Programme of Archaeological Investigation

Norton Canes, Cannock Chase, Staffordshire

Worcestershire Archaeology

for Orion Heritage

on behalf of Persimmon Homes

December 2020





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LAND AT NORTON CANES
CANNOCK CHASE
STAFFORDSHIRE

Archaeological report

Worcestershire Archaeology
Worcestershire Archive & Archaeology Service
The Hive
Sawmill Walk
The Butts
Worcester
WR1 3PD

SITE INFORMATION

Site name:	Norton Canes, Cannock Chase, Staffordshire
Site code:	-
Local planning authority:	Cannock Chase District Council
Planning reference:	CH/10/0294
Central NGR:	SK 01225 07655
Commissioning client:	Orion Heritage
Client project reference:	-
WA project number:	P5181
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Programme of Archaeological Investigation

Norton Canes, Cannock Chase, Staffordshire

By Peter Lovett

With contributions by Tim Cornah, Rob Hedge, Elizabeth Pearson, and Kath Hunter Dowse

Illustrations by Carolyn Hunt and Laura Templeton

Summary

A programme of archaeological investigation was undertaken by Worcestershire Archaeology (WA) between June 2019 and May 2020 at Norton Canes, Cannock Chase, Staffordshire (NGR SK 01225 07655). This comprised one area of archaeological Strip, Map and Sample investigation focussing on an area of cropmarks and a watching brief maintained during clearance of scrub and other debris from areas associated with a former moated site.

The project was commissioned by Orion Heritage on behalf of Persimmon Homes, in advance of residential development with some employment and informal green space. The archaeological advisor to the local planning authority considered that the development had the potential to impact upon specific heritage assets. Previous study of the site suggested the survival of elements of a medieval landscape including two moated sites within the development area. Planning permission was granted subject to completion of the programme of archaeological works reported here.

The Strip, Map and Sample exercise revealed medieval and post-medieval field boundary ditches, along with a heavily truncated ring gully. This was radiocarbon dated to the 12th-14th century, contradicting the initial interpretation of a prehistoric roundhouse. Possible alternatives were considered, such as a post-mill or a corral. There was not enough evidence to be confident of a mill hypothesis, with a small shelter or corral the most likely interpretation of the evidence. The results of the excavation demonstrate a prolonged agricultural use of the landscape.

The watching brief on works undertaken across areas of the former moated site did not encounter any deposits of archaeological significance due to the relatively shallow depth of the works involved, allied to 20th century disturbance and infilling of the earthworks that once defined this site.

The methods adopted allow a high degree of confidence that the aims of the project have been achieved. Conditions were suitable in all areas to identify the presence or absence of archaeological features and it is evident that no deposits associated with the former moated area were disturbed.

Report

1 Introduction

1.1 Background to the project

A programme of archaeological investigation was undertaken by Worcestershire Archaeology (WA) between June 2019 and May 2020 at Norton Canes, Cannock Chase, Staffordshire (NGR SK 01225 07655). This comprised one area of archaeological Strip, Map and Sample investigation and a watching brief on a separate area where the remains of a moated site are present.

The project was commissioned by Orion Heritage on behalf of Persimmon Homes, in advance of residential development with some employment and informal green space. The archaeological advisor to the local planning authority considered that the development had the potential to impact upon specific heritage assets. Previous evidence from the site suggested the survival of elements of a medieval landscape including two moated sites within the development area. Planning permission has been granted subject to conditions including completion of the programme of archaeological works reported here (planning reference CH/10/0294).

A Written Scheme of Investigation was prepared by AMEC (2011) and approved by the local planning authority. The project followed the procedures identified in this WSI and also conformed to the industry guidelines and standards set out by the Chartered Institute for Archaeologists in the *Standard and guidance: for archaeological excavation* (CIfA 2014a) and *Standard and guidance: for an archaeological watching brief* (CIfA 2014b).

1.2 Site location, topography and geology

The site is located *c* 250m to the south-west of the centre of the village of Norton Canes, and is bounded by residential land to the north, an industrial estate to the east, the M6 Toll to the south and Butts Lane to the west. The site is located within a dip within the landscape and slopes gently upwards towards the north-west.

The underlying geology comprises bedrock of Pennine Middle Coal Measures Formation - mudstone, siltstone and sandstone overlain by glaciofluvial deposits such as sands and gravel (BGS 2020).

2 Archaeological and historical background

The Written Scheme of Investigation (AMEC 2011) outlines the archaeological background of the site and this is summarised below.

There is little surviving documentation relating to the settlement of Norton Canes before the 19th century. The village was listed in Domesday in 1086 as just Nortone, under the ownership of the Bishop of Lichfield. It is thought to have remained as a small agricultural settlement until the industrial exploitation of the coal fields upon which it lies began in the 19th century.

Cartographic sources for the site date from 1763, showing the estates of Richard Gildart and including Norton Hall and associated buildings. Two potential medieval moated sites or fish ponds recorded on the HER appear on later mapping, one on the northern side of the site (PRN1087) and one to the west (PRN1088).

The western moat (PRN1088) provided the focus of the watching brief phase of work and this is first shown as a U-shaped feature on historic mapping from 1827 with its north-eastern side open and with a central broadly square area surrounded on three sides by a former moat. Broadly similar details are shown on mapping into the 20th century, with it marked as a fish pond in 1902. This U-shaped feature defining the site no longer survives as a visible feature in the landscape, presumably having become infilled sometime during the 20th century.

The modern mapping shows some buildings in the north-western end of the area, though these are not on the 1938 mapping so were modern in date.

Assessment of aerial photographs was undertaken as part of the Birmingham Northern Relief Road project (Cox 2000), which plotted historic field systems related to the northern moated site.

3 Project aims

- Identify and record the presence, location, extent and pattern of any surviving archaeological remains.
- Consider the regional context within which any archaeological evidence rests.

4 Project methodology

A Written Scheme of Investigation (WSI) was prepared (AMEC 2011). Fieldwork on the excavation area was undertaken between 3 and 13 June 2019. Fieldwork on the moated area (PRN1088) was undertaken between 25 and 29 May 2020.

For the Strip, Map and Sample, an area 6,400m² was excavated to archaeologically determined levels whilst during the watching brief, an area amounting to 1270m², was excavated to levels required for the clearance of scrub and dumped debris from the area of the former moat. The locations of these areas are shown in Figure 1. It had been anticipated that the latter activity would include works within the areas of the moat arms, but in the event clearance, removal of dumped debris and stripping activity was restricted to the former interior of the moat. The lower parts of the area once occupied by the moat arms were not stripped as these required no reduction in ground surface (levelling down) and only a couple of small scrubby trees were removed from one side.

In both areas, deposits considered not to be significant were removed under constant archaeological supervision using a 360º tracked excavator, employing a toothless bucket. Subsequent excavation was undertaken by hand.

Clean surfaces were inspected, and selected deposits were excavated to retrieve artefactual material and environmental samples, as well as to determine their nature. Deposits were recorded according to standard Worcestershire Archaeology practice (WA 2012) and trench and feature locations were surveyed using a differential GPS with an accuracy limit set at <0.04m. On completion of work in the excavation area, trenches were reinstated by replacing the excavated material.

All fieldwork records were checked and cross-referenced. Analysis was undertaken through a combination of structural, artefactual and environmental evidence, allied to the information derived from other sources.

The project archive is currently held at the offices of Worcestershire Archaeology. Subject to the agreement of the landowner it is anticipated that it will be deposited at The Potteries Museum and Art Gallery.

5 Archaeological results

5.1 Strip, Map and Sample, by Peter Lovett

The features recorded in the Strip, Map and Sample are shown in Figures 2-4 and Plates 1-7.

5.1.1 Natural deposits across the site

The natural stratum consisted of yellow and grey sands interspersed with patches of pinkish clay and cobbles.

5.1.2 Phase 1: Medieval

A small curvilinear gully was excavated in the eastern side of the area (Figs 3 and 4). It was situated on the crest of a slight rise, with the land dropping off from *c.* 144m AOD to 142m in the west. The gully formed a semi-circle, though it was thought during excavation that the feature was truncated, and that originally the circuit would probably have been complete. The gully was between 0.04 and 0.10m deep, and *c*. 0.30m wide. It had an internal diameter of 5.20m. The only artefacts recovered from the three excavated slots (1031, 1033, 1035) were burnt clay and burnt stone, neither of which is indicative of any particular date or function. Charred plant remains from two of the fills were radiocarbon dated, producing dates of 1220-1290 cal AD and 1270-1400 cal AD.

