



An archaeological investigation of the Roman aisled stone building at Hog Brook, Deerton Street, Faversham, Kent 2004-5

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1. Summary

Investigation by students of the Kent Archaeological Field School (KAFS) in the summers of 2004-5 at Hog Brook (TQ 9743 6292), close to Deerton Street and just to the north of Watling Street (the A2), revealed an exceptionally well-preserved early Roman stone-built aisled basilical building close to the main villa. Both buildings continued in use until the 6th century.

From field survey conducted as part of student coursework it is clear the building was not isolated but associated with other Roman buildings in the vicinity, including the Roman villa located to the west of the spring at Hog Brook and other Roman buildings to the north and south.

The villa, of a type traditionally called a 'winged corridor house' (Richmond 1969, 53-68) had been previously investigated by students of the Field School over five seasonal campaigns (1997-2002) and dates from the early 2nd century to the 5th century (Appendix 7).

This Roman villa estate is one of a number along the line of Watling Street in north Kent, and most were located as part of the field-work associated with the Swale Survey (Wilkinson 2000). Those to the north of Watling Street were situated around a spring, set back from the Roman road, and with easy access by sea to the Roman markets of London, Richborough, and the Rhine.

It seems the area farmed is about 2000 acres per villa and at Deerton Street there can be recognised in the modern field boundaries, relict field divisions of 20 actus square (710m x 710m), the classic field shape and measurement from the Roman period.

The spring at Deerton Street is called Hog Brook and on the west bank field-walking as part of the Swale Survey (2000) located the remains of a substantial Roman villa whilst on the east bank field-walking located the demolition 'halo' of a large Roman building which on investigation in 2004-2005 proved to be 35.70m (117ft 2") long and 15.40m (50ft 7") wide. The building was built to Roman measurements, the width at 15.40m is about 52*pM* (Roman feet, the *pes Monetalis* of 296mm length) and the length at 35.70m is about one actus (of 35.50m).



Fig. 2. The spring at Deerton Street is called Hog Brook. To the west (left) is a large and substantial Roman villa located by Paul Wilkinson as part of a landscape survey for Swale Borough Council (Swale Survey 2000). Investigation with the Kent Archaeological Field School (KAFS) took place over four summer campaigns. An interim report was published in 1997 (Appendix 7). The villa is about 49m (160ft) long and includes a apsed bath suite decorated with painted plaster and a tessellated floor. The stone aisled barn to the east of Hog Brook was, also, found through field-walking by Paul Wilkinson. More Roman building have been located to the north of the main villa.

Excavation of the Roman basilical building revealed twenty substantial rectangular stone piers still surviving to the first course with the late Roman sand floor intact. Buried under the demolition rubble and laying on the sand floor were the remains of one of the fallen Roman rectangular columns (Pier A), built of mortared Kentish ragstone and Tufa blocks with a double line of Roman tiles spaced horizontally about every metre. About five metres of the fallen pier survived (Figs. 26, 28).

Under the fallen pier debris there were the remains of an articulated skeleton of a small cow and sherds of Anglo-Saxon pottery subsequently dated to the mid 6th century (Appendix 2).

Stamped Samian pottery from the Roman builders' trench date the construction of this massive stone basilical building from 80 to 110AD whilst Anglo-Saxon pottery sherds and a copper alloy Anglo-Saxon brooch found laying on the late Roman sandy floor under the collapsed tiled roof show the building continued in use until at least the mid 6th century (Appendix 5).

The building is thought to have been destroyed by fire as fragments of the burnt roof timbers still survived under the fallen tiled roof (Figure 5).

With so much surviving from the structure of the building it is possible to state that the design was of an arcaded stone building with clerestory lighting, a separate nave with two aisles, all roofed in tile, and of a type recognised by Collingwood and Richmond (Collingwood & Richmond 1969, 149).

The building shows that for this Roman villa estate at least, a basilical prototype was drawn upon for the aisled building, and that in form it had much more in common with a basilica in a Roman forum or military camp than with the normal timber 'work-hall' as defined by John Smith (Smith J T, 1997).

Why such an architectural sophisticated stone building should have been built so early in the Kentish countryside can probably answered by two words - agricultural produce.

The Roman administration needed huge amounts of grain to feed the armies of Britain and the Rhine and this building, established in the late 1st century is one of the many villa estates, built in this fertile area of Kent. The building with its large side entrances and a artificial deepwater channel allowed barges to load and unload alongside this huge barn or work-hall with ease. The sophisticated style of building and its early date suggest that the Roman administration were involved in developing the agricultural resources of the recently conquered territories of the *Cantiaci*.



Fig. 3. Four years of field-walking in the Swale District in Kent led to the discovery of 18 potential Roman villa sites both north and south of Watling Street (Wilkinson 2000). The pattern of these villas suggest control by the Roman authorities. Each villa north of Watling Street seems to have been allocated about 2000 acres of land, whilst the villas south of Watling Street which were situated on less productive land seem to have been allocated about 2500 acres.

2. Introduction

In 1978 John Hadman, in discussing the use and construction of Roman aisled buildings in Roman Britain, was emphatic “that there was no magic in their method of construction. The use of two rows of roof-supports to provide greater stability and width is a logical step and one which could, and probably did, occur independently. On the continent convincing close parallels are few....and this type of building may be, like corn dryers, largely a Romano-British phenomenon” (Hadman 1978, 187).

Of course the material of construction was presumed to be timber; Hadman suggested that aisled buildings “naturally occurred in greater numbers where timber for their construction was readily at hand” (Hadman 1978, 189). Over 120 examples of this type of timber aisled Roman building have been found in Britain (up to 1997) with only a few identified in Europe. J T Smith has outlined the function and social implications of such buildings and suggested its use as a ‘work-hall’ probably with a dual use, that of living accommodation and agricultural activity (Smith J T 1963, 1-30)

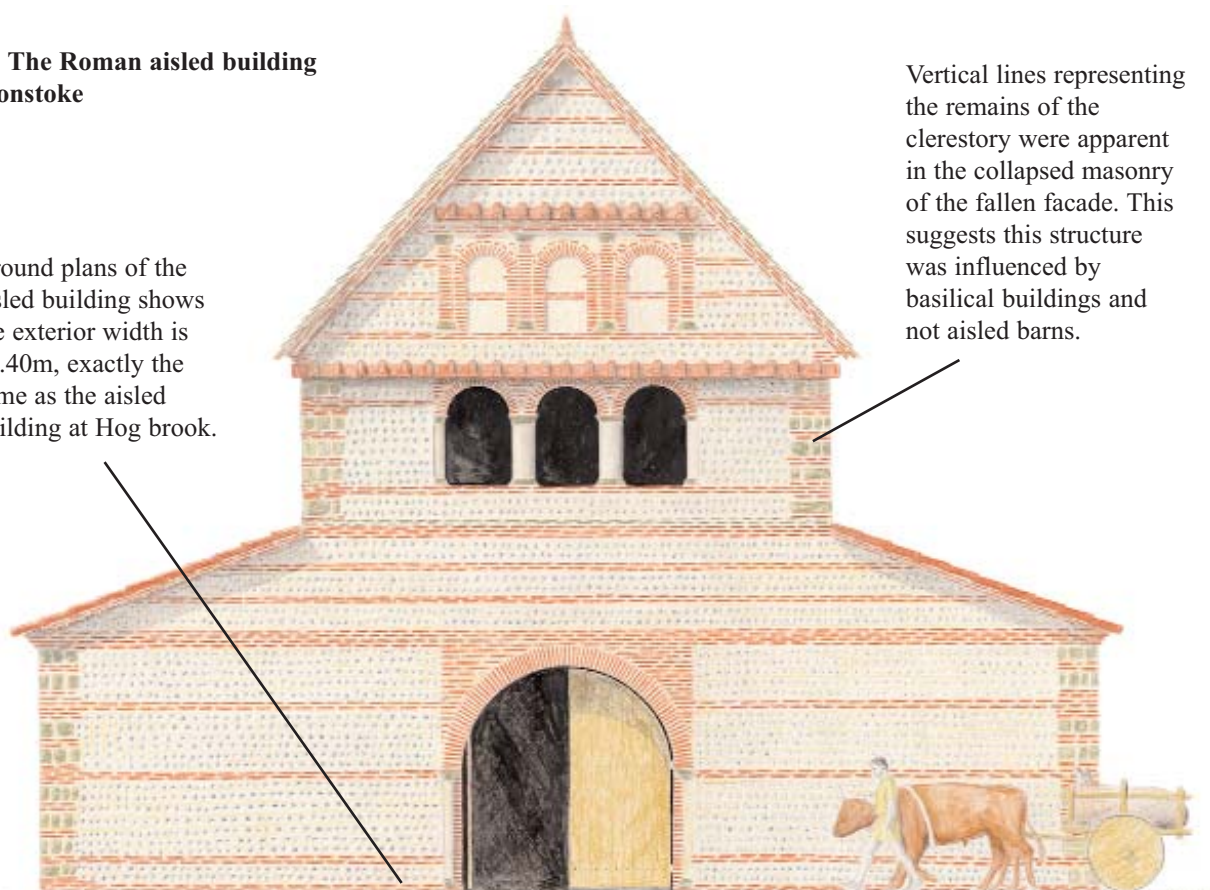
J T Smith, a vernacular architect, suggested that these aisled buildings were more akin to medieval and post-medieval aisled barns (Smith J T 1963, 25-7), but the alternative form of construction, a structure with a clerestory, separate nave and aisle roof, was a more classical solution, and had been suggested earlier by Collingwood and Richmond (1969, 149).

Collingwood and Richmond’s hypothesis has fallen out of favour, mainly because Smith’s proposed link between timber aisled buildings as agricultural structures filtering from the Roman to the medieval world had resonated with many specialists of vernacular buildings.

In 1984 all of this changed with the discovery at Meonstoke in Hampshire of the fallen, but well-preserved, facade of a late Roman aisled building.

Fig. 4. The Roman aisled building at Meonstoke

Ground plans of the aisled building shows the exterior width is 15.40m, exactly the same as the aisled building at Hog brook.



Vertical lines representing the remains of the clerestory were apparent in the collapsed masonry of the fallen facade. This suggests this structure was influenced by basilical buildings and not aisled barns.

The excavation by Anthony King revealed the remains of the south-eastern facade of the building which collapsed sometime in the late 4th century. It is a basilical building with a clerestory, and did not have a single roof span over both nave and aisles (King 1996, 61).

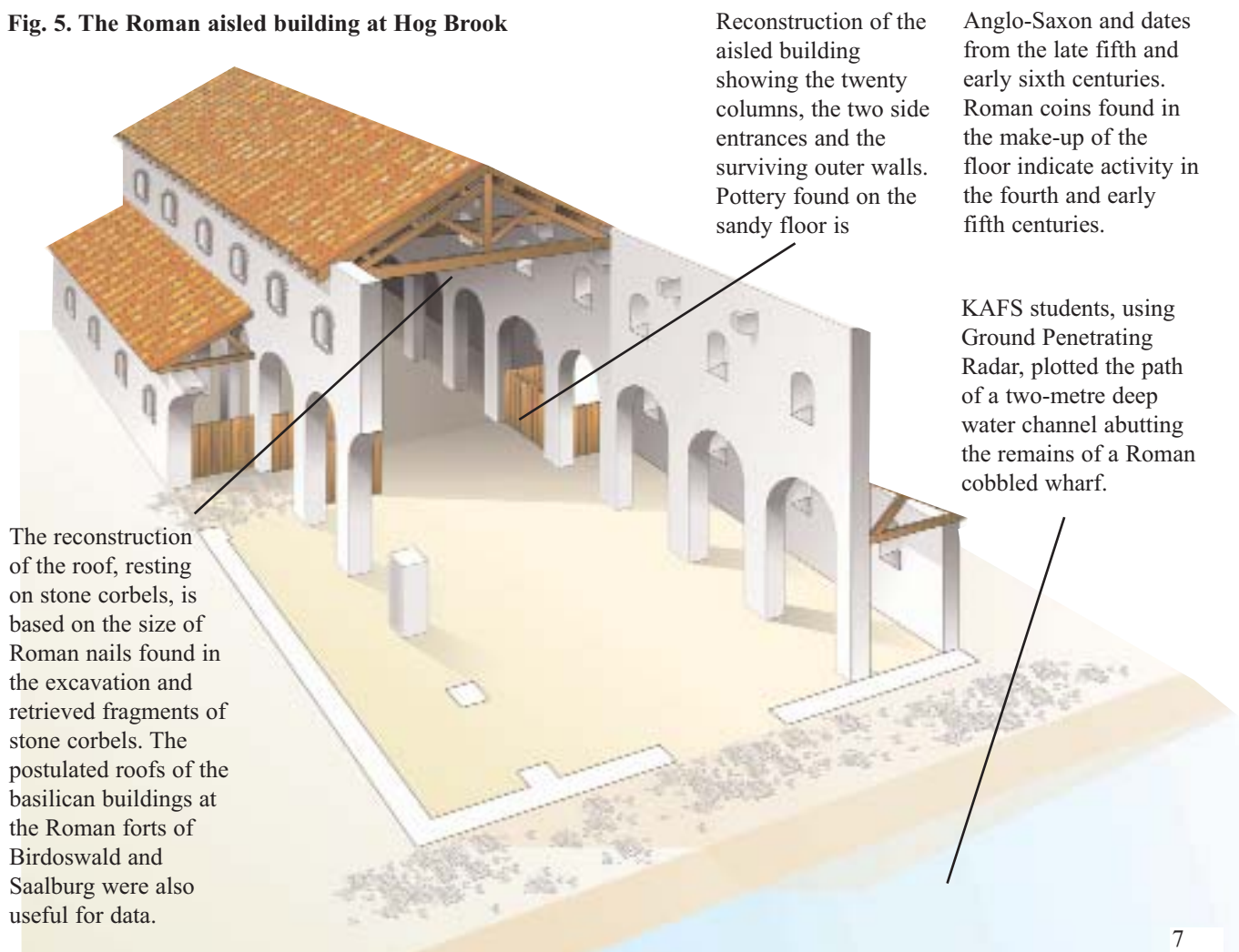
The investigation by Anthony King and Tim Potter revived the case for Richmond's reconstruction proposals and suggested the link of these type of stone-built aisled buildings could be with the larger, basilical buildings, more commonly found in a Roman Forum rather than a medieval barn.

However, King does suggest that only those aisled barns with substantial wall foundations, and other architectural links - such as have been found at Meonstoke and now at Hog Brook - should be considered as candidates (King 1996, 68). Finally, both Meonstoke and Hog Brook aisled buildings were built to Roman measurements, and use linked sets of arches, with rectangular columns or piers between them.

This has been considered by King to be a late Roman feature that moved easily from the late Roman world into the beginning of European Romanesque architecture but with Hog Brook this proposed chronology has been pushed back to the late 1st century.

Landscape measurement to confirm the survival of the Roman *actus* field systems (pages 40-42) was carried out by students of the Kent Archaeological Field School (KAFS) in the environs of the Roman villa estate. A full report on the landscape studies (Figure 12) will be issued as a monograph and will include the adjacent Roman villa of Deerton Street and summaries of other Roman villa estates located in the vicinity of this busy Kent section of the Roman Watling Street.

Fig. 5. The Roman aisled building at Hog Brook



3. Aims and Objectives

The Research Design (page 10) was written prior to investigation starting and concerned an area of recently grubbed apple orchard to arable land at Hog Brook, Deerton Street, near Faversham in Kent. The site centre is taken as TQ 9743 6292. This paper is an interim report based on the format of a Archaeological Post-Excavation Assessment with additional specialist reports.

The land is in the ownership of Mrs Johnson of Elverton Farm, Buckland, Faversham, and is currently under arable cropping, and although archaeological investigation shows that the Roman monument is being seriously damaged by ploughing there are no plans to change the farming regime back from the plough to orchard.

An ideal opportunity had therefore arisen to carry out an archaeological training excavation on a newly discovered Roman monument threatened by destruction by the plough.

The Kent Archaeological Field School (KAFS) is a non-profit making organisation with about 800 members. It is growing rapidly and committed to disseminating information about the techniques used in practical fieldwork and recording. To this end a number of training excavations have been carried out on an annual basis on sites either not fully understood or under threat from farming activities.

During the summer of 2004 investigation by the KAFS with test pits (Figure 1) of the area identified by Paul Wilkinson during earlier field-walking revealed a large Roman stone building badly damaged by the grubbing out of an apple orchard and subsequent deep ploughing.

The initial investigation took place from June 4th to 17th, 2004, and access to the site during this period had been agreed with the landowner and farm manager. The site was reinstated after excavation in order to prepare the land ready for ploughing and sowing during the autumn months.

The field in question is close to the Roman villa located to the north of the village of Deerton Street. Should the archaeological remains warrant it the results of the investigation will be brought to the attention of English Heritage who may wish to schedule the monument.

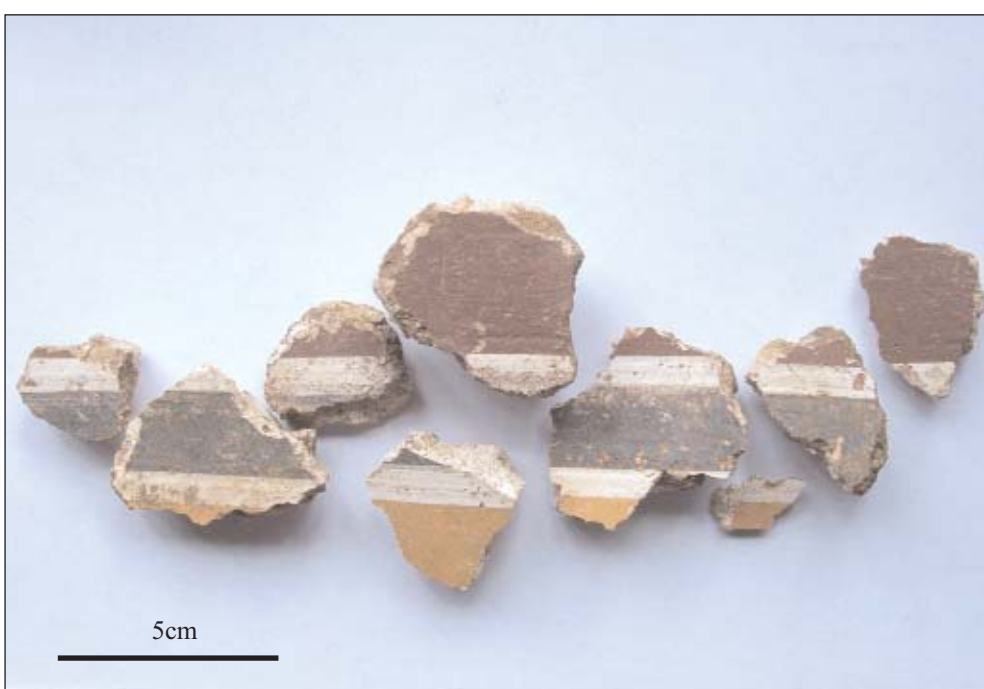


Fig. 6. Painted plaster from the bath-house of the adjacent Roman villa at Deerton Street. The total number of fragments of painted wall-plaster recovered in the 1997-2002 campaign of investigation was 231 (2572g). Over three quarters of the fragments were monochrome, white, yellow ochre and pink being the pre-dominant colours. Types 8, 11, 13, 15, are of finely painted lines indicating decoration by panels.

4. Methodology

4.1 Archaeological Excavation

Excavation in 2004-5 was carried out using a 360° mechanical excavator fitted with a toothless ditching bucket, removing the overburden to the top of the first recognisable archaeological horizon, under the constant supervision of an experienced archaeologist. Exposed surfaces were subsequently hand-cleaned to reveal features in plan and carefully selected cross-sections through the features were excavated to enable sufficient information about form, development date and stratigraphic relationships to be recorded without prejudice to more extensive investigations, should these prove to be necessary. All archaeological work was carried out in accordance with the KAFS Method Statement (Appendix 1).

The KAFS single context recording system was used to record the deposits. A full list will be provided in the final report. Layers and fills are recorded (100). The cut of the feature is shown [100]. Context numbers were assigned to all deposits for recording purposes and detailed on pro-forma KAFS context sheets. Plans of all features were made using a scale of 1:20, with sections recorded at 1:10. A full photographic record of all stages of the excavation was kept, which included working shots showing working constraints and conditions.

In undertaking this archaeological work the principles set out by the Institute of Field Archaeologists (IFA) were adhered to. The IFA defines an excavation as being:

'...a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and that results of that study published in detail appropriate to that design' (IFA 1999, 2).

4.2. Project Constraints

No project constraints were associated with this project apart from the failure of a large number of 35mm colour slides. However, digital photography was in the process of being introduced on site which had the added benefit of being instantly checked. We have now found that digital photography which is the publishing, newspaper, film and fashion standard is ideal for site work.

Table 1. Provides an area by area summary of the site at Hog Brook, as well as detailing the frequency of archaeological features encountered and investigated.

Area	Location (Figure 3)	Archaeological features			
		Total	Investigated	In situ	Excavated
Area A	North-east	25	12	13	45%
Area B	West	14	8	6	65%
Area C	East	39	14	25	25%
Area D	South-west	32	16	16	50%

Table 1. Location and frequency of archaeological features encountered.

5. Research Design

The site lies on level ground within a rich archaeological landscape overlooking the southern edge of the Swale estuary. A number of sites have been investigated in the vicinity, mainly an archaeological investigation of the adjacent Roman villa by the KAFS, and in 2007 the discovery by Tim Allen of additional Iron Age and Roman buildings to the north of the site.

5.1. The Research Design aims were to:

1. Identify the chronological origins of the site.
2. Identify the extent of the Roman villa complex without further excavation of Roman villa itself.
3. Contribute to an understanding of Iron-Age, Roman and Anglo-Saxon rural settlement in the environs of the Roman villa estate through field-walking and landscape survey.

The study of rural settlement is identified as an area for further research (English Heritage 1997). In the south-east the limited evidence for rural settlement layout and economy rarely extends beyond the footprint of the Roman villa or settlement enclosure.

At Hog Brook/Deerton Street there is a research opportunity to explore the spatial relationship between the buildings and settlements of all periods and settlement in the surrounding environs of the Swale estuary including the establishment of the early Germanic or Saxon villages at Deerton Street, Bapchild and Buckland.

