

LAND OFF THE A361 AND BLUNDELL'S ROAD, TIVERTON, DEVON

(Centred on NGR SS 9826 1361)

Results of Targeted Archaeological Excavation

Mid Devon District Council Planning References:
14/01168/MFUL (Condition 11) & 14/00667/MFUL
(Condition 11)

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On behalf of:
Devon County Council

Report No: ACD1454/2/1

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AC archaeology

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The views and recommendations expressed in this report are those of AC archaeology and are presented in good faith on the basis of professional judgement and on information currently available.

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Summary

Targeted archaeological excavation following on from a previous trial trench evaluation was carried out by AC archaeology during August and September 2016 on land off the A361 and Blundell's Road, Tiverton, Devon. The development area occupies approximately 6ha of agricultural land and was located on the eastern outskirts of Tiverton. It lies in an area of known prehistoric activity, with this consisting of a Neolithic long barrow located to the east, while a number of settlement type enclosures and artefact scatters have also been recorded.

The works comprised the excavation of nine excavation areas. These were positioned to target the locations of features recorded during the trial trench evaluation. Of particular note was three adjacent pits containing an assemblage of worked flint, two of which contained Grooved Ware pottery of Late Neolithic date. In addition, a small number of undated pits and gullies hint at further prehistoric settlement activity. Elsewhere prehistoric boundary ditches illustrate a pattern of field enclosure of possible Middle Bronze Age date.

1. INTRODUCTION

- 1.1 Targeted archaeological excavation on land off the A361 and Blundell's Road, Tiverton, Devon (centred on SS 9826 1361), was undertaken by AC archaeology. It was carried out in advance of construction of a new road junction on land to the north and south of the A361 Dual Carriageway. The work was commissioned by Devon County Council for archaeological works required as conditions (11 & 11) of planning consents granted by Mid Devon District Council and undertaken following consultation with the Devon County Historic Environment Team (hereafter DCHET).
- 1.2 The site is located 0.9 km to the east of Tiverton, with a small housing estate on its southeastern boundary (Fig. 1). It covers approximately 6ha of agricultural land (Plate 1). The site lies on broadly level ground at around 89m aOD (above Ordnance Datum). The underlying geology is sandstone of the Tidcombe Sand Member with the superficial deposits recorded for the site are river terrace deposits of clay, silt, sand and gravel (BGS 2017).

2. ARCHAEOLOGICAL BACKGROUND

- 2.1 The site has been the subject of a previous historic environment assessment (Jordan 2014), geophysical survey (Richardson 2014) and trial trench evaluation (Caine and Rainbird 2016). The assessment established that the site is situated within a general area of prehistoric activity, with this consisting of a Neolithic Long Barrow (National Heritage List for England no. 1019058; Smith 1990) to the east, while a settlement type enclosure (Devon HER no. MDV112083) and artefact scatters (e.g. MDVs 7705, 30279, 59812 and 79072) have also been recorded. The Tiverton Tidcombe Tithe Apportionment of 1841, records the site as largely under pasture with some meadow and with no field names of historic interest, although the adjacent plot containing the known Neolithic Long Barrow has the name 'Long Burrow'.
- 2.2 The geophysical survey identified a small number of anomalies that were interpreted as representing possible agricultural boundaries, as well as areas of 'magnetic variance' (Devon HER no. MDV113659).
- 2.3 The trial trench evaluation comprised the machine-excavation of 20 trenches totaling 590m in length, with each trench 1.8m wide. These were positioned to target anomalies interpreted from the previous geophysical survey. Archaeological features were present in 13 of the trenches, with these consisting of a small number of undated probable ditches and a few pits. The ditch

features had the potential to relate to earlier activity on the site as they were on different alignments to the existing field arrangement. This undated but potentially earlier activity also included a small number of pit features. A small assemblage of worked flint and two pieces of iron slag were collected.

3. AIM

- 3.1** The aim of the archaeological excavation was to further investigate features identified in the trial trench evaluation in order to establish the extent, character and date of the archaeological features and deposits and recover further finds from within the site.

4. METHODOLOGY

- 4.1** The results of the trial trench evaluation were reviewed and used to inform the subsequent archaeological mitigation. The trial trench evaluation and targeted excavation were undertaken in accordance with a brief prepared by DCCHET (Reed 2015) and subsequent project design, prepared by AC archaeology (Valentin 2015). The mitigation agreed with DCCHET comprised the excavation of nine areas (1-9) in locations where the results of the trial trenching indicated the potential to further elucidate features of probable prehistoric date (Figs 2 and 3). These were all located within the area of the site to the south of the A361. Initially the excavation areas measured 10m x 10m, except area 5, which was 5m x 5m, but trenches were expanded where deemed necessary to further explore known anomalies interpreted from the geophysical survey.
- 4.2** All trenches were located with a Leica Net rover GPS accurate to 1cm. The removal of ploughsoil within the trenches was undertaken in 20cm spits under the control and direction of a site archaeologist.
- 4.3** The archaeological works were conducted in accordance with the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Excavation* (2014) and All features and deposits revealed were recorded using the standard AC archaeology pro-forma recording system, comprising written, graphic and photographic records, and in accordance with AC archaeology's *General Site Recording Manual, Version 2* (revised August 2012). Detailed sections and plans were produced at a scale of 1:10, 1:20 or 1:50 as appropriate. All site levels relate to Ordnance Datum.

5. RESULTS

5.1 Introduction

As predicted by the trial trench evaluation phase all of the excavation areas contained archaeological features, with the majority of these being of archaeological interest. The natural subsoil varied from mid yellowish red to mid brownish red silty clay with abundant flint gravel inclusions. It was overlain by a mid greyish brown silty clay ploughsoil. This overlay a subsoil of mid brownish red silty sand. The results are presented by chronological phase beginning with the earliest dated features.

5.2 Prehistoric pits (Detailed plans Fig. 4 and section Figs 5a-d; Plates 1-7)

Three pits (F6003, F6008 and F6011) were uncovered in excavation area 6. Despite their proximity to one another they displayed distinct morphologies.

Shallow pit F6003 was sub-circular in plan and measured 1.30m long by 1.07m wide and 0.14m deep. It had the form of little more than a scoop with an uneven base. Its fill (6004) consisted of mottled brownish-grey, orange and yellow silty-loam with abundant fragments of charcoal which contained 42 sherds of prehistoric pottery and 217 pieces of worked flint. The unabraded nature of the flint indicates that it may have been deliberately deposited soon after production. In addition were 300 fragments of hazelnut shell and a piece of barley. A late Neolithic date of 2927 - 2761 cal BC (SUERC-72363) on hazelnut shell was returned.

To the west of pit F6003 was much larger pit F6008 which was sub-circular in plan measuring 3.60m long by 3.16m wide and 0.48m deep with steep sides and a flat base. It had two fills (6009-10). Primary fill (6009) consisted of redeposited natural indicating in-filling by erosion and slumping over a period of time, however abundant charcoal was present, and a sample was submitted for radiocarbon dating. The resulting date of 2568 - 2340 cal BC (SUERC-72365) indicates that the pit was open in the transition period between the Late Neolithic and Early Bronze Age. It contained seven pieces of worked flint. The upper fill (6010) was similar to (6009) and was probably also a natural in-filling of what by this time must have been more of a hollow, it contained 14 pieces of worked flint.

The third pit (F6011) was located to the north of pit F6003 and was sub-circular in plan measuring 1.35m long by 1.28m wide and 0.31m deep with steep sides and a flat base. It had two fills (6012-3). The primary fill (6012) had the character of a single dump and consisted of dark reddish-brown sandy silty loam with abundant charcoal which contained 14 sherds of pottery of Late Neolithic type, 131 pieces of worked flint, a greenstone axe, a cobble hammerstone and 74 pieces of burnt clay. Plant remains included 424 fragments of hazelnut shell and three emmer/spelt wheat grains. A spelt grain was submitted for radiocarbon assay and returned a date of 38 cal BC - cal AD 124 (SUERC-72364) indicating that it belonged to the transition between the late Iron Age and Romano-British periods. Upper fill (6013) had the appearance of re-deposited natural, but also contained prehistoric finds with 12 sherds of Late Neolithic pottery and 14 pieces of worked flint recovered.

To the east of pit F6003 was large tree throw F6006 which measured 2.20m in diameter by 0.56m deep with gently sloping sides and a rounded undulating base. Although only one fill (6007) was recorded the southern third was distinctly stonier and represented the upcast of the natural occurring as the tree fell. There were no finds from this natural feature and its proximity to the prehistoric pits may not be significant.

