Building recording and interpretation of a barn at Grange Farm, Alfrick, Worcestershire

WSM 41762

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20th January 2010

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Introduction

Building recording and interpretation was undertaken at a barn at Grange Farm, Alfrick Worcestershire (SO 7490 5268; Fig 1) at the request of Emma Tolley, according to a brief provided by Worcestershire County Archaeology Service (planning ref MH/09/0678; WSM 41628). The building recording comprised annotation of architect's plans and elevations and photographs. This was undertaken in advance of conversion of the building to domestic accommodation.

Brief background to the site

Documentary research took place on 12th November 2009 at Worcestershire County Record Office and the Worcestershire Historic Environment Record.

The map evidence

The tithe map of Alfrick (1841; Fig 2.1) shows the recorded building (and the rest of the farmstead) in a state of rebuilding. The north-west end of the recorded building is substantially as existing, the south-east end had not yet been built. In its place is an 'L' shaped building at a significant angle to the later arrangement. The Ordnance Survey map of 1885 (Fig 2.2) shows no significant changes except to the farmhouse, which by this time has taken on its modern arrangement. By the time of the Ordnance Survey map of 1904 the recorded building, including the extension to the north at the south-eastern end, had been completed.

Information from Worcestershire Historic Environment Record

A search of the Worcestershire historic environment record produced the following results.

WSM 29259
The presumed area of the medieval settlement, has been defined using extant buildings, earthworks and cartographic evidence. The area so defined is currently regarded as highly conjectural and the recorded building lies on its south-east limit.

WSM 00465
The Church of St Mary Magdalene dates from the Norman period with additions *c* 1300, 15th century, 16th century, 17th century and 1895.

WSM 01338
Upper House, of brick construction, dates from the late 18th century.

WSM 25949
A single, square hopkiln at Birchwood, constructed at the end of the 19th century of brick with a slate roof, has been converted for domestic accommodation.

WSM 41993
Tan House Cottage is of the 17th century with 18th century additions.

WSM 41994
Bewel is of the early 17th century with 19th century alterations and additions.

It may be concluded from the above evidence that, although the church may be dated to the early medieval period, the oldest surviving secular buildings in Alfrick may be dated between the 17th and 19th centuries.

Analysis

The fieldwork

Fieldwork took place on the 16th November 2009.

Description

Phase 1: pre 1841

The first phase of the building comprises a pony stable, a trap or gig shed and a three-bay threshing barn (Figs 3, 4, 5, 6, and 7).

These three elements were combined into a single unit of construction and were built in Flemish garden wall bond (courses of header-stretcher-headers separated by three stretcher courses). A column of redundant 'closer' bricks (Figs 4 and 5) indicates the eastern limit of the phase 1 structure. Openings were spanned by double brick arches except for the opposed entrances to the threshing floor which was spanned by a wooden beam (Fig 31). There are 'diamond' ventilators either side of the threshing floor (Figs 4 and 5). The roofs are covered with red tile.

The pony stable and gig shed

The pony stable is a simple rectangular space with a window in its east side (Figs 3, 4, 5, 6, 12 and 16). There is a low manger with a muck channel built into the brick floor (Fig 18). There is a hayloft over, to which access was originally by means of a flight of external steps, now removed (Fig 16). The hayloft extends over the gig shed.

The gig shed lies adjacent to the pony stable. It has double doors and is a windowless space with a brick floor (Figs 3, 4, 5, 12 and 19).

The threshing barn

This is of three bays, the threshing floor being slightly narrower that the storage bays on either side. Two low walls originally separated the threshing floor from the storage bays with narrow entrances on opposing sides (Fig 20). The western wall has been removed. The floors are of concrete. The barn is open to the roof, which is supported by a king-post roof truss (Fig 30). On the northern side the threshing floor was approached by a low, stone-built ramp (Fig 28).

Phase 2: 1885-1904

In phase 2 the phase 1 structure remained in use, presumably for its original purposes. The alignment of the phase 1 structure was extended and a three-bay cattle shed was added in the same bond as the phase 1 structure (Figs 3, 4, 5, 7, 9, 10 and 14 21). There was originally a feeding passage on the southern side of the shed, the only surviving remains of which are a number of blocked doorways (Fig 33). The manger would have lain immediately to the north of the feeding passage but no trace now survives. The original brick floor survives only in the central bay of the cattle shed and, like the pony stable, included a muck channel. The eastern-most bay of the cattle shed was probably a loose box (Fig 22). Above the cattle shed were three joined haylofts (Figs 3, 23, 26 and 27), access to which was gained from the east elevation (Figs 7 and 17). There were doors between these haylofts which were secured with locks (Fig 25). The roof was covered in red tile and supported by a king-post truss (Figs 26 and 27).

In between the cattle shed and the barn was a small ancillary room, with primary access from the south. This is of unknown purpose but its position in close proximity to both the barn and cowhouse may mean that it was a feed preparation room (Fig 3).

Phase 3: 1885-1904

In phase 3 a shelter shed was added to the east in a strange mixture of English and Flemish garden wall bonds (Figs 3, 6, 7 and 8). Brick columns with bull-nose bricks on their corners supported the roof on the western side. The fragmentary remains of a manger survive against the eastern wall. The roof had been removed before the recording took place.

Phase 4: early 20th century

In the early 20th century shafting was installed in the eastern-most hayloft and the wall between this and the central hayloft was broken through to accommodate the belts (Figs 3 and 24). The central hay loft thus became, in part at least, a food preparation room. It is believed, from the position of the various wheels, that the loose box below was converted to an engine room. This could not be confirmed as both the floor of the hayloft and loose box have been replaced in recent times.

Discussion

Phase 1

The pony stable is too small and simple to fit into Peters' classification (Peters 1969) but some of his general comments are applicable. It was common to have a hayloft over a stable as it helped to keep the stable warm and this was the case at Grange Farm. Whilst the cowshed would probably be occupied most of the winter and so remain warm, the horses were frequently out, often all day, and would return warm to a cold stable. The floor of the loft was generally well-made to prevent dust falling onto the horses below.

The barn

The threshing floor was usually in the middle of the barn, as at Grange Farm. The large doors opening onto it admitted laden carts and provided light for flail threshing and air for winnowing. It was often divided from the adjoining bays by low walls, one of which survives at Grange Farm, built to prevent the loose straw falling back onto it. This arrangement was for flail threshing and was to be very much changed by the introduction of machinery. It did not completely replace flail threshing, however, this surviving until after 1880, generally as a means of providing winter work.