A large pit (1039) was located centrally within the gully and had been thought initially to be a hearth. Upon excavation, despite the charcoal in the upper fill, it became apparent that this feature was not a hearth, having no *in situ* burning or evidence of clay lining. The sides were moderately sloped, into a concave base. The lower fills were sterile sands. Next to this was a small posthole (1044), from which two sherds of medieval pottery was recovered. Two further pits were excavated within the circuit of the ring gully; 1046 was a possible posthole 0.40m wide and 0.20m deep, whilst 1042 was 1m wide and 0.25m deep. Neither returned dateable finds or contained evidence to suggest a function.

A ditch measuring between 1m and 1.70m wide and up to 0.63m deep ran north-west to south-east from the northern edge of site (Fig 2: 1003, 1012). This contained homogenous fills derived from surrounding topsoil, suggesting gradual deposition over time. Medieval pottery was recovered from the fill. The ditch returned north (Fig 2: 1005), to create a corner not quite at right angles. This corner was truncated by a post-medieval ditch (1024). This ditch correlates well with cropmarks identified from aerial photographs.

5.1.3 Phase 2: Post-medieval

Two ditches were identified that date to this period. Ditch 1057 emerged from the middle of the eastern baulk and ran south-west for *c*.48m before fading out (Fig 2). It was a very shallow feature, no more than 0.09m deep. Red brick was recovered from the fill, though not retained. It did not appear as a cropmark in the aerial photograph study (Cox 2000).

A second ditch (Fig 2: 1016 and 1021), that truncated the medieval ditch, ran from the western edge in a north-easterly direction, turning south-east at the point that the earlier ditch also changed direction. This suggests a continuation of existing field patterns throughout these periods. This ditch was filled by homogenous deposits derived from surrounding topsoil and was between 1.80 and 2.20m wide and up to 0.66m deep. This ditch matched up well with the cropmarks discussed above.

5.1.4 Phase 4: Modern

A very thin subsoil was present across the site, but in most places it was indistinguishable from the topsoil. There were a number of land drains crossing the site, and frequent plough scars could be seen within the natural.

5.1.5 Undated

Seven features remained undated. Three of these were postholes and based on the general level of truncation across the site were likely of post-medieval or later date. Two of these (1008 and 1010) were in the north-west corner of the site and may have been part of a fence line. The third was an isolated feature. The remaining five features were of dubious quality, and were probably of natural origin, as tree holes or similar rooting processes.

5.2 Watching brief, by Tim Cornah

The observed area, see Figure 5 and Plates 8 to 10, was excavated to very variable depths, largely due to an uppermost deposit (100) having been significantly mounded on certain areas of the site within what had once been the interior of the moat. Once this was removed, levels were more consistent, but deposits exposed and removed to level this area were entirely of modern date. Within

the areas of the former U-shaped arms of the surrounding moat no stripping or levelling (down) was required and, although a few small scrubby trees and bushes were removed to one side, no works impinging on potential deposits within the moat arms was undertaken.

Within the stripped area, a deposit (101) was revealed to be present across the majority of the site and this is interpreted as a large-scale deposit of made ground. This is considered to have been relatively modern in date though no clear dating was recovered.

On the eastern side of the site, a ditch filled in during the later 20th century was partially excavated, exposing deposits (102 and 103) in section only (Plate 3). Deposit (102) was consistent with a former topsoil, with (103) typical of the recorded geology of the area. The north-west end of the site was stripped further to level the area and revealed to be covered by deposit (104) which consisted of modern building rubble. This most likely resulted from demolition of 20th century buildings which once occupied the north-western end of the area, the footings of which remained partially visible. It appeared that the north-western end of the site had been truncated (scarped) into the slope to a small degree, probably when the buildings were demolished.

The moat arms were filled in to a degree that they are no longer clearly visible and no levelling down or stripping was required here, however, these may survive as buried features masked below areas of modern truncation and dumping as shown on Figure 2. A cut feature had been excavated running across the site and may potentially have been excavated to drain the former moat arms. This was backfilled with a large amount of modern material (shown in blue on Figure 5).

No pre-modern deposits were observed, except small areas of former topsoil (102) and natural (103) revealed in section. Across the former moated area, only modern deposits were recorded at the levels the site was reduced to.

Context	Brief description	Max depth (m)	Depth from ground surface (m)	Comments
100	Made ground	0-0.70	0.00	Dark black brown sandy silt with frequent rounded stones, coal, plastic, concrete and brick of 19th century to 20th century date
101	Made ground	0.25	0.20-0.70	Mid orange brown sandy silt with frequent sub-rounded stones and clayey patches with no dating though has machine rut tracks within the top of the deposit.
102	Buried topsoil	0.18	0.45-0.95	Dark grey brown sandy silt with frequent sub-rounded stones.
103	Natural		Up to 0.95	
104	Modern rubble demolition	unknown	0	Modern brick, concrete and other material spread over the north-western half of the area

Table 1: Summary context descriptions from the watching brief

6 Artefactual evidence, by Rob Hedge MCIfA

Recovery of artefacts was undertaken according to standard Worcestershire Archaeology practice (WA 2012).

6.1 Artefact methodology

The finds work reported here conforms with the following guidance: for finds work by CIfA (2014c), for pottery analysis by PCRG/SGRP/MPRG (2016), for archive creation by AAF (2011), and for museum deposition by SMA (1993).

6.2 Method of analysis

All hand-retrieved finds and artefacts from environmental samples were examined. They were identified, quantified and dated to period. A *terminus post quem* date was produced for each stratified context. The date was used for determining the broad date of phases defined for the site. All information was recorded on a Microsoft Access database.

The pottery and ceramic building material was examined under x20 magnification and referenced as appropriate by fabric type and form according to relevant local assemblages (eg Nichol and Ratkai 2004; Ford 1995; Wrathmell and Wrathmell 1976, 1977).

6.3 Discard policy

Artefacts from topsoil and subsoil and unstratified contexts will normally be noted but not retained, unless they are of intrinsic interest (eg worked flint or flint debitage, featured pottery sherds, and other potential 'registered artefacts'). All artefacts will be collected from stratified excavated contexts, except for large assemblages of post-medieval or modern material, unless there is some special reason to retain, such as local production. Such material may be noted and not retained, or, if appropriate, a representative sample may be collected and retained. Discard of finds from post-medieval and earlier deposits will only be instituted with reference to museum collection policy and/or with agreement of the local museum.

See the environmental section for other discard where appropriate.

6.4 Artefactual analysis

The sparse artefactual assemblage recovered is summarised in Tables 2 and 3. It comprised small quantities of hand-retrieved medieval and post-medieval pottery, along with burnt clay, burnt stone and ironworking slag extracted from environmental samples, none of which were intrinsically dateable. The group came from seven stratified contexts.

At 11.9g, mean potsherd size was slightly above average, but the condition was poor.: All sherds displayed high levels of abrasion, rendering precise identification difficult.

period	material class	object specific type	count	weight(g)
Iron Age+	slag(fe)	hammerscale	20	0.58
Iron Age+	slag(fe)	smelting slag	1	2.7
medieval	ceramic	pot	5	36
post-medieval	ceramic	pot	3	59
undated	ceramic	burnt clay	45	179
undated	stone	burnt stone	3	50
undated	quartz	burnt stone	1	53
		Totals	**78**	**380.28**

Table 2: Quantification of the assemblage

6.5 Site dating

6.5.1 Medieval

Fill 1013 of ditch 1012 contained sherds of medieval pottery: the two whiteware sherds are typical of pottery widely distributed in Staffordshire in the 13th and 14th centuries, and include a clubbed-rim sherd similar to storage jars encountered at the Moat Site, Walsall (cf Wrathmell and Wrathmell 1976, fig 14:6), wares suggested to have been made around the southern margins of Cannock Chase (*ibid*, 43).