Probable prehistoric pit and other prehistoric features in excavation area 2 (Detailed plans Fig. 6 and sections Figs 7a-e; Plate 8)

Pit F2003 was not fully revealed in excavation area 2, but had a minimum diameter of 1.02m and was at least 0.39m deep with stepped sides and rounded base. Its fill (2004) of orangey-brown silty-loam contained no finds. This pit was undated, but was in-part bounded by gully F2005 which was not fully revealed in the excavation area as it continued beyond the edge of excavation in the north. The gully measured approximately 3m in length curving slightly from the north to the southeast at which point it turned abruptly to the northeast, forming a corner and continuing for 1m. The gully had a V-shaped profile measuring 0.42m wide by 0.23m deep. Its fill (2006/2010) of brownish-orange sandy-clay contained three sherds of pottery dated to the Late Neolithic period and a small piece of worked flint. To the south within the same excavation area a ditch terminal (F2007) was exposed. It continued beyond the area of excavation to the south, extending in the trench to the north for a length of 2m. It measured 1m wide by 0.50m deep and had a steep west side and a stepped base with a single fill (2008) of pale yellowish-brown clayey-silt and no finds. This feature was undated and was not identified by the results of the geophysical survey, although it may be a segment of prehistoric field boundary ditch as found elsewhere on the site (see section 5.4 below).

5.3 Other pits

Excavation area 9 (Detailed plan Fig. 8 and sections Figs 9a-f; Plates 9-11)

Two of the three pits in excavation area 9 were a similar size and shape with pits F9009 and F9011 being bowl shaped and measuring up to 0.68m in diameter and a maximum of 0.30m deep. Both had greyish-red to red clayey-silt fills with some charcoal flecking, but no finds. The third pit (F9005) was cut by boundary ditch F9003 and had a maximum dimension in plan of 0.78m and was 0.15m deep with a gently sloping side and a flattish base. It had a sterile fill (9006) of reddish-brown clayey-silt. During the evaluation phase two possible postholes (F205 and F206) were also recorded in this vicinity and together these features may indicate some evidence of settlement pre-dating the boundary ditch, with the lack of dating evidence hindering further interpretation.

Natural features

Pit features were also uncovered in excavation areas 1, 3, 4 and 8. These (F1005, F3005, F4005, F4010, F8003 and F8005) were found to be of natural origin, either tree throws or solution hollows, and were undated.

5.4 Boundary ditches (Plan Fig. 3 and sections Figs 10a-e; Plates 11-12)

Ditches matching those interpreted from the geophysical survey and also matching ones exposed during the trial trench evaluation were uncovered in excavation areas 1, 4, 5, 7 and 9. Although these ditches had been found to be sterile during the trial trench evaluation phase, on this occasion four of the six lengths of ditch exposed (F1003, F4006, F5003/F5005 and F7003) contained a small amount of worked flint and the basal fill of ditch F7003 contained one sherd of prehistoric pottery of probable Middle Bronze Age type. However, ditch F1003 cut the subsoil and must be of more recent date. The remaining ditches measured between 0.72m – 1.32m wide and between 0.12m – 0.49m deep with a variety of profiles exhibited.

6. THE FINDS *by Naomi Payne and Henrietta Quinnell*

6.1 All finds recovered on site during the excavation have been retained, cleaned and marked where appropriate. They have been quantified according to material type within each context and the assemblage examined to extract information regarding the range, nature and date of artefacts represented. The finds include a significant assemblage of prehistoric pottery, worked flint and a greenstone axe. Two pieces of slag and three sherds of post-medieval pottery were recovered from overlying deposits and are not further considered here. The finds are summarised in Table 1.

6.2 Prehistoric finds *by Henrietta Quinnell with petrographic comment by Roger Taylor*

Pottery

The assemblage consists of 72 sherds weighing 477 grams, of which all but one sherd (2 grams) are probably Late Neolithic Grooved Ware. The remaining sherd is Middle Bronze Age. All sherds are in a fairly fresh condition. Petrological comment is provided by Roger Taylor from microscopic examination. The pottery assemblage is summarised in Table 2.

Fabrics

Fabric 1 Coarse sandy, oxidised 5YR 6/6 reddish yellow exterior, interior generally reduced 5YR 4/1 dark grey, common inclusions <5mm, granitic.

Petrology Quartz – transparent to translucent colourless angular grains, 0.05-2mm, rarely 5.0 mm: *feldspar* – translucent to greyish white opaque angular cleaved grains, 0.05-2.5mm, rarely 7.6mm, some soft sub-angular white altered grains, 0.05-1.5mm: *biotite* – common dark brown

cleavage flakes, some with hexagonal crystal outline, 0.05-1.2mm and occasionally as thicker biotite 'books:' *composite* – quartz /biotite/feldspar, 2.5 and 3.0mm, quartz/ biotite, 2.0mm: *tourmaline* – sparse black vitreous angular and crystalline grains, 0.1-0.4 mm: *matrix* – silty finely sandy clay with grains of the main tempering minerals less than 0.05mm. *Comment.* A granitic fabric with the proportion of feldspar reduced by weathering. The presence of biotite books and general angularity of the mineral grains indicates a derivation not far removed from the source rock within the granite outcrop, although some movement (solifluxion?) is indicated by the bending of the thinner biotite flakes.

Context	Context Description	Burnt stone		Worked stone		Worked flint		Prehistoric pottery		Burnt clay	
		No	Wt	No	Wt	No	Wt	No	Wt	No	Wt
1004	Fill of ditch F1003					1	0.7				
2000	Trench 2, topsoil					1	2				
2001	Trench 2, subsoil					1	16				
2006	Fill of ditch F2005							3	2		
2010	Fill of ditch F2005					1	0.1				
4000	Trench 4, topsoil					1	11				
4001	Trench 4, subsoil					2	14				
4007	Fill of ditch F4006					2	3				
5004	Fill of ditch F5003					1	1				
5006	Fill of ditch F5005					1	0.3				
6001	Trench 6, subsoil					1	3				
6004	Fill of pit F6003					217	370	42	276	3	2
6009	Lower fill of pit F6008					7	28				
6010	Upper fill of pit F6008					14	52				
6012	Lower fill of pit F6011	1	29	2	802	131	475	14	184	74	59
6013	Upper fill of pit F6011					14	34	12	13		
7004	Upper fill of ditch F7003					3	32				
7005	Lower fill of ditch F7003					2	7	1	2		
Total		1	29	2	802	400	1049.1	72	477	77	61

Table 1: Summary of finds by context (weight in grams)

Fabric 2 Fine 'soapy' matrix, general reduced 5YR 4/1 dark grey, sparse moderate inclusions.

Petrology Quartz – one colourless sub-rounded grain, 0.2mm: *feldspar* – one pale off white sub-angular grain 0.15mm: *matrix* – smooth clay with a little very fine mica. *Comment.* Not possible to make any locational suggestion.

Fabric 3 Slightly sandy, oxidised 5YR 6/4 light reddish brown interior reduced 3/1 grey, sparse coarse inclusions, of Exeter Volcanics type.

Comment

A body sherd of Fabric 1, from a vessel with a very vertical wall and large diameter, comes from (6004) fill pit F6003: the decoration consists of incised horizontal lines with finger nail on either side (Plate 13, left). There are also a number of base and base angle sherds. The granitic fabric comes from a source close to Dartmoor. These sherds stylistically belong with Grooved Ware, and this is supported by the radiocarbon determination of 2927 – 2761 cal BC (SUERC-72363).

The Fabric 2 sherds in (6012) include two small rims, one flat-topped, the other rounded with two narrow horizontal cordons beneath (Plate 13, right). Both the rim forms and the decoration are consistent with Grooved Ware (Longworth 1971, 55-63). Fabric 2 contains no inclusions which provide an indication of source. The radiocarbon date on a spelt grain from (6012), 38 cal BC – cal AD 124 (SUERC-72364), indicates that the fill of F6011 is mixed and that the ceramics are either redeposited or disturbed.

Context	Description	Fabric 1	Fabric 2	Fabric 3	Total
2006	Fill of ditch F2005		3/2		3/2
6004	Fill of pit F6003	42/276			42/276
6012	Lower fill of pit F6011	7/19	8/165		15/184
6013	Upper fill of pit F6011		11/13		11/13
7005	Lower fill of ditch F7003			1/2	1/2
Totals		49/295	22/180	1/2	72/477

Table 2: Details of pottery by sherd number and weight in grams in context order.

A sherd of Fabric 3 from the Exeter area in ditch F7003 is likely from its fabric to be Middle Bronze Age.

Overall the ceramics from the pits, considered with the character of the lithics, the presence of a greenstone axe and the radiocarbon dates, suggest that at least some of these features are of Late Neolithic date. The date, 2568 – 2340 cal BC (SUERC-72365), from pit F6008 with lithics but without ceramics, could relate either to the very end of the Late Neolithic and the Grooved Ware style, or to the earliest part of the Beaker using Early Bronze Age.

