

BUILDING RECORDING AT
WINNALL LODGE,
LINEHOLT, OMBERSLEY,
WORCESTERSHIRE

WSM 46062



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(With a report on the tree-ring dating by A J Arnold and R E Howard)

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Summary

Building recording was undertaken at Winnall Lodge in October 2011 by Mike Napthan Archaeology in response to the proposed demolition and replacement of the existing house. The house appears to have originated as a 17th hunting lodge. The original structure consists of a two storey single bay building of timber framing over a stone built basement. The earliest phase has been dated by tree-ring dating to 1626 by the Nottingham tree-ring dating laboratory. It is possible that there was a further bay or stair turret, but little evidence for the original arrangement survives, and it is more likely that there was an external chimney to the north elevation. A second building was constructed to the east of the putative lodge in 1688 and the existing building was incorporated to form the western end of a three-bay cottage. The first documentary evidence for the building is the 1741 map of the Birchen Valley by J Doharty. This shows the house as then an L shaped two storey structure named as "Lodge" and standing within an enclosure marked as "Old Garden". The property was, by this time already in the hands of the Winnall family, which was one of the main land owning families in the vicinity from at least the 14th century to the late 19th century. In the mid 18th century Winnall Lodge was the centre of a small landholding that appears to have been created after 1614 by assarting (enclosure) of part of the "waste" ground of Lineholt Common, probably as coppice woodland. Coppice served at this period both as a source of wood for fuel and manufacture as well as land suitable for hunting. Re-allocation of lands at the time of the early 19th century enclosures led to Winnall Lodge losing most of its land-holding, much of which became glebe land. The building then seems to have degraded to a farm worker's cottage. It was recorded on the Inclosure plan of c.1814 as an L shaped structure, but arranged differently to that shown on the 1741 plan, suggesting some substantial alterations. It is probable that the third building on the site (to the north and abutting the initial "lodge") was constructed around this time as an agricultural out-house. The 1814 layout persisted into the mid 20th century but has subsequently been much altered by a series of fairly ad hoc extensions that mask the original form. The out-house appears to have been incorporated into the domestic ranges by the mid 20th Century. Major extensions (exceeding the combined volume of the original two structures) were added in the late 1970s-1980s, and subsequently further small extensions were added to these. The western and southern sides of the original lodge structure were almost entirely rebuilt (partly in replica framing) in the 1980s or early 1990s.

The building complex, as it stood in late 2011 showed a sorry appearance of ill thought out and insensitive alterations, very little of the original fabric being externally visible. Within the building, however, it was clear that a substantial amount of the original framing of two timber framed structures survived. The building appears to have been constructed on a historical landslip, and had suffered subsequent movement which no doubt justified to a certain extent the various rebuildings of the 20th Century. Unfortunately the rebuildings were undertaken with rigid materials which lacked the flexibility of the original framed structure, and the building therefore had cracked in numerous places as the underlying gradual movement continued. The buildings were demolished in November 2011 to clear the site for a new residence.

1 Introduction

- 1.1 An archaeological building description and record was undertaken by Mike Napthan Archaeology at Winnall Lodge, Lineholt, Ombersley, Worcestershire. The project is being undertaken on behalf of the landowners Mr and Mrs Martyn-Smith (the Clients). This report is designed to meet the requirements of a Brief issued by Mike Glyde of WHEAS (October 5th 2011 Planning reference W/11/0773 condition no. 12). A planning application has been granted for demolition of the present house (WSM45666) and replacement with a new dwelling (W/08/00750/PN).
- 1.2 The site location is at NGR SO 8245 6693.
- 1.3 This report represents the findings of the building recording and assessment. The project was designed to provide a reliable and independent assessment of the historical and architectural value of the buildings. The project design was prepared in accordance with the Standard and Guidance for Archaeological Evaluations issued by the Institute of Field Archaeologists (1994). Codes of Conduct of the Institute of Field Archaeologists will be adhered to, as will English Heritage guidelines, notably "Understanding Historic buildings a guide to good recording" EH 2006.

2 Aims

- 2.1 The aims of the building recording were to gather high quality data from the direct observation of the historic structures in order to provide sufficient information to establish the nature of the built resource within a given area or site (including presence or absence, character, extent, date, state of preservation and quality)

These aims were achieved through pursuit of the following specific objectives:

- i) to define and identify the nature of the cottage buildings, and date their construction where possible;
- ii) to attempt to characterize the constructional sequence and recover as much information as possible about the internal features and fabric surviving.
- iii) to determine the likely impact of any future development on the archaeological resource and suggest any mitigation required where appropriate.

3 Methodology

- 3.1 Cartographic and published historical sources were searched for information relating to the site and its environs. There is detailed historic mapping available for the area in the 18th and early 19th C, the property having been adjacent to the Sandy's Estates (WRO BA 3972/17 ref r705:56). The later mapping primarily consists of the Ordnance Surveys of 1832 onwards. Trade directories were consulted from copies held "in house" and those held in Worcester Family History Centre, but due to the nature of the occupants (probably farm labourers) and the rural location no certainly identified entries were found. A search of the County Councils' HER database revealed very few records, mainly relating to Listed buildings, but little previous archaeological fieldwork in the vicinity of the site. In the absence of trades directory data, a search was made for entries in the Census for 1841, 1851, 1861, 1871 and 1891 (all held "in house" on CDROM) – the results are listed as Appendix 1. Searches at the County Record Office identified no material which could be directly related to the present property other than estate plans from the mid 18th C onwards. Deeds left by the previous owner throw some light on the more recent ownership of the property. The research was considerably enhanced by material prepared by Darren Miller for his unpublished PhD thesis on the historic landholdings in Ombersley, and generously made available for the present report.
- 3.2 The survey was conducted in November 2011. The brief required recording of only the historic core of the property, which has been much extended. A detailed photographic record was made,

and selected details recorded with scale drawings at 1:20 and 1:50. The architects plans were largely redrawn and amended with additional detail, and the buildings were partially re-measured. The building descriptions were compiled using the photographs as a reference. The photographic archive accompanies this report on DVD.

4 **Tree-ring dating**

- 4.1 Core samples of the timber framing of Buildings 1 and 2 were taken and analysed by Robert Howard and Alison Arnold of the Nottingham Tree-ring Dating Laboratory. Despite the wide use of (undateable) elm within the buildings sufficient dateable oak primary timbers were sampled to provide reliable dating for both buildings. The detailed report is presented here as Appendix 1. The construction date for Building 1 appears to have been in or shortly after 1626, and Building 2 was constructed in or shortly after 1688.

5 **Archaeological background**

- 5.1 The present site has not been the subject of any previous archaeological intervention. This part of the parish of Ombersley appears archaeologically sparse, other than brief descriptions of listed buildings, however this almost certainly reflects a lack of fieldwork rather than absence of historic settlement sites. The present building on the site is recorded as WSM45666 (timber framed house –undated) – the HER entry is rather unhelpful - “*Located on 1st edition OS map 1827, however, not included on the Ombersley Tithe Map*” – this information is rather meaningless without adding the crucial information that it was in a tithe exempt holding, and therefore was not surveyed for the tithe award. The date of the 1st edition OS is also wrong – the Old Series mapping is perhaps meant, and dates to 1832. There are several instances of ridge and furrow earth-works recorded in the immediate area around the house WSM23096, WSM23092, WSM23068 –these must mostly represent 17th C cultivation as the area appears to have been part of Lineholt Heath until the early 17th century. Medieval activity to the west of the present property was centred on Wyneyards Farm WSM40910, which is believed to have 14th Century or earlier origins. The parish is fortunate in that it has been comparatively well covered by previous documentary studies, notably Guyatt 1995 and Miller (unpublished PhD thesis). Guyatt records a number of early references relating to the former vineyards (WSM 11194) that gave the farm its name. Earlier activity in this area has been identified during the construction of the Astley to Worcester water main in the mid 1990s, including a small scatter of industrial activity interpreted as being post-roman in date. Prehistoric flint artefacts have also been found at various sites in the general locality.

6 **Historic Evidence**

- 6.1 The early history of the site is not easily unravelled from the numerous holdings of the Winnall family and the confusing multiple use of Winnall/Winall/Wynhall as a placename in the parish. The name was in use as early as 1349 and “Winhales” is a distinct area of the parish. The present site is located close to the etymologically related Winehouse, a place-name used in the parish in the 1330s, though probably not at this location (Guyatt, 1995). The locality of the present site was known in the mid 18th Century as Birchen Valley, close to Lynall [sic] Green (Doharty, 1751). It would appear most likely that the present site gained its name from the Winnall family, who held the copyhold certainly in the early 18th C, and quite probably had acquired the land by assarting on the Lord’s Waste, and apparently held it as coppice (D Miller pers comm.). Prior to enclosure the property formed part of the very extensive Lineholt (or “Lynhall” Common, Lineholt being first recorded as a placename in 1450 (Guyatt, 1995). This parish gave its name to an ancient forest which had originally formed part of the great forest of Wyre. Nash gives the boundaries of the forest of Ombersley. This forest not being ancient demesne of the Crown was disafforested by the charter of Henry III of 1217, but the actual disafforestation did not take place until 1229. Though the parish was well wooded there were no surviving large tracts of woodland by the end of the 19th Century.
- 6.2 Lands at Ombersley were granted to Abbot Ecgwine and the abbey of Evesham in 706 by

Ethelward. This grant was confirmed by Ccolred and Ethelbald, Kings of Mercia, and by King Offa. The fate of Ombersley is not known during the troubled times in the middle of the 10th century, when Evesham Abbey so often changed hands, but in 976, when the monks were expelled for the second time by Alphere, ealdorman of Mercia, Ombersley was given to Alfward, Alphere's brother. Subsequently the lands of Evesham Abbey were given to Earl Godwin in exchange for Towcester and evidently Ombersley thus passed into the hands of the earl, and the various grantees of the abbey after this time were unable to recover it. It remained in Godwin's hands until redeemed by Abbot Brihtmar after long suit. The estate which the abbey of Evesham had at Ombersley in 1086 had been reckoned at 15 hides in the time of Edward the Confessor. Three of these hides were free of geld, but in ancient times, so it was said, the whole manor was assessed at only 3 hides. Free warren at Ombersley was granted in 1251 to the Abbot of Evesham, and in 1275–6 it was presented at the assizes that he had made a new warren without licence. Various improvements were made in the manor of Ombersley during the 13th and 14th centuries. Abbot Ralph (1214–29) made a fish pond at Lineholt. Abbot John Ombersley (1367–79) obtained licence from the king in 1376 to inclose 300 acres of land and water in the manor called the wood of Lineholt and to make a park there. At the time of the surrender of Evesham Abbey the manor of Ombersley was bringing in the considerable revenue of £121 7s. 9½d. to its owners. In 1594 a lease of the manor for thirty-one years from Michaelmas 1619 was granted to Sir Samuel Sandys. In 1605 a survey of the manor was undertaken by Sir Edward Pitt, Sir Francis Egeoke, John Herce gent and William Blake gent, commissioners (WRO BA 3910 parcel 29 ref 705:56). In 1610 Ombersley Manor formed part of the large estate granted by James I to his son Henry, Prince of Wales. Prince Henry died in 1612, and in 1614 the manor was granted to Sir Samuel Sandys at a fee-farm rent of £26 19s. 3d. Sir Samuel was the eldest son of Edwin Sandys, Bishop of Worcester, and afterwards Archbishop of York. The manor has been held by the Sandys of Ombersley Court ever since (VCH III, 1913, pp460–468). The parish in the early 17th Century contained large areas of common land, and from 1614 onwards there was a steady process of enclosure.

- 6.3 The present house was known as the “Lodge” as early as 1751. It seems probable that the name derived from use as a hunting lodge within the “Lords Waste”, as it does not appear that the house stood on the boundaries of the medieval park of Lineholt. The earliest owner or occupier of what is now known as Winnall Lodge identifiable from readily available sources seems to have been Mary Winnall who surrendered her lease or died in 1724, and was succeeded by John Winnall who took the lease on 23rd October 1724 (WRO BA 10470 parcel 100 ref 899:310). John held the property only one year before it passed to William Winnall. In 1734 William additionally took on land in the holding of “Winnalls” formerly occupied by John Gyles. A terrier [written list of lands] of John Gyles holdings in Winnalls (January 1733–4) survives, but the present property does not appear to be amongst them (WRO BA3910 parcel 32(v) ref 705:56).
- 6.4 The “Reference” or index to the Inclosure Award plan was drawn up between 1800 and 1824, by Albert R Jackson, surveyor Great Malvern, and identifies the then occupant of the property as Joseph Moule, who also farmed one of the adjacent glebe fields. The owner was then Mrs Winnall (BA 3972 parcel 13 (i) book of reference, plan parcel 15 ref 705:56). The property appears to have remained in the Winnall family through-out the 19th Century, let out to a succession of tenants, predominantly the Moule family. The census returns are not entirely helpful – the 1891 Census lists the “Lodge” as uninhabited, in 1871 the building cannot be identified with certainty but the enumerator travelled from Winnall past Bugle Gate; the next inhabitant at “Lineholt” was George Croft, a farmer of 90 acres (? possibly at Wyneyards) and the following householder was Joseph Moule, a farmer of 27 acres, who is likely to be the inhabitant of the cottage at “Lodge”. The 1861 Census is also very vague about location, though Joseph Moule does again appear in approximately the right location, at this Census he was listed as “carpenter”, then aged 27 with a wife and four children (the age suggests that the original Joseph Moule of the Inclosure Award was the carpenter’s father or grandfather). The property cannot be positively identified in the Censuses of 1841 or 1851, this is not unusual in rural districts where houses were not distinguished by name in the early Census returns. There were several Moules locally. A Charlotte Moule is listed as a farmer at Lineholt in Lascelles & Co.s Directory of 1851 and again in Ombersley with no specific location in Cassey’s Directory of 1860–61. The same source places Joseph Moule at Myttons, Ombersley in 1860–61, but he was not listed in 1851. In 1855 he was listed as farmer at Lineholt, along with one Anne Moule, also a Lineholt farmer, Charlotte being unlisted (Billings Directory 1855). Given the frequency with which the Moules appear in the record it is likely that

the house was generally occupied by a member of the family or their under-tenants until the 1870-80s. In September 1907 the property was reconveyed (at the end of a lease) from John Elliot esq to Mrs Adeline Perry and “others” – which included Caroline Winnall Donaldson, a spinster, of Hinton Cottage Hereford, and Katherine Amy Everitt. All three women were the daughters of Louisa Donaldson (of Bath) who had died in 1882, apparently leaving them equal shares in the property, which she had acquired by inheritance from Anne Winnall who had died in July 1881.

- 6.5 In 1918 the sisters sold the property, described as “*all that cottage and two pieces of land known as the Lodge and forming part of an estate known as Winnalls*” The transaction was for a total of 4acres, 1rod and 36 perches, and it was sold to Albert Madison (a grocer and corn-dealer from Erdington in Birmingham) for £350. The fields to the south west of the cottage were sold in the same year by the Sandys family (who had held the as part of the manorial estate since the early 17th C or earlier) to Mr J H Partridge of Wyneyards, who was already farming them as tenant. Partridge bought 25acres and 31 perches in 1918, but in the following year sold part of it (Field 257 – SW of the house) to Albert Madison, the new owner of the Lodge (16th June 1919). Albert Madison owned the property until 1953 when he sold it to his sitting tenant James Ballinger for £950– allowing Ballinger a generous mortgage loan of £450. The property was then 4.57acres. Ballinger formed an agricultural partnership with Jack Shepherd in March 1960, and sold the property to the newly formed “Ballinger and Shepherd”, they also acquired an additional adjoining 4.44acres. They operated a poultry farm on the site, and Ballinger and Shepherd both lived in the house. When the partnership was dissolved in 1969 Ballinger purchased back the house and land for £3000. He continued to live there until he died on 23rd December 1975. He died intestate, without near relations, and with the property heavily mortgaged. His estate went to the Crown, and was sold at auction by the Treasury Solicitors in January 1977. The fields to the SW were sold to Mr M G Pattinson (who subsequently let the field to Thomas Smith) and the house sold to Peter Yates and Stephen Price who had a carpet fitting business. They owned the house until May 1982 when it was sold by Mrs B R P Yates and S Price to Mrs S E McKechnie and Mr Michael Graton Pattinson. The site was by this time being used as a commercial kennels. The new owners very quickly sold the property on for £122,000. The purchasers appear to have been two couples (the parents called Lyons and the son-in law and daughter called Wallace). I M Lyon died in 1984, and L C Lyon in 1986 (both residents of Winnall Lodge), leaving the surviving owners as Mr Daniel J and Mrs Judith M Wallace. In 1984 the Wallaces had purchased back the 3.8 acre field to the south west of the house from Pattinson, and in 1985 paid the sitting tenant Thomas Smith £1000 to give up his tenancy. The Wallaces appear to have been responsible for the major extension and other internal alterations to the house. They sold the property to John M Bray and Janet H Bray, a couple from Kings Lynn, in 1987. It appears to have remained a kennels, and was sold on 18th September 2000 to the last occupiers Stephen W G Short and his wife Elaine for £353,000. The kennels remained in operation until 2011, when the property was purchased by the present owners, and the buildings cleared for redevelopment as a new private house.

