WYAS Archaeological Services

Land off Horkstow Road
Barton upon Humber
North Lincolnshire

Trial Trench Evaluation and Field Walking

Report no. 3794
June 2022 (revised February 2023)

Client: Banks Property Ltd

Land off Horkstow Road, Barton upon Humber North Lincolnshire

Trial Trench Evaluation and Field Walking

Summary

Archaeological remains, associated with geophysical anomalies indicative of an enclosure, have been identified as Roman in date, most likely mid to late 3rd century to early 4th century, based on pottery and a single coin. A rural settlement is indicated with the occupants growing wheat, barley and oats, and consuming cattle, sheep/goat, pig and shell fish.

Beyond the enclosure to the south, further activity of similar date is attested by the burial of an old middle adult male in an oak coffin, radiocarbon dated in the range 246-420 AD, and the disarticulated remains of a second individual. Field walking of the proposed development area did not provide any further dateable material of significance.

Following an assessment of the material recovered, recommendations for limited further work were agreed with the Consultant and Alison Williams of North Lincolnshire County Council and have been included in this report (version 3).

WYAS Archaeological Services

Report Information

Client:	Banks Property Ltd
Address:	Inkerman House, St John's Road, Meadowfield, Durham
Report Type:	Trial Trench Evaluation and Field Walking
Location:	Horkstow Road, Barton upon Humber
County:	North Lincolnshire
Grid Reference:	TA 02794 21069
Period(s) of activity represented	Roman, medieval post-medieval
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Date of report:	May 2022
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1 Introduction

Archaeological Services WYAS (ASWYAS) was commissioned by Pegasus Group on behalf of Banks Property Ltd to undertake the excavation of 85 trenches at Horkstow Road, Barton upon Humber, North Lincolnshire. The trenches were investigated between the 4th of April and the 6th of May 2022. The work was undertaken in accordance with the National Planning Policy Framework (NPPF) and a Written Scheme of Investigation (WSI) produced by Pegasus Group (Appendix 1).

Site location, topography and land-use

The site comprises approximately 26ha of arable farmland situated to the south of Horkstow Road, on the southern edge of Barton upon Humber, North Lincolnshire (TA 02794 21069; Fig. 1). The site is bounded to the east by the B1812 (Brigg Road) and to the west by the A15 (Fig. 2).

The topography of the site is undulating. It slopes down from the northern boundary, with the lowest point forming a sunken valley through the centre of the site. The ground rises again towards the southern boundary. The topography of the site ranges between *c.* 17m and 39m above Ordnance Datum.

Soils and geology

The solid geology of the site is mapped as Welton Chalk Formation. The superficial geology of the site is partly mapped as Head deposits (BGS 2021). The overlying soils are described as freely draining, lime-rich, and loamy (Landis 2022).

2 Archaeological and Historical Background

No earlier prehistoric remains have been identified either within the site or locally, but the geophysical survey and HER records indicate the high potential for Iron Age or Roman activity within the development boundary. The core of the activity is focussed towards the northern boundary of the site, along the ridge of higher ground. As well as the geophysical survey, previous metal detecting and field walking events have recorded a 3rd-century coin hoard and several sherds of Roman pottery within and in proximity to the site boundary.

The evidence of ridge and furrow (most likely medieval and/or post-medieval in date) from within the site boundary shows that it is likely that the site was in use for agricultural purposes for much of its recorded history. Ordnance Survey maps do not indicate the presence of any built structures within the site boundary from the 19th century onwards.

3 Aims and Objectives

The aims of the evaluation were to:

- record where feasible the depth, extent, character and date of archaeological features or deposits encountered;
- provide information about the archaeological resource within the area of the site (including its presence or absence, character, extent, date, integrity, state of preservation and quality);
- create a record of the archaeological resource which will be impacted upon as a result of the proposed development;
- interpret the archaeology of the site within its local, regional and national archaeological context;
- test the results of the geophysical survey – in particular to test the potential for colluvial deposits to mask archaeological deposits within the developable area;
- determine the presence/absence of archaeological deposits relating to the Iron Age and Roman period;
- identify evidence of Roman activity to relate to the earlier findings of the 1983 metal detecting survey and field walking evidence for Roman pottery;
- recover and record an appropriate sample of the range, quality and quantity of the artefacts and environmental evidence discovered;
- inform a programme of mitigation, to provide a report on the results of the fieldwork and if appropriate publish the results in an academic paper or journal.

The objective of the work was to monitor the removal of top and subsoil horizons and assess the resultant areas for their archaeological potential. Any remains were then subject to archaeological excavation. Recovered artefacts were subject to analysis and environmental data were sampled.

4 Methodology

The work involved the excavation of 85 trenches, 84 of which measured 50m by 2m and one which measured 40m by 2m. The trenches were positioned to target potential archaeological anomalies identified during the previous geophysical survey (Bishop and Webb 2021), as well as to provide a wide sample across the remaining areas of the site (Fig. 2).

All work was undertaken in accordance with accepted professional standards and guidelines (Historic England 2008; CIfA 2020), in accordance with the ASWYAS site recording manual (ASWYAS 2020) and in compliance with the WSI (Appendix 1).

All trenches were set out and the limits resurveyed using a Trimble VRS differential GPS accurate to +/-0.01m. The trenches were opened in a controlled manner using a 360 excavator using a flat-bladed ditching bucket under direct archaeological supervision. All topsoil deposits were removed in level spits (not more than 0.20m) with the topsoil and subsoil being separated to allow for re-instating in reverse order. Machining stopped at the first archaeological horizon or natural deposits, whichever was encountered first. All excavations of archaeological deposits were undertaken manually with the stripped surface being cleaned and investigated for archaeological remains.

An appropriate sample was excavated through all archaeological features with at least a 25% sample through linear features (with a minimum sample of 1m) and a 50% sample through discrete features. These were undertaken to investigate the full depth, profile and fills, where possible, and to recover dating evidence from the fills. All excavated sections were, where possible, located adjacent to the trench edge in order to provide a full stratigraphic sequence.

Spoil heaps were scanned for both ferrous and non-ferrous metal artefacts using a Minelab X-Terra 705 metal detector fitted with a 9inch 7.5kHz coil, capable of discriminating between ferrous and non-ferrous material and was operated by an experienced metal detector user. Modern artefacts were noted but not retained.

A soil sampling programme was undertaken consisting of bulk soil samples for the identification of plant macro-fossils, small animal bones and other small artefacts. All samples were taken from appropriate archaeological deposits, in accordance with the WSI and Historic England guidelines.

All archaeological features were accurately recorded in plan at a scale of 1:50. Feature sections were drawn at a scale of 1:20. All plans and sections include spot heights that relate to Ordnance Datum in metres.

A scheme of field walking was undertaken concurrent with the excavation of the trenches. For this, the site was split into two fields (Field A and Field B). Field A is the area to the south of the farmer's track (Fig. 2) and Field B is the area to the north. The fields were then walked at 10m transects across their width. Any located finds were tagged with their 8 digit grid reference using a handheld GPS.

A full written, drawn and photographic record was made of all archaeological work undertaken. An inventory of the primary archive is presented in Appendix 2 and ASWYAS currently hold the site archive in a stable and secure location.

5 Results

Below is a description of each trench containing archaeological remains. Trenches devoid of archaeological features are not discussed further but a concordance of contexts yielding artefacts or environmental remains is presented in Appendix 3 and a summary trench table is provided Appendix 4.

All features were sealed by a soft, dark black-brown clayey-silt topsoil and a friable, mid-orange brown sandy-clay subsoil. The underlying geology comprised chalk, interspersed with some bands of red-brown sandy clay.

A summary of the results of the field walking undertaken on site is also provided below.

Trench 4 (Fig. 3)

Trench 4 contained one gully (403) on an east-west alignment. Gully 403 (Fig. 3, S. 27; Plate 1) corresponds with a faint linear feature identified on the geophysical survey (Bishop and Webb 2021) and contained two fills (404 and 405). Gully 403 was 0.58m wide and 0.50m deep with a regular profile and shape in plan indicative of a modern feature. No finds were recovered to confirm this.

Trench 40 (Fig. 4)

Trench 40 contained one ditch (4004) on a north-south alignment and a pit (4006). Ditch 4004 (Fig. 4, S. 31) corresponds to a strong linear response on the geophysical survey, interpretated as a former field boundary (Bishop and Webb 2021), and it contained a single fill (4005). It was 0.86m wide and 0.38m deep, with a V-shaped profile and steep sides. Fill 4005 was a light grey-brown silty clay, containing ceramic building material and animal bone. Pit 4006 (Fig. 4, S. 32; Plate 2) was oval in shape with an irregular profile and measured 0.48m in width and 0.08m in depth. Its single fill (4007) was a dark red-brown silty clay.

Trench 41 (Fig. 5)

Trench 41 contained two pits (4103 and 4105); Pit 4103 (Fig. 5, S. 35; Plate 3) was situated at the southern end of trench and pit 4105 (Fig. 5, S. 41) was situated at its northern end. Pit 4103 was sub-circular with a U-shaped profile and measured 1.30m in length, 1.10m in width and 0.38m in depth. It had a single fill (4104) of dark red-brown sandy clay, which contained Roman pottery, animal bone and marine shell. Pit 4105 was 0.84m in length, 0.80m in width and 0.40m in depth, sub-circular in plan with a steep U-shaped profile. It contained a single fill (4106) of dark red-brown sandy silt and a small amount of animal bone.

Trench 42 (Figs 6 and 7)

Trench 42 contained one ditch (4203) on a northeast-southwest alignment, a terminus of a possible ditch (4205) and a pit (4207). Ditch 4203 (Fig. 7, S. 18) was 2.20m in width and 0.25m in depth. It had a U-shaped profile and contained a single mid-grey-brown sandy clay fill (4204) and some animal bone. Terminus 4205 (Fig. 7, S. 19) was 1.00m in width and 0.60m in depth and contained a single fill (4206) of mid-red-brown silty clay material, pebble-sized chalk inclusions but no finds. Pit 4207 (Fig. 7, S. 48) was in fact an elongated oval-shaped grave, 2.80m in length, 1.20m in width and 0.55m in depth. It contained a dark brown clay (4208) with frequent, angular, cobble-sized chalk inclusions, and a human inhumation (albeit recorded as SK1 – skull fragments excavated prior to the remaining skeleton – with the majority of bones recorded as SK2) (Plate 4 and Plate 5), as well as 78

iron nails (most likely representing a coffin), one sherd of samian pottery and animal bone. The nails have been identified as Roman in type and the mineralised wood associated with some of them as oak. On analysis, it was determined that in fact a minimum number of two individuals were present, with the second individual identified only through the presence of relatively few disarticulated fragments. SK2 presents old middle adult male, who had survived despite poor childhood health, and who had suffered a number of minor fractures, presumably in a fall. SK2 has been radiocarbon dated in the range 246-420 AD (see below). This later Roman date suggests that the single sherd of samian may be residual in this context.

Trench 44 (Fig. 8)

Trench 44 (Plate 6) contained a single east-west aligned ditch (4404). Ditch 4404 (Fig. 8, S. 29) corresponds to a strong linear response on the geophysical survey and is likely to be a continuation of the ditch recorded in Trench 40 (ditch 4004). Ditch 4404 was 0.62m wide and 0.26m deep, and contained a single fill (4405) of light grey-brown chalky silt with a few fragments of ceramic building material.

Trench 48 (Fig. 9)

Trench 48 contained a single possible pit (4803) although its reliability was poor (Fig. 9, S. 42; Plate 7). It was an irregular oval shape with a length of 0.60m, a width of 0.72m and a depth of 0.14m. It contained a single fill (4804) of red-brown silty clay material, with no finds were recovered.

Trench 52 (Fig. 10)

Trench 52 (Plate 8) contained a single gully (5204), likely a post-medieval hedgerow or field boundary, running on a north-northeast to south-southwest alignment. Gully 5204 (Fig. 10, S. 39) appears to correspond with a faint linear response on the geophysical survey. It had a width of 0.62m and a depth of 0.06m and contained a single fill (5205) of light grey-brown silt clay with frequent pebble sized chalk inclusions, and one piece of 19th-century glass.

Trench 53 (Fig. 11)

Trench 53 contained a single gully (5303), likely a post-medieval hedgerow or field boundary, running on a northeast to southwest alignment. Gully 5303 (Fig. 11, S. 26) is probably a continuation of gully 5203 in Trench 52 and it appears to correspond with the same faint linear response on the geophysical survey. It had a width of 0.30m and a depth of 0.15m and contained a single fill (5304) of dark red-brown sandy clay with pebble-sized chalk inclusions, but no finds.

Trench 54 (Fig. 12)

Trench 54 contained one narrow gully and a ditch (5403) both on a north-south alignment. The gully was very likely a continuation of the post-medieval hedgerow/field boundary picked up in Trench 52 and Trench 53, and as a result it was not excavated again in this

trench. Ditch 5403 (Fig. 12, S. 37; Plate 10) was V-shaped in profile, with a width of 0.94m and a depth of 0.62m. It contained a single fill (5404) of mid-orange-brown sandy silt with infrequent cobble sized chalk and flint inclusions, but no finds. This feature was not noted as an anomaly by the geophysical survey.

Trench 71 (Fig. 13)

Trench 71 (Plate 11) contained one pit (7103) at its eastern end. Pit 7103 (Fig. 13, S. 46) was truncated slightly by the southern limit of the trench. It was excavated to a length of 1.30m, and was 1.00m in width and 0.30m in depth. It contained a single fill (7104) of grey-brown silty clay with infrequent chalk inclusions of varying sizes, but no finds.

Trench 72 (Fig. 14)

Trench 72 contained one northeast-southwest aligned gully (7203; Fig. 14, S. 44), which was similar in nature to the gullies picked up in Trench 52 (gully 5203), Trench 53 (gully 5303) and Trench 54. Again, a post-medieval field boundary/hedgerow is a likely interpretation. Gully 7203 measured 0.30m wide and 0.15m deep and contained a single fill (7204) of grey-brown silty clay with frequent pebble sized chalk inclusions and a fragment of brick or tile.

Trench 78 (Fig. 15)

Trench 78 contained three probable geological features (7803, 7805 and 7807). All three were of very irregular shape and profile making it highly likely that they were geological solution holes. Several examples of similar looking features were noted throughout the site, with only the ones in Trench 78 excavated and recorded to provide an example on record. Pit 7803 (Fig. 15, S. 1; Plate 12) was 0.20m in length, 0.70m wide and 0.56m deep. It contained a single fill (7804). Pit 7805 (Fig. 15, S. 2) was 0.12m in length, 0.39m wide and 0.30m deep, with a single fill (7806). Pit 7807 (Fig. 15, S. 3) was 0.10m in length, 0.20m wide and 0.22m deep, with a single fill (7808). All fills were a brown-yellow sandy silt, with no inclusions or finds present.

Trench 80 (Fig. 16)

Trench 80 contained two features, pit 8003 and east-west aligned ditch 8005. Pit 8003 (Fig. 16, S. 15) was a relatively large round pit, measuring 1.16m in length, 0.73m in depth and excavated to 0.30m in width. It contained a single fill (8004) of red-brown sandy clay with moderate cobble-sized chalk inclusions. Ditch 8005 (Fig. 16, S. 15) measured 0.90m in width and 0.48m in depth and contained a single fill (8006) of brown sandy clay with infrequent chalk inclusions. Ditch 8005 cut pit 8003. On excavation, it was proposed that both features may have had a natural origin due to their sterile fills.

Trench 81 (Fig. 17)

Trench 81 contained a ditch (8103) on a northwest-southeast alignment, one ditch terminus (8107) and two post-holes (8106 and 8110). Ditch 8103 (Fig. 17, S. 10) measured 0.90m in width of 0.90m and 0.19m in and was disturbed by post-hole 8106. It contained a single fill

(8104) of dark red-brown silty clay which produced a Roman coin, a *nummus* of Maximinus Daia, issued in AD 310-312, Roman pottery and an oyster shell. Post-hole 8106 measured 0.75m in length, 0.36m in width and 0.22m in depth, and contained a single fill (8105) of mid-grey-brown silt clay plus some animal bone fragments. Ditch terminus 8107 (Fig. 17, S. 12; Plate 13) was 0.50m in width, 0.23m in depth and excavated to 0.80m in length. It contained two fills, a primary fill (8109) of dark red-brown silty clay and a secondary fill (8108) of grey-brown silt clay which included Roman pottery, an iron nail, ceramic building material, animal bone and an oyster shell. Post-hole 8110 (Fig. 17, S. 13) was cut into the end of Terminus 8107 and was circular in shape with a V-shaped profile. It was 0.30m in diameter and had a depth of 0.36m. Its single fill (8111) was a dark red-brown silt clay, with no finds recovered.

Trench 82 (Figs 18 and 19)

Trench 82 contained four ditches three on an east-west (ditch 8203, ditch 8205 and ditch 8207) and one on a northwest-southeast alignment (ditch 8209). It also contained one ditch terminus (terminus 8211) and one pit (pit 8213). The features in Trench 82 all correspond to areas of strong responses on the geophysical survey.

Ditch 8203 (Fig. 19, S. 7) had a regular U-shaped profile, measuring 0.6m in width and 0.18m in depth. It contained a single fill (8204) of mid-brown silty clay with frequent pebble-sized chalk inclusions and some animal bone. Ditch 8205 (Fig. 19, S. 11) had a regular U-profile and measured 1.00m in width and 0.28m in depth. It contained a single fill (8206) of dark reddish silty clay with frequent pebble-sized chalk inclusions and fragments of oyster shell, pottery and animal bone. Ditch 8207 (Fig. 19, S. 16), also U-shaped in profile, measured 0.58m in width and 0.33m in depth. It contained a single fill (8208) of dark brown silty clay with occasional charcoal and chalk inclusions, and fragments of pottery, animal bone and oyster shell. Ditch 8209 (Fig. 19, S. 23) was also U-shaped in profile, and measured 1.00m in width and 0.20m in depth. It contained a single fill (8210) of light brown silt clay with frequent pebble-sized chalk inclusions, and some pottery fragments. Ditch terminus 8211 (Fig. 19, S. 24; Plate 14) measured 0.85m in width and 0.18m in depth, and contained a single fill (8212) of dark brown silt clay with infrequent pebble-sized chalk inclusions, pottery fragments, animal bone and an iron nail. Finally, pit 8213 (Fig. 19, S. 22) measured 0.28m in length, 0.50m in width and 0.16m in depth and contained a single fill (8214) of dark orange-brown silty clay material with moderate pebble-sized chalk inclusions, pottery and oyster shell fragments.

Trench 83 (Fig. 20)

Trench 83 contained one northeast-southwest aligned ditch (8303). Ditch 8303 (Fig. 20, S. 5; Plate 15) had a U-shaped profile and measured 1.62m in width and 0.30m in depth. It was present as a clear linear response on the geophysical survey as the external ditch of a possible Roman enclosure. Ditch 8303 contained a single fill (8304) of dark orange-brown clay with frequent natural flint and occasional charcoal inclusions and animal bone fragments.

Trench 84 (Fig. 21)

Trench 84 contained a single ditch (8403) on a northeast-southwest alignment. Ditch 8403 (Fig. 21, S. 8; Plate 16) had a very irregular profile and a sterile fill (8404) and it may have formed in a similar way to the features investigated in Trench 80, representing geological variation rather than human activity. Ditch 8403 measured a maximum of 0.95 wide and 0.76m deep. Fill 8404 consisted of a brown sandy clay with moderate cobble-sized chalk inclusions.

Field walking

Field walking produced 46 individual finds. These have been mapped (Fig. 22) and are tabulated below by area (Tables 1 and 2) by finds number.

Table 1. Field walking finds (Field A)

Finds number	Co-ordinates (TA)	Material
A1	02880 21065	Glass
A2	02975 21107	Clay pipe
A3	02978 21107	Pot
A4	03053 21107	CBM
A5	02988 21060	CBM
A6	02964 21058	Pot
A7	02919 21016	CBM
A8	02959 21007	CBM
A9	02968 21003	CBM
A10	02999 20996	CBM
A11	03044 20993	Glass
A12	03050 20994	Pot
A13	03022 20970	CBM
A14	02998 20968	CBM
A15	02887 20974	Pot
A16	02950 20934	Pot
A17	02884 20850	CBM/flint
A18	02870 20846	CBM/flint

Finds number	Co-ordinates (TA)	Material
A19	02860 20775	Glass
A20	02907 20669	CBM
A21	02720 20695	CBM

Table 2. Field walking finds (Field B)

Finds number	Co-ordinates (TA)	Material
B1	02834 21036	Pot
B2	02811 21022	CBM
B3	02837 20995	Pot
B4	02835 20986	Clay pipe
B5	02833 20985	Pot
B6	02786 21009	Clay pipe
B7	02721 20959	Shell
B8	02721 20959	Pot
B9	02709 20900	Metal
B10	02692 20920	Pot
B11	02674 20937	Pot
B12	02518 20875	CBM
B13	02591 20779	CBM
B14	02593 20779	Flint
B15	02523 20852	Pot
B16	02584 20762	Shell
B17	02651 20667	Pot
B18	02573 20658	CBM
B19	02560 20673	Slag
B20	02603 20613	Pot
B21	02612 20588	Pot
B22	02493 20682	Clay pipe

B23	02493	20682	Pot
B24	02469	20706	Pot
B25	02459	20568	CBM

6 Artefact Record

Finds were recovered from both the excavation of features and from field walking. Those from field walking are noted by their find number (e.g. A1) as listed in Tables 1 and 2. Those from excavation are noted by their context number (e.g. fill 4104).

Flint by Ann Clarke

The five pieces of flint are all natural (three from field walking, one topsoil find and one from sample 15, fill 4405). Two are caused by pot-lid fractures and the others are irregular chunky flakes. These can be discarded.

Roman pottery by Phil Mills

There were 131 sherds, 1907g of pottery presented for assessment. This includes 91 sherds, 1475g, from stratified contexts and 24 sherds, 136g, recovered from environmental samples.