5.2. Specific objectives which relate to this aim are:

1. Assess the extent to which the site has undergone spatial organisation.
2. Assess the evidence for the extent of the settlement of all periods.
3. Assess and characterise the evidence for Germanic or Saxon activity
4. Assess the evidence for Iron-Age settlement, and its progression to Roman settlements.
5. Attempt to identify the relationship between Hog Brook/Deerton Street and other Roman sites.
6. Promote public appreciation and enjoyment of archaeology.

5.3. Specific project objectives which relate to this aim are:

1. Provide information in the form of leaflets and guided tours.
2. Provide opportunities for the public to get actively involved through the KAFS in the excavation and field survey.
3. Provide lectures to local historical societies, clubs and parish councils.
4. Provide a suitable archaeological site for the purposes of teaching archaeological field techniques to students who attend the KAFS.
5. Contribute towards the preservation of vulnerable sites.

The site is currently under plough but has in the recent past been apple orchard. Due to a change in cropping regime, the opportunity has arisen to assess the plough damage to the site and to make a contribution towards the future preservation of the site.

It will be necessary to identify the extent of damage to the site and agree future land management to minimise the damage to the archaeological resource.

This interim report is to be considered as an initial assessment of the results and will include an appraisal of both the original research aims and objectives of the project and any further research objectives identified during the course of the on-site and post-excavation works. The finished report with specialist reports and illustrations will be published after peer review as a full colour monograph with CD attached.

6. Archaeological & Historical Background

It is thought that the landscape of Kent is almost entirely the product of the last 1500 years, beginning with the earliest Jutish hamlets in the middle decades of the 5th century. The direct prehistoric contribution to the landscape is small; even in the Neolithic period (2500-1900 BC) the population of Britain was only about 20,000. Life was more or less nomadic, and so it remained until the late Bronze Age (1000-50 BC). With the late Bronze Age, and especially the Early Iron Age (from 500 BC) the development of agriculture led to the appearance of settled villages, mostly single farmsteads or small hamlets. With the spread of settled villages the population of Britain may have risen to about 250,000. With the arrival of the Belgae, and the opening up to the plough of intractable land, the population possibly rose to about 400,000 on the eve of the Roman Conquest.

The Roman contribution to the landscape of Kent was primarily roads, both major and minor, and Romano-British villas, of which over 100 are known in Kent alone. These represent a substantial clearance and taming of the natural landscape and some of them, like Eccles, were the centres of estates of a huge size. Most, however, were isolated Romanised farmhouses, standing in large open fields, quite unlike the small enclosed fields that surrounded the earlier native villages. In some instances, excavation has shown that a pre-Roman farmstead stood on the same site (as at Faversham and Thurnham), and that the villa represent, for whatever reasons, the rebuilding of an older and more primitive habitation.

The other important Roman contribution to the landscape was the town. Canterbury, and Rochester were founded during the second half of the 1st century, but towns were small oases in a vast extent of countryside- the 33 Roman civil towns in Britain only added up to about 6.4 square km (4 square miles) of urban settlement. The 12 tribal capitals averaged about 100 acres (40 hectares) each. Roman Canterbury covered about 130 acres (52.6 hectares), but Roman Rochester (not a tribal capital) only about 23 acres (19.3 hectares).

The population of Roman Britain has been put at 500,000 by Collingwood, 1,500,000 by Wheeler and 600,000 to 700,000 by Graham Clark. Recent estimates put the figure as high as 5 million. But the land was still empty. Taylor estimates about 750,000 acres (303,000 hectares) in Roman Britain were under cultivation as arable or grassland. In 1914, the total area under crops or grass in Britain was some 27,000,000 acres (11,250,000 hectares).

Taylor suggests that in Roman Britain only two or three acres in every hundred were under cultivation (Taylor, 1975). However in the Swale District and especially along the Watling Street corridor we find almost every acre measured in *actus* and most likely under cultivation during the Roman period.

History has led us to believe that there was a sharp decline in economic and agricultural activity at the end of the Roman period, with, "villas and their estates decaying before the Saxon invasions, the buildings were tumbled; and weed grown, the fields gone back to heath and scrub" (Johnson 1980).

Germanic settlement in Kent was spread over some 20 generations from about AD 420 to 1066. During this time most of England became a land of villages, with an open field system of agriculture. In its simplest form it probably consisted of two or more large open fields around the village. These fields were divided into strips and survive as the ubiquitous "ridge and furrow" field system.

In Kent it is questionable whether there were any true 'villages' such as these, nucleated places, historically based solely on farming, and organised on a communal basis as described by historians. The further we go back in time, the fewer genuine villages do we find in Kent and the more evident it

becomes that they originated either as small hamlets or as single farms. "There are few, if any, rural parishes in Kent, where as far as we can see settlement has ever been centred in a single community. Everywhere there are outlying farms, frequently a dozen or more, sometimes as many as 60 or 70, mostly on sites that have been occupied from 500 to 1,000 years" (Everitt 1986).

In the Swale District Alan Everitt's statement has been proved correct by field-walking and surveying. The villages themselves were not centres of co-operative farms. The farms are a possible legacy of pastoral farming which does not necessitate communal organisation like tillage, and it is preferred for stock-farms to stand isolated rather than grouped into villages.

The other factor is the Romano-Celtic stratum still surviving in the landscape, and in this respect there are marked parallels between the Swale District and areas like Devon, Cornwall, and Wales. It may be, indeed, that pastoralism itself was a concomitant of Celtic tradition. This fact needs to be firmly grasped if we are to avoid advancing false parallels with other parts of England, where true agrarian villages have long been the norm.

It implies, amongst other things, that the isolated Kentish parish churches – Stone, Buckland, Lower Halstow- cannot in themselves be taken to indicate deserted village sites, as they normally would be in the Midlands and sometimes have been in Kent. Hitherto their neighbourhood has been searched in vain for vestiges of vanished communities, but out of the 300 or so lost churches and chapels in the county, at least 70 of which were at one time parochial, only a tiny handful of these definitely indicate deserted villages.

It may also imply, and field-survey and research is moving in this direction, that these isolated farms are a direct legacy and continuation of a farming tradition established in the Iron Age, and continuing through the Roman period into the settlement patterns of the Jutes and Saxons. The exact interface between these disparate peoples is a task for archaeology, and the investigation at Deerton Street and Hog Brook, in some small way, addresses this (Wilkinson 2000).



Fig. 7. The Roman villa estate of Deerton Street is focused on the fresh spring water supply from Hog Brook (blue) which flows into the Swale estuary about 1km away. The Roman villa faces south-east overlooking the spring of Hog Brook. The large basilican barn is situated on the east bank of the spring with direct access from the building to the sea. This would enable the many hundreds of tons of stone and building material to be brought in by sea. Agricultural produce could also be exported by sea, to London, Rochester and /or Richborough, or indeed directly across the North Sea to the armies of the Rhine.

6.1. Geology

The Swale District is an area of some 91,000 acres (37,000 hectares), and occupies some of the best farming land in the county (Boys 1796). The land falls away from the chalk plateau to the south, through the lower slopes of the chalk and lower London tertiaries into the coastal zone of the Medway and Swale marshes and is bordered on its northern side by the Tertiary mass of the Isle of Sheppey.

Natural geographic divisions exist in the two river valleys of the area, the valley of the River Medway to the west and the valley of the River Stour to the east. The chalk plateau is the North Downs which extend east and west through Kent and Surrey ending at the white chalk cliffs of Dover. These belts of country corresponding with the outcrops of the different formations are crossed at intervals by north-flowing rivers which pass through wide gaps in the hill ranges and follow winding courses across the bottom of the vales.

These rivers thus divide the district into sections having their main physical features in common. To assess the significance of the Swale District, the section of the country between the valleys of the Medway and the Stour should be considered.

Maps indicate the geological formations which occupy the surface of the region, and if a transect was drawn north/south through Sittingbourne it would show the disposition of the rocks in relation to the major physical features. The beds of harder rocks, i.e. the Chalk and the Lower Greensand, form the ridges of high land to the south, while the softer rocks occupy the bottoms of the alternate vales. All the beds dip down towards the north, so that the oldest formations come to the surface in the southern part of the region and the youngest along the northern shore.

The Swale District may be divided into the following geographical belts or zones corresponding with the geological outcrops and running parallel to the North Downs.

1. The Coastal Zone occupied by the soft rocks of the London Basin Tertiary Series and the extensive marshes of the Medway and Swale estuary.
2. The Chalk Tract terminated southwards by the Downs.
3. The Vale of Holmesdale at the southern foot of the chalk escarpment, occupied by the Gault Clay and the sandy Folkestone Beds.
4. The Greensand Ridge, an irregular range of hills formed by the Hythe Beds (Kentish Ragstone).
5. The Plain of the Weald Clay, part of which appears in the most southerly corner of the Swale District.

It is now usual to include the last three zones in an extensive district known as the Weald which covers a large part of the counties of Kent, Surrey and Sussex. The Weald is thus regarded as the area enclosed between the chalk ridges of the North and South Downs.

6.2. The Coastal Zone

The Tertiary (Eocene) rocks of the London Basin are conveniently separated into two main stratigraphical divisions. The lower division comprises the Thanet Beds resting on an eroded surface of the Chalk, the Woolwich Beds and the Oldhaven Beds. These are known collectively as the Lower London Tertiaries, and in north-east Kent consist mainly of fine sands with a stratum of shelly clay in the Woolwich Beds west of Sittingbourne. The lower division is succeeded by the London Clay which consists throughout of a compact blue clay changing to a dark brown colour where exposed at the surface. The London Clay reaches its greatest thickness of 150 metres (492 ft) in the Isle of Sheppey. The Tertiary rocks are distributed in four main masses accompanied by numerous outliers on the adjoining slopes of the Chalk. The two areas of interest to us are:-

6.3. The Mainland Mass between Rainham and Faversham.

The Tertiary outcrop south of the Swale estuary is much broken, and consists of a number of detached outliers resting on the northern lower slopes of the Chalk. Most of these consist of the Lower London Tertiaries, small patches of London Clay occurring along the marshside. The large mass between Newington and Iwade, however, bears an extensive covering of London Clay which forms the high ground of its north-eastern corner. The dissection of the main outcrop is due largely to the penetration of the lower ends of the dry chalk valleys which, in some cases, are even represented in the present flood-plain by the deep tidal creeks of Sittingbourne and Faversham.

6.4. The Chalk Plateau

The Chalk Plateau of the south of the Swale District consists of a soft white limestone and occurs over a large part of south and east Kent. The Chalk forms the elevated ridges of the North and South Downs surrounding the Weald.

The full thickness of the chalk in these Downs is in the region of 300 metres (984 ft), but in north Kent only, about 200 metres (655 ft) are present. This formation is of marine origin, being composed of calcareous organic debris of the ocean. At its base the chalk contains a natural admixture of clay and forms Chalk Maul. The upper beds consist of almost pure calcium carbonate, but include large quantities of flint, itself almost pure silica, occurring in the form of large masses or nodules usually disposed in horizontal layers along the bedding planes of the chalk. Flint, in the form of pebbles or silica grains, has contributed largely to the composition of later geological formations which have accumulated during the erosion of chalk-covered areas.

The Chalk appears from below the Tertiaries near the line of Watling Street, and its surface rises irregularly to about the 90 metre contour line. Between this line and the crest of the escarpment it assumes a regular gradient over a stretch of country known as the Chalk Plateau, reaching maximum height of about 180 metres above sea level. Though relatively thin, plateau deposits exercise a profound influence on the vegetation and agriculture of the chalk uplands.

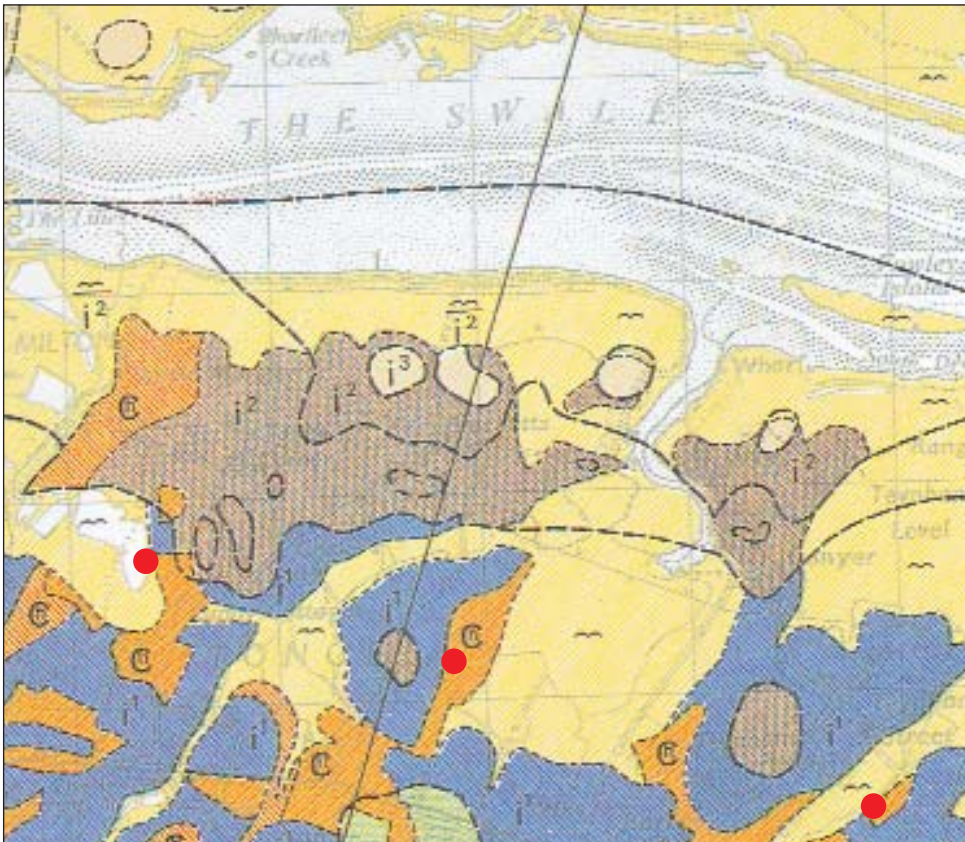


Fig 8. The map of the British Geological Survey (*left*) shows that the major buildings of the Roman estates (*red dots*) were usually built on a Chalk outcrop overlooking a fresh water spring and with direct access by water to the Swale. The Swale Estuary was a deep water channel leading from the English Channel to the Thames and was used until the 16th century as the only safe route for shipping approaching London.

6.5. Documentary Evidence

The field-walking notes compiled by Paul Wilkinson on June 1996 at Deerton Street were part of an extensive field survey commissioned by Swale Borough Council and say:

“Located two Roman and one medieval pottery and tile concentrations in orchards near to Deerton Street, Teynham, Kent”. (TQ9730 6295 and TQ9750 6298).

Again, as at the villa site at Blacklands and the possible site at Luddenham, a classic arcadian setting overlooking a fresh-water spring with, no doubt, easy access to the Swale, and thence Roman London, Canterbury or the continent by boat.

Building debris on the east and west banks consisted of Roman roof tiles (*tegulae* and *imbrices*), some with impressed finger-marks, lumps of *opus siginimum* and over 400 sherds of Roman and medieval pottery. This pottery will be spot-dated by Canterbury Archaeological Trust. On the west bank, around the roots of the plum trees, were large quantities of large cut-tile *tesserae*....”

In the hedgerows of the east bank numerous large pieces of shaped calcaveous tufa were noted, obviously thrown there by the farm-workers when digging holes for the apple trees in the surrounding orchard. Whilst the shaped blocks of tufa are not necessarily Roman, attention must be drawn to the fact that Roman bath-houses used tufa stone to construct their vaulting, mainly because of its lightness and longevity”. (Wilkinson 2000).

Additional field-walking with members of the KAFS found numerous Iron-Age and late Bronze Age pottery sherds to the west of the Roman site, itself on the west bank of Hog Brook. The Iron-Age pottery has a date-spread from late B.C. to early A.D. The Roman pottery has a date-spread from the 1st century to the early 5th century.

A possible Saxon sherd from the 5th to 6th century was collected and the medieval pottery has a date-spread from the 12th to 17th century. The Roman site to the west of the spring has a pottery and tile scatter of about 22 by 52 metres. The possible Roman site on the east bank covers an area of 50 by 120 metres.

Immediately adjoining the east bank site to the north and following the course of the river downstream from the spring at Hog Brook is a scatter of medieval pottery sherds covering an area 100 by 400 metres.

To the south of the spring (and almost back to Watling Street) numerous Roman and medieval sherds were noted, and a local farm-worker remembered that some years ago, whilst digging a hole for a post, two buried pots were found which were given to Maidstone Museum. The contents were coins which 'disappeared', although one coin was shown to the author.

In 1976 a concrete sheep dip was constructed on the slope of the spring on the west bank. Unfortunately this has destroyed over 20% of the Roman foreshore and is indicative of the sort of damage which is possible to an important site without the sort of archaeological information generated by a regional survey.

The location of the villa at Deerton Street was unknown, and although there is a note in the SMR, based on 19th century reports, the exact location was in doubt. Also, confusion existed on how many villas or buildings actually existed at Deerton Street. One, for instance, is known about at Buckland, which is less than 700 metres away.

The only historical reference to the site at Deerton Street that can be found is a note in *The Reliquary* of 1872-3:

"In a field west of Hog Brook the remains of a Roman villa were found in 1852, but I have no information respecting it beyond that what was found was similar to the discoveries just described".

However, in the *Archaeologia Cantiana* of 1900:

"Teynham - Mr. Herbert Bing informs me that he has removed the foundations of the Roman building discovered in Buckland Farm many years ago by the late Mr. William Bland, in order that fruit-trees might be planted on the site. During the work of destruction the labourers found several coins, which Mr. Bing kindly sent out to me for identification. They include the following: Tetricus, 1; Constantine the Great, 1; Arcadius, 2; Illegible, 2 - all small brass, and one, illegible, of second brass."

Other Roman buildings have been discovered in the vicinity through field-walking by the KAFS, and it seems there probably was a large villa or settlement focused around the main Roman building situated west of Hog Brook.

The sites (centred on N.G.R. TQ9730 6295 and TQ9743 6292) are situated on the east bank and the east slope of the west bank overlooking Hog Brook spring. Watling Street is about 1150 metres almost due south, and a straight track joins the site to Watling Street and for 400 metres of its length it is a parish boundary.

Another track leads east and west in a straight line and connects the probable Roman villa sites of Bax Farm, Deerton Street, Luddenham and possibly ends at the spring head of Oare creek just below Bysing Wood and the Roman small town at Syndale.

For over half its length it forms a parish boundary and is also a designated public footpath. Informed opinion is that it pre-dates the Roman Watling Street. (Margary, 1976). There is also more than just a whisper of Roman centuriation survey methods in the layout of these paths, lanes, and fields (Page 42. Figure 12).



Fig. 9. Part of the investigation methodology of the KAFS is not to treat sites in isolation, but integrate the sites into the landscape. The results have been encouraging. The landscape around Hog Brook and Deerton Street can now, even after 1900 years of agricultural activity, be seen to have been divided up into 20 *actus* squares by Roman surveyors. There are 17 centuriation squares running in sequence along Watling Street in the vicinity of Hog Brook with another 12 clustered around the Roman villa estate of Deerton Street. See Figure 12 for the full extent of investigation.

6.6. Archaeological Sites and Monuments Record

In addition to the assessment of previous archaeological investigations in the area, it is recognised that the Historic Environment Record (HER) held at Kent County Council contains sufficient data to provide an accurate insight into catalogued sites and finds within the Study Area and the surrounding landscape. As a result a search was carried out within a 500m radius of the Study Area in January 2009. The most important sites are listed below: For further information contact the Heritage Conservation Team at Kent County Council.

SMR Number TQ 96 SE 22 - MKE355. Possible Roman villa, Deerton Street, Teynham
Fieldwalking finds and uneven growth of fruit trees in an orchard indicated a possible archaeological feature of Roman date. Subsequent extensive excavation revealed the site of a large Roman building, probably a villa. There are indications of other Roman buildings nearby.

SMR Number TQ 96 SE 23 - MKE355. Possible site of a Roman Villa at Buckland Farm, Teynham
Reports from 19th century antiquarians and archaeologists indicate the presence of a small Roman villa near the (now ruined) Buckland Church. No evidences visible now, however, and it is possible that the villa is actually the Deerton Street one, listed under TQ 96 SE 22, 95 and 1055

SMR Number TQ 96 SE 37 - MKE3572. Deserted Medieval Village, Buckland Farm.
This site is listed as a deserted medieval village in the County Gazetteer for Deserted Medieval Villages, and does have a deserted church but there is no other evidence, at present, for a deserted settlement.

SMR Number TQ 96 SE 67 - MKE16607. Struck flints and flakes, Peete Field, Teynham
Evidence of Neolithic flint-working was found on the east side of the valley at Peete Field, Teynham. This consisted of twenty-three struck flints and eight flint flakes. The flakes had been removed from the flint cores by the use of soft hammers. Five of the flakes were blade-like in shape.