The only other site with Grooved Ware currently known in the Tiverton area lies some 700m to the south, beyond Blundell's Road, and consisted of three small pits or postholes with an assemblage of 113 sherds 430 g of pottery and a transverse arrowhead (SS 983 128, Whelan and Sheldon 2015): the fabrics here are different in that they contain grog. Some pottery from a pit some 400m to the east of excavation area 6 (Quinnell *et al.* 2015, 4) could be of similar date. Small groups of pits with Grooved Ware are being recorded with increasing frequency in modern development-related archaeological work in Devon, for example at Moore Farm, Harberton (Mudd and Joyce 2014, 48-50).

Greenstone axe/pestle

S1 (6012) lower fill of pit F6011 Butt end of axe with oval cross section subsequently used as pestle/grinder. Now 106 x 67 x 33mm, 494g. Original axe has rough reworking at the butt end and at the wider end, presumably on a break: this was then worn flat by use as a pestle and/or grinder (Plate 14).

Roger Taylor provides the following comment. Meta gabbroic 'greenstone' showing areas of relict ophitic igneous texture with feldspar laths up to 3mm long enclosed in a greenish mafic mineral, probably amphibole, and also with some brownish areas, some with distinct cleavage, that are probably unaltered pyroxene. The appearance of the mineralogy corresponds with that associated with Group 1 'greenstone' axes from west Cornwall. This determination could be confirmed by a thin section in due course. The feldspar although showing cleavage in places is sufficiently altered to be eroded out below the level of the mafic minerals which are faceted and show traces of original polish.

There is little doubt that this object was originally the butt end of a Neolithic 'greenstone' axe. Seven examples of axes in Group 1, sourced to the Mount's Bay/West Penwith area, are listed by Clough and Cummins from Devon (1988, 148-150), all surface finds. Nationally Roe (1999) has demonstrated the frequency with which axes of igneous rocks were deposited, apparently in preference to those of flint, in pits containing Grooved Ware.

Other stonework

S2 (6012) lower fill of pit F6011 Elongated cobble, 122 x 50 x 30mm, 306g, of quartzitic sandstone of Budleigh Beds type which is local to the area. One side has some use as rubber, and both ends have hammerstone use resulting in some large detachments. Stonework is generally rare in Late Neolithic pits in South West Britain and S2, if an overall Late Neolithic date for the artefact assemblage from the pit is accepted, is the first artefact of this type and date in Devon.

Lithics

There are 204 struck pieces, most of it from pits. Table 3 analyses the collection according to the system used in a recent study of field walking lithics in the Tiverton area (Quinnell *et al.* 2015). The plot of land in which the pits lay was labelled Field 31 for the field walking assemblage. It should be noted that circumstances did not allow the retrieval of material from the stripped topsoil, field walking of which had yielded 207 pieces (Quinnell *et al.* 2015, 13).

	Tr 1/2	Field 31	Pit 6003	Pit 6008	Pit 6011	Totals
Flakes		5	31	5	10	51
Flakes, retouched			1			1
Flakes, usewear		2	3		14	19
Flakes, broken	1		18	3	28	50
Blades			3		2	5
Blades, usewear	1		1		1	3
Blades, broken		1			1	2
Core preparation, trimming		4	15	6	20	45
Chips/spalls	1		142	4	70	217
Unclassified						
Scraper, end	1		2			3
Scraper, end rt side					1	1
Scraper, broken					1	1
Piercer				1		1
Fabricator			1			1
Totals	4	12	217	19	148	400

Table 3: Details of flint and chert. Field 31 covers all material not from pits from Trenches 4 to 9: the Field number is that used for the earlier field walking assemblage (Quinnell *et al.* 2015).

All the material is flint except for five flakes, two core trimming pieces and three chips of Greensand chert. This is 3% of the assemblage, compared to 14% of the Field 31 field walking assemblage which totalled 14% of 207 pieces. 88 flint pieces are cortical, 22% of the assemblage, a little lower than from the Tiverton area as a whole. This cortex generally is waterworn to various degrees, suggesting that the flint source, in East Devon, was clay-with-flints or head, rather than flint extracted directly from its parent chalk; this again was a feature of the field walking assemblages. The presence of this cortical material indicates on-site knapping, rather than the introduction of prepared core pieces. The absence of cores shows that all products of the knapping process are not present. Both blades and flakes are represented, the latter indicating both hard and soft hammer use. Of the chips at least 50 were spalls from retouching, indicating on-site preparation of tools. All material from pits is fresh with the assemblages from each strongly suggesting these came from a single period of activity.

The tools, scrapers, a piercer and a fabricator, are not tightly diagnostic chronologically. All are of types which would be expected in the Late Neolithic but which might continue as late as the Middle Bronze Age. The presence of a few good quality blades and of some soft hammer pieces

however suggests that most of the assemblage as a whole probably belongs with the Late Neolithic Grooved Ware. Previous published Grooved Ware assemblages in Devon have not produced more than occasional lithic pieces. The tools, and a selection of debitage, are illustrated in Plate 15.

Burnt clay

A total of 77 pieces (61g) of burnt clay was recovered from pit F6003 and pit F6011. The majority, 59g, came from primary fill (6012) of pit F6011. All of the burnt clay is in the same oxidised powdery and slightly micaceous fabric. The pieces are generally sub-rounded, but otherwise featureless and amorphous.

7. PALAEOENVIRONMENTAL REMAINS

7.1 Introduction

During the excavations soil samples were taken for the recovery of environmental and economic information. The samples were processed by AC archaeology's Environmental Archaeologist, Cressida Whitton, using standard methods of floatation. A 250 micron mesh was used to catch the flots and a 500 micron mesh was used to hold the residue.

Five samples were sent for specialist analyses of the charred plant remains and charcoal:

Sample 1, context 6004, fill of pit F6003

Sample 2, context 6012, primary fill of pit F6011

Sample 3, context 6013, secondary fill of pit F6011

Sample 4, context 6010, secondary fill of pit F6008

Sample 5, context 6009, primary fill of pit F6008

7.2 Charred plant remains by Wendy J. Carruthers

Introduction

The flots and sorted charred plant remains from the residues of five samples were sent to the author for analysis;

The flots were dry-sieved through a stack of 3mm, 1mm and 250 micron meshed sieves in order to extract large charcoal and facilitate sorting. Each fraction was then sorted under an Olympus SZX7 stereoscopic microscope. The large charcoal was sent to charcoal specialist Dana Challinor for analysis (see below).

Results

Samples 3 and 5 produced no identifiable charred plant macrofossils, although some large charcoal was extracted and sent to Dana Challinor. This is despite the fact that 35 litres and 47.5 litres of soil (respectively) had been processed.

The charred plant remains recovered from the other three flots are listed in Table 4. Nomenclature follows Zohary and Hopf (2000) for the cereals and Stace (2010) for the remaining taxa. Habitat preferences were also primarily taken from Stace (*ibid.*).

Description by feature

Pit F6003, context 6004, sample 1 – This sample came from the single fill of a shallow, small pit located in a group of three pits in excavation area 6. The flots contained abundant fragments of charcoal (see Challinor, below) and frequent medium to small fragments of hazelnut shell (*Corylus avellana*). In addition, an indeterminate barley rachis fragment (*Hordeum* sp.) and a

cleavers nutlet (*Galium aparine*) were present. The 300 fragments of nutshell amounted to at least nine whole nuts according to figures calculated by experimentally charring hazelnut shells (Carruthers 2000). This is roughly a handful, although the conversion factor is a very rough estimate and probably a gross under-estimation. It is not possible to know whether the nuts were whole at the time of charring as the oily kernels tend to char to a soft, easily-crushed consistency if they survive at all. Cleavers is a common weed found scrambling through hedgerows, on rough ground and through crop plants on a wide range of soils. A large fragment of hazelnut shell was submitted for radiocarbon dating. A Late Neolithic date of 2927 - 2761 cal BC (SUERC-72363) was returned.