7 The cartographic evidence

- 7.1 The earliest detailed map or plan of this area is an estate map of 1751 drawn up apparently in respect of the inclosure of the southern end of Birchen Valley. (Fig 1: WRO BA3972/17 ref r705:56 (another copy at BA 3972/18). It is titled “*A map of the Birchen Valley in the Manor of Ombersley, the Property of the Right Honour[a]ble the Lord Sandys, Survey[e]d and Alloted by J Doharty Worcester, Novem[bris] 1751*”. This plan is particularly interesting as it shows a small sketch of the house, then an “L” shaped 1½ or two storey building, probably of three bays in each wing as each has three windows not including those in the gable ends. , In this sketch the east-west range being is at the northern end, the two wings meeting in the NW corner, with a further small, detached outbuilding to the north. Both ranges of the house have chimneys marked, so it would appear that the whole was a domestic building. The plan also indicates that the northern part of Birchen Valley was apparently enclosed first, and by that date was a discrete copy-hold land holding held by William Winnall. Of interest is the fact that the curtailage of the house is shown as “Old Garden”, suggesting that the property was already well established by this date.
- 7.2 The next plan dates to circa 1800 (WRO BA 1294 ref x705:56) it is titled “Plan of the parish of Ombersley” and is drawn to a scale of 40 chains to half a mile [1: 2391]. It shows a rather different layout of buildings than the Doharty plan, and this cannot all be attributable to cartographic

discrepancies. Most notably the house, although still “L” shaped is orientated very differently, and placed closer to the western boundary. On this plan the east-west leg of the house is at the southern end, and to the east of the north-south range.

- 7.3 The earliest Ordnance Surveys of this area were undertaken in 1811-1816, but the surveyors seem to have overlooked the present property completely. This suggests that it was no longer a residence of any significance (WRO BA130359 ref 70.5:1163 microfiche copies of OS draft survey maps of Worcestershire). Greenwood's 1822 map of Worcestershire, is too small a scale to distinguish the buildings clearly. The next plan to show the present property was drawn circa 1827 for the Inclosure Award (WRO BA307/56 ref s143/56 : Figs 2 and 3). This shows a similar site layout to the 1800 plan which was drawn up at the start of the Inclosure process. The first Ordnance Survey printed maps were published for this area in 1832, and do show Winnall Lodge, albeit as little more than a dot (Fig 4). As the land was tithe exempt the property does not appear on the Ombersley Tithe Awards plan. Subsequently in 1841 a sale plan was drawn up for the “Winnalls Estate” but the estate did not include the present property at that time. A further sale of the “Winnall House Estate” in 1907 (WRO BA 4600 ref 705:550), did however include the present property as Lot 3 (see Fig 7). The land formerly attached to the lodge had by that time diminished to only part of the field to the north-west of the house and the trackway to the Stourport Road. There was only one small outbuilding to the north-east of the house (Building 6 in the present report). The other building ranges and extensions to the original building shown on modern mapping (Buildings 4 and 5 of the present report) are therefore all of 20th C century date, mainly relating to the extension of the house and its most recent use of the premises as a kennels.

8 The standing buildings

8.1 Building 1

- 8.1.1 *Basement* - The original structure sits over a very well built ashlar sandstone basement, the western side of which is of framed construction on a stone plinth, and is at ground level. The sides and rear of the basement are built into the hillside. The basement is roughly square, and the walls constructed of well coursed and bonded large local sandstone blocks, many of which have suffered erosion from efflorescent salts. The principal original features of the basement are two large arched niches, one in the north and one in the south wall (Figs 13 and 15). The northern example has been mutilated and infilled with concrete blockwork, but appears to have been of similar dimensions to the southern example. The voussoirs of the arches are carefully cut from large blocks of sandstone that run the full depth of the recess. The recesses are of sufficient size and depth to serve as seating, but were probably intended for cool storage. The basement floor is stone flagged. In the south east corner an area of brickwork in the eastern wall appears to indicate the former presence of steps down from Building 2. The putative steps appear to have been a secondary insertion, as there are snapped off brick headers relating to a removed brick flanking wall. Another secondary feature of the basement is a corner chimney base and hearth in the north-west corner (Fig 17). This structure has been crudely constructed from a mix of brick and stone, and was probably inserted in the early-mid 19th C. The flue of this fireplace clearly passed under the timber wall-plate of the northern elevation, and the wall-plate is deeply charred at this point (visible within Building 3). The basement western wall and ceiling are of recent date, the western wall being of traditional oak framing with blockwork infill. It is likely that the framing broadly reflects the original arrangement.
- 8.1.2 *Ground floor* - The ground floor level floor structure is of machine sawn softwood and appears to be later 20th C in date. There was very little exposed original fabric at this level, the interior of Building 1 having been fully drylined, over an additional skin of aircrete blockwork on the northern and western elevations. Behind modern finishes, however some original framing of the north and eastern walls does survive. The northern wall framing was exposed by removing plasterboard and blockwork from the exterior face (now within Building 3). The framing only survived to the west of the recently created arched doorway, and consisted of a partial wall-plate, a principal stud or storey-post, and two rails. A third rail was probably a fairly recent insertion as it was very close to the bottom rail, and apparently not jointed into the post. The infill of the frame was 19th C brickwork and modern blockwork. Only one joint had visible carpenters marks (“CCCC” – Fig 16) which were present on both post and rail, but obscured by a modern nailing plate. The fair face of this frame faced north. The central portion of this wall appears to have had a wide central ground floor opening, extending up to the tie-beam soffit and approximately 2-2.2m

wide. There are no indications of mortices on the surviving post, and therefore no horizontal framing has been lost from this area. As the opposing framing on the eastern half of the wall has been lost at this level it is difficult to be certain what the gap in the framing at this level represents. Perhaps most probable explanation is the former presence of a stone built central exterior chimney on this elevation, but there are other feasible arrangements, particularly if there were formerly additional bays to the north (in which case the building would seem to be aisled). A doorway of this size seems very unlikely, and an external stair-turret would presumably have left some redundant mortices in the northern face of the surviving post. The surviving evidence for bracing tends to indicate that the present north wall of Building 1 was originally external, but is not 100% conclusive. More survives of the eastern wall at this level, including the NE cornerpost and three of the studs. These have all lost their lower rails, but the peg holes remaining indicate that the eastern wall was originally continuous with no doorways. The one lower rail now present is a later replacement, and was nailed on. The present doorway formerly had a lower head, but is clearly a secondary opening. All evidence of the original southern and western walls has been lost at this level, both having been entirely rebuilt in the 20th C. The bridging beam (of elm) may possibly be original, but it would appear that the ceiling structure has been rebuilt (and probably raised).

- 8.1.3 *First-floor* - At first floor level two sides of Building 1 are still relatively recognizable, although the panel infills have been largely replaced, and openings cut through the original framing. The northern wall consists of a gable-end truss of pegged oak, and the head of the principal post (described above) which is jointed into the tie-beam soffit, the NE corner post also survives intact. The corner post has a pronounced jowl (swelling) to support the eastern end of the tie beam, but the latter has subsequently been cut off at the point where it meets the jowl. The cutting of the tie beam seems to have been done in order to facilitate the insertion of a brick chimney, though most of this chimney has been subsequently removed. The central portion of the tie beam has a cut out portion to its soffit. The cut-out is chamfered, and clearly deliberate. It is possible that the chamfered portion served as a fire-place lintel in the postulated central chimney, but it shows no sign of scorching or sooting. A fireplace with a decent draught will not necessarily show any smoking of the lintel, so the absence of such damage does not disprove this interpretation. The area beneath the tie-beam has been infilled with an area of 18th C brickwork, and separate sections of possibly late 17th C brickwork – maybe reused. An alternative possibility is that the tie-beam was cut back to improve head-room over a stair, but there is a lack of supporting evidence which might be expected to survive. The northern truss of Building 1 is otherwise unexceptional, with typically 17th C framing, and small raking queen-struts above the collar. The central opening between the tie beam and collar is rectangular, and might well have once contained a framed window, though no evidence of this was visible. The two purlins both may be original, though the extensive rebuilding of the southern and western walls and western roof-pitch has removed much of the evidence. There are raking straight windbraces between the purlins and the principal rafters of the northern gable end. The eastern wall of Building 1 has been cut through for a central doorway (at the time when Building 2 was constructed, but otherwise is intact, retaining the heads of both NE and SE corner posts, and two out of originally three studs. There are raking braces between the wall-plate soffit and the two corner posts, each double pegged to the wall-plate. The central section of wall plate is lost, but it is highly probable that there was a further stud jointed to it at its' mid-point. Above the wall-plate the framing is all part of Truss 1 of Building 2. Immediately framing the modern doorcase are two studs, also part of the Building 2 framing. The southern elevation is 20th C brick up to the tie-beam soffit, and the whole of the gable-end framing is recent oak framing. The quality of this modern framing is very poor – the studs either side of the window opening are not jointed into the collar soffit, but merely “glued” with mastic. It must be assumed that the present frame broadly resembles the original. The western elevation is almost entirely modern framing – the only exception (at all levels) being the wall-plate/tie beam which is of elm and probably original. The retention of this timber was probably dictated by the fact that keeping it *in situ* avoided the necessity to remove the western roof pitch in its entirety. Due to the otherwise total replacement of the western elevation (including both corner posts) we are forced to assume that the present framing broadly reflects the original arrangement. Some of the roof timbers (rafters) of Building 1 appeared to be original or early replacements, as they were pegged together at the apex. Access to this area was very limited, and so it is not clear how much of the western pitch might have been more recent replacements.

8.2 **Building 2**

- 8.2.1 Building 2 consists of two bays, the easternmost being considerably longer than that to the west.

Both bays are of 1½ storeys, the first floor probably having been raised slightly to increase ground floor headroom (which is quite generous for a cottage). Only the northern side wall framing survives, the southern wall having been rebuilt in brick in the 20th Century. The northern elevation is of fairly conventional box-framing, the only unusual feature being a substantial raking brace in the middle of the building, stiffening the eastern side of Truss 2. As will be discussed below, Building 1 leans significantly towards the east, and this brace appears to have been designed to counteract the thrust from the neighbouring structure. There appear to have been no original doorway openings in the northern elevation, as there are redundant peg holes consistent with a waist-height rail in the location of the present doorway. The present windows are of late 19th-early 20th C date, and the door is modern.

- 8.2.2 The westernmost bay of Building 2 is unusually short (about 1.7m east to west), and appears to have been intended as a lobby and perhaps scullery, area. It contains the modern staircase, and it is probable that the original 1st floor access was in this bay, though most probably not where the current stair stands. As was noted above there appears to have been an internal stair down to the basement of Building 1, which would have emerged beneath the present staircase. The present ground floor and first floor doorways to Building 1 are both insertions, but appear to be integral to the original design of Building 2. The design of the western-most truss of Building 2 (Truss 1) relies on the pre-existing framing of Building 1 to a small extent, but actually stands just to the east of the earlier exterior wall. Building 2 therefore butts against Building 1 and is almost entirely structurally independent of the earlier building. The use of a double skin of framing is particularly noticeable at first floor level where there is a very small scantling cross-beam running N – S against the outer face of Building 1. This timber acts both as a tie beam for Building 2, and as a support for the western ends of the floor joists. The ground-floor elements of the Truss 2 framing are all of modern origin (at least one post being an “antiqued” former railway sleeper), excepting the tie beam, which appears to be a re-used timber similar in character to re-used timbers in both Trusses 1 and 2. The framing of Truss 2 at 1st floor level has an integral doorway (with original wrought iron pintles) and appears fairly neatly executed in relation to the rough woodwork of the remainder of Building 2. The fair face of this truss faces west, confirming the hypothesis that the narrow bay served as a lobby area.
- 8.2.3 The eastern-most bay of Building 2 has a brick built external chimney at its eastern end, and the eastern wall framing has been removed at ground-floor level. The girth-beam of the eastern gable-end truss (Truss 3) has a number of mortices in its soffit which may relate to ground floor studs. If these all related to the present arrangement, then there was clearly no chimney at this end originally. There are, however some mortices which appear to have pre-dated the present construction and there is a reasonable probability that the girth-beam of Truss 3 is re-used. A disused trench on the upper face of this timber appears to have been the original lodge for a bridging beam. The present bridging beam is of timber (?elm) still largely in the round, and the joists of square section are a mixture of softwood and hardwood. It would appear that the groundfloor ceiling height has been raised slightly, as there is unusually good head clearance for a cottage of this period.
- 8.2.4 At first floor level most of the framing of the eastern bay survives, the only loss being the southern wall. Truss 3, the gable end, is of unusually irregular timber only roughly halved and crudely squared in places. The irregularities of the tie-beam timber have been evened up with lath and lime-plaster to provide a cosmetically more even finish. The crudely rounded purlins have been similarly treated. The gable end infill against the chimney is brick of probably late 17th C date. The majority of the Truss 2 infill appears to be of wattle and a deep reddish brown clayey daub. The ceiling is predominantly lime plaster, with later repairs and a new (unlined) dormer roof.

8.3 **Building 3**

- 8.3.1 Building 3 is a single storey one bay building of brick, built against the northern face of Building 1. The building may have had some earlier antecedent, as the plinth on which it stands contains some stonework, and there is a very small amount of surviving timber (possibly framing) in the eastern wall where it abutts the corner of Building 2. The present building is, however of early-mid 19th C brick, with later modifications. The roof is of roughly squared timber, and the rafter soffits and purlins are crudely whitewashed, indicating that the building was originally open to the back of the tiles. The lack of original ceiling strongly suggests that the building was originally not domestic, and the substantial difference in floor levels between Building 3 and Buildings 1 and 2 tends to confirm that there was originally no direct communicating doorway. The western wall slopes inwards dramatically, and this seems to indicate that the foundations have slid westwards a significant distance; the presence of an internal buttress to support the wall indicates that the movement happened some time prior to the mid 20th C. The upper part of the northern gable end is

of mid 20th C date, and substantial repair and refurbishment of the structure seems to date from this period, probably the time when it was incorporated into the house. The original function is unclear, possibly the building served as a workshop/coal store or similar. It latterly has served as a kitchen, and a small porch and external steps were added probably in the 1960s-70s. The northern window was reduced to two smaller openings in recent times (probably since 2000), and the small west facing window also blocked up. The arched doorway opening and block-work walling between Buildings 1 and 3 have also been completed fairly recently, the new plaster not having been yet painted.

8.4 **Building 4**

8.4.1 Building 4 was primarily of brick construction, but incorporates a number (at least four) of later extensions, which appeared to be mainly rendered blockwork. All were of later 20th C date, the core building being constructed in the late 1970s or early 1980s. Whilst not surveyed in detail it was very clear that the standard of construction was very poor, and in some aspects even amateurish. The upper floors had bowed due to undersized and poorly distributed joists, and the external walls cracked due to inadequate foundations. The first floor link to Building 2 was through a bedroom, and the two structures barely integrated. Documentary evidence suggests that the building was constructed circa 1982-3 and intended as a “granny annex” when the property was owned by two couples (the parents called Lyons and the son-in law and daughter called Wallace). The later extensions appear to be mainly related to adding a downstairs shower-room and other extra ground floor accommodation, perhaps intended for a disabled person. In recent years these rooms had clearly housed dogs.

8.5 **Building 5**

8.5.1 Building 5 appeared to be the most recent extension to the house, linked to Building 2 by a glazed corridor. The single storey square brick and blockwork extension was used as an office for the kennels business, and appeared to have been constructed in the mid 1990s.

8.6 **Building 6**

8.6.1 Although physically distinct from the building range covered by the original brief, Building 6 was photographically recorded as it was clearly one of the earlier structures on the site, appearing on the 1751 mapping (Fig 1). The surviving structure was much altered (and converted to a small kennel-block), but appeared to be originally of all ashlar sandstone construction, with a gable at the north-end. The building was built on, or possibly partially in to the hill slope, and its western retaining wall appears to have continued towards Building 5, so it might originally have been of more than one bay, though only one bay survived at the time of recording. The sandstone blocks had been re-arranged/reused in places but it would appear likely that the building originated as a 17th C stone built agricultural building. The building had been much reconstructed in the early 20th C (and reached its present form prior to 1965 (Fig 8). The western wall was reconstructed mainly in brick, and the gable end reduced down to a single storey. The building was latterly flat-roofed. No internal features (except dog kennels) survived.