Two medieval sherds from fill 1043 of posthole 1044 are too fragmentary to be confidently ascribed to a production centre but belong to the class of locally-produced iron-rich sandy wares of 11th to 14th century date (Ford 1995, 32). This fill also contained small quantities of hammerscale, which may be indicative of ironworking in the near vicinity.

broad period	fabric type	fabric description	count	weight(g)
medieval	Iron-rich sandy ware (Ford)	Unglazed. Small-medium subrounded quartz. Highly micaceous	1	8
		Unglazed. Abundant medium subangular quartz.	2	5
	Midlands white ware (Ford)	Unglazed. Abundant small subrounded quartz, rare small iron ore	2	23
post-medieval	Blackware (Nichol and Ratkai)	Red-slipped, pinkish-buff fabric, poorly-mixed with rare large iron ore.	3	59
		Totals	**8**	**95**

Table 3: Quantification of the pottery by period and fabric-type (with fabric reference source indicated)

6.5.2 Post-medieval

Three sherds of 17th-18th century blackware from fill 1028 indicate that ditch 1027 was infilled in the post-medieval period.

context	material class	object specific type	count	weight(g)	start date	end date	TPQ date range
1013	ceramic	pot	1	8	1100	1400	AD 1200 – 1400
	ceramic	pot	2	23	1200	1400	
1028	ceramic	pot	3	59	1600	1800	AD 1600 – 1800
1030	ceramic	burnt clay	4	13			Undated
	stone	burnt stone	2	58			
1032	ceramic	burnt clay	12	77			Undated

context	material class	object specific type	count	weight(g)	start date	end date	TPQ date range
	stone	burnt stone	2	45			
1034	ceramic	burnt clay	5	16			Undated
1037	ceramic	burnt clay	24	73			700 BC - AD 1600
	slag(fe)	smelting slag	1	2.7	-700	1600	
1043	ceramic	pot	2	5	1200	1400	AD 1200 – 1400
	slag(fe)	hammerscale	20	0.58	-700	1600	

Table 4 Summary of context dating based on artefacts grouped in phase order

6.5.3 Undated

Fills 1030, 1032 and 1034 yielded small quantities of burnt stone and burnt clay which could date from any period from the Neolithic onwards: the material itself was not intrinsically dateable by eye. They are likely to represent waste from domestic fires or hearths. A very small quantity of iron slag from fill 1037 of pit 1039 is consistent with bloomery iron production, a technique originating in the Iron Age but continuing until the early post-medieval period. Although an earlier date cannot be ruled out, these finds are likely to be contemporary with the medieval pottery.

6.6 Synthesis

The paucity of finds from the curvilinear ditch is consistent with the degree of truncation and the consequently relatively poor preservation conditions. The material present is consistent with a medieval date, but this cannot be proven from the finds alone.

Small quantities of abraded medieval pottery from posthole 1044 and ditch 1012 were of typical local domestic wares and were probably introduced into the features via agricultural processes such as manuring, possibly associated with the moated site to the north. The presence of 17th/18th century blackwares in ditch 1027 indicates that some of the boundary ditches remained open into the post-medieval period.

6.7 Recommendations

6.7.1 Discard and retention

The assemblage is not considered a high priority for museum accession, although the final decision rests with the receiving institution.

7 Environmental evidence, By Elizabeth Pearson and Kath Hunter Dowse

7.1 Introduction

The environmental project conforms to guidance by CIfA (2014) on archaeological excavation, further guidance by English Heritage (2011) and the Association for Environmental Archaeology (1995).

The underlying soils consist of slowly permeable seasonally wet, slightly acid but base-rich loamy and clayey soils of moderate fertility (Cranfield and Agrifood Institute 2020). Land cover today is under grassland with arable and some woodland. The drift geology comprises diamicton till (BGS 2020).

7.2 Methodology

7.2.1 Sampling policy

Samples were taken according to standard Worcestershire Archaeology practice (2012). A total of five bulk samples (each of up to 30 litres) were taken from the site (Table 6).

7.2.2 Processing and analysis

The samples were processed by flotation using a Siraf tank. The flots were collected on a 300µm sieve and the residue retained on a 1mm mesh. This allows for the recovery of items such as small animal bones, molluscs and seeds.

The residues were scanned by eye and the abundance of each category of environmental remains estimated. A magnet was also used to test for the presence of hammerscale. The flots were scanned using a low power MEIJI stereo light microscope and plant remains identified using modern reference collections maintained by Worcestershire Archaeology, and a seed identification manual (Cappers *et al* 2012). Nomenclature for the plant remains follows Stace (2010).

Five samples were assessed, but aside from radiocarbon dating of charred plant remains (Section 7.4), no further work was recommended. Charred cereal crop remains, of medieval date, were moderately abundant, but diversity of cereal grain and weed seeds was low. Charcoal was also moderately abundance, but as this did not appear to relate to any specific activity, no further work was carried out. The assessment results, nevertheless, are presented in order to characterise the site.

7.2.3 Discard policy

Remaining soil sample and residues (post scanning) will be discarded after a period of three months following submission of this report unless there is a specific request to retain them.

7.3 Results

Results are presented in Tables 5 and 6.

Context	Sample	Charcoal	Charred plant	Uncharred plant	Hammerscale	Artefacts
1030	1	abt	occ			occ burnt/dried clay(?), heat-cracked stone
1032	2	abt	mod	mod*		mod burnt/dried clay/soil, mineral concretions, occ heat-cracked stone
1034	3	occ	mod	mod*		occ burnt/dried clay(?), mineral concretions
1037	4	mod	mod	occ*	occ	mod burnt/dried clay(?), mineral concretions, occ Fe slag, heat-cracked stone
1043	5	abt			occ	

*Table 5: Summary of remains from bulk samples; occ = occasional, mod = moderate, abt = abundant, * = probably modern and intrusive*

7.3.1 Plant remains by Kath Hunter Dowse

Methods

Following a programme of Strip, Map and Sample, five samples were assessed for their potential for plant remains and other environmental evidence including charcoal. The samples were processed using a flotation technique recovering the flot to 300 µm and the residue to 1mm. The residues were sorted in-house by Worcestershire Archaeology with charcoal and other plant remains extracted from the greater than 2 mm fraction. The flots and material extracted from the residues were rapidly assessed by the author using an MTL stereo microscope. The results from this assessment are recorded in Table 6.

In order to make the best use of time and the availability of only low-power microscopy the assessment of charcoal is very basic. It attempted to identify the presence of ring porous or diffuse vessel patterns. Where possible the author attempted to identify whether the charcoal represents roundwood, heartwood, twig or root. However, the act of trying to identify the above characteristics in abraded charcoal is by necessity destructive, so this was not carried out on all of the fragments from this evaluation. The frequency of all environmental remains has been recorded using the following criteria:

* 1-5 items
** 6-10 items
*** 11-50 items
****50-100+ items

The frequency for charcoal recorded in Table 1 in brackets e.g. (***) represents the proportion that appears to be larger than 2mm in all dimensions and may be identifiable to species.

Where identification of other plant macrofossils has taken place, the nomenclature for cereals follows Zohary *et al* 2012 and other plants Stace 2010. The term “seed” may include achene, fruit, nutlet etc.

The criteria used to select samples for further analysis of archaeobotanical remains is based on a scheme developed by Wendy Carruthers. This allows various factors to be taken into account when assessing samples. The priority categories used in this assessment are as follows:

> A= high potential on archaeobotanical grounds (i.e. rare or interesting plant taxa or exceptional preservation) or due to the scarcity of information from this type of deposit (e.g. Neolithic contexts).
>
> B= good potential due to reasonable preservation and/or frequent identifiable charred plant remains, i.e. the assemblage can provide a useful amount of information.
>
> C= some charred material but present in low concentrations or very poorly preserved. The samples will only be worth including if part of a group, or if the context is especially important or particular information is required.
>
> D= no charred material or so few to have been fully identified and recorded. Any information recovered from C and D samples can be included in the final report if necessary.
>
> (Carruthers pers. comm).

