

Excavations of a Chichester entrenchment at Lower Graylingwell, Chichester, West Sussex

By Martyn Allen,
Tim Allen and
James Kenny

An archaeological evaluation in 2016 by Oxford Archaeology picked up a section of the entrenchment ditch known as EWJ at Graylingwell, north of Chichester. Organic remains from a lower fill in the feature produced an early/mid-Roman radiocarbon date. Excavations in 1998 by Southern Archaeology on an adjacent site revealed part of the same entrenchment. Pottery from a middle fill of the ditch indicates that it was backfilling in the same period. This article combines the results of both excavations and discusses their wider implications.

INTRODUCTION

Two archaeological investigations at Lower Graylingwell, Chichester, revealed evidence for multi-period activity dating from the Bronze Age to the post-medieval period, and exposed parts of a substantial ditch thought to have belonged to the late Iron Age earthwork complex known as the Chichester Entrenchments. An investigation by Southern Archaeology in 1998, which has not been fully published, revealed a continuous length of more than 50m of the ditch, alongside a late Iron Age enclosure, Romano-British ditches and timber-lined pits. An evaluation by Oxford Archaeology in 2016 picked up a short section of the ditch about 60m further west. Well-preserved environmental remains from its base produced a Roman radiocarbon date that complemented the 1998 results.

This article concentrates on the results of the 2016 investigation but uses the results of both to discuss the location and character of the entrenchment ditch, its relationship with surrounding features, and the significance of the scientific dating and environmental evidence. For more detailed accounts of the archaeology dating to other periods, the reader is referred to the unpublished reports (Kenny 2001; Evans and Gorniak 2017).

While the Chichester Entrenchments are among the most analysed archaeological monuments in Sussex, most of the many attempts at dating or defining their purpose have failed through a lack of relevant artefacts. This is principally due to the absence of associated settlement activity but also,

probably, because investigations have concentrated on sections across the ditches which were probably originally constructed in a series of phases and may have been maintained on more than one occasion and for prolonged periods. The result has been a series of dates ranging from the late Iron Age, through the Roman period and into the medieval period. As Magilton (2003, 159) has summed up:

whereas some entrenchments are likely to be of Iron Age origin, other long stretches that are currently or were until recently extant are probably entirely post-Roman. Yet others may be prehistoric features re-cut, modified and extended in medieval times as park and estate boundaries.

The first modern description of the entrenchments was by Williams-Freeman (1934). His notation was used and added to by Bradley (1971) and Magilton (2003) and is used here (Fig. 1). The only significant addition since Magilton's review of the evidence is the Optically-Stimulated Luminescence dating of silts in a section excavated through the Devil's Ditch (EWA(i)) at Halnaker in 2010 (Doherty and Garland 2015), that indicated that the ditch was in place 'by 80BC at the latest'.

THE SITE

The site is located approximately 1.25 km NNE of the centre of Chichester on land of the former Graylingwell Psychiatric Hospital (Fig. 1). The land slopes south and eastwards from 27m OD to 24m OD. Around 600m to the east, the River Lavant flows southwards, while several springs rise 150m to the south-east. Part of the line of Chichester