9 **Discussion and Conclusions**

9.1 The buildings at Winnalls Lodge represent an interesting and unusual sequence of development of a small land holding that never quite achieved the status of a fully independent farm. The early development of the site is unclear, but the presence of what appears to have been a very small but fairly tall single bay structure, over a very well built stone basement, on a very prominent location overlooking the head of the Birchen valley is suggestive of a shooting stand or hunting lodge. Such buildings are rare, largely because they were never a common building form and partially because they do not readily convert to other functions and are usually in isolated locations. The present building stands on a modified natural ledge projecting from the eastern slope at the northern end of the valley. This position gives a very good viewpoint across the lower lying ground to the south, west and north-west. The shape of the ledge suggests that it was formed by a landslip, and the ground drops very sharply away to the west of the house. The underlying geology here is sandstone with patches of sand, and the overlying soils are also sandy. Observation of the standing buildings, and their mode of failure, suggests that there has been a very slow, and possibly intermittent, movement westwards of the ground on which the house sits. Such movement is likely to have been exacerbated by the large amounts of water used to wash down the kennels and dog runs uphill from the house. Whilst not conclusive the relationship of the framing of Buildings 1 and 2 is suggestive that Building 1 had already developed a list to the east prior to construction of Building 2 in 1688. This lean would be consistent with the westwards movement of the basement,

which is clearly observable in the cracked stonework of the basement walls.

- 9.2 As the tree-ring dating indicates a construction date for the original elements of the building framing as 1626, the basement may with some certainty be considered to be of the same or slightly earlier date. Unfortunately the western wall has been almost entirely replaced, but it would appear probable that there was originally only external access to the basement. The height of the basement ceiling and the use of timber framing for the western wall tends to suggest that the room was intended to be light and airy rather than secure storage. The two large arched recesses are unusual features, and would have demanded fairly careful craftsmanship to shape the ashlar voussoirs. It is possible that they were intended as game-larders; the basement as a whole is much better and more substantially built than one might expect for a cottage or even small farmhouse at this period.
- 9.3 The original layout of Building 1 is unclear. The balance of the evidence would seem to place an external chimney in the centre of the northern wall, and the entrance was presumably located on the southern elevation as the eastern elevation had no opening, and the western elevation well above external ground-level. The ground floor room would have been around 5m square internally, and this would leave only limited room for a stair to 1st floor level. The first floor level appears to have had gables on all four sides, probably with a further fireplace to the north. The southern and western elevations probably had windows in each gable, but all original framing relating to such openings has been lost. It seems likely that the eastern elevation may have had a false gable for the sake of a balanced appearance, but again no evidence survives. With the loss of the framing of the southern elevation it is not possible to disprove the former presence of another bay or bays to the south, and the image of the building in 1751 (Fig 1) would give some credence to this possibility. No foundation appeared to survive south of the house, but this area has been subject to ongoing movement and modern revetment. Perhaps the most convincing evidence for the size of the original structure is the fact that the basement corresponds exactly with the size of the single bay above it – given the hillslope location it would seem that it would have been easier to construct a basement throughout. The use of the name “lodge” from at least the early 18th C onwards is quite convincing evidence for the original function of the building, and the 1751 map (Fig 1) also indicates the presence of a formal garden inclosure, a feature more often associated with the rural retreats of gentlemen than with humble cottagers. If the building was indeed a lodge it is of a size that would preclude permanent residence, and so is more likely to have served as either a viewing platform/shooting stand or perhaps as a lurching place for those in pursuit of game.
- 9.4 The tree-ring evidence indicates that Building 2 was constructed in 1688 – sixty two years after Building 1. The construction of Building 2 is generally of a lesser quality, and a number of timbers appear to be re-used. It is likely that the construction of Building 2 marks a change of function for the site, as Building 2 is a fairly typical framed two-bay cottage, that was clearly intended to incorporate Building 1 from its inception. The adaptations made to Building 1 at this time included the opening up of linking doorways, and the modification of the eastern half of the roof. It is probable that an internal stair down from Building 2 into the Building 1 basement was also created at this time. From 1688 onwards the property seems to have served as a small holding or perhaps secondary farmstead, but we have only very limited evidence for farm buildings. Buildings 3 and 6 appear to have had agricultural origins, but there does not seem to have been a full traditional farmyard (with stables, barn etc). Some below ground evidence of the former extent of Building 6 may have survived, but unfortunately this area, and the below ground archaeology was beyond the scope of the Brief.
- 9.5 Although the building was of historical and architectural significance as a rare example of an early 17th C timber framed lodge, its value as an historical artefact had been greatly diminished by the very extensive later alterations. Had recording occurred prior to the replacement of the original western wall framing of Building 1 in the late 80s or early 1990s then it is almost certain that the building would have been considered of regional significance and eligible for Listing. Building 2 was a much more common type of structure, but still of local archaeological and architectural interest. The other buildings on the site, with the exception of Building 6, were of very little architectural merit or interest, and their removal may be considered a positive improvement.

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11 **Acknowledgements**

Mike Napthan Archaeology would like to thank the following for their assistance with this project; the Clients Mr and Mrs Justin Martyn-Smith. Particular thanks are also due to the demolition/landscaping contractor Gordon Pyatt (Affordable Arenas Ltd), Alison Arnold and Robert Howard (tree-ring dating), and Darren Miller for sharing his detailed, and as yet unpublished, PhD research into the parish. Thanks also to Mike Glyde, Tegan Cole and Oliver Russell of WHEAS.

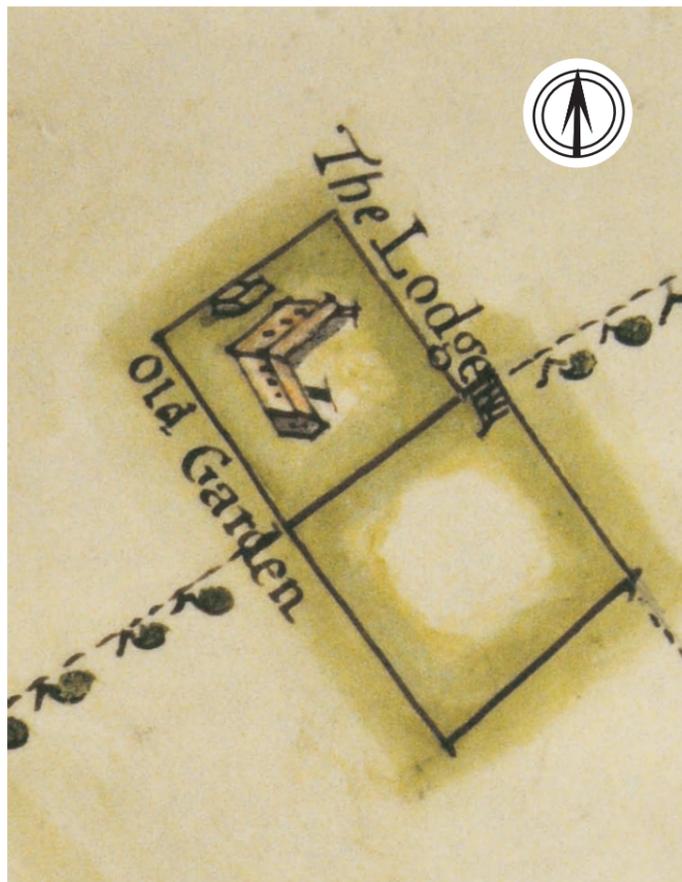
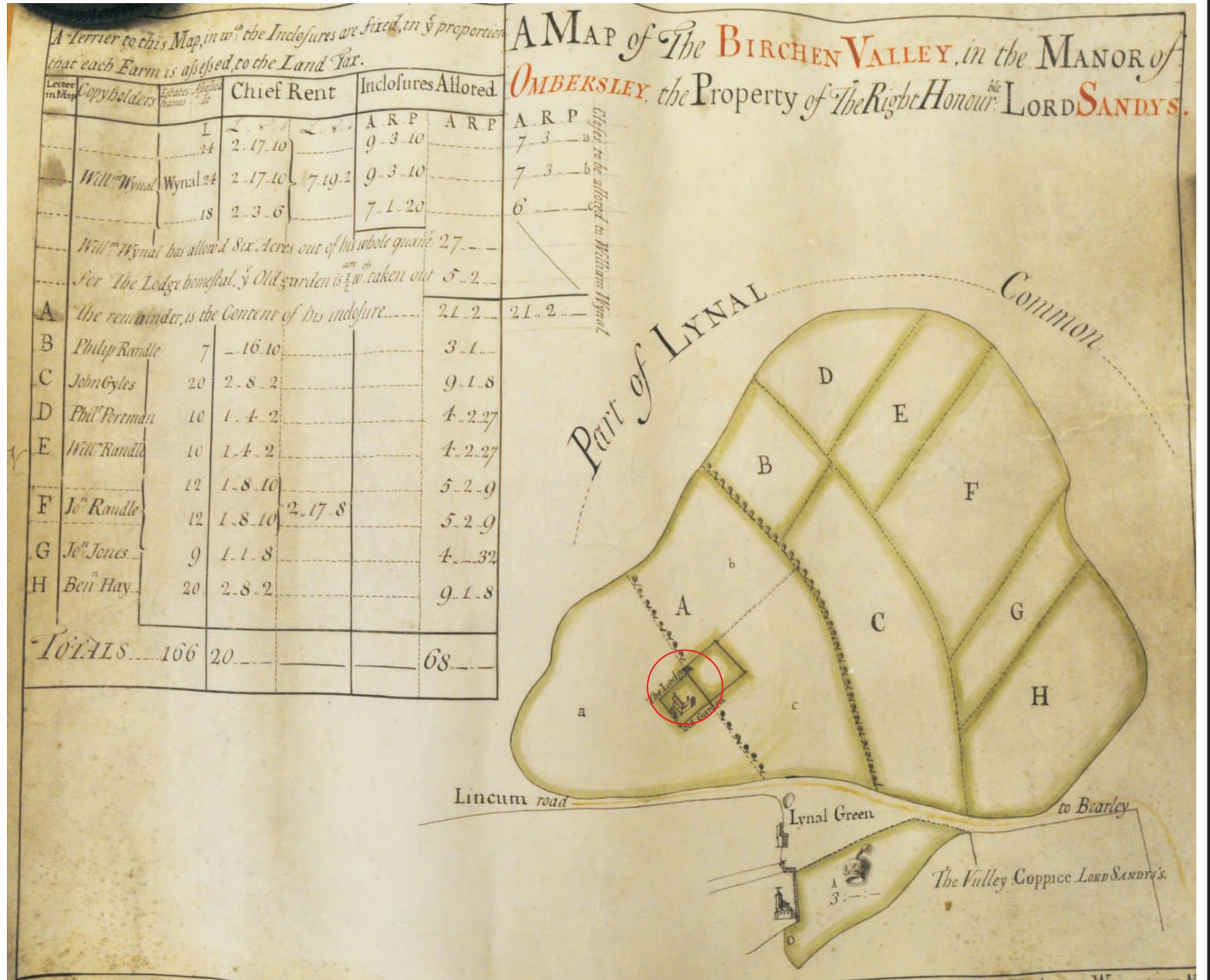


Figure 1: The earliest detailed plan of this part of Ombersley, by John Doharty, November 1751, showing the location of Winnall Lodge (ringed) with inset enlarged detail of the house (WRO BA 3972/17 ref r705:56)



Figure 2: Inclosure Awards plan for Ombersley c.1824, showing the location of Winnalls Lodge (ringed) in relation to the newly inclosed Common

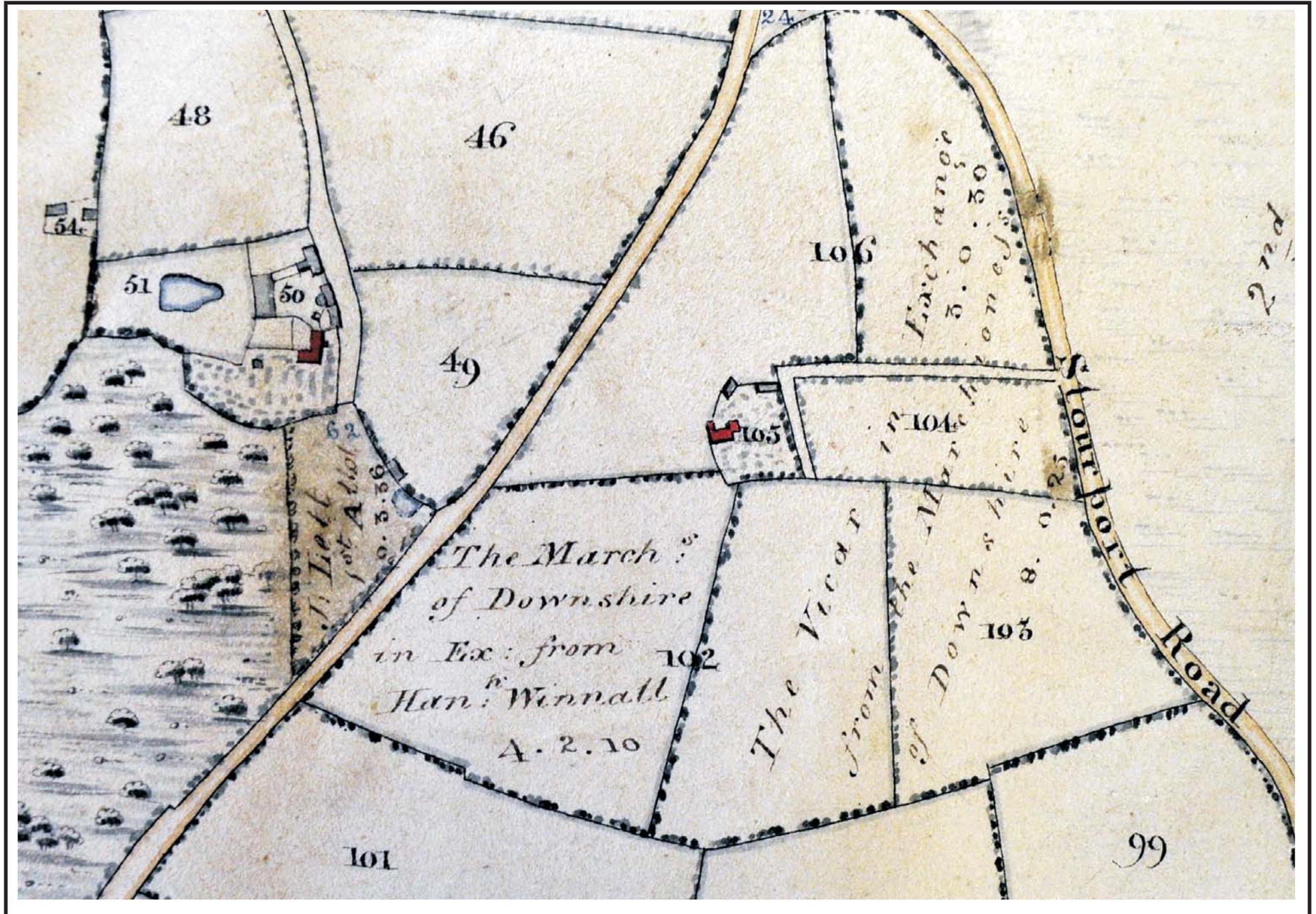


Figure 2: Inclosure Awards plan for Ombersley c.1824, detail of Winnall Lodge (Parcel 105, right of centre)