Context	Sample no.	Feature number/type	Period	Sample volume (L)	% scanned	Grain	Cereal NFI	Chaff	Legume	Seed	Fruit/nut	ACL	Charcoal	Insect	Comments	Potential	Charcoal potential
1030	1	Fill of curvilinear gully 1031	Medieval	10	100		*			*			(***) ***		Charred cereal grain fragments; corn marigold (*Glebionis segetum*), charcoal includes ring porous roundwood. Modern roots and seeds	D	moderate
1032	2	Fill of curvilinear gully 1033	Medieval	20	100	*	**		*	**			(***) ****		Oat/brome type (cf *Avena*/*Bromus* sp), possible rye (cf *Secale cereale*), cereal grain fragments nfi, corn marigold (*Glebionis segetum*) sedge (*Carex* sp), legume 1mm, seeds indeterminate charcoal includes some ring porous fragments. Many of the fragments appear to be impregnated by iron concretions. Abundant iron concretions are present. Modern roots, seeds and worm egg cases	D	moderate
1034	3	Fill of curvilinear gully 1035	Medieval	10	100	*	**			**		*	(**)**		Possible wheat /rye (cf *Triticum*/*Secale* sp), possible oat/brome (cf	D	fair

															Avena/*Bromus* sp), Corn marigold (*Glebionis segetum*), corn spurry (*Spergula arvensis*) possible sedge (cf *Carex* sp), possible sheep's sorrel (cf *Rumex acetosella*), indet seeds. Charcoal includes ring porous roundwood. Some fragments are impregnated by iron concretions. Abundant modern roots.		
1037	4	Fill of pit 1039	Medieval	30	100	**	**						(**)**		Wheat/rye type (cf *Triticum*/*Secale* sp), possible oat/brome (cf *Avena*/*Bromus* sp), corn marigold (*Glebionis segetum*), knotweed type (cf *Persicaria* sp), indeterminate seeds. Charcoal includes ring porous roundwood. Impregnated with iron concretions. Frequent iron concretions, modern roots and wheat chaff. hammerscale and slag	D	fair
1043	5	Fill of posthole 1044	Medieval	2	100								(***)		indet seed, heavy iron concretion on and in the charcoal. includes ring porous fragments	D	Moderate

Table 6: Plant remains and summary of environmental remains

Results

All of the samples assessed contain charred plant remains, with the majority of which being charcoal. All contained small numbers of cereal grains except fill 1043 of posthole 1044. Most of the grains were too poorly preserved to identify. Where preservation allowed, tentative identification to possible rye (cf *Secale cereale*), wheat/rye type (cf *Triticum*/*Secale cereale*) or oat/brome type (cf *Avena*/*Bromus* sp). A few seeds of corn marigold (*Glebionis segetum*) were present in all the samples fill 1043. This is a plant commonly found as an arable weed in Britain until the middle of the 20th century. The corn spurry (*Spergula arvensis*) in fill 1034 of ditch cut 1035 (a possible corral) could also be an arable weed

7.4 Radiocarbon dating

Two radiocarbon determinations have been secured from fills (1032 and 1034) of a curvilinear gully, considered prior to dating to be likely the ring gully of a roundhouse (cuts 1033 and 1035 respectively). The fills derive from slots across the gully that appear to, stratigraphically, relate to the same phase of activity. The results returned 13th century AD dates, with the range of the fill 1034 being earlier, but overlapping with the date for fill 1032; as result of these dates the feature has been re-interpreted as likely to be a corral or other small structure associated with the medieval landscape.

Samples were dated at Beta Analytic, Florida by AMS.

The results are conventional radiocarbon ages (Stuiver and Polach 1977) and are listed in Table 7. The calibrated date ranges for the samples have been calculated using the maximum intercept method (Stuiver and Reimer 1986) and are quoted with end points rounded outwards to ten years. The probability distributions of the calibrated dates, calculated using the probability method (Stuiver and Reimer 1993) are shown in Graphs 6 and 7 in Appendix 2. They have been calculated using OxCal v4.2 (Bronk Ramsey 2009) and the current internationally-agreed atmospheric calibration dataset for the northern hemisphere, IntCal13 (Reimer *et al* 2013).

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Laboratory code	Context	Material	δ13C (‰)	Conventional Age	OxCal calibrated age (95.4% probability or 2 sigma)
Beta-569999	1034	Charred plant *Avena* sp grain	-25.6	770 +/- 30 BP	1220 – 1290 cal AD
Beta-570000	1032	Charred plant *Triticum*/*Secale* sp grain	-23.1	670 +/1 30 BP	1270 – 1400 cal AD

Table 7: Radiocarbon dating results

7.5 Environmental discussion

A moderate level of charred cereal crop waste included possible rye, legumes and weed species such as corn marigold, which is in keeping with the 13th to 15th century date of the curvilinear feature. This is likely to be waste from cereal crop processing, or from use of cereal crop waste as fuel for domestic fires.

No animal bone was recovered during fieldwork, which is most likely to be a result of poor preservation in the slightly acidic soils, hence it was not possible to comment on the importance of animal husbandry in the farming economy of the site.

8 Discussion

8.1 Strip, Map and Sample

The results of the Strip, Map and Sample demonstrate that the area was part of an agricultural landscape from the medieval into the post-medieval period. The curvilinear ditch was initially thought to have been a prehistoric roundhouse but radiocarbon dating of plant remains returned a 13th-14th century date.

One interpretation considered for the feature was as the remains of a post-mill, an early design for a windmill. These consisted of a single post to which sails were attached to catch the wind. They were unstable structures and the post was often set in to a large pair of cross-beams, that in turn were dug into the ground to offer support, often with a mound built around them for extra stability (Historic England 2018). They were also built on high points in the landscape, with good road access. Excavated examples include Flixton Park Quarry (Boulter 2013) and Manor Farm (Thomas 2008), both of which revealed the footprints of the cross-beam. These were around 5m across, vertically sided and in the case of Flixton Park Quarry, incorporating a stone foundation. The encircling ditches were between 20m and 30m in diameter. It is clear from these examples that the central pit within the Norton Canes ditch could not be related to a cross-beam foundation, and that the ditch itself was too small to represent a mill. No evidence for a mound was visible and though it could have been ploughed out in the recent past, the location of the feature itself is not at the highest point within the field, being only halfway up the slight slope.

It is uncertain therefore what the function of the feature was, though it may have been a temporary shelter or corral for shepherds or livestock. Regardless of this, it is clear that the landscape has been under agricultural use for at least 800 years.

8.2 Watching brief

No features of archaeological significance were observed within the area of the moated site, as it appears to have been subject to a large degree of landscaping (both truncation and dumping) within the second half of the 20th century. This probably relates to the construction and demolition of the buildings once occupying this area which post-dated 1938.

Stripping for the current development was restricted to the area of the interior of the moat and did not extend below these disturbed horizons and it appears likely that any remains of former activity associated with the internal area of the moat have been entirely truncated by this mid to late 20th century activity. It is, however, possible that deeper sections of the surrounding U-shaped moat which was not subject to any stripping or clearance may survive as buried remains, infilled and obscured by later dumping and disturbance.

9 Conclusions

A series of archaeological investigations were undertaken including a Strip, map and Sample investigation across an area of cropmarks and a watching brief on a moated site. The excavation area revealed medieval and post-medieval field boundary ditches, along with a heavily truncated ring gully. This was radiocarbon dated to the 12th-14th century, contradicting the initial interpretation of a prehistoric roundhouse. Possible alternatives were considered, such as a post-mill or a corral. There was not enough evidence to be confident of a mill hypothesis, with a small shelter or corral the most likely interpretation. Certainly, the results of the excavation demonstrate a prolonged agricultural use of the landscape.

The watching brief on the former moated site did not encounter any deposits of archaeological significance due to widespread 20th century disturbance and dumping across the area. The latter seems likely to have removed any interior features that may have been present. The possibility remains that deeper areas of the surrounding U-shaped moat may survive as buried remains, but

these areas were not subject to stripping or levelling (down) by the works and thus any surviving evidence as may be present was not revealed.

The methods adopted allow a high degree of confidence that the aims of the project have been achieved. Conditions were suitable in all of the area to identify the presence or absence of archaeological features and it is evident that no deposits associated with the former moated area were disturbed by these works.

10 Project personnel

The excavation fieldwork was led by Peter Lovett, ACIfA assisted by Jamie Wilkins, ACIfA. The watching brief fieldwork was led by Tim Cornah, ACIfA.

The project was managed by Robin Jackson, MCIfA. The report was produced and collated by Peter Lovett and Tim Cornah. Specialist contributions and individual sections of the report are attributed to the relevant authors throughout the text.

11 Acknowledgements

Worcestershire Archaeology would like to thank Dr Rob Smith and Cathy Patrick of Orion Heritage and Shane Kelleher, County Archaeologist, Staffordshire County Council for enabling the successful conclusion of this project as well as the employees of Persimmon Homes for their assistance.