The material was studied following the pottery standard (Barclay *et al*. 2016) and recorded using the Warwick Museum/Oxford archaeology recording system (Booth 2000). Fabrics were assigned to classes: A (Amphorae), B (Black Burnished) , C (Calcareous tempered), E (Transitional, Early or 'Belgic'), F (Fine wares), G (Gritted wares), M (Mortaria), O (Oxidised), P (prehistoric wares), Q (White slip), R (Reduced), S (Samian), W (Whitewares) and Z (Saxon and later). Metrics recorded were number of sherds, NoSh, weight in grams, Wt, and minimum number of rims, MNR. Mean sherd weight. MSW, was calculated as Wt/NoSh. The assemblage catalogued in Appendix 5.

Dating

Graph 1 shows the date distribution for pottery with a given date range of 170 years or less. This distribution suggests that the main period of pottery deposition was from the mid-3rd to the 4th century.

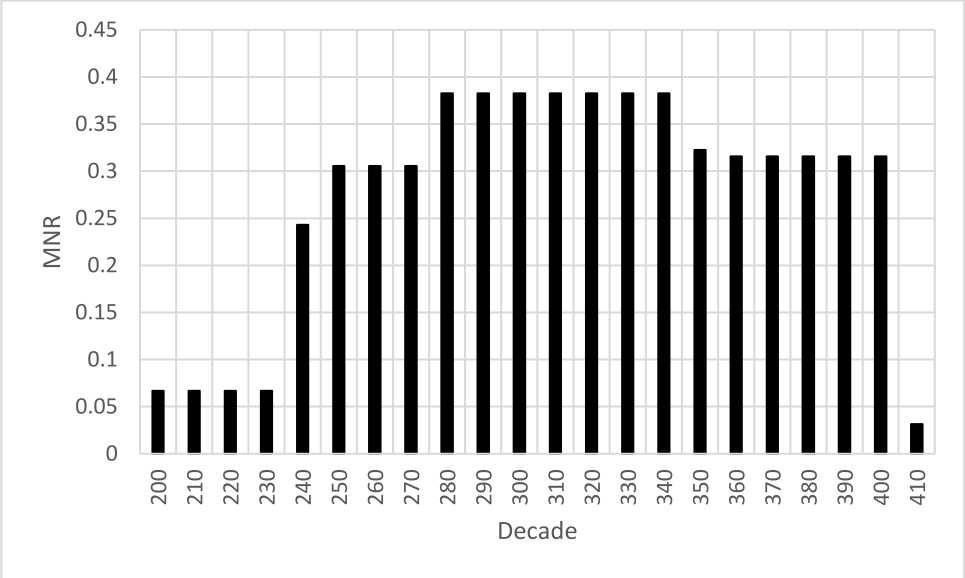
The earliest pottery is a probable central Gaulish samian body sheds, of AD 120-200 date from pit 4105 and pit 4207.

Later 2nd to mid-4th-century material includes a Dalesware (Tomber and Dore 1998 DAL SH) Dales type jar and an oxidized dr38 copy bowl of late 2nd or later date.

Mid-3rd-century or later forms include two black surface jars with strongly everted rims (c.f. Darling and Precious 2014 type 1244), a black surface bowl with sub bead rim (Darling and Precious 2014 type 2400) and a shell tempered simple rim dish. The latest pottery of late 3rd-

century or later date is a Swanpool black colour coat (Tomber and Dore 1998 SWN CC) developed bead and flange rim bowl.

The pottery suggests that the site is mainly of mid to late 3rd-century to 4th-century date although the absence of any material definitively with a 4th-century start date suggests the site does not survive long into that century.



Graph 1. The date distribution for pottery rims with a date range of 160 years or less

Taphonomy

The breakdown of the stratified pottery by context type is shown in Table 3. Material was recovered mainly from ditches and pits which is in line with a rural site. The MSW is perhaps to the higher end of the median range for such groups.

Table 3. Roman pottery by context type

Context type	No%	Wt%	MNR%	MSW
Ditch	68.1	62.7	50.0	14.92
Pit	27.5	29.4	40.0	17.36
Unknown	4.1	7.9	10.0	29.00
N/ AVG	***91***	***1475***	***10***	***16.20***

Supply

Table 4 shows the breakdown of the pottery by ware class.

Class C, calcareously temped fabrics are at 28% and comprise Dalesware and late Roman shell tempered wares.

Class F, finewares, are very high at 14%, exaggerated by eleven sherds from a single red slip vessel from ditch terminus 8107, fill 8108. The other fine ware is Swanpool colour coat.

Class G, gritted wares, are at 4% and include Lincolnshire grog tempered wares.

Class M, Mortaria, is at 1% and is represented by a South Carlton (Tomber and Dore 1998 SOC WH) product.

Class O, oxidized wares are at 1% which is in line for a late pottery group.

Class R, reduced wares, are at 50% and unsurprising largely comprised products of the North Lincolnshire industries.

Class S, samian, is at 2% and comprised body sherds of central Gaulish samian only.

Table 4. Roman pottery by ware class

Class	Ware	No%	Wt%	MNR%
C	Calcareous	27.5	28.3	10.0
F	Fine	14.3	13.2	10.0
G	Gritted	4.4	2.2	
M	Mortaria	1.1	5.4	
O	Oxidised	1.1	3.9	
R	Reduced	49.5	44.6	80.0
S	Samian	2.2	2.4	
	N	91	1475	10

Function and finewares

Table 5 shows the functional analysis for the stratified pottery. Jars are at 70%, with table wares at 30%, which puts the site firmly in the range for rural settlements (Evans 2001, fig. 4). Finewares and samian are at 16% which is very high for a rural site (Evans 2001, fig. 10), although this is exaggerated by eleven sherds from one vessel and the small sample size.

Table 5. Functional analysis

Function	J	B	*D*	*Total*
MNR	70.0%	20.0%	10.0%	***10 rims***

J – jar; B – bowl; D - dish

Discussion

This is a small group of Roman pottery. There appears to be some 2nd-century material cantered around Trenches 41 and 42, with the rest of the material suggesting a mid to late

3rd-century date. The material largely reflects a rural settlement, although there is a high level of fineware, albeit somewhat exaggerated by a large number of sherds from a single vessel.

No further work is recommended on this group, although if there is any further archaeological mitigation, the material should be included in any subsequent analysis report.

Medieval and post-medieval pottery by Chris Cumberpatch

The medieval and later pottery assemblage consists of thirteen sherds of pottery weighing 201g. The data are summarised in Table 6.

The pottery from the evaluation trenches came from the subsoil and from the fill (8214) of a pit 8213. The sherd from the subsoil is of later medieval or early post-medieval type. The sherd from fill 8214 is a small piece of transfer printed (TP) Whiteware of mid to late 19th-century type. The transfer printed design could not be identified.

The range of wares represented in the field walking assemblage is wide, spanning the early post-medieval to recent periods. Early sherds include a sherd of Cistercian ware (B15) and two sherds in unidentified sandy fabrics (post-medieval Sandy ware; A15 and Green Glazed Sandy ware; B21).

Early modern pottery consists of two sherds of Mottled Coarseware (A3 and B17), a distinctive variant of the commoner Brown Glazed Coarseware distinguished by its mottled glaze, and a sherd of Late Blackware (B20). Both types are typical of 18th-century pottery assemblages with Late Blackware in particular being a common find of sites of all types. Mottled Coarseware owes something to the finer Mottled ware in its appearance although vessel forms are typically bowls and large dishes rather than cups and mugs.

A sherd of Brown Glazed Coarseware (A12) from a large bowl or pancheon is of 18th or 19th-century date; the type is ubiquitous on sites or early modern and recent date although individual vessels are difficult to date with any accuracy.

A sherd of porcelain B3, the footring base from a large plate or serving dish is unusual in that the decoration, hand-painted blue panels and lines, was rather crudely executed. It is probably of British manufacture rather than Chinese but the date is unclear; a 19th-century date is probable but a mid/late 18th-century date cannot be ruled out.

The remaining sherds are of 19th-century date and consist of a sherd of transfer-printed Whiteware A6, a sherd of Unglazed Red Earthenware B5 and a sherd of Cane Coloured ware A3. Although the latter is a common type in 19th-century assemblages, this particular example is slightly unusual in having oddly partial glaze internally.

Given that this later pottery does not relate directly to the archaeological features excavated, no further work is required.

Table 6. Medieval and later pottery

Context	Easting	Northing	Type	No	Wt	ENV	Part	Form	Decoration	Date range	Notes
8214			TP Whiteware	1	2	1	BS	Hollow ware	U/ID TP design ext	M – LC19th	
Subsoil			Late Medieval Sandy ware	1	40	1	BS	Hollow ware	Clear glaze int & partially ext	LC14th – C15th?	A hard, even dark red fabric w/ fine quartz & red grit; needs positive identification
A3	02978	21107	Mottled Coarseware	1	5	1	Base	Bowl	Mottled brown glaze int only	C18th	
A3	02978	21107	Cane Coloured ware	1	12	1	BS	Hollow ware	Odd partial glaze int	C19th	
A6	02964	21058	TP Whiteware	1	3	1	Rim	Bowl	Complex grid & flower pattern int & ext	M – LC19th	Could be Pearlware
A12	03050	20994	Brown Glazed Coarseware	1	9	1	Base	Bowl/pancheon	Brown glaze int only	C18th – C19th	
A15	02887	20974	Post-medieval Sandy ware	1	20	1	Rim	Bowl	Decayed greenish glaze int only	LC15th – C16th?	A curved, clubbed rim; a fine red fabric w/ thin white streaks w/ fine quartz & red grit
B3	02837	20995	Porcelain	1	22	1	Footring base	Plate	Hand-painted dark blue geometric decoration; crudely applied	C19th?	To crude to be Chinese?
B5	02833	20985	Unglazed Red Earthenware	1	24	1	Rim	Horticultural vessel	U/Dec	C19th	A short collared rim w/ a flat top; more elaborate than a simple flowerpot
B15	02523	20852	Cistercian ware	1	20	1	BS & handle	Cup/tyg	Dark brown glaze ext; unglazed int	c.1450 – c.1600	
B17	02651	20607	Mottled Coarseware	1	8	1	BS	Bowl	Mottled brown glaze int only	C18th	Hard, fine red fabric
B20	02603	20613	Late Blackware	1	11	1	BS	Hollow ware	Black glaze int & ext	C18th	
B21	02612	20588	Green Glazed Sandy ware	1	25	1	BS	Dish/bowl	Dark green glaze int; heavily abraded	LC15th – C16th?	A hard dark red fabric w/ fine quartz & round red grains
			Total	**13**	**201**	**13**					

The ceramic building material and burnt clay by Phil Mills

There were 39 fragments, 873g, of material sent for assessment, including three fragments, 126g, of burnt clay of which one fragment, 7g, was collected as a bulk find and three fragments, 5g, were retrieved from environmental samples (Table 7). There were seven fragments, 202g, of ceramic building material (CBM) collected as bulk finds from stratified contexts and eight fragments, 17g, recovered from environmental samples.

The material was examined by context with material grouped by fabric type and forms identified where possible. Unidentifiable fragments were classed as 'B/T' (Brick/ tile). Roman CBM which could not be differentiated between tegula, or brick was recorded as 'flat'. Metrics recorded were number of fragments, No, weight in grams, Wt, and no of corners, CNR. Complete dimensions were recorded in mm. The complete catalogue is shown in Table 7.

The burnt clay (fabric D00) was in the form of unidentifiable fragments.

The identifiable Roman CBM (fabric T00) included an imbrex fragment and a flat fragment, 20mm thick with a signature made by three straight finger lines. This likely comprises rural scatter material brought to the site for purposes other than building.

Later material (fabric TZ00) includes fragments of brick and plain tile which could be 14th century or later in date and fragments of field drain of likely 19th century or later date. This is consistent with rural scatter from agricultural management in the medieval and post-medieval period.

No further work is needed on this group.

Table 7. The CBM and burnt clay catalogue

Area	Context	Sample no	Fabric Code	Function	NoSh	Wt	Thickness	Comments
30	3077		TZ00	B/T	1	17	0	
40	4005	18	D00	Unidentified	2	5	0	
44	4405		TZ00	B/T	3	25	0	
44	4405	15	TZ00	B/T	1	7	0	
72	7204	23	T00	B/T	1	3	0	
81	8108		T00	B/T	1	6	0	
81	8108		T00	Imbrex	1	21	0	
82	8208		D00	Unidentified	1	7	0	
82	8208		T00	Flat	1	133	20	3 finger lines straight
83	8304	1	T00	B/T	4	7	0	
	A10		TZ00	Tile	3	189	0	
	A13		TZ00	Tile	1	52	0	

Area	Context	Sample no	Fabric Code	Function	NoSh	Wt	Thickness	Comments
	A14		TZ00	Tile	1	21	0	
	A17		T00	B/T	1	7	0	
	A18		TZ00	Field Drain	1	42	0	
	A21		T00	B/T	1	3	0	
	A4		TZ00	B/T	1	9	0	drain?
	A5		TZ00	Tile	1	14	0	
	A7		T00	B/T	1	7	0	
	A8		TZ00	B/T	1	40	0	
	A9		T00	B/T	1	5	0	
	A9		TZ00	Field Drain	1	25	0	
	B12		TZ00	Tile	1	44	0	
	B13		TZ00	Brick	1	18	0	
	B18		TZ00	B/T	1	9	0	
	B2		TZ00	Tile	5	112	0	
	B25		TZ00	Tile	1	45	0	

The other finds by Gail Drinkall

What follows is the initial assessment of the other finds. Subsequently, conservation work was undertaken on the nails and coin. This was followed by a full report of these items (see below).

An assemblage of 86 items was recovered during trial trench evaluation (Appendix 6), along with a further five items collected during field walking. The material was examined and quantified, and the details recorded onto an Excel spreadsheet catalogue for the site archive. This includes an assessment of the condition of the assemblage; dating (where possible); recommendations for any further work and retention or discard of the finds assemblage. The following report has been prepared in line with CIfA standards and guidance (2014) and is compliant with MoRPHE (Historic England 2015) guidelines for project management.

Fill 4208: fill of grave cut 4207

Seventy-eight nails were found in association with inhumation SK2. The nails have been sorted and re-bagged according to size. Although they are in a stable condition they will need x-radiography (in their size range groups) to provide a permanent, archivally stable record because they will deteriorate over time, regardless of storage conditions. Mineralised wood was observed on most of the shanks indicating that some form of wooden receptacle was present. It may be possible to successfully identify the wood species. The nails are thought to be Roman: identification of the pottery during the analysis stage will provide additional information. Further work is required to catalogue the assemblage and prepare a report with illustrated examples (see full reporting below).

Fill 5205: fill of ditch 5204

An incomplete kick-up from the base of post-medieval, possibly 19th-century, glass bottle was recovered.

Fill 8104: fill of ditch 8103

A corroded copper alloy coin (SF 1) appears to be Roman. This has been referred to an appropriate specialist and is reported below.

Fill 8108: secondary fill of terminus 8107

A nail shank was retrieved from this context. It is not of recent manufacture and could be Roman.

Fill 8208: fill of ditch 8207

The iron object from this context is heavily corroded and requires x-radiography for identification.

Fill 8210: fill of ditch 8209

A small sherd of colourless glass with frequent seeds but with an even thickness may be of recent manufacture and could be window glass. More information is required about this context and the possibility of intrusive material being present.

Fill 8212: fill of terminus 8211

Two nails shanks were found, neither are of recent manufacture and could be Roman.

Subsoil

A corroded iron implement or tool was recovered. X-radiography is required to enable identification but given the nature of the deposit it is not thought to be necessary.

Field walking

Four items were collected, two recent sherds of glass, an iron fitting and a nail. None of these require further work.

Condition of the assemblage

Items of glass are in a stable or good condition with no degradation and only minor surface iridescence and no spalling. The ironwork is corroded but in a stable condition. The nails from grave fill 4208 have significant mineralised organic remains. The non-ferrous coin requires conservation because it is corroded.

Significance of the assemblage, statement of potential and recommendations

This assemblage comprises a significant group of iron nails associated with the human remains in pit 4207 (fill 4208) and a possible Roman coin. These items require a range of further work including species identification, cleaning, x-radiography, cataloguing, illustration of a selection of examples and reporting. An iron object from ditch 8207 (fill

8208) cannot be identified or dated without an x-ray. These items all have the potential to inform the site narrative. The further work recommended has since been undertaken (see below and Appendix 7).

The remaining items are fragmentary and/or recent and do not require further work. The material collected during field walking and the glass bottle base can be discarded on completion of the project.

Coffin nails: analysis report by Gail Drinkall

Seventy-eight iron nails associated with inhumation SK2 have been subject to further analysis.

The nails are highly corroded but stable, though some have broken into smaller pieces since their initial assessment. Future storage should be in an airtight container at a stable temperature and below 20% relative humidity (RH) to inhibit further corrosion. The RH should be controlled by active silica gel which is regularly monitored and regenerated as required. The mineralised wood ranges from being hard and stable to powdery and fragile.

Although there is no three-dimensional locational data for the nails in this grave they were noted as being distributed around the body. They are therefore assumed to represent the remains of a coffin rather than a wooden receptacle accompanying the deceased.

The nails have been classified using Manning's (1985, 134-137) typology which uses the form of the head and shape of the shank, with a subdivision based on length. Where it was possible to determine shape and form, all the nails fall within category Type 1b: less than 150mm in length, with square sectioned shanks, and rounded or sub-rectangular heads. This nail type was ubiquitous in Roman Britain, being found in quantities on a range of sites.

Of the 78 nails recovered, 36 are complete, 20 have their tips missing, 4 are incomplete but with heads intact and 18 are shank fragments. Eleven shanks are clenched. Complete or near complete nails range in length from 32 to 93mm, with 32 of these measuring between 45 and 60mm. Four are more substantial with lengths of 75mm (nail D), 80mm, 88mm and 93mm (nail F). The majority of shanks have traces of mineralised wood: enough structure survived on two nails (nail F and unspecified) to identify the wood as oak (*Quercus* spp.). With the exception of one nail, all have the grain running transverse to the shank. Nail B, however, has two sections of wood: one with the grain transverse to the shank below the head, and another with the grain running parallel to the shank down to the tip. The widespread and possible exclusive use of oak was noted at Lankhills (Powell 2010, 330).

Nails are usually the only surviving evidence for coffined burial and at Horkstow Lane, SK2 is the only articulated inhumation burial. Evidence for coffin construction has to be sought from sites where coffined burial occurs in greater numbers, for example Lankhills in Winchester (Booth *et al*. 2010), Butt Road in Colchester (Crummy *et al*. 1993) and at the cemetery associated with the A1 roadside settlement at Bainess, North Yorkshire (Speed and Holst 2018). Analysis of Roman woodworking techniques has shown that the standard

approach to coffin construction was the use of sawn oak planks and iron nails (Watson 2003, 33), with an arrangement consisting of a head and foot board placed on a base and attached with nails driven from the base upwards. The two sides, generally extending the full length of the coffin, were attached to the base at the corners. There are, however, always variations in construction, possibly dictated by the timber available or personal specification, for example the small number of unusually large coffins at Lankhills (Powell 2010, 328).

There is little constructional evidence for this coffin. Nail B, with two sets of mineralised wood, secured two planks of wood, but whether this was at the corners, base or lid cannot be resolved. Clenched nails, those that have been driven through two thicknesses of wood to act as a staple, indicate the use of joints as would be expected.

Roman coin by Murray Andrews

One Roman coin was found: it is complete and in fair condition and is described in the catalogue below.

The sole Roman coin from the site is a *nummus* of Maximinus Daia, issued at the mint of Londinium in AD 310-312. Late Roman *nummi* are fairly common finds in Lincolnshire, reflecting their ubiquitous circulation as low-value currency throughout the province of Britannia (Reece 1995), and 4th-century examples have been recorded from the county during excavations at the Denton villa (Greenfield 1971, 38-39) and the walled town at Horncastle (Field and Hurst 1983, 74-75). Examples in the name of Maximinus Daia, however, are somewhat uncommon: just five examples are known among 12,595 coins from the Sacred Spring at Bath (Somerset; Walker 1988), although isolated Lincolnshire finds have been recovered during metal-detecting at Aslackby (PAS LIN-FED6DF), Sleaford (PAS LIN-2CA100), and Wragby (PAS DENO-BE3387). The Horkstow *nummus* would seem to belong to this emerging group, and hints at Roman activity at the site during the first decades of the fourth century.

The Roman coin from Horkstow is a significant element of the archaeological data from the site, and contributes to the dating of discrete contexts and phases. In addition, it supplies independent material evidence for commerce and exchange in North Lincolnshire during the late Roman period.

No further cleaning or identification is required. Any further publication should include a brief standalone note describing the coin in its regional and national context, and should be accompanied by a detailed catalogue entry.

Catalogue

- Copper alloy *nummus* of Maximinus Daia. RIC VI Londinium 209b. Obv: IMP MAXIMINVS P F AVG, laureate and cuirassed bust r. Rev: GENIO POP ROM / - / * // PLN, Genius standing l. holding patera and cornucopiae. Mint of Londinium. Die axis 180°, diameter 23.5mm, weight 3.59g. Wear 2/2, corrosion 2/2. Date 310-312 *SF1, fill 8104, ditch 8103*

Slag by Gerry McDonnell

A single sample of slag-like fragment was recovered from the field walking (B19) and was visually examined and analysed by Hand-held X-Ray Fluorescence (HH-XRF).

The slag lump weighed 10g and one surface was smooth and showed evidence of flow. The underside appeared to be lining material. The slag was a piece of slagged lining, and the smooth surface was analysed by HH-XRF. The results indicated a slag rich in calcium, probably derived from the lining and a minor manganese peak. This suggest that the slag may have derived from smelting.

No further work is required on the sample, but it may indicate iron smelting in the vicinity. The site lies on chalk and there are no superficial deposits close-by, and therefore the smelting activity could be some distance away.

Clay tobacco pipe by Zoe Horn

This is a small assemblage comprising four stem fragments from field walking.

Broken fragments of clay pipe can be useful as dating evidence the bore size of pipe stems decreased over time, so late 16th or early 17th-century pipes would have a stem bore diameter of around 9⁄64 inch (3.6 mm), but late 18th-century pipes would have a bore diameter of around 4⁄64 inch (1.6 mm). The size of bowls also increased over time as tobacco became a cheaper commodity, and later pipes tend to be more decorated

Unfortunately no makers can be specifically identified, and no place of manufacture can be acknowledged. This assemblage can be discarded.