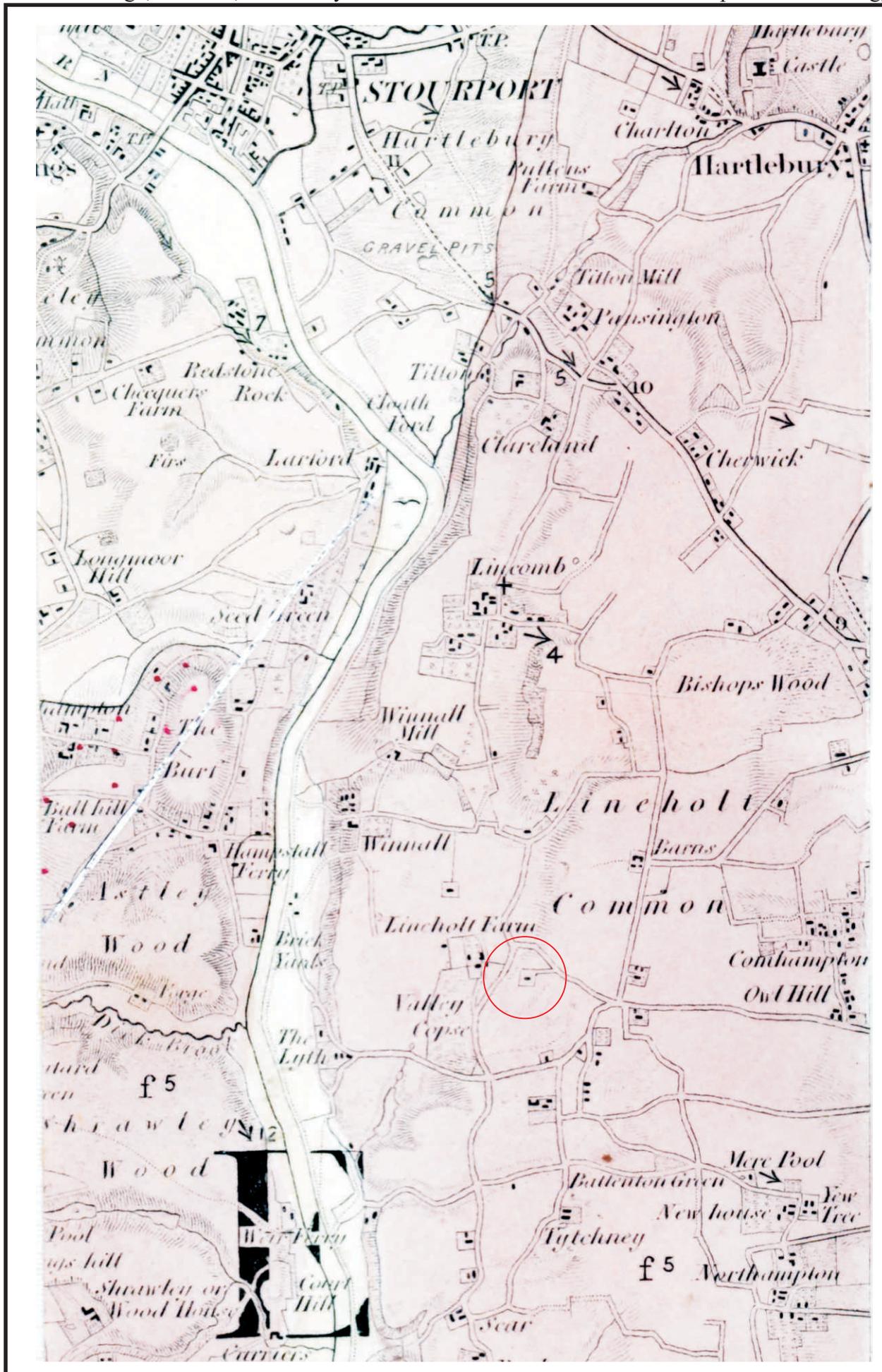


Figure 4: Winnall Lodge was omitted from the 1817-19 first draft of the Ordnance Survey, but appeared on the first printed edition seen here as the “Old Series” (1832) edition hand coloured with 1850 geological survey data - (Source: MNA reference collection).

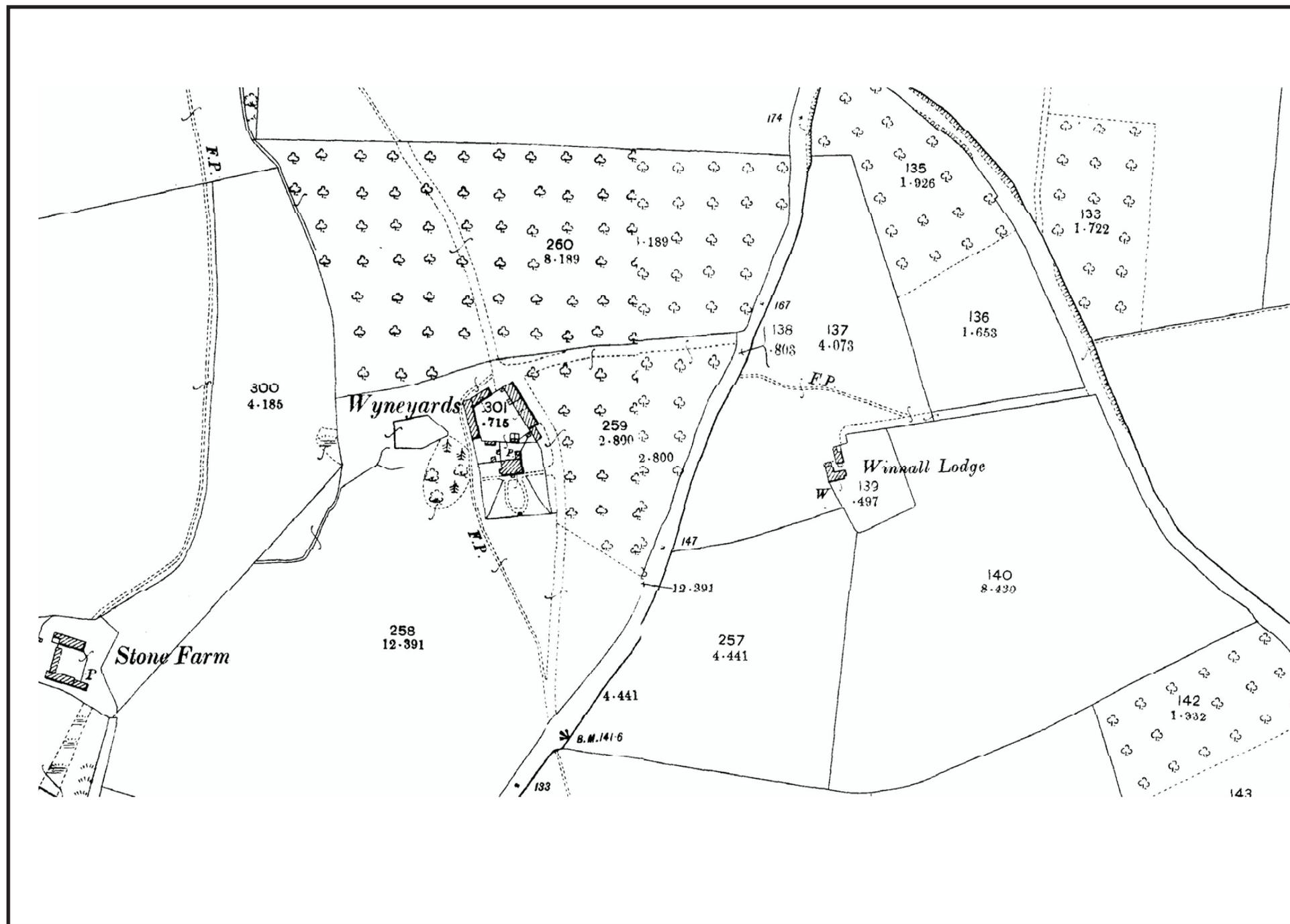


Figure 6: 1880s Ordnance Survey mapping of Winnall Lodge

WORCESTERSHIRE.
Parishes of Ombersley and Hartlebury.

Particulars with Plan
OF THE VALUABLE FREEHOLD PROPERTY,
KNOWN AS
The Winnall House
ESTATE,

Comprising a Commodious Residence with Pleasure Grounds, Farm Buildings, Bailiff's House, Six Cottages, old Water Mill, etc., and small Holding, known as WINNALL LODGE, in all about
227a. Or. 34p.,
of High Class Arable, Pasture, and Orchard Land and Coppice, situate in the above Parishes in the beautiful Valley of the Sever, 2 miles from Stourport, 3 from Hartlebury Junction Station, 6 from Kidderminster and 9 from Worcester.
To be Sold by Auction by

NOCK & JOSELAND

At the "Lion Hotel," Kidderminster,
On Thursday, June 13th, 1907,
At 4 for 5 o'clock in the afternoon, subject to Conditions of Sale, incorporating the Common Form Conditions of the Birmingham Law Society.

Particulars with Plan and any further information may be had of Messrs. Rowley, Chatwin & Emerson, Solicitors, Church Street, Birmingham; Messrs. Ivens, Morton & Danks, Solicitors, Kidderminster; or of the Auctioneers, Kidderminster and Wolverhampton, of whom Cards to View may be obtained.

Lot 3. A VALUABLE FREEHOLD SMALL HOLDING, known as

"WINNALL LODGE"

In the PARISH OF OMBERSLEY, on an elevated site near Lots 1 and 2, comprising Dwelling House with Outbuildings, very Fruitful Garden and Field of Pasture Land, in all

4a. 2r. 12p.,

or thereabouts, let to Mr Hy. Smith, on a yearly Lady Day tenancy at £18 per annum, the Tenant paying Rates.

SCHEDULE.

No. on Plan.	Name.	Description.	Quantity.
150	The Meadow and Road	Pasture, etc.	A. R. P. 4 0 12
151	House, Garden, etc.	0 2 0
Total			4 2 12

This lot is bounded by property of Lord Sandys and the Ombersley Glebe Land.

Figure 7: Sale particulars of the Winnall House Estate in 1907.



Figure 8: Winnall Lodge farm in 1965 - note chicken houses, and relatively unaltered farm-house. The “framing” of the north wing appears to be painted on for cosmetic effect, as this building is brick. View faces south



Figure 9: Winnall Lodge farm in 2001 - note substantial extensions of the 1980s and 1990s. View faces east.

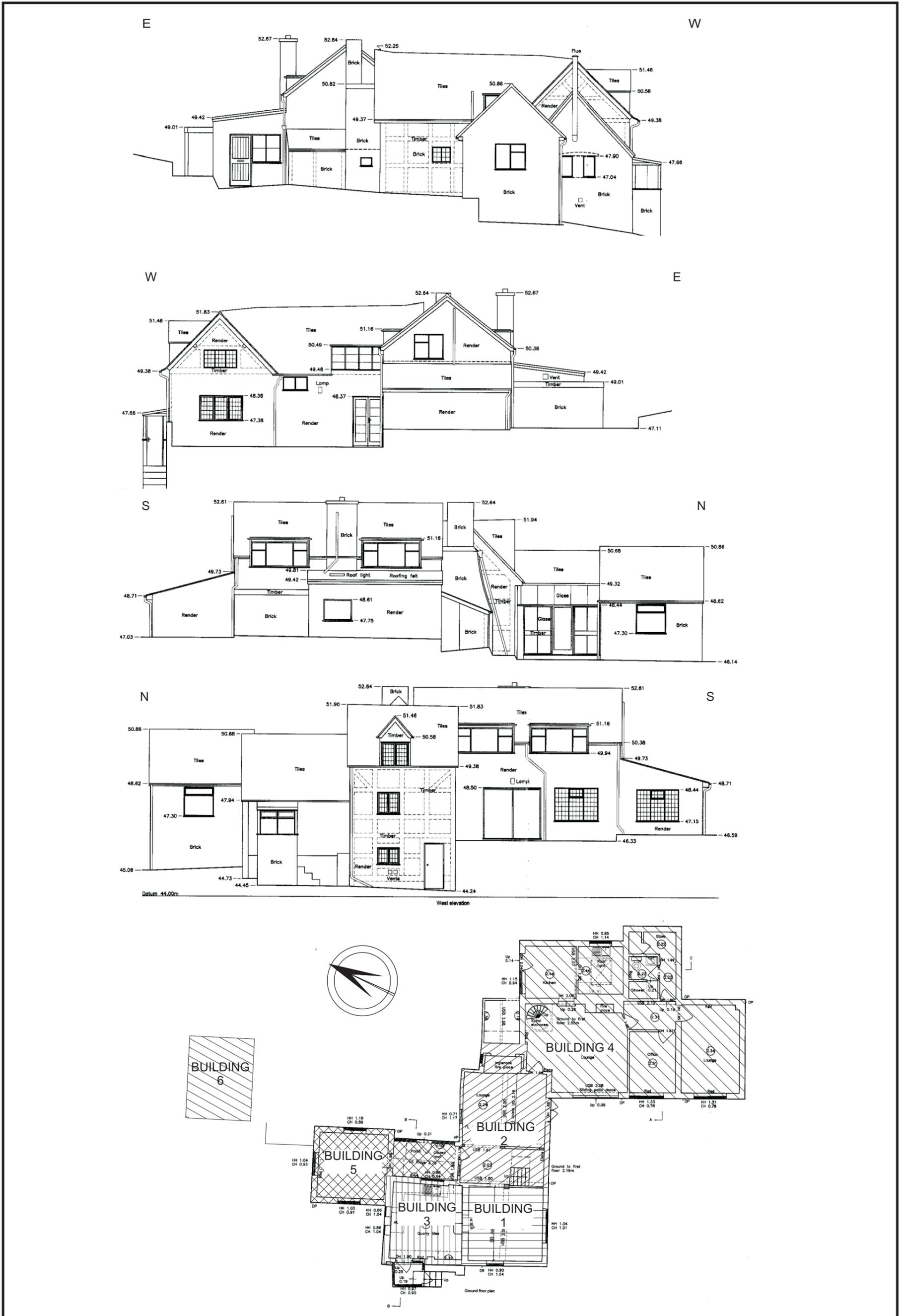


Figure 10: Architects survey drawings and key-plan (nb: only Buildings 1-3 formally surveyed, Buildings 4 and 5 were modern and Building 6 outside requirements of the Brief)

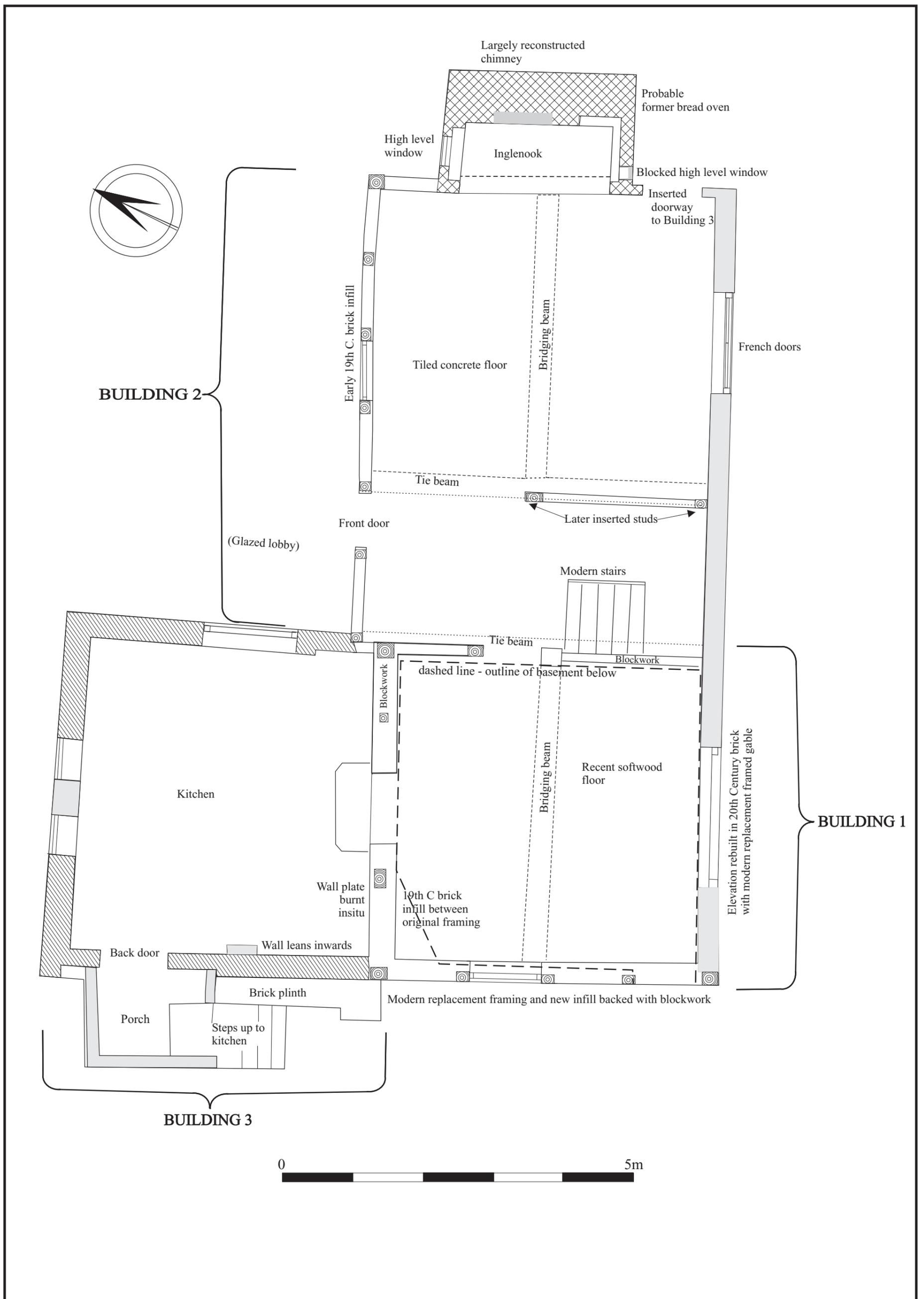


Figure 11: Ground floor plan of historical portion of Winnall Lodge (nb: 20th C extensions largely omitted)