The barn at Grange Farm falls into Peters' type 1 classification. This is the oldest and largest of his classes and varied in date from the late 15th century to sometime after 1880. The threshing floor was in the middle of the barn with bays on either side open to the roof from ground level. They could be used in one of three ways. Firstly, both sides could be filled with unthreshed corn. With slow flail threshing the straw would be stored elsewhere, such as in the haylofts of which there was extensive provision at Grange Farm, or consumed as prepared. Secondly, only one side would be filled with corn, the other being left for threshed straw. Thirdly, very occasionally, and generally as an adaptation of an existing building, the barn could be used to house only straw. This was generally the result of using a portable threshing machine and thus dates from after 1850. There are three sub-groups, divided according to the number of bays.

The barn at Grange Farm falls into Peters' subgroup 1a, which is by far the largest. The barns are all of three bays, one on each side of the threshing floor. The outer bays are not necessarily exactly equal, but there is not more than 15% difference between them.

The earliest examples in Peters' study area date from the last quarter of the 16th century. The period from which most survive is 1780 to 1850 and the example at Grange Farm falls into the latter part of this period. In the earlier cases the rebuilding was encouraged by the prosperity of the Napoleonic War period and in the later cases by the following depression, the landowner relieving agricultural distress by capital expenditure, a by then long established custom. The decrease in popularity after 1850 was partly a result of the earlier burst of activity, and partly of increasing mechanization and High Farming introducing other types of barn.

This subgroup served a wide range of farm sizes, from 5 to 360 acres. Some of this range was taken up by variations in size of the barn. In later examples, after 1790, the decreasing size of timber affected barn size. Variation in size was only of limited application if all the crops were to be embarned. Surveys from the 17th to 19th centuries show that the larger farms had two, three or even four barns. Some farms had a field barn as well as one at the farmstead. This practice disappeared as a result of using ricks rather than barns to house the crops. Only one barn was needed for threshing and any others became derelict and were demolished.

Door sizes

The size of the doors opening onto the threshing floor was related to the way in which the barn was used. Peters' type I classification relates to barns with high doors on both sides of the threshing floor, as at Grange Farm, making up nearly three-quarters of the examples and varying in date from the 16th century to *c* 1880. They owed their popularity to their fitness for purpose and their adaptability. Loudon noted that they not only permitted laden carts or waggons to enter from either side, but provided light for flail threshing and air for winnowing. In the more developed later examples the doors began about two feet up, with a 'lift' to fill the gap, comprising of a series of planks let into grooves in either doorpost. There was no evidence for this at Grange Farm.

Ventilation for the storage bays was only necessary to a limited extent (Brunskill 1982). Corn was stored dry and needed much less ventilation than hay. In timber framed barns air could flow freely

through the walls. In stone barns tall slits or square or triangular holes provided the ventilation. In brick walled barns, as at Grange Farm, gaps were left in the bonding to provide ventilation

Phase 2
Cattle were kept on all farms, their number and use depending on the kind of farming practised, as well as on the size of the farm (Peters 1969). They served one of four primary purposes: in all cases they were to provide milk, either for use as such or for conversion to butter and cheese; on grazing and mixed farms, depending upon the type of land and availability of transport, they were to provide calves or to be fattened for beef; on arable farms they were to use up the straw as fodder and litter, converting it into manure. Their use as draught animals, common in the 17th century, had largely ceased by the end of the 18th. Thereafter, unless on a purely dairy farm which had no straw, they served, in general, all four purposes.

The cowhouse at Grange Farm falls into Peters' type 4 classification. In this group the cattle were tied in a single row facing across the building. As with his type 2, this design was used to house both fatstock and dairy cattle. It first appeared in his study area in the mid 18th century but very few were built before 1815.

There were a number of advantages in having the cattle facing across rather than along the building. Arranged in this way the cattle did not breath on each other and the dung was more easily removed. These gains more than compensated for the extra time involved in feeding. Where a feed preparation room was provided, as happened in two-thirds of the examples and may have existed at Grange Farm, a type 4 plan would have made feeding easier as all the cattle could be reached under cover, which was not possible with type 2. In addition the cattle all received equal ventilation which was also not possible with type 2.

Peters' type 4b contains those cowhouses with a feed preparation or storage room at one end, as at Grange Farm. The earliest dates from about 1800 with the remainder from about 1815. The additional accommodation became necessary with the use of bought feed and the growth of feed preparation. Over half the examples date from 1850, with the general adoption of High Farming of which these were two characteristics.

This design of cowhouse was very adaptable in size, the smallest in Peters' study area housing only four cows. One of the largest had a walk of over 100 feet to the last cow (60 to 70 feet in the case of Grange Farm) and in one example a tramway was installed to reduce this inconvenience. There seem to have been some advantages in having the feed preparation room at one end and having the cowhouse undivided.

The most easterly compartment of the cowhouse is thought to have been a loose box. The earliest surviving example in Peters' study area dates from about 1750 with examples continuing to be built until the present day. The early loose boxes, built as calf pens, were narrow, about six feet wide with later examples tending to be much wider. The calf pen was always a separate room from the cowhouse, as at Grange Farm, even when it opened off it. It was noted that it was preferable to have the calves so placed, or at such a distance, that the cows could not be disturbed by their cries, as by these means the cows would not only much sooner forget their calves, but feed better and offer a larger supply of milk. The second early use for a loose box was as a calving pen.

Two other uses had appeared in Peters' study area area by 1790. Both Waistell and Robinson noted the need for a hospital and a bull pen. It is likely that those built with a field barn served one of these two purposes as no milking cattle would have been kept there and a calf pen would have been superfluous. The fifth use to which a loose box was put was to house fatstock. In Staffordshire this use seems to date from 1795 or 1800.

The earliest of Peters' groups (type 5a), which is applicable to Grange Farm, had a single external door and, in some cases, an internal one as well. Nearly three-quarters of the examples surviving from before 1880 are of this type, the earliest dating from about 1750.

Feeding passages
Nearly all feeding passages were built as part of cowhouses, very few shelter sheds or loose boxes being so provided, although the example at Grange Farm was. Waistell noted that

no cow or feeding house should be built without a passage or foddering bay at the head of the cattle; if that be wanting it not only takes more time to feed the cattle and clean their troughs, but also their feed is liable to be soiled by their dung when passing behind them.