12 Bibliography

AAF 2011 *Archaeological archives: a guide to the best practice in the creation, compilation, transfer and curation*, available at http://www.archaeologyuk.org/archives/

AMEC 2011 *Norton Canes, Cannock: Written Scheme of Investigation*, unpublished document dated 21 July 2011

BGS, 2020 Geology of Britain viewer. Available: http://mapapps.bgs.ac.uk/geologyofbritain/home.html Accessed: 23 June 2020

Boulter, S, 2013 The excavation of a medieval or early post-medieval windmill at Flixton Park Quarry, *Proc. Suffolk Inst. of Archaeol*. **43 (1)**, 68-74

Bronk Ramsey, C, 2009 Bayesian analysis of radiocarbon dates, *Radiocarbon*, **51**, 337-60

Cappers, T R J, Bekker, R M, & Jans, J E A, 2012 *Digitale Zadenatlas van Nederland: Digital seed atlas of the Netherlands*. Groningen Archaeological Studies, **4**, Barkhuis Publishing and Groningen University Library: Groningen

CIfA, 2014a *Standard and guidance: for archaeological excavation*. Reading: Chartered Institute for Archaeologists

CIfA, 2014b *Standard and guidance: for an archaeological watching brief*. Reading: Chartered Institute for Archaeologists

CIfA, 2014c *Standard and guidance: for collection, documentation, conservation and research of archaeological materials*. Reading: Chartered Institute for Archaeologists

Cox 2000 *Birmingham Northern Relief Road: Aerial Photographic Assessment, Vol 2,* Air Photo Services Ltd

Cranfield Soil and AgriFood Institute 2020 LANDIS (Land Information System) Soilscapes Soil type viewer, available at http://www.landis.org.uk/soilscapes/ . Accessed 26 October 2020

English Heritage, 2011 Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation. English Heritage, Centre for Archaeology Guidelines

Ford, D A, 1995 Medieval Pottery in Staffordshire, AD800-1600: a review, *Staffordshire Archaeological Studies* **7**

Historic England, 2018 *Mills: Introductions to Heritage Assets*. Historic England, Swindon

Nichol, K, and Ratkai, S 2004 Excavations on the north side of Sandford Street, Lichfield, Staffordshire 2000, *Trans South Staffordshire Archaeol Hist Soc* **40**, 58-121

PCRG/SGRP/MPRG, 2016 A standard for pottery studies in archaeology

Reimer, P J, Bard, E, Bayliss, A, Beck, J W, Blackwell, P, Bronk Ramsey, C, Buck, C E, Cheng, H, Edwards, R L, Friedrich, M, Grootes, P M, Guilderson, T P, Haflidason, H, Hajdas, I, Hatté, C, Heaton, T J, Hoffmann, D L, Hogg, A G, Hughen, K A, Kaiser, K F, Kromer, B, Manning, S W, Niu, M, Reimer, R W, Richards, D A, Scott, E M, Southon, J R, Staff, R A, Turney, C S M, and van der Plicht, J, 2013 IntCal13 and Marine13 radiocarbon age calibration curves 0–50,000 years cal BP, *Radiocarbon*, **55**, 1869–87

SMA 1993 *Selection, retention and dispersal of archaeological collections, a*vailable at http://www.swfed.org.uk/wp-content/uploads/2015/05/selectionretentiondispersalofcollections1-SMA.pdf

Stace, C, 2010 *New flora of the British Isles* (3rd edition). Cambridge: Cambridge University Press

Stuiver, M, and Polach, H A, 1977 Reporting of 14C data, *Radiocarbon*, **19**, 355–63

Stuiver, M, and Reimer, P J, 1986 A computer program for radiocarbon age calculation, *Radiocarbon*, **28**, 1022–30

Stuiver, M, and Reimer, P J, 1993 Extended 14C data base and revised CALIB 3.0 14C age calibration program, *Radiocarbon*, **35**, 215–30

Thomas, J, 2008 *Excavation of a Medieval Post-Mill Mound at Manor Farm, Humberstone, Leicester.* University of Leicester Archaeological Services, unpublished document **2008-149**

Townend Stephen 2011 Norton Canes, Cannock: Archaeological Written Scheme of Investigation.

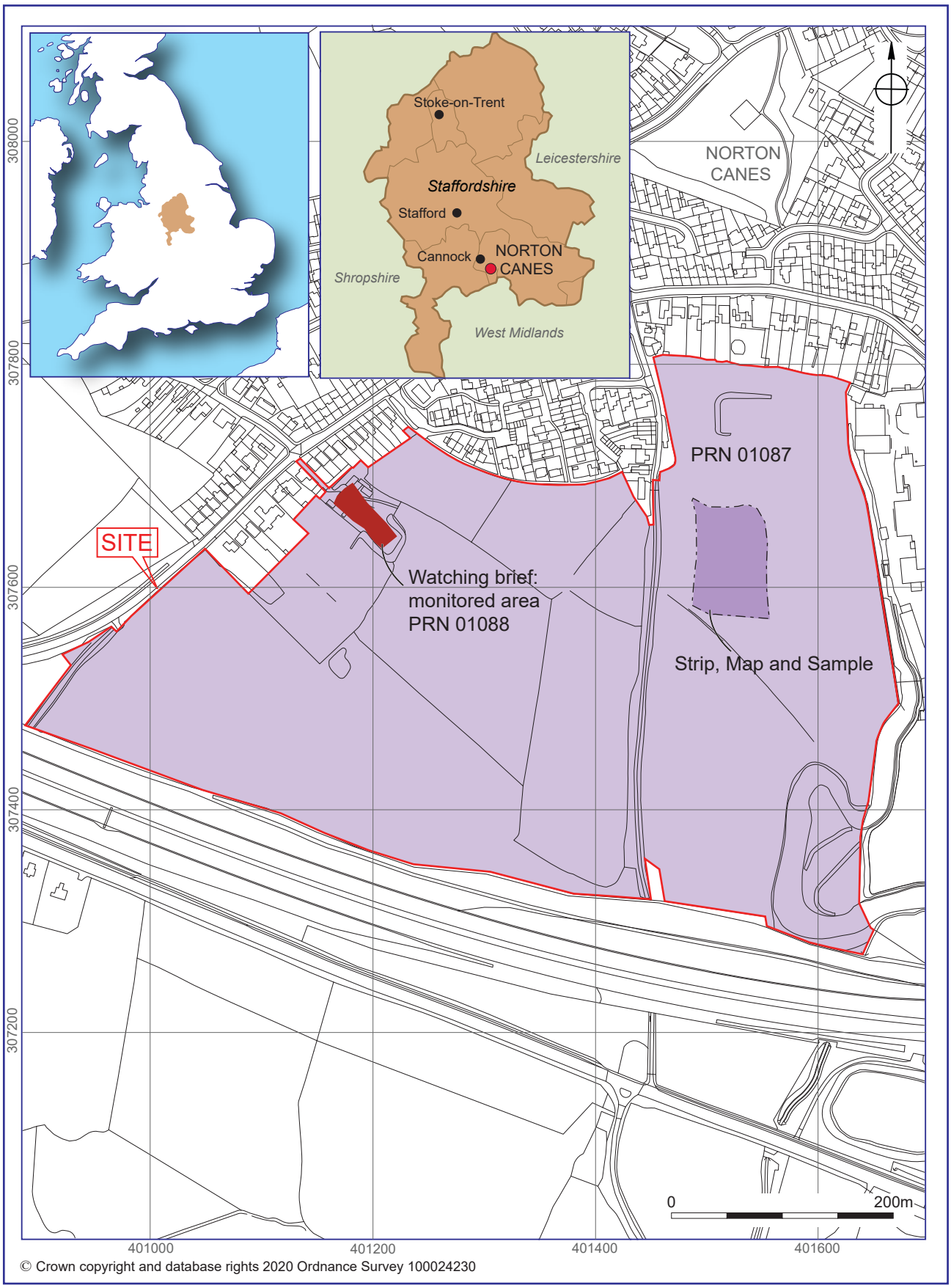
WA, 2012 Manual of service practice, recording manual, Worcestershire Archaeology Unpubl report **1842**. Worcestershire County Council

Wrathmell, S, and Wrathmell, S, 1976 Excavations at the moat site, Walsall, Staffordshire, 1972-4, *Trans South Staffordshire Archaeol Hist Soc* **16**, 19-53