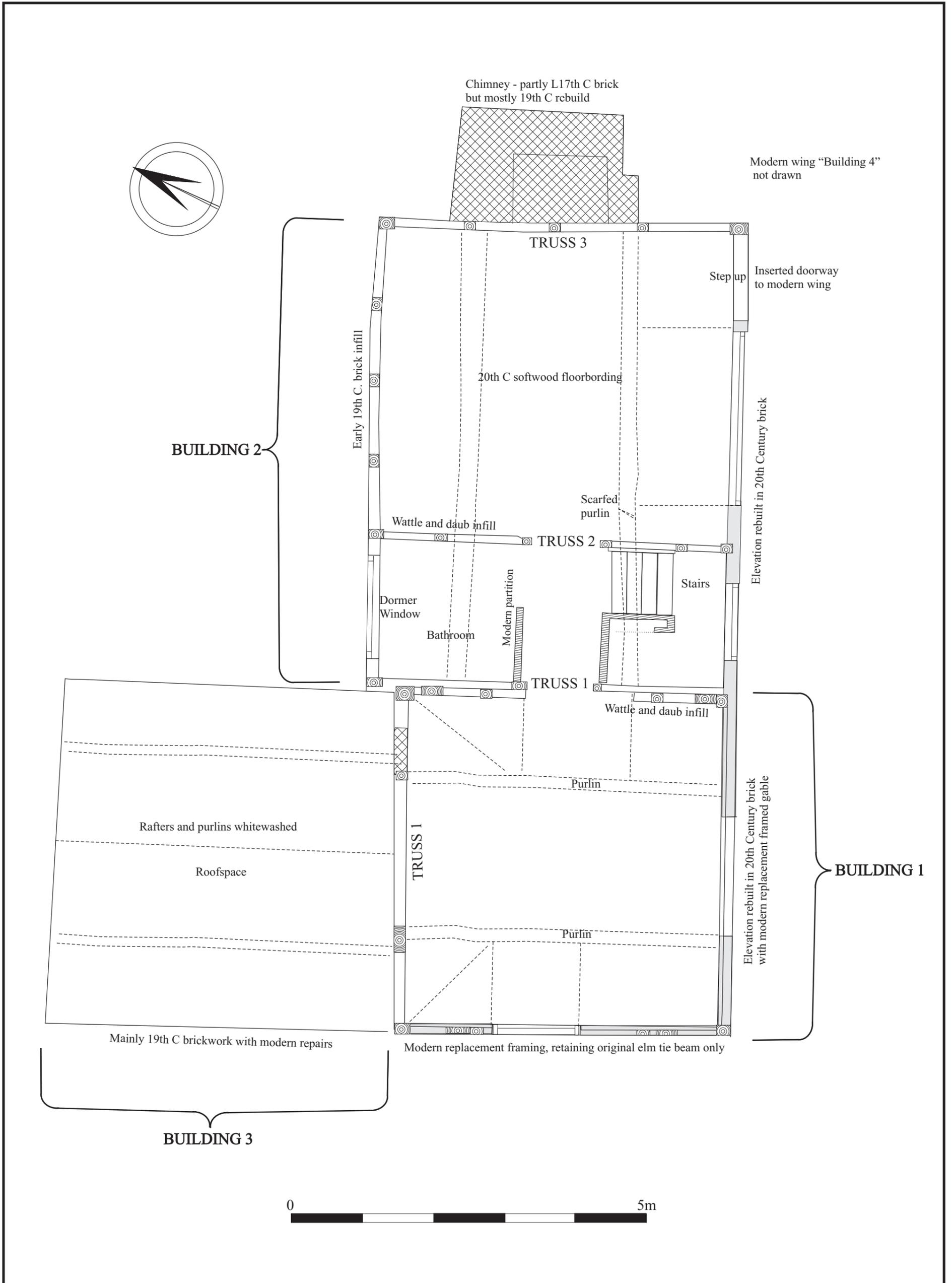


Figure 12: 1st floor plan (later extensions omitted)

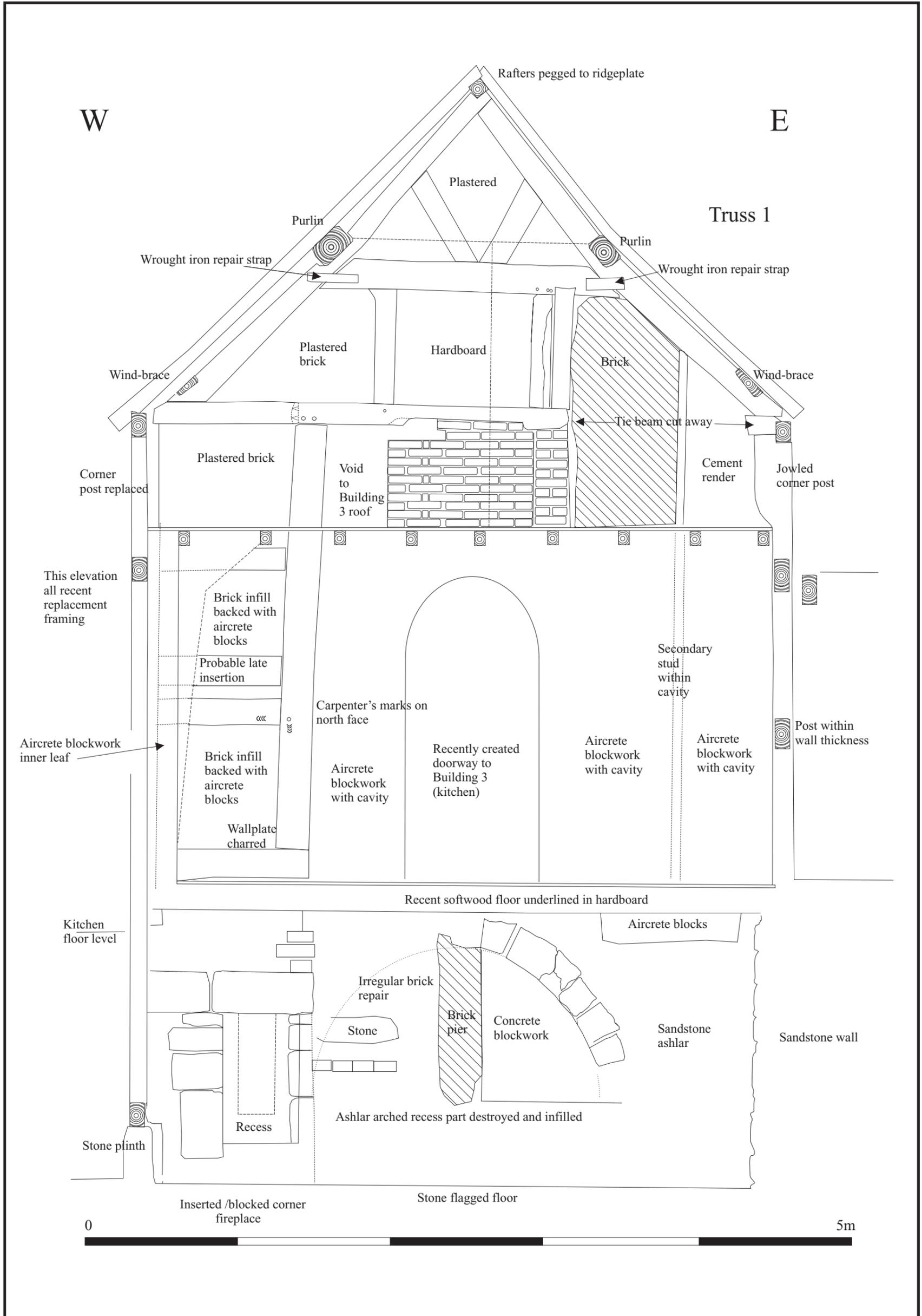


Figure 13: Composite internal elevation of northern wall of Building 1 (nb ground floor framing was only exposed from north)

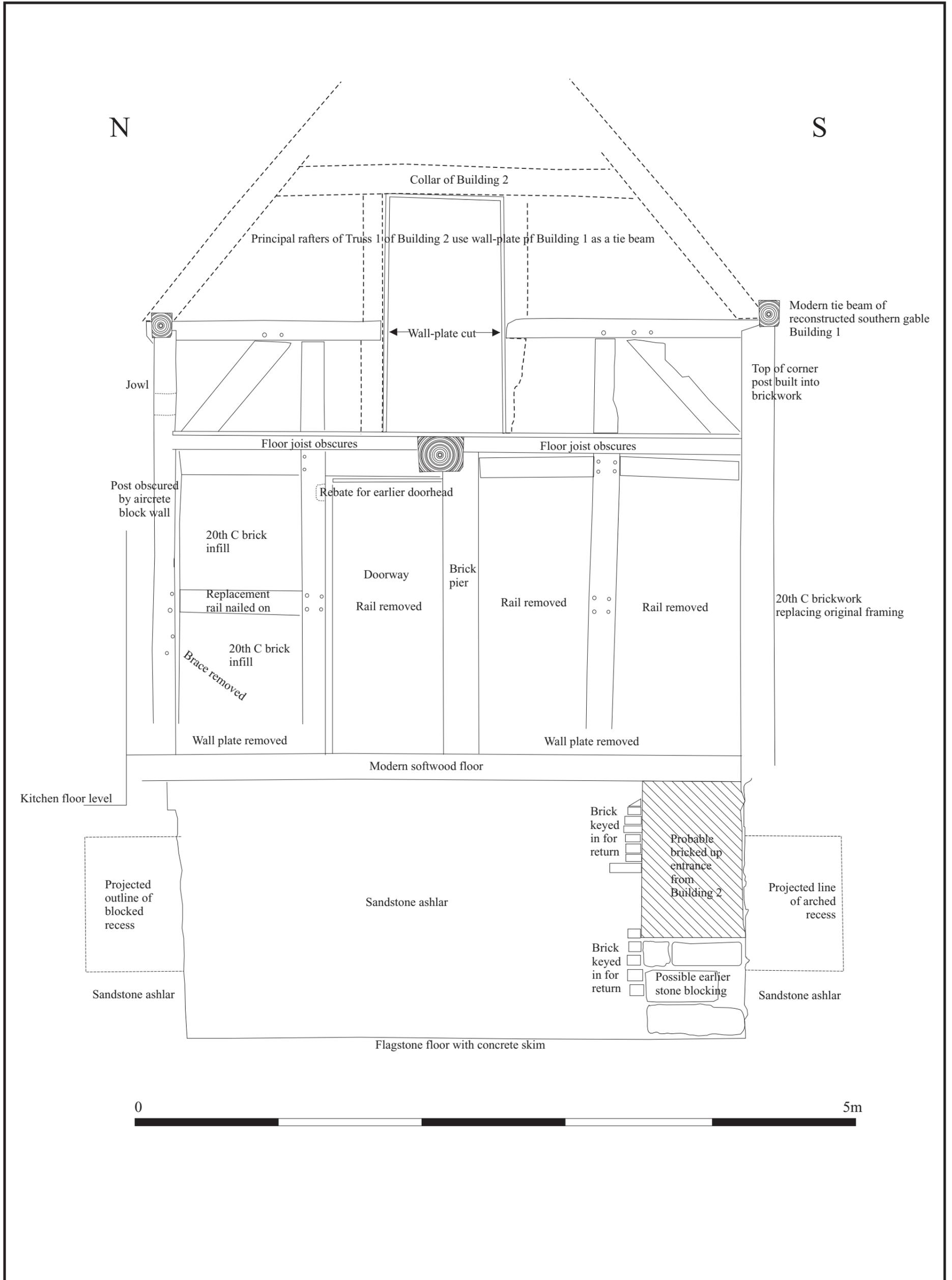


Figure 14: Composite internal elevation of eastern wall of Building 1

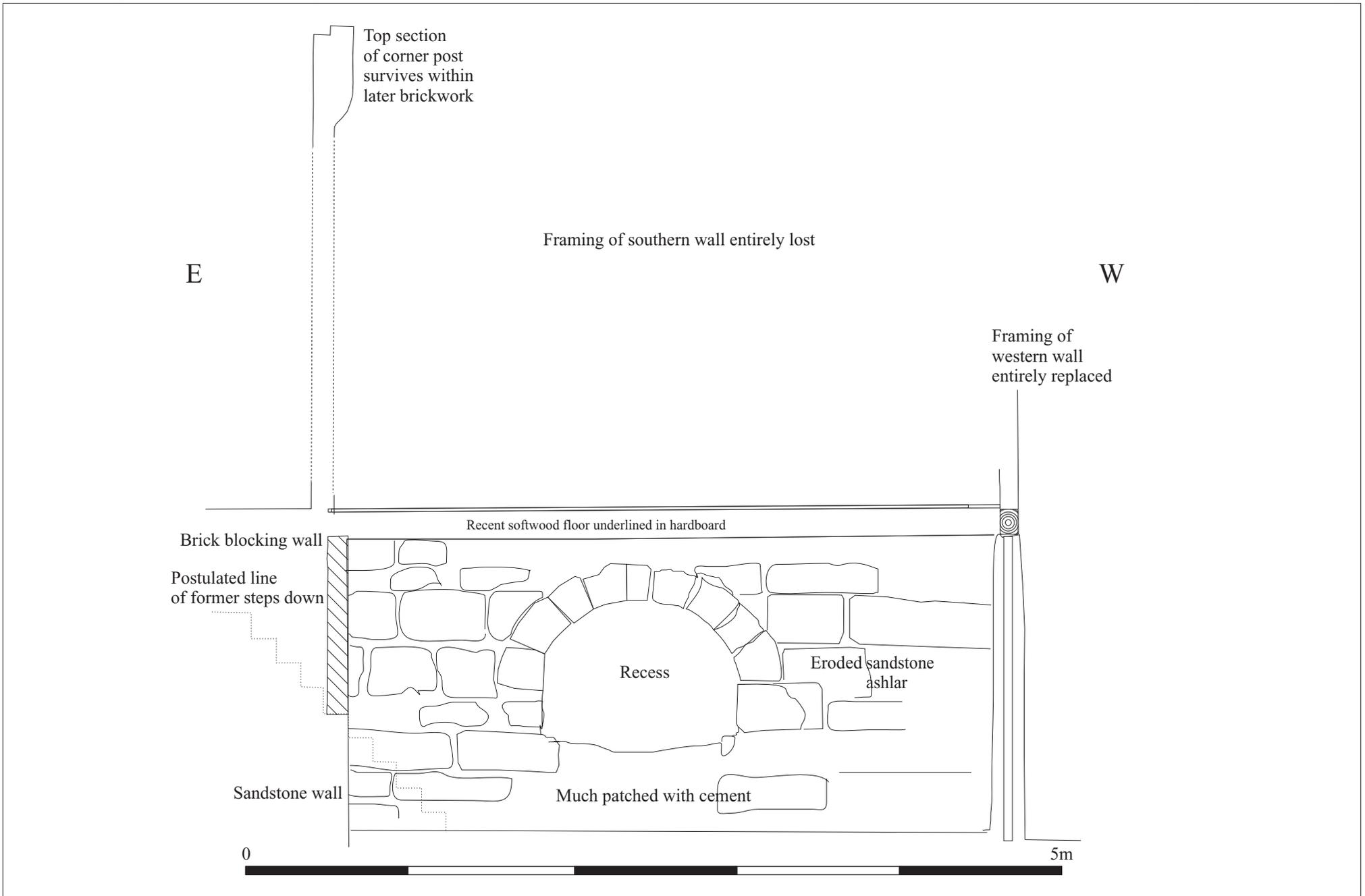


Figure 15: Internal elevation of southern wall of Building 1 basement



First floor level - view facing north



Framing of east wall of Building 1 exposed at ground floor level, note brick infill