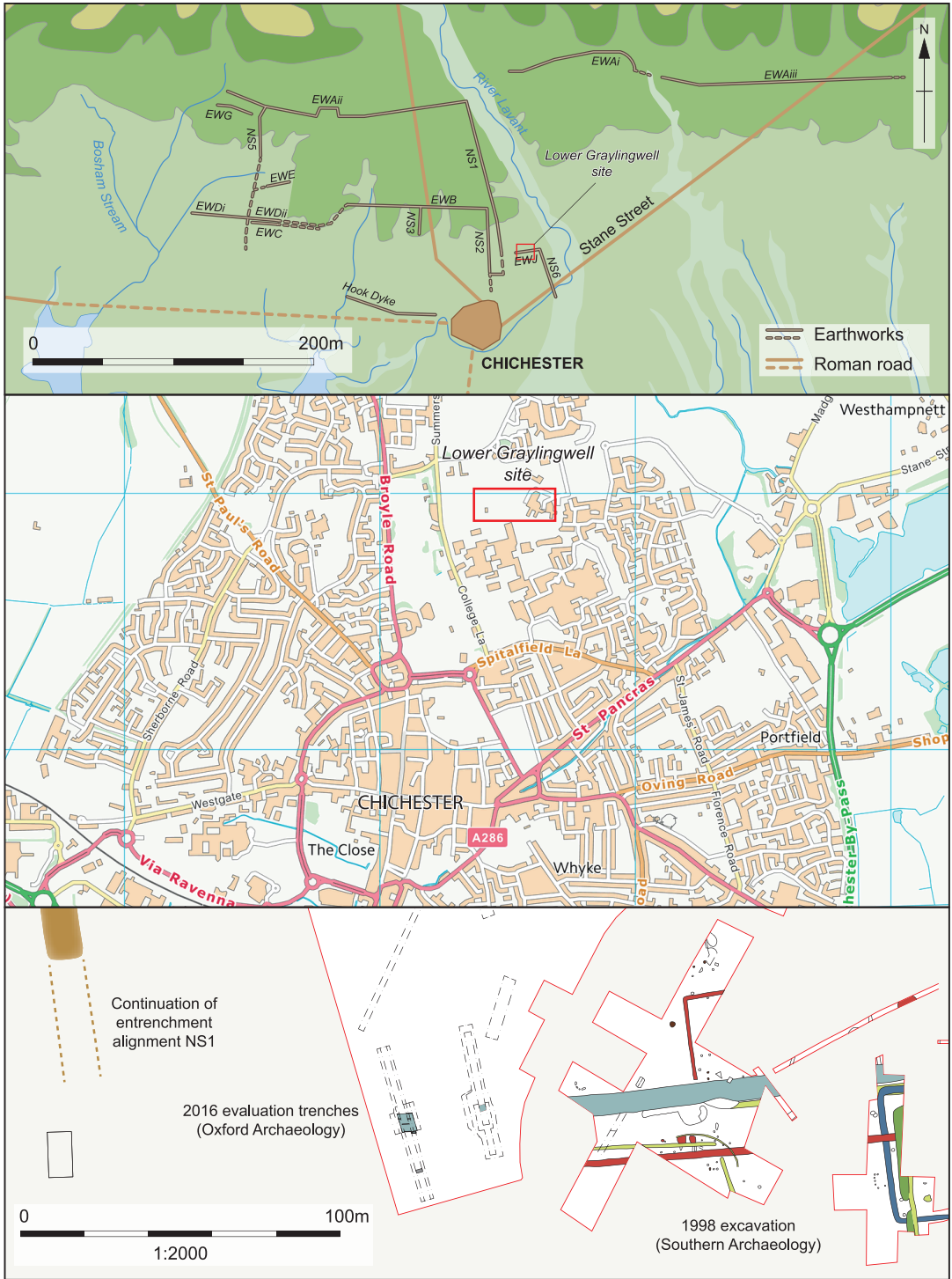


Fig. 1. Site and trench locations.

Entrenchment NS1 is visible as a north–south aligned bank and ditch earthwork, around 120m to the north-west of the site.

In 1998 Southern Archaeology investigated an area just south of Graylingwell Hospital for Chichester Priority Care Services NHS Trust, in advance of construction of the Chichester Centre (centred NGR 486615 105949). Two open-area excavations and three small trial trenches were positioned over the footprints of the proposed buildings and together exposed an area of around 3500m² (Figs 1 and 2). A further watching brief was kept on works associated with the construction of the buildings by Archaeology South-East in 1999 (James 1999).

In 2016 Oxford Archaeology were commissioned by WSP/Parsons Brinckerhoff to undertake an archaeological evaluation on land immediately to the north of the Chichester Centre in advance of new housing (NGR 486673 106072). In total, 26 evaluation trenches were opened, but only Trenches 1 and 2 produced Iron Age and Roman remains.

The finds and site archives of both excavations are deposited with Chichester District Museum.

SOUTHERN ARCHAEOLOGY EXCAVATIONS 1998: RESULTS

In Trench 101, the western side of a sub-square ditched enclosure (174) was identified, measuring 40m north–south. The southern side was traced for 25m and a small slot, about 10m further east, showed that the ditch was beginning to turn northwards, indicating a similar overall size east–west. The western side of the enclosure was truncated by an east–west, early Roman ditch. Pottery from the enclosure ditch dated it to the end of the late Iron Age (around 15 BC–AD 50) and it is possible that the enclosure represents a small settlement.

Part of entrenchment ditch EWJ, here numbered (102), was exposed less than two metres to the north of the enclosure, but there was no direct relationship between them. The entrenchment ditch was also exposed 30m to the west in Trench 100. Here, a roughly 50m section ran in a broadly ENE–WSW direction. Section 103 across the ditch in this trench showed that it measured 7.5m wide and 3.3m deep (Fig. 3). The first fills were thin spills down the sides of the ditch from natural erosion that produced no artefacts. The second fill (118) begins at the base