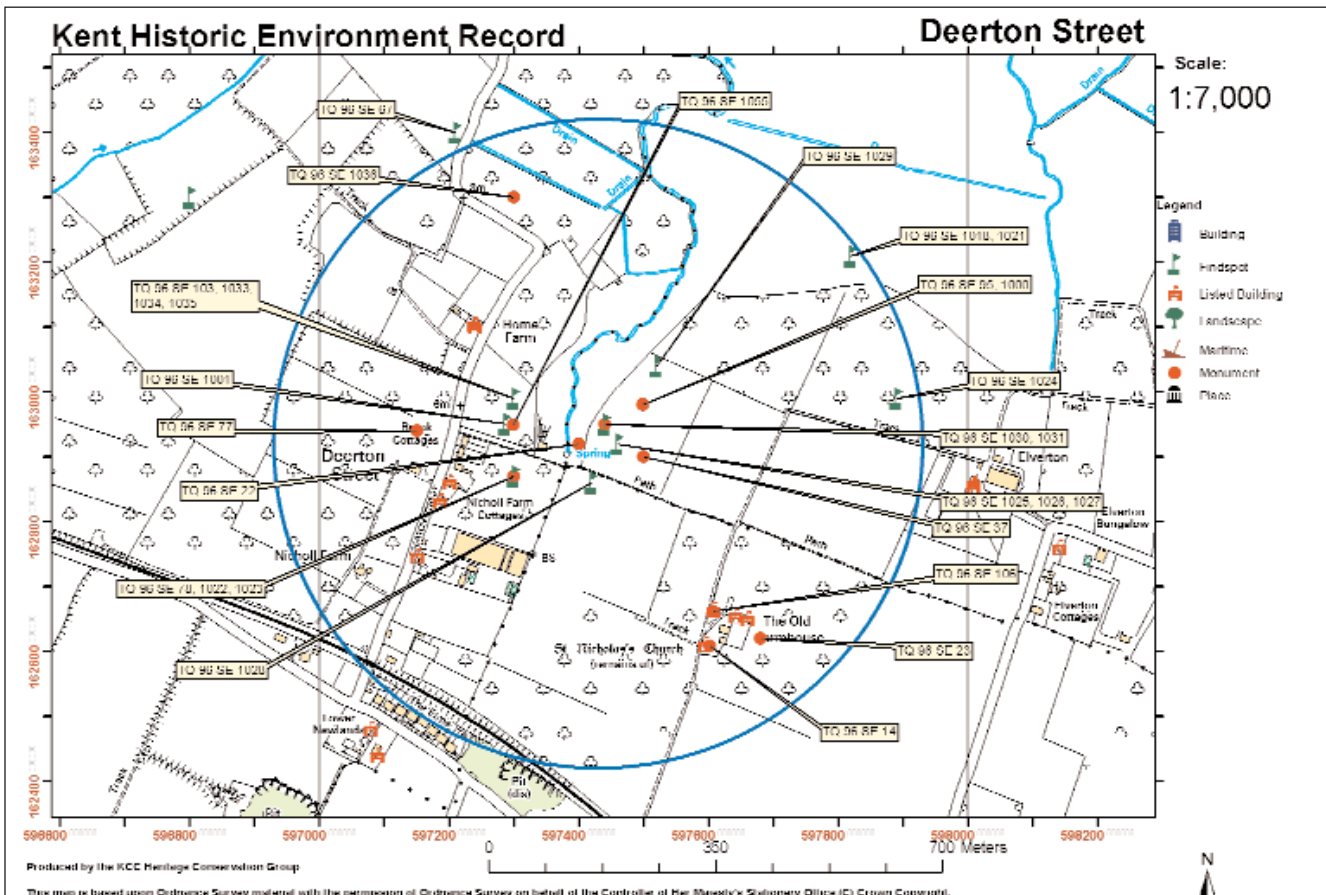


Fig. 10. The Historic Environment Record (HER) of Deerton Street (courtesy of KCC).

7. The Roman Villa

The basis of the Roman economy was land and its exploitation by farming to produce a surplus. There are many definitions of the term 'villa'. Collingwood states that the Latin word *villa* means farm: "It is an economic term; it refers to the fact that the place so designated is an agricultural establishment. There is a popular tendency to restrict its application to the country houses of the rich, with luxurious accessories and an ambitious plan; but there is no good reason for any such restriction. Any house of the Roman period may be called a villa, provided that it was the dwelling of people, somewhat Romanised in manners, who farmed a plot of land" (Collingwood 1930).

David Rudling, in writing about Roman villas in Sussex, suggests most people would agree that it refers to a rural house: "which significantly reflects the Roman style of life. In archaeological terms this assessment is usually determined by the finding of masonry footings; multiple rooms; tessellated or mosaic floors; clay tiles and bricks; window glass; painted wall plaster and sometimes hypocaust heating systems" (Rudling 1998, pers comm).

In Sussex one or more of these criteria have been used to designate a site as a villa. In some quarters of academia in Kent a rural Roman building is not accepted as a villa unless the entire ground plan is exposed (Detsicas 1997, & pers comm).

The writer would have preferred to use the term 'Romanised farmhouse' and retain the term villa for the more sumptuous Roman villas of a larger size. Smaller houses and other simple rectangular buildings without sufficient Romanised features should not be called a villa unless some of the above definitions of the Roman style of life are present.

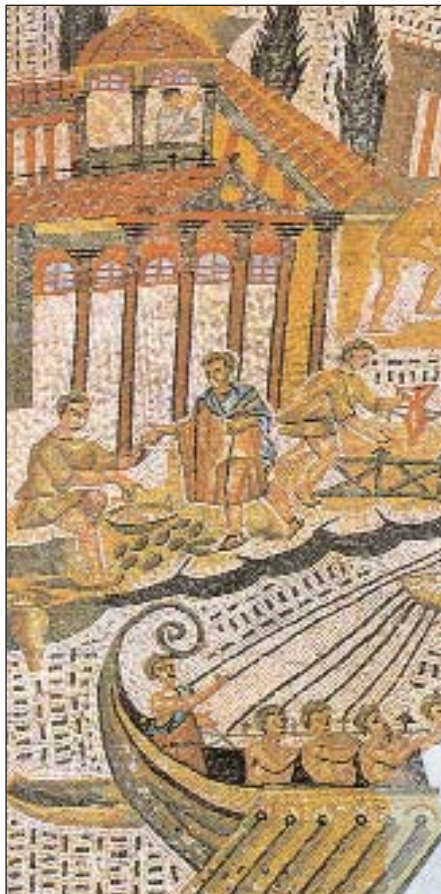


Fig. 11. The Roman peristyle villa at Bad Kreuznach (*left*) is at 5750 sq. metres one of the largest in Germany. Of particular interest is one of the mosaics found in situ which shows the architectural styles available to the villa owner. The mosaic, the so-called Oceanus Mosaic is dated by its inscription to AD234.

In contrast the more humble mosaic of a *villa rustica* from Tunisia still has architectural pretensions with its colonnade, the two double storey wings or pavilions plastered and painted 'Tuscan red'. The mosaic shows the arcadian delights available to the villa owner and his wife throughout the seasons of the year.



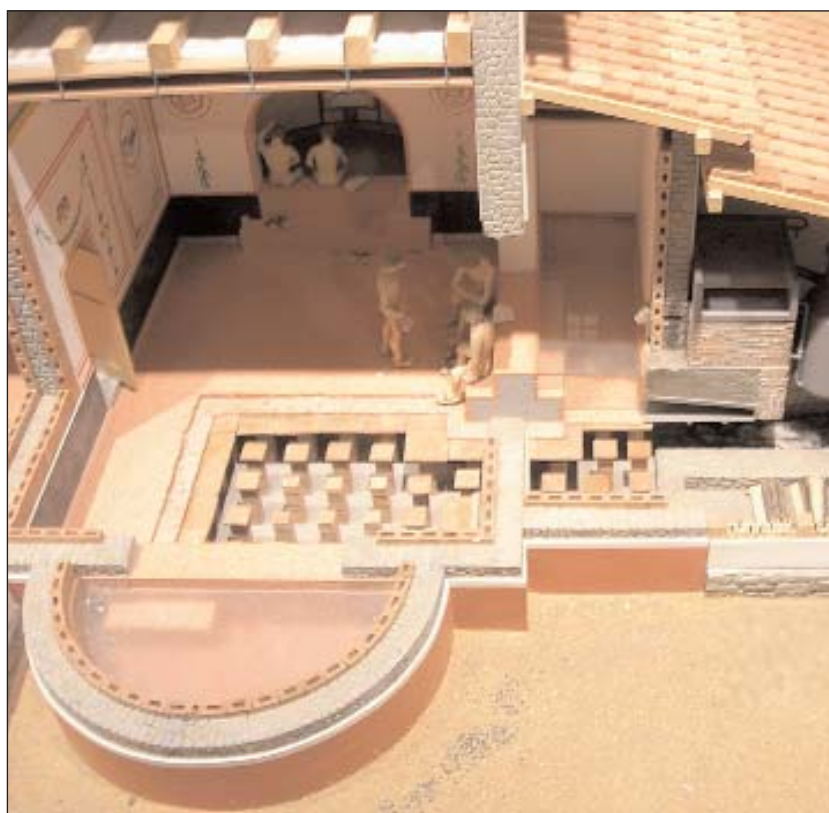


Fig. 12. Bath-houses are essential ingredients of a Roman villa. The apsed hot plunge bath being excavated at Deerton Street (*above*) has exactly the same layout as the model of the bath-house excavated at the Roman villa located at Bad Kreuznach in Germany.

In Kent two particular building types, winged corridor houses and courtyard houses seem to represent an attempt by the Britons to attain status through the adoption of fashionable new Roman building forms, and the construction of mosaics, heated rooms and Roman-style baths were possibly ways to emulate Romans. All three elements occur in Mediterranean and continental villas, and in most of the Swale villas recently found. Another scenario is that it was not late Iron Age landowners (Britons) who embraced the Roman style, but incoming Roman settlers who introduced it themselves.

Rivet's arguments, that the model for the villa as the country estate of the town dweller, is primarily derived from the writings of Varro, Virgil, Cato, and Columella. Archaeological evidence suggests the reverse, that the surviving tribal elite, traditionally country-dwellers, retained their rural homes after the Conquest rather than becoming town-dwellers with country estates.

It has been suggested that villa lands were usually the property of a group of related kin, rather than that of a single individual (Hingley; 1989), but Finberg in *Roman and Saxon Withington* suggests that, whether we think of the workers as slaves or *coloni*, it is certain that their condition was one of thorough subjection to the owner of the estate. A law of AD 332 bound the *colonus* and his descendants for ever to the soil. If they showed signs of leaving the estate they were to be put in irons (*Codex Theodosius V*, xvi).

It is noticeable that elsewhere in Britain very few villas have any provision for housing a labour force and it must be the case that many farmsteads were in some way dependent on the local villa. It may be that they lay on the estate of the villa and were the dwellings of the estate's labourers or *coloni* (Cleary 1989).

On a few of the villa sites in the Swale District the presence of estate workers is suggested by

aisled houses in proximity to the villa house, while on other sites estate workers clearly lived in separate settlements but in relatively close proximity to the main villa buildings. The traditional model would suggest that any estate workers were the tenants or slaves of the villa owner. In origin, however, many estate workers may have been the kin of a headman and may gradually have been reduced to tenants or slave status by the rise of an individual villa owner.

Not all villas were estates involved primarily in agriculture. It will always be necessary to look at an estate to see what was the source of the wealth that created the villa building. Some rural villas appear to be connected directly with industry. At some villas in Gaul this industry may actually have been more important than agriculture (Percival 1976). It is likely that villas in the Nene Valley around Water Newton (Cambs) were connected with the pottery industry of this area, likewise the possible villa at Slayhills (Medway) was most likely controlling the pottery industry of the Upchurch marshes and the villa on Harty Island with salt (or oyster) production (Wilkinson 2000).

Classical writers on agriculture recommend the landowner to build his villa at some distance from the dwellings of the cultivators, and if possible above them, half-way up a hill (Varro I.).

Cato in his book on farming, *De Agricultura*, suggests:

When thinking of running a farm, always remember: do not buy on a whim, take the trouble to visit. If possible it should be on the slope of a hill, south-facing, in a healthy position. There must be plenty of labour and a good water supply. There must be a sizeable town nearby, or the sea, or a river used for traffic, or a good and well-known road (Cato, 28) Columella concurs: Not far from the sea or a navigable river, so that produce can be carried out and purchases fetched in" (Columella 1, 2-3). However; the road should not be too close, because of thefts by passers-by and the continued putting-up of travellers are bad for prosperity (Columella 1, 5-7). On building contracts Cato recommended:

If you order a new farmhouse built from the ground up, the craftsman is to complete all walls as specified, mortar and rubble, corners in squared stone, all necessary woodwork, the owner will supply structural timber and other timber as needed. The price paid for this work by a fair owner, who provides required materials fairly and pays coin fairly, is two nummi per roof tile. Payment on signing-off. (Cato, 29)



Fig. 13. The classic image of an European Roman villa is from Trier in Germany. The layout has been much argued over. Collingwood identifies the type as: 'The winged corridor house with the corridor running along the front of the house stopping short of its two ends, which project in wings'. The on-going discussion is whether the open space through the columns of the corridor to the rear was a courtyard or a covered hall (Smith J T 1997, 24 & Collingwood 1930, 115).

8. Aisled Barns

The Basilica in the Roman Forum, the aisled house as the centre of a Roman estate, and the aisled barn all have a pedigree dating back to the Basilica Porcia, erected in the Roman Forum in 184BC by Porcius Cato. A second basilica followed in 174BC which was pulled down to make way for the Basilica Julia, the plan of which still survives in the Roman Forum to this day.

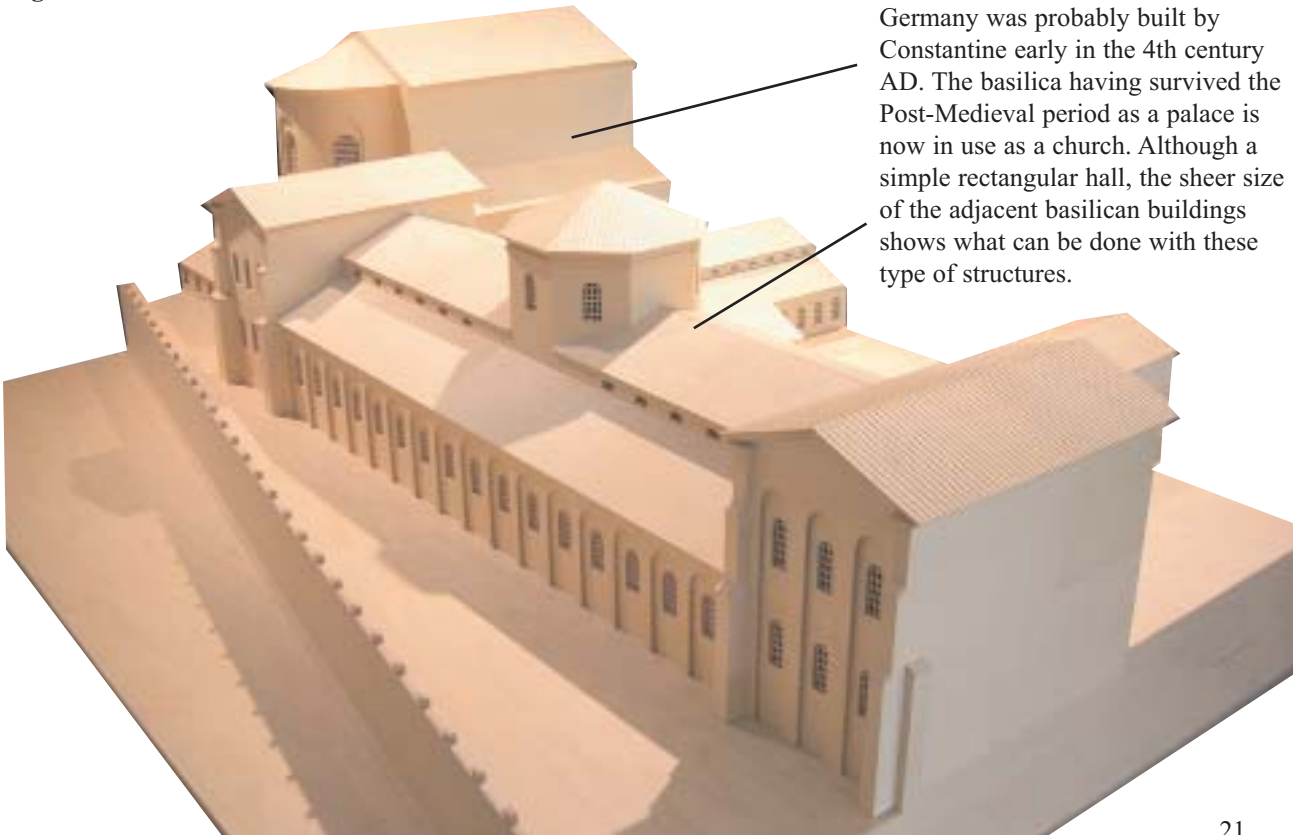
This unique design- a central area enclosed by a single aisle on either side, the roof carried by columns or piers and lighted through clerestory openings or windows above the aisle roof (Figs. 16, 20) was an innovation which lasted from the 2nd century BC up to the 5th century AD and even beyond when it became the prototype for early Christian churches (Fig. 24).

Its initial prototype was probably from the Greek cities of South Italy where a large- and they are all large- colonnaded hall was an obvious improvement on the traditional colonnades of the Greek agora. The most complete early basilica is from Pompeii, its use conveniently dated by one C. Pumidius Dipilus who scratched his name and date on the fabric. The date being October 3rd, 78 BC.

Vitruvius, writing in the time of Augustus was fully aware how important the unique design of the basilica was and laid down rules:

In breadth they should be not less one third nor more than one half of their length...the columns of basilicas ought to be as high as the side-aisles are broad; let the columns of the upper tier be smaller than those of the lower, as written above...above the architraves and regularly dispersed on supports directly over the capitals, piers are placed, three feet high and four feet wide..above them is placed the projecting cornice. The tie-beams and struts, being placed above them, and directly over the shafts of the columns hold up one gable roof along the entire basilica (Vitruvius Book V).

Fig. 14. The Basilica at Trier



The Roman Palace at Trier in Germany was probably built by Constantine early in the 4th century AD. The basilica having survived the Post-Medieval period as a palace is now in use as a church. Although a simple rectangular hall, the sheer size of the adjacent basilican buildings shows what can be done with these type of structures.

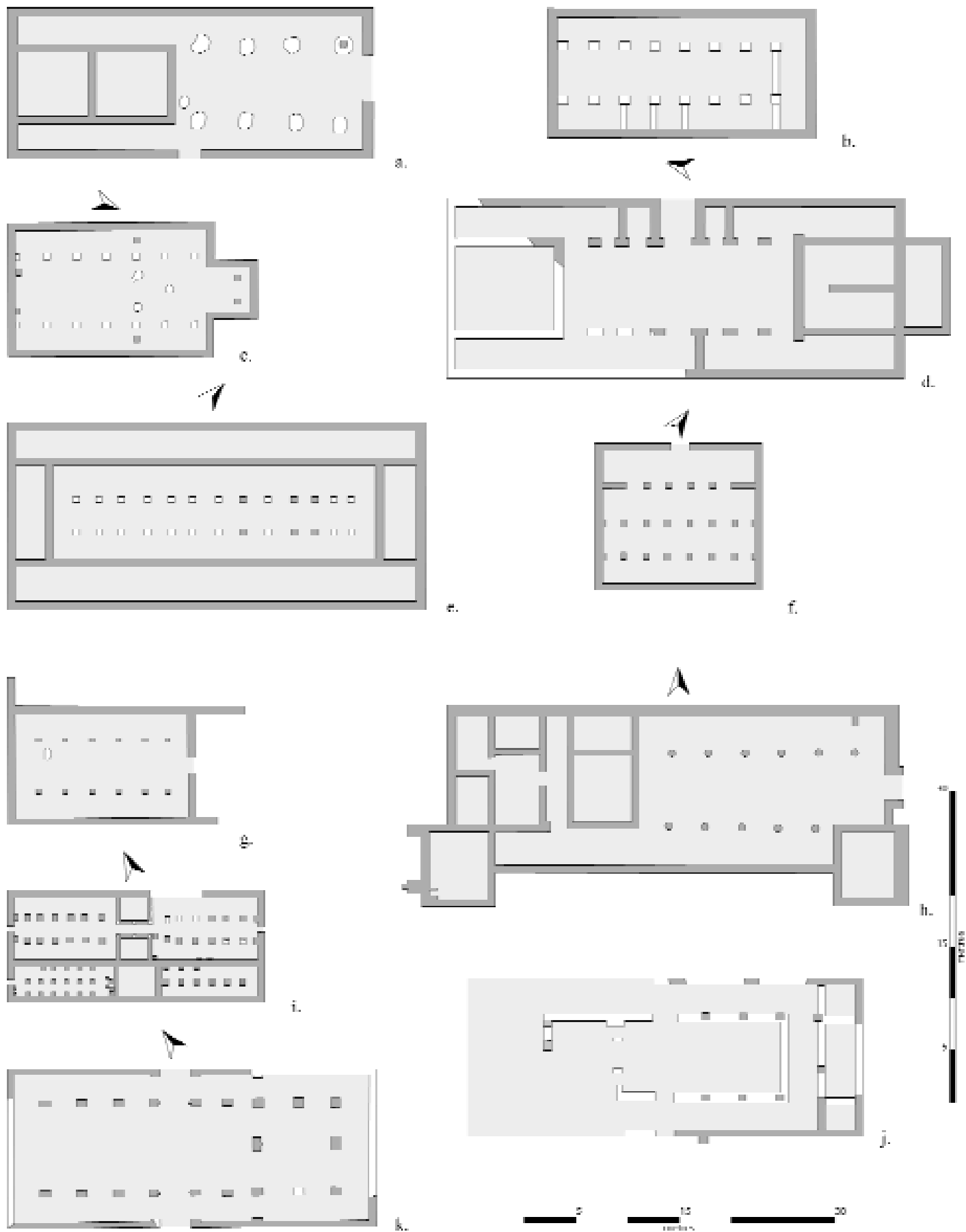
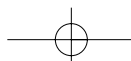


Fig. 15. a. West Blatchington; b. Ickleton; c. Castlefield; d. Darenth; e. Winkel-Seeb A;

g. Spoonley Wood; h. Petersfield-Stroud; i. Lullingstone; j. Wingham; k. Hog Brook



The aisled house, usually called in academic literature the basilican house, is usually a large hall divided by roof-supporting posts set either axially as ridge-posts and forming two aisles, or in two rows forming a nave and two aisles (Fig. 15). Aisled houses form a large group in Roman Britain, and in its simplest form the aisled house is a long timber building with two internal rows of earthfast posts from end to end of the middle span. Numerous examples have been excavated in recent years in Britain but with only a few examples being identified from mainland Europe (Smith J T 1997, 36). In aisled houses there is on most sites evidence of dual occupation. However, the question of to what extent cattle were stalled in these buildings or even a shared occupation of family and animals is open to discussion. West Blatchington in Sussex (Fig. 15a) had internal rooms and two entrances. Petersfield-Stroud (Fig. 15h) Lullingstone (Kent), Castlefield and West Dean (Wilts) are similarly proportioned whilst Weyhill-Clanville (Hants) and East Grimstead (Wilts) all acquired domestic rooms at both ends and in much of the aisles, leaving a large irregular shaped space in the middle: essentially the same process of development as occurred in many German broad halls (Smith J T 1997, 37).