- A2 - 1 x stem fragment, 18th century due to the stem bore. No maker's mark present.
- B4 - 1 x stem fragment, 18th century due to the stem bore. No maker's mark present.
- B6 - 1 x stem/bowl junction with spur present, 18th century due to the stem bore. No maker's mark present.
- B22 - 1 x discoloured or stained stem fragment, 18th century due to the stem bore. No maker's mark present.

7 Environmental Record

Carbonised plant macrofossils and charcoal by Diane Alldritt

A total of 25 environmental sample flots were examined for carbonised plant macrofossils and charcoal. No charred remains were recovered from the sample retents.

The bulk environmental samples were processed by ASWYAS using a Siraf-style water flotation system (French 1971). The samples were 10 to 40 litres 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).

The environmental samples produced trace amounts of carbonised plant remains <2.5ml in volume consisting of scarce finds of degraded cereal grain in amongst crushed charred detritus below the level of identification. Modern material was present 10ml up to 200ml, mostly root detritus and modern straw, with occasional finds of modern seeds indicating bioturbation and plough disturbance was taking place. Small amounts of clinker and coal were present reflecting post-medieval activity in the vicinity. Snail shell, both burrowing and non-burrowing types were prevalent throughout the samples and provided a further probable source of bioturbation. The results are given in Appendix 8 and samples containing significant material discussed further below.

Ditch terminus 4205 (Trench 42) produced a single degraded grain of *Triticum* sp. (wheat) possibly emmer or spelt type, mixed with modern straw.

Pit 4207 (Trench 42) contained a small cache of *Triticum* sp. (wheat) possibly spelt or bread type, trace finds of *Hordeum vulgare* sl. (barley) and indeterminate cereal grain and a single *Chrysanthemum* sp. (crown daisy) weed seed, mixed together with modern straw and snail shell. This pit may have been an area used for waste disposal from cereal processing and drying or other domestic burning activity.

Ditch 8103 (Trench 81) contained a thin scattering of poorly preserved cereal grain, including *Avena* sp. (oat) and barley type, possibly residual or mixed from nearby burning.

Ditch 8205 (Trench 82) contained a single degraded grain of *Triticum aestivum* (bread wheat) mixed with modern straw, whilst ditch 8209 had two grains of barley, possibly residual or plough mixed remains from burning occurring nearby.

The environmental samples produced trace quantities of degraded cereal grain with the greatest recovery of remains focused in Trench 42, in particular pit 4207 which may have been a domestic waste pit. Trenches 81 and 82 also contained trace quantities of degraded grain suggesting there may also have been some burning activity occurring in these locations. The remaining trenches were largely sterile with finds of clinker, coal and modern straw, probably reflecting post-medieval ploughing and other activity.

No further analysis of these flots is recommended.

Human bone by Elina Petersone-Gordina and Malin Holst

SK2 was found in Trench 42, in a supine, extended position and with evidence that the body had originally been placed in a coffin. In the same context, there were 27 fragments of disarticulated bone, which became apparent during skeletal analysis. A summary of all articulated burials and disarticulated bone can be found in Table 8.

Table 8. Summary of the articulated burial and disarticulated human bone

Skeleton number	**Burial position**	**Position of hands**	**Period**	**Artefacts and Inclusions**	**Orientation (head first)**	**Preservation**	**Completeness**
2	Supine, extended	Arms and hands by the sides	Roman	Iron nails, animal bone	S-N	Poor	65%
Disarticulated bone							
Context	**ID bones**		**Total ID bones (n)**	**Total number of bone fragments**	**MNI**	**Date**	
4208	Maxillary second and third molars, mandibular second molar; right frontal bone; left temporal and parietal bones; occipital crest; right tibia shaft; left femur shaft		9	27	0	-	

Aims and objectives

The skeletal assessment aimed to determine age and sex, as well as any manifestations of disease from which the individual may have suffered.

Methodology

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

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 the inhumation burial is given in Table , with a detailed catalogue provided in Appendix 9.

Table 9. Summary of osteological and palaeopathological data

SK No	Grave type	Preservation*			Age	Sex	Stature (cm)	Dental Pathology	Pathology
		SP	F	C					
2	Inhumation	5	Sev	65%	OMA	M	162.8	Calculus, caries, periodontal disease, AMTL, DEH	Healed fracture to the right clavicle and two right rib shafts; DJC and OA in the spine and hips; cleft neural arch of atlas; sternum congenitally fused to manubrium

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)

AMTL – ante-mortem tooth loss

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.

SK2 was mostly complete, with around 65% of skeletal elements present. These included the skull vault, mandible and maxilla, vertebral column, shoulders, fragmentary and incomplete ribs, pelvis, arms, legs, and fragmentary and incomplete hands and feet. The skeleton had experienced severe fragmentation, and the surface preservation was poor, with erosion of the bone surface sometimes resulting in considerable loss of surface detail and modification of the bone profile (see Table 9).

Minimum number of individuals

A count of the 'minimum number of individuals' (MNI) recovered is carried out as standard procedure during osteological assessments of inhumations in order to establish how many individuals were 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, such as the hip joints and cranial elements.

The inhumed skeletal remains from the articulated burial represented a minimum of one adult individual, based on the presence of single major skeletal elements of the same side. The presence of disarticulated remains became apparent as SK2 was analysed when additional long bone and skull fragments were identified. The MNI of the disarticulated remains could not be calculated, as there were no major skeletal elements such as joints; however, some of the long bone fragments matched, revealing a clear presence of a right proximal tibia shaft and the left femur shaft, as well as several identifiable skull fragments and teeth, which duplicated the same skeletal elements in the articulated SK2. The total MNI for this assemblage (the articulated and disarticulated remains) is therefore two, based on duplicated skeletal elements.

Assessment of age

Age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Mays and Cox (2000). Age estimation relies on the presence of the pelvis and uses different stages of bone development and degeneration in order to calculate the age of an individual. Age is split into a number of categories, from foetus (up to 40 weeks in utero), neonate (around the time of birth), infant (newborn to one year), juvenile (1-12 years), adolescent (13-17 years), young adult (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years), mature adult (ma; 46+) to adult (an individual whose age could not be determined more accurately as over the age of seventeen).

In the single inhumed individual from this assemblage, the age was determined using degeneration of the pubic symphysis. According to stages of degeneration, SK2 was between 36 and 45 years of age, in the age category of an old middle adult.

The disarticulated bones contained the remains of an adult individual, based on the completely developed permanent teeth and the robusticity of long bones. The subtle dental wear of the molars might suggest that the individual (or individuals) was in the younger, rather than the older adult age categories.

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 age.

The sex of SK2 (old middle adult) was determined to be male, based on the morphology of the pelvis, particularly the pubic area.

It was not possible to determine biological sex for the disarticulated remains.

Metric analysis

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).

Based on the right femur of SK2, their stature was calculated to be 162.8cm. It has to be considered, however, that the bone had been broken into two fragments, and therefore the measurement might be slightly inaccurate. No other long bone in this individual had better, or similar preservation to check the measurement of the right femur against.

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 indices for both femora and tibiae in this individual. The platymeric indices for the right and left femora fell into the platymeric (broad or flat, 77.2 and 75.8, respectively) range. The eurycnemic indices for the right and left tibiae fell into the eurycnemic (rounded) range (74.0 and 71.4, respectively).

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.

Many of the non-metric traits in SK2 were not observable due to poor or incomplete preservation. Of the cranial traits that were observable, three were present (right parietal foramen, left accessory palatine foramen, and left mandibular torus, Plate 17). The present post-cranial traits in this skeleton included plaque in both proximal femora and hypotrochanteric fossa in the right proximal femur. Non-metric traits were not observed in the disarticulated remains from this site.

Pathological analysis

The analysis of skeletal and dental manifestations of disease can provide a vital insight into the health and diet of past populations, as well as their living conditions and occupations. 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 and teeth recovered were examined macroscopically for evidence of pathological changes.

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 in many of these cases the individual affected will have been unaware of their condition. Moreover, 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) and may provide information on maternal health (Sture 2001).

Cleft neural arches

The two halves of the neural arch normally surround and protect the spinal cord, but they can fail to unite during development leaving a cleft in the back of the vertebra. However, the spinal cord remains protected as the gap is bridged by a tough fibrous tissue (Barnes 1994, 117-120). Cleft neural arches are most common at the border regions between the vertebra types, especially in the sacrum where the entire bone may be involved (Barnes 1994, 119-120). Cleft sacral arches have often been termed ‘spina bifida occulta’ in the palaeopathological literature, but the causes of cleft arches and true spina bifida are quite different, and cleft neural arches are not related to the more severe spina bifida cystica (ibid).

SK2 had a unilateral right aplasia (congenital absence) of the right posterior arch of the atlas (the first cervical vertebra), which had resulted in a wide, asymmetrical cleft (Plate 18; Barnes 2012, 73). This is a relatively common congenital defect and would not have caused much, if any discomfort during the individual’s life (ibid.).

Manubrium-Mesosternal Joint Fusion

Apart from the cleft neural arch in the atlas, the manubrium had completely fused to the sternum in SK2 (Plate 19). The bones may become partially or completely fused to one another because of a failure of the cartilaginous manubrium-mesosternal joint to develop (Barnes 1994). According to Barnes (1994), fusion can interfere with optimum respiration and has been associated with lung infections; however, there were no signs of infection on any of the affected individuals' ribs.

Trauma

The evidence for trauma in archaeological populations is restricted to that visible in the skeletal remains, unless soft tissue is preserved (Roberts and Manchester 2005, 85-86). Therefore, most of the soft-tissue injuries sustained by archaeological populations will be invisible, although occasionally soft tissue injuries can be inferred through ossification of the tissues at the site of damage, known as myositis ossificans (ibid). Much of the evidence for trauma in archaeological populations focuses on fractures to the bones (Roberts and Manchester 2005, 84-85), although long-standing well-healed fractures may be hard to detect (Jurmain 1999, 186).

Ante-mortem injuries occurred during life and show evidence for healing, whereas peri-mortem injuries occurred around the time of death and consequently no evidence for healing will be seen. Peri-mortem injuries did not necessarily occur at the instant of death. It takes time for evidence of healing to be visible in the bone following an injury, and also for bone to lose the physical characteristics it had in life following death. Therefore 'peri-mortem' really refers to a three-week window either side of death (Roberts and

Manchester 2005, 114). It is impossible to determine from the macroscopic appearance of the bone whether an injury occurred a week before the person died, or minutes before they died; or whether the injury was caused the day or a week after they had died. Distinguishing between peri-mortem trauma and post-mortem damage can be difficult. Generally, post-mortem breaks will have a paler surface than the surrounding bone and broken edges will usually be perpendicular to the bone (Roberts and Manchester 2005, 114-116; Lovell 1997, 145; Sauer 1998). Recent post-mortem breaks are usually easily distinguished but breaks that occurred while the skeleton was in the burial environment and long before the skeleton was excavated may be much harder to identify as such.

Ante-mortem fractures

SK2 showed evidence of a healed fracture in the mid-shaft of the right clavicle, and two right rib shafts (Plate 20). According to Wedel and Galloway (2014), mid-clavicular fractures often occur as a result of accidental falls from a moderate height, such as from a horse.

Rib fractures can occur as a result of a direct blow or through a fall (Roberts and Manchester 2005, 105; Galloway 1999a, 107). Although coughing can also cause rib fractures (Roberts and Manchester 2005, 105), the latter is more common in elderly individuals (Dandy and

Edwards 2003, 161). Isolated rib fractures usually heal well without active treatment (ibid), which was also the case in SK2. In SK2, fractures occurred in the central ribs, in their midshafts, but due to poor preservation, it was not possible to identify which ribs were involved. In comparison, Galloway (1999b, 107) observed that most modern rib fractures occur in the sixth to eighth ribs.

Since both types of fractures observed in SK2 may result from a fall, it is possible that they occurred during a single incident, which the individual survived without significant complications.

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 disease 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 differently, and it is the type of lesion, together with the distribution of skeletal manifestations, which determines the diagnosis (Rogers 2000, Roberts and Manchester 2005).

Degenerative joint changes

The most common type of joint disease observed tends to be Degenerative Joint Changes (DJC). DJC is 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). Degenerative changes to the vertebral bodies were recorded when osteophytes (bony outgrowths) were present around the margins or on the body surfaces, coupled with porosity of the body surfaces (Rogers 2000).

In SK2, degenerative changes affected vertebral bodies from the sixth thoracic to the first sacral vertebra, expressed as Grade 1 or 2 osteophytes, and Grade 1 or 2 porosity. Osteophytes and porosity were also recorded in rib facets of three mid-thoracic vertebrae. Unfortunately, most vertebral facets in the lower thoracic and lumbar vertebrae were not observable due to post-mortem damage or loss.

In SK2, slight degenerative changes (Grade 1 osteophytes and porosity) were observed in the medial clavicle, right scapula glenoid, and right humerus, as well as the left hip.

Osteoarthritis

Osteoarthritis (OA) is a degenerative joint disease of synovial joints characterised by the deterioration of the joint cartilage, leading to exposure of the underlying bony joint surface. The resulting bone-to-bone contact can produce polishing of the bone termed ‘eburnation’, which is the most apparent expression of OA. Other features associated with degeneration of the joint include osteophytes (bone formation) on the surface or around the margins, porosity on the surface, and the development of cysts (Rogers 2000; Roberts and Manchester 2005).

OA is frequently associated with increasing age but can be the result of mechanical stress and other factors, including lifestyle, food acquisition and preparation, social status, sex and general health and body weight (Larsen 1997; Roberts and Manchester 2005). OA was recorded as present when at least three of the features associated with OA were present (osteophytes, porosity and eburnation); eburnation, even if occurring alone, was always considered to be indicative of OA (Roberts and Manchester 2005).

Slight OA of the spine affected two cervical vertebral facets in SK2 (inferior left facet of the second, and superior left facet of the third cervical vertebrae). The condition was not observed anywhere else in the spine.

In SK2, joint changes related to OA (grade 2 osteophytes, and grade 1 porosity and eburnation) were observed in the right hip. Given the age of the individual, the joint changes were most likely due to age-related wear and tear.

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).

A single Schmorl's node was observed in the inferior body of the eleventh thoracic vertebra. No related changes were observed in the opposite vertebral body (superior to the twelfth thoracic vertebra), although the surface was eroded and therefore difficult to assess.

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).

SK2 had most teeth present, although all maxillary teeth were loose due to very poor preservation of the alveolar bone. This allowed assessment of dental health and hygiene during this individual's lifetime.

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 (ibid, 64).

In SK2, calculus deposits affected ten mandibular teeth and ranged in severity from flecks to medium, with medium deposits found on two posterior mandibular teeth. The presence of calculus on the teeth of this individual suggests poor oral hygiene and/or specific dietary patterns. Because of the poor preservation, it is possible that heavier deposits affected other teeth but are no longer observable.

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).

One tooth was affected by caries in SK2. The lesion in the right maxillary first molar was so large that only the roots had remained, with the whole crown destroyed. In the absence of alveolar bone, and with most of the tooth lost some doubt remains if the affected tooth is indeed the first molar. No other teeth were affected by caries in this individual.

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).

SK2 had lost at least three teeth during their lifetime (all three left maxillary molars). Unfortunately, the alveolar bone of the maxilla was too poorly preserved for analysis of the alveoli of all three right molars, and it is therefore not clear if the missing two molars were lost ante- or post-mortem.

Due to the age of this individual, it is possible that conditions like periodontal disease and/or caries were responsible for the teeth being lost during life. Indeed, periodontal disease was also observed in this individual.

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 results in exposure of the tooth roots (ibid, 74).

In SK2, periodontal disease affected anterior and posterior mandibular teeth, and the condition was severe. Although calculus might have been among the causes of periodontal disease in this individual, a softer diet might also have been a factor (Barmes, 1977, Cutress *et al*., 1982), a possibility supported by moderate tooth wear for the estimated age. Periodontal disease was not observable in the maxilla due to poor preservation.

Dental enamel hypoplasia

Dental enamel hypoplasia (DEH) is the presence of lines, grooves or pits on the surface of the tooth crown and occurs as a result of defective formation of tooth enamel during growth (Hillson 1996). Essentially, they represent a period when the crown formation is halted, and they are caused by periods of severe stress, such as episodes of malnutrition or disease, during the first seven years of childhood. Involvement of the deciduous (milk) teeth can indicate prenatal stress (Lewis 2007). Trauma can also cause DEH formation, usually in single teeth.

In SK2, DEH affected three mandibular teeth (the right and left canines, and the right first premolar), and the lesions were in the form of a single line.

Funerary ritual

SK2 and the disarticulated remains were found together. Towards the northern boundary of the site, along the ridge of higher ground, earlier fieldwalking and metal detecting activities had uncovered a 3rd-century Roman coin hoard, as well as sherds of Roman pottery. Approximately two miles to the northeast of Horkstow Road at the Wren Kitchen site, numerous Iron Age and Roman features and finds have been uncovered during previous archaeological surveys and excavations, including a 2nd to 3rd-century Romano-British settlement (Golby *et al.* 2020) and three Roman inhumations (Petersone-Gordina and Holst 2021).

SK2 from Horkstow Road had been interred in an extended, supine position, and oriented from south to north. Likewise, at the nearby Wren Kitchens site, SK1 and SK2 were both aligned north to south, although their positions varied (Petersone-Gordina and Holst 2021). A north to south (or inverted) burial orientation seems to have been favoured among Roman rural burials, compared to more formal Roman cemeteries near towns and cities, and this probably indicated the preservation of Iron Age burial traditions (O'Brien 1999, 5). For example, the majority (94.1%) of 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). At the Roman cemetery of Rectory Farm, Lincolnshire, almost 20%

of skeletons were in north to south orientations, which was the most common alignment together with a northwest to southeast orientation (Keefe and Holst 2019).

SK2 from Horkstow Road had been placed in a coffin. Coffin burials are not uncommon in the Roman period, such as at Driffield Terrace, York, where a fifth of skeletons was interred in coffins (Caffell and Holst 2012) or Mill Mount, York, where all but one individual had been buried in coffins (Holst 2006). Although SK2 follows common burial traditions widely seen elsewhere in Roman burials in Britain, obtaining an AMS date is recommended to obtain a more precise date for this burial,.

Discussion and summary

SK2 was buried in a coffin with their head to the south, in a supine, extended position. Although the preservation of bone was poor (mostly grade 5), the skeleton was 65% complete, which enabled osteological and pathological analysis.

During the analysis, it emerged that along with SK2, there were also disarticulated human skeletal remains. Although the MNI of the disarticulated remains could not be calculated, as there were no major skeletal elements such as joints in the disarticulated bone assemblage, matching long bone fragments revealed a clear presence of duplicated skeletal elements with the articulated SK2. The total MNI for this assemblage (the articulated and disarticulated remains) is therefore two.

Osteological analysis revealed that SK2 was an old middle adult male, and their stature was calculated to be 162.8cm, which is slightly shorter than the male mean Roman stature. The individual had a few non-metric traits, including a mandibular torus. Pathological analysis revealed that the individual had two congenital anomalies, a cleft neural arch in the first cervical vertebra, and a fusion of sternum and manubrium. None of these anomalies would have caused significant discomfort to this individual. SK2 also experienced a single or several traumatic incidents, which resulted in fractures of the right clavicle and two rib shafts. These had healed during the person's lifetime without obvious complications. Age-related degenerative changes were found in the individual's joints, particularly the cervical and lower spine, and the right hip.

Analysis of dental disease revealed the presence of medium calculus deposits, caries, considerable periodontal disease, and ante-mortem tooth loss, all of which are consistent with the individual's age. The presence of dental enamel hypoplasia on their teeth suggested episodes of poor childhood health, which the individual was able to survive.

SK2 was buried following Roman funerary traditions both, in the nearby area, as well in the wider region, and is a typical example of a rural Roman burial in Britain.

<u>Recommendations</u>

A recommendation to radiocarbon date SK2, to confirm the date of the burial was undertaken. This burial has been dated in the range 246-420 AD (see below).

Animal bone by Jane Richardson

A total of 229 animal bone fragments and 32 shell fragments have been assessed, and are summarised in Table 10 (including field walking finds). Of these, 27 non-repeatable and diagnostic bone zones were noted, as well as 26 complete shells (more accurately 26 complete valves as all taxa represented were bivalves).

The assemblage is too small for meaningful interpretation particularly when considering the number of non-repeatable elements present, but the following observations have been made:

- Oyster and cockle shells are present. With both left and right valves indicated for oyster, these were probably brought to the site fresh and ready to eat.
- Cattle and sheep/goat are likely to have raised locally for their secondary products and for their meat, although only one butchered bone (cattle mandible) was noted.
- Pigs, raised for meat, are represented, most significantly by a foetal skeleton from pit 4103. This indicates breeding on site and perhaps casual discard but might also indicate a deliberate and symbolic deposit.
- Dog bones were exclusively recovered from terminus 8107. Again these may indicate a symbolic deposit, as opposed to casual discard.
- Horse is represented by a single bone from ditch 8209.

No further analysis of this assemblage is recommended, but it should be retained as part of the site archive. The foetal pig remains and the dog bones would be suitable for radiocarbon dating if required, although it is noted that pit 4103 and terminus 8107 have been dated by the pottery they contained.