Ground floor level -view facing south



Detail of carpenter's assembly marks as exposed in ground floor kitchen

Framing of east wall exposed at 1st floor level, note bracing

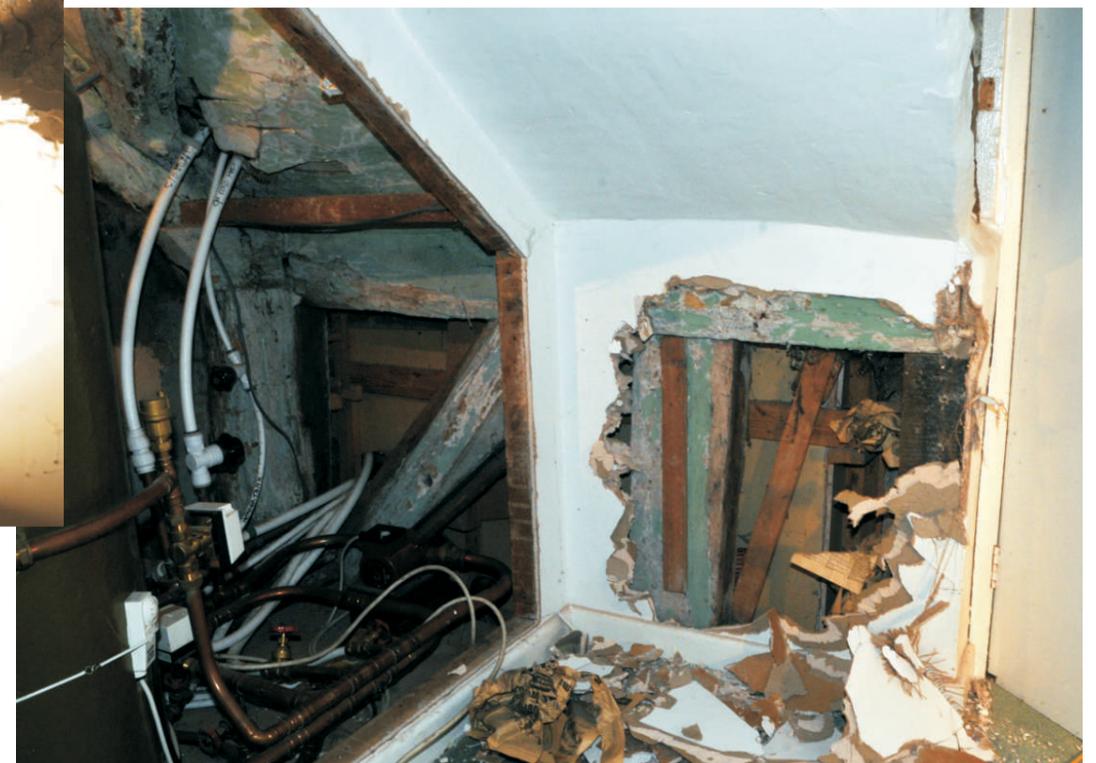


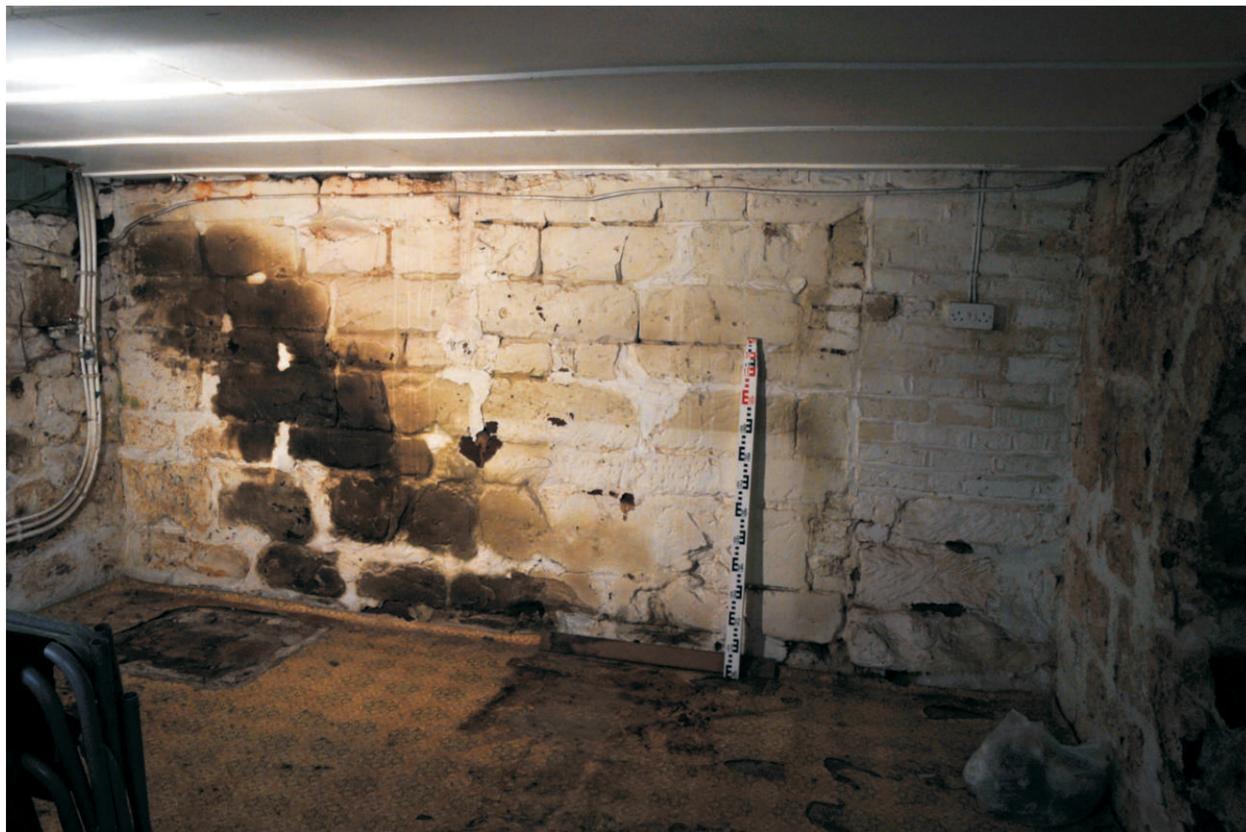
Figure 16: The interior of "Building 1" - very little original fabric was exposed, and the surviving timber frame was only revealed by stripping away plasterboard and blockwork. Almost none of the original framing of this building was exposed externally - the western and southern walls having been almost entirely rebuilt.



Southern wall of basement - note large arched recess of sandstone ashlar



Exterior of Building 1, basement door in foreground - both elevations had been completely rebuilt in the 20th C, but the framing of the western elevation possibly resembles the original arrangement. Staff extended to 5m high.



Eastern wall of basement - note bricked up probable stairway to RHS



Northern side of basement, showing infilled arched recess, and secondary fireplace

Figure 17: The interior of the stone built basement of "Building 1" - and view of the rebuilt exterior



Eastern end of 1st floor - note very irregular tie-beam of Truss 3 patched in plaster



Truss 2 - viewed from east



Eastern end of ground floor room showing re-used tie-beam and reconstructed first floor



Building 2 viewed from NE



Building 5 (to left) and Building 3 viewed from north west. Building 1 painted orange.



Building 6 viewed from north



Building 3 roof interior, note whitewashing of rafters

Building 4 viewed from south east





**TREE-RING ANALYSIS OF TIMBERS FROM
WINNALL LODGE,
LINEHOLT,
OMBERSLEY,
WORCESTERSHIRE**

**A J ARNOLD
R E HOWARD**

**TREE-RING ANALYSIS OF TIMBERS FROM WINNALL LODGE, LINEHOLT, OMBERSLEY,
WORCESTERSHIRE**

**A J ARNOLD
R E HOWARD**

SUMMARY

Analysis by dendrochronology of 15 of the 19 samples obtained from timbers in two ranges of this building (four samples having too few rings for reliable analysis), has resulted in the production of two separate site chronologies.

The first site chronology, OMBASQ01, comprises five samples (all from building 1), and has an overall length of 100 rings. These rings were dated as spanning the years 1527–1626. Interpretation of the sapwood on these samples shows that the all the dated timbers of building 1 were felled in 1626.

The second site chronology, OMBASQ02, also comprises five samples (all from building 2), this site chronology having an overall length of 98 rings. These rings were dated as spanning the years 1591–1688. Interpretation of the sapwood on these samples shows that the dated timbers of building 2 were probably all felled in 1688.

Five of the 15 measured samples remain ungrouped and undated.

NTRDL, 20 Hillcrest Grove, Sherwood, Nottingham, NG5 1FT
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alisonarnold@tree-ringdating.co.uk



Introduction

Winnall Lodge (SO 824 669, Figs 1a–c) appears to have originated as a seventeenth century hunting lodge. The original structure (hereafter referred to as building 1) consists of a two storey, single-bay, building of timber framing over a stone built basement. It is possible that there was a further bay or stair turret, but little evidence for the original arrangement survives, and it is more likely that there was an external chimney to the north elevation. A second building (building 2) was constructed to the east of the putative lodge, and the existing building was incorporated to form the western end of a three-bay cottage. A third section of the building (building 3), was added later still (see plan Fig 2).

The first documentary evidence for the building is the 1741 map of the Birchen Valley by J Doharty. This shows the house as then an L shaped, two storey, structure named as “Lodge”, and standing within an enclosure marked as “Old Garden”. The property was, by this time already in the hands of the Winnall family, which was one of the main land owning families in the vicinity from at least the fourteenth century to the late-nineteenth century.

Building 1

The greater quantity of remaining timber framing is found within both buildings 1 and 2. The northern truss of building 1 is unexceptional, being typical seventeenth century framing of principal rafters, tiebeam, and collar. The central opening between the tie beam and collar is rectangular, and might well have once contained a framed window, though no evidence of this was visible. Above the collar there are small raking queen-struts. The two purlins both may be original, though the extensive rebuilding of the southern and western walls and western roof-pitch has removed much of the evidence. There are raking straight windbraces between the purlins and the principal rafters of the northern gable end. The eastern wall of building 1 has been cut through for a central doorway (at the time when building 2 was constructed) but otherwise is intact, retaining the heads of both north-east and south-east corner posts, and two out of originally three studs. There are raking braces between the wall-plate soffit and the two corner posts, each double pegged to the wall-plate (Fig 3a). The central section of wall plate is lost, but it is highly probable that there was a further stud jointed to it at its' mid-point. Above the wall-plate the framing is all part of Truss 2 of Building 2.

Building 2

Building 2 consists of two bays, the easternmost being considerably longer than that to the west. Only the northern side wall framing survives, the southern wall having been rebuilt in brick in the twentieth century. The northern elevation is of fairly conventional box-framing. The westernmost bay of building 2 is unusually short (about 1.7m east to west), and appears to have been intended as a lobby and perhaps scullery, area. It contains the modern staircase, and it is probable that the original 1st floor access was in this bay. The design of the western-most truss of building 2 (Fig 3b) relies on the pre-existing framing of building 1 to a small extent, but actually stands just to the east of the earlier exterior wall. Building 2 therefore butts against building 1 and is almost entirely structurally independent of the earlier building.

Building 3

Building 3 is a single storey one bay building of brick, built against the northern face of building 1. The building may have had some earlier antecedent, as the plinth on which it stands contains some stonework, and there is a very small amount of surviving timber (possibly framing) in the eastern wall where it abutts the corner of building 2. The present building 3 is, however, of early-mid nineteenth century brick with later modifications.

Sampling

Sampling and analysis by tree-ring dating of the timbers within Winnall Lodge were commissioned by Mike Napthan Archaeology on behalf of the owners, Mr and Mrs Martyn-Smith. This was undertaken as a condition of a planning application granted for demolition of the house, and as part of a survey and recording project designed to provide a reliable and independent assessment of the historical and architectural value of the buildings (Napthan 2011). It was hoped that tree-ring analysis would provide dating evidence for both buildings 1 and 2.

Thus, from the suitable timbers available a total of 19 core samples was obtained. Each sample was given the code OMB-A (for Ombersley, site 'A') and numbered 01–19. An attempt was made to distribute the samples from the suitable available timbers throughout the two timber-framed parts of the building (building 1 and building 2) to ensure that any differences in date might be detected, and to ensure that any possible variations in construction might be identified. Twelve samples, OMB-A01–A12, were obtained from building 1, with a further seven samples, OMB-A13–A19, being obtained from building 2, the smaller number in the latter reflecting the smaller number of suitable timbers here. No samples were obtained from building 3, the few available timbers here being of a material other than oak.

The sampled timbers are located on drawings or photographs made and provided by Mike Napthan, of Mike Napthan Archaeology, these being given here as Figures 4a–d. Details of the samples are given in Table 1, including the timber sampled and its location, the total number of rings each sample has, and how many of these, if any, are sapwood rings. The individual date span of each dated sample is also given. In this Table, and on the drawings, the trusses, bays, and individual timbers, have been located on a site north–south/east–west basis as appropriate.

The Nottingham Tree-ring Dating Laboratory would like to take this opportunity to thank Mr and Mrs Martin-Smith, the new owners of Winnall Lodge, for allowing sampling and for generously funding this programme of analysis. We would also like to thank Mike Napthan for promoting this programme of tree-ring analysis and for providing information from his own report, used in the introduction above, and the drawings and photographs used elsewhere in this report.

Tree-ring dating

Tree-ring dating relies on a few simple, but quite fundamental, principles. Firstly, as is commonly known, trees (particularly oak trees, the timber most commonly found preserved in archaeological excavations) grow by adding one, and only one, growth-ring to their circumference each, and every, year. Each new annual growth-ring is added to the outside of the previous year's growth just below the bark. The width of this annual growth-ring is largely, though not exclusively, determined by the weather conditions during the growth period (roughly March–September). In general, good conditions produce wider rings and poor conditions produce narrower rings. Thus, over the lifetime of a tree, the annual growth-rings display a climatically influenced pattern. Furthermore, and importantly, all trees growing in the same area at the same time will be influenced by the same growing conditions and the annual growth-rings of all of them will respond in a similar, though not identical, way.

Secondly, because the weather over any number of consecutive years is unique, so too is the growth-ring pattern of the tree. The pattern of a short period of growth, 20, 30, or even 40 consecutive years, might conceivably be repeated two or even three times in the last one thousand years. A short pattern might also be repeated at different time periods in different parts of the country because of differences in regional micro-climates. It is less likely, however, that such problems would occur with the pattern of a longer period of growth, that is, anything in excess of 50 years or so. In essence, a short period of growth, anything less than 50 rings, is not reliable, and the longer the period of time under comparison the better.

Tree-ring dating relies on obtaining the growth pattern of trees from sample timbers of unknown date by measuring the width of the annual growth-rings. This is done to a tolerance of 1/100 of a millimeter. The growth patterns of these samples of unknown date are then compared with a series of reference patterns or chronologies, the date of each ring of which is known. When the growth-ring sequence of a sample “cross-matches” repeatedly at the same date span against a series of different relevant reference chronologies the sample can be said to be dated. The degree of cross-matching, that is the measure of similarity between sample and reference, is denoted by a “*t*-value”; the higher the value the greater the similarity. The greater the similarity the greater is the probability that the patterns of samples and references have been produced by growing under the same conditions at the same time. The statistically accepted fully reliable minimum *t*-value is 3.5.

However, rather than attempt to date each sample individually it is usual to first compare all the samples from a single building, or phase of a building, with one another, and attempt to cross-match each one with all the others from the same phase or building. When samples from the same phase do cross-match with each other they are combined at their matching positions to form what is known as a “site chronology”. As with any set of data, this has the effect of reducing the anomalies of any one individual (brought about in the case of tree-rings by some non-climatic influence) and enhances the overall climatic signal. As stated above, it is the climate that gives the growth pattern its distinctive pattern. The greater the number of samples in a site chronology the greater is the climatic signal of the group and the weaker is the non-climatic input of any one individual.

Furthermore, combining samples in this way to make a site chronology usually has the effect of increasing the time-span that is under comparison. As also mentioned above, the longer the period of growth under consideration, the greater the certainty of the cross-match. Any site chronology with less than about 55 rings is generally too short for reliable dating.

Having obtained a date for the site chronology as a whole, the date spans of the constituent individual samples can then be found, and from this the felling date of the trees represented may be calculated. Where a sample retains complete sapwood, that is, it has the last or outermost ring produced by the tree before it was cut, the last measured ring date is the felling date of the tree.

Where the sapwood is not complete it is necessary to estimate the likely felling date of the tree. Such an estimate can be made with a high degree of reliability because oak trees generally have between 15 to 40 sapwood rings. For example, if a sample with, say, 12 sapwood rings has a last sapwood ring date of 1400 (and therefore a heartwood/sapwood boundary ring date of 1388), it is 95% certain that the tree represented was felled sometime between 1403 (1400+3 sapwood rings (12+3=15)) and 1428 (1400+28 sapwood rings (12+28=40)).