The aisled house at Darenth (Fig. 15d) was preceded by an aisle-less building that had no evidence of stalling. The function of most of these type of buildings is confused, some archaeological reports talk of rooms assigned to men or women- or shared. Ox-byres, stables, metal-working, granary, have all been attributed. However, not all have wide doorways for wagons to deliver corn on the stalk for threshing and to take away the grain, although West Blatchington, Darenth, Spoonley Wood, and Hog Brook do. Some have a nave and aisles of equal width such as Winkell-Seeb A&B (Fig. 15e.f) with its intensive double row of poorly aligned columns which has led the excavator to decide it must have had a double storey. Other examples are found at East Dean (Hants) and at Saint-Aubin le Mazaret, Maulevrier, and Chatillon-sur-Seiche (Smith J T 1997, 37). The implication of agricultural use has been discussed at length by John Hadman (Hadman 1978) but the development of the aisled building by the Roman army has, as yet, not been fully explored. The aisled building at Birdoswald (below) excavated by Tony Wilmott is

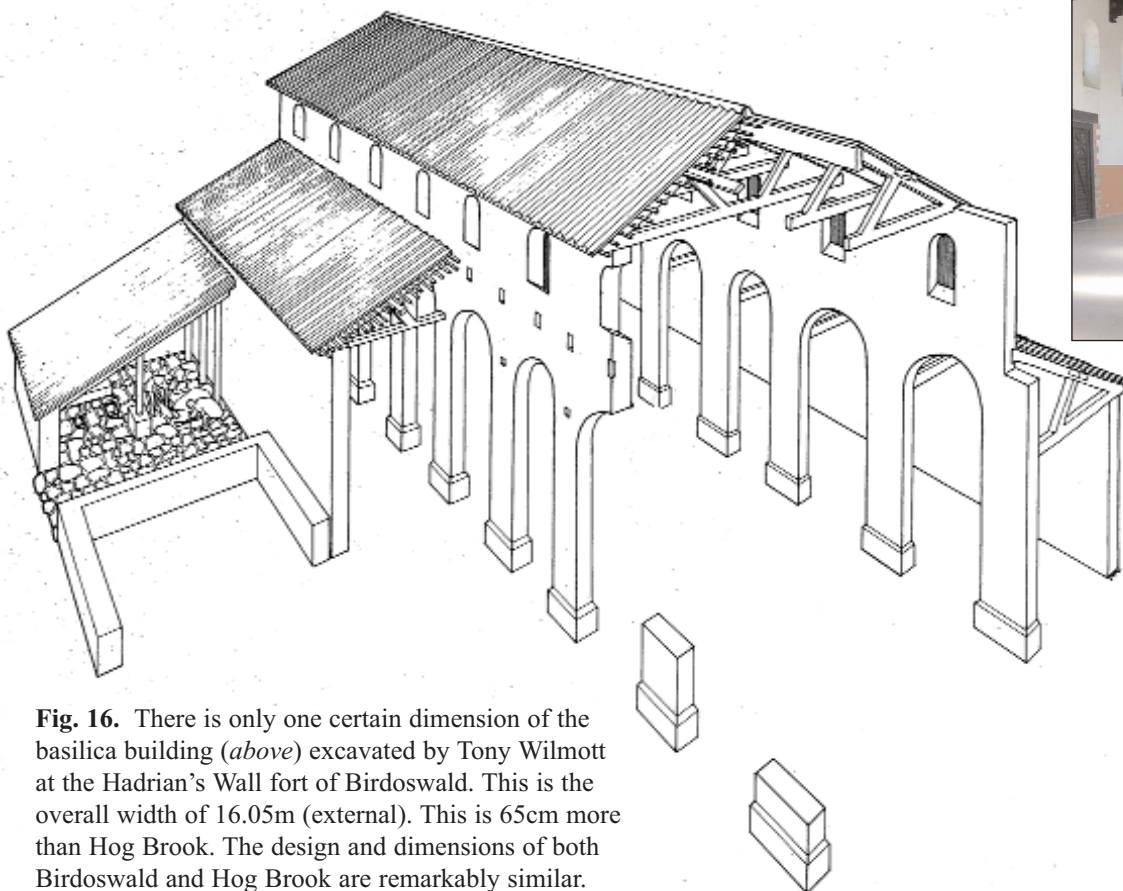


Fig. 16. There is only one certain dimension of the basilica building (*above*) excavated by Tony Wilmott at the Hadrian's Wall fort of Birdoswald. This is the overall width of 16.05m (external). This is 65cm more than Hog Brook. The design and dimensions of both Birdoswald and Hog Brook are remarkably similar.

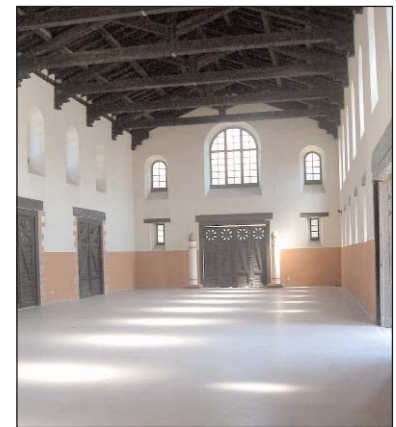


Fig. 17. The basilica building or 'drill hall' (*above*) is located at the Roman frontier fort near Saalburg, and was rebuilt in the late 19th century on the Roman foundations which date from the late 2nd century AD. Measuring about 37.00m. by 15.00m. It is about the same size as the basilica building at Hog Brook.

closer in style and construction techniques to Hog Brook than the earlier examples cited. The overall external width of the aisled building at Birdoswald is stated as 16.05m (on plan 16.40m). the overall width of the aisled building at Hog Brook is 15.40m (external). Birdoswald had 20 aisle piers, Hogbrook has 18 aisle piers, both buildings with about the same dimensions. Tony Wilmott admits the dimensions of the building at Birdoswald are problematic as so little of the structure was excavated. (Wilmott T 1997, 81). By using Vitruvius's methodology Wilmott computed a length of 40.94m, although in the comparative chart the internal length is given as 48.88m and the outline plan gives a external length of 42.80m (Wilmott T 1997, 97-8). The external length measurement for Hog Brook is 35.70m whilst the external width measurement is 15.40m.

At Birdoswald there are only six surviving aisle pier bases whilst at Hogbrook there are 17 stone aisle pier bases surviving- one was robbed out in the Medieval period (pier 10).

At least 31 basilica type buildings are known from Roman military sites with just five from Britain. The other type of basilica in Britain, again thought to have been built by the military is the seven known from Romano-British towns.

The most notable aisled farm building excavated in Britain is Meonstoke in Hampshire (NGR SU 616210). Excavated by Anthony King from 1984-91. It revealed an exceptionally well-preserved fallen wall which was the south-east facade. It seems the facade fell or was demolished some time in the second half of the 4th century with a *terminus post quem* of AD353 (King 1996). The exterior width of the Meonstoke is 15.40m, exactly the same as the width of the Hog Brook building. The length of the building King was unable to ascertain but suggested it could be

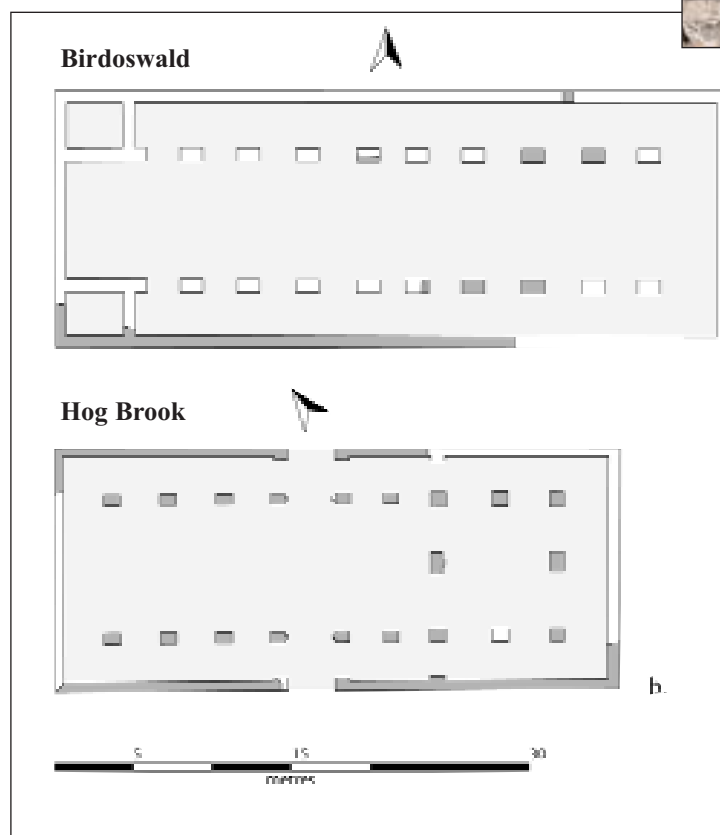


Fig 18. Birdoswald (a) and Hog Brook (b). The development of the aisled building by the Roman army has, as yet, not been fully explored. The aisled building at Birdoswald (*left*) excavated by Tony Wilmott is closer in style and construction techniques to Hog Brook (*left, below*) than other agricultural examples discussed.

The overall external width of the aisled building at Birdoswald is stated as 16.05m. the overall external width of the aisled building at Hog Brook is 15.40m.

Birdoswald had 20 aisle piers, Hogbrook has 18 aisle piers, both buildings have about the same dimensions and it may be the length of both is closer than thought. The external decoration of both buildings can only be guessed at but the external facade of Meonstoke (*above*) may be an indicator of how they may have looked.

about twice its width giving a length of 30.80m. The length of the Hog Brook building is 35.70m (117ft 2") which makes the Hog Brook building 20cm longer than the classic Roman measurement of an *actus* at 35.50m (120ft).

Both Birdoswald, Meonstoke and Hog Brook aisled buildings are similar in size and construction, and as a case study they all complement each other. The Meonstoke facade, with its high degree of decoration and architectural elaboration was not an aspect anticipated hitherto, and raises the question of how architecturally ornate were Roman buildings in Britain? The Meonstoke and Hog Brook buildings were clearly visible to travellers- Meonstoke from the Roman road only 70m away and Hogbrook from Roman shipping passing along the Swale Estuary to Rochester and London. It seems the grandiose statement of status on both buildings was a reflection of the wealth and pretensions of Roman villa owners in Roman Britain.

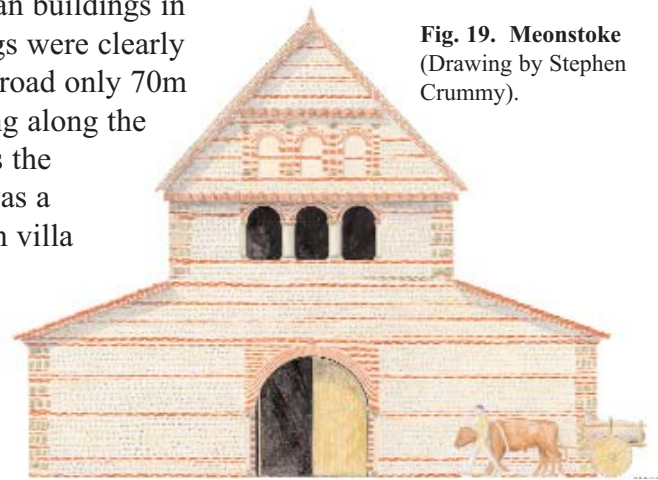


Fig. 19. Meonstoke
(Drawing by Stephen Crummy).

The facade of Meonstoke with its high degree of decoration and architectural organisation was a totally unexpected feature on what is essentially an agricultural building.

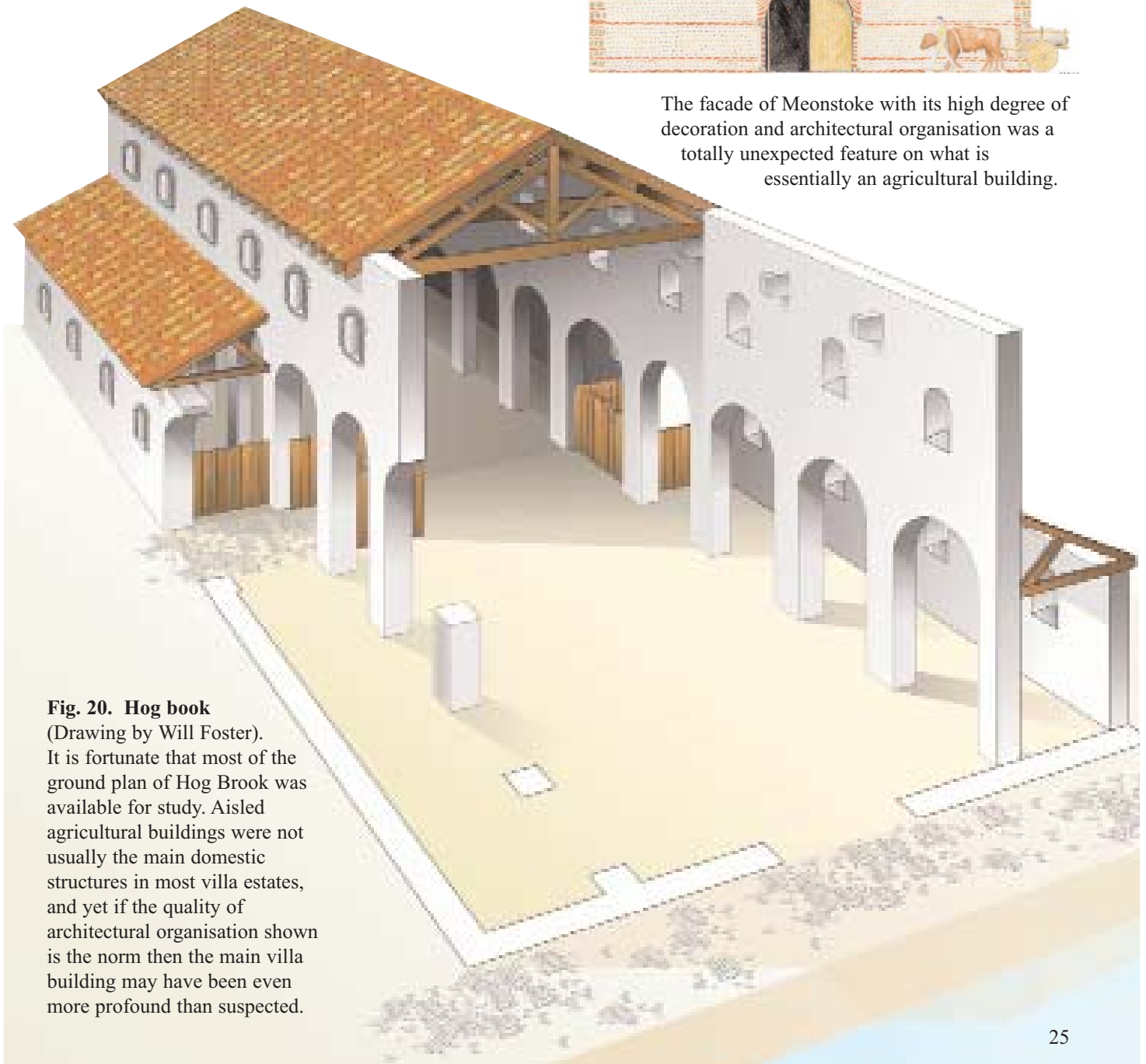


Fig. 20. Hog book

(Drawing by Will Foster).

It is fortunate that most of the ground plan of Hog Brook was available for study. Aisled agricultural buildings were not usually the main domestic structures in most villa estates, and yet if the quality of architectural organisation shown is the norm then the main villa building may have been even more profound than suspected.

9. The Building Sequence (Archaeological Narrative)

The Roman site of Hogbrook is in the parish of Luddenham and lies c.250m to the north east of the hamlet of Deerton Street, on a shallow west-facing slope down to the fresh water springs of Hog Brook. The springs flow north past the west end of the Roman aisled building to the Swale estuary some 2km away. The slope on which it is situated is a low Brickearth spur with outcrops of Head Chalk. The height of the site ranges from 4.88m OD to 5.78m OD.

A good command of the Swale estuary is available from the Roman building but it is hidden from view of Watling Street some 1.35km to the south. Other Roman sites in the vicinity include the Roman villa building at Deerton Street about 140m to the west and other Roman buildings c.400m to the north west. Other Roman buildings in the vicinity include a probable Romano-Celtic temple adjacent to the ruined church at Buckland about 350m to the south east, a Roman villa complex overlooking springs at Luddenham about 1.80km to the east and a probable Roman temple and other buildings underlying Teynham church c.1km to the east. To the west the next Roman villa estate is at Bax Farm (with an octagonal bath-house) at 2.75km (Wilkinson 2000).

From the excavation in 2004-5 of the aisled building at Hog Brook it is clear that the building is not isolated as walls, ditches and industrial activity continued to the north along the river bank. Dating evidence from coins and pottery suggest activity from the Late Iron Age- through the Roman period, continuing into the Anglo Saxon period and up to the 14th century. This continuation of settlement and industrial activity has been previously encountered at Blacklands some 6km to the east (Wilkinson 2000).

The aisled building at Hog Brook may not be the first structure on the site. Investigations in 2005 revealed wall foundations of an uncertain plan and date underlying the west end of the building (Sections 14, 15). Its replacement building was strongly built with walls averaging 58-85cm, and up to 1.50m in foundation depth below Roman floor levels, foundation width increases to about 91cm and comprises large nodules of flint and chalk set in grey mortar. The wall itself was constructed in well-laid courses of Kentish Ragstone blocks (KRS) set in white/grey mortar, some flint nodules and occasional chalk internal blocks.

Dating evidence for the construction of the aisled building comes from investigation of the builders trench adjacent to the exterior walls. Pottery retrieved from the builders trench at the south-east corner include a Samian stamped base of L. Cosius Virilis V34 dated to AD80-110, and a stamped mortaria dated to AD70/80 (Joanna Bird, pers comm).

13 sherds of pottery found in the builders trench alongside the north-east wall (061) dates from AD50-120. In the builders trench on the south wall (068) two pottery dishes dating to AD43-70. At the base of the robbed-out wall trench (011) on the north-east side fresh pottery sherds were retrieved from the original builders slot dating to AD70-110 giving a date of build of the aisled building to the late first century AD. The walls were robbed out in places and this activity dated by pottery sherds from the 10th to the 14th centuries AD with one pier (Pier 10) being robbed out in the 16th century.

The building overlies a north-south aligned ditch (Section 6, 7) dated by fresh Late Iron Age and early Roman pottery in its infill to AD43-110 (062, 059, 021).

The plan of the building is typical of aisled buildings in Roman Britain (Hadman 1978, 189-90) with some variations. The external length of the building is 35.70m (117ft 2"). The external width

of the building is 15.40m (50ft 7"). The south east corner wall of the building is unusual in that it splays out from 60cm to 98cm joining the east end wall which is 85cm wide (Fig. 32). Two entrances were located midway along the north and south walls. There is no evidence for entrances in either the east or west end walls. The entrance on the south side is 2.96m wide between two Tufa block piers built internally. The outside flint wall continues under the entrance at a lower level and is topped with 30-40mm of loose pebbles which overlay about 80mm of larger pebbles set in mortar.

This entrance surface is slightly cambered and Roman pottery in its make-up (056) is dated to AD200-270. A Roman coin retrieved from the upper cobbled surface (Coin 28) is dated AD260-280. The south entrance is of interest, adjacent to the south east wall alongside the Tufa block pier is a gatepost hole whilst the entrance itself is framed by two piers (No's 13, 14). Pier 13, 65cm x 91cm, sits 24cm above the Roman floor surface and is constructed of Tufa blocks about 9cm thick set in a thick layer of mortar. The internal blocks are of KRS pieces set in mortar. All six corners are rounded, but unusually these piers are not faced with mortar. The pier is unique in that it is rebated vertically with four rebates on the west face with a horizontal groove close to the floor. Pier 14 is similar in construction, but with two vertical rebates and no horizontal groove (Fig. 29, and Figure 11). It is likely that the rebates were to hold some sort of timber stalling, the reconstruction of which requires further research.

The north entrance is similar in layout with the difference being a gatepost hole in the centre of the outer opening and an additional gatepost hole on the west face of pier 4 (Figure 11).

There are 19 stone piers surviving out of 20 (Pier 10 robbed) and six engaged piers surviving, all built of dressed stone (Tufa and KRS) blocks set in mortar and most faced with an off-white lime plaster finish.

The jointing mortar is off a different mix on piers 6, 7, 8, 9, 11, A, B with small rounded pebble inclusions, no RBC, but crushed seashells. The shape of these piers is also different (Figure 3) being more square than rectangular with an average size of 94cm x 94cm.



Fig. 21. All Hog book piers were built on substantial KRS foundations averaging about 1 to 1.50m metres deep. The photograph is looking west along the southern exterior wall with piers 12 and 13 on the right. The south entrance with its internal pier can be seen top left. The latest level of sandy floor has been removed leaving a chalk tamped surface sitting on a thin layer of re-deposited clay which overlays the natural chalk. This can be seen in the section at the bottom of the photograph.

Pier A is situated in the centre of the building at the east end, and at 1.24m by 96cm is one of the larger piers found in the building. It has two vertical rebates on its east face (Figure 3) with rounded corners and faced with 20-30mm of off-white lime plaster. The pier base stands about 290mm above the latest Roman floor. The pier itself has collapsed and fallen slightly skewed to the west. The pier is built of Tufa blocks about 80mm thick set in mortar about 40mm thick. About 5m of the pier survived the fall. Every 1.15m a horizontal double layering course of Roman tiles were laid (Fig. 26).

When the pier collapsed it pinned a calf under the fall of stone (034) and in the same area (031) found laying on the Roman sand surface was an Anglo-Saxon brooch dated to AD530-70.



The configuration of the piers 6, 7, 8, 9, 10, 11, A, B, suggest a massive square structure at the east end (Figure 3), and the jointing mortar difference from the rest of the buildings piers suggest a different phase of build if only because the pottery found in the builders trench at both ends of the aisled building indicate a mid 1st century build for the entire structure.

However, the square structure does overlap an earlier ditch (Figure 6-7. Sections 6, 7) dated by pottery to the time of the Roman invasion in AD43.

It is conceivable that the ditch is exclusively Late Iron Age, and back-filled in AD43 when the massive tower- if that is what it is- was built. Towers incorporated into an aisled building structure are not unusual. The Roman palace complex at Trier (left) had a tower built into one of the aisled basilican buildings. The other option is that the square structure was an peristyle or atrium with the central part being open to the sky.