Table 10. Animal bone and shell by context

Trench	Context	Sample	Description	Count	Zone
40	4005	18	Cattle-size long bone fragment	1	
41	4104	-	Cattle proximal humerus (not fused), mandible fragment, cattle-size rib and long bone fragments	21	1
41	4104	-	Oyster and cockle shell fragments	5	1
41	4104	-	Foetal pig (rib, femur, tibia, humerus, ulna)	6	
41	4104	19	Foetal pig including mandibles, humerus, tibia, radius, skull fragments, ribs, vertebra. Also cattle-size rib fragment	74	10
41	4104	19	Oyster shell fragment	1	
41	4106	-	Sheep-size long bone fragments	4	

Trench	Context	Sample	Description	Count	Zone
41	4106	21	Sheep/goat mandible fragment	1	
42	4204	-	Cattle mandible fragment (dP2-3)	1	
42	4208	-	Sheep-size long bone fragment	1	
81	8104	-	Oyster shell – left valve	1	1
81	8105	-	Cattle-size long bone fragments	3	
81	8108	-	Cattle-size skull fragments, dog mandible (adult teeth little wear), fragments of at least three dog metapodials	53	4
81	8108	7	Cattle-size skull fragments, dog metapodial and four toe bones	23	5
81	8108	-	Oyster shell fragments	2	
82	8204	-	Cattle distal humerus (fused)	1	1
82	8206	-	Cattle proximal radius (fused), metacarpal (lots of fragments)	8	2
82	8206	6	Sheep-sized long bone fragment	1	
82	8206	-	Oyster shell – right valve	1	1
82	8208	-	Sheep/goat tibia shaft fragment	1	
82	8208	8	Sheep-sized long bone fragment and vertebra	2	
82	8208	-	Oyster shell – left valve	1	1
82	8210	-	Horse distal radius (fused), pig tusk (males), cattle-size rib fragment and long bone fragment	4	2
82	8210	13	Cattle-size and sheep-size long bone fragment	2	
82	8212	-	Cattle mandible fragments, sheep-sized long bone fragments	4	
82	8212	14	Oyster shell fragment	1	
82	8212	14	Undiagnostic bone fragment	1	
82	8214	-	Cattle-size pelvis fragment	1	
82	8214	-	Oyster shell – right and left valves	17	10
83	8304	-	Cattle mandible (but no teeth) – butchered, cattle-size rib fragments	13	1
83	8304	-	Oyster shell – left valve	1	1
83	8307	1	Sheep/goat astragalus, cattle-size rib fragments	3	1

Trench	Context	Sample	Description	Count	Zone
-	B7	-	Oyster shell – right valve	1	1
-	B16	-	Oyster shell fragment	1	

8 Radiocarbon Dating

One sample was submitted to the Scottish Universities Environmental Research Centre (SUERC) for radiocarbon dating (Appendix 10). Full details of the radiocarbon measurement, including contextual information, material dated, the conventional age BP, the calibration program and the sample isotopic fractionation are presented in Table 11. The date used in this report has been cited as calibrated age ranges at the two-sigma level of confidence (i.e. 95.4%).

Human bone (SK2) from pit 4207 (Trench 42) has been dated in the range 246-420 AD (SUERC-107950), indicating a later Roman date.

Table 11. Radiocarbon dating results

Lab. Code	Context	Feature	Material	Radiocarbon Age BP	Calibrated Age Range ∂1	Calibrated Age Range ∂2	Delta 13C rel. to VPBD (‰)
SUERC-107950 (GU62666)	SK2	Pit 4207	Human bone	1752 ± 24	260-406 AD	246-420 AD	-19.9

9 Discussion and Conclusions

Feature visibility and reliability

The majority of archaeological features were located in the field to the north of the existing farm track (Fig. 2). This was anticipated as the geophysical survey (Bishop and Webb 2021) had already highlighted an area of significant archaeological potential around a possible Roman enclosure adjacent to the south side of Horkstow Road (Fig. 2). This was confirmed by the trial trenching with the identification of the southern limits of the enclosure, represented by a boundary ditch (ditch 8303), and a series of internal features (see Trenches 81 and 82).

The unexpected result of the archaeological evaluation was the presence of human remains (SK2, plus disarticulated bone from another individual) and associated artefacts found in Trench 42 (pit 4207). Areas of disturbance were detected here by the geophysical survey, but it was thought unlikely that anything of archaeological significance would be encountered beyond the area of enclosure.

The potential for post-medieval field boundaries highlighted in the geophysical report was largely backed up the excavation. Gullies 5203, 5303, 7203 and the unexcavated gully in Trench 54 are evidence of this.

The field to the south of the farm track, was largely devoid of archaeological remains, aside from a couple of features most likely associated with post-medieval farming activity. The geophysical anomalies in this area were largely considered geological in nature following the opening of the trenches.

Dating, phasing and function

The area previously discussed as being of high archaeological potential was also the area that produced the majority of the dating evidence. The pottery found in this area was largely dated to the mid to late 3rd century to 4th century and the copper alloy coin is also early 4th century in date. The type and range of pottery recovered suggests a later Roman rural settlement.

Trenches 41 and 42 also produced significant dating evidence. The grave pit in Trench 42 (pit 4207) produced a single sherd of 2nd-century samian ware as well as 78 iron nails associated with the oak coffin used to inter the old middle adult male (SK2). The skeleton was subsequently radiocarbon dated in the range 246-420 AD indicating that the samian was likely residual in a later context, and that the settlement found immediately to the north was of comparable date to the inhumation.

Samian of 2nd-century date was also recovered from pit 4103 in Trench 41, along with animal bone and oyster/cockle shells, raising the possibility that the pit here was earlier in date than the settlement and funerary activity noted above. The animal bones from pit 4103 included a foetal pig which may have symbolic resonance.

One excavated section of the post-medieval field boundary (gully 5204) produced a piece of 19th-century glass bottle giving an approximate for the field boundary in use. The narrow and shallow nature of the field boundaries suggested that fields were defined by soft boundaries such as hedgerows.

Environmental remains

During the Roman period, cattle, sheep/goat and pig may have been raised locally for their meat, and for secondary products, where available. Foetal pig suggests breeding locally, although its deposition for a symbolic or ritual reason is also possible. Some marine shellfish was also utilised for food. Charred cereals, wheat, barley and oats, are likely to reflect the crops grown locally.

Conclusions

The evaluation by trial trenching confirmed the presence of archaeological remains, centred on a mid to late 3rd-century to early 4th-century Roman enclosure located in the northern limits of the site, with hints of earlier origins based on a few 2nd-century samian sherds. A

rural settlement is indicated with the occupants growing wheat, barley and oats, and consuming shell fish, cattle, sheep/goat and pig. Beyond the enclosure to the south, an unexpected human inhumation (SK2) of an old middle adult male was encountered, buried in a coffin, as well as disarticulated remains of a second individual. A radiocarbon date for SK2 is in the range 246-420 AD and corroborates the dates of the majority of the pottery and the single coin.

Field walking of the proposed development area did not provide any further dateable material of significance.

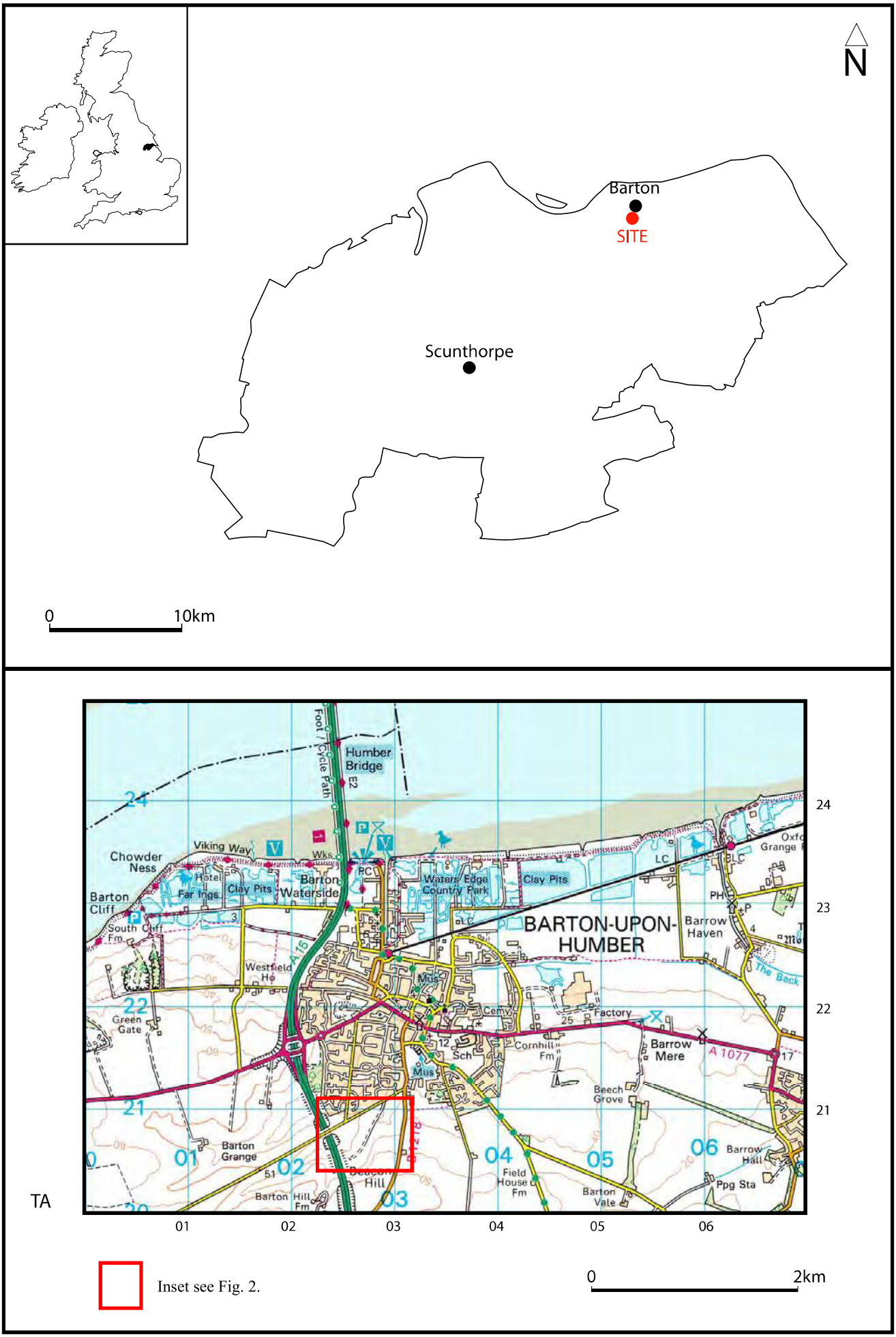
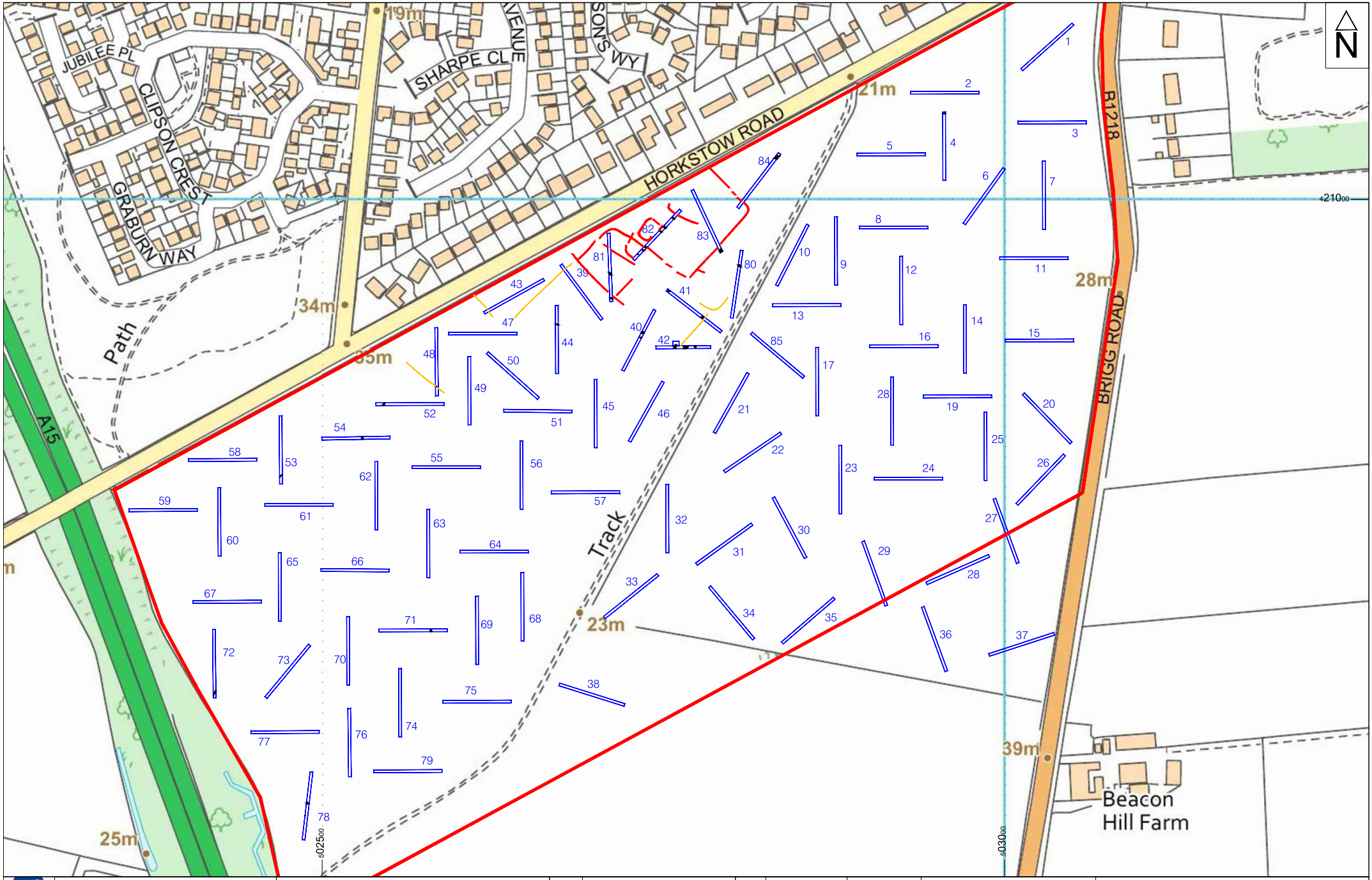


Fig. 1. Site location



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Project No. XF34

Fig. 2.

Site location showing the trial trenches, archaeological features and geophysics results for archaeological anomalies

SITE BOUNDARY	
TRIAL TRENCH	
ARCHAEOLOGICAL FEATURE	
MAGNETIC ENHANCEMENT	ARCHAEOLOGY
MAGNETIC ENHANCEMENT	ARCHAEOLOGY?

0 100m

1:2500 @ A3

S. 27

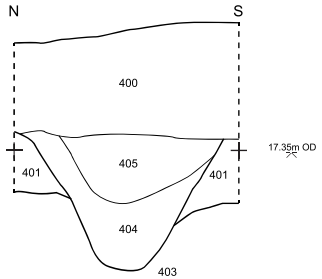

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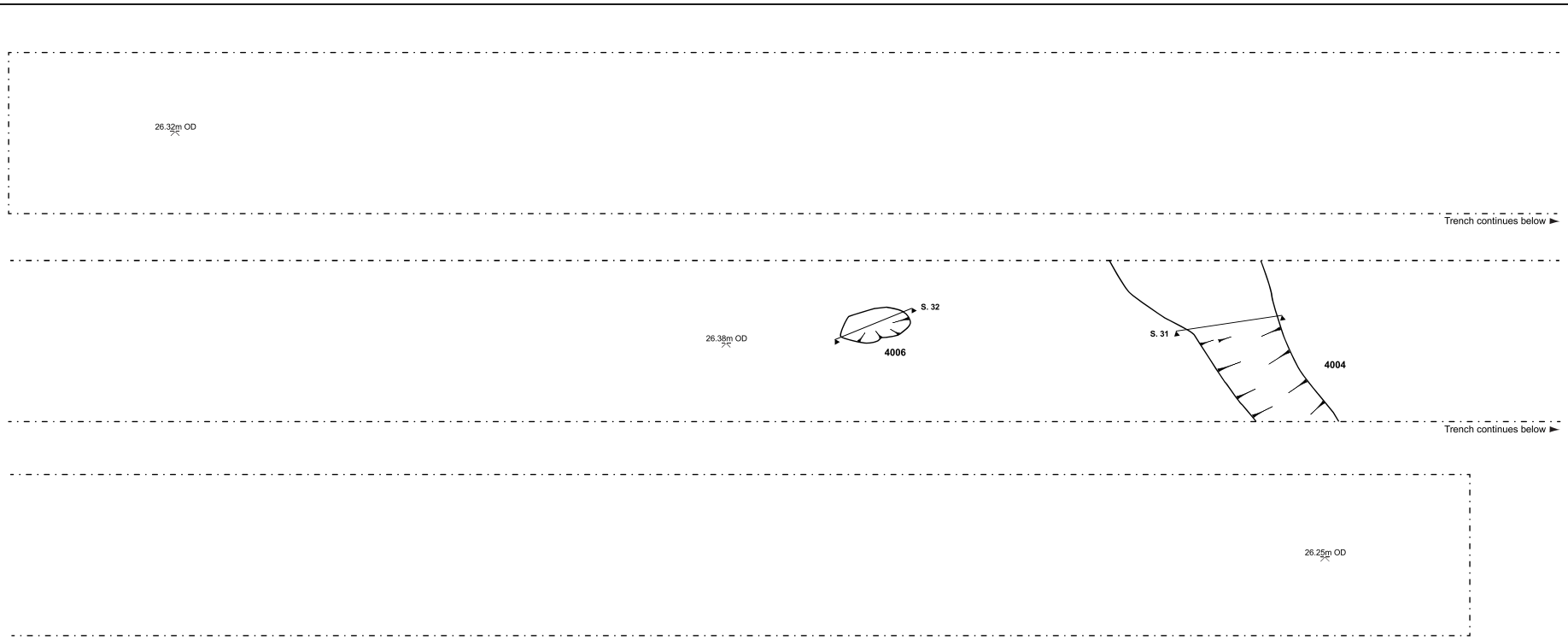
Fig. 3	
Trench 4 plan and section	

Key

LAND DRAIN

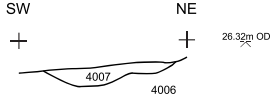
Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 31

S. 32



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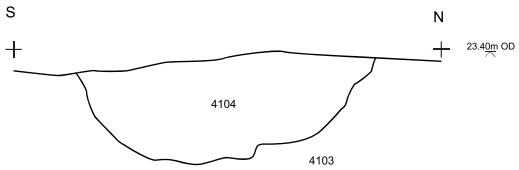
Project No. XF34	*Project Code: HKW22*
Fig. 4	
Trench 40 plan and sections	

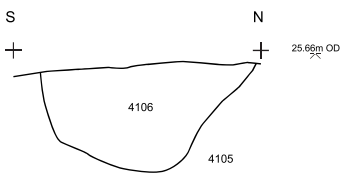
Plans 0 2m (1:50)

Sections 0 1m (1:20)

S. 35



S. 41



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Project No. XF34	*Project Code: HKW22*
Fig. 5	
Trench 41 plan and sections	

Plans 0 2m (1:50)

Sections 0 1m (1:20)