Analysis

All 19 samples obtained from Winnall Lodge were prepared by sanding and polishing. It was seen at this time that four samples, OMB-A07, A10, A12, and A18, had fewer than 50 rings, the minimum here deemed necessary for reliable dating, and these were rejected from this programme of analysis. The growth ring widths of the remaining 15 samples were, however, measured and then compared with each other as described in the notes above. By this process two groups of cross-matching samples could be formed.

The first group comprises five samples, all of them from the timbers of building 1. The five samples were combined at their cross-matching positions to form OMBASQ01, a site chronology with an overall length of 100 rings. This site chronology was then satisfactorily dated by repeated and consistent comparison with a large number of relevant reference chronologies for oak as spanning the years 1527 to 1626. The evidence for this dating is given in the *t*-values of Table 2.

The second group also comprises five samples, all of them from the timbers of building 2. These five samples were combined at their cross-matching positions to form OMBASQ02, a site chronology with an overall length of 98 rings. This site chronology was then satisfactorily dated by repeated and consistent comparison with a large number of relevant reference chronologies for oak as spanning the years 1591 to 1688. The evidence for this dating is given in the *t*-values of Table 3. The length, relative position, overlap, and date of the cross-matching samples of these two site chronologies is given in the bar diagram Figure 5.

The five remaining measured but ungrouped samples were then compared individually with the full corpus of reference data, but there was no further cross-matching. These five samples must, therefore, remain undated.

Interpretation

Site chronology OMBASQ01 (building 1)

Analysis of 18 of the 19 samples obtained from a wide range of timbers at Winnall Lodge has produced two dated site chronologies. As may be seen from Table 1 and the bar diagram, Figure 5, two of the five samples in site chronology OMBASQ01, samples OMB-A01 and A08, retain complete sapwood (the last ring produced by the tree from which the beam has been derived before it was cut down), this being indicated by upper case 'C'. In both cases this last, complete, growth ring, and thus the felling of the trees represented, is dated to 1626.

A further dated sample in this site chronology, OMB-A02, comes from a timber which also has complete sapwood on it, but from which, due to the soft and fragile nature of this part of the wood, a small amount of the sapwood has been lost in coring (this indicated by lower case 'c' in Table 1 and the bar diagram). Under such circumstances, having noted at the time of sampling the amount of core lost, it is possible to estimate the likely number of sapwood rings the lost section might have contained. In this instance it is estimated that the tree represented by sample OMB-A02 was almost certainly felled in 1626 as well.

Of the two remaining samples in this site chronology, OMB-A04 retains the heartwood/sapwood boundary (that is, all the sapwood rings, but *only* the sapwood rings, are missing), this boundary being dated to 1606. This is an almost identical date to that on the timbers whose felling date is known, and it is likely that the timber represented by this sample was felled in 1626 as well. The final sample, OMB-A06, is without the heartwood/sapwood boundary and thus its felling date cannot be reliably determined. However, with a last, heartwood, ring date of 1595, this is unlikely to have been before 1610 (based on a 95% probability of it having a minimum of 15 sapwood rings), and given that the source beam, the north-east wall post, is integral to the structure and show no evidence of being either an older piece reused, or a newer piece more recently inserted, there is little reason to suspect that it too was not felled in 1626.

Site chronology OMBASQ02 (building 2)

Two of the dated samples in site chronology OMBASQ02, samples OMB-A15 and A16, also retain complete sapwood. In this case the last, complete, growth ring on both samples, and thus the felling of the two trees represented, is dated to 1688. Likewise, a further dated sample in this site chronology, OMB-A14, comes from a timber which has complete sapwood on it, but from which again a small amount of the sapwood has been lost from the sample in coring. An estimate of the likely number of sapwood rings the lost section of this sample might have contained would suggest that the tree represented was almost certainly felled in 1688 as well.

The two remaining samples in this site chronology, OMB-A17 and A19, both retain the heartwood/sapwood boundary, this being dated to 1664 and 1660, respectively. As may be seen from Table 1 and the bar diagram, Figure 5, this is again at an almost identical date to that on the timbers of this second group whose felling date is known, and it is likely that the

timber represented by this sample was felled in 1688 as well, there again being no evidence of either timber being reused or inserted.

It would appear, therefore, that building 1 is constructed of timber felled in 1626 specifically for its construction, while the timbers of building 2 were felled in 1688 for its construction.

Undated samples

Five of the 15 measured samples remain ungrouped and undated, four from building 1 and one from building 2. Two of these ungrouped samples from building 1 have low numbers of rings and, along with two longer ungrouped building 1 samples, also have occasional bands of very narrow and distorted rings. It is probable that this disturbance is the result of some abiotic influence other than the weather such as shredding of the leaves, coppicing, or pollarding, the period of reduced growth being followed by periods of wider ring growth. Whatever the cause, the climatic influence, the main element by which tree rings are compared with each other and then dated by matching with the reference chronologies, has been negated, and such samples are impossible to date reliably, if at all. However, given that all four timbers from building 1 show this phenomenon, it is very likely that they are all of the same phase as each other.

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Table 2: Results of the cross-matching of site chronology OMBASQ01 and relevant reference chronologies when the first ring date is 1527 and the last ring date is 1626

Reference chronology	t-value	
Lodge Farm, Staunton Harold, Leics	7.2	(Arnold <i>et al</i> 2008)
Monk's Hall, Eccles, Greater Manchester	6.9	(Arnold and Howard 2010)
East Midlands Master Chronology	6.1	(Laxton and Litton 1988)
Leicester's Stables, Kenilworth Castle, Warwicks	5.4	(Howard <i>et al</i> 2006)
Astley Castle, Warwickshire	5.4	(Howard <i>et al</i> 1997)
Stoneleigh Abbey, Stoneleigh, Warwicks	5.2	(Howard <i>et al</i> 2000)
Old Hall, Weston on Trent, Derbys	5.1	(Arnold and Howard 2009 unpubl)

Table 3: Results of the cross-matching of site chronology OMBASQ02 and relevant reference chronologies when the first ring date is 1591 and the last ring date is 1688

Reference chronology	t-value	
East Midlands Master Chronology	10.2	(Laxton and Litton 1988)
Worcester Cathedral composite chronology	8.4	(Arnold and Howard 2008 unpubl)
Old Barn, Shotton, Warwicks	8.2	(Howard <i>et al</i> 1996)
Exeter Cathedral composite later chronology	6.6	(Arnold <i>et al</i> 2002)
England, London	6.2	(Tyers and Groves 1999 unpubl)
10 High Street, Stourbridge, W Mids	6.1	(Howard <i>et al</i> 1993)
Hulme Hall, Allostock, Cheshire	5.8	(Howard <i>et al</i> 2003b)
Combermere Abbey, Cheshire	5.3	(Howard <i>et al</i> 2003a)

Site chronologies OMBASQ01 and SQ02 are composites of the data of the five cross-matching samples of each group, this producing 'average' tree-ring patterns, where the overall climatic signal of the growth pattern is enhanced, and the erratic variations of any one individual is reduced. These 'averaged' site chronologies are then compared with several hundred reference patterns for every time period from every part of Britain.

As can be seen here, OMBASQ01 matches only when its 100 rings span the years 1527–1626, and OMBASQ02 only when its 98 rings span 1591–1688, the tables above giving only a small selection of the very best matches, as represented by 't-values' (ie, degrees of similarity). It may be seen that while there are some very good 'out of area' cross-matches, ie, OMBASQ02 and the East Midlands Master (itself a composite of a great number of samples from the East Midland), with a value of $t=10.2$, the best cross-matches are with chronologies from western and south-western England.

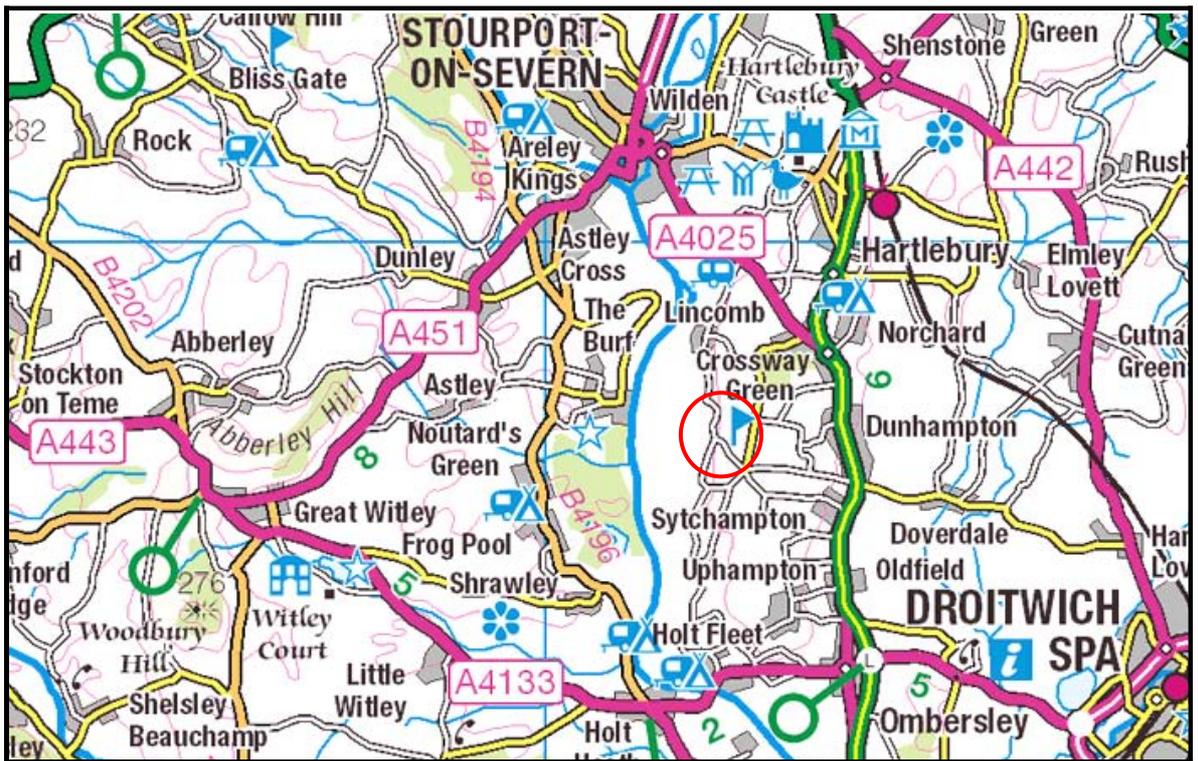
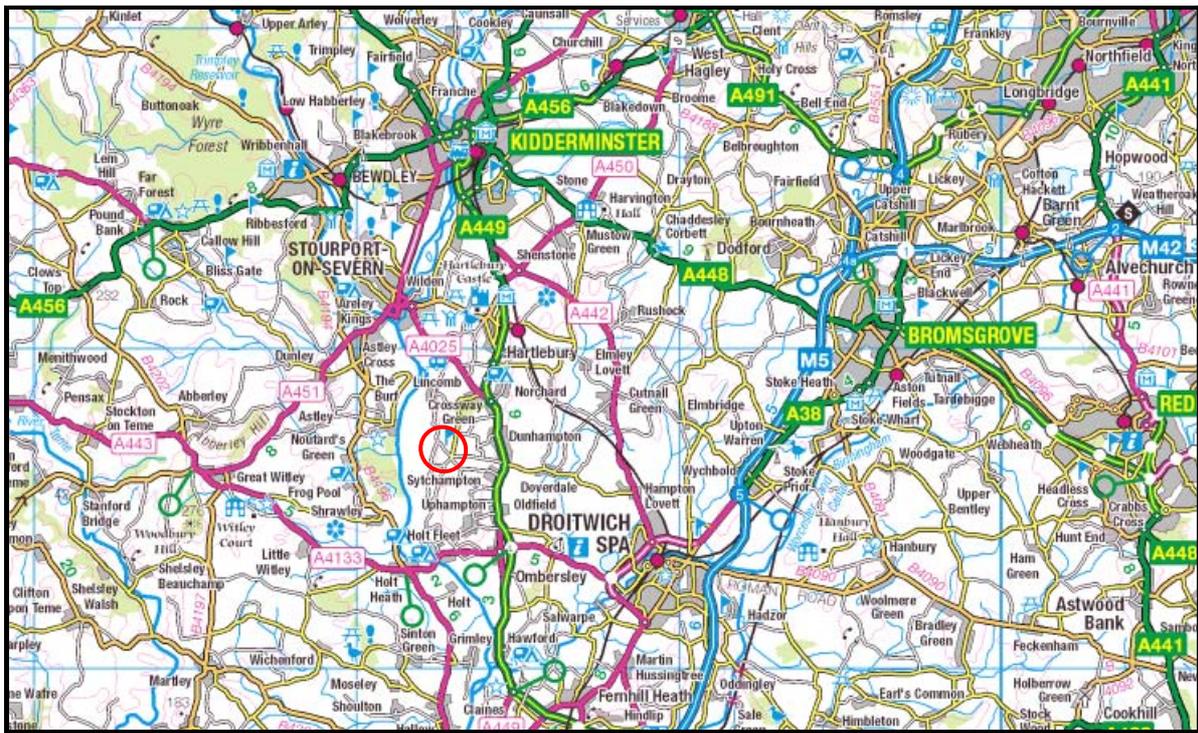