Certainly in a later phase of build the spaces between the piers were filled in with a crude wall of knapped flints which faced outwards, and chalk blocks both set in clay. These walls were some



Fig. 22. The distance between the two runs of foundation piers at Hogbrook is 7.48m. At Birdoswald the distance between the two sleeper walls was also 7.48m. Here a KAFS archaeologist is peeling back the demolition layers to expose the internal walls and Pier 8.

40cm thick (Fig. 22). The walls sat on top of the latest Roman floor surface (051) of white-yellow sand which overlaid a sub-floor of tamped chalk.

Under the west end of the aisled building was a massive deep drain or conduit which ran out into the spring (Figure 10. Sections 17, 18). A coin found in the drain deposits (Coin 23) is dated to AD293-296. There is no evidence of the drain or drainage inside of the building as it seems to be blocked by a Roman wall which may be part of a structural/stabilising construction to ensure the bank overlooking the spring was consolidated (Figure 9. Section 14).

Unfortunately at some stage during the early 5th century the end west wall collapsed, probably from the outward thrust of the arched colonnade (Figure 4. Area B & Fig. 23), a scenario that happened at Meonstoke, but unlike at Meonstoke the west wall debris at Hog Brook fell into the waters of the spring.

The wall was not repaired, instead a mortar mix for a wooden beam slot was laid just inside the collapsed wall and presumably a wood partition wall was built to replace the end wall (Fig. 23). Pottery sherds retrieved from the floor context (071) below the beam slot (070) are Anglo-Saxon ware dating from AD450-650.

The east end wall (Area C) also suffered collapse and was replaced (Figure 5) with flint nodules set in clay (124), but no KRS, sometime between AD450-650 (Section 13). The pits dug for the clay (067) matches the clay used to bond the wall (Royal Holloway, pers comm) and the pottery sherds found in the pits dates from AD500-650.

Other pits (030, 067) attest to Anglo-Saxon use of the building with fresh pottery sherds dating from the late 5th to the mid 7th centuries AD. Personal Anglo-Saxon items such as brooches and combs were also retrieved from the sandy floor surface inside the aisled building. Some of this Anglo-Saxon material was sealed in context when the aisled building finally collapsed sometime in the mid 7th century leaving about 400mm of burnt timber and Roman roofing debris covering the Anglo-Saxon artefacts (below right).



Fig. 23. A mortar mix for a wooden beam slot was laid just inside the collapsed west wall and presumably a wood partition wall was built to replace the end wall. Pottery sherds retrieved from the floor context below the beam slot

are Late Roman grog-tempered ware dating from AD400. The photograph (*above*) shows some of the collapsed roof tiles mixed with burnt roof timbers and tons of stone from the collapsed building.

10. Construction

Both at Meonstoke and Hogbrook the aisled buildings have exactly the same width of 15.40m. Anthony King suggests (King 1996, 66) this correlates to 50*pm* (Roman feet, the *pes Monetalis* of 296mm length) although it is probably closer to 52*pm*.

However, the measurement of 15.40m has been used for laying out a large number of Roman buildings ranging from the Temple of Jupiter at Split to the width of the aisled barn at Wingham, Kent, also at Petersfield, Stroud, and the width of Roman Building I at Rivenhall.

King suggests, after much study, that the optimum height for the Meonstoke aisled building would have been about 40*pm* (11.84m), with a roof angle, which survived in the archaeological record, of 47/48 degrees from horizontal, thus giving an apex angle of 90 degrees. The roofing material used at Meonstoke was sub-hexagonal stone slates with peg holes on the steeper nave roof and standard ceramic *tegulae* and *imbrices* on the two aisle roofs with their shallower pitch. At Hogbrook only *tegulae* and *imbrices* seem to have been used and subsequently it may have been necessary to nail or peg the initial courses of tiles to the nave roof.

It is apparent that modules of Roman feet are used when the detailed site plans of both buildings are looked at and that a unit expressed in Roman feet (ie the *pes Monetalis* of 296mm length) can be applied to the structure of both aisled buildings. This unit can be applied more or less exactly in many cases, but allowance must be made for variations in measurement.

It is a feature of Roman buildings that measurements are not quite exact for a number of reasons. A Roman surveyor setting out an building would be using a module based on the distance of an intercolumniation, but the use of a linear length, ie the Roman foot, were commonly used to round off lengths and distances that may have been established by

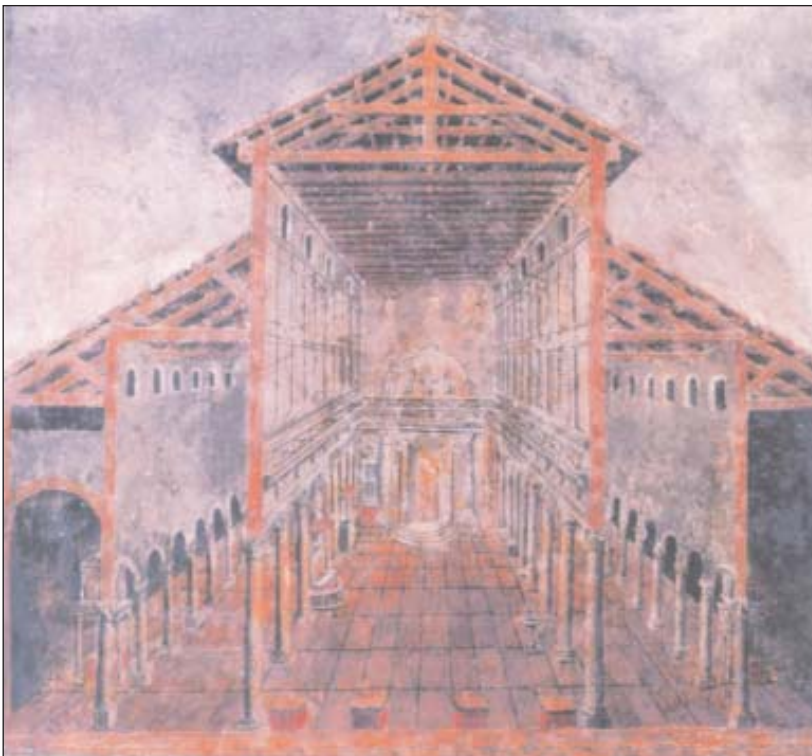


Fig. 24. The usual function for a basilican building, that is having a nave lit by a clerestory and flanked by aisles seems to be for the civilian administration, but also as a drill hall of the kind described by Vegetius:

“Continual unceasing drill with missiles and loaded javelins were enforced to the extent that for winter use porticoes roofed with tiles were provided for the cavalry, and buildings like basilicas for the infantry” (*Epitoma Rei Militaris* II:23).

It is to be expected that when the first Christian churches were needed the problem of housing a large congregation was solved by the building of large basilican structures such as the first St. Peters Church in Rome (*left*).

proportional means. Roman surveyors would have used both arithmetic and geometric proportions in the setting out of aisled buildings. Vitruvius worked with arithmetic proportions, and these continued to be important in columnar orders and in the overall design.

Geometric proportions are usually manifested in the ratio of width and length of a room or building, and/or either of these measures in proportion to its height, and were based on irrational relationships in pure geometry, e.g. the ratio of the side of a square to its diagonal. Such methodology is apparent in the basilican building at Hog Brook, and indicates a high level of design sophistication.

Roman builders were aware of the principle of structural redundancy, or *statical indeterminacy* (Mainstone 1998, 31-46). All standing buildings are in equilibrium; that is they bear their loads by means of a complex mesh of stress lines. A building with the minimum number of elements to accommodate stress is said to be *statically determinate*: It is safe under stable conditions, but if any element should fail you will have complete collapse. Thus statical indeterminacy was a necessity for buildings, and Roman architects designed with these structural margins of error.

A typical Roman arch, with stone voussoirs such as found at Hogbrook can illustrate this point well. The line of pressure of an arch is not semicircular but parabolic in shape. At each springing of the arch the stress tangents are never vertical, they project downward and outward. All arches have an outward thrust as well as a downward thrust. The weight and stiffness of the piers supporting the arch must be adequate to counteract the outward thrust. At Hogbrook the rectangular shape of the piers counteracted the outward thrust until the point was reached when the two end walls- the bookends- weakened and the building collapsed.



Fig. 25. The Piscina Mirabile at the Roman naval base of Misenum near Naples (*left*) utilises the use of the arch in five pillared aisles. Here the clerestory lighting illuminates the interior in exactly the same way as it would have done at Hog Brook. The photograph (*above*) of double brick lacing on the Roman lighthouse at Dover shows that this feature, also seen on the collapsed pier at Hog Brook was to bind together the courses of stone facing and core whilst the mortar was still soft. Another function was to level off the wall and keep the build horizontal.

11. Review of the Archaeological Fieldwork

11.1 Stratigraphical Deposit Model (SDM)

A common stratigraphic sequence was recognised across the site comprising topsoil/overburden (001) overlying a thin subsoil (002) and the natural Brickearth overlaying occasionally Upper Chalk. The topsoil/overburden consisted of relatively loose dark brown sandy loam with frequent to moderate inclusions of sub-rounded – angular flints and fragments of chalk. The subsoil comprised moderately dense mid-brown sandy loam that not only sealed all archaeological deposits recorded on site, but also contained fragments of friable abraded pottery, RBC and flecks of charcoal. A clear line of horizon gave way to regular natural deposits of Brickearth where mechanical excavation ceased immediately above the Brickearth leaving a 0.15m zone of subsoil to be removed by hand. In areas this zone was carefully trowelled off and a careful examination and investigation for truncated features was carried out. The depth of the overlying layer varied, with the average depth of the natural geology being located between 0.35m (east) 0.40m (west) below the existing ground level. Archaeological deposits were recorded between 4.67m and 4.90m AOD. Each group of features will be looked at separately. The full context list will be set out in the final report. The features about to be described were investigated during the summers of 2004-5.

11.2 Piers (Figure 3)

Excavation revealed 19 piers with the 20th (Pier 10) robbed out. These were not built on continuous sleeper wall foundations on which the piers were placed as at Birdoswald and probably Meonstoke, but on separate deep foundations which in some instances were dug to 1.30m (Pier 10)

Pier 0. Located in the extreme north-west corner of the building and measuring 0.89m x 0.67m. Surviving height was at 4.80m OD. The heavily damaged pier, built of Tufa blocks which each measured about 260mm x 282mm were laid in a thick layer (18mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 14mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 285mm above the Roman floor level.

Pier 1. Located in the north-west corner of the building and measuring 1.04m x 0.66m. Surviving height was at 4.82m OD. The pier, built of Tufa blocks which each measured about 260mm x 280mm, and 90mm thick were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 280mm above the Roman floor level.

Pier 2. Located in the north-west corner of the building and measuring 1.02m x 0.64m. Surviving height was at 4.67m OD. The pier, built of Tufa blocks which each measured about 260mm x 280mm were laid in a thick layer (17mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 1.05mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 281mm above the Roman floor level.

Pier 3. Located in the north-west corner of the building and measuring 0.86m x 0.70m. Surviving height was at 4.69m OD. The pier, built of Tufa blocks which each measured about 260mm x 281mm, and 90mm thick were laid in a thick layer (15mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 186mm above the Roman floor level.

A small double recessed vertical pier jutting out 160mm and 220mm wide was seen on the east side of the main pier, with a horizontal groove on the east side just above floor level (Figure 11). It is likely that it enabled some arrangement of closure to be implemented.

Pier 4. Located in the north of the building and measuring 0.90m x 0.67m. Surviving height was at 4.54m OD. The pier, built of Tufa blocks which each measured about 260mm x 281mm, and 85mm thick were laid in a thick layer (15mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish which survived in patches and rounded on all four corners. The pier base survives about 290mm above the Roman floor level. A small post slot was cut into the Tufa blocks on the north-west edge (Figure 3).

Pier 5. Located in the north of the building and measuring 0.89m x 0.63m. Surviving height was at 4.47m OD. The pier, built of Tufa blocks which each measured about 260 x 280mm, and 90mm thick were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Tufa nodules set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 290mm above the Roman floor level.

Pier 6. Located in the north of the building and measuring 0.91m x 0.89m. Surviving height was at 4.40m OD. The pier, built of Tufa blocks which each measured about 260 x 280mm, and 80 to 90mm thick were laid in a thick layer (16mm) of white/gray mortar with no brick flecks but gravel and broken sea shells. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 30mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 370mm above the Roman floor level. Excavation has exposed the pier foundation (Section 4) which comprised a bed of large Kentish Ragstone blocks (450 x 480mm), large flint nodules (150 x 145mm) capped with a mortar/gravel mix some 110mm thick. The Tufa blocks of the pier are set on top of this with mortar. Adjoining the pier on the east and south side is the truncated remains of a wall [416] built on top of the latest Roman floor levels (015). The wall is about 400mm thick and comprises three courses



Fig. 26. Pier 8 (*left*) shows the use of Tufa blocks with rounded corners. The collapsed rectangular Pier A (*above*) shows the use and brick in its construction. Calcareous tufa as used in the build of the piers is a light

but strong material, and easily shaped. Geologically, in East Kent it is a derivative of Kentish Ragstone, carried off in solution by weathering and again deposited and hardened. It is not a Tertiary, but a more recent formation.

remaining of three sets of stone; knapped nodules of flint (200 x 140mm) on the north face backed by two rows of chalk nodules (170 x 120mm) all set in clay. It is worth noting that piers 6, 7, 8, 9, 10 (robbed), 11, and piers A, B are conjoined with similar built walls (Figure 3).

Pier 7. Located in the north-east corner of the building and measuring 0.94m x 0.94m. Surviving height was at 4.34m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid on a thick layer (17mm) of mortar with no brick flecks but gravel and broken sea shells. It is worth noting that piers 6, 7, 8, 9, 11, and piers A and B have all the same mortar with no brick flecks but well rounded small pebble inclusions and the occasional broken sea shells.. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 14mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 284mm above the Roman floor level.

Pier 8. (Fig. 26). Located in the north-east corner of the building and measuring 0.94m x 0.94m. Surviving height was at 4.22m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid on a thick layer (17mm) of mortar with no brick flecks but gravel and broken sea shells. It is worth noting that piers 6, 7, 8, 9, 11, and piers A and B have all the same mortar with no brick flecks but well rounded small pebble inclusions and the occasional broken sea shells.. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 14mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 285mm above the Roman floor level.

Pier 9. Located in the south-east corner of the building and measuring 0.94m x 0.94m. Surviving height was at 4.34m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid on a thick layer (17mm) of mortar with no brick flecks but gravel and broken sea shells. It is worth noting that piers 6, 7, 8, 9, 11, and piers A and B have all the same mortar with no brick flecks but well rounded small pebble inclusions and the occasional broken sea shells.. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 14mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 284mm above the Roman floor level.

Pier 10. Located in the south-east corner of the building and completely robbed out. The foundation slot of the pier was 1.30m below the level of the latest Roman floor surface. Pottery sherds in the robbed infill dates from the 17th century.

Pier 11. Located in the south-east corner of the building and measuring 0.91 x 0.92m. Surviving height was at 4.47m OD. The pier, built of Tufa blocks which each measured about 200 x 310mm, and about 90mm thick were laid on a thick layer (17mm) of mortar with no brick flecks but gravel and broken sea shells. Some damage to the pier by plough was noted. It is worth noting that piers 6, 7, 8, 9, 11, and piers A and B have all the same mortar with no brick flecks but well rounded small pebble inclusions and the occasional broken sea shells.. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 14mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 302mm above the Roman floor level.

Pier A. Located in the centre of of the building at the east end and halfway between piers 6 and 11 is a much larger pier base of an unusual shape (Fig. 26). The pier base is about 1.24 x 0.96m and built of Tufa blocks which each measured about 200 x

310mm and about 80mm thick. They were laid on a thick layer (17mm) of mortar with no brick flecks but small gravel and broken sea shell inclusions. Some damage to the pier by plough was noted. The pier was faced with a 25mm coating of off-white mortar/plaster finish and rounded on all six corners. The pier base survives about 290mm above the Roman floor level. A small double recessed vertical pier jutting out 310mm and 660mm wide was seen on the east side of the main pier (Figure 3).

Lying horizontal to the west of the pier base is the remains of its stone pier which would have held the roof up. This is a unique survival. The fallen pier is slightly skewed, no doubt on impact with the Roman sandy floor. Built of the same dimension Tufa blocks as the pier base with Roman tile lacing-course horizontally as a every 1.15m to 1.08m. The Roman tiles are 40mm thick and 300 to 340mm square and three double lacing-courses have survived with part of a fourth double lacing-course. The overall length of the fallen pier is about 4.85m. The uppermost surface has been badly damaged by plough. As the pier collapsed a domestic animal (034) were caught under the fall of stone as were Anglo-Saxon artefacts including a brooch (057). The brooch (Fig. 27, above right) was most likely dropped by a wealthy female and has been dated to AD530/40 to 560/570 (Richardson pers comm, and Appendix 2).

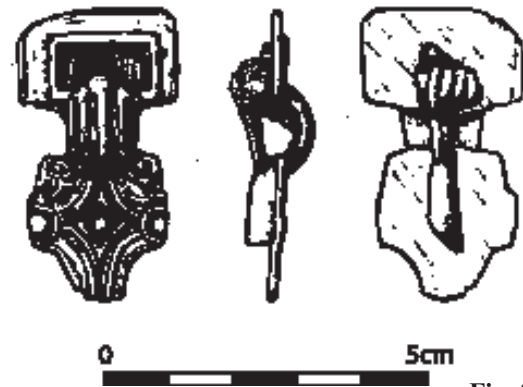


Fig. 27.

Pier B. Located at the east end of the building and halfway between piers 8 and 9 is again, a much larger pier base (Figure 3). The pier base is about 1.24 x 0.96m and built of Tufa blocks which each measured about 200 x 310mm and about 80mm thick. They were laid on a thick layer (17mm) of mortar with no brick flecks but small gravel and broken sea shell inclusions. Some damage to the pier by plough was noted. The pier was faced with a 24mm coating of off-white mortar/plaster finish and rounded on all six corners. The pier base survives about 280mm above the Roman floor level.



Fig. 28. The site looking north-east. The aisled piers 4, 5, 6, can be seen inside of the north wall whilst the collapsed pier of Pier A is on the right of the picture. Excavation is underway on the 1st century ditch (059) which predates the building. The two figures are excavating an Anglo-Saxon rubbish pit (030) and retaining the contents for analysis.

Pier 12. Located in the south area of the building and measuring 0.65 x 0.91m. Surviving height was at 4.52m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was not faced with mortar/plaster finish, but was rounded on all four corners. The pier base survives about 210mm above the Roman floor level.

Pier 13. Located in the south area of the building and measuring 0.65 x 0.91m. Surviving height was at 4.55m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks (Fig. 29 below). The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was not faced with mortar/plaster finish, but was rounded on all eight corners. The pier base survives about 240mm above the Roman floor level. The pier is unique in that it is rebated vertically with two vertical rebates, and a horizontal groove. It is likely that the rebates were to hold some sort of timber stalling, the reconstruction of which requires further research (Figure 13).

Pier 14. Located in the south area of the building and measuring 0.65 x 0.98m. Surviving height was at 4.55m OD. The pier, built of Tufa blocks which each measured about 200mm x 310mm, and about 90mm thick were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was not faced with mortar/plaster finish, but was rounded



Fig. 29. Pier 13.

The pier was not faced with mortar/plaster finish, but was rounded on all eight corners. The pier base survives about 240mm above the Roman floor level. The pier is unique in that it is rebated vertically with two vertical rebates, and a horizontal groove. It is likely that the rebates were to hold some sort of timber stalling, the reconstruction of which requires further research (Figure 3).

Pier 15. Located in the south area of the building and measuring 1.02m x 0.64m. Surviving height was at 4.75m OD. The pier, built of Tufa blocks which each measured about 260mm x 280mm were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks.

The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 280mm above the Roman floor level.

Pier 16. Located in the south area of the building and measuring 0.98m x 0.63m. Surviving height was at 4.82m OD. The pier, built of Tufa blocks which each measured about 260mm x 280mm were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 278mm above the Roman floor level.

Pier 17. Located in the south area of the building and measuring 1.02m x 0.64m. Surviving height was at 4.75m OD. The pier, built of Tufa blocks which each measured about 260mm x 280mm were laid in a thick layer (16mm) of white/gray mortar mixed with occasional brick flecks. The central infill was Kentish Ragstone nodules and/or chalk set in the same type of mortar. The pier was faced with a 15mm coating of off-white mortar/plaster finish and rounded on all four corners. The pier base survives about 280mm above the Roman floor level.

11.3. Walls (Figure 3).

The walls of the aisled barn were excavated on all four sides to enable definitive measurements to be taken. Detailed investigation took place on the north-west corner, the south-east corner, the south-west corner, and part of the north-west wall. The walls were built on a stepped out foundation about 910mm wide and constructed of large nodules of flint and chalk set in grey mortar and the depth of foundation averages about one metre.

11.4. The north-west area. This area was examined in some detail in 2004. Dressel 2-4 amphora sherds found in the matrix of the wall (032) can be dated between AD43-200. The stone wall was about 620mm wide on the north side run and 730mm on the west side run.

It was built of facing blocks of Kentish ragstone (240x180mm, 200x150mm, 230x180mm) with internal core blocks of chalk and occasionally flint nodules. All set in a white-grey mortar.

There was no internal or external mortar or plaster facing.

The wall was surrounded on the exterior by a finely laid cobbled surface (040) with a surface find of a coin of *Victorinus/Pietas Aug* dated to AD269-71. One abraded sherd of pottery (R14) found crushed into the surface of the cobbles is dated to AD110-180. On investigation it was found that there were three layers of cobbles all set in mortar and pot sherds found within this matrix have been dated to AD120-200.

An engaged pier was located on the inside face of the west wall (Fig 30), and this pier was in line with the piers 0-8. It was built of Tufa blocks with no evidence of keying into the main exterior wall.

On the interior of the exterior wall two dwarf walls running north-south and constructed of large nodules of flint set in clay were exposed. Both dwarf walls butted up to the exterior wall on the north side and were 580mm wide.

Re-deposited Brickearth infill surrounding these walls (036, 037, 038) produced 17 sherds dated to AD120-200 with a Pollard 19 jar dated from AD50.