Over two-thirds of the feeding passages ran along the building, the food being carried by hand (type c). This type had been suggested in 1770 by Young although the earliest example was built about 1800. The type became generally established after 1818 and the example at Grange Farm is of this type.

Phase 3
The earliest type of shelter shed had three solid walls and an open front (type 3a) as at Grange Farm. If hay racks or troughs were provided they ran along the back wall, which usually enabled the maximum provision to be made. The type had appeared in the area by 1754, being used as an adjunct to field barns. They do not seem to have appeared as part of the farmstead until 1794.

Phase 4
This phase sees the introduction of machinery to Grange Farm. By this period food was being less and less given in its natural state or as bought. Hay and straw were being cut into short lengths (chaff), turnips and potatoes had to be sliced or pulped as cattle were liable to choke if given them whole. Linseed cake, which came in large slabs, had to be broken up, oats were bruised and beans kibbled, and a flour mill was useful. All this required machinery, some originally hand operated, but all more efficient if driven mechanically. It appears that the loose box was converted to an engine house, the hay loft above it being used to house the shafting with the driven machinery being located in the adjacent hayloft. As such, the new feed preparation room falls into Peters' (type iv) classification. About half of which are known to have had mechanical power to drive the equipment.

Motive power for barn machinery
There were five types of motive power for barn machinery employed in Peters' study area before 1880: water, horse, stationary and portable steam and gas engines, apparently in that order. It did not materially affect the design of the main buildings whichever type was used. Water power was the cheapest, where it could be used; horses were considered cheaper on small farms, steam on large. It is not known what was used at Grange Farm but in the absence of evidence for any of the above types it is thought likely that an oil or petrol engine was employed.

Commentary
Grange Farm, Alfrick was substantially (almost entirely) rebuilt in the mid to late 19th century. The farm is unusual in that this change was in progress when the tithe map of 1841 was being surveyed and was recorded upon it. It was noted from the information provided by the Worcestershire Historic Environment Record that the oldest surviving secular buildings in Alfrick may be dated between the 17th and 19th centuries and Grange Farm falls into the latter part of this period.

Summary
Building recording of a range of buildings at Grange Farm, Alfrick Worcestershire was undertaken in advance of conversion to domestic accommodation. The earliest elements, a pony stable, gig shed and three-bay threshing barn date to the first half of the 19th century. The attached cowhouse, feed preparation rooms, haylofts and shelter shed date from the late 19th century. Machinery was introduced in the early 20th century in order to facilitate the preparation of bought-in feedstuffs.

Bibliography
Brunskill, R W, 1982 *Traditional farm buildings of Britain*

Peters, J E C, 1969 *The development of farm buildings in western lowland Staffordshire up to 1880*

Acknowledgements

The author would particularly like to thank Emma Tolley, Mrs Tolley and Mike Glyde of Worcestershire County Council for their kind cooperation.

Archive

The archive consists of:

6	Annotated scale drawings
1	CD-ROM

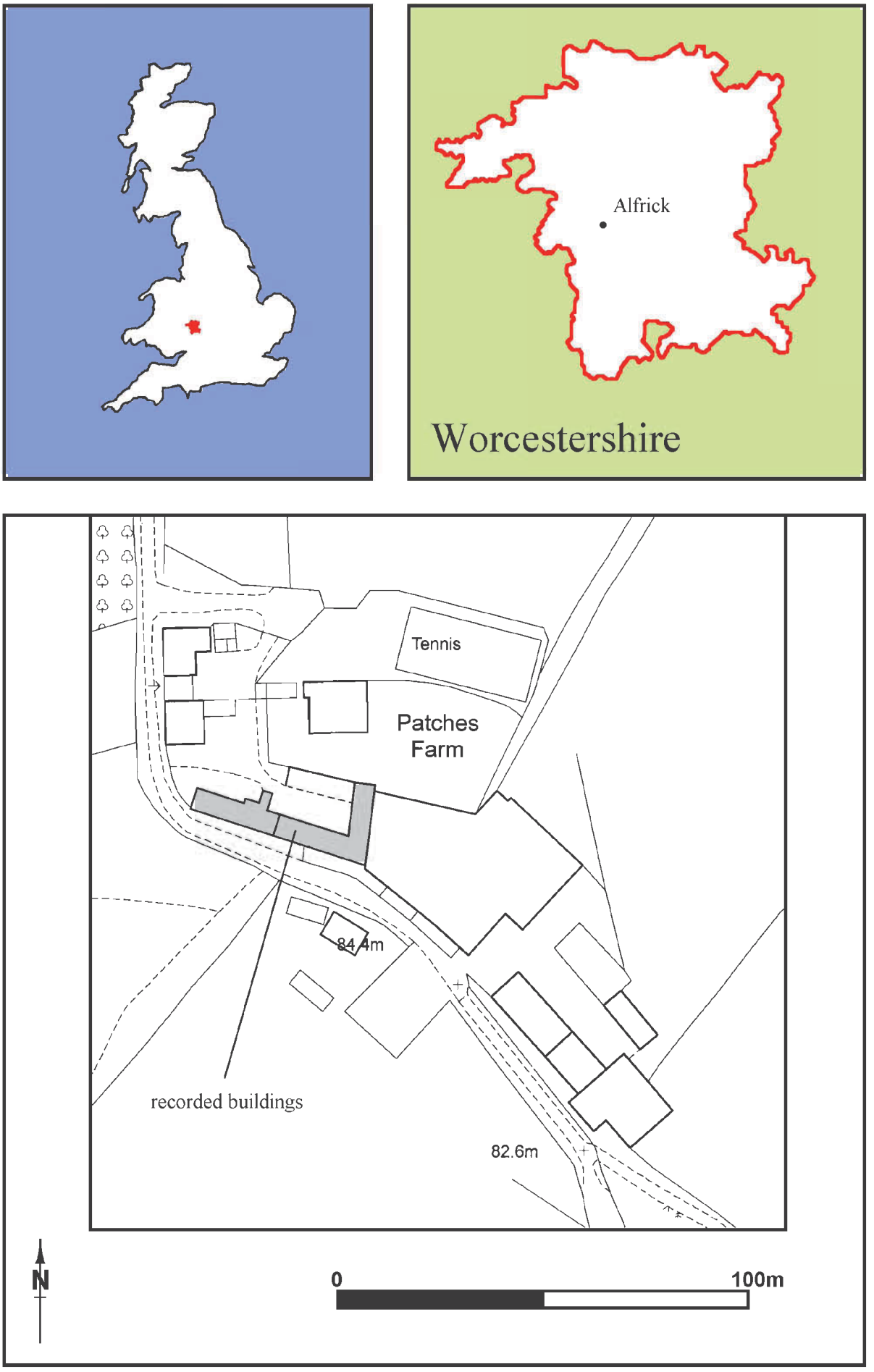


Fig 1: Location of site

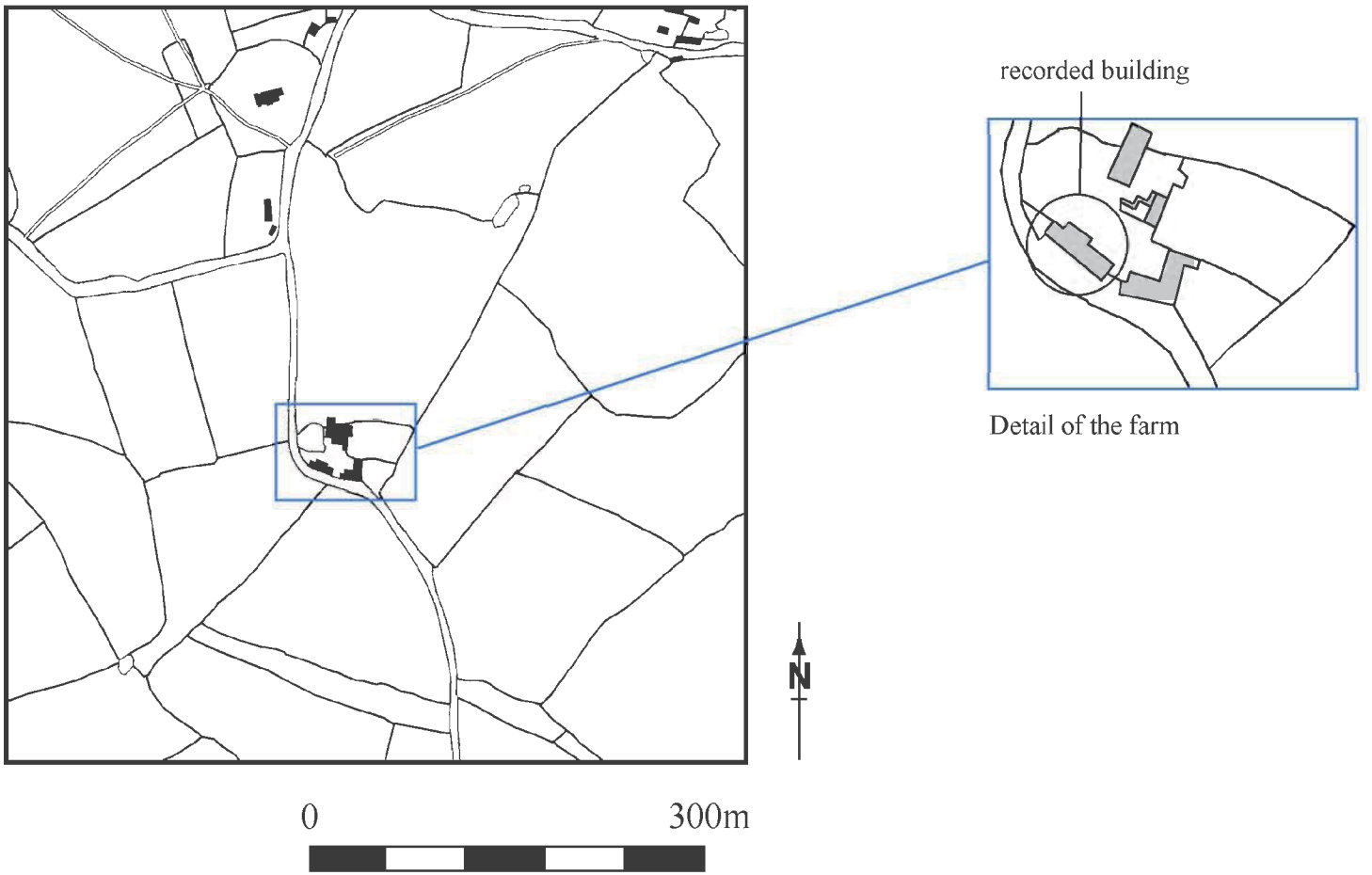
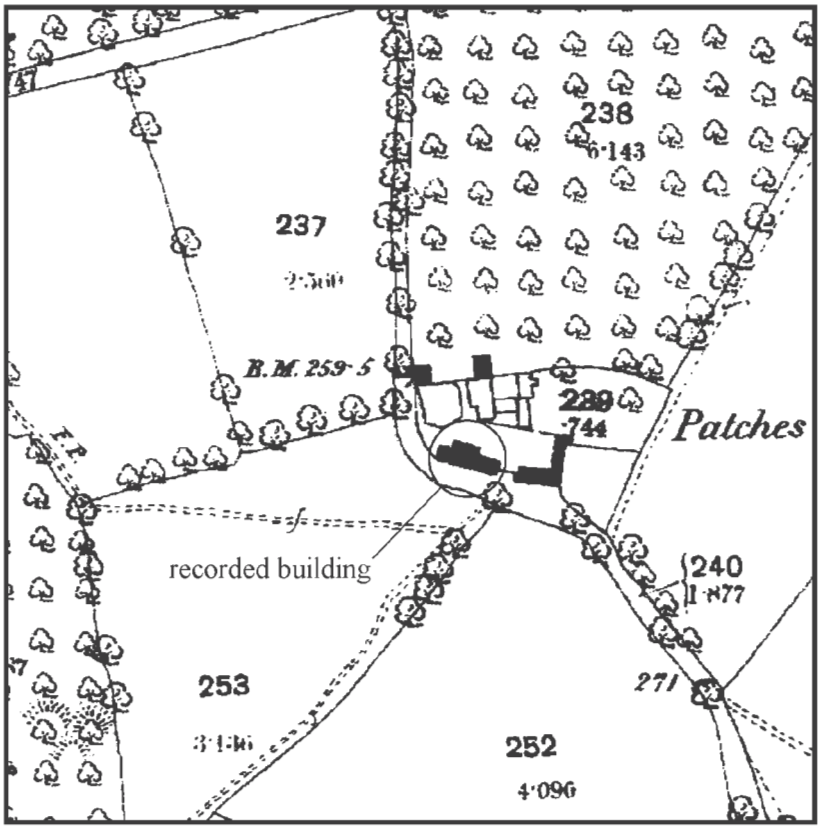