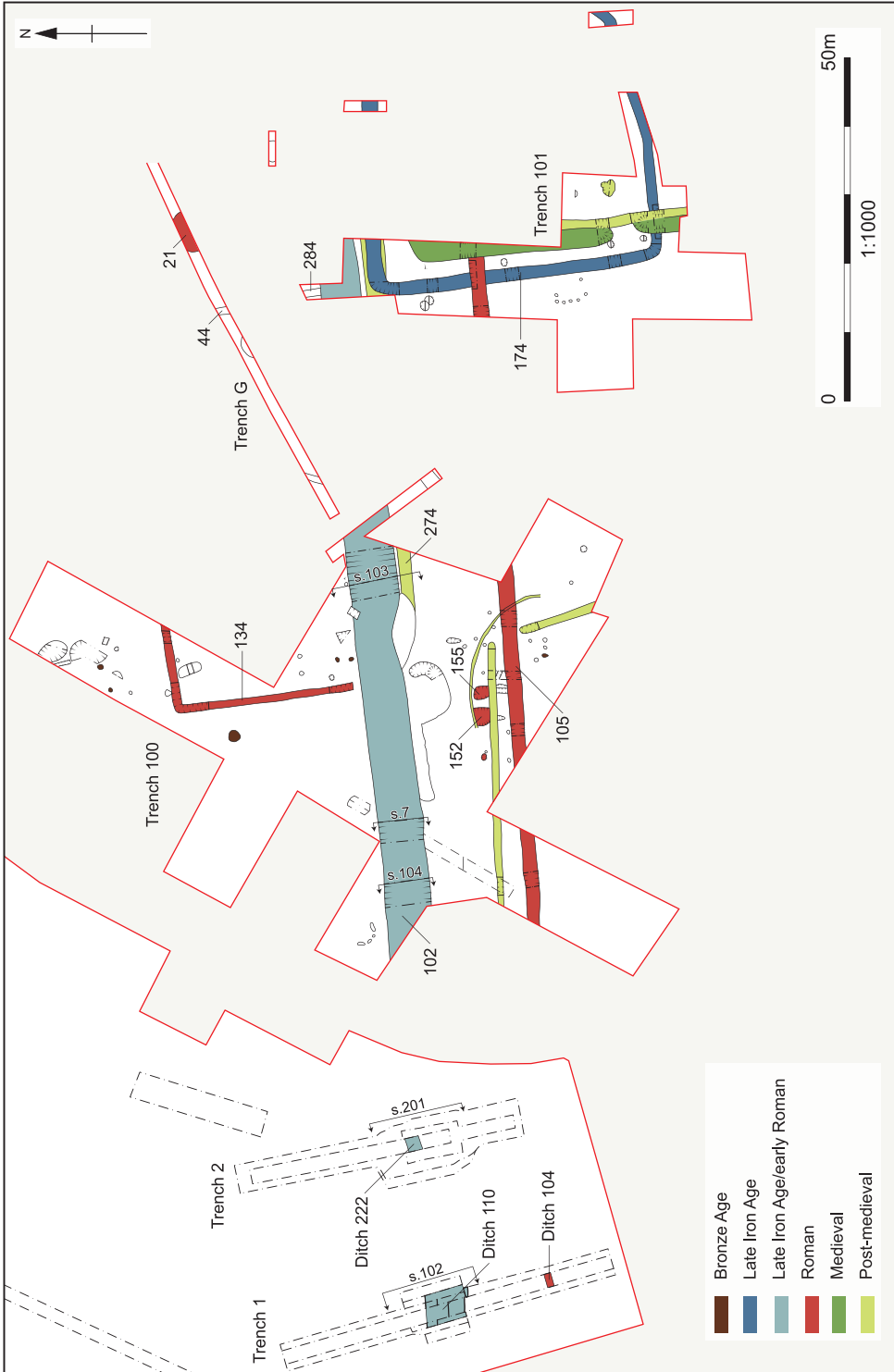
of the centre of the ditch and consists of gravelly material with larger stone inclusions. A copper-alloy coin, minted during the reign of Crispus (AD 317–326), was recovered from this lower layer. At least two thinner lenses of material accumulated over the top of this layer, of which the lowest (120) produced fragments of Roman pottery and tile and a Hod Hill brooch dated to around AD 43–70 (Crummy 1983). The pottery is discussed in more detail below. The top fill of the ditch was a homogenous layer, about 1.3m deep, of similar material to that excavated from post-medieval linear 274, just to the south, perhaps suggesting that this ditch remained open until relatively recently.

Just north of the entrenchment was a fairly narrow, L-shaped ditch (134), which ran north for 25m before turning at right angles to run east for at least 10m. This feature dated to the Roman period and its perpendicular alignment to the entrenchment suggests that it may have formed an enclosure with it. Two further sections of undated ditch in Trench G (44) and Trench 101 (284) may have formed the eastern side of this enclosure. Slightly further to the east, Trench G cut across a circular feature constructed of Roman tile (21) which may have been a hearth or an oven (James 1999; Kenny 2001).

To the south of the entrenchment, ditch (105), which measured more than two metres wide, was dug parallel to it in the 1st or early 2nd century AD and continued in Trench 101, where it cut the late Iron Age enclosure. This ditch is possibly a field boundary and its common alignment with the entrenchment suggests that it was related to it in some way, perhaps defining the entrenchment's bank (*see* discussion below). If the space between the two ditches was occupied by a bank, it was cut through in the late Roman period by two large timber-lined pits (152 and 155). The fills of both pits contained material from the 4th century AD. Their function is uncertain, though the timber lining was presumably put in place to stabilise the sides, perhaps for use as wells or storage facilities, or for craft activities.