11.5. The south-west area. Under the west end wall of the aisled building was a massive deep drain or conduit (Fig. 31) which ran out into the spring (Sections 16, 17, 18). A coin of *Allectus* found in the drain deposits (Coin 23) is dated to AD293-6. There is no evidence of the drain or



Figs. 30, 31. An engaged pier (*top*) was located on the inside face of the west wall, and this pier was in line with the piers 0-8. It was built of Tufa blocks with no evidence of keying into the main exterior KRS

wall. The photograph (*above*) shows the drain running under the end west wall. A large KRS lintel with corbeled blocks underneath. Activity in the drain can be dated to late 3rd century.

drainage inside of the building as it seems to be blocked by a Roman wall which may be part of a structural/stabilising construction to ensure the bank overlooking the spring was consolidated prior to building the main structure (Sections 14, 16, 17, 18. Figure 9, 10).

At some stage during the early 5th century the end west wall collapsed, probably from the outward thrust of the arched colonnade (Area B, Figure 4, see page 29). The wall was not repaired, instead a linear mortar mix for a wooden beam slot [070] was laid just inside the collapsed wall and presumably a wood partition wall was built to replace the collapsed end wall (Fig. 23). Pottery sherds retrieved from the floor below the beam slot are Late Roman grog-tempered ware dating from AD400+.

The south wall exposed in the south-west corner measured 600-630mm wide, and was built of large blocks (240x180mm, 200x150mm) of Kentish Ragstone, some flint nodules and chalk blocks used as internal infill. All set in a white-grey mortar.

11.6. The south-east area. The south wall runs for 35.70m (117ft 2") which in Roman measurement makes the Hog Brook building 200mm longer than the classic Roman measurement of an *actus* at 35.50m (120ft). The wall is continuous and runs under the mid way southern entrance. At the eastern end the wall splays out from its standard width of about 600mm to about 1m (Fig.32). The reason for this could be that the Roman builders were aware of the stress placed on the end walls of a building when a colonnaded arched structure such as a basilica was built. As with the west end wall it seems that at some late stage in the life of the building, notwithstanding the added splay, the east wall collapsed and was replaced by a crude wall built of nodules of flint set in clay (124). This event probably dating from sometime between AD450-650 (Figure 8. Section 13). The pits dug for the clay (067) matches the clay used to bond the wall (Royal Holloway, pers comm) and the pottery sherds deposited in the pits dates from AD500-650 (Figure 3).



Fig. 32, 33. The south-east end the south wall (*left*) splays out from its standard width of about 600mm to about 1m. The west wall (*above*) collapsed and was not repaired, instead a

linear mortar mix for a wooden beam slot [070] was laid just inside the collapsed wall and presumably a wood partition wall was built to replace the collapsed end wall.

11.7. Floors The floors were exposed in the south-east area of the building, the central part and an area to the north. In every area of floor investigated a mass of Roman building material (RBC) including burnt timber roofing material had to be removed before the floors could be investigated (Fig 23).

Excavation in the north area is a good example of the stratification encountered (Section 4). The late Roman wall [416] co-joining the piers can be seen to have been built on a demolition layer (015) of light brown crumbly soil with about 25% inclusions of RBC fragments, mortar lumps, chalk fragments and numerous pieces of Roman roof tile. Under it another demolition layer (016) about 70mm thick of almost exclusively RBC. The first floor surface encountered is under (016) and is a grey-yellow sandy layer with occasional flecks of RBC and small rounded gravel (017). Pottery found in this layer dates from AD325-400. In this part of the building the sandy floor is laid directly on top of natural chalk whilst in the area along the south wall it is laid on earlier floors (Figure 6).

11.8 The Roof The total weight of the roofing at Hog Brook was considerable. The average weight of a complete *tegulae* found in excavation was 13.6 lbs (29.98 kg) each, and the average weight of a *imbrices* was 5.6 lbs (12.34 kg). The roof covering is 576 sq metres and would require 6080 *tegulae*. The weight of these would be 182.4 metric tonnes. The number of *imbrices* used would have been 5776 weighing 71.27 metric tonnes. The weight of these roofing tiles would be 253.67 metric tonnes. To this would be added the weight of the ridge tiles and mortar used in the fixing.

Studies elsewhere such as Fishbourne (43000 *tegulae*), Beauport Park (1100 *tegulae*) and Caerleon (25400 *tegulae*) indicate that the required number of roofing tiles calculated for Hog Brook is approximately correct. A number of half box tiles were found in excavation (Fig. 34), as were *bessales*, *pedalis*, and *lydion*. No brick *vousoir* (*cuneatus*) were found but tapered Tufa *vousoirs* were retrieved (Brodribb 1987, 26). A full report on the building materials, both tile and stone will be part of our post-excavation work.



Figs. 34, 35. The site looking east towards Buckland Church. The south wall is visible including piers 11, 12, 13. The archaeologists in the foreground are excavating the south entrance. Roof debris can be seen in situ in the centre of the photograph. The half box tile (above) shows combing, the row of six teeth gives a close-set track of 41mm. The indented grooving has the prime purpose of providing a key for the plaster that covered the tiles when they had been set in the walls.

12. Roman Land Division at Deerton Street

Oswald Ashton Dilke wrote in 1985 that: “The Romans from quite early times, mainly favoured a system of squares in which to draw up a survey” (Dilke 1985, 88).

In rural areas these were *centuriae* (*‘centuries’*), which were most commonly squares of 2400 x 2400 Roman feet (20 x 20 *actus*, or 706 x 706m.).

It was the function of the Roman surveyors, the *mensores*, and land surveyors, the *agrimensores* to measure out the allocation of conquered land to new settlers and in some parts of the Roman Empire these land divisions were linked to the foundation of new colonies.

An *actus*, 120 Roman feet long (35.5m), constituted the basic unit of length and were associated with the distance a plough with oxen was driven before turning. To measure out the right-angles of an *actus* the *groma* a Roman survey instrument was used. Once these right-angles were established a straight line was laid out using ranging rods and the length measured out with the a large wooden ruler called a *decempeda*, normally 10 Roman feet long. With the Roman standard foot this would measure 2.95m, but with the *pes Drusianus* used in some areas of north-west Europe it could be 3.33m or 3.35m.

The usual Roman name for this system of land division was *limitatio*, but in English academic writing it is more usual to use the word *centuriatio* written as centuriation. *Limitatio* is derived from *limites*: a *limes* was the baulk or headland separating two ploughed fields which in centuriation surveys usually became a track, hedge or stone wall.



Fig. 36. Aerial photograph of the area around the town of Zadar in Croatia. The Roman land division in units of 20 x 20 *actus* still survives in a remarkable state of preservation. The normal size of a *centuriae* was a square of 20 x 20 *actus* measuring on one side 706m, with an internal area of about 124.6 acres (50.4 ha).

The Roman administration in a newly conquered territory such as Britannia had extensive responsibilities and wide-ranging powers and the surveyors were closely involved with everything they did. Roman surveyors would have had to decide boundaries, distribute individual allocations, lead settlers to their plots and were at the centre of activities crucial to Roman political, economic, and social life (Campbell 2000, lvi).

The intention was to divide the landscape into visibly equal plots which initially may not be convenient to the settlers but through time and change of ownership would enable individual landowners to accumulate a pattern of ownership which would enable them to function. However, this exchange of ownership is now probably impossible to disentangle.

Evidence for Roman land division can be found throughout most areas of the Roman Empire but the evidence from Britain has, for the most part, not been convincing.

Part of the investigation methodology of the KAFS is not to treat sites in isolation, but integrate the sites into the landscape. The results have been encouraging. The landscape around Hog Brook and Deerton Street can now, even after 1900 years of agricultural activity, be seen to have been divided up into 20 *actus* squares. There are 17 centuriation squares running in sequence along Watling Street in the vicinity of Hog Brook with another 12 clustered around them (Figure 12).

All of the 17 centuriation squares have been measured on the ground and are within a few metres of 706m, the length of a 20 *actus* square. The results of this important large-scale investigation of Roman land measurement will be, by necessity written up in a separate report.

Of particular interest is that in the north-west corner of *Actus 27* (below) homestead plots of land measured in the North German foot were laid out presumably by Germanic settlers in the aftermath of the Roman Empire on *actus* land adjoining the Roman villa at Deerton Street.

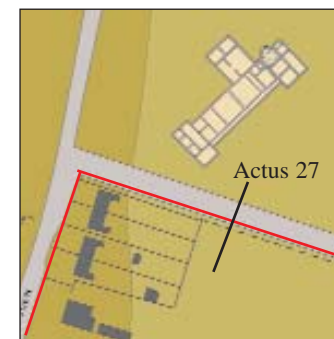
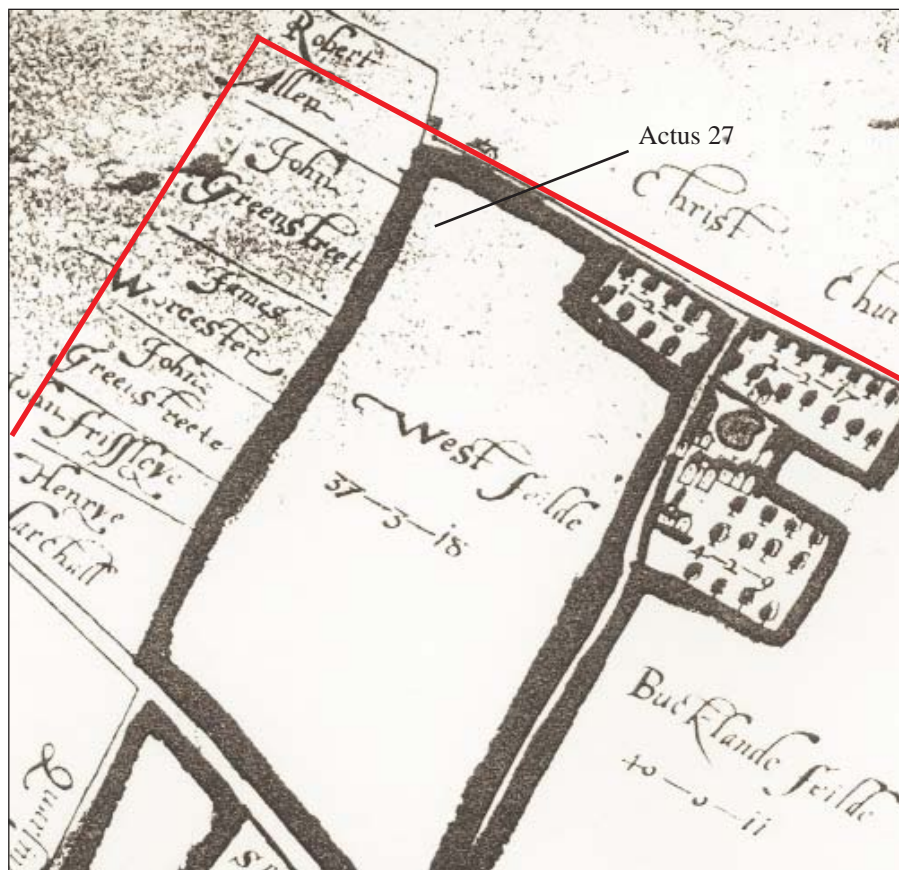


Fig. 37. The plots of land set into the corner of *Actus 27* are just to the south of the Roman villa at Deerton Street. Each plot is measured in the North German foot of 12 thumbs or 36 barleycorns laid end to end. The configuration of the plots survived through the late medieval period (left) until modern times (above) when the medieval dwellings were demolished and replaced with council houses.

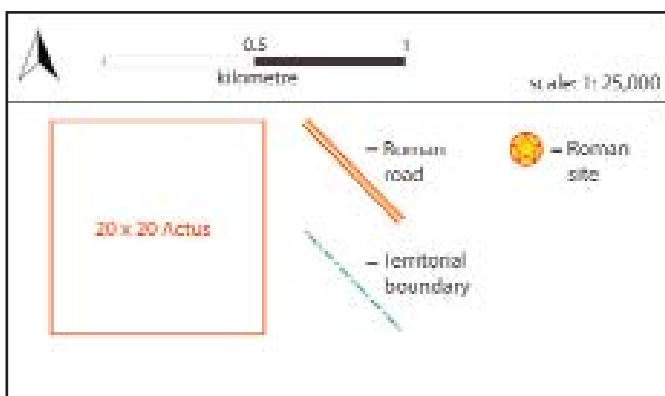
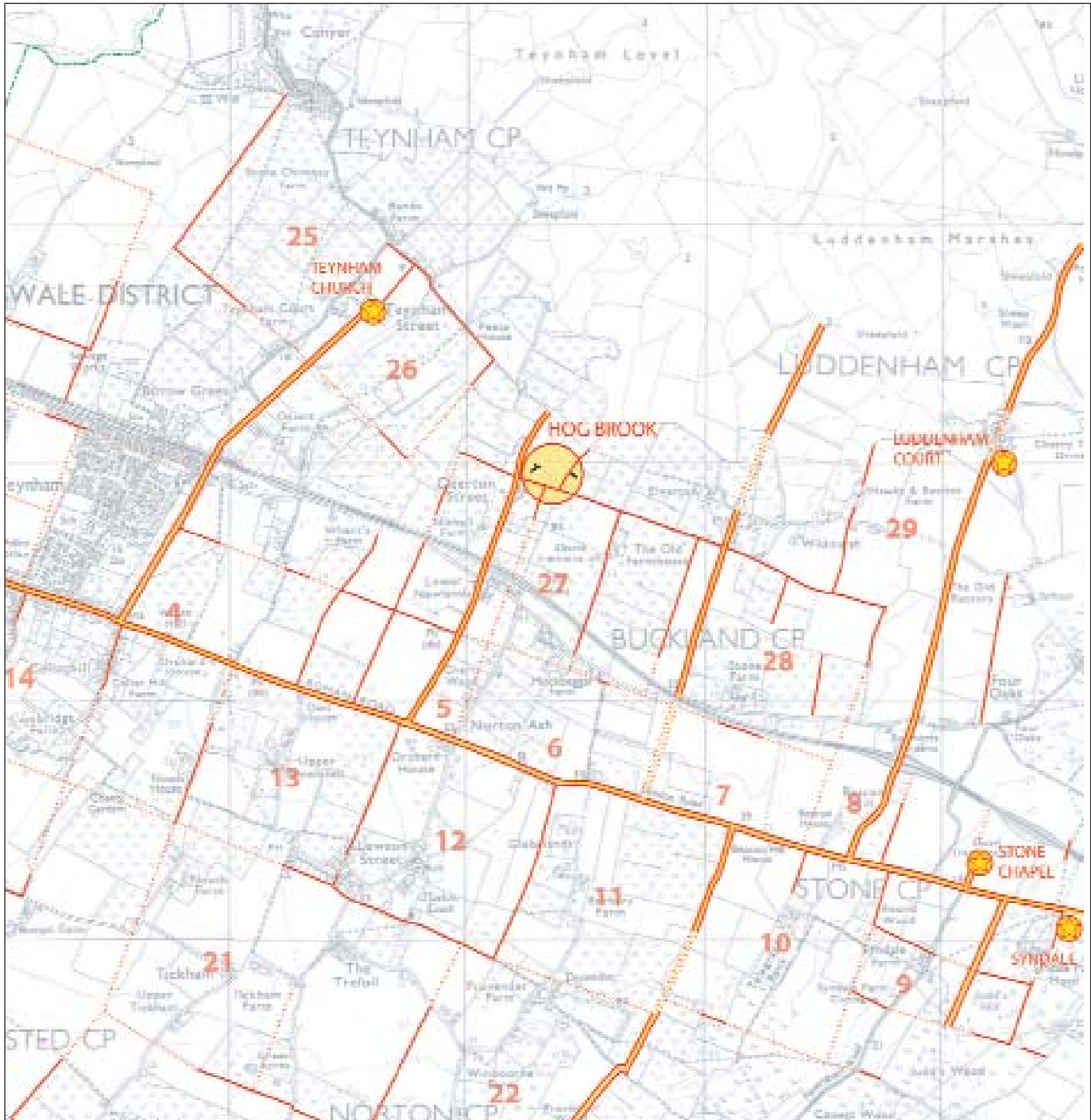


Fig. 38. Part of the investigation methodology of the KAFS is not to treat sites in isolation, but to integrate the sites into the landscape. The results have been encouraging. The landscape around Hog Brook and Deerton Street can now, even after 1900 years of agricultural activity, be seen to have been divided up into 20 *actus* squares. There are 17 centuriation squares running in sequence

along Watling Street in the vicinity of Hog Brook with another 12 clustered around them (*above*). All of the centuriation squares have been measured on the ground and are within a few metres of 706m, the length of a 20 *actus* square. The results of this important large-scale investigation of Roman land measurement will be written up in a separate report (Figure 12).

13. Archaeological Finds

13.1. Lithic assemblage

Quantification and analysis of flint artefacts has been completed by Barry Bishop. An interim assessment can be found in *Appendix 7*.

13.2. Ceramic assemblage

A full programme of spot-dating has been carried out by Malcolm Lynne. An interim assessment can be found in *Appendix 5*.

13.3. Roman Building Ceramics (RBC)

A comprehensive assessment of the RBC assemblage from Hog Brook will be carried out as part of the post-excavation programme. However, an initial report on the adjacent Roman villa at Deerton Street was carried out by Dr Ian Betts of the Museum of London Specialist Services (*Appendix 6*). Dr Betts report states:

“A sample of six crates of ceramic tile was examined from Deerton Street Roman villa. This comprises 215 fragments weighing 56.83 kgs.

All the material was recorded by form and fabric type. A total of 16 different fabric types were identified, a number of which are also found in London. This does not mean that there were 16 different kiln sources, it is known from London that fabrics 4, 5 and 6 are from the same production source, although there were differences in the clays used. What is certain is that material was coming into the site from various tileries situated in different localities, although it is yet unclear how many.

This is the first ceramic tile from Deerton Street to be classified by fabric type, these fabric divisions may be defined and modified in light of further fabric analysis of more of the tile assemblage”.

13.4. Coins

Spot-dating on Roman coins has been carried out on all coins recovered from Hog Brook by Richard Abdy from the British Museum (*Appendix 3, 4*). An earlier report on coins from the adjacent villa at Deerton Street is also included in the Appendices. Dr Abdy's summary for the Deerton Street coins is:

“The coins from Deerton Street villa show an entirely late Roman character. The two Antonine coins could have been in use up until the disappearance from general circulation of early Roman *aes* sometime around the AD 270s. Such a late deposition is especially likely since they are in the company of coins that uniformly date from the second half of the third century onwards. Two-thirds of the coins are fourth century, with a strong presence of the final issues to be supplied to Britain.

In sum, negative coin evidence suggests no coin-using activity on the site until the second half of the third century. Positive coin evidence shows such activity up until the end of the Roman province. It is therefore beyond the numismatic evidence to decide how long coin-using activity continued after the cut-off (403 at the latest) of fresh low-value coinage. The best that can be said is that the strong finish to the coin list would not contradict activity into the fifth century”.

13.5 Small Finds

Small finds are in the care of MoLAS and a full assessment of all findings will form part of the final report. Andrew Richardson, the Kent Finds Liaison Officer, has commented on the Anglo-Saxon brooch retrieved from under the collapsed building at Hog Brook.

His findings are: “This type of brooch was one of the characteristic finds of Phase III of Brugmann’s chronological scheme based on dress accessories in wealthy female graves, to which she assigned a date range of circa AD 530/40 to 560/70. A date of deposition in or soon after this period is probable for the Hog Brook brooch”. The full report is *Appendix 2*.

13.6. Environmental evidence

Quantification and analysis of the environmental evidence retained will form part of the post-excavation work, but apart from the Anglo-Saxon pits little was retrieved.

13.7 Animal bones

The bones that were retrieved will form part of the post-excavation work.

13.8 Summary of the Site Archive

In addition to the artefact assemblages mentioned above, the Site Archive includes:

Correspondence, 126 digital photographs, 32 colour and b/w slides. 21 permatrace site drawings of plans and sections. Context register and sheets, site notebooks. A full archive catalogue will be prepared for publication on receipt of final specialist reports.



Fig. 39. The sites of Deerton Street Roman Villa & Hog Brook are enclosed in the red circle. They are situated on the east bank and the east slope of the west bank overlooking Hog Brook spring. Watling Street is about 1150 metres almost due south, and a straight track joins the site to Watling Street and for 400 metres of its length it is a parish boundary. Another track leads east and west in a straight line and connects the Roman villa sites of Bax Farm, Deerton Street, Luddenham and possibly ends at the spring head of Oare creek just below Bysing Wood and the Roman small town at Syndale. For over half its length it forms a parish boundary and is also a designated public footpath. There is also evidence of Roman centuriation survey methods in the layout of these roads, paths, lanes, and fields (Figure 12).

14. Recommendations for further archaeological assessment

14.1. Statement of potential

The archaeological excavations at Hog Brook have confirmed the presence of an important Roman stone-built basilican building constructed originally in the late 1st century and continuously occupied for over 400 years.

With the archaeological investigation of the adjacent Roman villa, and the other Roman buildings known in the vicinity it seems a substantial Roman villa estate was established very soon after the conquest in AD43 and continuously occupied until at least the early 6th century.

Fieldwork in the environs of the villa estate show that the landscape was laid out with Roman field measurements, and with Germanic and Anglo-Saxon layers added later.

Both buildings, Deerton Street and Hog Brook have had only limited excavation, and if preserved from ploughing destruction further investigation is available for future archaeologists.

Unfortunately, both sites are at risk from modern farming activity. However, up to now (2009) the villa site has never been ploughed and the structure still survives just under the turf. The basilical building at Hog Brook is now being ploughed and destroyed.

14.2. Conclusions

The archaeological investigations at Hog Brook and Deerton Street have been carried out in accordance with a written Research Design and Method Statement (Appendix 1).

Archaeological remains present within the Study Site have been assessed and reported, enabling preservation by record.

A wealth of important data on the establishment and design of an Roman agricultural building set in its landscape has been retrieved, and an opportunity realised to teach a future generation of archaeologists the importance of Roman building technology and landscape interpretation.

14.3. Acknowledgments

The Kent Archaeological Field School would like to thank Mrs Johnson and family for allowing access to the Hog Brook site, and John Ledger for allowing access to his plum orchard in which the Roman villa at Deerton Street is located. Thanks are also extended to BBC History, and Peter Kendall of English Heritage. Chris Fern, Emma Boast, Ges Moody for illustrations, and students past and present who carried out the archaeological fieldwork.

