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Dendrochronological Research in Devon: Phase 1

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(with contributions from John Thorp)

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Summary

The assessment of a series of buildings and subsequent analysis of 20 phases of construction, for which dating evidence was produced for 14, has highlighted the widespread use of very young trees across the county but has also demonstrated that the overall success rate for dating buildings in Devon can be increased. The 544-year chronology produced for mid-Devon is a valuable addition to the local chronological network. Information obtained during the assessment and analysis stages can be used to enhance the understanding of the historic landscape. In addition the production of dating evidence for 14 of the phases analysed has aided the understanding of the typological development of local building traditions and two apparent lulls in building activity in the medieval period have been noted.

Keywords

Dendrochronology
Standing Building

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INTRODUCTION

This document is a technical archive report on the dendrochronological assessment of over 70 phases of construction and the subsequent analysis of 20 phases in the county of Devon. They represent Phase 1 of the research project 'Dendrochronological Research in Devon' funded jointly by English Heritage and Devon County Council. The project was initiated to address the difficulties encountered in the county as far as the provision of dendrochronological dates for medieval and post-medieval buildings was concerned. Whilst this research project was initiated in 1994 it had to be suspended following the initial analysis due to the unforeseen early retirement of a colleague and resultant reprioritisation of projects.

The primary aim of the project was to significantly increase the amount of data available from all areas of the county, providing a network of well-replicated, interlinking chronologies spanning most of the last millennium, thus incorporating both historic buildings and living woodlands. It was hoped that this would result in an increase in the success rate as far as the dating of individual buildings or phases are concerned. This would in turn allow the typological chronology for the development of traditional building techniques to be refined by providing anchor points for certain key buildings/features. The emphasis was very much on the acquisition of data for chronology construction purposes and hence the primary selection criterion for the inclusion of a building in the project was determined by its dendrochronological potential. A series of other related aims were also identified which are concerned with the broader application of dendrochronology and obtaining a better understanding of the problems encountered in the application of dendrochronology to historic timber assemblages. More detailed background information to the project will be presented in the final report.

It is beyond the dendrochronological brief to describe each building in detail or undertake the production of detailed drawings. However Keystone Historic Building Consultants (Keystone) were commissioned to organise access to buildings of potential interest and to undertake basic recording of the buildings selected for analysis. Detailed information, including measured drawings of each building, is given in the relevant Keystone reports. This dendrochronological report provides brief descriptions and reproduces some drawings as necessary but it is felt inappropriate to duplicate the more detailed information given in the individual building reports produced by Keystone.

The analyses presented in this document are part of an on-going dendrochronological research project, consequently the conclusions presented here may have to be modified in the light of subsequent work. The report confines itself to the presentation of the basic results and highlights other aspects of the dendrochronological study that will be more fully addressed as appropriate in future reports or publications as the research project progresses. It is hoped that this will lead to a comprehensive publication incorporating the dendrochronological, architectural and documentary evidence.

METHODOLOGY

The general methodology and working practices used at the Sheffield Dendrochronology Laboratory are described in English Heritage (1998). The following provides relevant methodological details used for Phase 1 of this research project.

Assessment and Selection

The project was planned as a series of discrete phases in order to allow reassessment and modification as necessary to the methodological approaches employed and to assess the success of the project. Each phase was to result in the dendrochronological analysis and survey of about 20 historic buildings or building phases.

To aid the development of an initial strategy it was felt that a better understanding of the historic timber resources was desirable. This could be best achieved by undertaking an assessment of a range of buildings throughout the county. The assessment was carried out to determine the dendrochronological potential of each building or phase. This information was then used to devise a suitable overall selection strategy for the project.

Oak (*Quercus* spp.) is currently the only species used for routine dating purposes in the British Isles, although research on other species is being undertaken (Tyers 1998; Groves 2000; Groves 2004). Timbers with less than 50 annual growth rings are generally considered unsuitable for analysis as their ring patterns may not be unique (Hillam *et al* 1987). Thus oak timbers were sought, which had at least 50 rings and if possible had either bark/bark edge or some sapwood surviving as this is important in the production of precise dating evidence (see below). In addition it is necessary to have a sufficient number of suitable timbers in each phase of construction. The minimum recommended number of timbers per phase is 8-10 (English Heritage 1998). The availability of several suitable timbers increases the likelihood of producing a replicated site chronology and hence improves the chances of obtaining a date. Information concerning general access, availability of power, and other practical considerations was also noted during the assessment. Each phase assessed was graded accordingly on a five point scale: grade A indicated that the phase was considered to have excellent potential; grade E indicated that the phase was considered to have no potential. The assessment forms (English Heritage 1998, Table 4) have proved valuable when undertaking the assessment of a whole series of buildings. The grading system is only relevant when a whole series of buildings are assessed as part of a single project. Grading is only comparable within the relevant project as it will differ between regions according to both the overall quality of buildings with respect to dendrochronological potential and the aims of the project. The scatter of buildings suitable for dendrochronological purposes is not uniform in either geographical or chronological spread across the country. Thus some regions of the country have many buildings containing eminently suitable timbers, whereas other regions, such as Devon, have many buildings considered to be borderline or rejects.

This assessment process identified the buildings most likely to aid the overall aims of the project and therefore allowed strategic selection of buildings which would undergo full dendrochronological analysis and, as a consequence, basic recording in

order to place the building in an historical and typological context. The primary selection criteria were based on dendrochronological requirements and hence the inclusion of a building in the project for full analysis and recording was determined by its dendrochronological potential.

Sampling and Analysis

Recording was carried out by Keystone simultaneously with the dendrochronological sampling, apart from a few cases where the building had already been recorded to a suitable level. This process ensured that the precise location of each sample removed for dendrochronological analysis could be recorded.

Immediately before sampling a brief reassessment was undertaken throughout the phase of interest to identify the individual timbers considered most suitable for analysis. The sampling strategy in a building is usually designed to take in as wide a range of structural elements as possible throughout the areas of interest, whilst seeking the most suitable timbers, in order to provide comprehensive dating evidence for each phase. However since the primary aim of this project is to provide a network of well-replicated, interlinking chronologies for the county, the emphasis was placed on the dendrochronological requirements for the overall project and rather less so on the requirements for the individual building. The production of precise felling dates, whilst clearly desirable, was of less importance than usual, so sampling was more biased to those timbers with the most rings.

The selected timbers were sampled by the removal of cores. The cores are taken, using a 15mm diameter corer attached to an electric drill, in a position and direction most suitable for maximising the numbers of rings in the sample, whilst ensuring the presence of sapwood and bark edge whenever possible.

The ring sequence of each sample was revealed by a combination of sanding and paring until the annual growth rings were clearly defined. Any samples that fail to contain the minimum number of rings or have unclear ring sequences are rejected. The sequence of growth rings in suitable samples was measured to an accuracy of 0.01mm using a purpose-built travelling stage attached to a microcomputer-based measuring system (Tyers 2004). The ring sequences were plotted onto semi-logarithmic graph paper to enable visual comparisons to be made between them with the aid of a lightbox. In addition, cross-correlation algorithms (Baillie and Pilcher 1973; Munro 1984) were employed to search for positions where the ring sequences were highly correlated. The Student's *t*-test is then used as a significance test on the correlation coefficient. The *t*-values quoted below are derived from the original CROS algorithm (Baillie and Pilcher 1973). A *t*-value of 3.5 or over is usually indicative of a good match (Baillie 1982), provided that high *t*-values are obtained at the same relative or absolute position with a series of independent sequences and that the visual match is satisfactory.

Dating is usually achieved by comparing, or crossmatching, ring sequences within a phase or structure and combining the matching patterns to form a phase or site master curve. This master curve and any remaining unmatched ring sequences are then tested against a range of reference chronologies, using the same matching criteria as above. The position at which all the criteria are met provides the calendar dates for the ring sequences. A master curve is used for absolute dating purposes

whenever possible as it enhances the common climatic signal and reduces the background 'noise' resulting from the local growth conditions of individual trees. If a site master curve is successfully dated then each individual ring sequence included in the site master chronology can be assigned a date, which indicates when the tree from which the timber was derived was growing.

During the crossmatching stage an additional potentially important element of tree-ring analysis is the identification of 'same-tree' timber groups. The identification of 'same-tree' groups is based on very high levels of similarity in year to year variation, longer-term growth trends, and anatomical anomalies. Such information ideally should be used to support possible 'same-tree' groups identified from similarities in the patterns of knots/branches during detailed recording of timbers for technological and woodland characterisation studies. Timbers originally derived from the same parent log generally have *t*-values exceeding 10.0, though lower *t*-values do not necessarily exclude the possibility. It is a balance of the range of information available that provides the 'same-tree' link.

The crossdating process provides precise calendar dates only for the rings present in the timber. The nature of the final (youngest) ring in the sequence determines whether the date of this ring also represents the year the tree from which the timber was derived died. Oak consists of inner inert heartwood and an outer band of active sapwood. If the sample ends within the heartwood of the original tree, a *terminus post quem* for the felling of the tree is indicated by the date of the last ring plus the addition of the minimum expected number of sapwood rings that are missing. This is the date after which the timber was felled but the actual year of felling may be many decades later depending on the number of outer rings removed during timber conversion. Where some of the outer sapwood or the heartwood/sapwood boundary survives on the sample, a felling date range can be calculated using the maximum and minimum number of sapwood rings likely to have been present. The sapwood estimate applied throughout this report is a minimum of 10 and maximum of 46 rings, where these figures indicate the 95% confidence limits of the range and are applicable to oak trees of all periods from England and Wales (Tyers 1998). Alternatively, if bark-edge survives, then a felling date can be directly obtained from the date of the last surviving ring. In some instances it may be possible to determine the season of felling according to whether the ring immediately below the bark appears to be complete or incomplete. However the onset of growth can vary within and between trees and this, combined with the natural variation in actual ring width, means that the determination of felling season must be treated cautiously. The delicate nature of sapwood increases the likelihood of damage/degradation to the outermost surface of the sample and hence increases the difficulties of positive identification of bark-edge.

The felling dates produced do not by themselves necessarily indicate the construction date of the structure from which they are derived. At this stage, factors such as seasoning, reuse, and stockpiling have to be considered. Evidence suggests that seasoning of timber for structural purposes was a fairly rare occurrence until relatively recent times, and that timber was generally felled as required and used whilst green (Hollstein 1980; Rackham 1990; Charles and Charles 1995). However, the reuse of timber has been a common practice since prehistoric times and stockpiling, albeit potentially short-term, may occur. Therefore, although the

production of tree-ring dates is an independent process, the interpretation of these dates may be refined by drawing on other architectural and documentary evidence.

RESULTS AND INTERPRETATION

The results of the assessment and selection process are presented below, followed by general comments on sampling and analysis and then a section on each sampled building giving a brief description and details of the dendrochronological analysis. The descriptions and plans used are all provided by John Thorp of Keystone but more details can be found in the relevant Keystone reports, K397-1 to K397-20. The buildings are placed in alphabetical order according to the parish and each has the relevant Keystone report number given. The initial assessment stage was undertaken over a period of five days in January 1994. Sampling of selected buildings and subsequent assessments to locate more suitable buildings occurred over a series of five five-day sessions dating from June 1995 to March 1997.