POTTERY FROM THE ENTRENCHMENT DITCH

The pottery from the ditch has been examined by Paul Booth and Edward Biddulph of Oxford Archaeology and their comments on the material follow. Fill 120 contained a relatively mixed pottery assemblage that included sherds of a Dressel 20



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Fig. 2. Plan of features in Trenches 100 and 101 (1998) and evaluation trenches 1 and 2 (2016).

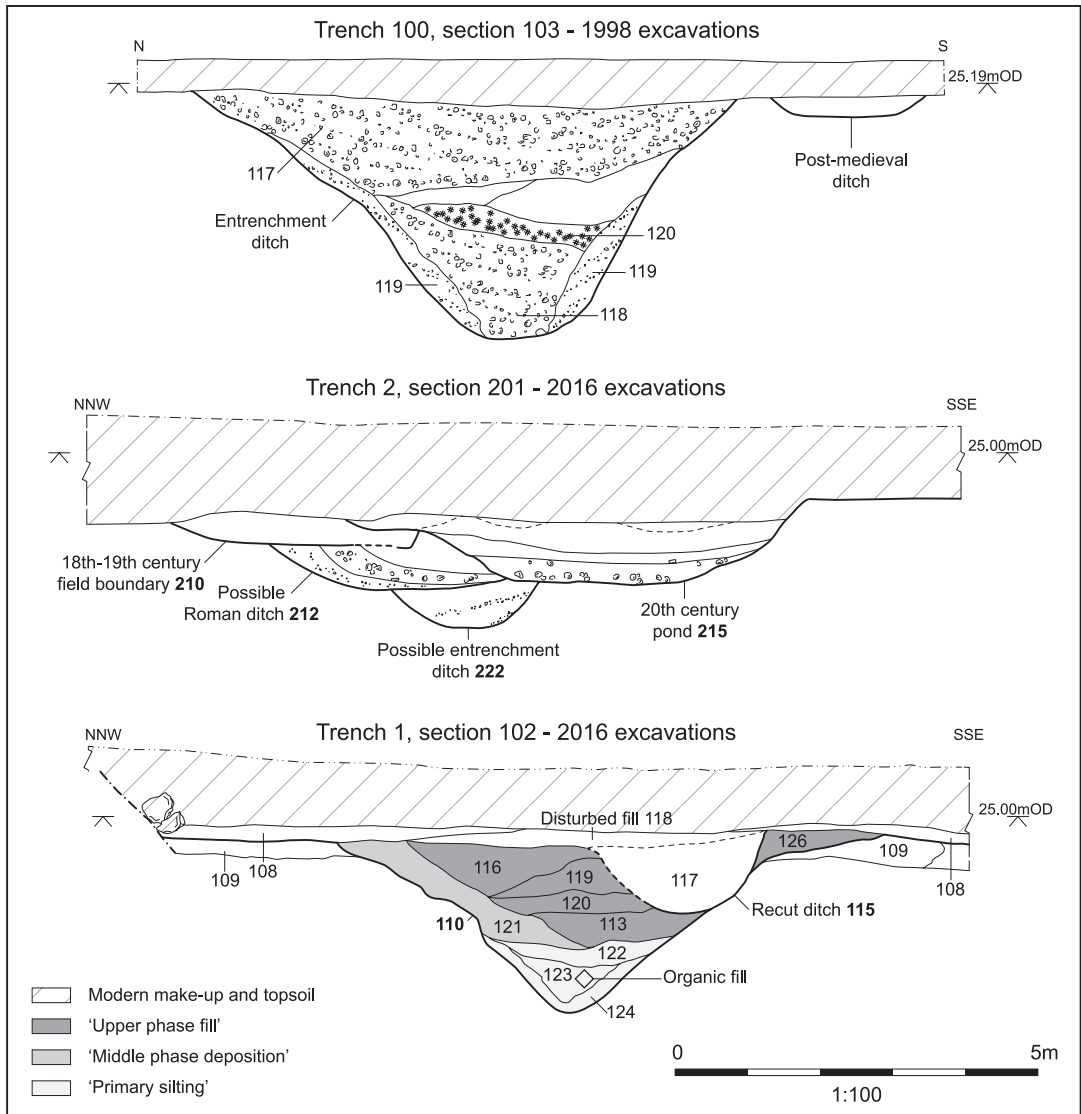


Fig. 3. Section 103 showing ditch 102 (1998 excavations); section 201 in Trench 2 showing Roman and Victorian features; section 102 showing ditch 110 in Trench 1 (2016 excavations).

amphora, central and south Gaulish samian ware, a barbotine-dotted, poppy-head beaker and Rowlands Castle ware. The sherds were fragmentary and abraded, consistent with redeposition. Poppy-head beakers were produced at a number of sites in south-east England, including Highgate in north London, north Kent and Oxford, but the fabric of the present vessel does not seem to match any of these precisely.