sample	1	2	4
context	6004	6012	6010
feature	pit F6003	pit F6011	pit F6008
TAXA period	L Neo	LIA/ERB	EBA
GRAIN			
<i>Triticum dicoccum/spelta</i> (emmer/spelt wheat grain)		3	
Indeterminate cereal grain (equivalent to whole grains)		6	
CHAFF			
<i>Triticum dicoccum</i> Schübl. (emmer glume base)		cf.1	
<i>Triticum spelta</i> L. (spelt glume base)		4 + cf.5	
<i>Triticum dicoccum/spelta</i> (emmer/spelt glume base)		12	
<i>Triticum dicoccum/spelta</i> (emmer/spelt spikelet fork)		9	
<i>Hordeum</i> sp. (barley rachis fragment)	1		
<i>Avena</i> sp. (oat awn fragments)		+	
WEEDS & WILD PLANTS			
<i>Vicia/Lathyrus</i> sp. (<2mm small vetch seed) CDGH		2	
<i>Corylus avellana</i> L. (hazelnut shell frag.) HSW	300	424	2
hazelnut shell weight in grams	3.5	5.38	< 0.01
<i>Rumex</i> sp. (dock achene) CDG		1	
<i>Galium aparine</i> L. (cleavers nutlet) CDSH	1		
<i>Bromus</i> sect. <i>Bromus</i> (brome grass caryopsis) AD		3	
<i>Bromus/Avena</i> sp. (brome grass/oat grain) AD		1	
<i>Danthonia decumbens</i> (L.) DC (heath-grass caryopsis) EGa			1
Poaceae (small seeded grass caryopsis) CDG		1	
cf. Poaceae culm bases			4
TOTAL	302	472	7
sample volume (l)	77.5	107.5	47.5
charred fragments per litre of soil processed (fpl)	3.9	4.39	0.15
Habitat Key: A=arable; C=cultivated; D=disturbed; E=heath; G=grassland; H=hedgerow; S=scrub; W=woods; a=acid soils			

Table 4: Charred plant remains

Pit F6011, context 6012, sample 2 – Pit F6011 was a small pit in the same group as pit F6003. It was a little deeper than pit F6003 and had two fills, the primary fill being context 6012. Although this feature was located less than a metre north of pit F6003 the charred plant assemblage was quite different. The flot contained large amounts of charcoal (Challinor, see below). Cereal grains and chaff fragments were common and several weed/wild plant taxa were represented. However, hazelnut shell fragments were still by far the most abundant items in the assemblage, amounting to 424 fragments, equivalent to at least thirteen whole nuts. Both emmer wheat and spelt wheat (*Triticum spelta*) appear to be represented, although the single emmer glume base was only tentatively identified (*Triticum cf. dicoccum*). Three emmer/spelt wheat grains, six indeterminate cereal grains and 31 chaff fragments were recovered, in addition to eight weed seeds. The ratio of grain to chaff to weed seeds was 1 : 5 : 1. The weed taxa were common

weeds of disturbed and cultivated soils, including vetch/tare (*Vicia/Lathyrus* sp.), dock (*Rumex* sp.), brome grass (*Bromus* sect. *Bromus*), and grasses (Poaceae). A spelt glume base gave a radiocarbon result of 38 cal BC - cal AD 124 (SUERC-72364) indicating that it dated to the late Iron Age or early Romano-British periods. It is uncertain whether the assemblage originally consisted of burnt hazelnuts or discarded nutshells, and whether the grain and chaff were present as intact spikelets, or mixed processed grain and cereal processing waste. It is unusual, however, for such a high concentration of hazelnut shell to be recovered alongside emmer and spelt processing waste.

Pit F6008, context 6010, sample 4 – This large shallow pit was located at the western end of the pit group. The sample was taken from the lowermost of two fills. A large amount of charcoal was recovered from the flot (Challinor, see below), but charred plant macrofossils were scarce. Two small hazelnut shell fragments, a heath-grass seed (*Danthonia decumbens*) and four grass-sized culm bases (Poaceae) were the only items present. The remains could represent a little charred turf or materials used for kindling. An unidentified fragment of roundwood was submitted for radiocarbon dating as none of the other macrofossils were large enough. The resulting date of 2568 - 2340 cal BC (SUERC-72365) suggests that the feature was Late Neolithic/Early Bronze Age in date.

Discussion

The three pits in excavation area 6 contained probable waste from cooking fires, as charcoal from a range of species (Challinor, see below) and the charred remains of foods were frequent in at least some of the pits. Hazelnut shell was abundant in pits F6003 and F6011. Pit F6011 also contained the remains of emmer and spelt wheat, including grain and chaff fragments plus weed contaminants. It is likely that the roasting of nuts and small-scale de-husking of hulled wheats was taking place on the site. The range of radiocarbon dates, from Late Neolithic (pit F6003) to Early Bronze Age (pit F6008) and late Iron Age/early Roman (pit F6011) demonstrates continuity in cooking or food preparation activities in the area over many centuries. The roasting of hazelnuts makes opening them without crushing the kernel easier, it makes the nuts more digestible and it makes it possible to grind the nuts into a kind of 'flour'. More importantly, it can increase the storage life of the nuts to help to provide food over a long winter. Alternatively, the nutshell could represent the waste from people 'snacking' on nuts. Nutshell could also have been retained and stored for use as a fuel/kindling. The charcoal results demonstrate that hazel was a component of the mixed oak woodland used as a source of firewood (Challinor, see below). It was clearly an important protein-rich component of the diet at this site over many phases of occupation. It is unusual to find native hedgerow food resources in such quantities as late as the late Iron Age/early Roman period as in most areas of the country cereals were productive enough to provide nutrition throughout the year. However, in the southwest of England and in Wales the poor acidic soils may not have been sufficiently fertile to produce good yields from nutrient-demanding cereals such as spelt over a long period of cultivation. This may be why hazelnuts continued to be important in these parts of Britain.

There is, however, an alternative explanation to the assemblage. To remove the husks from hulled wheats semi-processed spikelets need to be parched over a fire or in an oven to the point where the chaff becomes brittle and can be rubbed from the grain by hand. This creates waste that can then be burned in the fire. The grain and chaff could represent whole spikelets that had accidentally become charred. However, the dominance of chaff fragments and presence of weed seeds in pit F6011 suggests that some cereal processing waste had been used as kindling. This may also have occurred in the other pits but the remains did not survive burning, as chaff is highly flammable and only where oxygen is restricted would it become preserved by charring. For pit F6008 the grassy material and traces of nutshell may also have been used as tinder. Heath-grass typically grows on nutrient-poor acidic soils such as are found in the Tiverton area.

7.3 Charcoal by Dana Challinor

Introduction and Methodology

Samples from three pits, F6003, F6008 and F6011, were provided for charcoal analysis. The pits were found in an isolated cluster, and radiocarbon dated to the Late Neolithic, Early Bronze Age and the Late Iron Age/Early Romano-British periods. Three of the five samples from these features were analysed in full; samples from additional fills did not merit analysis, although a fragment of roundwood from sample 5 from F6008 was selected for radiocarbon dating.

Standard identification procedures were followed, by comparison with identification keys (Hather 2000; Schweingruber 1990) and modern reference material. Fifty fragments of >3mm in size were randomly selected from each sample for identification. The charcoal was fractured and examined at low magnification (up to X45), with representative fragments examined in longitudinal sections at high magnification (up to X400). Observations on maturity and other features were made where appropriate. Classification and nomenclature follow Stace 1997.

	Phase	Late Neolithic	Early Bronze Age	Late Iron Age/Early Romano-British
	Feature number	F6003	F6008	F6011
	Context number	6001	6010	6012
	Sample number	1	4	2
<i>Quercus</i> sp.	oak	29 (hsr)	34 (h)	27 (hr)
<i>Corylus avellana</i> L.	hazel	7 (r)		10 (r)
<i>Alnus/Corylus</i>	alder/hazel		1	4
<i>Prunus</i> sp.	blackthorn/cherry			1
Maloideae	hawthorn goup	14 (r)	7	8 (r)
Indeterminate			8	
Total		50	50	50

r=roundwood; s=sapwood; h=heartwood; brackets denotes present in some fragments only

Table 5: Charcoal identifications (showing fragment count)

Results

The condition of the charcoal was generally fair to poor. Large fragments (>20mm in diameter) were recorded in samples 1 and 2, but there was heavy infusion of sediment in all the samples, which obscured anatomical characteristics. Some high levels of vitrification were also noted. The charcoal from sample 4 produced smaller fragments and was more poorly preserved than the other two samples. Quantity of charcoal was variable, although to some extent this reflects the soil volumes processed; the most abundant assemblage (sample 2) resulted from the processing of >100 litres.

Four taxa were identified (Table 5); *Quercus* sp. (oak), *Corylus avellana* (hazel), Maloideae (hawthorn, apple, pear, service/whitebeam etc.) and *Prunus* sp. (blackthorn/cherry). There were no positive identifications of *Alnus glutinosa* (alder), and it is likely that the undifferentiated fragments represent additional *Corylus* pieces, but the distinguishing perforation plates had burnt away. Insofar as it was possible to determine in poor material, most of the charcoal appeared to come from trunkwood, with only occasional evidence for roundwood. Both samples 1 and 2 contained a fairly high number of oak fragments with tyloses, indicating heartwood. Growth rates were variable, and included some very slow grown heartwood pieces, where no late growth vessels was visible and 26+ rings were observed. The material in sample 4 was more comminuted and degraded, with most fragments of indeterminate maturity.