Fig 2.1: Historic mapping - Alfrick tithe map of 1841

1885



1904

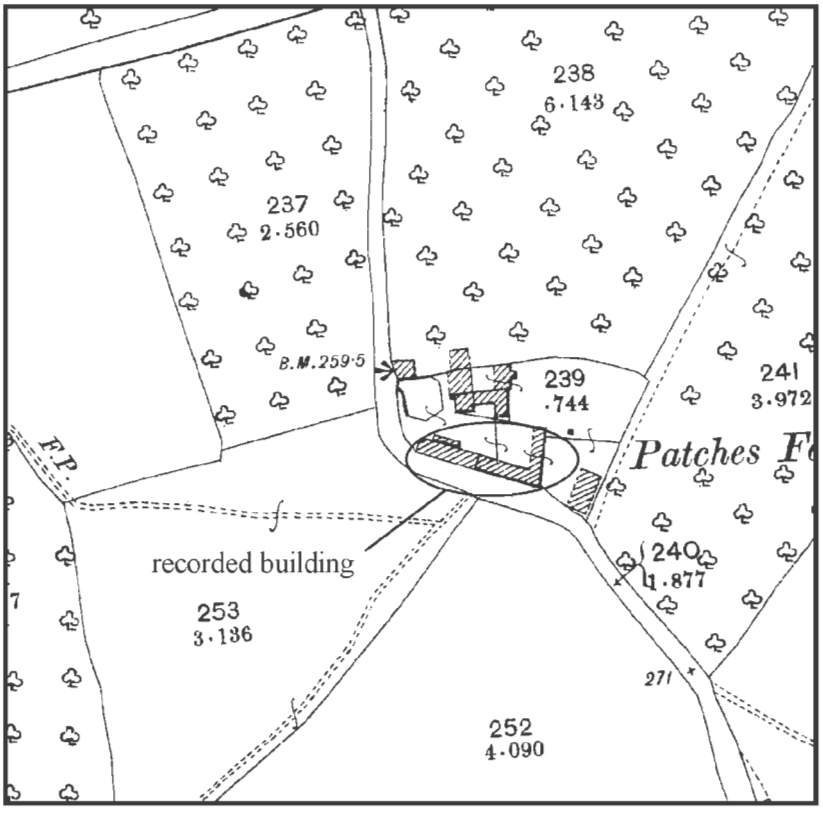


Fig 2.2: Historic mapping

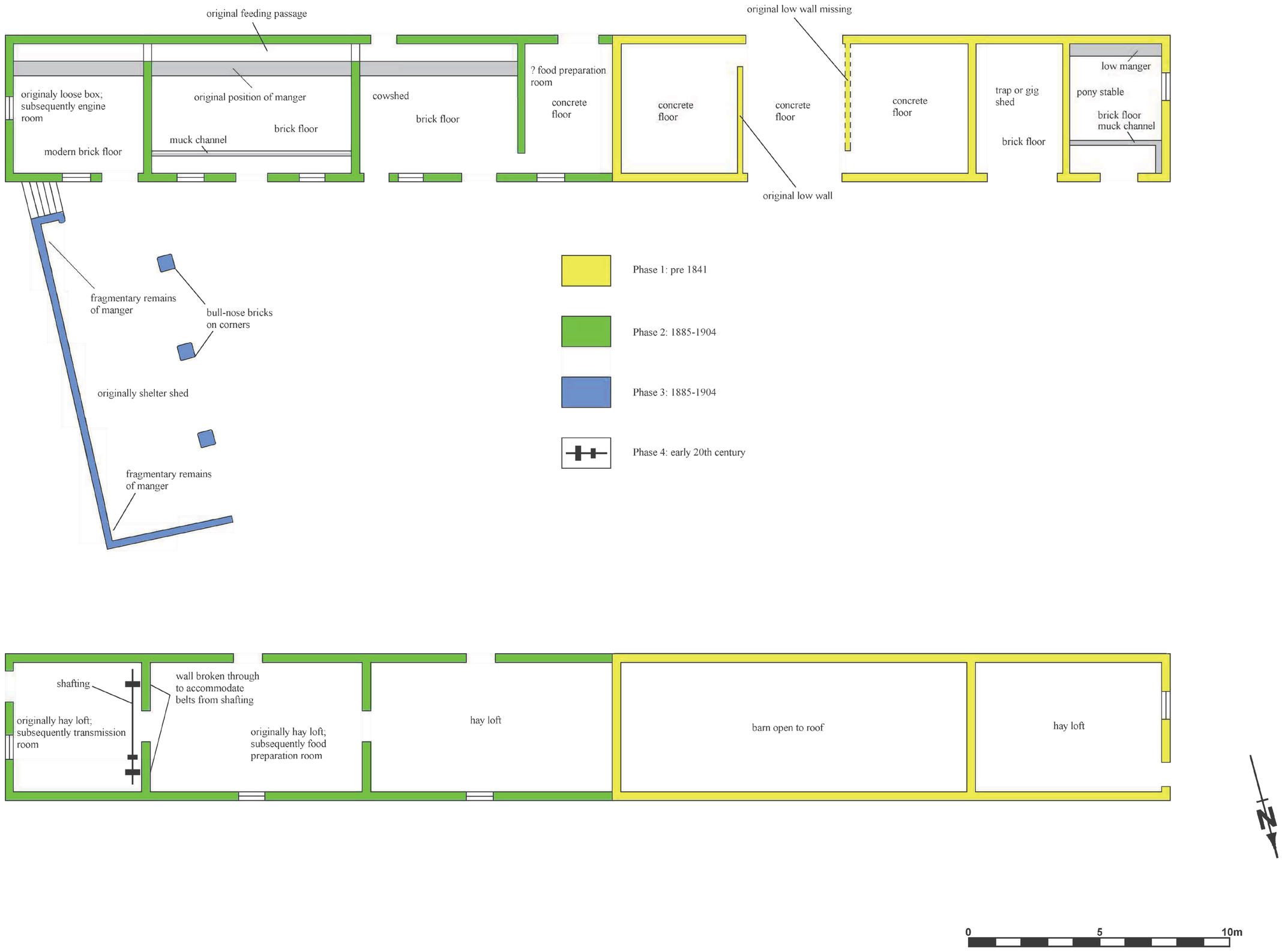


Fig 3: Phased plan of recorded buildings

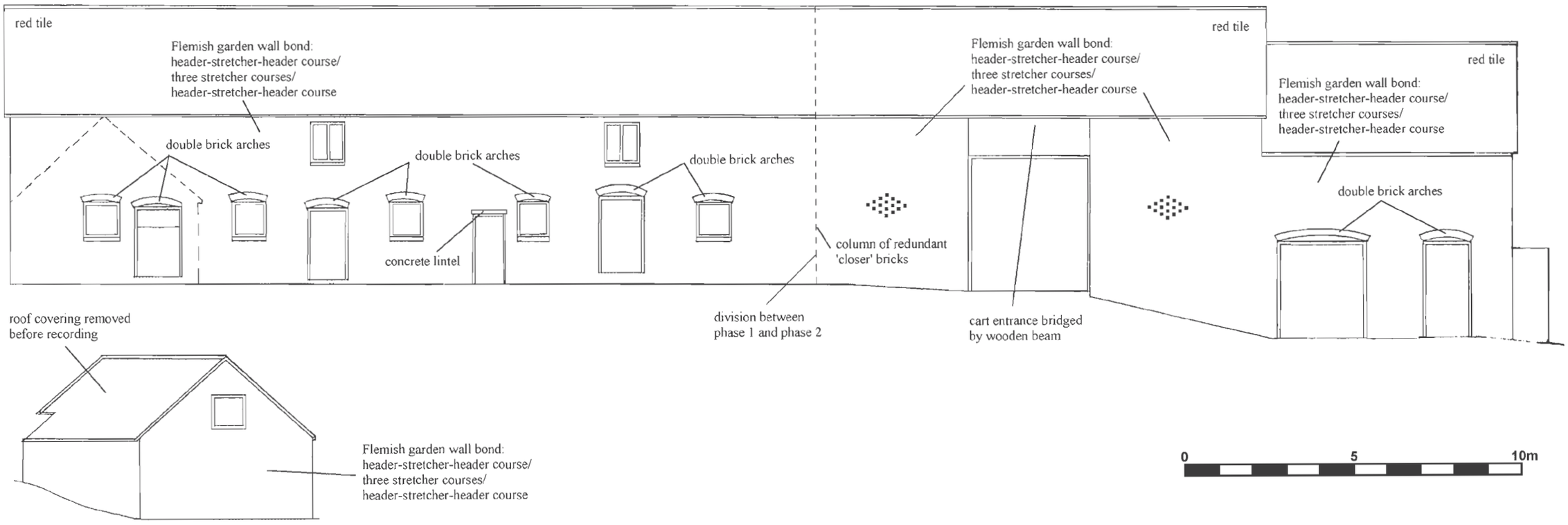


Fig 4: North elevation

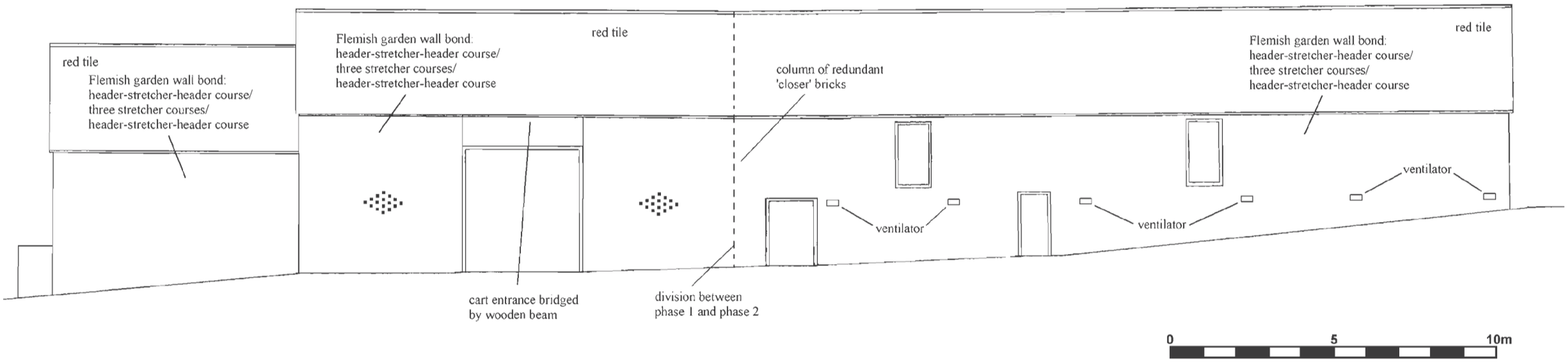


Fig 5: South elevation

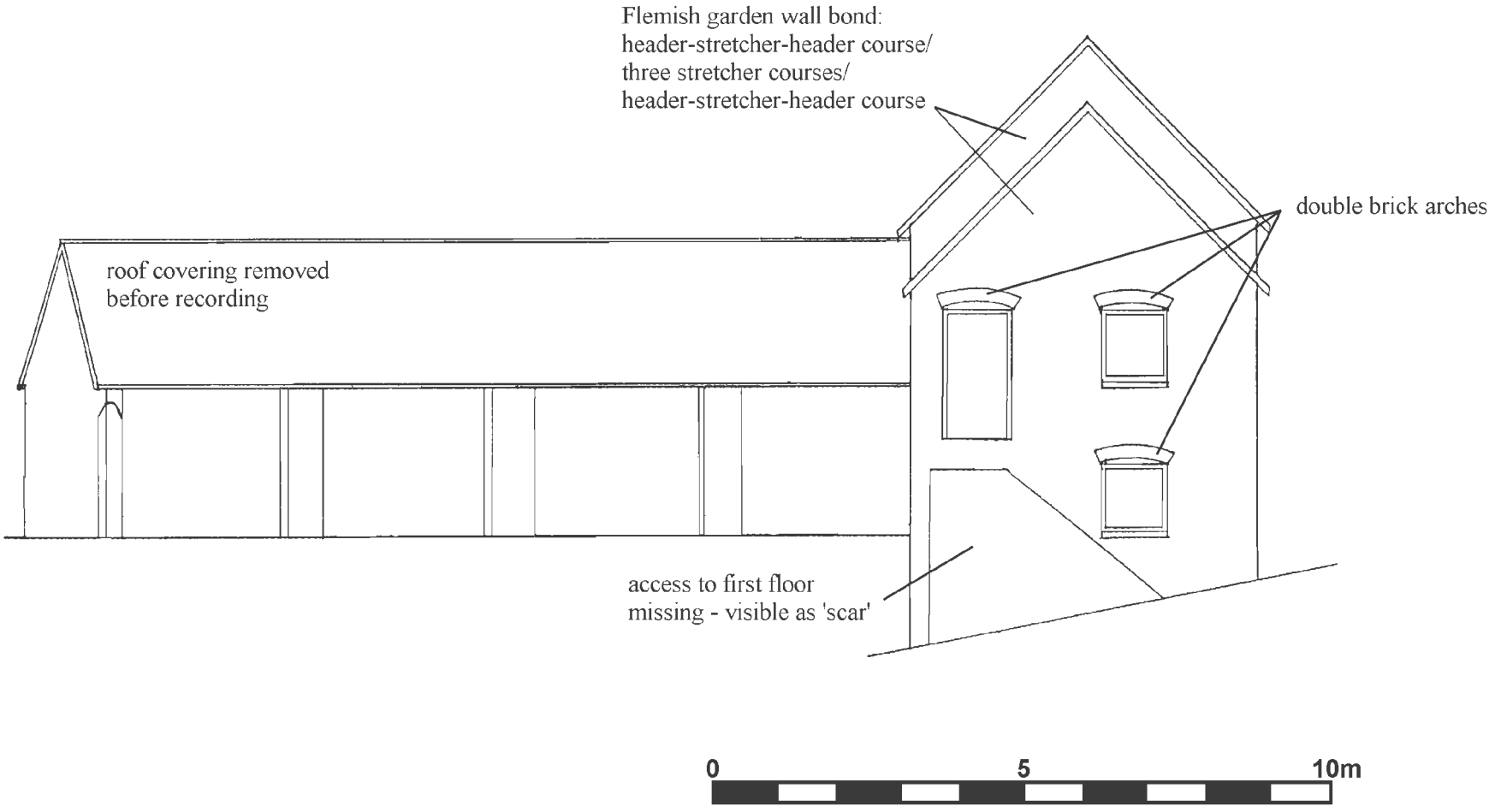


Fig 6: East elevation

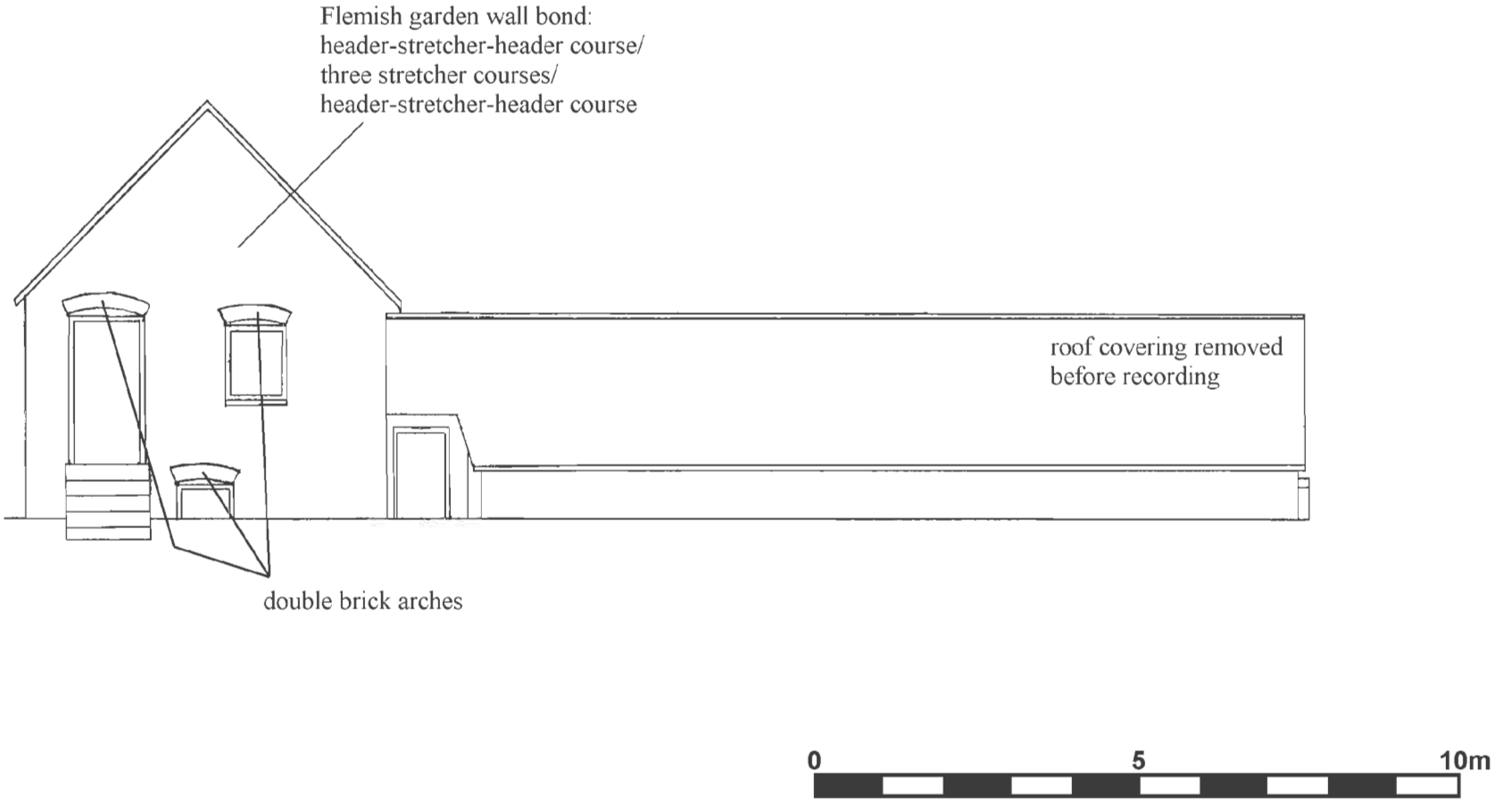