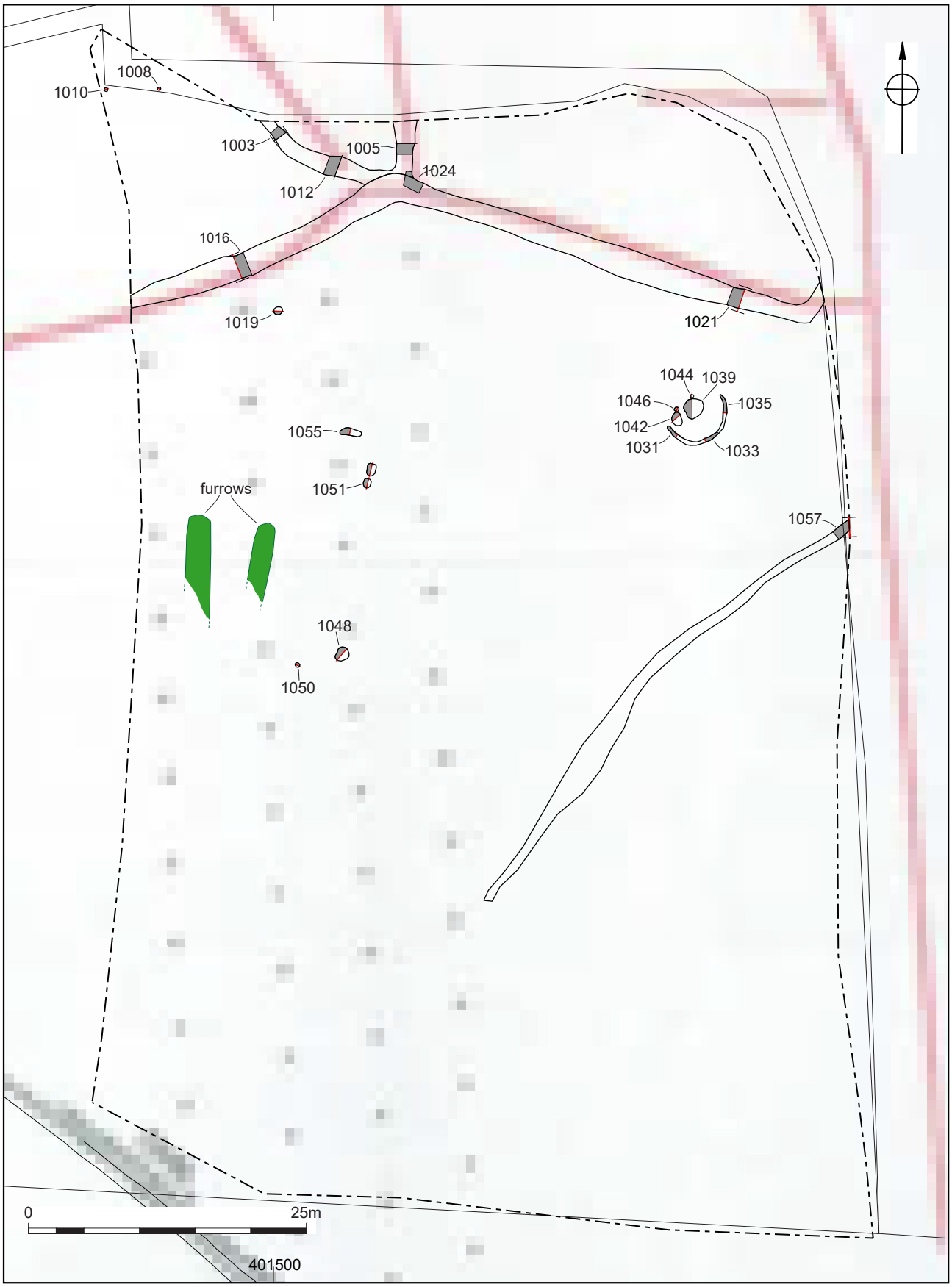
Wrathmell, S, and Wrathmell, S, 1977 Excavations on the moat site, Walsall, 1975, *Trans South Staffordshire Archaeol Hist Soc* **18**, 29-45

Zohary D, Hopf M and Weiss E 2012 *Domestication of Plants in the Old World*. Oxford University Press