Dr Paul Wilkinson
January 2009

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16. Appendices

Appendix 1. Method Statement

16.1 The site at Hog Brook is centered on NGR TQ 9743 6292 and covers an area of approximately four hectares, all of the land is in the ownership of Mrs Johnson. The position of the proposed excavation area is located so as to define the size and function of the buried Roman monument and elucidate the relationship between the the building and the known villa to the west.

16.2 Aerial photographs of the site from English Heritage show no crop-marks in the immediate area. A landscape survey of the surrounding area by students will be implemented, and the results incorporated with the aerial photographs at a scale of 1:2500 by Ges Moody of the Thanet Archaeological Trust. The areas of excavation undertaken in 2004 are to be incorporated within the overall site plan at 1:50.

16.3 Following on from the test-pit trenching an area with highest archaeological potential will be excavated by a mechanical tracked excavator with a flat bladed ditching bucket, and under the supervision of an experienced archaeologist. A 'mattress' of soil will be left above the archaeological layers as protection of features against inclement weather and unauthorised interference with the archaeological deposits. By placing the excavation area at a key point within the practical constraints of the site and in conjunction with keyhole test-pitting and field-walking survey it should be possible to contribute towards the Project Research aims.

16.4 The area will be hand cleaned after an initial sweep by metal detector and the spoil sieved through a one centimetre screen and scanned by a metal detector.

16.5 Scale plans will be produced to a scale of 1/100 for the site plan, 1/50 for grid areas, 1/20 for large features, and 1/10 for section drawings and smaller features. Single context planning and recording sheets to be used where appropriate. All drawing will be produced on plastic film using a 6H pencil and annotated with OD or TBM heights, grid reference points and context numbers.

16.6 Total station survey equipment will be used to tie the site into the Ordnance Survey whilst taped triangulation from site grid markers will be used to record features.

16.7 Archaeological features will be selectively excavated and sampled sufficient to determine the character, date and degree of truncation of the site.

16.8 Samples will be taken for botanical, faunal and other environmental data as appropriate and in consultation with English Heritage and Royal Holloway.

16.9 Where more than one phase of activity is present, a representative sample of the range of phases will be excavated and relationships between feature intersections will be investigated.

16.10 All drawings to be indexed using the Field School pro-forma index sheets. All excavated archaeological deposits will be described using the Field School pro-forma context recording sheets. An index of contexts will be maintained using the Field School pro-forma sheets.

16.11 A complete record of digital and 35mm photographs will be created of every feature using appropriate scale bars. The photograph number will be entered on to the appropriate context recording sheets and drawings index sheets.

16.12 All environmental samples will be boxed and marked with site and context codes and will be described using the Field School pro-forma Sample Recording sheets.

16.13 All finds will be marked with site and context codes and kept separately by context and material type. Washing and sorting of finds will take place off site at the Field School workrooms.

16.14 For further details of appropriate methodology both on and off site students will be referred to the MoLAS Site Manual, the KAFS Handbook (Archaeology!), and IFA publications.

16.15 The Kent Archaeological Field School is covered by Public and Employer's Liability Insurance. The underwriting company is RBPM, policy number 2006/007. Details of the policy can be seen at the Field School office.

Appendix 2. Report on an Anglo-Saxon Square-headed brooch from Hog Brook.

This Kentish small square-headed brooch is of copper alloy, placing it in Leigh's Series III (Leigh 1980). The headplate has an inner rectangular section decorated with vertical lines. The bow is framed by raised edges and has a ventral mid-rib. The foot, which is broken, with the lower section detached and the terminal missing, is lozenge-shaped, with half-circled side-terminals below stylised animal motifs. The surviving length of the largest part of the brooch is 38.31mm, the headplate has a maximum width of 24.41mm, and the brooch has a maximum thickness of 12.5mm.

This brooch, with its combination of animal motifs, geometric designs and imitation garnet-settings, falls within the general series characterised as 'Kentish-continental' (Parfitt and Brugmann 1997, 35). Its closest parallels are copper alloy brooches from the cemeteries of Mill Hill and Howletts in east Kent and Barrington in Cambridgeshire. These copper alloy examples were clearly modeled on silver brooches, examples of which are known from the Kentish cemeteries of Buttsale (Eastry I), Chatham Lines and from Herpes in south-west France. Brugmann, in her discussion of the brooches from Mill Hill, labelled these brooches as Åberg type 132 (after Åberg 1926, figure 132). This type was one of the characteristic finds of phase III of Brugmann's chronological scheme based on dress accessories in wealthy female graves, to which she assigned a date range of circa AD 530/40 to 560/70. A date of deposition in or soon after this period is probable for the Hog Brook brooch.

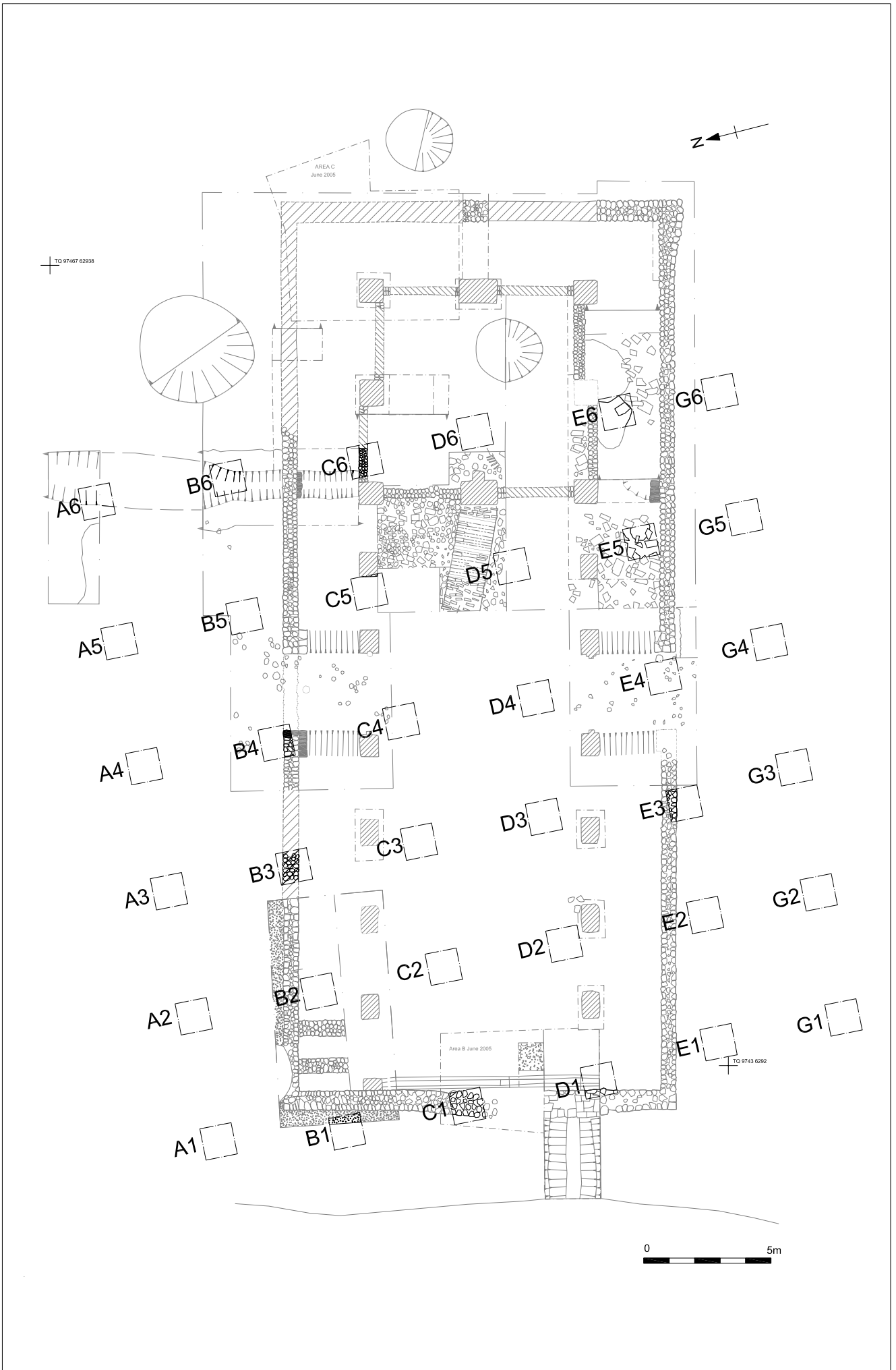
References:

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Leigh D 1980 *The square-headed brooches of sixth-century Kent*. Unpublished PhD thesis, University of Wales, Cardiff.

Parfitt K and Brugmann B 1997 *The Anglo-Saxon Cemetery on Mill Hill, Deal, Kent*. The Society for Medieval Archaeology Monograph Series No.14.

Andrew Richardson
November 2004



Section 17. Figure 1. The test pits.

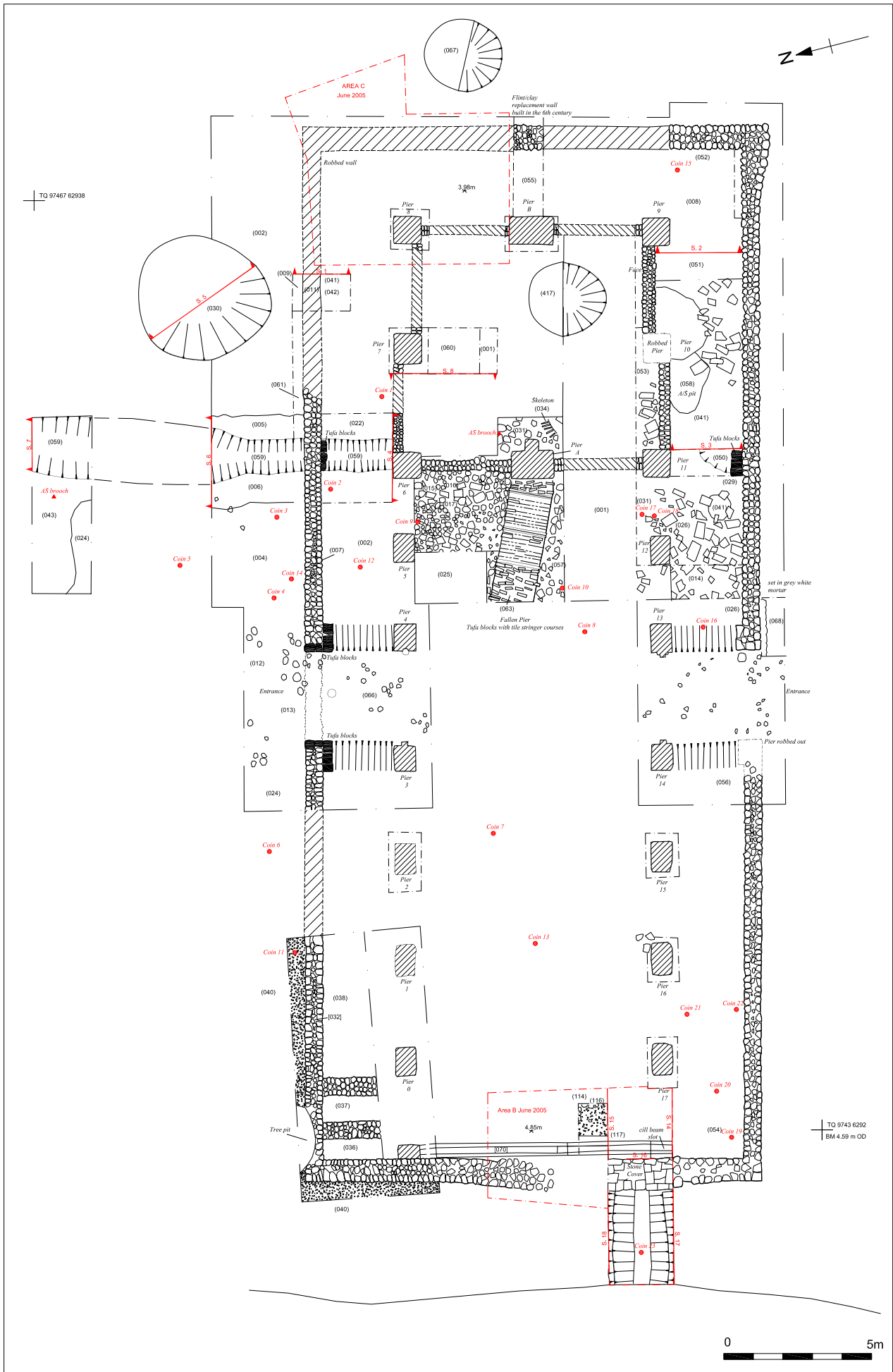


Figure 2. Plan of the building. Scale as shown

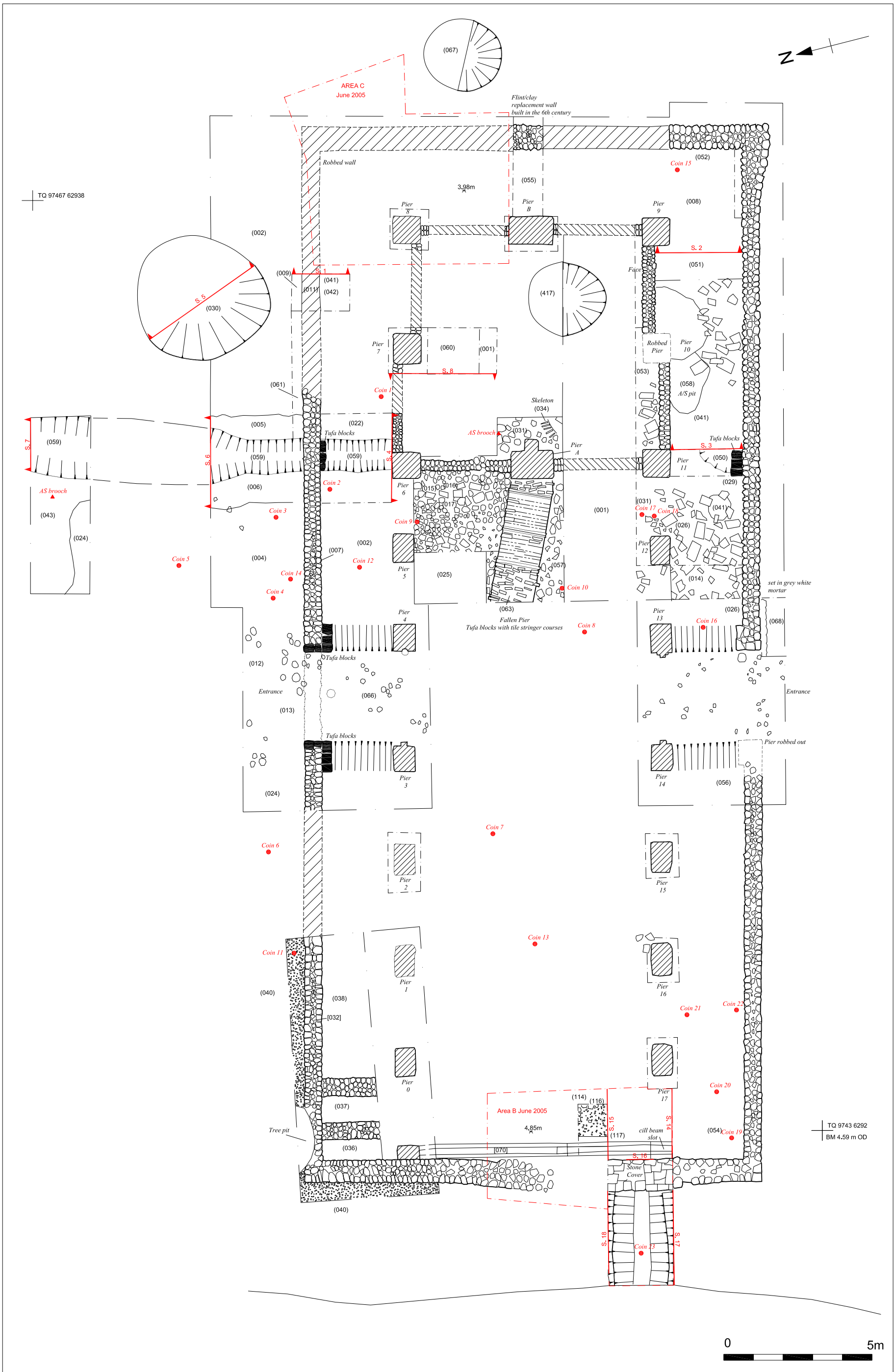


Figure 3. Detailed plan of the building. Scale as shown.

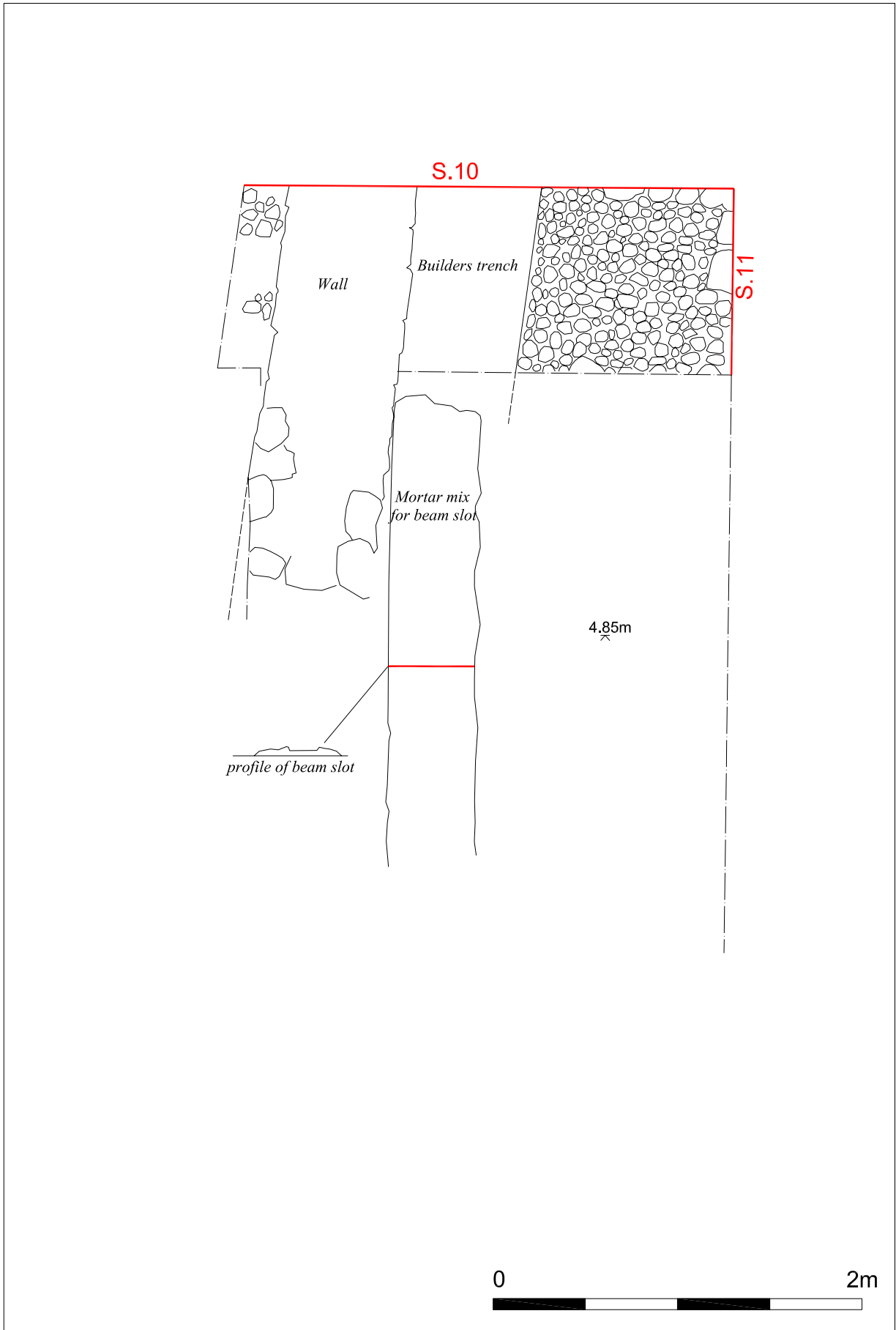


Figure 4. Area B.

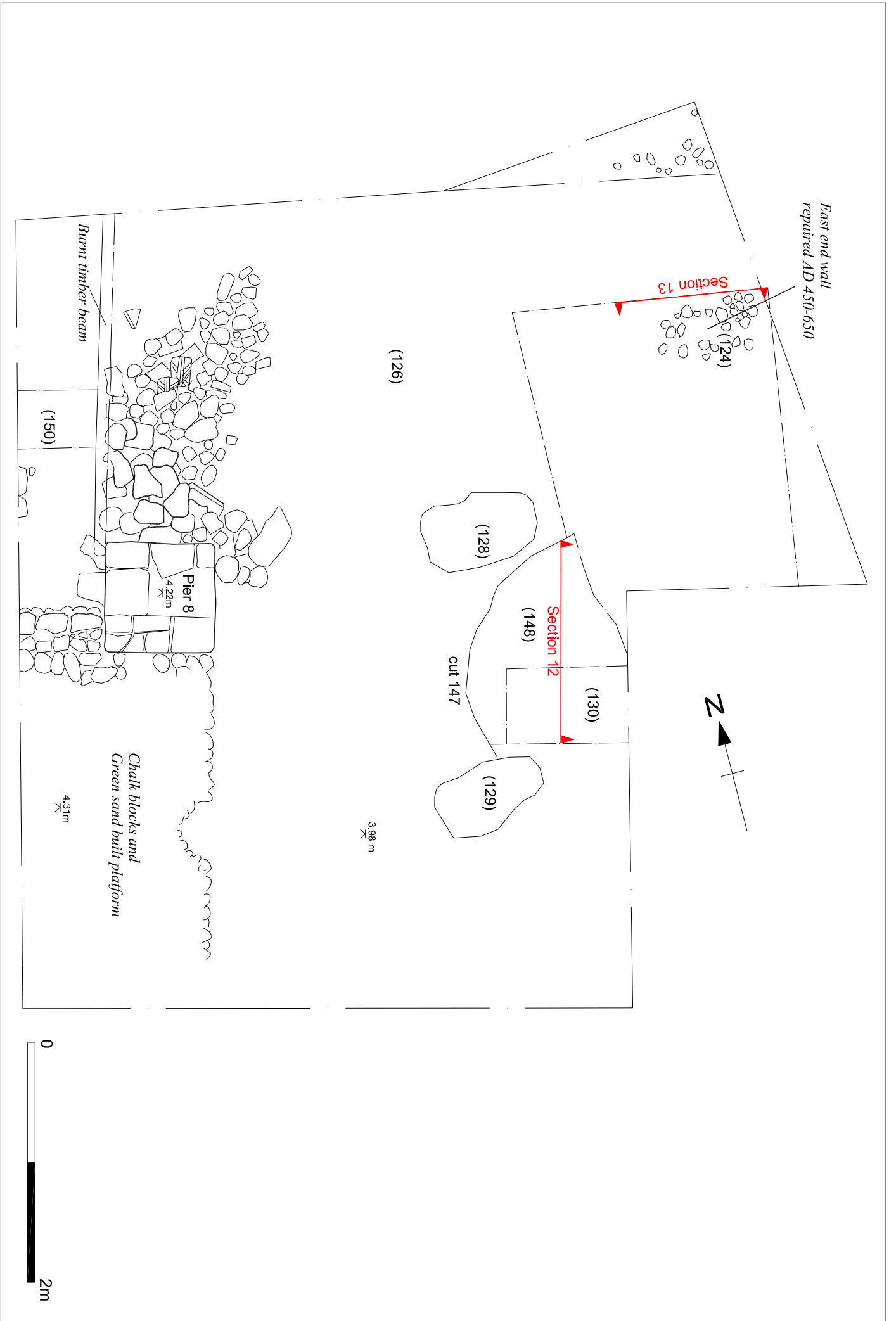


Figure 5. Plan of Area C.