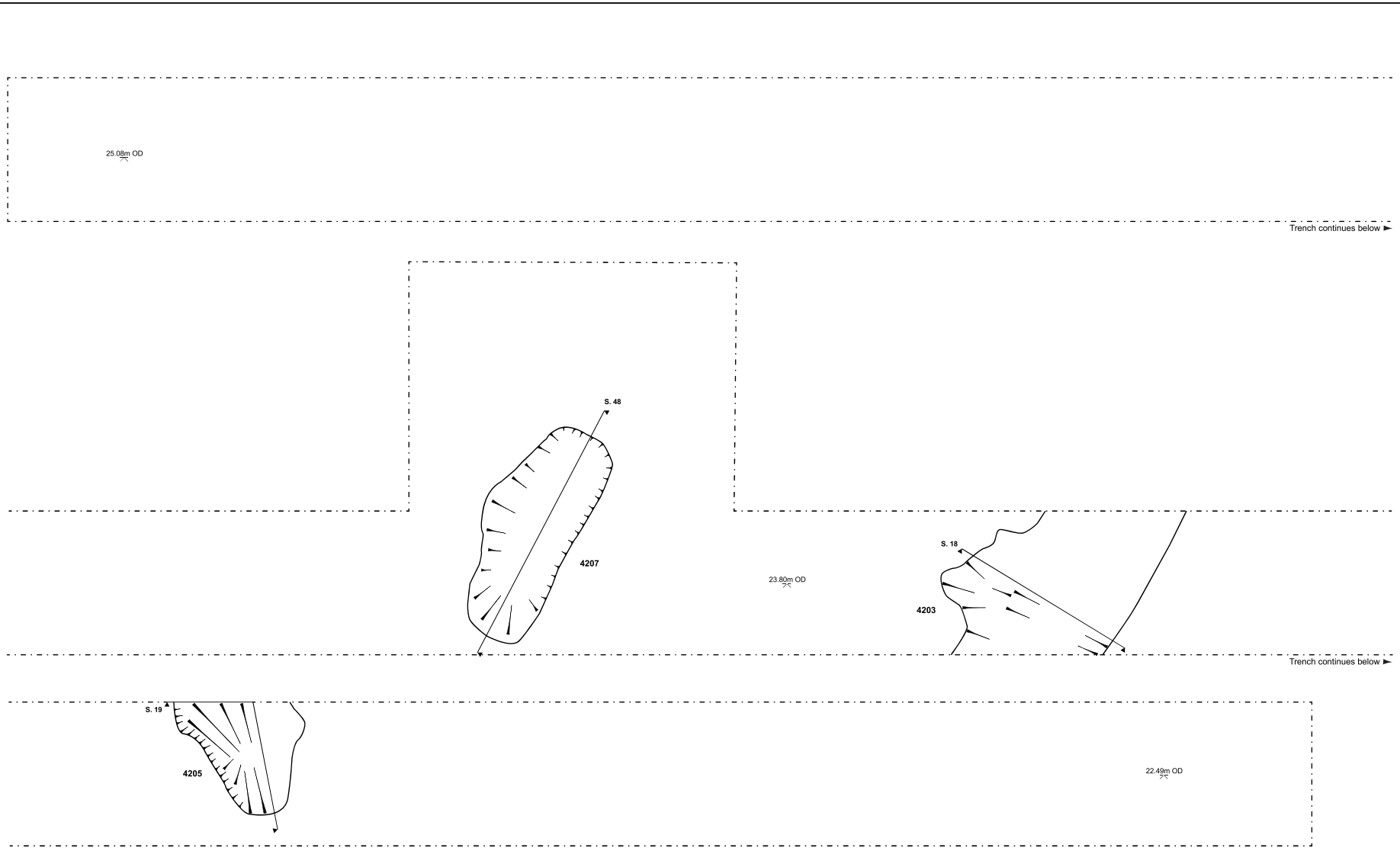

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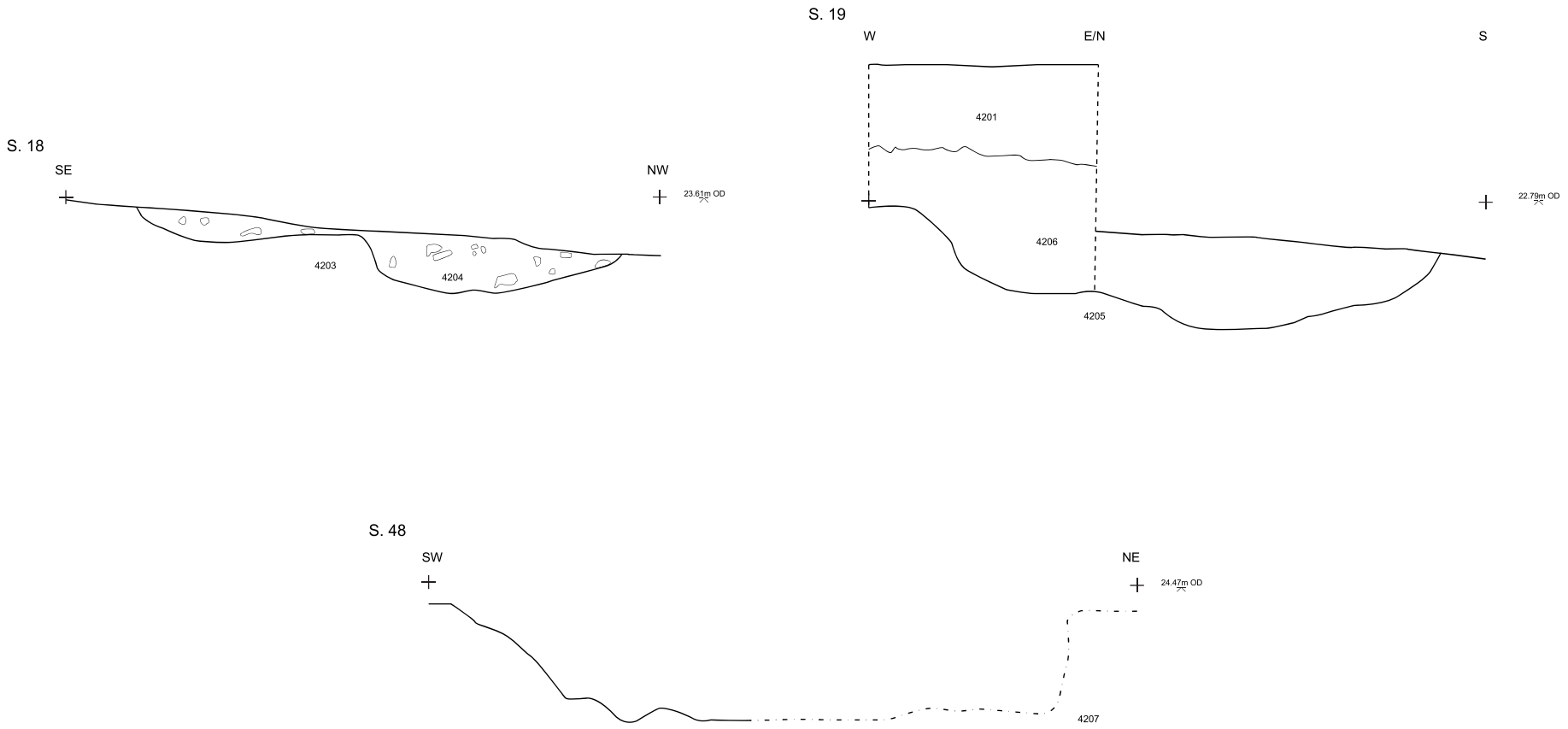
Fig. 6	
Trench 42 plan	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



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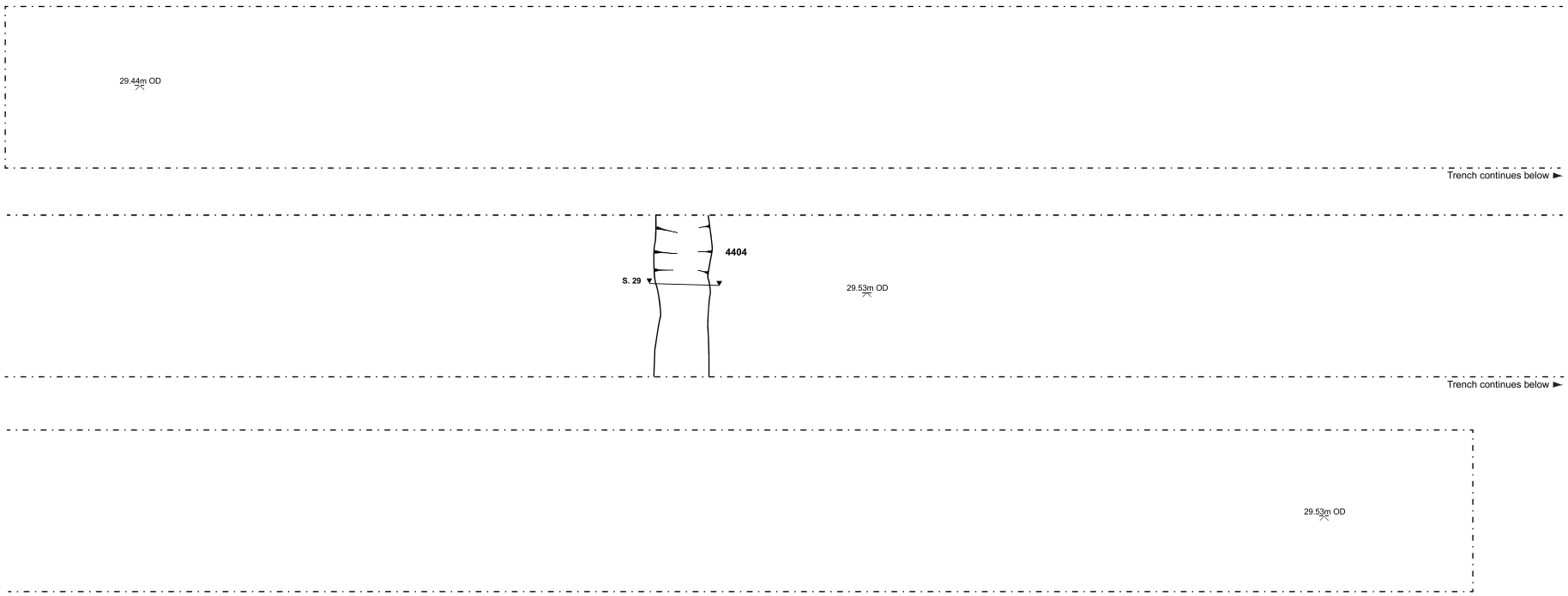
Project No. XF34	*Project Code: HKW22*
Fig. 7	
Trench 42 sections	

0 1m (1:20)



S. 29

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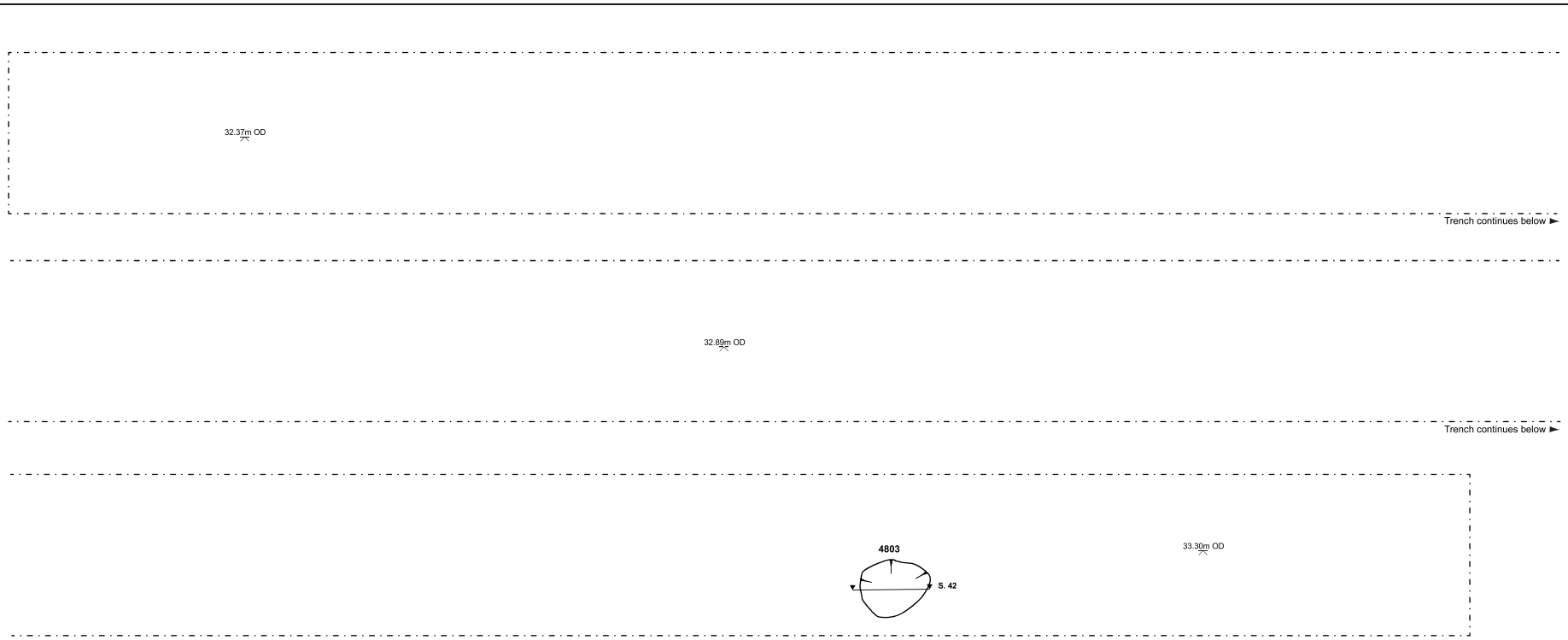
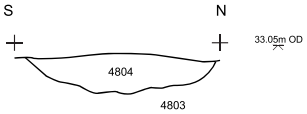
Project No. XF34	*Project Code: HKW22*
Fig. 8	
Trench 44 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 42



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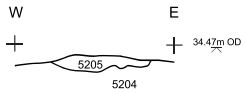
Project No. XF34	*Project Code: HKW22*
Fig. 9	
Trench 48 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)

S. 39



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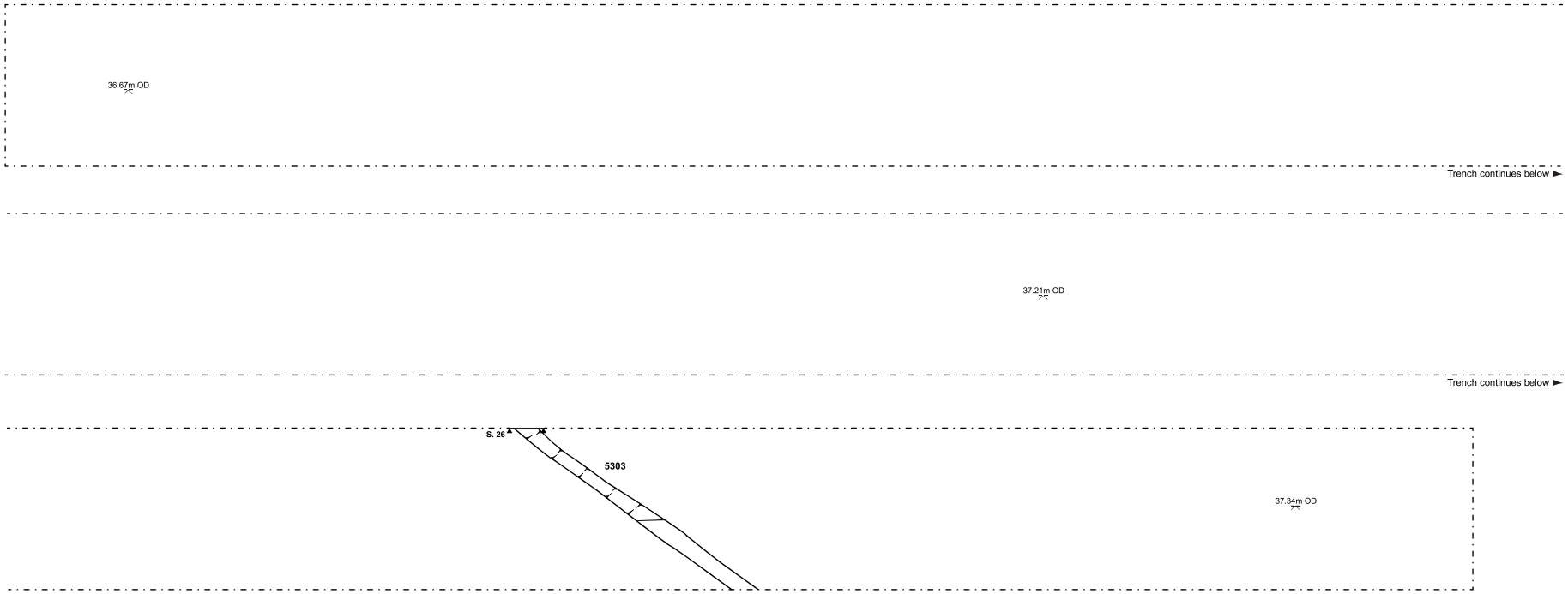
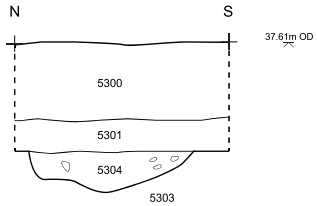
Project No. XF34	*Project Code: HKW22*
Fig. 10	
Trench 52 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 26



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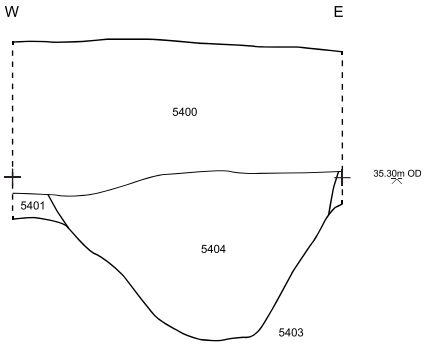
Project No. XF34	*Project Code: HKW22*
Fig. 11	
Trench 53 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)

S. 37



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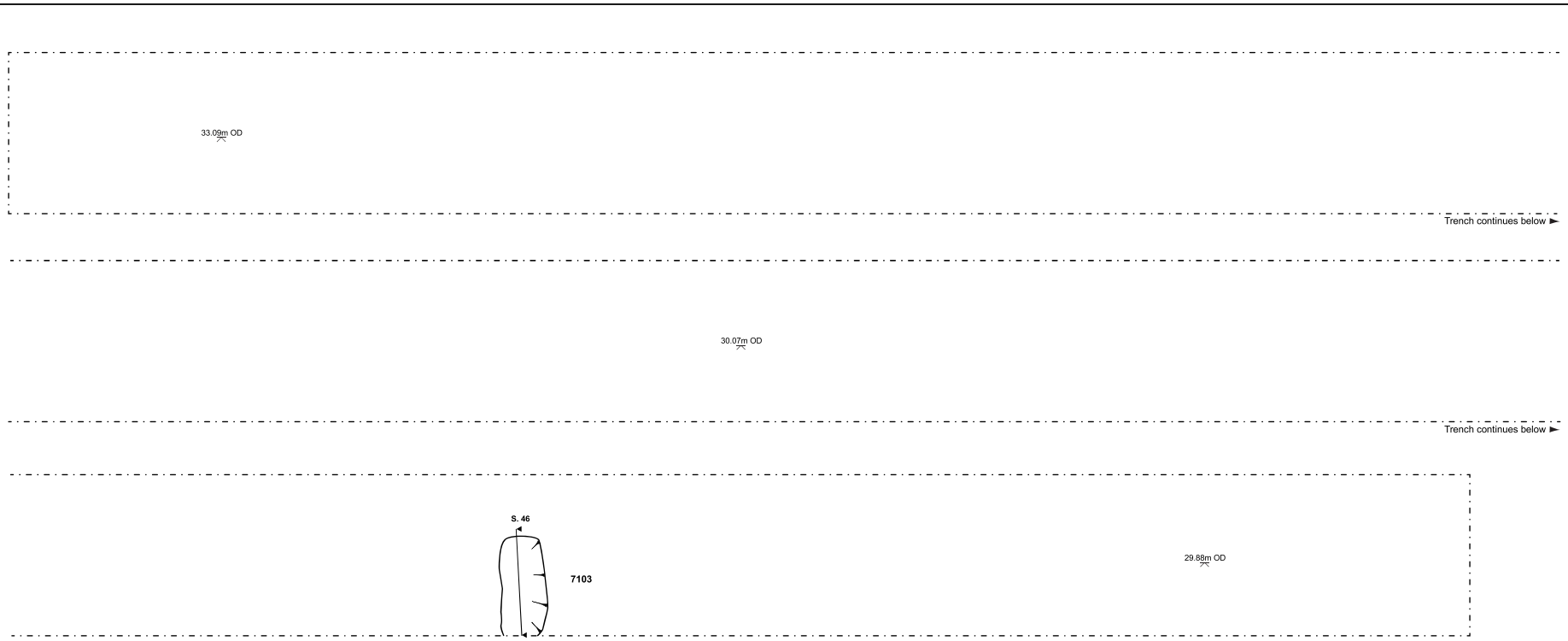
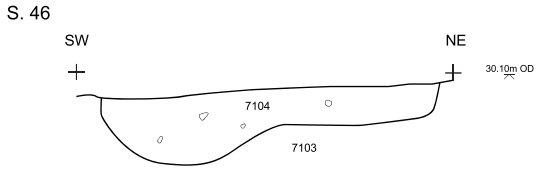
Project No. XF34	*Project Code: HKW22*
Fig. 12	
Trench 54 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)





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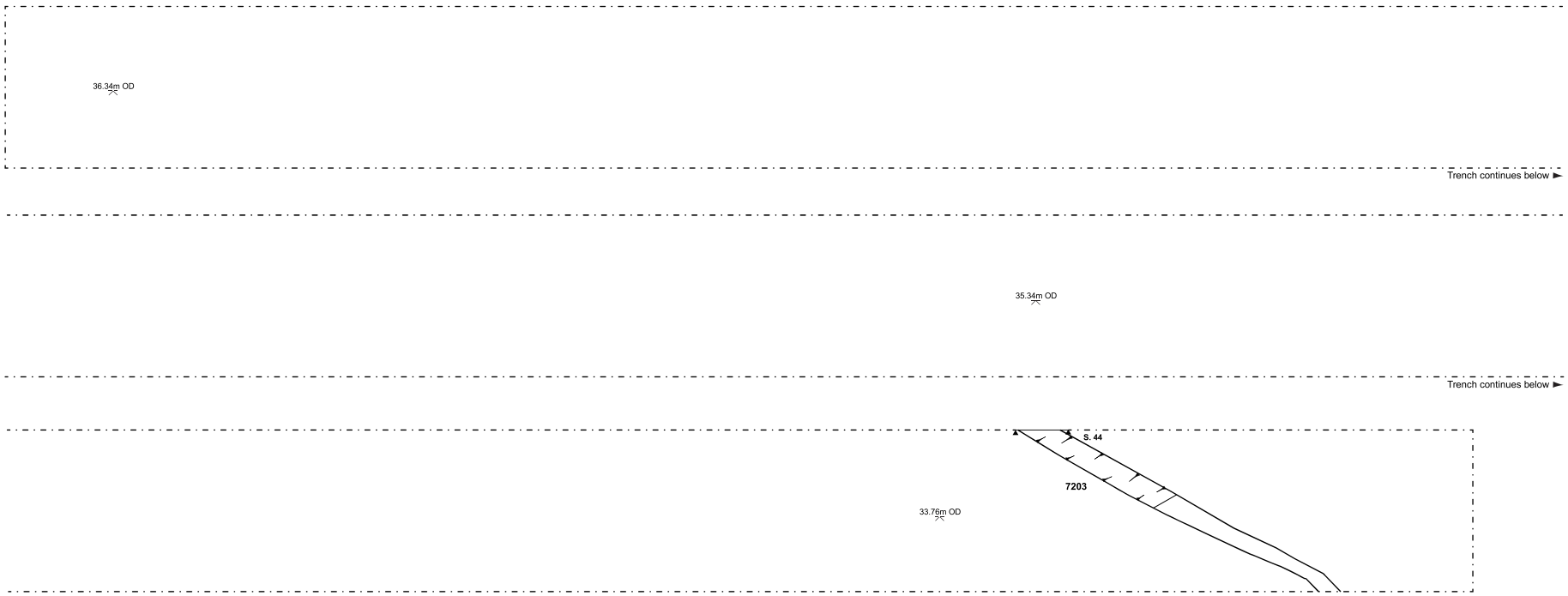
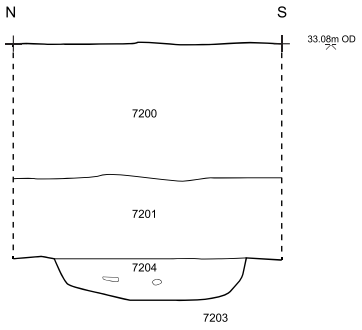
Project No. XF34	*Project Code: HKW22*
Fig. 13	
Trench 71 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 44