Fig 7: West elevation

Fig 8: West elevation of shelter shed

Fig 9: North elevation; east end

Fig 10: North elevation; centre

Fig 11: North elevation; west end

Fig 12: North elevation; west end

Fig 13: South elevation; west end

Fig 14: South elevation; centre

Fig 15: South elevation; east end

Fig 16: West elevation

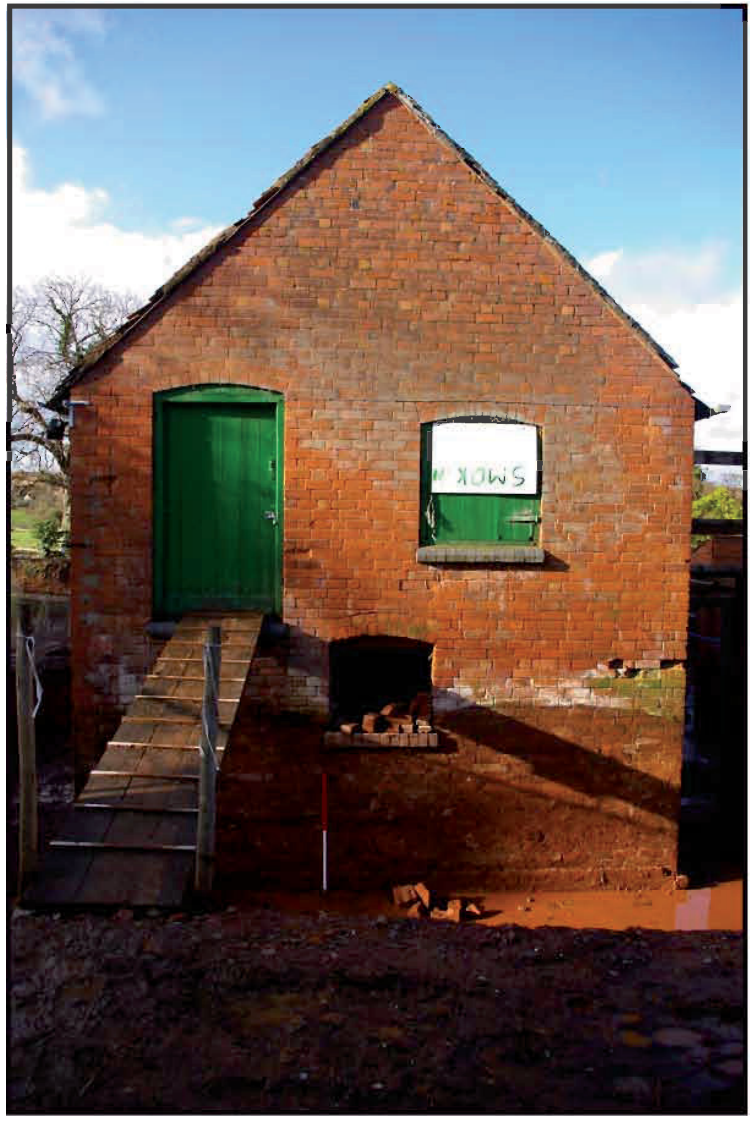


Fig 17: East elevation

Fig 18: Pony stable