Figures

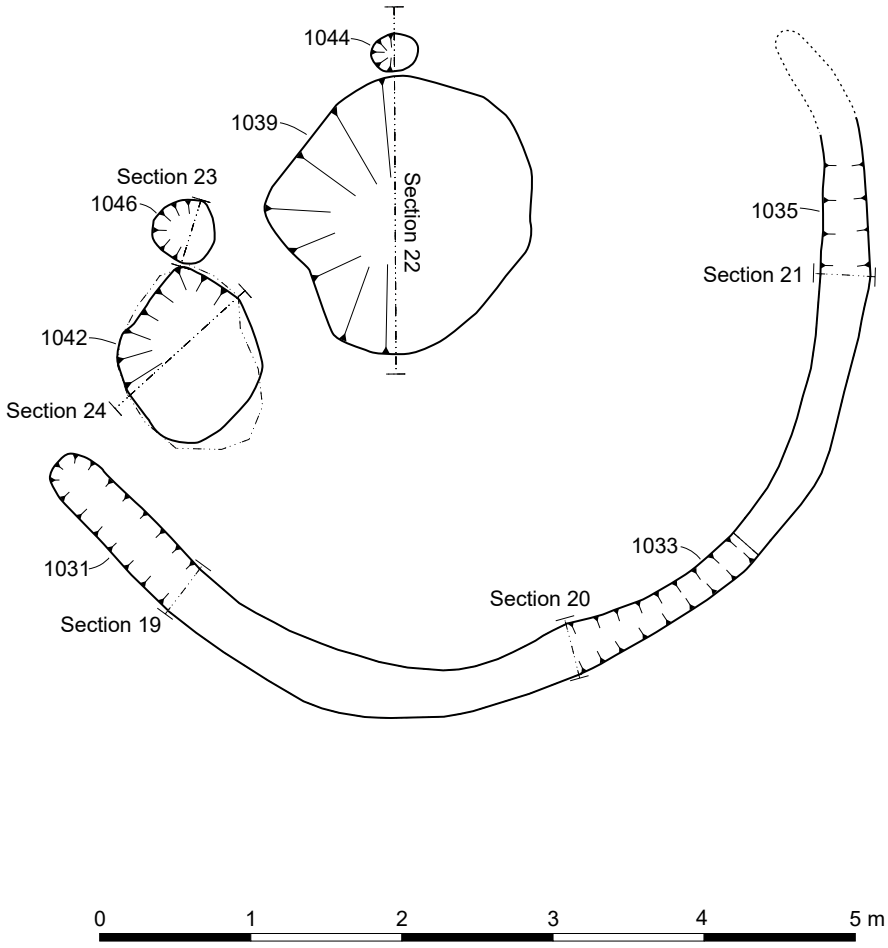


Location of the site *Figure 1*

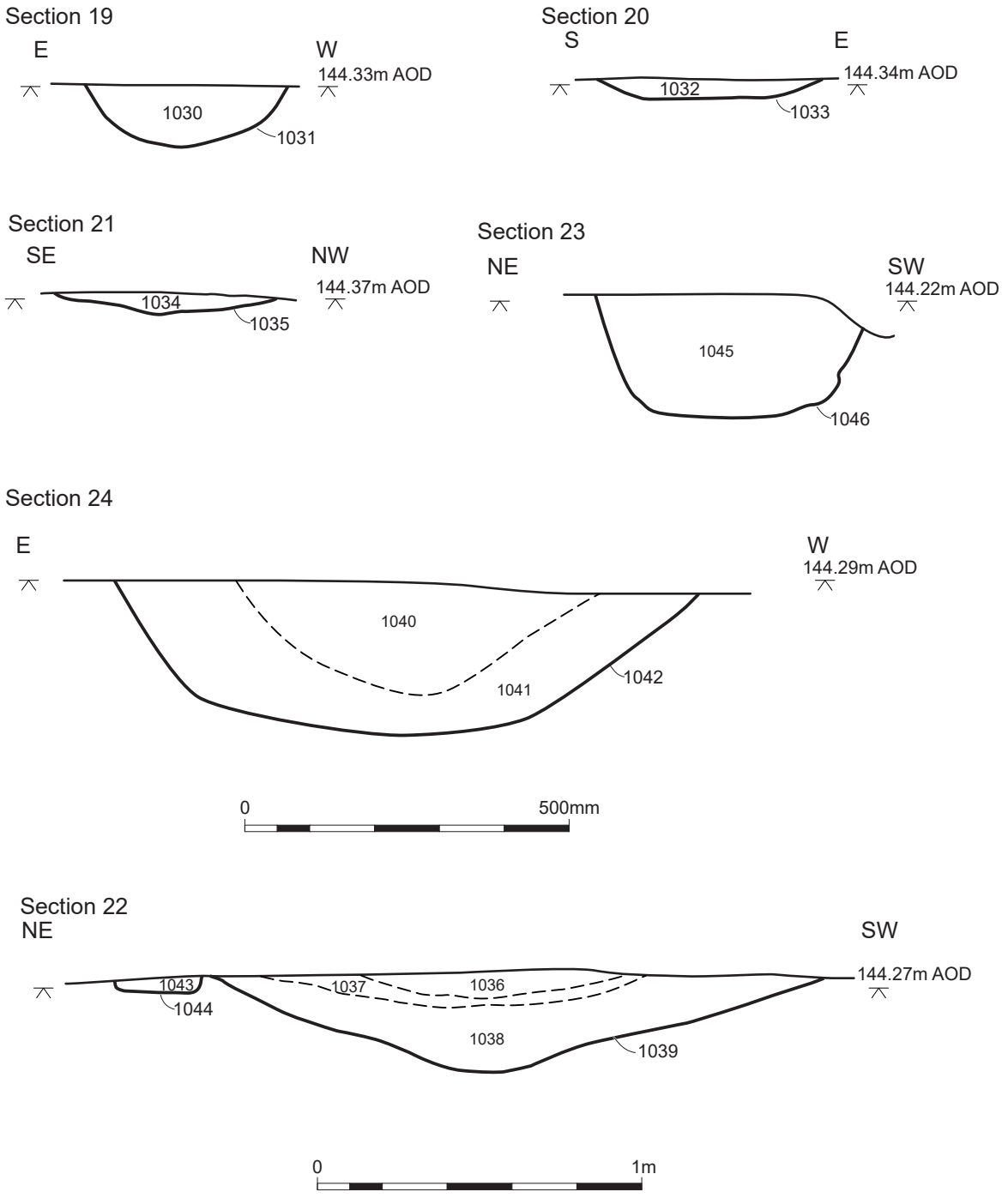


Trench plan overlying cropmark plan (after Cox 2000)

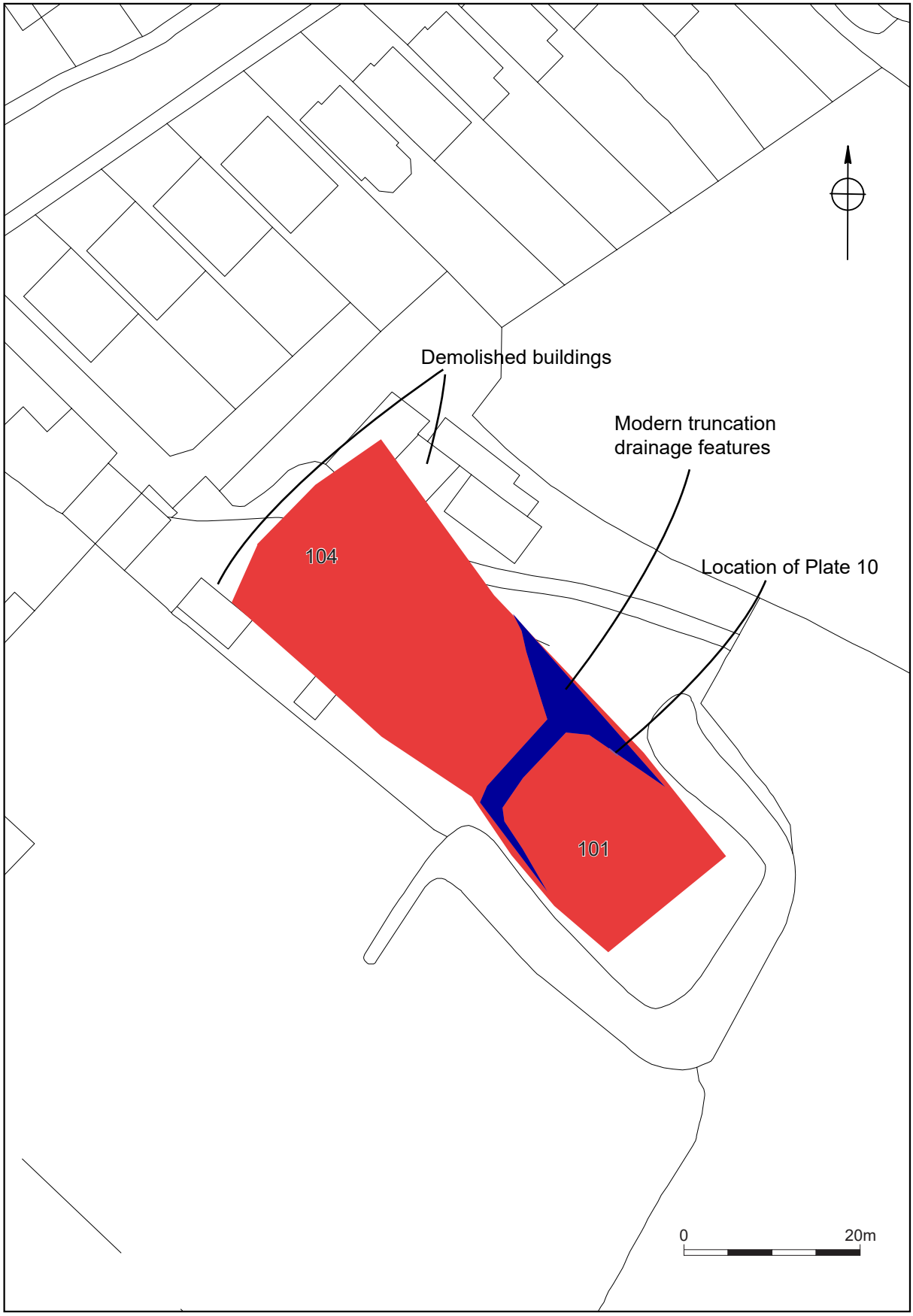
Figure 2



Ring gully *Figure 3*



Sections *Figure 4*



Watching brief area *Figure 5*

Plates

Plate 1: General view of site, looking south-west

Plate 2: North-west facing section of medieval ditch 1003 (1m scale)

Plate 3: South-west facing section of medieval ditch 1005 (1m scale)

Plate 4: East facing section of post-medieval ditch 1016 (1m scale)

Plate 5: Pre-excavation shot of ring gully 1029, looking north-west (1m scales)

Plate 6: North facing section of ring gully 1031 (0.2m scale)

Plate 7 Ring gully and associated features, looking east (1m, 0.5m and 0.3m scales)

Plate 8: The watching brief stripped area, looking north-west, scale 1m

Plate 9: The watching brief stripped area, looking south-west, scale 1m

Plate 10: Section through deposits (101) to (103), looking south-east, scale 1m

Appendix 1: Summary of project archive (P5181 Norton Canes, Staffordshire)

TYPE	DETAILS*
Artefacts and Environmental	Animal bones, Ceramics, Environmental (charcoal, charred plant remains)
Paper	Context sheet, Diary (Field progress form), Drawing, Matrices, Report,
Digital	GIS, Geophysics, Images raster/digital photography, Survey, Text

**OASIS terminology*

Appendix 2: Radiocarbon dating

Beta Analytic, Inc.
4985 SW 74th Court
Miami, FL 33155 USA
Tel: 305-667-5167
Fax: 305-663-0964
info@betalabservices.com

ISO/IEC 17025:2017-Accredited Testing Laboratory

October 15, 2020

Ms. Elizabeth Pearson
Worcestershire Archaeology
The Hive, Sawmill Walk, The Butts
Worcester, WRI 3PD
United Kingdom

RE: Radiocarbon Dating Results

Dear Ms. Pearson,

Enclosed are the radiocarbon dating results for three samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2013 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators here. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result unless otherwise requested. The reported d13C values were measured separately in an IRMS (isotope ratio mass spectrometer). They are NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

When interpreting the results, please consider any communications you may have had with us regarding the samples.

The cost of analysis was previously invoiced. As always, if you have any questions or would like to discuss the results, don't hesitate to contact us.