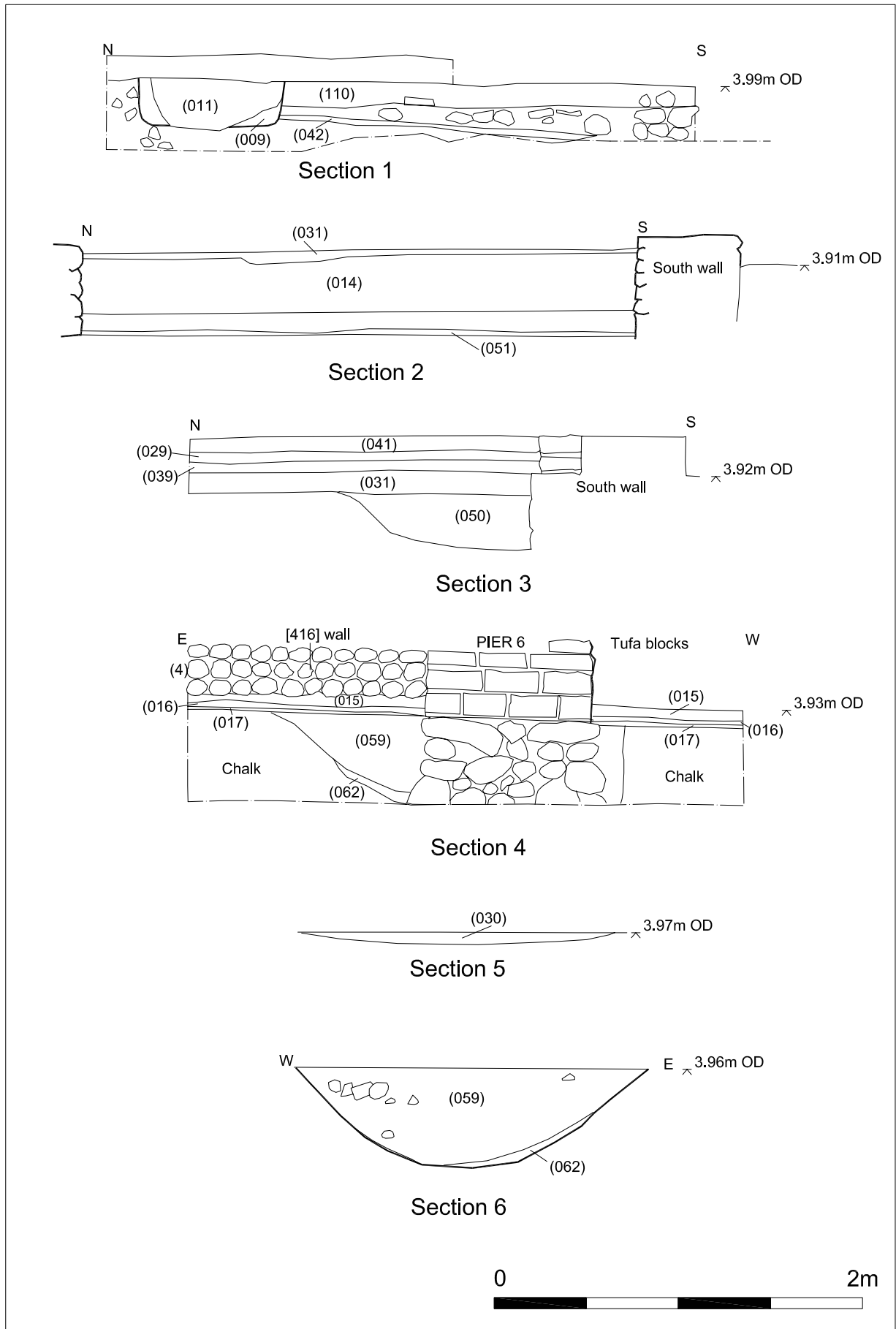


Figure 6. Sections 1-6.

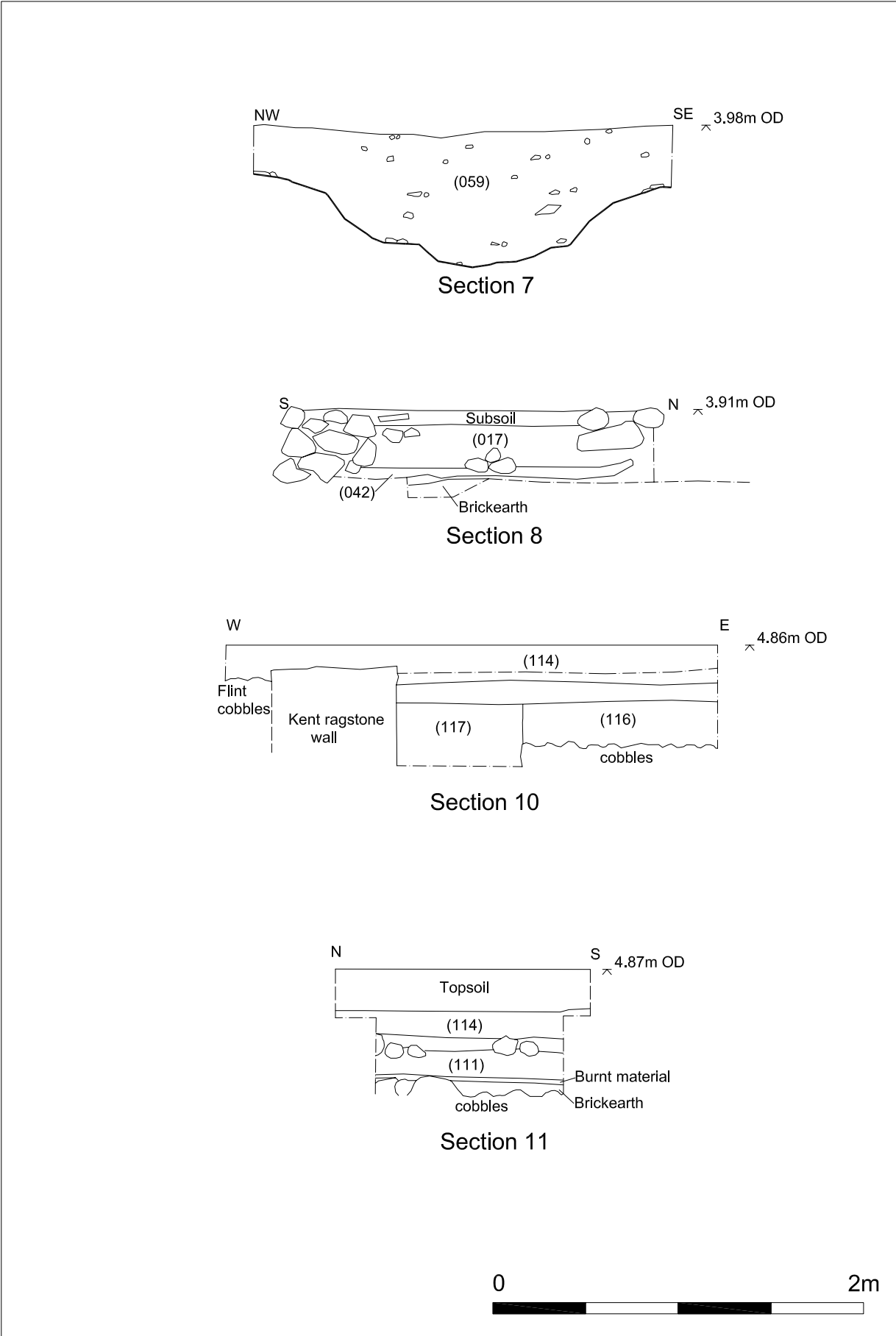


Figure 7. Sections 7-8 and 10-11.

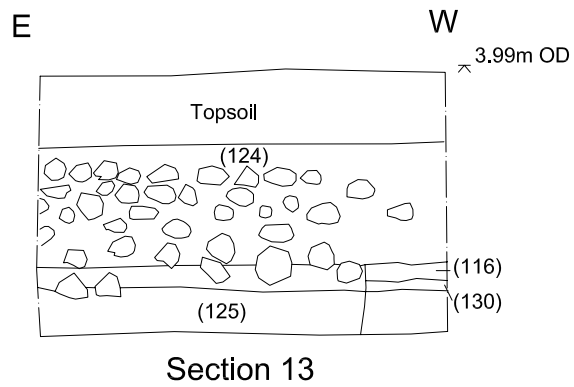
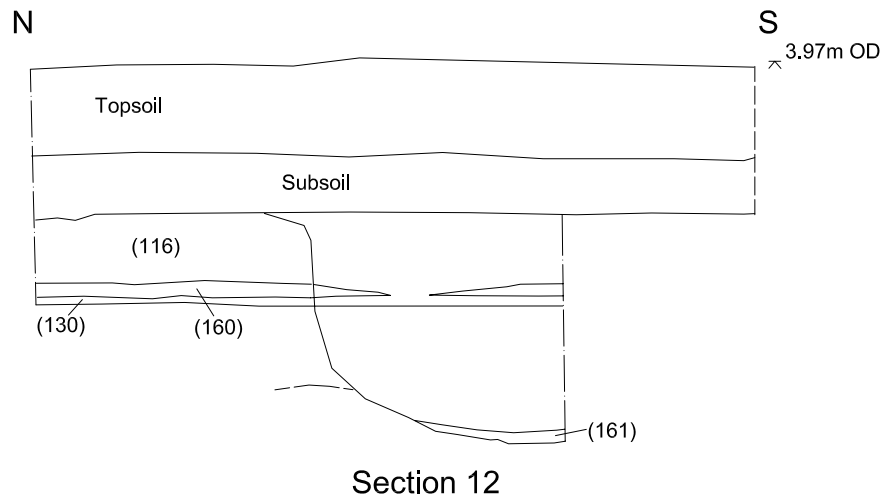


Figure 8. Area C. Sections 12 and 13.

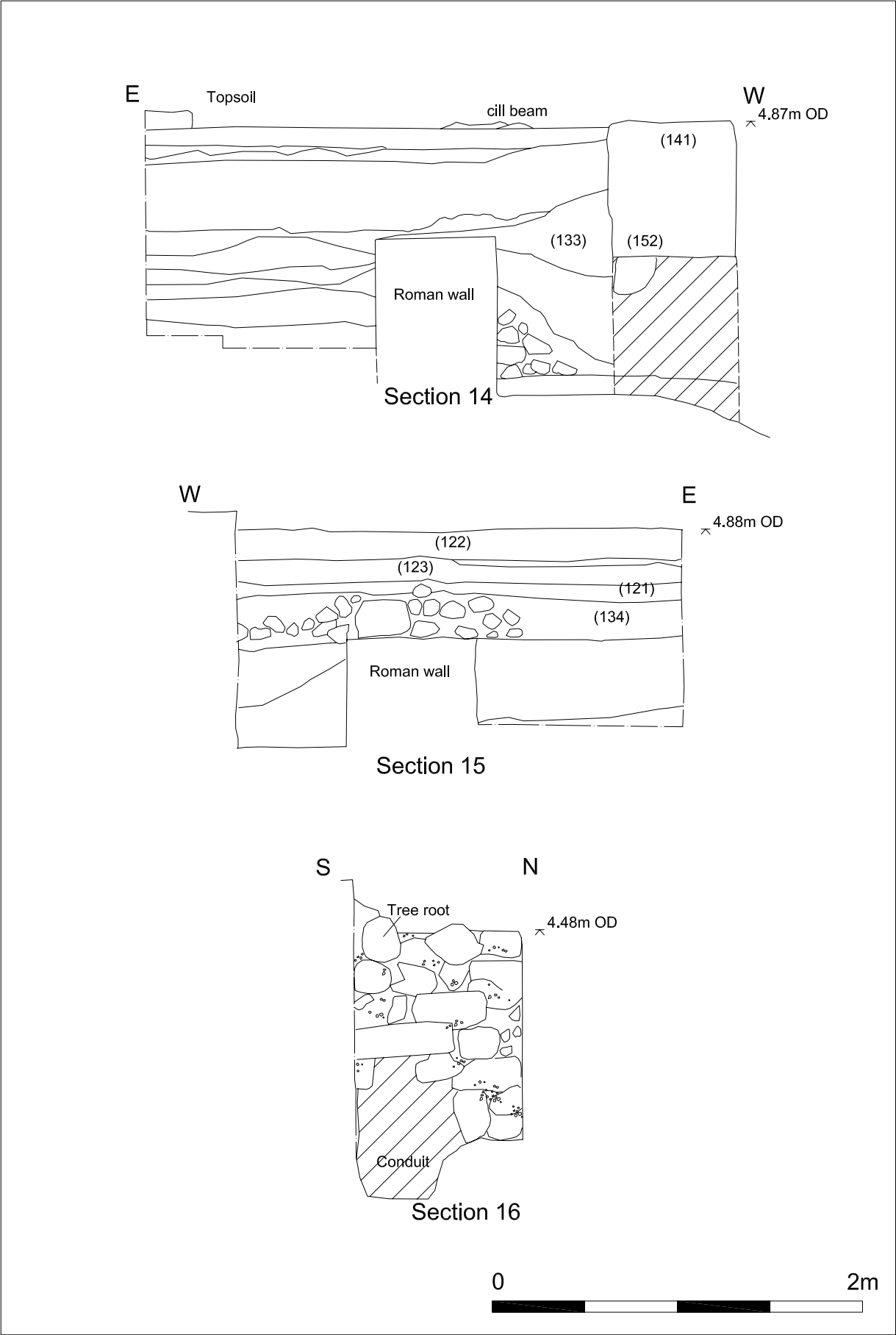


Figure 9. Area B. Sections 14, 15 and 16.

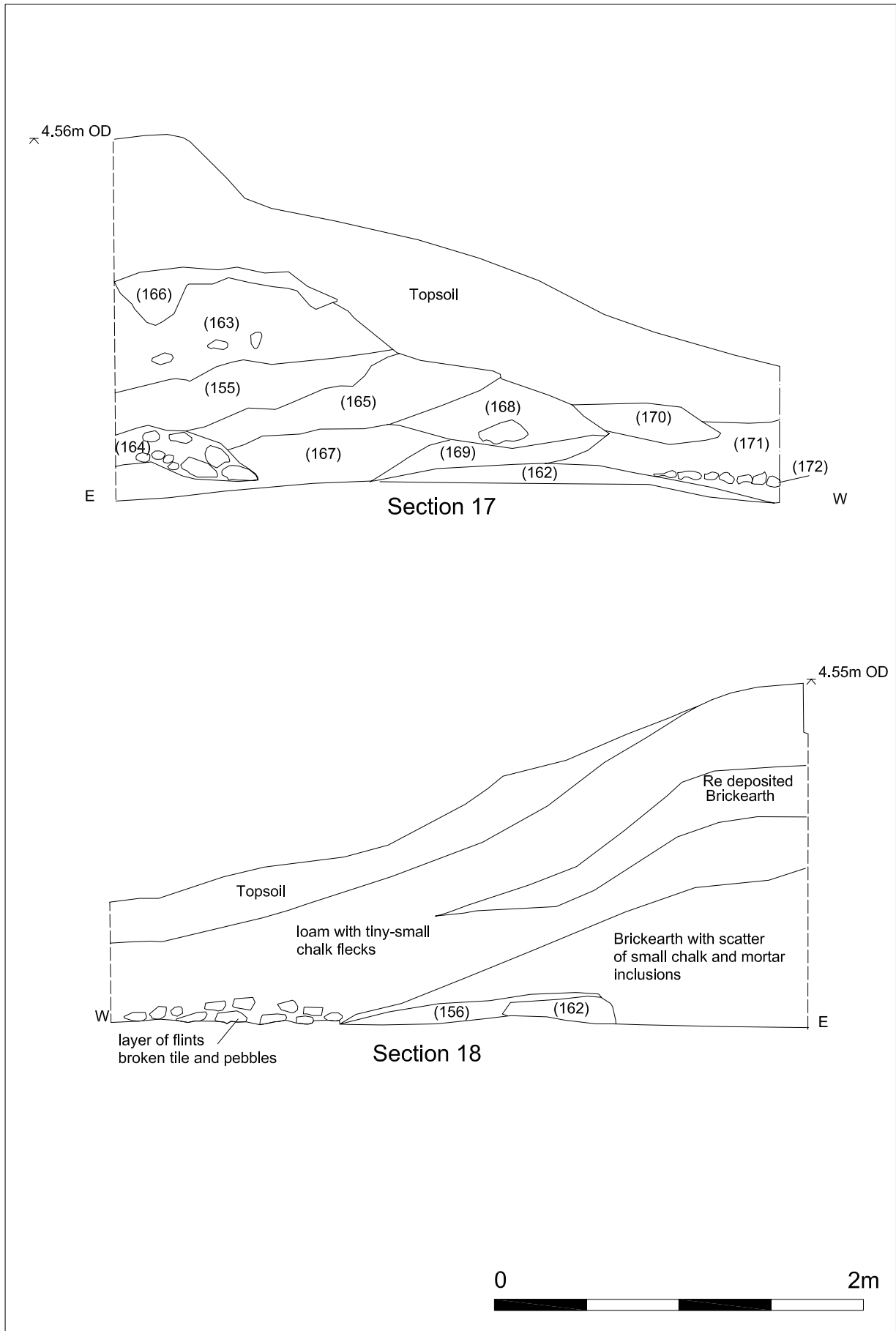
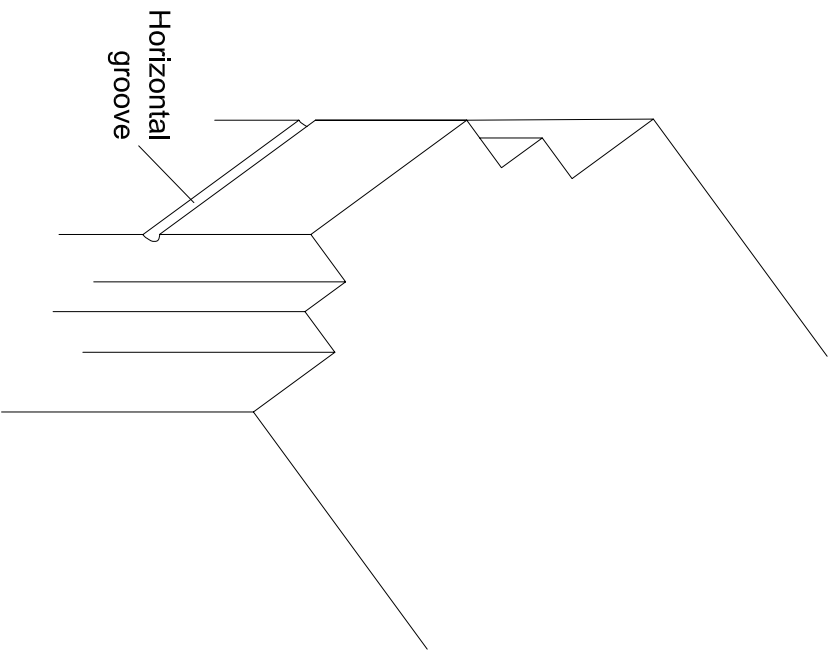
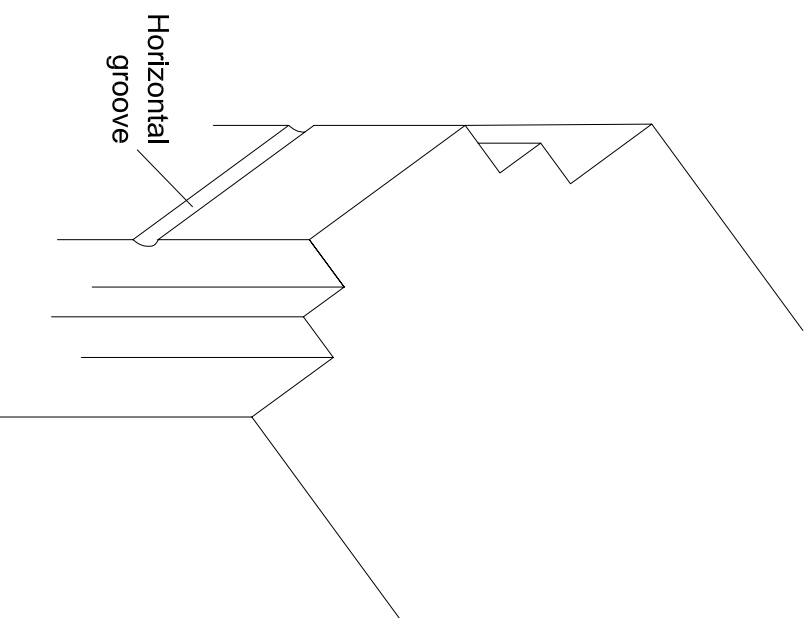


Figure 10. Area B. Sections 17 and 18.



Pier 13



Pier 3



Figure 11. Isometric representation of carved detail in piers 3 and 13.