The Rowlands Castle ware is locally-produced in kilns located a few miles west of Chichester. The assemblage potentially dates anywhere between the end of the 1st century AD and the beginning of the 3rd century, but an early-to-mid-2nd-century date seems most likely. The early 4th-century coin found in the deposit below this fill was in a poor condition and is thus probably intrusive. Fill 8, an upper fill

from another section (7) across the entrenchment ditch, contained a few handmade body sherds in an organic and sand-tempered fabric characteristic of the early-middle Anglo-Saxon period.

OXFORD ARCHAEOLOGY EXCAVATIONS 2016: RESULTS

Located in the south-west corner of the Oxford Archaeology evaluation site, Trenches 1 and 2 were deliberately positioned to locate the westward projection of the entrenchment ditch found in 1998 (Figs 1 and 2) and were excavated by machine.

TRENCH 1

In Trench 1, the entrenchment ditch and a narrower, early Roman ditch were identified beneath topsoil and subsoil overlain by recently made ground (Fig. 2). The entrenchment ditch (110) cut through an earlier subsoil layer (109) which directly overlies the natural gravel. It measured 7.52 m wide and 2.6 m deep, had nine fills and appears to have been recut at least once.

The primary fill (124) was a friable silty clay with frequent flinty gravel. It formed a 0.21 m thick band of waterlogged material over the base and lower sides of the ditch. This was filled with a looser, blue-grey, silty clay deposit (123) with flinty gravel and decayed organic material, including some preserved twigs. This deposit produced a few late prehistoric pottery fragments, while samples were taken to examine waterlogged plant remains, insect remains and pollen (*see* Environmental Remains, below). This sample also produced a radiocarbon date ranging between the late 1st and early 3rd century AD (*see* Scientific Dating, below).

Fills 123 and 124 were completely sealed by fill 122 which stretched across the whole width of the ditch about 0.8 m from the base. Similar to the fills below it, this deposit appears to have formed from gradual silting combined with erosion from the sides, but it was not waterlogged. Layer 122 was overlain on its northern side by fill 121, which, from this point, also completely covered the northern side of the ditch cut. The fill consisted of a 0.4 m thick band of friable, blue-grey, clayey silt with occasional flint pebbles, which may have been created by a slump to the bank on its northern side or may represent a deliberate dump of material.

Above fills 122 and 121, five upper fills were observed in the ditch. Four fills (113, 120, 119 and 116) built up in the central part of the ditch, while the fifth (126) filled an apparent hollow in the upper part of the southern edge. These fills generally consisted of the clayey silt observed in the lower fills and they produced no finds other than flecks of charcoal. Each of these fills was cut by a round-bottomed ditch (115), about 2.4 m wide and 1.0 m deep. The ditch contained a single fill of friable, orange-brown sandy silt, with frequent flint gravel pebbles and bands of dark silt and lighter gravel (117). Above the top level of the ditch, fills 116 and 117 were overlain by a relatively thin layer of friable, light greyish-brown, silty clay with numerous flint pebbles (118). This deposit produced a sherd of 4th-century pottery and was partly sealed by subsoil layer 108.

Approximately 12 m to the south of the entrenchment a second ditch (104) ran east-west, cutting the natural and subsoil 109. This feature was 1.31 m wide, with moderately steep sides and an almost pointed base, and had three fills. The primary fill was a firm, greyish-brown, clayey silt with occasional small flint pebbles, which contained a fragment of later prehistoric pottery. The second fill consisted of a friable, greyish-brown, sandy silt, with flint pebbles, and a group of vessel sherds dating to the mid-1st century AD. Over this layer, the subsoil had settled into the ditch top. It seems likely that this feature was the continuation of the early Roman east-west ditch (105) discovered in 1998 (*see* above).

TRENCH 2

In Trench 2, evidence of the entrenchment ditch was far less clear due to truncation by later features, and the trench did not extend far enough south to pick up the line of early Roman ditch (104). As in Trench 1, archaeological features were sealed by topsoil, subsoil and some depth of recently made ground (Fig. 3).

The earliest archaeological feature in Trench 2 was ditch 222, whose base was reached 2.8 m below the modern ground surface. It had a concave base cut into the natural geology, with a single deposit of light grey clay with flint pebbles, which produced a fragment of Roman brick and a horse tooth. The ditch was truncated by two features (212 and 215) and only survived 2.1 m wide and 0.72 m deep. It is possible that this was part of the entrenchment

ditch, although it was not exactly in line and was somewhat shallower.

The possible entrenchment ditch 222 was cut by ditch 212, the base of which was distinctly wider than that of 222, measuring 3.3m wide and 0.6m deep, although again it was truncated by later features. It contained three fills: a firm, brownish-grey clay primary deposit, then a mid-dark brownish-grey, sandy clay, and finally a friable grey clay. Pieces of Roman brick and tile were recovered from the middle fill. Cutting ditch 212 was ditch 210, which contained a piece of Victorian ceramic building material. It seems likely that 210 represents an 18th–19th-century field boundary that is marked on contemporary Ordnance Survey maps.