Figure 1a/b: Map to show general location of Winnall Lodge

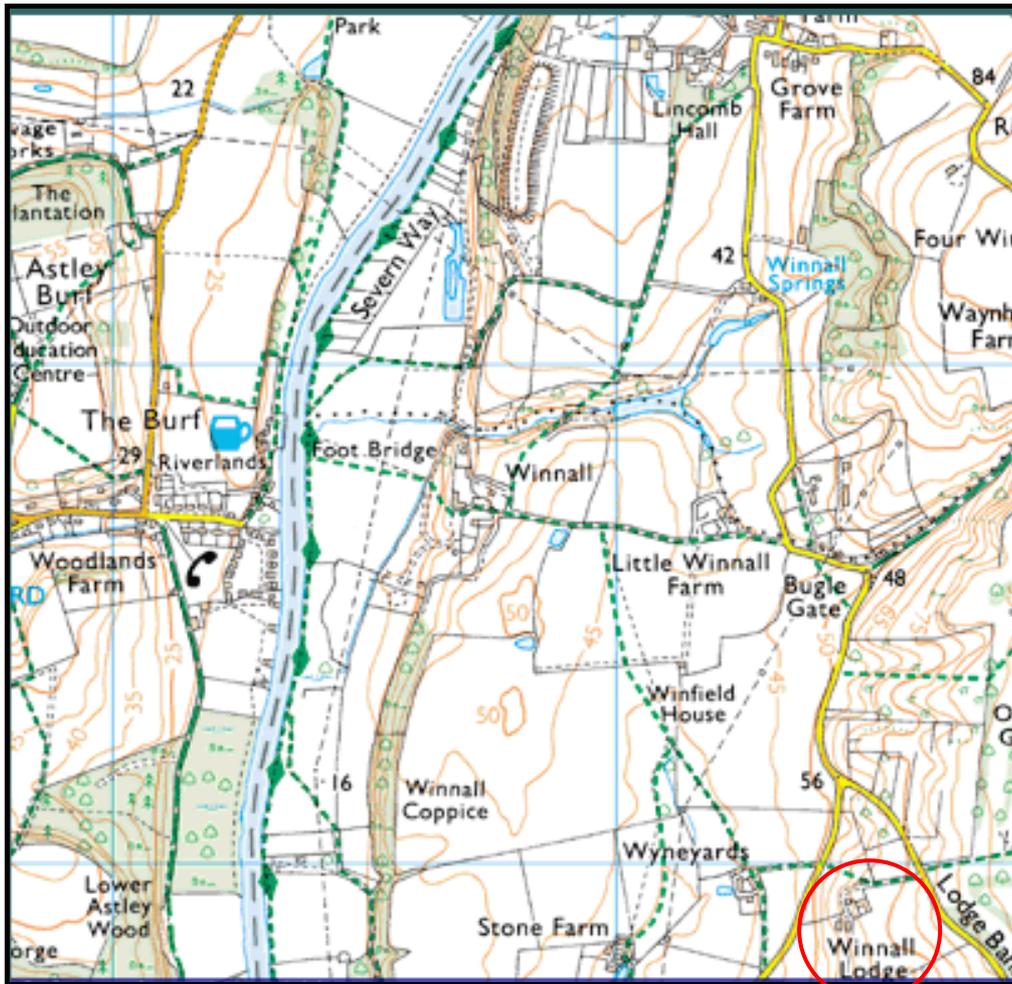


Figure 1c: Map to show specific location of Winnall Lodge

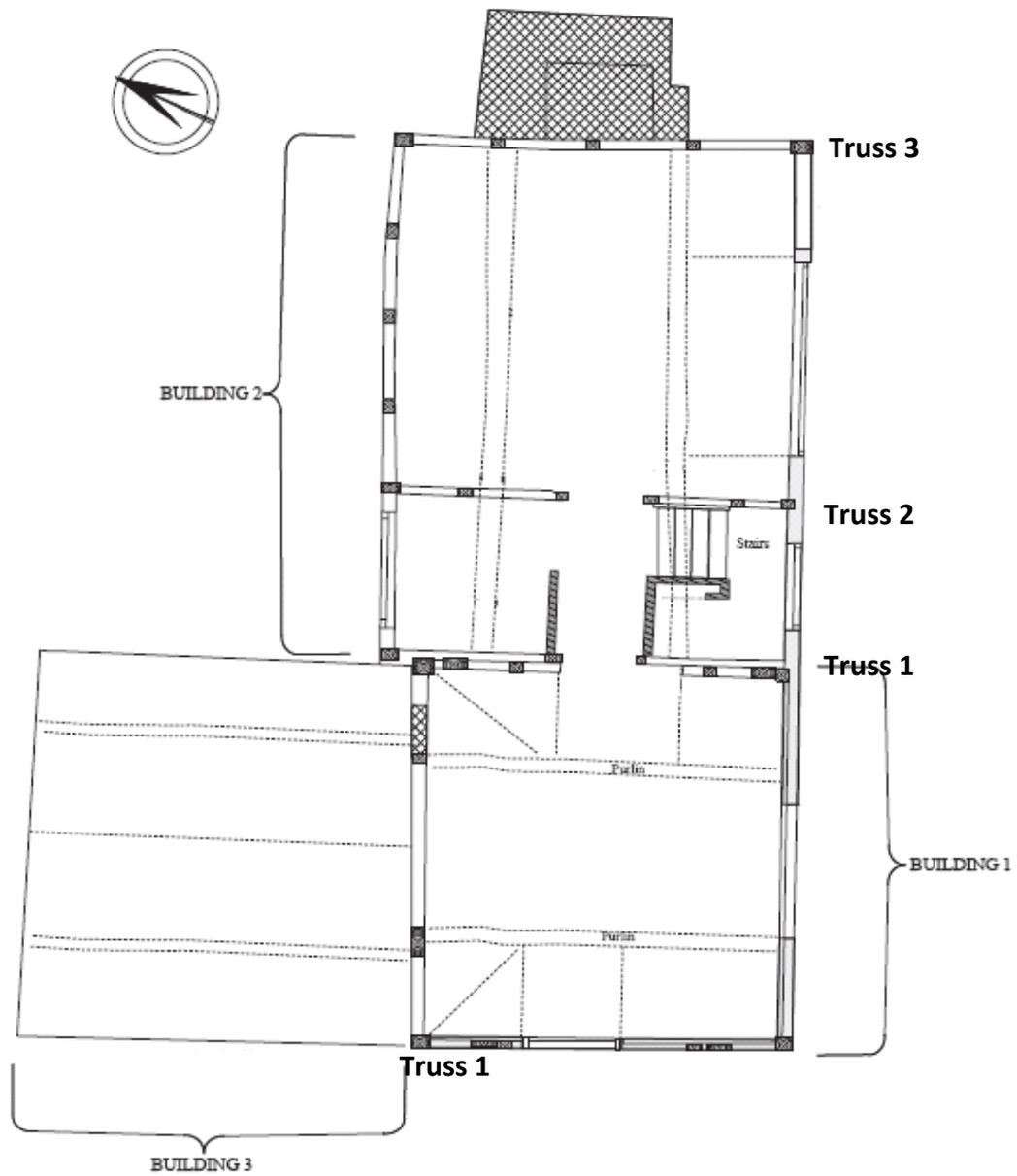


Figure 2: Plan of Winnall Lodge, Lineholt to show layout of buildings 1–3 and the position of the trusses (after Mike Napthan Archaeology)



Figure 3a/b: Views of the timbers framing, north-east corner of building 1 (top), and north end of truss 2 in building 2 (bottom)

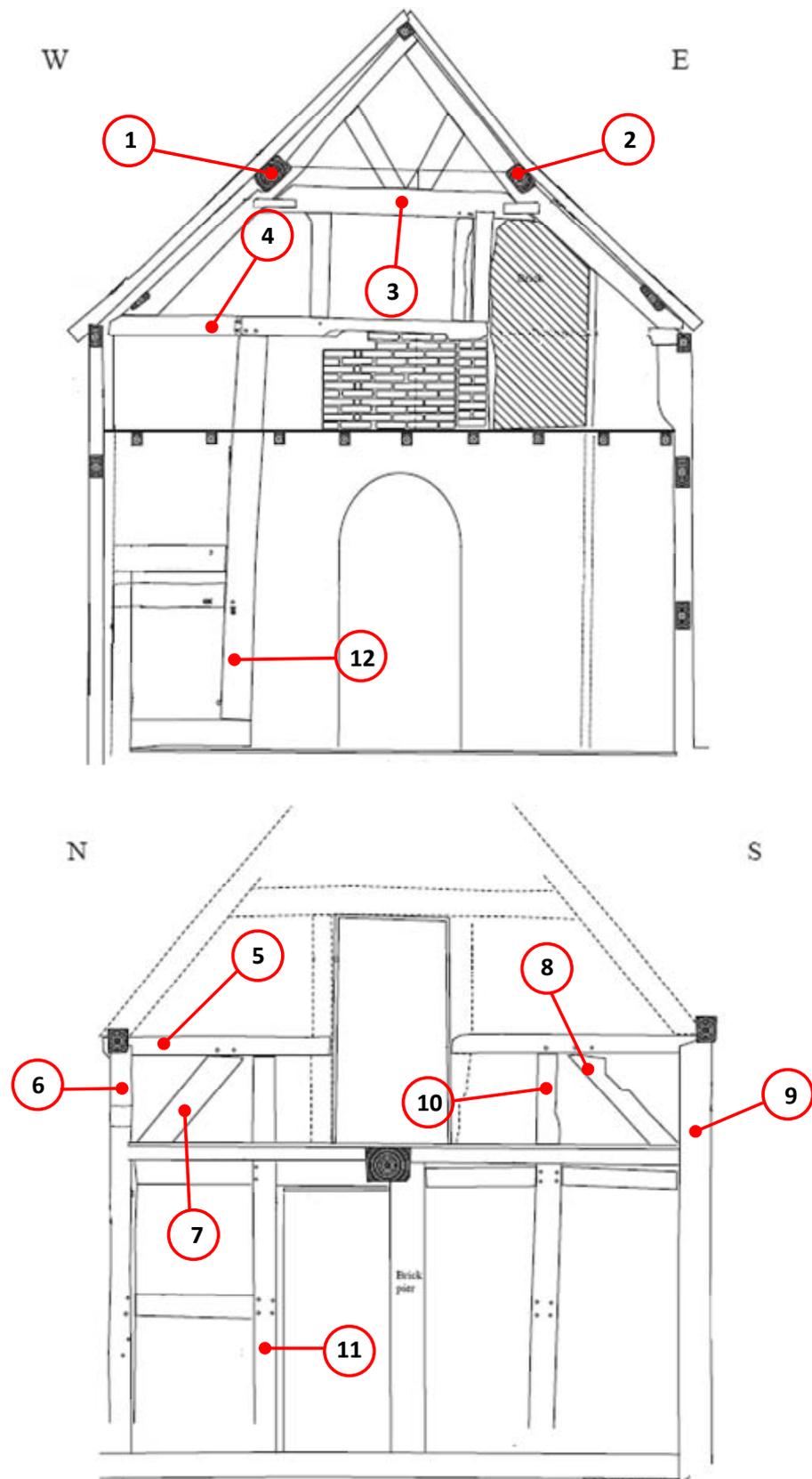


Figure 4a/b: Section through truss 1 (top) and the east wall (bottom) of building 1 to show sampled timbers (after Mike Napthan Archaeology)

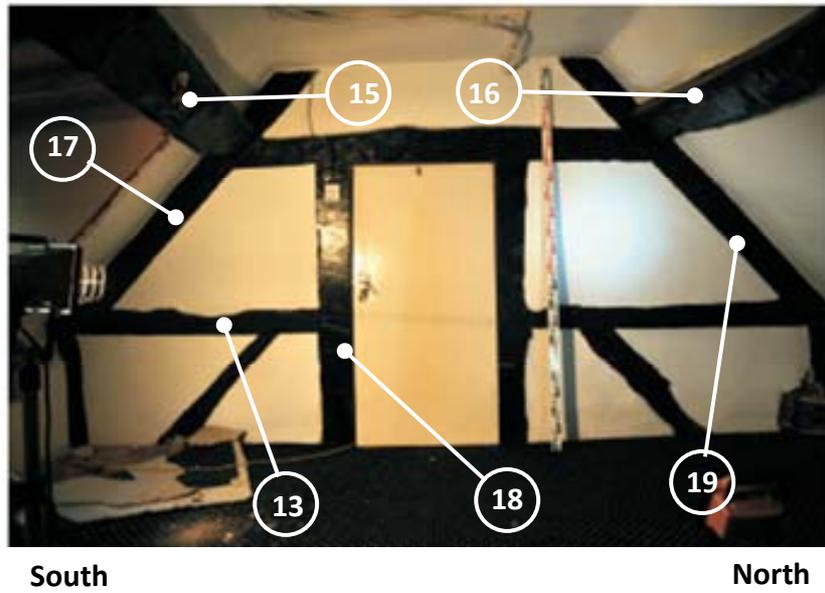


Figure 4c-d: Views of the trusses 2 (top) and 3 (bottom) in building 2 to show sampled timbers (photo by Mike Napthan Archaeology)

Table 1: Details of tree-ring samples from Winnall Lodge, Lineholt, Ombersley, Worcestershire

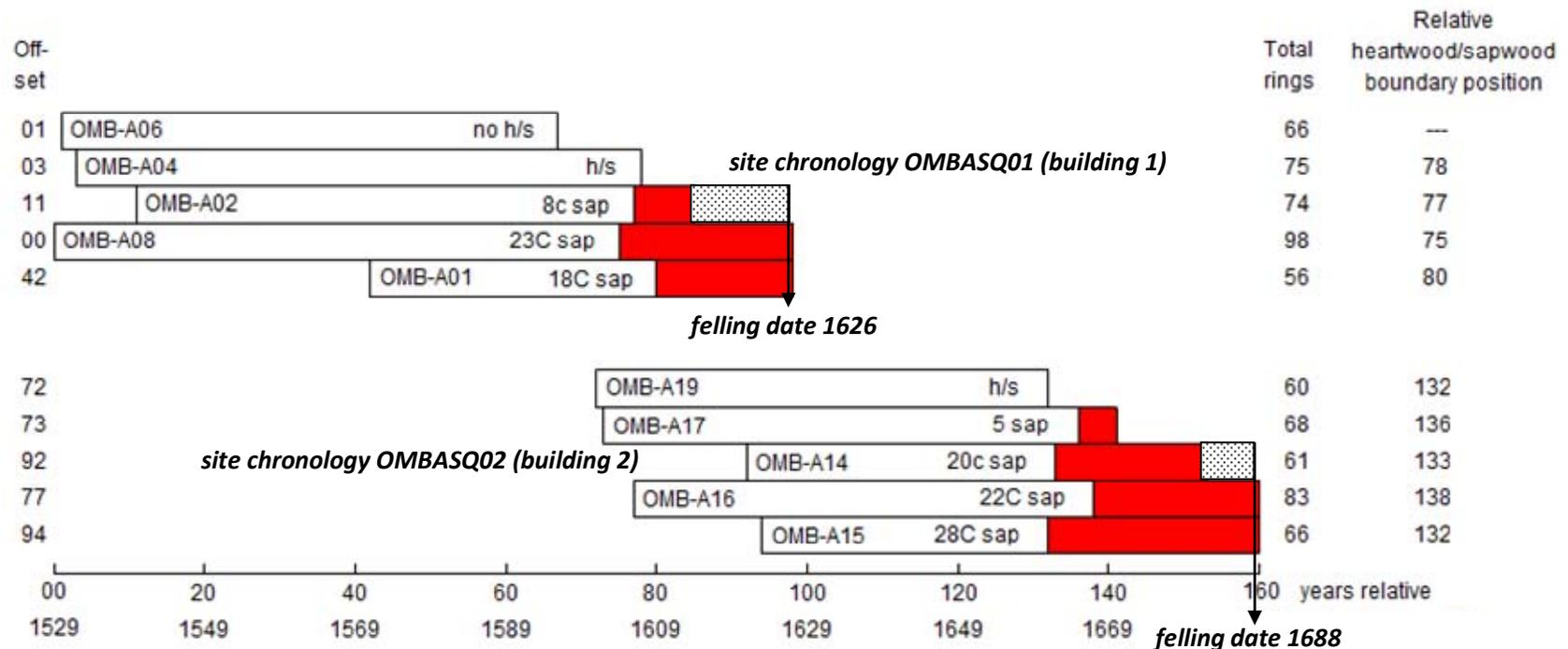
Sample number	Sample location	Total rings	Sapwood rings*	First measured ring date (AD)	Heart/sap boundary (AD)	Last measured ring date (AD)
<i>Building 1</i>						
OMB-A01	West purlin, truss 1 – north gable	56	18C	1571	1608	1626
OMB-A02	East purlin, truss 1 – north gable	74	8c	1540	1605	1613
OMB-A03	Collar, truss 1	54	no h/s	-----	-----	-----
OMB-A04	Tiebeam, truss 1	75	h/s	1532	1606	1606
OMB-A05	East wall plate, truss 1 – north gable	54	h/s	-----	-----	-----
OMB-A06	North east corner wall post	66	no h/s	1530	-----	1595
OMB-A07	Brace, north-east corner post to wall plate	nm	---	-----	-----	-----
OMB-A08	Brace south-east corner post to wall plate	98	23C	1529	1603	1626
OMB-A09	South-east corner wall post	79	27	-----	-----	-----
OMB-A10	Stud post, south end, east wall	nm	---	-----	-----	-----
OMB-A11	Stud post, north gable wall	77	17	-----	-----	-----
OMB-A12	Stud post to north end, east wall	nm	---	-----	-----	-----
<i>Building 2</i>						
OMB-A13	Cross-rail, first floor, truss 2	61	6	-----	-----	-----
OMB-A14	Tiebeam, truss 3	61	20c	1621	1661	1681
OMB-A15	South purlin, truss 2 – 3	66	28C	1623	1660	1688
OMB-A16	North purlin, truss 2 – 3	83	22C	1606	1666	1688
OMB-A17	South principal rafter, truss 2	68	5	1602	1664	1669
OMB-A18	South stud post, truss 2	nm	---	-----	-----	-----
OMB-A19	North principal rafter, truss 2	60	h/s	1601	1660	1660

*h/s = the last measured ring on the sample is at the heartwood/sapwood boundary, ie, only the sapwood rings are missing

c = complete sapwood is found on the timber, but all or part has been lost from the sample in coring

C = complete sapwood is retained on the samples and the last measured ring date is the felling date of the tree represented

nm = sample not measured



Blank bars = heartwood rings, shaded bars = sapwood rings, hatched bars = estimated lost sapwood rings
 h/s = heartwood/sapwood boundary
 c = complete sapwood is found on the timber but a portion of this has been lost from the sample in coring
 C = complete sapwood is retained on the samples and the last measured ring date is the felling date of the tree represented

Figure 5: Bar diagram of the samples in site chronologies OMBASQ01 and OMBASQ02 at positions indicated by the separate dating of each one. The samples in the two separate site chronologies are shown in the form of bars at positions where the ring variations of the samples in each group cross-match with each other. This similarity is produced by the trees represented by each site chronology growing in the same place, *at the same time* (there is insufficient overlap in date between the two site chronologies for a cross-match to be reliable). The samples are combined to form two ‘site chronologies’, which are compared with the ‘reference’ chronologies. It will be noticed that samples A01 and A08 in group 1, and A15 and A16 in group 2, have the last growth ring produced by the trees before they were cut down, and that each pair stopped growing at the same time. This last growth, and thus their felling, has been dated respectively to 1626 and 1688.