Discussion

The association of the charcoal with charred hazelnut shells and occasional charred grain suggest that the remains represent waste from cooking fires. The sample from pit F6008 was less rich (in both charred plants and wood charcoal), but it is likely to have a similar origin. The assemblages from all three pits were comparable; mature oak formed the main fuelwood, supplemented with hazel, blackthorn/cherry and Maloideae type. This indicates the sourcing of fuel supplies from local oak-hazel woodland, with some marginal/scrub type supplementary sources. This is consistent with the results from Late Neolithic pits at the site of Tiverton Road, Cullompton (Challinor 2012a). The notable consistency in the charcoal evidence in all the phases at Blundells, Tiverton, suggests that the availability of resources remained constant, although this cannot be stated with certainty on the basis of such slender evidence. However, there is evidence from other nearby sites to complement the record. A series of ditches and postholes of Romano-British date from Shortlands Lane, Cullompton yielded more diverse assemblages, although oak remained the most frequent taxon (Challinor 2012b) and at Willand Road, Cullompton, oak and hazel dominated the charcoal assemblages from Late Iron Age and Romano-British features (Challinor 2008).

8. RADIOCARBON DATING

- 8.1 There was a limited amount of material in the sampled fills that was regarded as suitable for radiocarbon dating. Dates were obtained from the fill of F6003 and the lower fills of pits F6008 and F6011. All dated samples were assessed as suitable short-lived material and submitted to the Scottish Universities Environmental Research Centre.
- 8.2 The AMS radiocarbon date results are given in Table 6. Calibration of the results has been performed using the data set published by Reimer *et al.* (2013) and the program OxCal4 (on-line at: c14.arch.ox.ac.uk).

Material	Context	Lab no.	Result BP	$\delta^{13}C$ (‰)	Cal BC/AD
Hazelnut shell: <i>Corylus avellana</i>	Fill (6004) of pit F6003	SUERC-72363 (GU43216)	4268±32	-22.8	2927 - 2761 cal BC
Spelt glume: <i>Triticum spelta</i>	Lower fill (6012) of pit F6011	SUERC-72364 (GU43217)	1954±32	-25	38 cal BC - cal AD 124
Roundwood charcoal: Indetermined	Lower fill (6009) of pit F6008	SUERC-72365 (GU43218)	3946±32	-25.1	2568 - 2340 cal BC

Table 6: Radiocarbon dating results (calibrated to 95.4% probability)

9. DISCUSSION

- 9.1 The results of the excavation have exposed a small number of archaeological features comprising pits and ditches. The earliest dated of these was shallow scoop-like pit F6003, which was in a group of three pits. Pit F6003 contained Grooved Ware pottery, worked flint and hazelnut shells and was dated firmly to the Late Neolithic period. The pottery was made of a clay collected from a source close to Dartmoor. The understanding of the flint assemblage was enhanced by sampling and processing for palaeoenvironmental remains which allowed for the recovery of small chips and spalls which indicate that the tools were being worked on the site. The hazelnut shells indicate that wild foods were being collected and their presence on Neolithic sites is typical of the period. The charcoal from the pit was typical of fuelwood from a mixed oak-hazel woodland, with some marginal/scrub type supplementary sources. Neighbouring pit F6008 contained worked flint but no pottery and was dated to the end of the Late Neolithic or beginning of the Early Bronze Age. Although there was little in the way of charred plant remains the large amount of charcoal once again indicated that it was derived from fuelwood. The third pit, F6011,

contained Grooved Ware pottery and other finds – worked flint, greenstone axe, hammerstone, hazelnut shells – all consistent with a Late Neolithic date. However, the presence in the charred plant remains of spelt wheat was regarded as inconsistent with such an early date and this was confirmed by a radiocarbon date indicating that the spelt dated to the Late Iron Age or early Romano-British periods. The presence of the spelt and the fresh condition of the pottery and worked flint probably indicates that a Late Neolithic pit has been disturbed at this later date, although the character of the disturbance was not identified in the archaeological deposits and at the time of the excavation the fills of the pit were regarded as secure. The Grooved Ware pottery from the pit represented two fabric types with the close to Dartmoor source and the other of unknown source. The greenstone axe is probably of Group 1 type and sourced to the Mount's Bay/West Penwith area in west Cornwall. The hammerstone from the same deposit was derived from a cobble which would have been available locally.

It would seem fair to consider the three pits as representing use of the site in the middle of the third millennium BC, albeit with some uncharacterised disturbance of one of the pits after a hiatus of some two-and-a-half millennia. The Late Neolithic contents of the pits represent examples of deliberate deposition of pots (or parts of), flint and stone tools and the remains of domestic activity. Deliberate deposition is also occasionally described as structured deposition which is where a mix of items, some potentially lost to degradation, have been deliberately deposited, usually in pit-like hollows (Thomas 1999). Occasionally the pits may be re-used tree throws or specifically dug for the purpose. In South West England these pits are generally regarded as being of comparatively small size (Pollard and Healy 2008). The possible motivations behind Neolithic artefact deposition in pits are extensively explored in papers assembled by Anderson-Whymark and Thomas (2012). In Devon, examples of deposition of artefacts in tree throws and pits dating to the Neolithic has increased tremendously in recent years (see Leverett and Quinnell 2010 and references therein). A pit containing pottery of Late Neolithic Grooved Ware type at the Upper RNSD site on the east side of Exeter had associated dates of 2880 - 2580 cal BC (Wk-27023) and 2850 - 2480 cal BC (Wk-27024) (Pearce *et al.* 2011). Several pits, one containing the remains of a greenstone axe, were excavated at Topsham, and dated by the pottery to the Late Neolithic / Early Bronze Age (Jarvis and Maxfield 1975). At Moore Farm, Harberton, near Totnes, pits containing Grooved Ware were dated by a pair of almost identical radiocarbon dates providing a range of 2860 - 2579 cal BC (NZA-36265, -36266) (Mudd and Joyce 2014, 181). Distant connections for this site were established by the pottery fabric being gabbroic from Cornwall and, to a much lesser extent, the inclusion of an oyster shell in one of the pits, which must have travelled at least 14km from the nearest coast at Tor Bay. A group of four pits located during evaluation trenching in an area adjacent to the east of the site contained only burnt stone and charcoal with the latter allowing a single date of 2347 – 2191 cal BC (SUERC-43204) to be returned (Haines 2012), perhaps indicating the continuing of pit digging over a wide area of the local landscape.

- 9.2** A small number of sherds of Late Neolithic Grooved Ware pottery was also recovered from angled shallow ditch F2005 in excavation area 2 which was located towards the eastern end of the site. This ditch formed a corner and in so-doing partially enclosed pit F2003, which contained no finds; these features may be related and a prehistoric date for them cannot be ruled out.
- 9.3** The ditches uncovered in excavation areas 4, 5, and 7 (F4006, F5003/F5005 and F7003) contained a small amount of worked flint and the basal fill of ditch F7003 contained one sherd of prehistoric pottery of probable Middle Bronze Age type. These may form part of a pattern of field division dated to the Middle Bronze Age.

10. CONCLUSION

- 10.1 The excavation has exposed a small number of prehistoric pits and ditches. Together these features provided evidence of the use of this landscape dating from the Late Neolithic period through to coming of the Romans. Of most significance is the group of three pits containing Late Neolithic finds which adds to the small number of pits containing Grooved Ware currently known from Devon.