Assessment and Selection

Keystone produced a list of buildings of potential interest from which a short list of 27 dwellings and associated outbuildings thought to represent 43 phases of construction was produced for the initial assessment. These buildings dated from the fourteenth to seventeenth centuries and were scattered throughout the county ensuring that the assessment addressed both a wide geographical and chronological spread. Each building phase was assessed for its dendrochronological potential and graded accordingly (Table 1).

Although many of the building phases in this initial assessment group contained a few major structural timbers with over 50 rings, those with the minimum number of suitable timbers were somewhat less common. A high proportion of the timbers appear to have less than the usual minimum 50 rings and good timbers with 100+ rings appear to be relatively scarce. It became clear during this initial assessment that roofs were the most likely source of a sufficient number of suitable timbers and that those phases with only one or two extant trusses and associated longitudinal timbers were generally not going to have a sufficient number of suitable timbers to be included in the project at this stage. The vast majority of the major structural elements were oak, although the presence of elm was noted (eg the beams in the barn at Hayne) and one of the cruck blades at Aller was quite clearly not oak. A small section (10mm x 10mm x 10mm) of this cruck blade was taken from the already cut back and exposed end section. The sample was identified as willow/poplar (*Salix/Populus* spp), two species that often cannot be distinguished from each other at microscopic level (Schweingruber 1990).

This initial assessment stage showed that buildings with timbers providing suitable foundation blocks for chronology building were relatively scarce, particularly in some areas of Devon. The original intention for this initial phase of the research project was to select about 20 of the building phases identified as most suitable for dendrochronological purposes scattered across the county. It was intended to use these to construct a skeleton chronological network and demonstrate the viability of the project. It was then anticipated that subsequent phases of the research project would build on this network using buildings of a lower dendrochronological potential from each area to provide a well-replicated chronological complex representative of

the whole of the county. However following this initial assessment the scattered nature of the buildings with the best dendrochronological potential, combined with the varied topography of the county, was thought likely to lead to difficulties in this countywide approach. Consequently following discussions with Keystone, English Heritage, and Devon County Council, a revised approach was devised. It was decided to initially concentrate on a smaller section of the county, an area lying north-west of Exeter (Figure 1) in which the initial assessment had identified a number of buildings with good dendrochronological potential. From a dendrochronological view this would ensure the best possible chance of success as the timbers under analysis would be from an area immediately adjacent to the Exeter area where a number of reference chronologies were already available for the relevant period.

Assessment of a further 29 phases (Table 1) was undertaken in the designated area in order to find 20 phases suitable for analysis, though as a smaller area was now under investigation phases of a slightly lower dendrochronological potential were to be included. In the light of the findings from initial countywide assessment these subsequent assessments concentrated on buildings with a run of several roof trusses. This has resulted in a bias towards higher status vernacular buildings, quite simply because they are usually larger with more extant trusses, hence more timbers and therefore more chance of having a sufficient number of suitable timbers.

Buildings were selected for analysis primarily on the assessment grading of dendrochronological potential. However it should be noted that in some cases buildings were omitted due to concerns by the owners over inclusion in the project. The location of the selected structures is shown on Figure 2. Chimsworthy lies outside of the target area but was included to ensure that the first week of sampling was full prior to the undertaking of further assessments.

Sampling

The sampling was not being undertaken in conjunction with repair work and thus it was therefore accepted that access may be more restricted and that sampling would have to be even more sympathetic to aesthetic considerations. Consequently sampling was generally concentrated in roof spaces rather than exposed timber elements. The sampling strategy employed, bearing in mind that many of the buildings had a very limited number of suitable timbers, was to sample as extensively as possible in each phase. None of the sampled timbers showed any signs of reuse and all were considered integral to the phase under investigation.

A total of 200 cores representing 187 timbers were removed from the 20 construction phases. All of the cored timbers were oak. Details of the cores are given in Table 2. The recording of the cross-sectional dimensions of the timbers was instigated as this phase of the project progressed, thus dimensions are not available for all timbers.

Sapwood was relatively commonly present on timbers in the majority of the selected buildings. However it was often in a highly fragile state as a result of attack by woodworm and the damp atmosphere in a number of the buildings, particularly uninhabited ones. This poor state of preservation precluded successful coring in many instances as the sapwood crumbled to dust.

Analysis

Where sapwood disintegrated during coring a note was made of the amount lost and whether bark edge was present. This was so that, rather than using the 10-46 sapwood estimate on these timbers, the number of sapwood rings lost could be estimated in order to produce a more accurate indication of the felling date. Where possible an attempt to count the number of rings lost was carried out *in-situ* on the actual timber. If this was not possible then the amount of sapwood lost was estimated in millimetres. This could subsequently be converted into an estimate of the number of rings lost by dividing the millimetres lost by the average width of the outermost 10 heartwood rings. This had been found to be more accurate than using the overall average ring width and has therefore resulted in some of the estimated felling dates altering slightly from the interim statements.

The difficulties in locating buildings with sufficient numbers of suitable timbers combined with the fact that the buildings under analysis were from a relatively small geographical area led to the decision to attempt to reduce the minimum number of rings required to 40. This decision would be reassessed as the research project progressed.

In all cases the site master curve(s) and the remaining unmatched individual series were compared to an extensive group of dated reference chronologies spanning the last millennium from the British Isles and elsewhere in northern Europe. In addition they were compared to all other site master chronologies and individual series produced during this phase of the research project.

In the absence of any evidence for reuse of the sampled timbers it is assumed that they are primary to the relevant phase of construction. Hence as they were generally used whilst green it is assumed that construction will have occurred shortly after felling.

Building Descriptions and Analysis

Bishop's Nympton: Cross Farm (SS746236) *K397/16*

Description

The medieval house, thought to be of late-fifteenth or early-sixteenth century date, lies within a larger L-plan house resulting from seventeenth and eighteenth-century extensions. The medieval cob-walled house had a three-room and cross-passage plan and was built across the hill slope facing south. The six-bay gable-ended roof survives intact with common rafters, battens, and the original base coat of rye thatch. The five trusses have, for the purposes of this project, been numbered 1 to 5 from west to east (Fig 4a). The roof-space over the inner-room end, bay 6, is completely inaccessible but the rest is smoke-blackened indicating that the original house was open to the roof. The service-end bays, 1 and 2, are less heavily sooted since they were only exposed to the smoke that carried over a cob cross-wall on the lower side of the cross-passage that rose just about to the collar level of truss 2. It may be that the inner room was separated from the hall by only a low partition and that the roof there is sooted. However, the hall face of the jettied first floor chamber cross-wall is sooted proving that the chamber was certainly late medieval. The roof is carried on a series of upper cruck trusses (Fig 4a) which, on the evidence of truss 4, sit on timber spreader pads set high in the wall. They all have cranked collars and mortised and

tenoned apexes (Fig 3a). They carry two sets of purlins, butted in trusses 3, 4, and 5, but trenched in trusses 1 and 2, and a trenched ridge.

Sampling
Nine samples, ***BNCF01-BNCF09***, representing nine timbers were taken (Fig 4a; Table 2). No samples were obtained from truss 5 and indeed the direction of coring was compromised throughout the roof space.

Results and Interpretation
The timbers used in the roof were generally derived from young fast-grown trees that were probably less than 70 years old when felled. They are generally in the form of halved trunks that have subsequently been trimmed to a variable extent.

Four samples were unsuitable for analysis. The remaining samples were all at the lower limit of rings required with ring sequences varying in length from 40 to 52 years. Three of these series, ***BNCF01***, ***BNCF05***, and ***BNCF06***, crossmatched and were combined to form a 59-year site master curve, ***BNCF-T3*** (Fig 5a; Tables 3a and 4a).

It was not possible to date either the site master curve or the remaining unmatched individuals. Consequently no absolute dating evidence has been produced but the analysis has indicated that the three relatively dated principals from trusses 3 and 4 are clearly broadly coeval.

Bratton Clovelly: Chimsworthy (SX463938) ***K397/1***

Description
This longhouse comprises two medieval phases, a main range and a cross-wing located at the upper-end, with subsequent adaptations. The main range runs north to south sloping downhill. It is this phase that is thought to be the earlier of the two and is the one which contained timbers suitable for dendrochronological analysis. The main range comprises six bays and five trusses which have been numbered 1 to 5 from north to south (Fig 4b). The roof is a combination of face-pegged and true cruck trusses which are characterised by the use of large whole tree timbers (Fig 4b). The trusses have lap-jointed collars and carry a single set of trenched purlins. The principals are joined together at the apex by large yokes which carry a square-set ridge (Fig 3b). Stylistically the roof is 'early' but many of the details have few or no parallels so a mid/late-fourteenth century date had been suggested. However the first documentary reference to this site appears to be AD 1298.

Sampling
Eight samples, ***BCCW01-08***, representing seven timbers were taken (Fig 4b; Table 2). A duplicate sample was obtained from the west principal of truss 1 in order to maximise the length of the derived ring sequence as the first core, ***BCCW06***, was abandoned after hitting a void. No samples were taken from trusses 4 and 5 as these were exposed and it was considered preferable to avoid them on aesthetic grounds if at all possible.

Results and Interpretation
The timbers used in the roof were derived from relatively fast-grown trees that were probably generally less than about 80 years old when felled, though with some older trees being used. They are generally in the form of whole trunks that have

subsequently been trimmed to a variable extent, though there were some halved trunks present.

One sample was unsuitable for analysis. The remaining samples had ring sequences varying in length from 40 to 102 years. Samples ***BCCW06*** and ***BCCW07***, both from the west principal of truss 1, crossmatched (Table 3b) and were therefore combined to produce a single-timber sequence, ***BCCW0607***. No further conclusive crossmatching was obtained between any of the series. ***BCCW01*** and ***BCCW0607*** were successfully dated (Fig 5b; Tables 4b.1, 4b.2, 5a, and 6).

The results indicate that, in the absence of any trace of sapwood, ***BCCW01*** was felled after AD 1265. However the outermost measured ring on ***BCCW0607*** was immediately below the bark surface. In this instance the season of felling was indeterminate so it was felled during the period AD 1305-06. If ***BCCW0607*** is a primary timber associated with the initial construction then its felling date may indicate the date of construction of the roof. If this is correct then the date is earlier than the previously accepted date, but later than the initial documentary reference. However this possible interpretation rests on the dating of a single timber as it is not possible to establish whether the two dated timbers, the west principals from trusses 1 and 3, are coeval. ***BCCW01*** appears unusual as it is the only halved principal of those sampled and it appears likely to have been derived from a slightly larger, longer-lived, tree than the other structural elements. A lack of intra-site crossmatching has previously been encountered on a number of sites in the county. It may be a result of factors including variable localised microclimate as a result of anthropogenic or natural influences, the relative shortness of the ring sequences, or the use of reused material of different dates and sources. In this instance the majority of timbers appear to have similar visual characteristics and show no clear signs of reuse.

