the Local Planning Authority and the North East Lincolnshire Historic Environment Record within an agreed timetable and subject to any contractual requirements on confidentiality (see 8.2 below). A copy of the Evaluation Report must also be sent to the Historic England Regional Advisor for Archaeological Sciences: Dr Andy Hammon, Historic England, 37 Tanner Row, York, YO1 6WP

6.4 We will provide a digital copy of the report in PDF format to the North East Lincolnshire Historic Environment Record Office.

6.5 A Brief, interim report may be required shortly after the completion of fieldwork.

7. COPYRIGHT, CONFIDENTIALITY AND PUBLICITY

7.1 Unless the individual/organisation commissioning the project wishes to state otherwise, the copyright of any written, graphic or photographic records and reports rests with MAP.

8. ARCHIVE PREPARATION & DEPOSITION

8.1 The requirements for archive preparation and deposition will be addressed and undertaken in a manner agreed with the recipient museum: in this instance, the East Riding of Yorkshire Museums Service. The recipient museum has been contacted and informed about commencement of fieldwork.

8.2 A site archive will be prepared in accordance with the specification outlined in *Management of Archaeological Projects* (MAP2, English Heritage 1991, 5.4; Appendix 3). See also *Towards an Accessible Archaeological Archive, the Transfer of Archaeological Archives to Museums: Guidelines for use in England, Northern Ireland, Scotland and Wales* Society of Museum Archaeologists 1995.

8.3 The site archive, including finds and environmental material, subject to the permission of the relevant landowners, will be labelled, conserved and

stored according to the United Kingdom Institute for Conservation (UKIC)'s. Provision will be made for the stable storage of paper records and their long term storage on a suitable medium, such as microfilm, a copy of which should be deposited with the NMR (Historic England). An index to the contents of the archive together with details of its date and place of deposition will be lodged with the SMR.

- 8.4 Archive deposition has been arranged in consultation with the recipient museum and the Archaeology Manager of the Humber Archaeology Partnership, and will take account of the requirements of the recipient museum and the relevant guidelines (see above) relating to the preparation and transfer of archives. The timetable for deposition will be agreed on completion of the site archive and narrative.

9. PUBLICATION AND DISSEMINATION

- 9.1 The information contained within the assessment report will enable decisions to be taken regarding the future treatment of the archaeology of the site and any material recovered during the excavation.
- 9.2 If as a result of excavation the decision is not to initiate a further project, it should be appreciated that assessment may produce results of sufficient significance to merit publication in their own right.
- 9.3 Where no further work is envisaged, allowance should be made for the preparation and publication in a local journal of a brief note on the results of the evaluation and a summary of location and material held within the site archive.

9.4 Should further archaeological excavation be undertaken, a synopsis of the results of the assessment should be prepared for publication with the final results of any further fieldwork.

10. MONITORING, HEALTH AND SAFETY, STAFFING & INSURANCE

10.1 The work will be monitored under the auspices of the Archaeology Manager of the Humber Archaeology Partnership who have been consulted about the commencement of site works.

10.2 Health and safety will take priority over archaeological matters. All archaeologists undertaking fieldwork will comply with all Health and Safety Legislation and all are CSCS cardholders. A Risk Assessment and Method Statement have been produced

10.3 Necessary precautions will be taken over underground services and overhead lines.

10.4 We are adequately insured including Employer's Liability, Professional Liability and Public Liability Cover.

10.5 All on-site archaeological work will be undertaken by employees of MAP Archaeological Practice Ltd. The following Staff will have the specific responsibilities;

Project Manager Paula Ware

Fieldwork Director Mark Stephens

Post-Excavation coordinator Kelly Hunter

Post Excavation Specialists

Prehistoric pottery	T G Manby
Roman, Medieval and Post Med	Mark Stephens, Paula Ware & Dr P Mills
CBM	Dr P Mills
Conservation	York Archaeological Trust
Flint	P Makey
Human Remains	Malin Holst – York Osteology
Environmental	Diane Alldritt

Timetable

On-Site works is due to commence 2018. Post-excavation will commence on completion of onsite works.

References

- Walker, K., 1990. *Guidelines for the preparation of excavation archives for long-term storage*, Archaeology Section of the United Kingdom Institute for Conservation.
- Watkinson, D. & Neal, V., 1998. *First Aid For Finds. 3rd ed.* Rescue / UKIC (United Kingdom Institute for Conservation),
Archaeology Section. Museum of London.

APPENDIX 1

Conservation Strategy By Ian Panter of York Archaeological Trust

Artefacts from all categories and all periods will be recovered as a matter of routine during the excavation. When retrieved from the ground finds will be kept in a finds tray or appropriate bags in accordance with **First Aid for Finds**. Where necessary, a conservator may be required to recover fragile finds from the ground depending upon circumstances.

If waterlogged conditions are encountered a wide range of organic materials may be recovered, including wood, leather and textiles. Advice will be sought from a conservator to discuss optimum storage requirements before any attempt is made to retrieve organic finds and structural timbers from the ground.