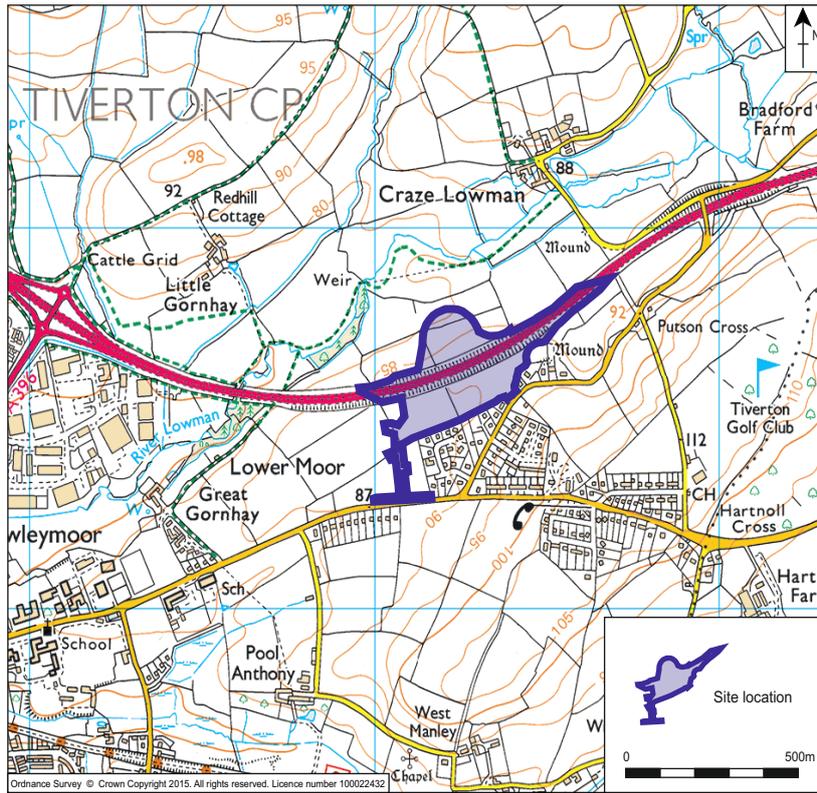
11. ARCHIVE AND OASIS

- 11.1 The finds, paper and digital archive is currently held at the offices of AC archaeology Ltd, at 4 Halthaies Workshops, Bradninch, near Exeter, Devon, EX5 4LQ under the unique project code of **ACD1454**. The archive will be offered to the Royal Albert Memorial Museum, Exeter under temporary access number **RAMM 15/29**, but if they are unable to accept this, then it will be dealt with under their current accession policy.
- 11.2 An online OASIS entry has been completed, using the unique identifier **252566**, which includes a digital copy of this report.

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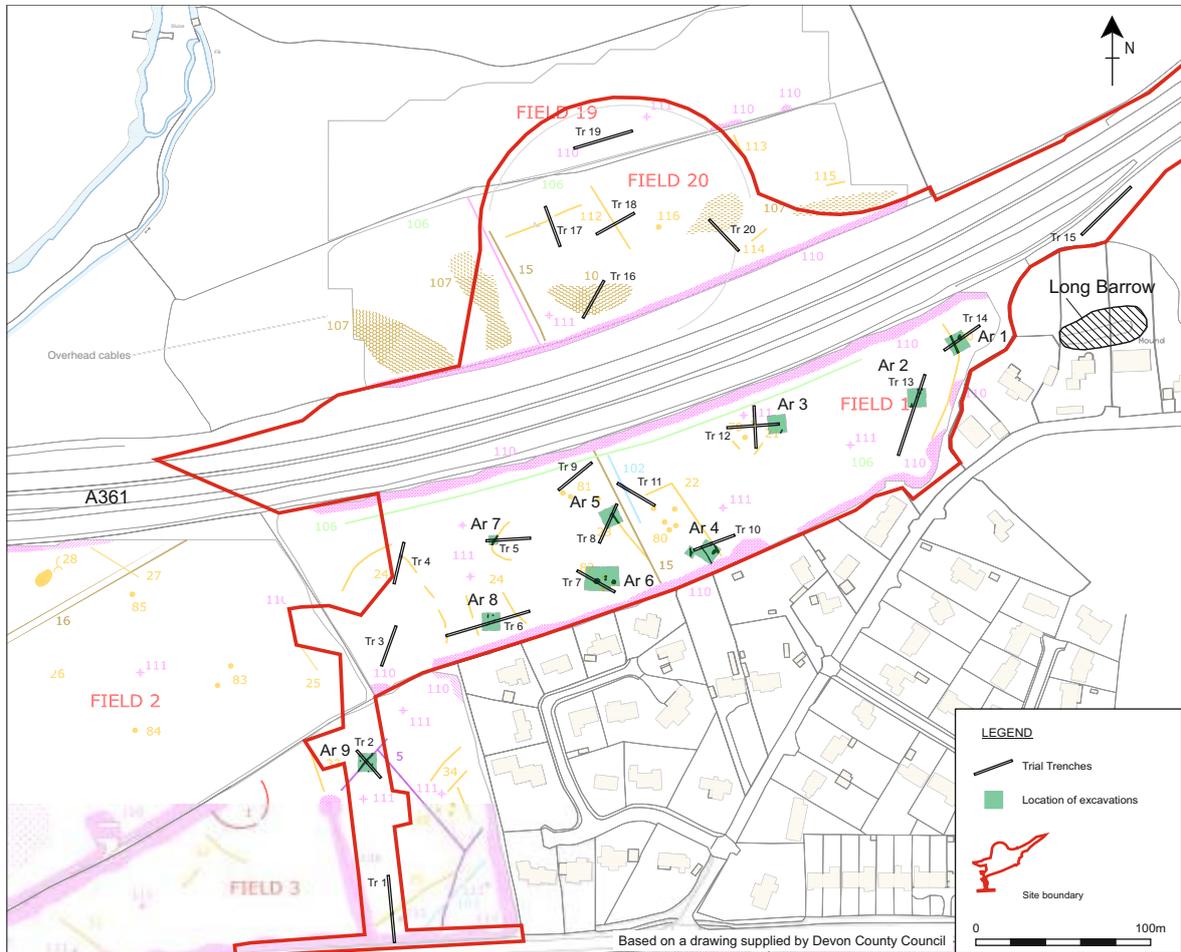


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TITLE

Fig. 1: Site location



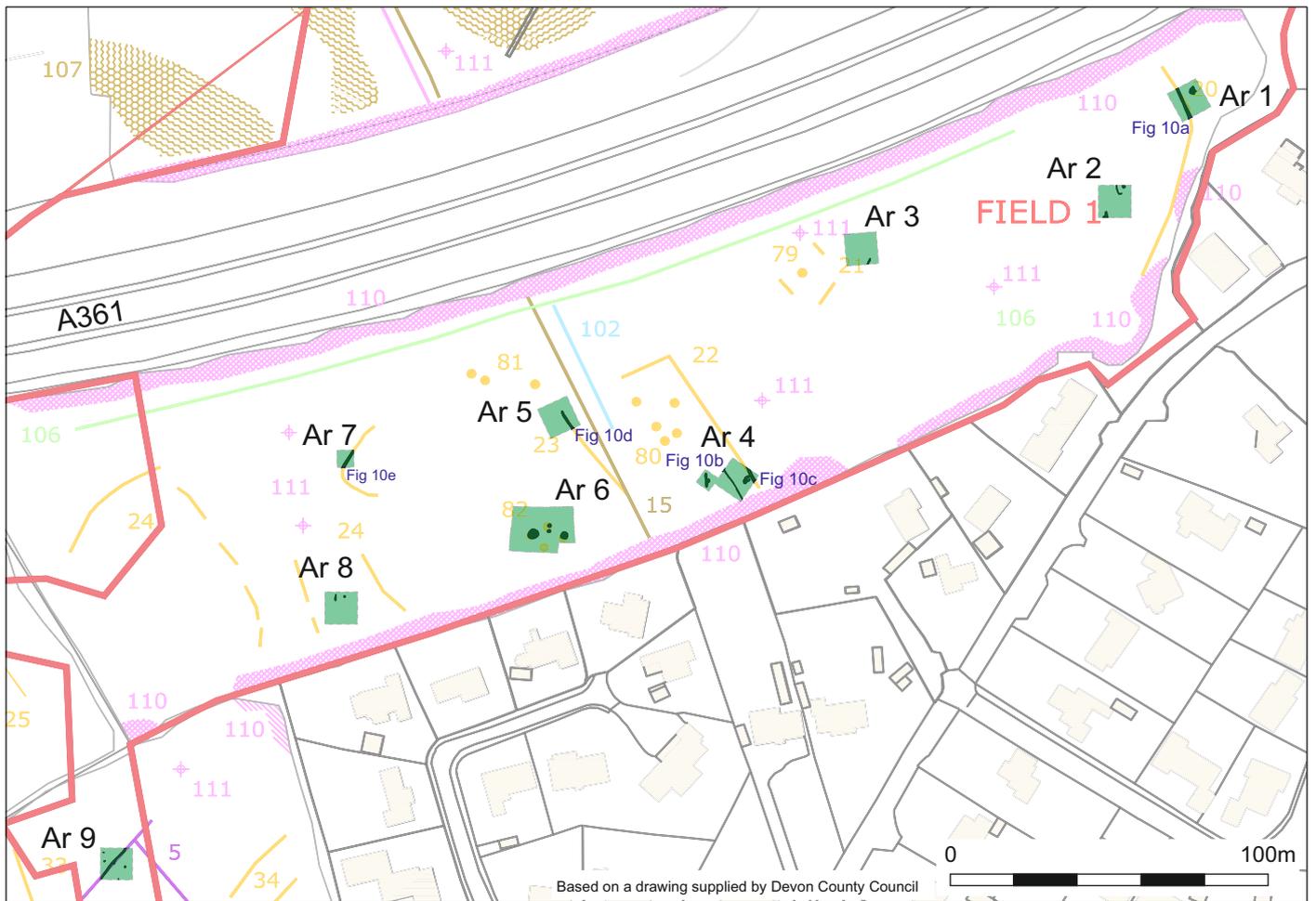
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Fig. 2: Location of excavation
areas showing archaeological
features in relation to the results
of previous geophysics survey
and trial trenching