Cheriton Bishop: Old Rectory (SX773934) ***K397/17***

Description

The roof of the cob-walled front range is entirely medieval but the rooms below have undergone such extensive remodelling in the subsequent centuries during various campaigns of modernisation and extension that it is not possible to determine the layout of the original house. The main block faces north towards the church. The roof is four bays and the main trusses are numbered 1 to 4 from west to east, starting with the hip arrangement as truss 1 (Fig 4c). The western two bays are considerably longer than the eastern two, but the former include intermediate trusses, numbered 1A and 2A. The trusses themselves have many scratched carpenters assembly marks but these do not represent a sequence through the roof. It seems that the surviving roof is the full extent of the medieval roof with a gable end at the east end. The carpentry at the gable end suggests that this end had the higher status. The roof is remarkably complete with its common rafters, battens, and base coat of original rye thatch. It is sooted from end to end indicating that the original house was open to the roof, divided by low partitions, and heated by an open hearth fire in the hall. The main trusses are large-scantling whole-tree crucks (Fig 4c) although they include many pegged *trait de Jupiter* scarf joints, some of which unusually are up the face as well as on the side. They have cranked collars with chamfered arch-braces, and saddles at the apexes. A false king post rises from the top of each collar to the underside of the saddle (Fig 3c). The trusses carry a single set of butt-purlins which

are wind-braced, and a square-set ridge. The intermediate trusses are of slender scantling. They are A-frame trusses in which the rafters meet above the ridge, clasping it with a crosspiece immediately below (4c). Both the crosspiece and collar are fixed to the rafters by pegged dovetail-shaped lap-joints, and the collars have small straight arch-braces. It is not clear exactly what happens at the feet of the rafters but there is evidence from truss 2A, north side, that it met another timber engaging the soffit as it met the inside of the wall. It has previously been suggested that the roof was potentially as early as from the early-fourteenth century.

Sampling

Ten samples, ***CBOR01-10***, representing ten timbers were taken (Fig 4c; Table 2). No samples were taken from truss 1, the hip truss, or from either of the intermediate trusses as the timbers were considered unsuitable. In addition the presence of later inserted timbers again compromised access to some original elements in the roof space such as the tiebeams.

Results and Interpretation

Whilst the majority of the timbers used in the roof were derived from relatively young trees that were probably less than 80 years old when felled, there are clearly some slightly older trees represented as well. They are in the form of whole, halved, and quartered trunks that have subsequently been trimmed to a variable extent.

One sample was unsuitable for analysis. The remaining samples had ring sequences varying in length from 43 to 130 years. Six of these series crossmatched and were combined to form a 155-year site master curve, ***CBOR-T6*** (Fig 5c; Tables 3c and 4c.1). ***CBOR-T6*** and ***CBOR04*** were successfully dated (Fig 5c; Tables 4c.2, 5a, and 6).

The results indicate that all seven dated timbers from trusses 2 and 4 are likely to be coeval and hence were all probably felled in the period AD 1298-1300. This suggests a construction date shortly after this felling date indicating that the roof of the Old Rectory does indeed date to the very early fourteenth century.

Clannaborough: Thorne (SS736002) ***K397/11***

Description

The main block is the remains of the medieval house which is thought to be of mid-fourteenth century date. It is on an east-west axis, with the inner room end to the west. The service end was demolished in the nineteenth century but three bays survive. The trusses are numbered 1 to 4 from west to east, starting with the hip cruck as truss 1 (Fig 4d). The crucks have post scarfs which are held together by four large face pegs and an unpegged slip tenon. Truss 2 also has scarf joints in the principal rafters close to the apex (Fig 4d). The trusses sit on large spreader plates set between 1.5-2.0 metres above floor level. The collars are slightly cranked and the trusses have chamfered arch-braces (Fig 3d). The west end hip cruck is also archbraced. The trusses have substantial yokes which carry a square-set ridge. Like other roofs in mid Devon it is characterised by the decorative use of long projecting pegs.

Sampling
Ten samples, ***CLTH01-10***, representing ten timbers were taken (Fig 4d; Table 2). No samples were taken from truss 4 as it was exposed and it was considered preferable to avoid it on aesthetic grounds if at all possible.

Results and Interpretation
The majority of the timbers used in the roof were probably derived from trees that were under 100 years old when felled. They are in the form of whole, halved, and quartered trunks that have subsequently been trimmed to a variable extent.

Two samples, including the only one from the hip cruck, were unsuitable for analysis. The remaining samples had ring sequences varying in length from 53 to 96. All eight measured samples crossmatched (Fig 5d; Table 3d). They were combined to form a 120-year site master curve, ***CLTH-T8***, which was successfully dated (Tables 4d, 5a, and 6).

The results indicate that the dated timbers representing trusses 2 and 3 and a wall plate are likely to be coeval. This implies that they were all felled in AD 1319/20 and used in the construction of the roof shortly afterwards which is a little earlier than the mid-fourteenth century date expected.

Coldridge: Leigh Barton, East Leigh, (SS697054) ***K397/3***
Description
This is a cob-walled farmhouse with medieval roof, over the former hall and inner room, thought to date to the early-fifteenth century or possibly the late-fourteenth century (Fig 3e). The roof is complete with common rafters, nailed battens, sooted thatch, and the extensive remains of a medieval smoke louvre. The trusses were numbered 1 to 4 from east to west, upper to lower end, starting with the hip cruck as truss 1 (Fig 4e). The three surviving trusses are whole-tree true crucks of large scantling. Some of the crucks have scarfed joints to the principals which are face-pegged with slip tenons. The collars are chamfered and have plain circular bosses. Truss 2, above the hall inner-room low partition, has a saddle at the apex, whilst trusses 3 and 4 have yokes (Fig 4e). These support a square-set ridge. There is a single set of purlins pegged onto the backs of the principals. The smoke louvre is above the ridge towards the east end of bay 3 between trusses 3 and 4.

Sampling
Five samples, ***CRLB01-05***, representing five timbers were taken (Fig 4e; Table 2). No samples were taken from truss 1 as it was clearly unsuitable, whilst even the most promising of the other extant timbers were considered borderline. Sampling was abandoned after the removal of five samples as all but one clearly had too few rings for analysis.

Results and Interpretation
The timbers used in the roof appear to have been derived from young, fast-grown, trees that were probably under 60 years old when felled. They are generally whole trunks that in this instance appear to have been heavily trimmed.

Four samples were unsuitable for analysis. The remaining sample, ***CRLB01***, had only 40 growth rings. It was not possible to date this individual ring sequence. Consequently no absolute or relative dating evidence has been produced.

Coldridge: Lower Chilverton (SS698063) ***K397/12***

Description

This is a multi-phase farmhouse with late-medieval origins probably dating to the late-fifteenth century (Fig 3f). It had a three-room and cross-passage plan and is built across the slope facing south with the inner room at the west end. The slope is such that the rear is terraced into the hill-slope and there was apparently no rear doorway to the passage. The five-bay roof is complete and retains its original thatching battens and base coat of rye thatch. The trusses were numbered 1 to 4 from west to east (Fig 4f). The roof is heavily smoke blackened throughout, even though truss 3 which lies directly above the upper (hall-side) passage screen appears to have been closed from the beginning. It seems that the original house had two open hearth fires, one in the hall and another in the service end. This truss is of a tiebeam construction. Truss 1, above the hall inner-room division, appears to be similar, although the continuous smoke blackening suggests that it was at least open above tiebeam level. The open trusses, 2 and 4, are side-pegged jointed crucks with cranked collars (Fig 4f). The hall truss, truss 2, was also arch-braced. All the trusses carry three sets of butt purlins, chamfered with pyramid stops, and a ridge. In addition the two bays of the hall have two sets of wind-braces.

Sampling

Nine samples, ***CRLC01-09***, representing nine timbers were taken (Fig 4f; Table 2). All four trusses provided samples but other elements such as the ridge, the purlins, and the windbraces were rejected as unsuitable.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were in the order of about 100 years old when felled, though there are some older trees present. The structural elements are predominantly halved trunks that have been trimmed to a variable extent.

Two samples were unsuitable for analysis. The remaining samples had ring sequences varying in length from 48 to 84. Five of these series crossmatched and were combined to form a 93-year site master curve, ***CRLC-T5***. ***CRLC06*** and ***CRLC07*** also crossmatched and were combined to form a 73-year site master, ***CRLC-T2*** (Fig 5f; Tables 3f.1, 3f.2, 4f.1, and 4f.2). ***CRLC-T5*** and ***CRLC-T2*** were both successfully dated (Tables 5b, 5c and 6).

The outermost measured heartwood rings of ***CRLC06*** and ***CRLC07*** date somewhat earlier than the other five samples. However during sampling it was noted that these two timbers appeared to have been heavily trimmed. This suggests that these two timbers may have been converted from the inner part of a relatively long lived tree. All seven dated samples therefore appear likely to be coeval which implies that they were felled during the period AD 1488-1509. The construction date is therefore within this period in the late-fifteenth or early-sixteenth century and thus basically as expected.

Down St Mary: Chaffcombe Manor (SS759031) ***K397/9***

Description

This is a small manor house thought to date largely from the first half of the seventeenth century. The main block has a three-room and cross-passage plan facing south with the inner-room parlour at the east end. The hall and parlour were floored from the beginning and there is a stair turret projecting to the rear of hall. A two-storey porch is present at the front. The original roof extends over the hall and parlour between the east gable end wall and a full height cross-wall across the lower side of the passage. The roof consists of four bays and three trusses which have been numbered 1 to 3 from east to west (Fig 4g). An axial stack supports the purlins between bays 2 and 3. The roof structure has always been covered by plaster and therefore many of the timbers are roughly finished. The trusses are of A-frame construction with dovetail-shaped lap-jointed collars fixed each side by two pegs and an iron spike (Figs 3g and 4g). There are two sets of trenched purlins and a trenched ridge.

Sampling

Twelve samples, ***DMCC01-12***, representing ten timbers were taken (Fig 4g; Table 2). Duplicate samples were taken from two timbers in order to maximise the ring sequences and obtain sapwood. Samples were taken from all three trusses but again many of the longitudinal and other elements were unsuitable either because they did not contain enough rings or they were likely to be later replacements. Bark edge was present on the two timbers from which ***DMCC04***, ***DMCC06***, and ***DMCC07*** were taken from but in both cases it was inaccessible.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were less than 150 years old when felled. The structural elements are predominantly halved trunks that have been quite heavily trimmed.

One sample was unsuitable for analysis. The remaining samples had ring sequences varying in length from 68 to 107. Samples ***DMCC02*** and ***DMCC03***, both from the south principal of truss 3, crossmatched (Table 3g.1) and were therefore combined to produce a single timber sequence ***DMCC0203***. Samples ***DMCC06*** and ***DMCC07***, both from the collar of truss 2, crossmatched (Table 3g.2) and were therefore combined to produce a single timber sequence ***DMCC0607***. These two timber sequences and the remaining seven series crossmatched and were combined to form a 137-year site master chronology, ***DMCC-T9*** (Fig 5g; Tables 3g.3 and 4g). Initially this site master chronology could not be conclusively dated but it has subsequently been successfully dated (Table 5d).

The results indicate that all nine dated timbers representing all three trusses are likely to be coeval. Bark edge was present on two samples but in one instance it had disintegrated during coring and was unmeasurable on the other sample. ***DMCC01*** had lost about 10mm sapwood which probably represents approximately 11 sapwood rings. The number of sapwood rings on ***DMCC05*** was estimated to be in the order of 24-28. Consequently an estimated felling date, and hence construction date, of *circa* AD 1670-75 is obtained. The construction date is therefore slightly later than expected.