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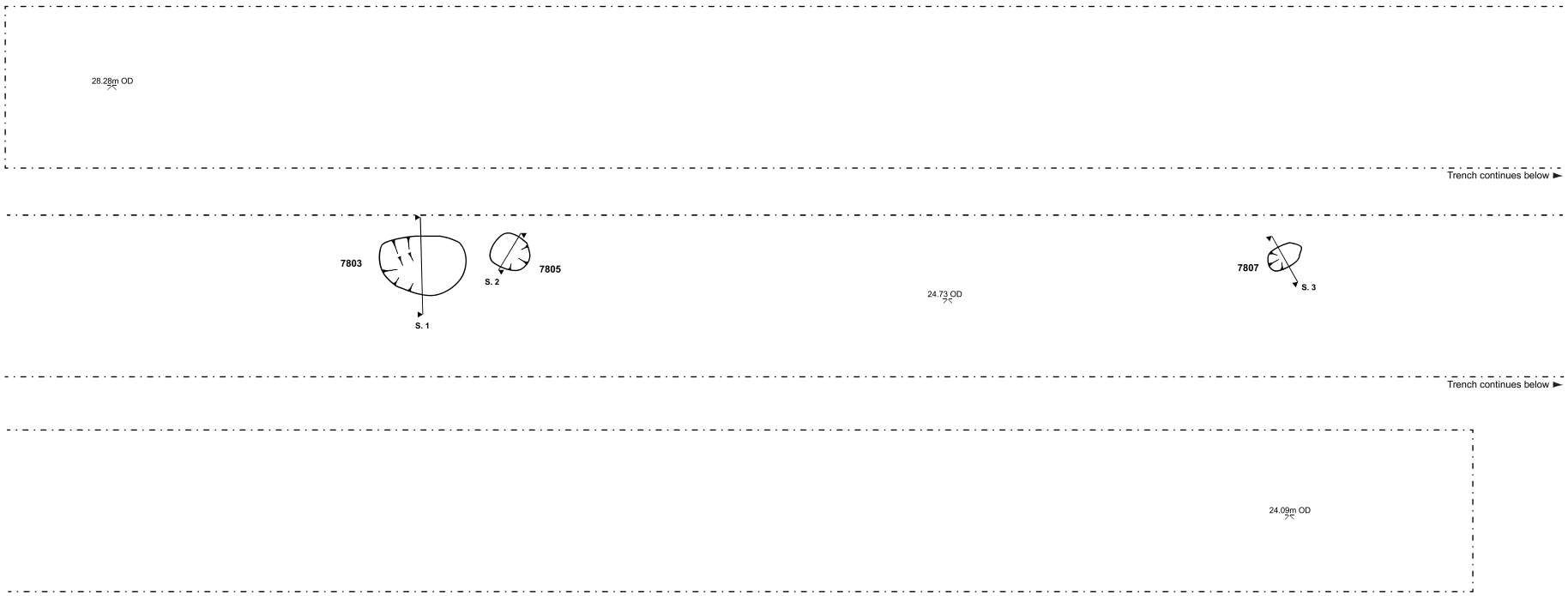
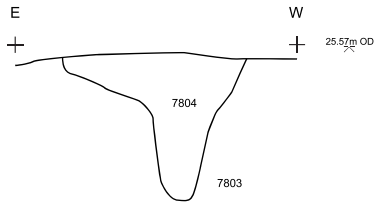
Project No. XF34	*Project Code: HKW22*
Fig. 14	
Trench 72 plan and section	

Plans 0 2m (1:50)

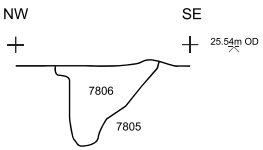
Sections 0 1m (1:20)



S. 1



S. 2



S. 3

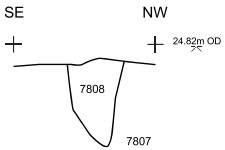


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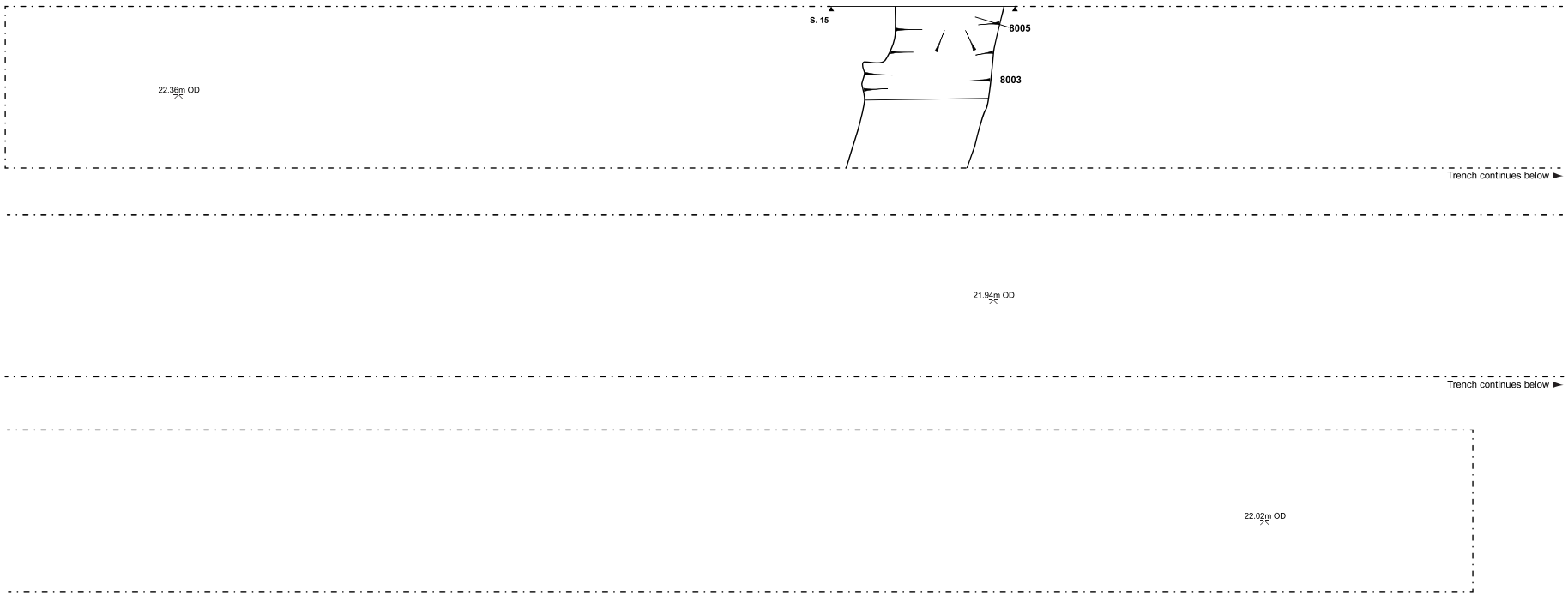
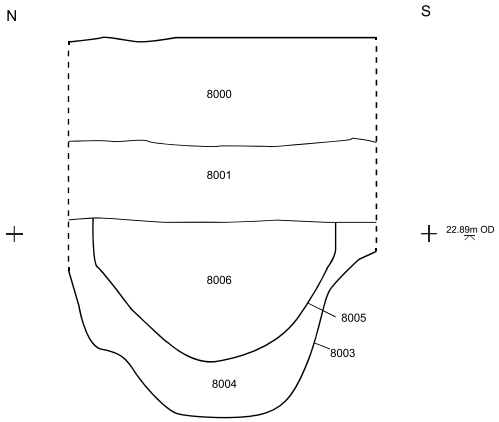
Fig. 15	
Trench 78 plan and sections	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 15



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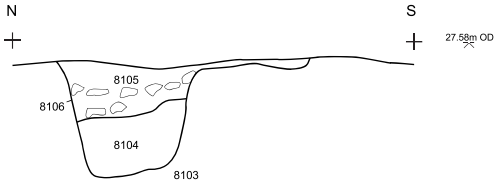
Project No. XF34	*Project Code: HKW22*
Fig. 16	
Trench 80 plan and section	

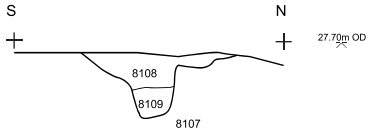
Plans 0 2m (1:50)

Sections 0 1m (1:20)

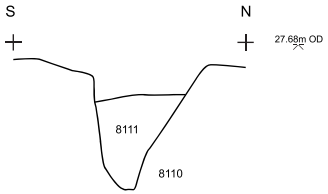
S. 10



S. 12



S. 13



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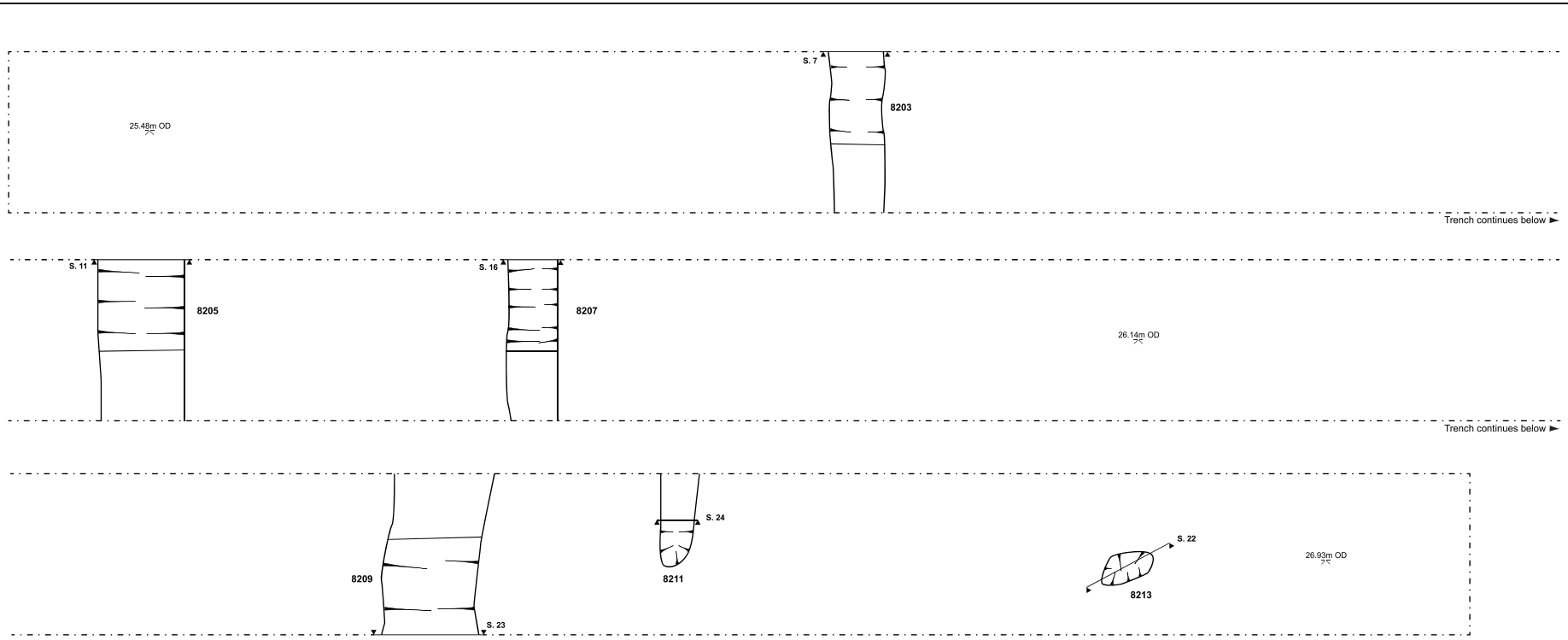
Project No. XF34	*Project Code: HKW22*
Fig. 17	
Trench 81 plan and sections	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



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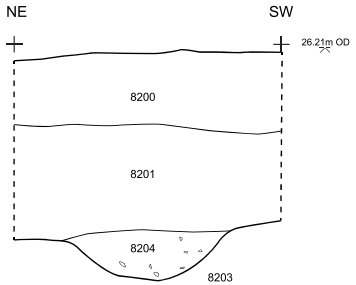
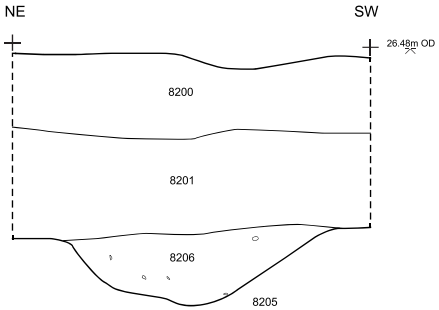
Project No. XF34	*Project Code: HKW22*
Fig. 18	
Trench 82 plan	

0 2m (1:50)

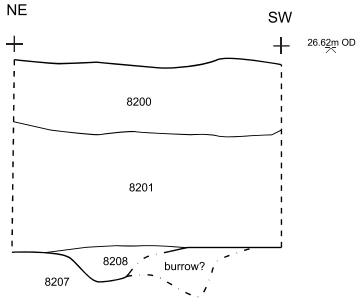
S. 7



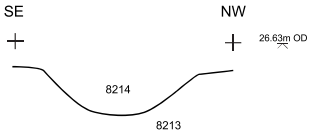
S. 11



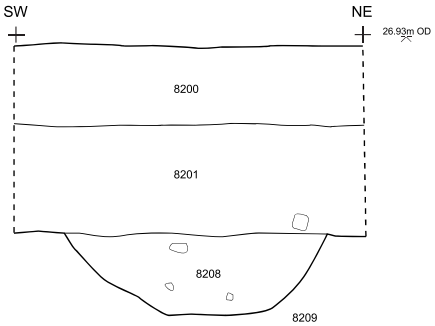
S. 16



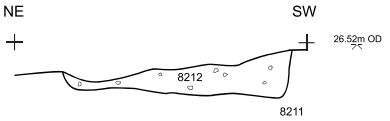
S. 22



S. 23



S. 24



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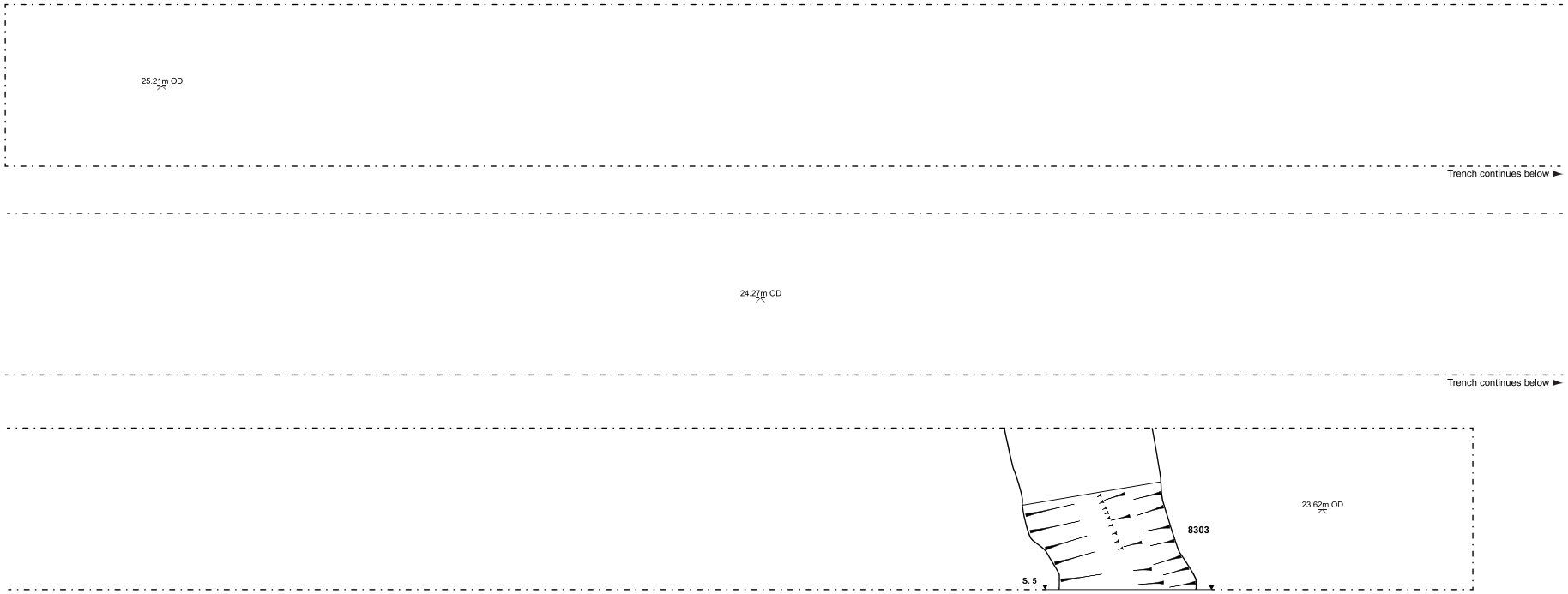
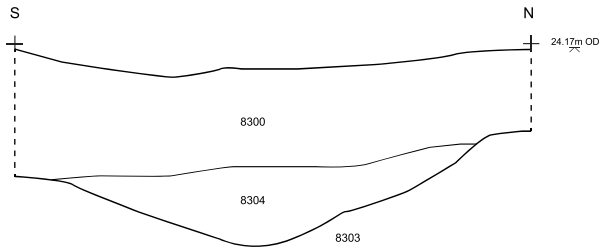
Project No. XF34	*Project Code: HKW22*
Fig. 19	
Trench 82 sections	

0 1m (1:20)



S. 5



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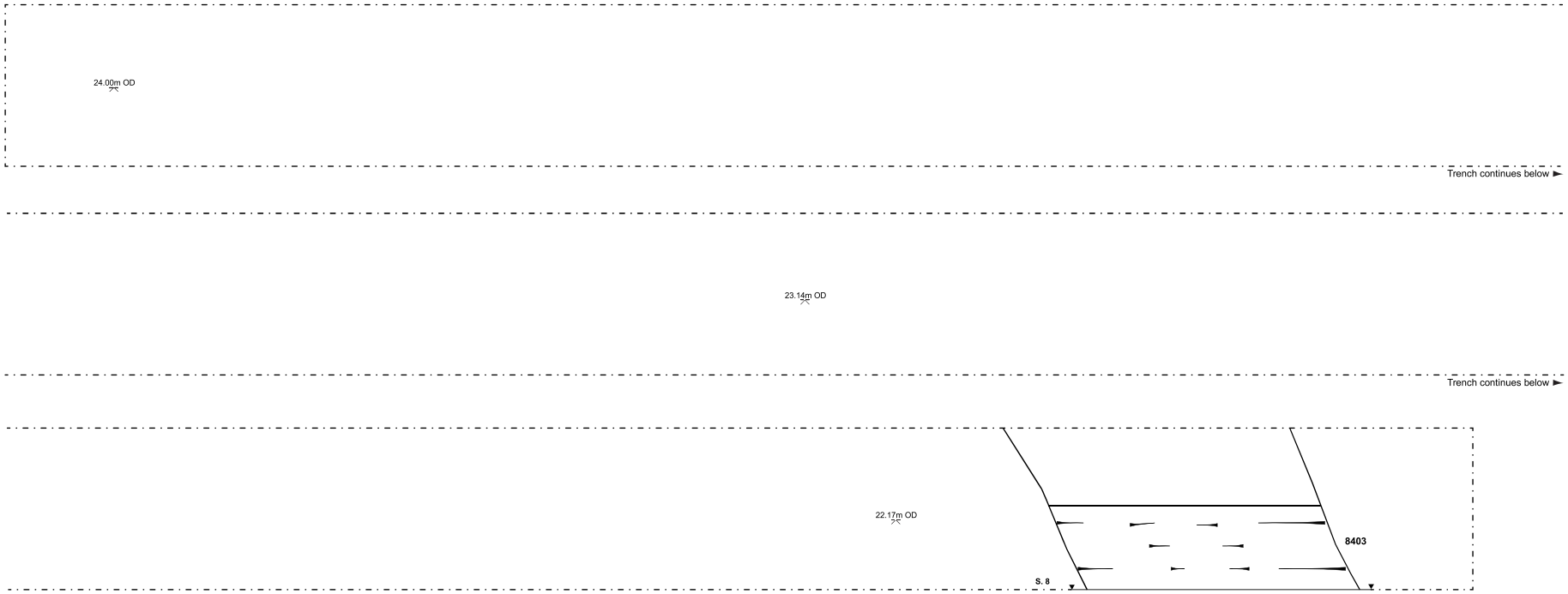
Project No. XF34	*Project Code: HKW22*
Fig. 20	
Trench 83 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