Sincerely,

Chris Patrick
Vice President of Laboratory Operations

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REPORT OF RADIOCARBON DATING ANALYSES

Elizabeth Pearson — Report Date: October 15, 2020

Worcestershire Archaeology — Material Received: October 01, 2020

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 569999	**P5181/1034/3**	**770 +/- 30 BP**	IRMS δ13C: -25.6 o/oo

(95.4%) 1216 - 1282 cal AD (734 - 668 cal BP)

Submitter Material: Charcoal
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 90.86 +/- 0.34 pMC
Fraction Modern Carbon: 0.9086 +/- 0.0034
D14C: -91.40 +/- 3.39 o/oo
Δ14C: -99.07 +/- 3.39 o/oo (1950:2020)
Measured Radiocarbon Age: (without d13C correction): 780 +/- 30 BP
Calibration: BetaCal3.21: HPD method: INTCAL13

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

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REPORT OF RADIOCARBON DATING ANALYSES

Elizabeth Pearson — Report Date: October 15, 2020

Worcestershire Archaeology — Material Received: October 01, 2020

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 570000	**P5181/1032/2**	**670 +/- 30 BP**	IRMS δ13C: -23.1 o/oo

(53.1%) 1274 - 1320 cal AD (676 - 630 cal BP)
(42.3%) 1350 - 1391 cal AD (600 - 559 cal BP)

Submitter Material: Charcoal
Pretreatment: (charred material) acid/alkali/acid
Analyzed Material: Charred material
Analysis Service: AMS-Standard delivery
Percent Modern Carbon: 92.00 +/- 0.34 pMC
Fraction Modern Carbon: 0.9200 +/- 0.0034
D14C: -80.02 +/- 3.44 o/oo
Δ14C: -87.78 +/- 3.44 o/oo (1950:2020)
Measured Radiocarbon Age: (without d13C correction): 640 +/- 30 BP
Calibration: BetaCal3.21: HPD method: INTCAL13

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB-1. References for calendar calibrations are cited at the bottom of calibration graph pages.

BetaCal 3.21

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL13)

(Variables: d13C = -25.6 o/oo)

Laboratory number **Beta-569999**

Conventional radiocarbon age **770 ± 30 BP**

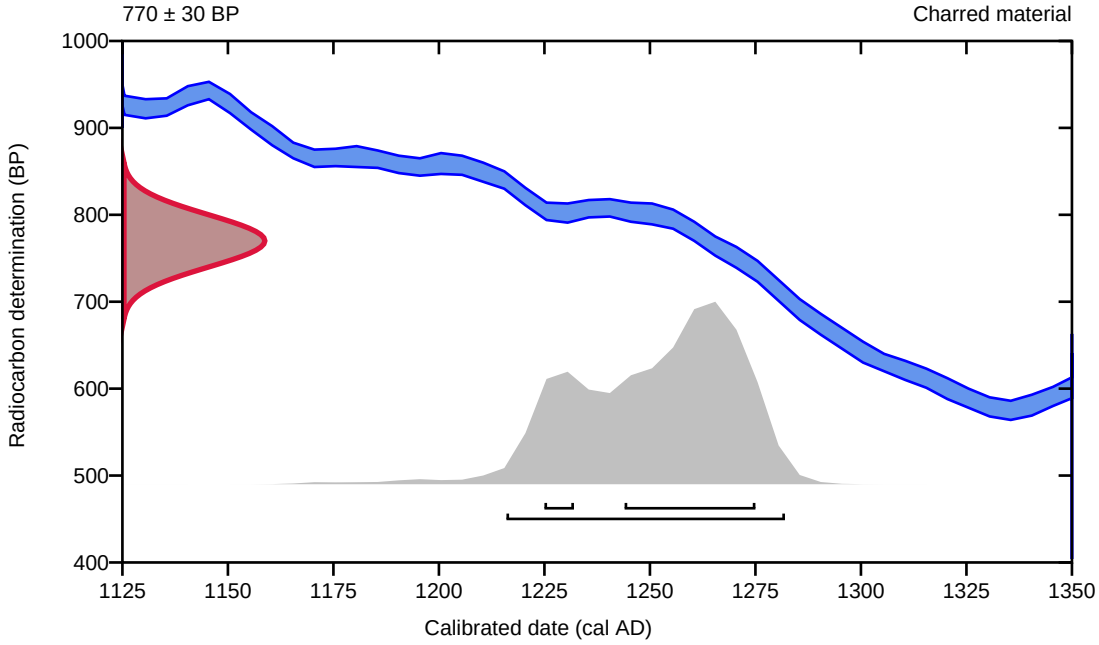
95.4% probability

(95.4%)	1216 - 1282 cal AD	(734 - 668 cal BP)

68.2% probability

(57.8%)	1244 - 1275 cal AD	(706 - 675 cal BP)
(10.4%)	1225 - 1232 cal AD	(725 - 718 cal BP)

P5181/1034/3



Database used

INTCAL13

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

References to Database INTCAL13

Reimer, et.al., 2013, Radiocarbon55(4).

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • Email: beta@radiocarbon.com

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL13)

(Variables: d13C = -23.1 o/oo)

Laboratory number **Beta-570000**

Conventional radiocarbon age **670 ± 30 BP**

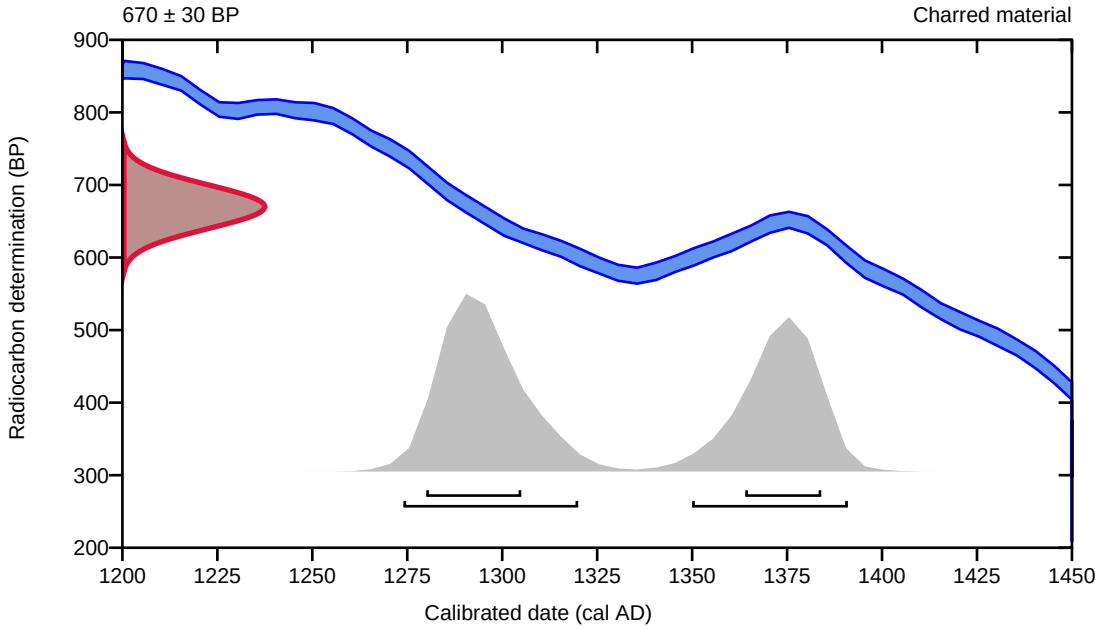
95.4% probability

(53.1%)	1274 - 1320 cal AD	(676 - 630 cal BP)
(42.3%)	1350 - 1391 cal AD	(600 - 559 cal BP)

68.2% probability

(38.5%)	1280 - 1305 cal AD	(670 - 645 cal BP)
(29.7%)	1364 - 1384 cal AD	(586 - 566 cal BP)

P5181/1032/2



Database used

INTCAL13

References

References to Probability Method

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ISO/IEC 17025:2005-Accredited Testing Laboratory

Quality Assurance Report

This report provides the results of reference materials used to validate radiocarbon analyses prior to reporting. Known-value reference materials were analyzed quasi-simultaneously with the unknowns. Results are reported as expected values vs measured values. Reported values are calculated relative to NIST SRM-4990B and corrected for isotopic fractionation. Results are reported using the direct analytical measure percent modern carbon (pMC) with one relative standard deviation. Agreement between expected and measured values is taken as being within 2 sigma agreement (error x 2) to account for total laboratory error.

Report Date: October 15, 2020
Submitter: Ms. Elizabeth Pearson

QA MEASUREMENTS

Reference 1	
Expected Value:	129.41 +/- 0.06 pMC
Measured Value:	129.43 +/- 0.35 pMC
Agreement:	Accepted
Reference 2	
Expected Value:	0.49 +/- 0.10 pMC
Measured Value:	0.50 +/- 0.04 pMC
Agreement:	Accepted
Reference 3	
Expected Value:	96.69 +/- 0.50 pMC
Measured Value:	96.92 +/- 0.28 pMC
Agreement:	Accepted

COMMENT: All measurements passed acceptance tests.

Validation: Chris Patrick
Digital signature on file

Date: October 15, 2020