King's Nympton: Broomham (SS708212) ***K397/10***

Description

This is a large multi-phase farmhouse with a longhouse derivative plan. The main block contains the core of the medieval house which is thought to date to about AD 1500 according to the Furse family history. Three roof trusses survive, along with a number of reused purlins incorporated into a late-seventeenth or early-eighteenth century roof. The trusses were numbered 1 to 3 from east to west (Fig 4h). These are upper crucks and, with the exception of the south principal of truss 1 which is a side-pegged jointed cruck, have true cruck principals (Fig 4h). All the trusses have cranked collars. Bays 3 and 4 have three sets of butt purlins and a ridge, but the other surviving bay has no lower purlin and there is further evidence for the same in the next bay. This is suggestive of a lower status east end. It was considered possible that the ceiling crossbeams, numbered 1 to 14 from the east to west, in the agricultural or service end were also an original medieval feature (Fig 3h).

Sampling

Eleven samples, ***KNBH01-11***, representing 11 timbers were taken (Fig 4h; Table 2). Samples were taken from all three extant trusses and several of the ceiling crossbeams in the agricultural or service end. A number of timbers associated with the cruck structure were rejected either as they did not meet the minimum requirements for analysis or due to access problems caused by the dilapidated nature of the building. Two small sections of pegs were removed for identification purposes.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were up to about 100 years old when felled. The structural elements are predominantly halved trunks.

The two peg samples were identified as oak. All core samples were considered suitable for analysis and had ring sequences varying in length from 40 to 87. Ten of these series crossmatched (Fig 5h; Table 3h). The sample from two of the ceiling crossbeams, ***KNBH07*** and ***KNBH09***, produced a *t*-value of 10.90 suggesting the possibility that they were derived from the same-tree. They were therefore combined to produce a single tree sequence prior to being incorporated into the 95-year site master chronology, ***KNBH-T9*** (Table 4h). This site master chronology was successfully dated (Tables 5c and 6).

The results indicate that all ten dated timbers are likely to be coeval indicating that the extant roof trusses and the ceiling crossbeams appear to be associated with a single period of felling. Intact bark edge was present on sample ***KNBH05*** from the lower purlin running between trusses 2 and 3. This timber was felled in the winter of AD 1463/64. Bark edge was present on another timber in the roof and on four ceiling crossbeams but the damp conditions had prevented successful coring. However the estimated losses on these samples indicate felling probably occurred during the early/mid AD 1460s. Construction would have occurred shortly after felling. It is not possible to determine whether the roof and ceiling crossbeams are precisely coeval so it remains a possibility that they could have been inserted a couple of years after the construction of the roof. The construction date indicated is slightly earlier than expected.

King's Nympton: West Hele (SS668209) ***K397/15***

Description

This house, thought to date to the late-fifteenth century, appears to have a complex structural history even within the medieval period. The main block is built across the hill slope facing roughly south. It has a three-room and cross-passage plan with the inner room at the east end. The five-bay roof is sooted from end to end indicating that the late-medieval house was open to the roof, divided by low partitions, and heated by an open-hearth fire in the hall. The trusses were designated numbers from 1 to 5 from east to west with the west-end hip designated truss 5 (Fig 4i). The thatching battens and base coat of rye thatch, both heavily sooted, survive throughout. However trusses 1 to 4 are all of different construction (Figs 3i.1, 3i.2, and 4i). This and other inconsistencies in the roof structure suggest that it was built in two or three phases that were then linked well before any of the house was floored or full-height partitions inserted. Truss 1 is a jointed cruck, now closed over the hall inner-room division. Since there is no trace of side-pegging either side, the elbow joints are assumed to be face-pegged. It has a cranked collar. Truss 2, over the hall, is a true cruck with a cranked collar and a saddle apex. The saddle does not directly support the ridge and there is another block sitting on top of the saddle. Truss 3, sits above the lower side of the passage. This is a very slight truss with a crude lap-jointed collar and principal rafters that cross at the apex. It is of A-frame construction and may have sat on a tiebeam over a stone or cob wall. Truss 4 is another true cruck but it has a curving collar and mortised and tenoned apex. All of the trusses carry a single set of trenched purlins and a ridge. Stylistically truss 2 is the earliest but it could be contemporary with truss 1 creating a three-bay house. Trusses 3, 4, and 5 might then represent a rebuild and extension of the house to the west.

Sampling

Eight samples, ***KNWH01-08***, representing eight timbers were taken (Fig 4i; Table 2). No samples were taken from truss 3 or the hip truss 5 as they were clearly unsuitable for analysis.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were a maximum of about 60 years old when felled. The structural elements are predominantly halved or quartered trunks.

Two samples were unsuitable for analysis. The remaining samples were all close to the lower limit of rings required with ring sequences varying in length from 43 to 52. Two pairs of series crossmatched (Figs 5i.1 and 5i.2; Tables 3i.1 and 3i.2). The *t*-values produced were sufficiently high to suggest that the timbers represented in each pair were derived from the same tree. They were therefore combined to produce two single tree sequences, ***KNWH0304*** and ***KNWH0607*** (Tables 4i.1 and 4i.2). It was only possible to date ***KNWH0304*** (Tables 5c and 6).

The results indicate that the two dated timbers, the north and south principals of truss 4, were felled in the winter of AD 1441/42. In the absence of any evidence of reuse it is assumed that this truss was therefore constructed shortly after felling of the two principals. This is therefore slightly earlier than the late-fifteenth century date expected. However the variation in construction detail means that this date only relates to truss 4. The analysis has not been able to determine whether the different

truss types represented are coeval or are of different dates and hence represent several phases of construction.

Lapford: Bury Barton, (SS733071) ***K397/18***

Description

Bury Barton has long been recognised as one of the most important complexes of vernacular buildings in Devon with its superior medieval farmhouse, detached chapel, and double courtyard arrangement of traditional farm buildings. The cob-walled medieval house, thought to be of mid-fourteenth century, has an uneven T-plan. The three-bay hall range is on a rough east-west axis facing north. Its trusses were numbered 1 to 4 from west to east (Figs 4j.1 and 4j.2). The two-bay cross-wing, probably the service range, projects to the rear, or south, at right angles to the east end of the hall range. Its two trusses were numbered 5 and 6 from north to south (Fig 4j.2). A smaller and narrower two-bay wing projects further east, flush with the front, or north, wall of the hall range. It contains a single truss, truss 7 (Fig 4j.2). In the hall range, truss 1 is built into the west-end wall and is an aisle-type truss, trusses 2 and 3 are both open (Fig 4j.1), whilst truss 4 is a spere truss and backs onto the cross-wing (Fig 4j.1). In the cross-wing truss 5 is open, whilst the remains of truss 6 show that it was another aisle-type truss which indicates that this marked the end of the fourteenth-century wing. The east-wing truss 7 is a smaller version of the open trusses found in the hall range and cross-wing (Fig 4j.2). The hall roof is heavily sooted indicating that it was originally open to the roof and heated by an open-hearth fire. The cross-wing roof is lightly sooted, presumably from smoke escaping from the hall. The east-wing roof is clean and it was evidently two storeys high from the beginning. The open trusses are made up from whole tree trunks. They are true crucks sitting on large spreader plates and all have post scarfs held together by two pegs and an unpegged slip tenon. The collars are arch-braced (Fig 3j) and the principals held together at the apex by a large yoke supporting a square-set ridge. They carry a single set of wind-braced square-set purlins (Fig 3j). In fact these purlins are treated as arcade plates in the spere truss and the aisle-type end trusses. Truss 7 has a diagonally-set purlin and no arch-braces or wind-braces (Fig 4j.2). The spere truss appears to sit in a stone rubble or cob low crosswall, probably on spreader plates like the open trusses. The aisle posts have jowled heads with tenons projecting above for the arcade plates/square-set purlins and the arch-braced tiebeam, the latter joined on top of the former in normal assembly with a tiebeam lap dovetail joint. Dragon ties connect between the tiebeam and plate/purlin. A tension-braced king post rises from the tie to carry the ridge with an arch-brace from the post to the ridge on the hall side. The end trusses appear to have been similar but neither survives above the posts. The common rafters are notched over the top back corner of the purlin/plate and those over the hall are collared. There is evidence that the original house was slated but was then thatched after a fire which affected the west end of the hall. The repairs involved the replacement of some main structural elements as well as a large number of common rafters in Bays 1 and 2. This took place in the medieval period since the replacement rye thatch was smoke-blackened from the open hearth fire. Truss 1 elements showed severe charring.

Sampling

Twenty-two samples, ***LFBB01-22***, representing 22 timbers were taken (Fig 4j; Table 2). No samples were taken from the remains of truss 6 and once again sampling was mostly confined to the actual trusses as the vast majority of longitudinal elements

were unsuitable for analysis. Unfortunately none of the rafters or arcade plates that replaced their earlier medieval counterparts were suitable for analysis either. Whilst sampling was extensive, sapwood was scarce and when present was in an extremely poor state of preservation.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were about 100-150 years old when felled, though some clearly older trees are also represented. The structural elements are a mixture of whole, halved, and quartered trunks trimmed to a variable extent. The scarcity of any traces of sapwood suggests that these timbers have been quite carefully converted and trimmed.

Four samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 47 to 138. Sixteen of the measured ring sequences crossmatched and were combined to form a 192-year site master chronology, **LFBB-T16**, which successfully dated (Fig 5j; Tables 3j, 4j, 5a and 6).

The results indicate that all 16 dated timbers are likely to be coeval. They represent all six extant medieval trusses and it therefore seems likely that the hall, cross-wing, and east wing are part of the same phase of construction. Only two of the sampled timbers had bark edge but unfortunately in neither case did this survive coring intact. ***LFBB10*** had lost an estimated 5-10 rings of sapwood indicating a felling date range of *circa* AD 1328-33. ***LFBB20*** had lost approximately 30-40mm sapwood but it was noted in the surviving fragments of sapwood that these became significantly narrower than the outermost measured rings with the nine sapwood rings immediately below the bark surface having an average width of 0.9mm. Consequently it is estimated that 20-35 sapwood rings were lost indicating a felling date range of *circa* AD 1320-35. This implies a construction date for the hall, cross-wing and east wing in the late AD 1320s or early AD 1330s compared to the mid fourteenth-century date expected.

Mariansleigh: Yeo Barton (SS760230) ***K397/14***

Description

This is a multi-phase farmhouse with late-medieval origins thought likely to date to the first half of the fifteenth century (Fig 3k). The main block faces roughly south and is of three-room and cross-passage plan with the inner room at the east end. The roof is largely intact. It comprises three unusually long bays and four trusses which have been numbered 1 to 4 from west to east (Fig 4k). The roof is sooted from end to end indicating that the original house was open to the roof, divided by low partitions, and heated by an open-hearth fire in the hall. The west-end bay still has its original, heavily sooted, battens and large areas of late-medieval pegged slate under what appears to be seventeenth-century thatch. The trusses are side-pegged jointed crucks with cranked collars (Fig 4k). Whilst trusses 1 and 3, and possibly the fragmentary truss 4, have small triangular yokes holding the principals together at the apex, the truss 2 principals are mortised and tenoned together (Fig 4k). Truss 2 also uses larger timbers and is arch-braced though it appears contemporary with the rest of the roof. All the trusses take two sets of threaded purlins and a ridge, as we;; as a single set of lower wind-braces. There is evidence for small smoke-blackened intermediate trusses. Considering the length of the bays and the weight of the slate, they are probably original. What remains are horizontal timbers birdsmouthed between the upper purlins in the centre of the western two bays. A vertical post is

halved across the horizontal in the centre bay and descending from the ridge to a short distance below and ends with a tenon. The other crosspiece has a halving for a similar post. Presumably the lower tenon was intended to engage another cross member between the lower purlins which would have curved upwards to meet the post since the tenon is located some 200mm above the top of the lower purlins.