After the completion of the fieldwork stage, a conservation assessment will be undertaken which will include the X-radiography of all the ironwork (after initial screening to separate obviously modern debris), and a selection of the non-ferrous finds (including all coins). A sample of slag may also be X-rayed to assist with identification and interpretation. Wet-packed material, including glass, bone and leather will be stabilised and consolidated to ensure their long-term preservation. All finds will be stored in optimum conditions in accordance with **First Aid for Finds** and **Guidelines for the Preparation of Excavation Archives for Long-Term Storage** (Walker, 1990).

Waterlogged wood, including structural elements will be assessed following the English Heritage guidelines, **Waterlogged wood: sampling, conservation and**

curation of structural wood (Brunning 1996). The assessment will include species identification, technological examination and potential for dating.

The conservation assessment report will include statements on condition, stability and potential for further investigation (with conservation costs) for all material groups. The conservation report will be included in the updated project design prepared for the analysis stage of the project.

References

Brunning, R. 1996

Waterlogged wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood. English Heritage, London.

Walker, K. 1990 *Guidelines for the preparation of excavation archives for long-term storage*, Archaeology Section of the United Kingdom Institute for Conservation.

Watkinson, D. and Neal, V. 1998 *First Aid for Finds (3rd edition), RESCUE and the Archaeology Section of the United Kingdom Institute for Conservation.*

Environmental Strategy By Diane Alldrit

The on-site environmental sampling strategy will systematically seek to recover a representative sample of botanical, molluscan (both terrestrial and aquatic), avian and mammalian evidence from the full range of contexts encountered during the excavation. This will enable, at the assessment stage, the possibility for radiocarbon dating material to be obtained, and for an initial analysis of the economic and environmental potential of the site. In order to achieve this, a bulk sample (BS, Dobney *et al* 1992) comprising an optimum size of 28litre of sediment

(where possible) should be taken from **every stratigraphically secure and archaeologically significant context**. In practice it may not always be possible to obtain 28l of sediment from certain features during the assessment stage, for instance from partially excavated pits or post-holes, in which case a single bucket sample, c.10 to 14litre should be taken at the site supervisors discretion. Deposits of mixed origin, for instance topsoil, wall fills and obvious areas of modern contamination, should be avoided where possible, as these will contain intrusive material and not provide secure radiocarbon dates.

All buckets and other sampling equipment must be clean and free of adherent soil in order to prevent cross-contamination between samples. If dry soil is to be stored for any length of time it should be kept in cool, dry conditions, and away from strong light sources. However, it is preferable to process samples as soon as possible after excavation.

Bulk soil samples shall be processed using an Ankara-type water flotation machine (French 1971) for the recovery of carbonised plant remains and charcoal. The flotation tank should contain a >1mm mesh for collection of the retent or 'residue' portion of the sample (which may contain pottery, lithics and animal / bird bone, in addition to the heavier fragments of charcoal which do not float). The 'flot' portion of the sample, which may include carbonised seeds, cereal grain, charcoal and sometimes mollusc shell, should be captured using a nest of >1mm and >300micron Endicot sieves. Flotation equipment, including sieves, meshes, brushes and so forth must be meticulously cleaned between samples in order to prevent contamination of potential radiocarbon dating material. All material resulting from flotation will be dried prior to microscopic examination. Flotation is

not suitable for the recovery of pollen or for processing waterlogged samples, which shall be discussed below.

Where there is potential for waterlogged preservation, shown for instance by the presence of wood and other organic or wet material, then a 5 to 10litre size sample should be taken (GBA sample, Dobney *et al* 1992). This material is to be retained for later processing using laboratory methods to enable the recovery of waterlogged plant material and insects. For assessment purposes a 1litre sub-sample of the organic sediment from each potential waterlogged sample shall be processed using laboratory wash-over methods, and once processed **kept wet**. All waterlogged samples awaiting processing should be kept damp, preferably stored in plastic sealable tubs, and in cool conditions. Where large waterlogged timbers are recovered these should be stored under refrigerated conditions and an appropriate conservator consulted.

If sediment suitable for pollen analysis is encountered, for instance rich organic peaty deposits, or deep ditch sections with organic preservation, the archaeobotanical specialist is to be consulted prior to any sampling taking place. These deposits would require sampling with large kubiena tins and require the specialist to be on-site. Pollen analysis, even at assessment level, would subsequently impose a considerable cost implication should it be carried out.

The specialist is available to provide consultation and advice on the environmental sampling strategy throughout the course of the excavation and during post-excavation processing if required.

References

Dobney, K. D., Hall, A. R., Kenward, H. K. and Milles, A. 1992 A working classification of sample types for environmental archaeology. *Circaea* 9 24-26.

French, D. H. 1971 An Experiment in Water Sieving. *Anatolian Studies* 21 59-64.