S. 8

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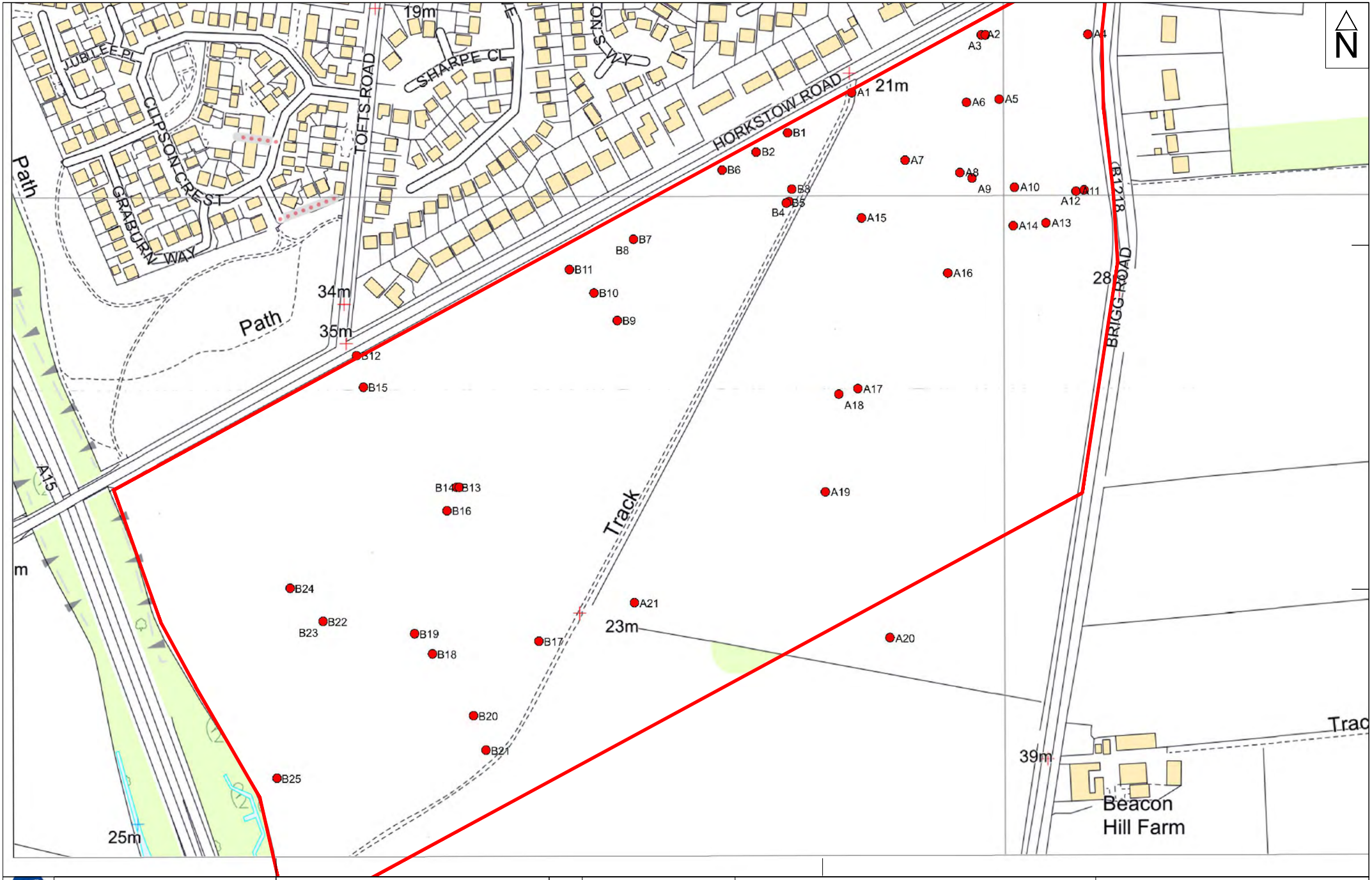
Project No. XF34	*Project Code: HKW22*
Fig. 21	
Trench 84 plan and section	

Plans 0 2m (1:50)

Sections 0 1m (1:20)



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Project No. XF34	SITE BOUNDARY	
Fig. 22.	FINDSPOTS	
Findspot locations		

0 100m

1:2500 @ A3

Plate 1. Section of gully 403 (facing east)

Plate 2. Section of pit 4006 (facing northwest)

Plate 3. Section of pit 4103 (facing west)

Plate 4. Plan of SK2 (facing northwest)

Plate 5. Working shot of the excavation of SK2 (facing south)

Plate 6. Trench shot of Trench 44 (facing south)

Plate 7. Plan of pit 4803 (facing northwest)

Plate 8. Trench shot of Trench 52 (facing east)

Plate 9. Plan of gully 5203 (facing east)

Plate 10. Plan of ditch 5403 (facing east)

Plate 11. Trench shot of Trench 71 (facing south)

Plate 12. Plan of pit 7803 (facing south)

Plate 13. Plan of ditch terminus 8107 and post-hole 8109 (facing west)

Plate 14. Plan of ditch terminus 8211 (facing southeast)

Plate 15. Section of ditch 8303 (facing west)

Plate 16. Section of ditch 8403 (facing southeast)

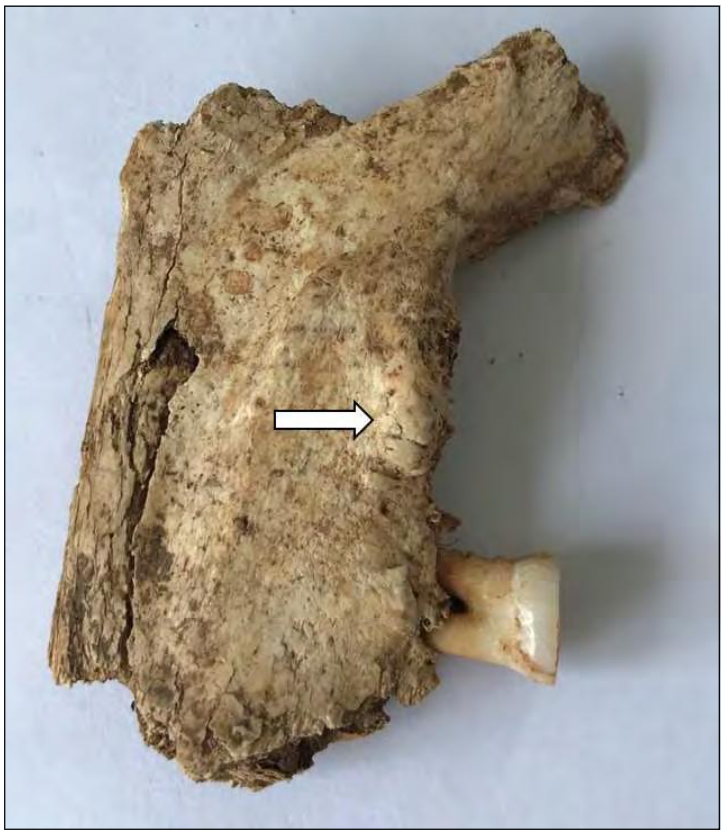


Plate 17. Mandibular torus in the left mandible of SK2

Plate 18. Cleft neural arch in the atlas of SK2

Plate 19. Manubrium-mesosternal joint fusion in SK2, with a post-mortem break in mid-shaft

Plate 20. Healed mid-shaft fracture of a right rib in SK2

Appendix 1: Written Scheme of Investigation

Appendix 2: Inventory of primary archive

Phase	File/Box No	Description	Quantity
Evaluation	File no.1	Sample register sheets	1
		Digital photograph registers	6
		Photograph registers	2
		Small finds registers	1
		Trench record sheets	85
		Permatrace sheets	20
		Context registers	17
		Context sheets	67
		Skeleton sheets	1

Appendix 3: Concordance of contexts

Context	Trench	Description	Artefacts and environmental samples
400	4	Topsoil	-
401	4	Subsoil	-
402	4	Natural	-
403	4	Cut of gully	-
404	4	Primary fill of gully 403	-
405	4	Secondary fill of gully 403	-
4000	40	Topsoil	-
4001	40	Subsoil	-
4002	40	Natural	-
4003	40	Not used	-
4004	40	Cut of pit	-
4005	40	Fill of pit 4004	GBA18, CBM x2, animal bone x1
4006	40	Cut of pit	-
4007	40	Fill of pit 4005	GBA16
4100	41	Topsoil	-
4101	41	Subsoil	-
4102	41	Natural	-
4103	41	Cut of pit	-
4104	41	Fill of pit 4103	GBA19, Oyster/cockle shell x5, animal bones x21, pottery x6
4105	41	Cut of pit	-
4106	41	Fill of pit 4105	GBA21, animal bones x5
4200	42	Topsoil	-
4201	42	Subsoil	-
4202	42	Natural	-
4203	42	Cut of ditch	-
4204	42	Fill of ditch 4203	GBA9, animal bones x1
4205	42	Cut of terminus	-
4206	42	Fill of terminus 4205	GBA10
4207	42	Cut of pit	-
4208	42	Fill of pit 4207	GBA11, GBA25, SK1/2, pottery x1, Fe nails x78, animal bone x 1
4400	44	Topsoil	-
4401	44	Subsoil	-
4402	44	Natural	-
4403	44	Not used	-
4404	44	Cut of ditch	-
4405	44	Fill of ditch 4404	GBA15, CBM x4, flint x1
4800	48	Topsoil	-
4801	48	Subsoil	-
4802	48	Natural	-
4803	48	Cut of pit	-
4804	48	Fill of pit 4803	GBA22
5200	52	Topsoil	-

Context	Trench	Description	Artefacts and environmental samples
5201	52	Subsoil	-
5202	52	Natural	-
5203	52	Not used	-
5204	52	Cut of gully	-
5205	52	Fill of gully 5204	Glass x1
5300	53	Topsoil	-
5301	53	Subsoil	-
5302	53	Natural	-
5303	53	Cut of gully	-
5304	53	Fill of gully 5303	GBA17
5400	54	Topsoil	-
5401	54	Subsoil	-
5402	54	Natural	-
5403	54	Cut of ditch	-
5404	54	Fill of ditch 5403	GBA20
7100	71	Topsoil	-
7101	71	Subsoil	-
7102	71	Natural	-
7103	71	Cut of pit	-
7104	71	Fill of pit 7103	GBA24
7200	72	Topsoil	-
7201	72	Subsoil	-
7202	72	Natural	-
7203	72	Cut of gully	-
7204	72	Fill of gully 7203	GBA23, CBM x1
7800	78	Topsoil	-
7801	78	Subsoil	-
7802	78	Natural	-
7803	78	Cut of pit	-
7804	78	Fill of pit 7803	-
7805	78	Cut of pit	-
7806	78	Fill of pit 7805	-
7807	78	Cut of pit	-
7808	78	Fill of pit 7807	-
8000	80	Topsoil	-
8001	80	Subsoil	-
8002	80	Natural	-
8003	80	Cut of pit	-
8004	80	Fill of pit 8003	-
8005	80	Cut of ditch	-
8006	80	Fill of ditch 8005	-
8100	81	Topsoil	-
8101	81	Subsoil	-
8102	81	Natural	-
8103	81	Cut of ditch	-

Context	Trench	Description	Artefacts and environmental samples
8104	81	Fill of ditch 8103	GBA4, oyster shell x1, pottery x3, Roman coin x1, SF1
8105	81	Fill of ditch 8106	GBA5, animal bone x3
8106	81	Cut of posthole	-
8107	81	Cut of terminus	-
8108	81	Secondary fill of terminus 8107	GBA7, Fe nail x1, oyster shell x2, animal bones x76, pottery x 40
8109	81	Primary fill of terminus 8107	-
8110	81	Cut of posthole	-
8111	81	Fill of posthole 8110	-
8200	82	Topsoil	-
8201	82	Subsoil	-
8202	82	Natural	-
8203	82	Cut of ditch	-
8204	82	Fill of ditch 8203	GBA2, animal bones x1
8205	82	Cut of ditch	-
8206	82	Fill of ditch 8205	GBA6, animal bones x9, oyster shell x1, pottery x2
8207	82	Cut of ditch	-
8208	82	Fill of ditch 8207	GBA8, oyster shell x1, animal bones x3, pottery, metal (Fe) x1
8209	82	Cut of ditch	-
8210	82	Fill of ditch 8209	GBA13, pottery x11, animal bones x2, glass x1
8211	82	Cut of terminus	-
8212	82	Fill of terminus 8211	GBA14, animal bones x5, oyster shell x1, pottery, metal x2 SF2
8213	82	Cut of pit	-
8214	82	Fill of pit 8213	GBA12, animal bones x1, oyster shell x17, pottery x20
8300	83	Topsoil	-
8301	83	Subsoil	-
8302	83	Natural	-
8303	83	Cut of ditch	-
8304	83	Fill of ditch 8303	GBA1, oyster shell x1, animal bone x13
8400	84	Topsoil	-
8401	84	Subsoil	-
8402	84	Natural	-
8403	84	Cut of ditch	-
8404	84	Fill of ditch 8403	GBA3

Appendix 4. Trench summary table

Trench No.	Dimensions (m)	Orientation	Topsoil Depth (m)	Subsoil Depth (m)	Observations
1	50 x 1.8	SW-NE	0.30	0.30	No archaeological features observed, one post-medieval land drain.
2	50 x 1.8	E-W	0.45	0.25	No archaeology observed
3	50 x 1.8	E-W	0.30	0.60	No archaeological features observed, one post-medieval land drain.
4	50 x 1.8	N-S	0.35	0.40	Single E-W gully likely post-medieval
5	50 x 1.8	E-W	0.24	0.40	No archaeological features observed
6	50 x 1.8	NE-SW	0.30	0.48	No archaeological features observed, one post-medieval land drain.
7	50 x 1.8	N-S	0.30	0.50	No archaeological features observed
8	50 x 1.8	N-S	0.28	0.43	No archaeological features observed
9	50 x 1.8	N-S	0.32	0.53	No archaeological features observed
10	50 x 1.8	N-S	0.43	0.25	No archaeological features observed
11	50 x 1.8	E-W	0.15	0.45	No archaeological features observed
12	50 x 1.8	N-S	-	-	No archaeological features observed, trench excavated to 2 meters depth to test natural
13	50 x 1.8	E-W	0.46	0.24	No archaeological features observed
14	50 x 1.8	N-S	0.40	0.40	No archaeological features observed
15	50 x 1.8	E-W	0.15	0.31	No archaeological features observed
16	50 x 1.8	E-W	0.30	0.30	No archaeological features observed
17	50 x 1.8	N-S	0.40	0.60	No archaeological features observed
18	50 x 1.8	N-S	0.50	0.40	No archaeological features observed
19	50 x 1.8	E-W	0.50	0.60	No archaeological features observed
20	50 x 1.8	NW-SE	0.08	0.40	No archaeological features observed
21	50 x 1.8	NE-SW	0.40	0.70	No archaeological features observed
22	50 x 1.8	NE-SW	0.50	0.70	No archaeological features observed
23	50 x 1.8	N-S	0.48	0.35	No archaeological features observed
24	50 x 1.8	E-W	0.40	0.30	No archaeological features observed
25	50 x 1.8	N-S	0.25	0.42	No archaeological features observed
26	50 x 1.8	NE-SW	0.19	0.43	No archaeological features observed
27	50 x 1.8	N-S	0.15	0.35	No archaeological features observed
28	50 x 1.8	E-W	0.37	0.20	No archaeological features observed
29	50 x 1.8	N-S	0.30	0.30	No archaeological features observed
30	50 x 1.8	N-S	0.30	0.20	No archaeological features observed
31	50 x 1.8	NE-SW	0.41	0.26	No archaeological features observed
32	50 x 1.8	N-S	0.40	0.50	No archaeological features observed
33	50 x 1.8	NE-SW	0.30	1.00	No archaeological features observed
34	50 x 1.8	NW-SE	0.30	0.20	No archaeological features observed
35	50 x 1.8	NE-SW	0.50	0.10	No archaeological features observed
36	50 x 1.8	N-S	0.23	0.02	No archaeological features observed
37	50 x 1.8	E-W	0.27	0.05	No archaeological features observed
38	50 x 1.8	E-W	0.30	0.80	No archaeological features observed, one post-medieval land drain.
39	50 x 1.8	NW-SE	0.20	0.32	No archaeological features observed
40	50 x 1.8	N-S	0.30	0.10	One boundary ditch and one pit in trench.
41	50 x 1.8	NW-SE	0.35	0.03	Two medium sized pits in trench.
42	40 x 1.8	E-W	0.28	0.07	One ditch, one terminus of possible ditch (geology?) and one pit containing articulated human remains.
43	50 x 1.8	NE-SW	0.10	0.30	No archaeological features observed
44	50 x 1.8	N-S	0.30	0.10	One narrow E-W gully in trench.
45	50 x 1.8	N-S	0.45	0.05	No archaeological features observed
46	50 x 1.8	N-S	0.40	0.20	No archaeological features observed

Trench No.	Dimensions (m)	Orientation	Topsoil Depth (m)	Subsoil Depth (m)	Observations
47	50 x 1.8	E-W	0.36	0.08	No archaeological features observed
48	50 x 1.8	N-S	0.28	0.07	One pit at west end of trench.
49	50 x 1.8	N-S	0.40	0.08	No archaeological features observed
50	50 x 1.8	NW-SE	0.34	0.14	No archaeological features observed
51	50 x 1.8	E-W	0.30	0.22	No archaeological features observed
52	50 x 1.8	E-W	0.27	0.05	Narrow N-S gully (hedgerow) at west end of trench.
53	50 x 1.8	N-S	0.35	0.15	Narrow E-W gully (hedgerow/field boundary) at southern end.
54	50 x 1.8	E-W	0.32	0.10	E-W ditch in centre of trench and continuation of hedgerow/field boundary from trench 54 at southern end of trench.
55	50 x 1.8	E-W	0.30	0.10	No archaeological features observed
56	50 x 1.8	N-S	0.30	0.10	No archaeological features observed
57	50 x 1.8	E-W	0.50	0.30	No archaeological features observed
58	50 x 1.8	E-W	0.50	0.30	No archaeological features observed
59	50 x 1.8	E-W	0.19	0.33	No archaeological features observed
60	50 x 1.8	N-S	0.31	0.11	No archaeological features observed
61	50 x 1.8	E-W	0.35	0.25	No archaeological features observed
62	50 x 1.8	N-S	0.36	0.06	No archaeological features observed
63	50 x 1.8	N-S	0.30	0.17	No archaeological features observed
64	50 x 1.8	E-W	0.34	0.14	No archaeological features observed
65	50 x 1.8	NW-SE	0.29	0.15	No archaeological features observed
66	50 x 1.8	E-W	0.30	0.40	No archaeological features observed
67	50 x 1.8	E-W	0.42	0.08	No archaeological features observed
68	50 x 1.8	N-S	0.50	0.40	No archaeological features observed
69	50 x 1.8	N-S	0.31	0.07	No archaeological features observed
70	50 x 1.8	E-W	0.35	0.03	No archaeological features observed
71	50 x 1.8	E-W	0.35	0.25	One medium sized pit at eastern end of trench.
72	50 x 1.8	N-S	0.34	0.07	Narrow NE-SW gully (field boundary/hedgerow) at southern end.
73	50 x 1.8	NE-SW	0.36	0.07	No archaeological features observed
74	50 x 1.8	N-S	0.36	0.06	No archaeological features observed
75	50 x 1.8	E-W	0.30	0.37	No archaeological features observed
76	50 x 1.8	N-S	0.45	0.05	No archaeological features observed
77	50 x 1.8	E-W	0.38	0.02	No archaeological features observed
78	50 x 1.8	N-S	0.30	0.50	Three pits excavated and recorded all appear to be natural solution holes. Post-medieval land drain at southern end.
79	50 x 1.8	NE-SW	0.40	0.02	No archaeological features observed.
80	50 x 1.8	N-S	0.25	0.39	E-W ditch and pit at southern end of trench excavated and recorded, both appeared to be geology.
81	50 x 1.8	N-S	0.30	0.20	One NW-SE ditch, one E-W gully terminus and two post-holes.
82	50 x 1.8	N-S	0.65	0.15	Three ditches all roughly on an E-W alignment, one NW-SE ditch and a single pit at the southern end of the trench.
83	50 x 1.8	N-S	0.40	0.30	One NE-SW ditch at southern end of the trench.
84	50 x 1.8	E-W	0.50	0.10	Single ditch, possibly geology at eastern end of trench.
85	50 x 1.8	E-W	0.40	0.70	No archaeological features observed. Post-medieval land drains.