Sampling
Five samples, ***MLYB01-05***, representing five timbers were taken (Fig 4k; Table 2). No samples were taken from the remains of truss 4 and as sampling was restricted to less than half a day some potentially suitable timbers were not sampled.

Results and Interpretation
The majority of timbers used in the roof were probably derived from trees that were generally less than about 120 years old when felled. The structural elements are a mixture of halved and quartered trunks.

One sample, the only one from truss 3, was unsuitable for analysis. The ring sequences of the remaining samples vary in length from 54 to 87. All four measured series crossmatch and were combined to produce a 107-year site master chronology, ***MLYB-T4*** (Fig 5k; Tables 3k and 4k). This site master was not initially dated, however it has subsequently been successfully dated (Tables 5b and 6).

The results indicate that all four matched timbers are likely to be coeval. They represent trusses 1 and 2 demonstrating that the two truss types are likely to represent a single phase of construction. Three of these relatively dated timbers had bark edge but unfortunately it did not survive coring intact. ***MLYB04*** had lost an estimated 7-10 rings of sapwood indicating a felling date range of *c* AD 1396-99. ***MLYB02*** and ***MLYB03*** had lost approximately 35-45mm and 30-40mm sapwood respectively. It was noted from the surviving fragments of sapwood that the sapwood rings became significantly narrower on ***MLYB02*** than the outermost measured heartwood rings with a 15 year fragment of sapwood having an average ring width of 1.68mm. Consequently it is estimated that ***MLYB02*** has lost approximately 15-30 sapwood rings and ***MLYB03*** has lost approximately 20-35 rings. These two timbers therefore have estimated felling date ranges of *c* AD 1386-1401 and *c* AD 1387-1402. This implies a probable construction date in the late AD 1390s or possibly the very early AD 1400s compared with the expected date in the first half of the fifteenth century.

Morchard Bishop: Rudge (SS744076) ***K397/6***
Description
This relatively well-known medieval house is thought to date to the mid-fourteenth century. Its large and impressive roof is substantially complete and still retains a complete set of common rafters. It comprises five bays with five trusses (Fig 4l). Original carpenter's assembly marks number the trusses I, II, III, V, and VI from west to east. However for the purposes of this study the trusses were renumbered 1 to 5 from west to east. Truss 1 is located at the west-end gable. The remains of an additional truss, a hip cruck, lies at the east end but was not numbered. The extant trusses are all crucks with post scarfs which are fixed by four face pegs and an unpegged slip tenon (Fig 4l). Each has a cranked collar, a large yoke (Fig 3l), and arch-braces. They carry two sets of butt purlins, a rafter sling (a timber slotted under

the rafters and behind the wind-braces in order to give a kick at the base of the common rafters), a large square-set ridge (Fig 3l), and single sets of wind-braces. The common rafters are collared except in the east-end bay which also has no rafter slings. Trusses 1 and 5 have chamfered arch-braces whilst the other trusses have roll-moulded arch-braces. There is no evidence of original partitions, but the plainer and half-hipped east end would appear to have been the service end.

Sampling

Twenty-one samples, ***MBRU01-21***, representing 15 timbers were taken (Fig 4l; Table 2). A number of duplicate samples were taken in order to maximise the ring sequence length and to make best use of the relatively scarce and poorly preserved sapwood. Samples were removed from all five main trusses, excluding the hip cruck, but the common rafters and longitudinal elements of the roof were unsuitable.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were in the order of about 80-200 years old when felled. The structural elements are a mixture of whole, halved, and quartered trunks that appear to have been trimmed heavily.

One sample was unsuitable for analysis as it fragmented during coring. The ring sequences of the remaining samples vary in length from 44 to 145. The duplicate samples were combined to produce single timber sequences, ***MBRU0102***, ***MBRU0708***, ***MBRU0910***, ***MBRU1112***, and ***MBRU1516*** (Tables 3l.1 to 3l.5). These five single timber sequences and eight of the other series crossmatched (Fig 5l; Table 3l.6). The *t*-values produced between two pairs (***MBRU0708*** and ***MBRU21***; ***MBRU0910*** and ***MBRU13***) were sufficiently high as to suggest the possibility that they were derived from the same-tree. These were therefore combined prior to inclusion in the 192-year site master chronology, ***MBRU-T11***, which was successfully dated (Tables 4l, 5a, and 6).

The results indicate that the 13 dated timbers, which represent all five cruck trusses, are likely to be coeval. Two of the core samples had bark edge but this only survived coring intact on one sample, ***MBRU16***. The outermost measured sapwood ring dates to AD 1315 but the spring vessels of the following ring are present indicating that this timber was felled in late-spring or early-summer AD 1316. ***MBRU01*** had lost approximately 35-45mm sapwood which, using the average ring width of the outermost ten measured rings, implies that approximately 24-31 sapwood rings were lost. This suggests a felling date range of *circa* AD 1308-15. Bark edge was possibly present on another two timbers, ***MBRU17*** and ***MBRU21***, but was inaccessible. However it was estimated that no more than 10 rings were missing between the outermost measured ring and the possible bark edge noted, thus implying a felling date of after AD 1310 but probably before *circa* AD 1320 for both of these timbers. Thus a construction date shortly after felling in AD 1316 seems likely. This is slightly earlier than the mid fourteenth-century date originally expected.

Nymet Rowland: Cleavanger (SS713071) ***K397/5***

Description

The rear range of the farmhouse contains the extensive remains of a relatively large and grand medieval house built of cob, thought to date to the first half of the fifteenth

century. The roof structure comprises five bays, a three-bay hall at the west and a two-bay service end to the east. Trusses are numbered 1-4 from east to west (Fig 4m). The east end hip cruck was not given a number. Although all the trusses represent a single building phase those in the hall have some different structural details. The open truss, truss 1, in the service end and the closed truss, truss 2, between the hall and service end are plain jointed crucks with each elbow joint fixed by three large face pegs and a slip tenon (Figs 3m and 4m). The collars are mortised, tenoned, and pegged to the principals. There is a single set of butt purlins and the principals are held together at the apex by triangular yokes creating a V-notch for the large diagonally-set ridge. The hall roof has a higher quality finish and the open trusses had chamfered arch-braces and wind-braces (Fig 4m). However in contrast these are side-pegged jointed crucks, although these joints are augmented by slip tenons. The common rafters survive over the hall and are sooted.

Sampling

Thirteen samples, ***NRCV01-13***, representing 12 timbers were taken (Fig 4m; Table 2). A duplicate sample was taken from the south principal of truss 1 as the first core shattered. Samples were removed from all four trusses, excluding the hip cruck at the east end. Again many of the longitudinal and other elements were unsuitable because they did not contain enough rings or were of insufficient size for coring. However a sample was also taken from the main ceiling beam, aligned east-west, in the service end, currently a barn. Sapwood was relatively common in the service end, albeit in a state of very poor preservation, but it was notably absent in the hall end.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were up to about 100 years old when felled. The structural elements were dominated by halved trunks but some whole and quartered trunks were present.

Two samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 41 to 81. All 11 measured ring sequences crossmatched and were combined to form a 95-year site master chronology, ***NRCV-T11***, which, although not initially dated, has now been successfully dated (Fig 5m; Tables 3m, 4m, 5b, and 6).

The results indicate that the 11 dated timbers, which represent all four cruck trusses and include the ceiling beam, are likely to be coeval. Bark edge was present on the ceiling beam, ***NRCV08***, but up to five sapwood rings had been lost during coring indicating that this timber was felled during the period AD 1396-1400. The bark edge was also probably present on timber ***NRCV01*** and possibly present on ***NRCV02*** but the sapwood was in such a state that this could not be cored successfully. It was estimated that both of these timbers had approximately 20-25mm sapwood. This equates to approximately 10-13 and 9-12 sapwood rings respectively suggesting a probable felling date of *circa* AD 1395-98 for ***NRCV01*** and a possible felling date of *circa* AD 1388-91 for ***NRCV02***. A construction date in the mid to late AD 1390s is therefore indicated for this building that was previously thought to have been constructed in the first half of the fifteenth century.

Sandford: Ivy Cottage, Bremridge Farm (SS847041) ***K397/4***

Description

Ivy Cottage is possibly the smallest medieval hall house surviving in Devon (Fig 3n.1). It faces south and is built of cob. It is only two bays long and is thought to date to the early- or mid-sixteenth century. The single-bay hall, which has a sooted roof structure, is at the east end. In the west-end bay, now the central bay of a three-bay house, there is an entrance lobby in front of a small service room. Both lie below the first-floor chamber which was accessed via a ladder from the hall. The bays are divided by a full-height closed truss (Fig 4n). It is a side-pegged jointed cruck with the collar mortised, tenoned, and pegged to the principals. It carries two sets of trenched purlins and a ridge. Nearly all the original common rafters survive. The truss is infilled with large framing above a plain plank-and-muntin screen (Fig 3n.2). The screen has a doorway from the entrance lobby towards the south, or front, end and a doorway into service room alongside. Towards the rear a small plain doorway contrived in the large framing provides access to the chamber.

Sampling

Nine samples, ***SFIC01-09***, representing seven timbers were taken (Fig 4n; Table 2). Duplicate samples were taken from two timbers in order to maximise the ring sequence length in one case and the other because the first core shattered. Both principals were sampled but unusually some of the purlins were suitable and a sample was also attempted from the cross-beam at the top of the screen, although unfortunately this shattered and it was clear a duplicate sample would probably do the same.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were up to about 100 years old when felled. The structural elements were a mixture of halved and quartered trunks.

Two samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 48 to 86. These duplicate samples from the north lower purlin in bay 1 were combined to produce a single timber sequence, ***SFIC0304*** (Table 3n.1). ***SFIC0304*** and the other five series crossmatched (Fig 5n; Table 3n.2). The *t*-value between ***SFIC01*** and ***SFIC0304*** suggested that these two timbers may have been derived from a single tree. They were therefore combined to produce a single tree sequence before being incorporated into the 100-year site master chronology, ***SFIC-T6***, which was successfully dated (Tables 4n, 5c and 6).

The six dated timbers all appear likely to be associated with a single phase of felling. Bark edge was present on the south principal, ***SFIC07***, but due to the friability of the sapwood it was not possible to obtain a core sample at this point. Eight sapwood rings were present on the core and it is estimated that the maximum number of sapwood rings missing was 20 giving a felling date range for ***SFIC07*** of *circa* AD 1538-56. This indicates a construction date shortly after felling in the mid-sixteenth century as was expected.

Sandford: Prowse farmhouse - main range (SS843055) ***K397/2***

Description

This high quality multi-phase farmhouse is thought to have origins in the early- or mid-fifteenth century (Fig 3o). The main range contains the medieval core of the house over which three trusses survive along with a number of reused pieces incorporated into an eighteenth-century roof. These indicate that the medieval roof originally had at least one more truss. The extant trusses were numbered 1 to 3 from west to east (Fig 4o). The trusses are probably jointed crucks but no cruck posts are exposed. Truss 3, over the hall, has a cambered collar and chamfered arch-braces with a carved boss (Fig 4o). The apex has a saddle for a square-set ridge, although this does not survive. There is a single set of trenched purlins which carried wind-braces. Truss 1, over the lower end, is similar but without a carved boss. Truss 2, which marks the division at the lower side of the cross passage, is also similar but without arch-braces.