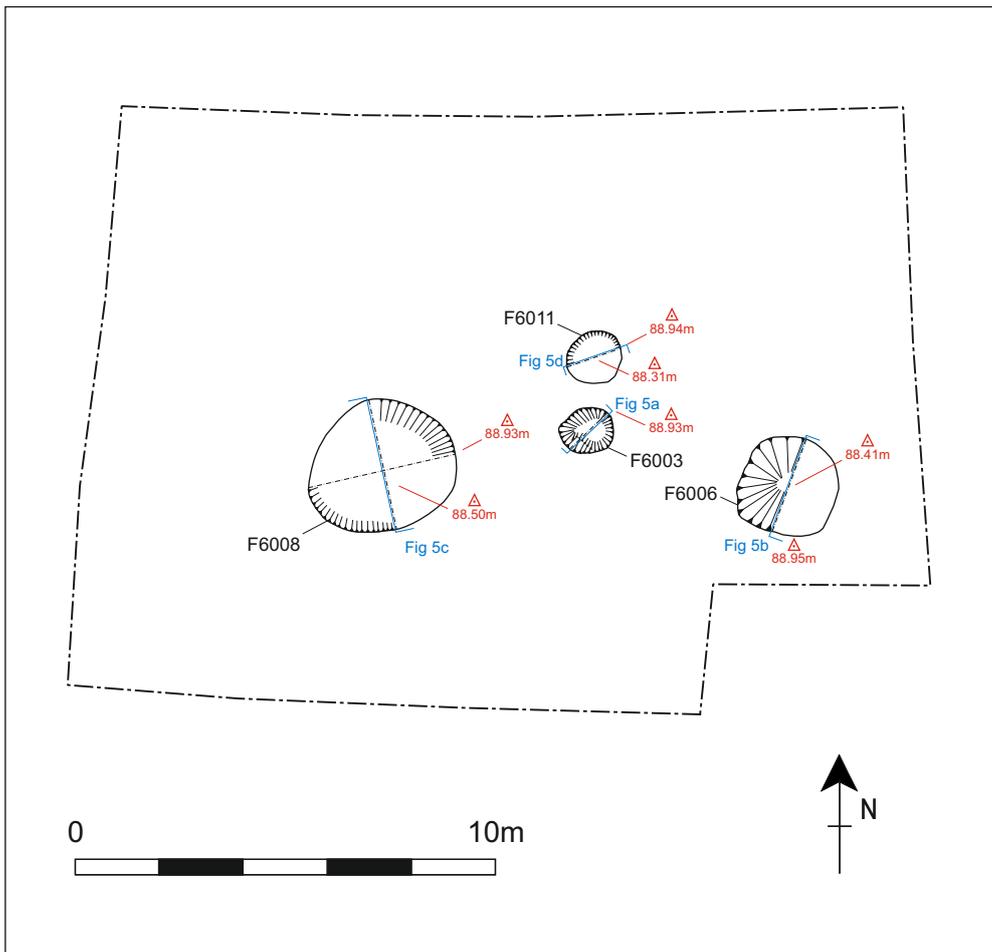


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Fig. 3: Plan of excavation areas
and locations of sections in
Fig. 10

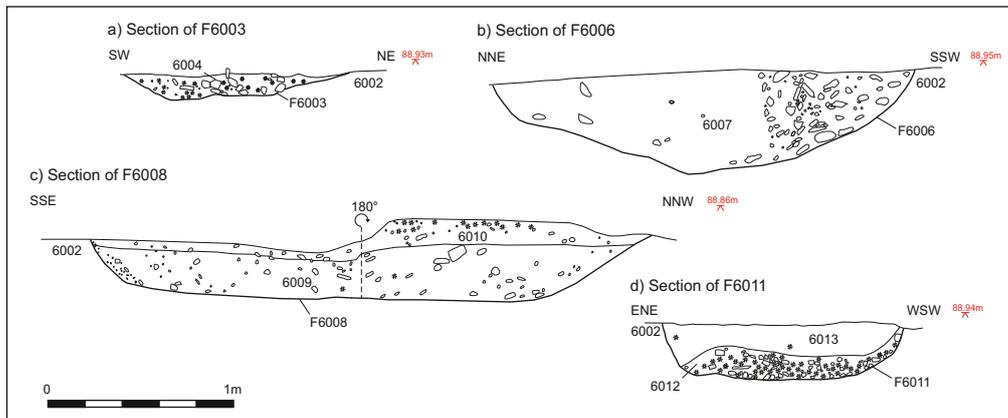


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Fig. 4: Excavation area 6, plan

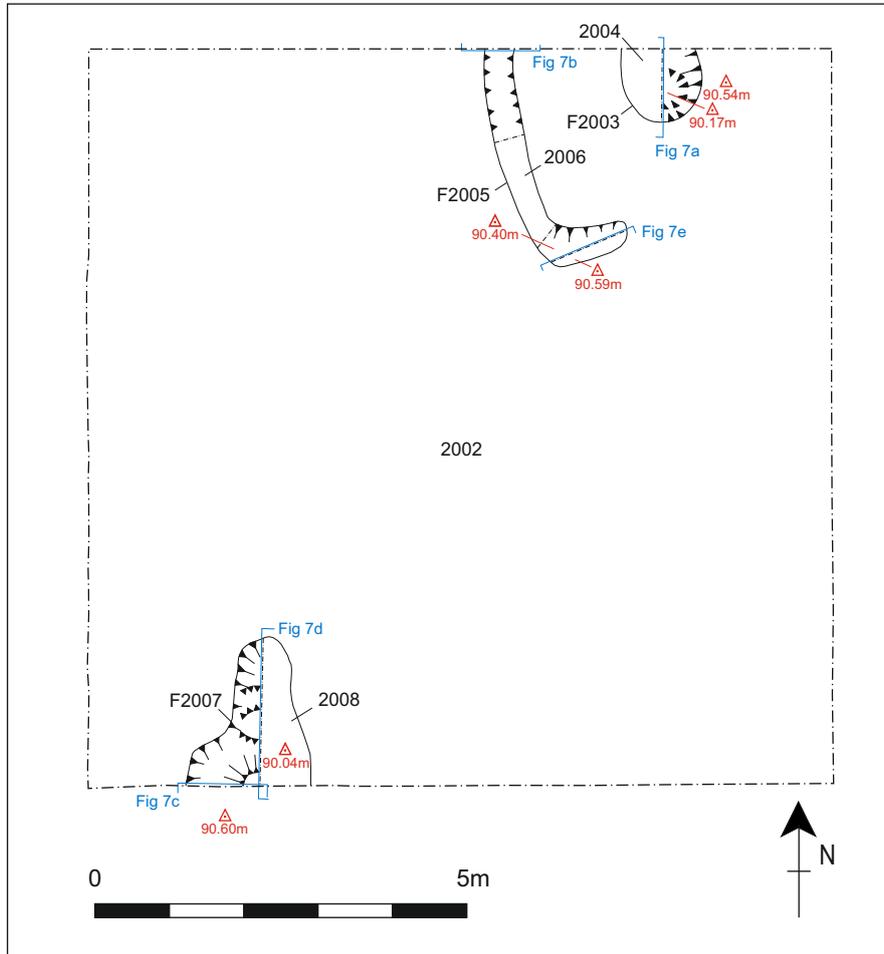


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Fig. 5: Excavation area 6,
sections