Fig 19: Trap or gig shed

Fig 20: Low wall in barn

Fig 21: Modern dairy

Fig 22: Loose box; subsequently engine room

Fig 23: Hay loft; subsequently transmission room

Fig 24: Detail of shafting

Fig 25: Detail of lock

Fig 26: Hay loft; subsequently food preparation room

Fig 27: Hay loft

Fig 28: Ramp to threshing floor

Fig 29: King post roof truss in hay loft

Fig 30: King post roof truss in barn

Fig 31: Wooden beam bridging cart entrance in barn

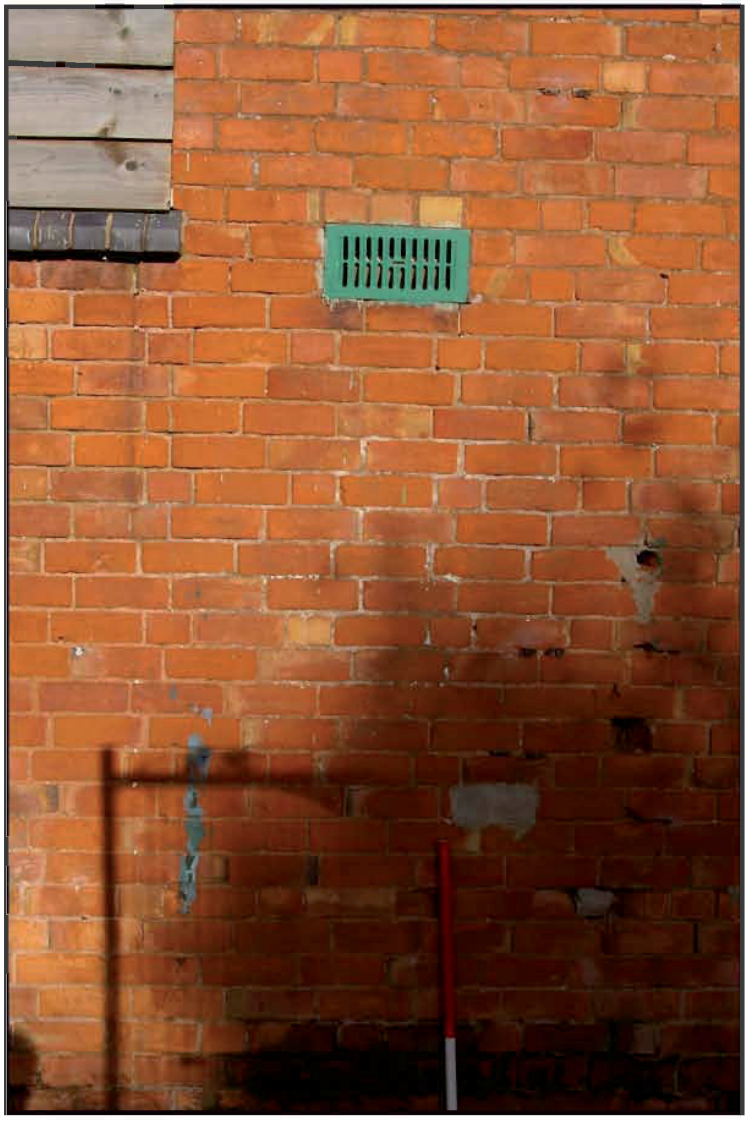


Fig 32: Ventilator in south elevation of cattle shed

Fig 33: Blocked door of feeding passage in cattle shed

Fig 34: General view from north

Appendix 1: Location of Figures 8 to 34


Fig 15
Fig 32
Fig 14
Fig 13
Fig 17
Fig 20
Fig 16
Fig 33
Fig 30
Fig 18
Fig 22
Fig 21
Fig 19
Fig 31
Fig 28
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Fig 29
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