Sampling

Six samples, ***SFPF01-06***, representing six timbers were taken (Fig 4o; Table 2). No samples were taken from the reused material as this appeared unsuitable.

Results and Interpretation

The timbers used appeared likely to have been derived from trees less than 100 years old when felled. The structural elements were dominated by quartered trunks trimmed to a varying extent. The principals in trusses 2 and 3 appeared much more heavily trimmed, or squared, than those in truss 1.

All six samples were suitable for analysis with ring sequences varying in length from 41 to 66. The six series crossmatched with at least three, ***SFPF01***, ***SFPF02*** and ***SFPF05***, having *t*-values sufficiently high to suggest the possibility that they were derived from the same tree. These were therefore combined to produce a single tree sequence before being incorporated into the 76-year site master chronology, ***SFPF-T4M*** (Fig 5o; Tables 3o and 4o).

It was not possible to conclusively date this site master curve. Consequently, whilst the six dated timbers are clearly coeval, no absolute dating evidence has been produced to confirm or refute the expected early- or mid-fifteenth century date expected.

Sandford: Prowse farmhouse - solar cross-wing (SS843055) ***K397/7***

Description

The east wing of this multi-phase farmhouse is the truncated remains of secondary solar cross-wing, thought to date to the early-sixteenth century. Three of the four trusses survive, although pieces of the demolished truss are reused in later walling. The end of the cross-wing is now flush with south front but originally projected one bay. The trusses have assembly marks and were numbered I to IIII from south to north. The surviving trusses were given their original numbers of 2, 3, and 4 (Fig 4p). The cross-wing was two storeys from the beginning and was divided on both floors by framed cross-walls at the same point with the upper one closing truss 3. The ground floor crossbeams (Fig 3p) are supported at each end by large posts with jowled heads. The side-pegged jointed cruck trusses (Fig 4p) sit on small pads directly on top of the crossbeams or, in the case of the closed truss, a rail. Each has

a cranked collar, square-set wall plates, two sets of butt purlins, and single sets of lower wind-braces but no ridge. The presence of a wall plate and absence of a ridge is unusual, though there are parallels in some of the high status houses in Exeter Cathedral Close.

Sampling
Seven samples, ***SFPF07-13***, representing seven timbers were taken (Fig 4p; Table 2). These represent all three trusses and the ceiling crossbeams. However sampling was abandoned as, with one exception, even the most promising timbers did not contain sufficient rings for analysis.

Results and Interpretation
The timbers used in the roof were generally derived from very young fast-grown trees that were probably generally less than 60 years old when felled. The truss elements were generally trimmed halved trunks where as the crossbeams were generally trimmed whole trunks.

Six samples were unsuitable for analysis. The remaining sample, ***SFPF13***, contained 52 rings. This remains undated. Consequently no absolute, nor relative, dating evidence has been produced for the solar cross-wing.

Sandford: Prowse barn (SS843055) ***K397/8***
Description
This T-plan cob-walled threshing barn was thought to date from the mid-fifteenth century with the possibility that the north range could pre-date the south range (Fig 3q) . The four-bay south range is on an east-west axis. It is built across the slope and is terraced into the slope at the rear. From this, projecting north just east of the centre is a three-bay north range on a north-south axis. The roof trusses are numbered 1 to 3 from north to south in the north range and 4 to 6 from east to west in the south range (Fig 4q). They are side-pegged jointed crucks (Fig 4q). The long elbow joints are fixed by a relatively large number of pegs, usually 5 or 6, although the west side of truss 3 has eight pegs. The feet of trusses 2 and 3 descend to ground level. This is probably because these trusses flank the threshing floor doorway. Truss 1 probably sat on a spreader plate on top of the footings but this is hidden by the lining of a twentieth-century grain bin. In the south block only the north side of truss 6 appears to have a cruck foot with an original arrangement at the bottom. Here the footings step up to support a couple of spreader plates which seat the cruck foot. The collars rise to the centre with slight cambers and they are mortised and tenoned into the principals and fixed by a pair of joists each side. The principals are joined at the apex by a plain mortise and tenon joint held by a single peg. Each bay contains two sets of butt purlins and a ridge. The barn makes use of the drop of the land to create a byre below the barn at the south end. As such it appears to pre-date other bank barns by at least two centuries.

Sampling
Nine samples, ***SFPF14-22***, representing eight timbers were taken (Fig 4q; Table 2). A duplicate sample was taken from the east post of truss 3 in order to maximise the ring sequence length. No samples were removed from truss 1 as the extant timbers were inaccessible, as were the west post and principals from truss 2. Only the principals remained in truss 5 and neither appeared to meet the minimum

requirements for analysis. The purlins thought to be associated with the primary build(s) were also rejected prior to sampling as unsuitable.

Results and Interpretation
The majority of timbers used in the barns were probably derived from trees that were a maximum of about 100 years old when felled. There were some slightly longer-lived exceptions but there was also a lot of material derived from very young trees. The structural elements were a mixture of halved and quartered trunks.

Four samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 46 to 88. Four series crossmatched and were combined to produce a 94-year site master chronology, ***SFPF-T4B***, which was successfully dated (Fig 5q; Tables 3q, 4q, 5c, and 6).

Three of the dated samples, all apparently coeval, are from truss 6 in the south range. Two of the timbers, ***SFPF21*** and ***SFPF22***, had retained bark edge but the sapwood disintegrated during coring. Both samples lost approximately 20-30mm sapwood. It is estimated that this represents approximately 9-14 rings on ***SFPF21*** which suggests a felling date of *c* AD 1482-87 and 14-21 rings on ***SFPF22*** which suggests a felling date of *c* AD 1481-88. Assuming that this truss is representative of the south range a construction date, slightly later than the expected mid-fifteenth century, in the AD 1480s is implied.

The single dated timber from truss 3 in the north range is clearly broadly contemporary with those from truss 6 but it is not possible to determine whether it is precisely coeval. In the absence of sapwood, and taking into account that at least two heartwood rings were lost from the outer edge, a felling date of after AD 1438 is indicated. If this post is associated with the initial construction then it suggests that the building was erected no earlier than the mid-fifteenth century. However this possible interpretation rests on the dating of a single timber in the north range and should therefore be treated with caution.

Stockleigh Pomeroy: Lower East Coombe (SS888039) ***K397/13***
Description
Part of a late-medieval farmhouse survives at Lower East Coombe (Fig 3r). The house faces roughly south and is built down a gentle slope. It was clearly a three-room and cross-passage plan house with the inner room at the uphill east end. However the inner room and upper end of the hall have been demolished leaving only the lower end of the hall, the passage, and service-end room. The surviving roof timbers are sooted indicating that the original house was open to the roof from end to end, divided by low partitions and heated by an open-hearth fire. Two main trusses survive but the original west-end gable is timber-framed and therefore has been designated as truss 1 with the two main trusses numbered 2 and 3 from west to east (Fig 4r). The main trusses are side-pegged jointed crucks with curving collars mortised and tenoned to the principals and held by two pegs each side (Fig 4r). They carry two sets of trenched purlins and a ridge. The top gable framing of truss 1 comprises a post rising from the cob to take the ridge and a horizontal cross-member halved across the post extending each side to carry the upper purlins (Fig 4r). Vertical staves nailed to the timbers form a base for wattle-and-daub infill which is a rare survival.

Sampling
Eight samples, ***SPEC01-08***, representing eight timbers were taken (Fig 4r; Table 2). Although cores were taken from all three trusses some potentially suitable timbers were excluded as sampling was restricted to half a day. The presence of sapwood or at least the heartwood-sapwood boundary was widespread.

Results and Interpretation
The majority of timbers used in the roof were probably derived from trees that were in general less than about 120 years old when felled. The structural elements are dominated by halved trunks.

Two samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 55 to 91. Three ring sequences crossmatched and were combined to produce a 95-year site master chronology, ***SPEC-T3*** (Fig 5r; Tables 3r and 4r). This site master was successfully dated (Tables 5c and 6).

The results suggest that the three dated timbers, representing trusses 2 and 3, are likely to be coeval. Unfortunately neither sample from truss 1 was dated. All three cores had the heartwood-sapwood boundary present but the timber from which ***SPEC01*** was obtained had retained bark edge. Unfortunately the sapwood disintegrated during coring. It was estimated that there was 30-50mm sapwood lost, representing approximately 18-30 sapwood rings, which produces an estimated felling date range of *c* AD 1511-23. Construction would have occurred within this period shortly after felling which is compatible with the late-medieval date expected.

Thorverton: Traymill (SS940055) ***K397/19***
Description
The hall of the former manor house is, excluding the medieval halls of the major gentry, amongst the largest in Devon in terms of its length, width, and height. Furthermore whilst the post-medieval features are relatively plain the original features, thought to date to around AD 1500, are high quality. In addition to the roof, both its cross-passage doorways survive, along with the remains of a stone mullion and transom window to the hall. It is built of local stone rubble on a gentle slope on a roughly east-west axis. The medieval house had a two-room and cross-passage plan comprising a three-bay hall at the uphill, or west, end and a two-storey single bay east end on the lower side of the passage. There may have been a solar cross-wing at the west end or a lower-end solar in the surviving upper room. However the medieval main range survives intact. It is four bays long with the two-storey end separated from the open hall by a full-height framed crosswall closing a main truss. The hall roof is sooted indicating that the original hall was open to the roof and heated by an open-hearth fire in the hall. The intermediate trusses are nearly as large as the main ones. Thus the trusses, including the intermediates, are numbered 1 to 9 from east to west, with trusses 2, 4, 6, and 8 being intermediate trusses (Fig 4s). All are false hammerbeam trusses, that is to say they are basically A-frame trusses with arch-braces springing from the short hammerbeams to the slightly cambered collars, rather than posts to an arcade plate as in a true hammerbeam roof (Fig 4s). The main trusses take three sets of butt purlins and two sets of wind-braces (Fig 3s) along with a butted ridge. The purlins and ridge extend from main truss to main truss supported as trenched purlins and ridge on the back of the intermediate

truss principals. The intermediates are otherwise similar except that they do not take wind-braces. The closed truss, truss 3, is a simple A-frame filled with a large panel frame. Most of the hammerbeams are boxed in but those belonging to two intermediates, trusses 2 and 8, can be seen to have tenons projecting from the ends. These apparently engaged a floating wall plate or cornice, lengths of which still survive in a secondary cob wall on the east side of the closed truss. It is moulded with a brattished frieze. This is the only decorative finish in the whole roof as there are not even chamfers to the arch- and wind-braces. Since joints between lengths of this moulded timber were noticed in the surviving pieces it seems likely that the floating cornice was continuous across the hammerbeams of both main and intermediate trusses.

Sampling

Eight samples, ***TVTM01-08***, representing eight timbers were taken (Fig 4s; Table 2). The presence of sapwood was widespread but it rapidly became clear that it was in such an advanced state of degradation that successful coring was going to prove impossible. The sapwood disintegrated if touched lightly and it was thought likely that it was only the sooting that had kept it in place. The timbers were already considered borderline with respect to the numbers of rings and the loss of sapwood exacerbated this problem.

Results and Interpretation

The timbers used in the roof were probably derived from trees that were usually less than about 60 years old when felled. The main structural elements are dominated by halved trunks.