Appendix 5: Pottery spot dating and catalogue

Spot dating

Trench	Context	Spot Date	NoSh	Wt	MNR
-	Topsoil	Post-med	8	115	3
30	3098	C2?	4	116	1
41	4104	M-L C2	6	105	1
42	4204	Roman	1	11	0
42	4208	120-200	1	8	0
81	8104	Roman	3	14	1
81	8108	MC3-C4; CBM: Roman	50	673	1
82	8204	MC3+	2	11	0
82	8206	MC3+	2	24	0
82	8210	LC3+	11	242	4
82	8212	LC2-MC4	6	41	1
82	8214	MC3+	23	330	3
83	8304	LC2+; CBM: Rom	6	63	0
A	-	Roman/ med; CBM poss. Roman, post-med	2	11	0
B	-	Post med; CBM: post-med	6	143	0

Pottery catalogue

Trench/field	Context/find number	Sample no	SF No	Fabric Code	Part	Function	Confidence	NoSh	Wt	MNR	Date From	Date to	Comments
-	topsoil		0	O00	Body		1	1	4	0			poss. med
-	topsoil		0	O00	Body			3	38	0			
-	topsoil		0	O00	Rim	J		1	35	1			poss. med+
-	topsoil		0	R00	Rim	J		1	22	1	43	410	Everted rim jar
-	topsoil		0	Z30	Body			1	12	0			

Trench/field	Context/find number	Sample no	SF No	Fabric Code	Part	Function	Confidence	NoSh	Wt	MNR	Date From	Date to	Comments
-	topsoil		0	Z30	Rim	J		1	4	1			black slip
30	3098		0	M10	Base			1	79	0			perhaps MOSC quartz/ flint trits
30	3098		0	R00	Body			2	27	0			
30	3098		0	R00	Rim	J		1	10	1	43	410	
41	4104		0	O00	Flange	B		1	58	0	150	250	
41	4104		0	R00	Body			1	11	0			
41	4104		0	R00	Rim	J		1	4	1			slightly cupped beaded
41	4104		0	S20	Body			1	27	0			
41	4104	19	0	R00	Body			2	5	0			
42	4204	9	0	R00	Body			1	11	0			black slip
42	4208		0	S20	Body			1	8	0			
81	8104		0	R00	Base			1	2	0			
81	8104		0	R00	Body			1	5	0			
81	8104		0	R00	Rim	J		1	7	1			everted rim jar
81	8108		0	C00	Body			14	92	0			
81	8108		0	C00	Complete Profile	D		9	306	1	250	410	simple rim dish
81	8108		0	F00	Body			11	106	0			red slip mainly lost sandy
81	8108		0	R00	Base			1	21	0			
81	8108		0	R00	Base			1	8	0			
81	8108		0	R00	Body			10	103	0			

Trench/field	Context/find number	Sample no	SF No	Fabric Code	Part	Function	Confidence	NoSh	Wt	MNR	Date From	Date to	Comments
81	8108	7	0	F00	Body		1	4	37	0			rosette stamp
82	8204	2	0	C00	Body			2	11	0			
82	8206		0	C00	Body			1	10	0			
82	8206	6	0	R00	Body		1	1	14	0			or G00
82	8210		0	F05	Rim	B		2	89	1	280	410	developed bead and flange rim bowl
82	8210		0	g12	Body			1	23	0			
82	8210		0	R00	Body			2	18	0			NW Lincs
82	8210		0	R00	Body			2	32	0			
82	8210		0	R00	Rim	J		1	58	1			beaded jar
82	8210		0	R00	Rim	J		1	14	1			everted rim jar
82	8210	13	0	R00	Rim	J		2	8	1			everted rim jar
82	8212		0	C00	Body			1	10	0			
82	8212		0	R00	Body			2	21	0			
82	8212	14	0	c12	Rim	J		1	8	1	200	350	dales type rim
82	8212	14	0	R00	Body			2	2	0			
82	8214		0	G00	Body			2	4	0			
82	8214		0	G00	Body			1	5	0			
82	8214		0	R00	Body			2	32	0			
82	8214		0	R00	Body			11	138	0			
82	8214		0	R00	Rim	B		1	89	1	240	410	Darling and Precious 2014 no

Trench/field	Context/find number	Sample no	SF No	Fabric Code	Part	Function	Confidence	NoSh	Wt	MNR	Date From	Date to	Comments
													2400 ob lat incised dec
82	8214		0	R00	Rim	J		2	30	1	240	410	cf Darling and Precious 2014 1244
82	8214		0	R00	Rim	J		1	28	1	240	410	cf Darling and Precious 2014 1244
82	8214	12	0	R00	Body			3	4	0			
83	8304	1	0	C00	Body			1	19	0			
83	8304	1	0	C00	Body			3	24	0			
83	8304	1	0	O00	Body			1	5	0			
83	8304	1	0	R00	Body			1	15	0			
A	16		0	O00	Body			1	6	0			
A	20		0	O00	Body			1	5	0			poss. med
B	1		0	Z30	Body			1	34	0			poss. field drain, slipped
B	8		0	R00	Body			1	53	0			
B	10		0	O00	Body			1	12	0			
B	11		0	Z21	Handle		1	1	28	0			
B	23		0	O00	Base			1	7	0			
B	24		0	O00	Body			1	9	0			

Appendix 6: Finds from the evaluation trenches

Cxt	Trench	Sample	Material	ID	Description	Qty	Condition	Date	Further work	Illustrate	Discard
4208	42		Iron	Nail	Near complete, tips missing. Rectangular sectioned shanks, sub-rectangular flat heads. Mineralised wood preserved on both shanks. L 50mm and 60mm, max L of each head 20mm.	2	Stable	Roman	X-ray	N	N
4208	42	25	Iron	Nail	Complete, substantial nails with mineralised wood. L 80-95mm.	3	Stable	Roman	X-ray and wood ID	Y	N
4208	42	25	Iron	Nail	Complete, with mineralised wood. L 50-70mm.	17	Stable	Roman	X-ray and wood ID	Y	N
4208	42	25	Iron	Nail	Complete, with mineralised wood. L 40-50mm.	8	Stable	Roman	X-ray and wood ID	Y	N
4208	42	25	Iron	Nail	Nails with incomplete shanks.	15	Stable	Roman	X-ray		N
4208	42	25	Iron	Nail	Complete, with clenched shanks.	9	Stable	Roman	X-ray		N
4208	42	25	Iron	Nail	Shanks	14	Stable	Roman	X-ray	N	N
4208	42	25	Iron	Nail	Five complete, one near complete with part of shank missing and four shanks. Mineralised wood present on each.	10	Stable	Roman	X-ray and wood ID	Y (select)	N
5205			Glass	Bottle	Green bottle base, rounded kick-up; surface iridescence.	1	Stable	Post-medieval	N	N	Y
8104	81		Cu alloy	Coin	Details masked by dirt and corrosion	1	Stable	Possibly Roman	Clean and X-ray	?	N
8108	81		Iron	Nail	Shank, rectangular in section. L 45mm+	1	Stable	Not recent, possibly Roman	N	N	N
8208	82		Iron	Object	Encrusted with corrosion products	1	Poor	Not determined,	X-ray	N	N

Cxt	Trench	Sample	Material	ID	Description	Qty	Condition	Date	Further work	Illustrate	Discard
8210		13	Glass	Flat	Translucent colourless glass, even thickness; frequent small seeds. Th 1mm.	1	Good	Not determined, possibly recent	N	N	N
8212	82		Iron	Nail	Corroded shanks, square in section. L 35mm and 26mm	2	Poor	Not recent, possibly Roman	N	N	N
Subsoil			Iron	Implement	Corroded	1	Stable		X-ray?	N	N

Appendix 7: Conservation reports: iron nails and Roman coin

Conservation Treatment Record: Nails

Site	Land off Horkstow Road, Barton Upon Humber (HKW22)	**Conservator**	S. Allen & S. Crow	**YA Report No.**	2023/01
Client	WYAS	**Date**	10/01/2023	**No. of Artefacts**	38

Treatment Requirements

This report describes the analysis phase investigative conservation of thirty-eight iron nails from the site of HKW22. The work carried out has been the investigative cleaning and assessment of mineral preserved wood on the objects submitted. Once the artefacts have been treated they will be packed appropriately for return to the client.

Methodology

Four bags of nails were submitted for identification of the possible surviving wood MPOs present in the corrosion products. Each bag was in turn, opened, the contents examined using a Dino-Lite digital microscope and the contents of each bag returned to their original packaging afterwards. Notes are included in the description, identifications follow Schweingruber FW (1982) 'Microscopic Wood Anatomy' (2nd edition).

Recommended Storage Conditions

Material	< RH% >		Temperature (°C)	Light (lux)
Iron	0	15	Stable	<300

Object Identification						
Context No.	**Trench**	**Sample No.**	**Bag No.**	**Materials**	**Description**	**X-Ray**
4208	**42**	**25**	**1**	**Iron**	Three complete, substantial nails with mineralised wood. L 80-95mm. Nails not individually packed or labelled. Wood grain MPO present on two of the three. Only traces of wood present for the most part. Only one had enough structure present to allow for a partial identification. This was identified as a ring porous hardwood, probably *Quercus* spp.	9845
4208	**42**	**25**	**5**	**Iron**	Ten nails. Five complete, one near complete with part of shank missing and four shanks. Mineralised wood present on each. Nails not individually packed or labelled. Wood grain MPO present on most of the nails. Only traces of wood present for the most part. Only one had enough structure present to allow for a partial identification. This was identified as a ring porous hardwood, probably *Quercus* spp.	9846
4208	**42**	**25**	**6**	**Iron**	Seventeen complete nails, with mineralised wood. L 50-70mm. Nails not individually packed or labelled. Wood grain MPO present on most of the nails. Only traces of wood present on most of these. Two had enough structure present to allow for a partial identification. These were identified as a ring porous hardwood, probably *Quercus* spp.	9846
4208	**42**	**25**	**7**	**Iron**	Eight complete nails with mineralised wood. L 40-50 mm. Nails not individually packed or labelled. Wood grain MPO present on four of the eight. Only traces of wood present for the most part. Only one had enough structure present to allow for a partial identification. This was identified as a ring porous hardwood, probably *Quercus* spp.	9847

Material	Condition Assessment
Iron	The nails range from fair to poor condition. The majority of the nails exhibit cracks and surface loss. **Botanical Name** **Common English Name** *Quercus* spp. Oak, exact species not determinable Wood species identification normally requires enough wood structure to be present in each of the three botanical planes- Transverse Section (TS- colloquially the 'end grain'), the Radial Longitudinal Section (RLS) and the Tangential Longitudinal Section (TLS). Preservation on most the nails shanks was limited to a very thin RLS with not enough contiguous TS or TLS to allow for positive identification. In the cases where a probable identification was possible, enough of the TS and RLS survived, but not enough of the TLS was present for final confirmation. Each piece was also examined to identify whether wood from more than one separate piece of timber was present, i.e. whether these nails had been used to fasten one piece of wood to another. Wood grain was only present in one direction on each nail and consequently this cannot be confirmed.

Material	Treatment
Iron	Soil and bulky iron corrosion obscuring the mineral preserved wood was removed with a scalpel and a soft brush. Where possible, broken nails were reconstructed and adhered together with HMG Paraloid B72.

Photography					
Context No.	**Trench No.**	**Sample No.**	**Bag No.**	**Before**	**After**
4208	42	25	1		

					
4208	42	25	5		

					
4208	42	25	6		

				 10cm  10cm	 10cm  10cm

4208	42	25	7	 	 

Conservation Treatment Record: Coin

Object	Coin	**Accession No.**	
Site	Land off Horkstow Road, Barton upon Humber	**Site Code**	HKW22
Client	WYAS	**Context**	8104
Material	Copper Alloy	**SF No.**	1
Date	21/12/2022	**X-Ray**	9846
Conservator	S. Crow	**YA Report No.**	2022/100

Treatment Requirements

This report describes the conservation of a Roman coin from the site of Horkstow Road, Barton upon Humber. The work carried out has been the cleaning and stabilisation of the objects submitted. Once the artefact has been treated, it will be packed appropriately for return to the client.

Photography: **Before** **After**

Recommended Storage Conditions

< RH% >		Temperature (°C)	Light (lux)
0	35	Stable	<300

Condition Assessment
Good condition. The surface is encrusted with soil and minimal green copper corrosion overlying a black/green patina. The decoration is weathered but visible under raking light. Obverse: Profile of a head facing proper left wearing a laurel wreath with two tails flaring out at the back. Head is surrounded by lettering. Reverse: Standing figure on a flat plinth facing proper right holding a small spherical object in its proper right hand and a long sceptre in the proper left hand. The figure is bordered by dots, possibly weathered letters.
Treatment
Soil was removed with a porcupine quill and cotton swabs of 50:50 Industrial Methylated Spirit and Reverse Osmosis water. Corrosion was then removed with a scalpel under x10 magnification. Condition was deemed stable and did not require consolidation.

Appendix 8: Environmental material from the flot samples

	Context	4004	4006	4104	4106	4204	4204	4206	4208	4208	4404
	Sample	18	16	19	21	9	42	10	11	25	15
	Feature	ditch 4003	pit 4005	pit 4103	pit 4105	ditch 4203	ditch 4203	term 4205	pit 4207	pit 4207	ditch 4403
	Trench	40	40	41	41	42	42	42	42	42	44
	Sample Volume (litres)	20	10	40	20	40	10	40	30	10	20
	Total CV	<2.5ml	0	<2.5ml	<2.5ml	0	0	<2.5ml	<2.5ml	<2.5ml	0
	Modern	50ml	20ml	50ml	30ml	50ml	10ml	30ml	20ml	200ml	40ml
Carbonised Cereal Grain	**Common Name**										
Avena sp.	oat										
Triticum aestivum	bread wheat										
Triticum sp.	wheat							1		6	
Hordeum vulgare sl.	barley									1	
Indeterminate cereal grain (+embryo)									1		
Carbonised Weeds											
Chrysanthemum sp.	crown daisys									1	
Other Remains											
Non-marine mollusc (snail) shell		200+	20+	200+	100+	50+	10+	20+	50+	500+	100+
Clinker		10+									
Coal											
Modern straw				20+		20+	5+	20+	20+	20+	20+
Modern seeds					5+						
Earthworm egg capsules											

	Context	5304	5404	7104	7204	8104	8105	8108	8204	8206	8208
	Sample	17	20	24	23	4	5	7	2	6	8
	Feature	gully 5303	ditch 5403	pit 7103	gully 7203	ditch 8103	ditch 8106	term 8107	ditch 8203	ditch 8205	ditch 8207
	Trench	53	54	71	72	81	81	81	82	82	82

	Sample Volume (litres)	10	40	10	10	20	20	20	40	40	20
	Total CV	<2.5ml	0	0	0	<2.5ml	0	<2.5ml	<2.5ml	<2.5ml	0
	Modern	20ml	20ml	20ml	15ml	5ml	10ml	20ml	40ml	25ml	20ml
Carbonised Cereal Grain	**Common Name**										
Avena sp.	oat					1					
Triticum aestivum	bread wheat									1	
Triticum sp.	wheat										
Hordeum vulgare sl.	barley					2					
Indeterminate cereal grain (+embryo)						4					
Carbonised Weeds											
Chrysanthemum sp.	crown daisys										
Other Remains											
Non-marine mollusc (snail) shell		10+	100+	10+	20+	20+	10+	50+	20+	20+	50+
Clinker					5+	1	1				
Coal											
Modern straw			10+				10+	20+	20+	10+	
Modern seeds											
Earthworm egg capsules				2							

	Context	8210	8212	8214	8304	8404
	Sample	13	14	12	1	3
	Feature	ditch 8209	term 8211	pit 8213	ditch 8303	ditch 8403
	Trench	825	82	82	83	84
	Sample Volume (litres)	20	20	20	40	20
	Total CV	<2.5ml	<2.5ml	0	<2.5ml	<2.5ml
	Modern	20ml	15ml	30ml	25ml	15ml
Carbonised Cereal Grain	**Common Name**					
Avena sp.	oat					
Triticum aestivum	bread wheat					

Triticum sp.	wheat					
Hordeum vulgare sl.	barley	2				
Indeterminate cereal grain (+embryo)						
Carbonised Weeds						
Chrysanthemum sp.	crown daisys					
Other Remains						
Non-marine mollusc (snail) shell		50+	50+	20+	50+	
Clinker					1	
Coal						1
Modern straw		10+	20+	50+	5+	10+
Modern seeds				5+		
Earthworm egg capsules						

Appendix 9: Human bone

The articulated skeleton

Skeleton Number	2
Surface preservation	Very poor (Grade 5)
Fragmentation	Severe
Completeness	65% Fragments of skull vault, mandible, maxilla, dentition; Right and left shoulders, sternum and manubrium, fragmentary right ribs; vertebral column, partial sacrum, right and left pelvis; right and left arms and partial hands; right and left legs and partial feet (all right tarsals present)
Age	36-45 (old middle adult)
Sex	Male
Ancestry	White?
Stature	162.8±3.27
Non-Metric Traits	Right Parietal Foramen, left Accessory Lesser Palatine Foramen, left Mandibular Torus, Plaque on both proximal femora, left Hypotrochanteric Fossa
Pathology	Healed fracture of the right clavicle, midshaft; healed fracture of two right rib shafts, midshaft; cleft neural arch on the atlas – unilateral right aplasia; degenerative joint changes in the C, and T and L spine and the hips
Dental Health	25 permanent teeth, 16 tooth positions, one tooth lost post-mortem, three lost ante-mortem; slight to medium calculus deposits on 10 teeth, one tooth with caries, three teeth with DEH

	Right Dentition								Left Dentition							
Present	-	-	PU	L	L	L	L	L	L	L	L	L	-	AM	AM	AM
Calculus	-	-											-	-	-	-
DEH	-	-											-	-	-	-
Caries	-	-	La										-	-	-	-
Wear	-	-	-	5	5	5	5	5	5	5	5	5	-	-	-	-
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	PM	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	-	Fm	Mb	Fd	Fb	Sb	Fb	Fb		Sb		Sb				Mlb
DEH	-				L	L					L					
Caries	-															
Wear	-	6	6	5	4	4	5	5	5	5	4	4	4	6	5	7

Disarticulated Human Bone

ID	Context	Bone Element	Bone*	Side	%	SP	Frags	Age	Sex	Notes
1	4208	Maxillary Tooth	Second premolar	L	100	3	1	A	U	Wear 3
2		Maxillary Tooth	Third molar	L	100	3	1	A	U	Wear 3
3		Mandibular Tooth	Second molar	L	100	3	1	A	U	Wear 3
4		Frontal	Orbit	R	10	5	1	A	U	
5		Temporal	Petrous	L	15	5	1	A	U	
6		Parietal	Posterior Squamous	L	30	5	5	A	U	
7		Occipital	Nuchal crest	LR	30	5	1	A	M?	
8		Tibia	Proximal shaft Central shaft	R	30	5	7	A	U	
9		Femur	Proximal shaft Central shaft Distal shaft	L	60	5	9	A	U	

*All disarticulated elements might be from the same person due a lack of duplicate skeletal elements

Appendix 10: Radiocarbon dating certificate

Scottish Universities Environmental Research Centre
Rankine Avenue, Scottish Enterprise Technology Park, East Kilbride, Glasgow G75 0QF, Scotland, UK
Director: Professor F M Stuart Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE

13 December 2022

Laboratory Code	SUERC-107950 (GU62666)
Submitter	Zoe Horn Archaeological Services WYAS Nepshaw Lane South Morley Leeds LS27 7JQ
Site Reference	Horkstow Grange
Context Reference	SK2
Sample Reference	HWK22
Material	Bone : Human

$\delta^{13}C$ relative to VPDB	-19.9 ‰	**$\delta^{34}S$ relative to VCDT**	13.6 ‰
$\delta^{15}N$ relative to air	10.9 ‰	**C/S ratio (Molar)**	576
C/N ratio (Molar)	3.4	**N/S ratio (Molar)**	171

Radiocarbon Age BP 1752 ± 24

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD) and requires calibration to the calendar timescale. The error, expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

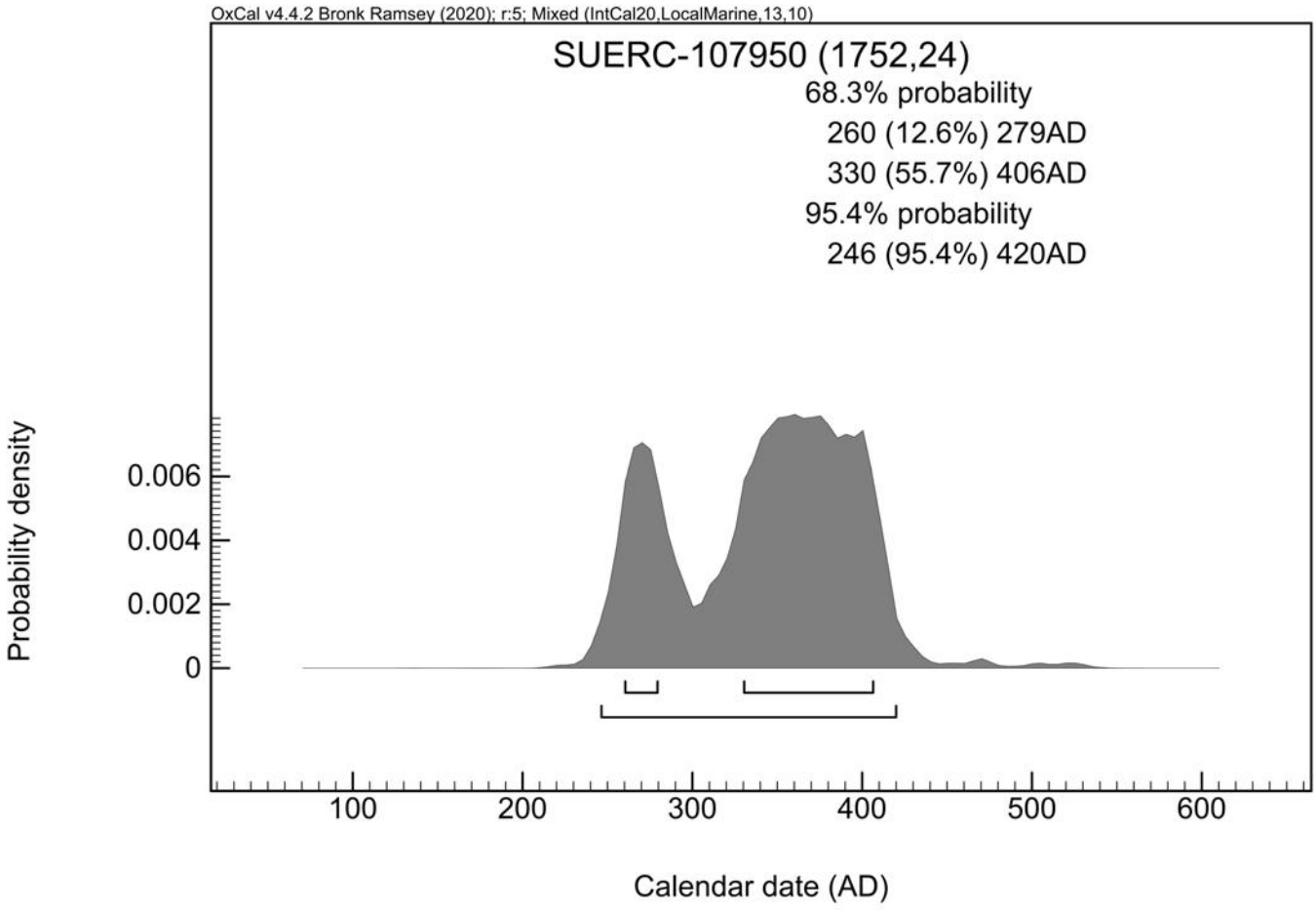
Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Laboratory and should be quoted as such in any reports within the scientific literature. The laboratory GU coding should also be given in parentheses after the SUERC code.

Detailed descriptions of the methods employed by the SUERC Radiocarbon Laboratory can be found in Dunbar et al. (2016) *Radiocarbon 58(1) pp.9-23.*

For any queries relating to this certificate, the laboratory can be contacted at suerc-c14lab@glasgow.ac.uk.

Conventional age and calibration age ranges calculated by : E. Dunbar

Checked and signed off by : P. Nayont



The radiocarbon age given overleaf is calibrated to the calendar timescale using the Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.*

The above date ranges have been calibrated using a mix of the IntCal20† and Marine20‡ calibration curves.

Human bone collagen with a $\delta^{13}C$ value above -20‰, accompanied by a raised $\delta^{15}N$ value, is taken to indicate a marine component in the diet. The percentage contribution of this marine component is calculated using end-members of -21.0‰ (fully terrestrial) and -12.5‰ (fully marine) with an uncertainty of 10% applied.

The $\delta^{13}C$ value of -19.9‰ gives a 13% marine contribution (±10%).

A regional marine offset (ΔR) of -150 ± 52 years has been used in the calibration.

Please contact the laboratory if you wish to discuss this further.

* Bronk Ramsey (2009) *Radiocarbon 51(1) pp.337-60*
† Reimer et al. (2020) *Radiocarbon 62(4) pp.725-57*
‡ Heaton et al. (2020) *Radiocarbon 62(4) pp.779-820*

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