Ditches 222, 212 and 210 were all truncated by feature 215. This feature measured 6.05m wide, narrowing to 3.6m across at the base, and was 0.84m deep. It contained three successive fills. The primary fill was a firm, blueish-grey silty clay with numerous flint gravel inclusions. Overlying this, a compact, grey, silty clay contained Roman flue tile, Tudor–Stuart bricks and some 19th-century brick fragments, while the upper fill was devoid of finds. This feature is thought to be a pond marked on 1919 and 1938 Ordnance Survey maps.

THE ENVIRONMENTAL REMAINS

Two environmental samples (<3> and <4>) were taken from fill 123 in entrenchment ditch 110 in Trench 1. Remains of waterlogged plants, pollen and insects were recovered from this deposit and the results of their analyses are summarised here. Details of the methodologies used and the resulting data can be found in the evaluation report (Evans and Gorniak 2017). Results of radiocarbon analysis of some of the waterlogged plant remains are presented in the next section.

The waterlogged plants by Julia Meen

Waterlogged remains consisted mostly of preserved wood fragments, small twigs and fragments of leaves. The sample included an abundance of bramble (*Rubus* sp.), including numerous small thorns. Elder (*Sambucus nigra*), nettle (*Urtica dioica*) and sedge (*Carex* sp.) seeds were also relatively common. The remaining seeds consisted of small numbers or single occurrences of other wild plant taxa, including violet (*Viola* sp.), St John's-wort (*Hypericum* sp.) and hemp-agrimony (*Eupatorium cannabinum*). A small number of dogwood stones (*Cornus sanguinea*)

and a single blackthorn stone (*Prunus spinosa*) were also found in the sample (identified by M. Robinson). Both taxa are shrubs commonly found in scrub woodland native to southern Britain. The presence of these and other indications of scrub vegetation possibly indicate the presence of a nearby hedge. Blackthorn, for example, is a very common hedgerow shrub, while seeds of elder and bramble might be accounted for by overhanging vegetation. A single, poorly-preserved seed, provisionally identified as holly (*Ilex aquifolium*) also suggests the presence of taller vegetation, rather than plants growing in the ditch itself.

The Pollen by Mairead Rutherford

The sample provided a rich pollen and spore assemblage, dominated by grasses (*Poaceae*) alongside sedges (*Cyperaceae*), ribwort plantain (*Plantago lanceolata*), docks/sorrels (*Rumex*-type) and dandelion (*Taraxacum*-type). Pollen grains of the carrot family were particularly common, including *Apiaceae* (e.g. pignuts, burnet-saxifrages and fool's parsley), *Asteraceae* (e.g. sow-thistles, burdocks and oxeye daisies) and *Amaranthaceae* (e.g. fat-hen, good-king-henry and many-seeded goosefoot). Pollen grains of meadowsweet (*Filipendula*), milk-vetches (*Astragalus*-type), thistles (*Cirsium*-type) and pimpernels (*Anagallis*-type) were also recorded, as was one cereal pollen grain which may have been from wheat or oats (*Triticum/Avena*). Herbs such as grasses, dandelion, daisy and thistle suggest the presence of an open palaeoenvironment, perhaps indicating rough ground, trackways or hedgerows, while pollen from plants such as ribwort plantain, docks/sorrels and sedges are indicative of damp meadow habitats.

Tree and shrub pollen, although low in number, were relatively diverse. Pollen of oak (*Quercus*), pine (*Pinus*), birch (*Betula*), ash (*Fraxinus*), hazel-type (*Corylus avellana*-type), willow (*Salix*) and elder (*Sambucus*) were all present. Pollen of ivy (*Hedera*), bramble (*Rubus*-type), cherry (including blackthorn), was also recorded. Some of the tree pollen, such as oak, birch, ash and pine, may be of regional derivation, while pollen from other tree and shrub taxa could suggest the presence of nearby hedgerows. Significantly, the assemblage included vast numbers of fern spores, predominantly of monoete ferns (*Pteropsida*) as well as bracken (*Pteridium aquilinum*) and common polypody (*Polypodium vulgare*). Ferns such as bracken and

common polypody occur in woodland and on heaths and moors. They tend to live on acidic soils and often dominate over large areas (Stace 2010). It is possible that ferns were collected for use as animal bedding or fodder and possibly disposed of in the ditch.