Six samples were unsuitable for analysis. The ring sequences of the remaining two samples were 48 and 52, both close to the lower limit of rings required. These two series, which represent the truss 7 principals, crossmatched and were combined to produce a 52-year site master chronology, ***TVTM-T2*** (Fig 5s; Tables 3s and 4s).

It was not possible to conclusively date the site master curve. Consequently no absolute dating evidence has been produced.

Whitestone: Glebe House barn (SX868943) ***K397/20***

Description

The barn is a cob-walled medieval threshing barn thought likely to date to the mid- or late-fifteenth century. It is built on a rough north-south axis down a gentle hill slope a short distance east of the house. It is six bays long but may have been longer since the southern end has been rebuilt. The trusses have been numbered 1 to 5 from north to south (Fig 4t). There are large bay-wide doorways to the former threshing floor in bay 3. The roof is carried on a series of side-pegged jointed crucks (Fig 4t). The cruck posts of trusses 2 and 3, which flank the threshing floor, descend to floor level. This might be expected even if the others sat on timber spreader plates in or on top of the wall footings. However the bases of the others trusses were plastered over with the exception of the west post of truss 5 which does appear to sit on a plate. In trusses 2 and 5 the side-pegged elbow joint is augmented by a lower pegged slip tenon. Whilst truss 4 could not be examined it was possible to establish that trusses 1 and 3 had no such slip tenons. The collars rise to a slight cranked arch and are mortised and tenoned to the principals and held by two pegs each side. At the apex

the principals butt each other on the vertical, and are held together by a small triangular yoke which is mortised, tenoned, and pegged to both principals. The trusses carry two sets of butt purlins with a single set of windbraces between them (Fig 3t). However the diagonally-set ridge is threaded, with each length scarfed together on the truss.

The roofs of Glebe House, a former rectory, and its barn are so similar it seems likely that both were built at the same time. However as the house roof was exposed at first-floor level it was felt prudent to restrict the investigation to the barn.

Sampling

Ten samples, ***WSGH01-10***, representing ten timbers were taken (Fig 4t; Table 2). The presence of sapwood was common but once again it was in a very poor state of preservation. Samples were removed from trusses 1-4, though it should be noted that several timbers in truss 5 were suitable for analysis but were not sampled due to time constraints. The purlins and windbraces generally did not meet the minimum requirements for analysis and due to health and safety issues it was not possible to attempt cores about the lower purlin level, thus neither the collars or the yokes were sampled.

Results and Interpretation

The majority of timbers used in the roof were probably derived from trees that were in general less than about 120 years old when felled. The major structural elements are predominantly halved trunks trimmed to a varying extent.

Two samples were unsuitable for analysis. The ring sequences of the remaining samples vary in length from 44 to 92. Four of the series crossmatched to form a 117-year site master chronology, ***WSGH-T4*** (Fig 5t.1; Tables 3t.1 and 4t.1). A further two series crossmatched to form a second site master chronology of 59-years, ***WSGH-T2*** (Fig 5t.2; Tables 3t.2 and 4t.2). These two chronologies do not crossmatch each other nor can they or the unmatched individual series be reliably dated. No absolute dating evidence has therefore been produced, though it has been shown that trusses 3 and 4 are likely to be coeval.

DISCUSSION

The following highlights a number of points that will be addressed in more detail as the project progresses and data coverage is increased across the county. The dates of individual buildings are not focussed on as this and the wider implications for local vernacular architecture will be dealt with elsewhere by Keystone and in future publications.

The assessment of over 70 phases of construction combined with the more detailed analysis of 20 of these phases provides information concerning the timber resource of the county. Whilst 14 of the 20 selected construction phases were successfully dated this masks the very high attrition rate during assessment. The countywide intensive assessment week looked at 43 phases of construction from 27 dwellings and associated outbuildings. Fifteen phases were rejected (grade E) as entirely unsuitable for dendrochronological analysis as the timbers present clearly contained far too few rings (Fig 6). This rejection rate of approximately 1 in 3 phases is

significantly higher, as is the number of borderline suitability phases, than in many other counties (eg Herefordshire: fewer than 5% rejected) although similar to some counties (eg Kent: 30-40% rejected). As further assessments were undertaken in the selected area the rejection rate dropped to 1 in 4 (Fig 7) which reflects not only the careful selection of the area but also the recognition that the phases under investigation generally needed to have a number of trusses associated with them (see below). This variation across the country highlights the differences in the timber resources available. In Devon construction timber is commonly derived from young, fast-grown trees particularly in certain areas and periods. This is presumably at least some reflection of what is available and hence provides some information about the historic landscapes and the management of the timber resource. Clearly the use of such young trees in construction is one of the major factors adversely affecting the overall success rate of dendrochronological analysis in Devon.

The range of dwellings and associated outbuildings assessed represented a wide range in social status. Unfortunately the lower status structures have often been rejected at assessment stage as they frequently contain only one or perhaps two trusses and thus generally do not have an adequate number of suitable timbers available for sampling. Consequently sampling has been biased to the more complex higher-status buildings rather than the more basic survivors. With the common use of very young fast-grown trees this problem with dating simpler structures may be difficult to overcome. However the dating evidence produced has added to the understanding of the typological development of local building traditions and it is important to note that the typological progression seen in the more complex traditional buildings analysed can also be recognised in the more basic buildings that are often rejected. Thus whilst dendrochronological analysis may not be able to directly date many of the more basic buildings it can probably provide indirect dating evidence through refinement of the typological development.

Initially dating evidence was provided for only 11 of the 20 phases of construction analysed. However during the intervening years between the initial analysis and the production of this report the chronological network has been extended by the analysis of additional buildings in the county and other relevant regions allowing a further three of the buildings (Yeo Barton, Cleavanger, and Chaffcombe) in this project to be successfully dated (Fig 8). This has increased the number of successfully dated timbers within this project to 102 and has allowed the production of a continuous 544-year chronology spanning the period AD 1124-1667 (Fig 9). The components of this chronology have already proved valuable in the successful dendrochronological dating of other buildings in the county.

The dendrochronological results indicate that the typological chronology appears, as expected, to be broadly correct (Fig 10). Buildings thought to date to the fourteenth or first half of the fifteenth century have generally proved to be slightly earlier than expected. Those thought to date to the mid or late fifteenth through to the mid-sixteenth century have generally done so with a possible tendency to be slightly later. Within this period there are however two anomalies: West Hele and Broomham. Notably the roof trusses at West Hele are all of slightly different construction type and only one has been dendrochronologically dated and the expected date of Broomham was based on documentary evidence. The only dated seventeenth-century building proved to be slightly later than expected. As the project progresses it is expected that

it will be possible to further refine the typological chronology using the evidence provided by dendrochronological results.

The dated phases form two main groups with respect to the date of construction: five dating to the early-fourteenth century and six dating to the mid-fifteenth through to the mid-sixteenth century (Figs 9 and 10). These 11 buildings form the original set of dated buildings. Of the other three buildings, all of which have only recently been successfully dated, two date to the late-fourteenth century and one to the mid- to late-eighteenth century. Whilst the lack of post-medieval buildings is a result of non-selection this does not account for the currently apparent gaps in construction activity in the mid-fourteenth and early-fifteenth centuries. Similar interruptions in construction activity have been observed in various counties such as Kent (mid-fourteenth) and Essex (mid-fourteenth/early-fifteenth). Such events have previously been tenuously associated with adverse socio-economic circumstances, such as the Black Death, rather than reflecting a simple lack of building material suitable for dendrochronological analysis. It seems likely that these apparent lulls in construction are due to a range of contributory factors. As the project progresses it remains to be seen whether these are genuine gaps or whether they are simply artefacts of the current data set.

With one exception, Glebe House barn, all of the phases assessed as grade A or B have produced some dating evidence. Of the six entirely undated construction phases, four of these proved to have only a few timbers that were even borderline with respect to the number of rings in the timbers, so the failure to date these is not unexpected. The timbers from the main range of the farmhouse at Prowse were marginally better, producing a 76-year site chronology incorporating data from six timbers, whereas the timbers from Glebe House barn had a relatively reasonable number of rings for the county but produced two undated site chronologies of 59- and 117-years. As further work is undertaken in Devon and the local chronological network extended and enhanced it may prove possible to obtain dates for these currently undated site chronologies.

Simple analysis of overall chronology length of the dated buildings compared with date (Fig 11) suggests that the dated early fourteenth-century buildings tend to be constructed of timbers derived from longer-lived trees than those used in later buildings. Whilst this information is clearly biased towards those timbers with the best dendrochronological potential and hence longer ring sequences, the general trend is supported by information obtained during assessment. The rejection rate resulting from too few timbers with too few growth rings is significantly higher for buildings thought to date to the fifteenth, sixteenth, and seventeenth century than those from the fourteenth century (Figs 12a to 12d). Whilst there is significant diversity in the forms, ages, and growth rates of the trees used both within and between buildings there is no reason to believe that the timbers used in all analysed buildings are anything other than locally grown.

It is apparent that a relatively high proportion of the timbers show sudden growth retardation events. This is indicated by a band of extremely narrow growth rings followed by a period of recovery. The possible causes of sudden growth reduction include anthropogenic, local environmental, and general environmental effects. Causal factors include management regimes or at least some form of human

intervention, such as pollarding or shredding, localised defoliation by pests, possible responses to localised flooding, or more generalised environmental effects such as severe weather conditions (eg drought, or long hard winters, and late frosts).

Just under 50% of the samples with ring sequences of 40-49 rings were dated using both strong statistical evidence and excellent visual crossmatching. The successful dating of these short series appears to rely heavily on the presence of a number of significantly longer ring sequences from the same structure. Structures in which the timbers are virtually all borderline are clearly failing to date at present. These factors will therefore be taken into account during the selection procedures for subsequent phases of the project.

This initial work also suggests that a narrower sapwood estimate may be applicable in this region. However this aspect will be developed as the project progresses.

CONCLUSION

The apparent problems which led to the initiation of this project clearly exist but appear to have been exacerbated by the fact that Devon was relatively under-sampled. This phase of the project has been successful with dating evidence being produced for 14 out of 20 phases of construction. However the rejection rate at assessment is very high. A relatively large proportion of the buildings included in the assessment may never date using current techniques as the handful of surviving original timbers simply do not contain sufficient numbers of rings. Those buildings considered of borderline suitability are clearly going to prove difficult to date in the short term but may become dateable once a well-replicated network of chronologies has been developed for the county. This phase of analysis has demonstrated that it should be possible to produce a strong network of local reference data. This will allow the local typological chronology to be further refined and will allow issues such as whether the extant buildings demonstrate clear variation in periods of building activity or inactivity and if so is this confined to some areas or uniform across the county. Information produced during the project should enhance the understanding of the historic landscape and the effects of the varied topography of the county and reputedly early woodland management traditions on the timber resource. However whether it will prove possible to address the theory that many of the cruck blades are derived from hedgerow trees remains to be seen.

An increased success rate will allow the emphasis for building selection to change from almost solely dendrochronological merit towards meeting the requirements of the historic building specialists and other specialists as well as the dendrochronologists. This will provide the foundations for a more integrated approach aimed at providing as much information about the building, its timbers, the associated historic landscape and woodland economy, rural settlement patterns, and other socio-economic factors.