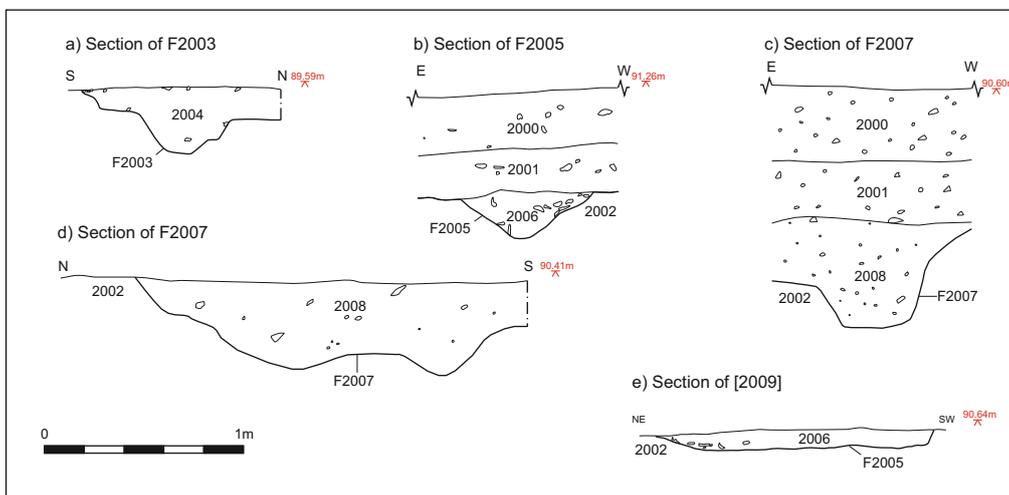


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Fig. 6: Excavation area 2, plan

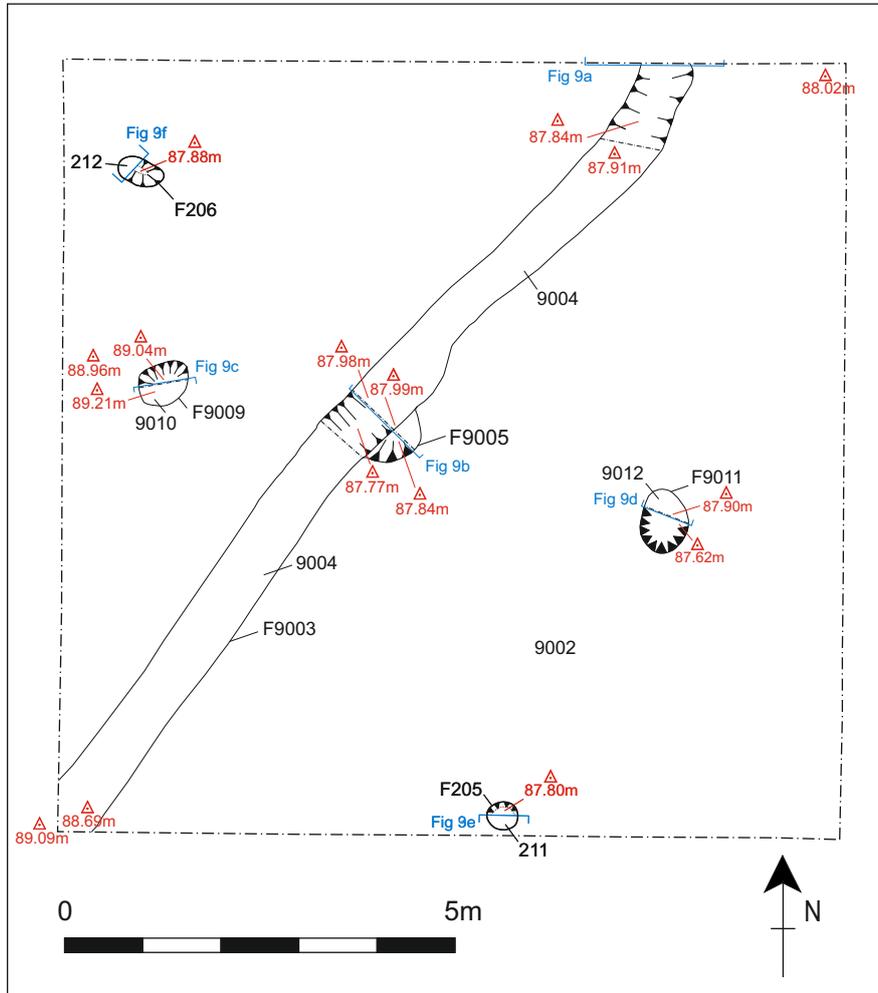


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Fig. 7: Excavation area 2,
sections

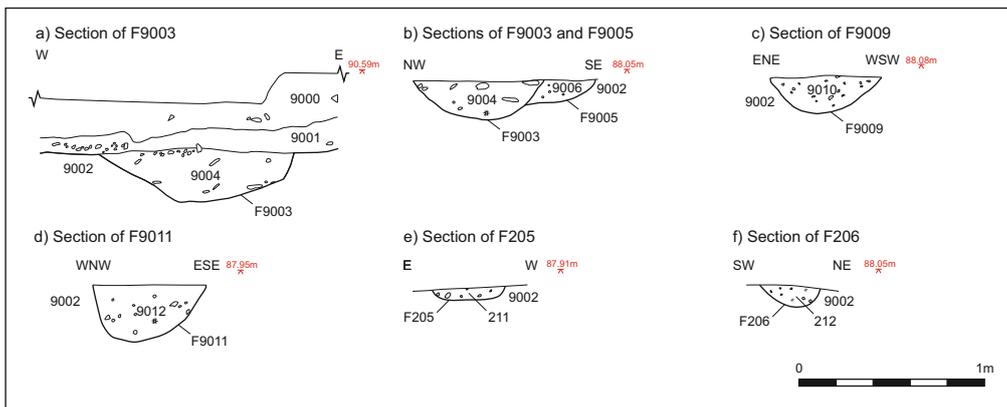


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Fig. 8: Excavation area 9, plan

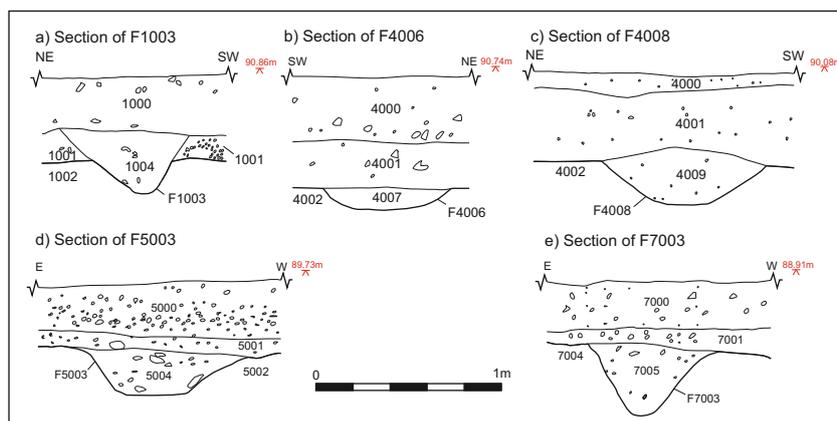


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TITLE

Fig. 9: Excavation area 9,
 sections



PROJECT

Land off the A361 and Blundell's Road,
Tiverton, Devon

TITLE

Fig. 10: Sections of ditches
F1003, F4006, F4008, F5003
and F7003





Plate 1: General view of work in progress, excavation area 6, looking northwest



Plate 2: General view of work in progress, excavation area 6, looking south



Plate 3: Northwest-facing section of pit F6003, excavation area 6 (scale 0.5m)



Plate 4: Pit F6008, excavation area 6, looking northeast (scale 1m)



Plate 5: Northwest-facing section of pit F6011, excavation area 6 (scale 1m)



Plate 6: Pit F6011 following full excavation, excavation area 6, looking southeast (scale 1m)



Plate 7: Northwest-facing section of tree throw F6006, excavation area 6 (scale 1m)



Plate 8: Gully F2005 following full excavation, with pit F2003 behind, excavation area 2, looking northeast (scale 1m)



Plate 9: North-facing section of pit F9009, excavation area 9 (scale 0.5m)



Plate 10: Southwest-facing section of pit F9011, excavation area 9 (scale 0.5m)



Plate 11: Southwest-facing section of pit F9005 and ditch F9003, excavation area 9 (scale 0.5m)



Plate 12: Ditch F7003, excavation area 7, looking south (scale 1m)



Plate 13: Prehistoric pottery. Body sherd Fabric 1 (left), with incised line and finger nail decoration from (6004) in pit F6003: rim sherd Fabric 2 (right) with applied cordons fill (6012) pit F6011. Photo Gary Young.



Plate 14: Greenstone axe/pestle S1 from (6012) upper fill of pit F6011. Photo Gary Young.



Plate 15: Flint artefacts and debitage from Trench 6 pits. Top row left to right, end and right side scraper (6012) pit F6011, two end scrapers (6004) pit F6003, piercer (6010) pit F6008, fabricator (6004) pit F6003, bottom row left to right, large cortical flake (6012) pit F6011, small cortical flake (6012) pit F6011, soft hammer flake (6004) pit F6003, blade (6013) pit F6011, spalls from retouch (6012) pit F6011. Photo Gary Young.

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