The Insects by Enid Allison

Insect remains were moderately to poorly preserved. Beetle heads were over-represented, which suggests that some material may have been lost. Overall, some 70 individuals representing 38 taxa were identified. Remains of scarabaeoid beetles (*Aphodius* spp., *Onthophagus* spp. and *Geotrupidae* sp.), which are often associated with herbivore dung, were common and relatively well preserved. Their relative abundance suggests that livestock were grazing close to the ditch or that cleaned-out byre waste was being dumped in the ditch. Notably, there was little evidence for aquatic species. Only two specimens from water beetles were found (*Hygrotus inaequalis* and *Tanysphyrus lemnae*). *Trechoblemus micros* is often found underground near water where it feeds on small invertebrates, while *Phyllopertha horticola* is a grassland beetle—its larvae feed on turf roots. *Sitona*, often called ‘clover weevils’, feed on wild and cultivated leguminous plants and are abundant in grassland habitats. This species feed on vetches, clovers and grassland trefoils and their life cycles require the host plants to achieve maturity rather than being constantly eaten to ground level. The relatively high number of clover weevils suggests the presence of ungrazed grassland (Robinson 2002, 26).

SCIENTIFIC DATING by Rebecca Nicholson

A single sample comprising 30 waterlogged seeds of bramble (*Rubus* sp.), elder (*Sambucus* sp.) and mint (*Mentha* sp.) recovered from ditch fill 123 was submitted to the Scottish Universities Environmental Research Centre (SUERC) for high-precision radiocarbon dating by Accelerator Mass Spectrometry (AMS), using the methods described in Dunbar *et al.* (2016). The material generated a calibrated date (94.5% probability) of AD 80–220 (Table 1).

DISCUSSION

The large ditch found in both 1998 and 2016 investigations is that identified as EWJ of the Chichester Entrenchments (Magilton 2003; Fig. 1). The adjacent north–south entrenchment is NS1. No other previous archaeological interventions have targeted entrenchment EWJ, but two investigations of NS1 are recorded. In 1976, the ditch and bank were recorded on the line of Winterbourne Road, north of Graylingwell (Down 1989, 61–5), while in 1994 the ditch was sectioned at the northern end of Bishop Otter College, located to the south-west of the Graylingwell site (Magilton 1994, 20). Neither of these investigations produced any finds.

Most surviving, above-ground sections of the Chichester Entrenchments show that it commonly consisted of a ditch and a bank. The nearest visible section is a part of NS1 that lies 120m to the north-west of the 2016 evaluation site and is currently conserved as a scheduled monument (Fig. 1). There is no surviving evidence for a bank adjacent to the excavated ditch sections on the Graylingwell site, where circumstantial evidence for the former position of a bank is conflicting. The late Iron Age enclosure in Trench 101 lies less than 2m from the ditch edge, so, if contemporary, the bank was not on the south side. However, the early Roman ditch found leading north from the entrenchment in Trench 100 argues against a bank on the northern side.

In Trench 1, there was indirect evidence to support the presence of a bank on the southern side, as two deposits of early Holocene soil survived to the south of the entrenchment ditch and north of parallel ditch 104. It is possible that these layers were preserved from ploughing due to the former presence of a bank above them, as elsewhere the early Holocene soil had been ploughed away. The east–west Roman ditch located to the south of the entrenchment in both excavations may have marked the southern limit of the bank. If the bank did lie on the south side of the entrenchment, then the entrenchment may have been later than the enclosure in Trench 101.

Table 1. Radiocarbon result from organic material from fill 123 in ditch 110 (Trench 1, 2016 excavation).

Lab. No.	Sample	Context	Material	$\delta^{13}\text{C}$ (‰)	Radiocarbon Age (BP)	Calibrated date (at 94.5%)
SUERC-70667 (GU42531)	<4>	123	30 water-logged seeds	-26.4	1866 ± 17	AD 80–220

The 1998 Chichester Centre excavation revealed a long stretch of the entrenchment ditch, and a short section of deep ditch on the same line was found in Trench 1 of the 2016 evaluation. Comparison of the dimensions of the two sections shows some variation (Fig. 3). The 1998 section measured 3.3m in depth, while the 2016 section measured 2.6m deep. However, the widths of both cuts were close to 7.5 m and they shared a similar profile, although the base of the ditch below the Chichester Centre was more rounded. Primary silting occurred down the sides and across the base of both cuts. The section below the Chichester Centre appears to have gradually filled with thick deposits of gravelly soil, with a phase of dumping of Roman pottery, tile and other artefacts part way up. The section of ditch in Trench 1 clearly remained open long enough for 0.5m of organic sediment to accumulate just above the base.

Due to considerable truncation by post-medieval features, evidence for the entrenchment ditch in Trench 2 remains problematic. Below the post-medieval features, two ditches contained fills which produced Roman material. The earlier of the two (ditch 222) is potentially the entrenchment. It was about 0.4m shallower than the ditch in Trench 1 and more than one metre shallower than the cut under the Chichester Centre, and its rounded base more closely resembled the profile of the latter than the former. One argument against this being part of the entrenchment ditch is that the centre of ditch 222 is slightly offset from that of the ditch cuts either side. Some variation in the depth and line of the entrenchments may be expected over relatively short distances but, since so little of the complex had been excavated, such variation is not well known. The profile of the Cattlemarket ditch, south-east of Chichester, was noted to have varied, although the depth of the various cuts in that area remained fairly similar (Down 1989, 61). If ditch 222 is part of the entrenchment, then recutting by a second Roman ditch (212) may be matched by the recut (115) in Trench 1. Another explanation is that 222 and 212 are later features, and (if the finds are residual) that one or both could even be post-Roman. In this scenario, there would have been a gap in between the entrenchment ditches in Trench 1 and under the Chichester Centre. This may explain the difference in profile and depth between the two sections.

The radiocarbon date of AD 80–220 obtained from the organic deposit in the lower fill of Trench

1 and the general Roman date for the filling of the entrenchment ditch found beneath the Chichester Centre indicate that an early Roman date for the initial silting of entrenchment EWJ is possible. Within the radiocarbon range 80–220 cal. AD, a late-1st-century/early-2nd-century date seems more probable than one of the late-2nd/early-3rd century AD, although it is uncertain how long the organic deposit took to accumulate. However, it is still possible that the ditch was dug shortly before the Roman invasion and started to silt up shortly after. The lack of a physical relationship between the entrenchment ditch and the late Iron Age enclosure found in 1998 is unfortunate; in the circumstances, we cannot be certain whether the enclosure was destroyed in the construction of the entrenchment, respected by or even associated with it. The 4th-century pottery sherd in the uppermost fill of the ditch in Trench 1 is probably associated with the timber-lined pits discovered under the Chichester Centre in 1998, as is the intrusive coin found in the entrenchment ditch (Section 103).

The environmental remains from the lower fill of the ditch in Trench 1 are significant, not only providing a radiocarbon date, but illuminating the character and use of the local landscape during the Roman period. Waterlogged plant remains and pollen from the organic deposit indicate the presence of a hedge which must have run alongside and overhung the ditch. Although very few zooarchaeological remains have been recovered from either excavation, livestock appear to have been an important component of the local environment. The presence of mature grassland suggests that hay meadows were being cultivated in the vicinity, several beetle taxa indicate the presence of herbivore dung, and considerable quantities of ferns may have been imported for bedding and possibly fodder, although bracken is poisonous to most livestock. The evidence highlights the occurrence of nearby settlement and farming activities in the (early) Roman period.

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Authors: Martyn Allen and Tim Allen, Oxford Archaeology Ltd, Janus House, Osney Mead, Oxford, OX2 0ES, martyn.allen@oxfordarch.co.uk, tim.allen@oxfordarch.co.uk; James Kenny, Chichester District Council, East Pallant House, 1 East Pallant, Chichester, West Sussex, PO19 1TY, jkenny@chichester.gov.uk

REFERENCES

- Bradley, R.** 1971. 'A field survey of the Chichester Entrenchments', in B. Cunliffe (ed.), *Excavations at Fishbourne, Vol. 1: The Site*, Reports of the Research Committee of the Society of Antiquaries of London **26**, 17–36. London: Society of Antiquaries of London.
- Crummy, N.** 1983. *Colchester Archaeological Report 2: The Roman Small Finds from Excavations in Colchester 1971–9*. Colchester: Colchester Archaeological Trust.
- Doherty, A.** and **Garland, N.** 2015. Archaeological investigations of the Devil's Ditch at Windmill Park, Stane Street, Halmaker, West Sussex, *Sussex Archaeological Collections* (hereafter SAC) **153**.
- Down, A.** 1989. *Chichester Excavations* 6. Chichester: Phillimore.
- Dunbar, E., Cook, G.T., Naysmith, P., Tripney, B.G.,** and **Xu, S.** 2016. AMS ¹⁴C Dating at the Scottish Universities Environmental Research Centre (SUERC) Radiocarbon Dating Laboratory, *Radiocarbon* **58**, 9–23.
- Evans, G.** and **Gorniak, M.** 2017. Lower Graylingwell, Chichester: Archaeological Evaluation Report. Oxford Archaeology, OA Ref. No. 6204.
- James, R.** 1999. *An Archaeological Watching Brief at Graylingwell Hospital, College Lane, Chichester, West Sussex*. Archaeology South-East, Project No. 1124.
- Kenny, J.** 2001. Land South of Graylingwell Hospital, Chichester, 1998. Client report, Southern Archaeology Ltd.
- Magilton, J.** 1994. Bishop Otter College, in S. Woodward (ed.), *The Archaeology of Chichester and District 1994*. Chichester: Chichester District Council.
- — 2003. The Defences of Roman Chichester, in P. Wilson (ed.), *The Archaeology of Roman Towns*, 156–167. Oxford: Oxbow.
- Robinson, M.** 2002. *English Heritage Reviews of Environmental Archaeology: Southern region insects*. English Heritage Centre for Archaeology Report 39/2002.
- Stace, C.** 2010. *New Flora of the British Isles* (3rd edn). Cambridge: Cambridge University Press.
- Williams-Freeman, J. P.** 1934. The Chichester Entrenchments, SAC **75**, 65–106.
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