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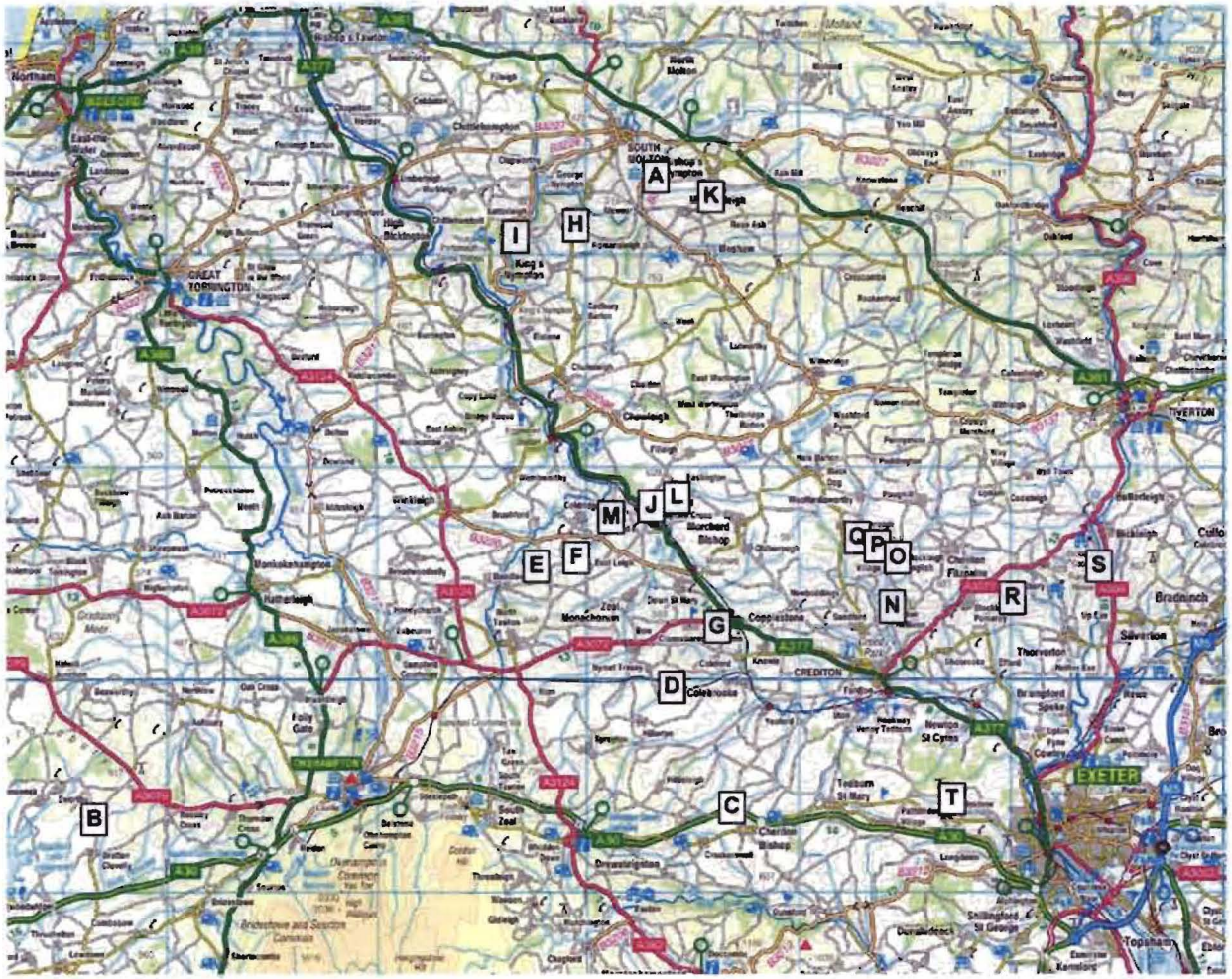
Figure 2 Map showing the location of the buildings/phases selected for analysis. This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. English Heritage. 100019088. © English Heritage



A – Bishop's Nympton: Cross Farm
B – Bratton Clovelly: Chimsworthy
C – Cheriton Bishop: Old Rectory
D – Clannaborough: Thorne
E – Coldridge: Leigh Barton, East Leigh
F – Coldridge: Lower Chilverton
G – Down St Mary: Chaffcombe
H – King's Nympton: Broomham
I – King's Nympton: West Hele
J – Lapford: Bury Barton
K – Mariansleigh: Yeo Barton
L – Morchard Bishop: Rudge
M – Nymet Rowland: Cleavanger
N – Sandford: Ivy Cottage, Bremridge Farm
O – Sandford: Prowse farmhouse main range
P – Sandford: Prowse farmhouse solar cross-wing
Q – Sandford: Prowse barn
R – Stockleigh Pomeroy: Lower East Combe
S – Thorverton: Traymill
T – Whitestone: Glebe House barn

Figure 3a Cross Farm, Bishop's Nympton: truss 4 from the west (photograph J R L Thorp)

Figure 3b Chimsworthy, Bratton Clovelly: truss 5 from the north (photograph J R L Thorp)

Figure 3c Old Rectory, Cheriton Bishop: truss 3 from the west (photograph J R L Thorp)

Figure 3d Thorne, Clannaborough: truss 2 from the east (photograph J R L Thorp)

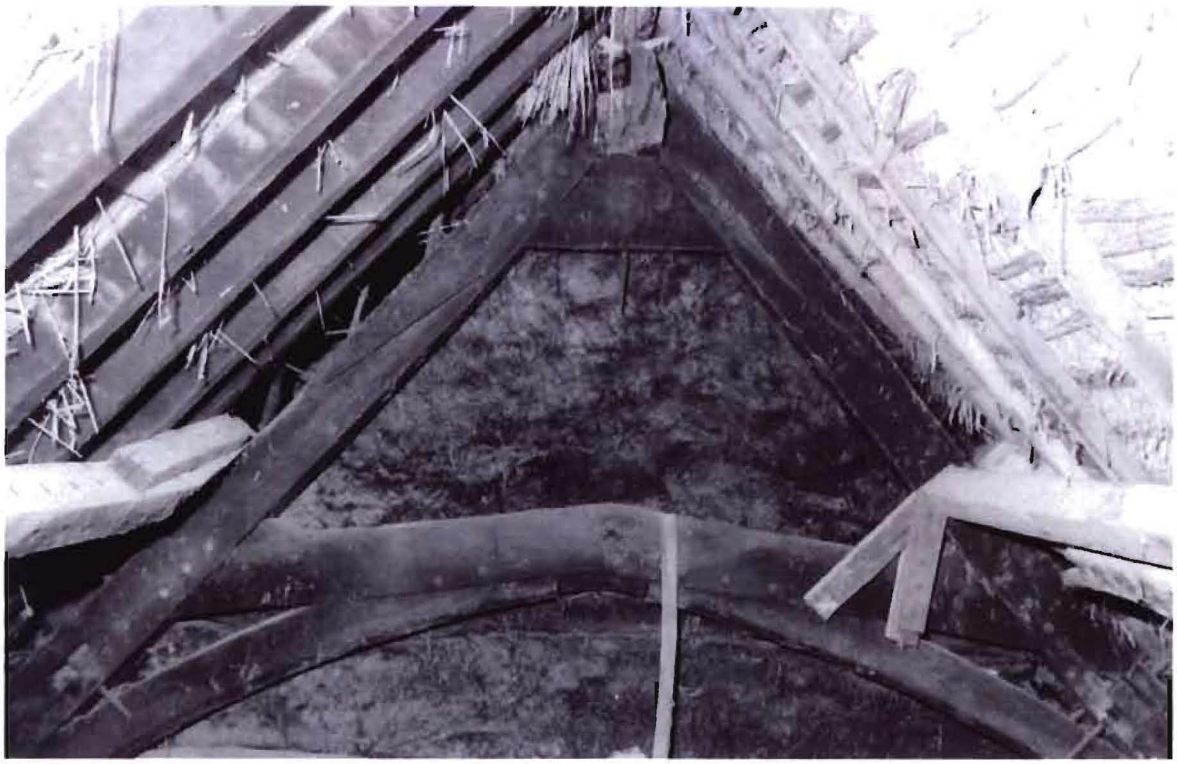


Figure 3e Leigh Barton, East Leigh, Coldridge: south face (photograph J R L Thorp)

Figure 3f Lower Chilverton, Coldridge: south face (photograph J R L Thorp)

Figure 3g Chaffcombe Manor, Down St Mary: truss 1 from the east (photograph J R L Thorp)

Figure 3h Broomham, King's Nympton: service end or shippon (photograph J R L Thorp)

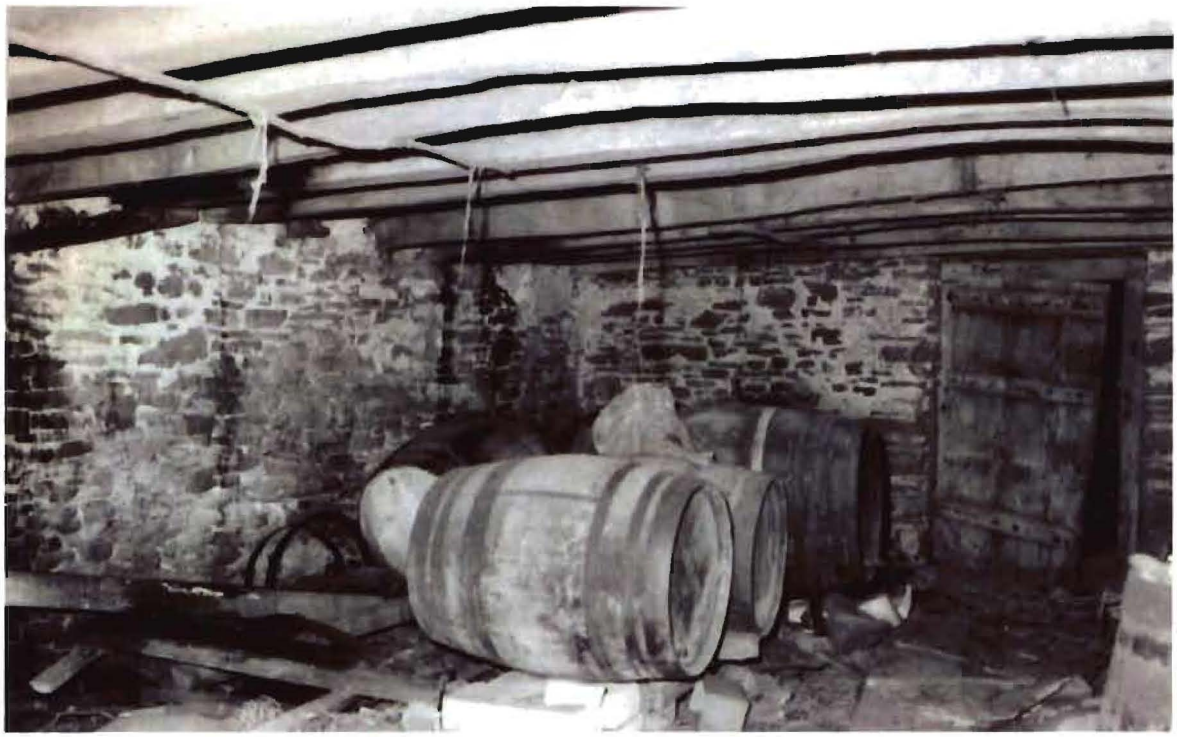


Figure 3i.1 West Hele, King's Nympton: truss 3 from the east (photograph J R L Thorp)

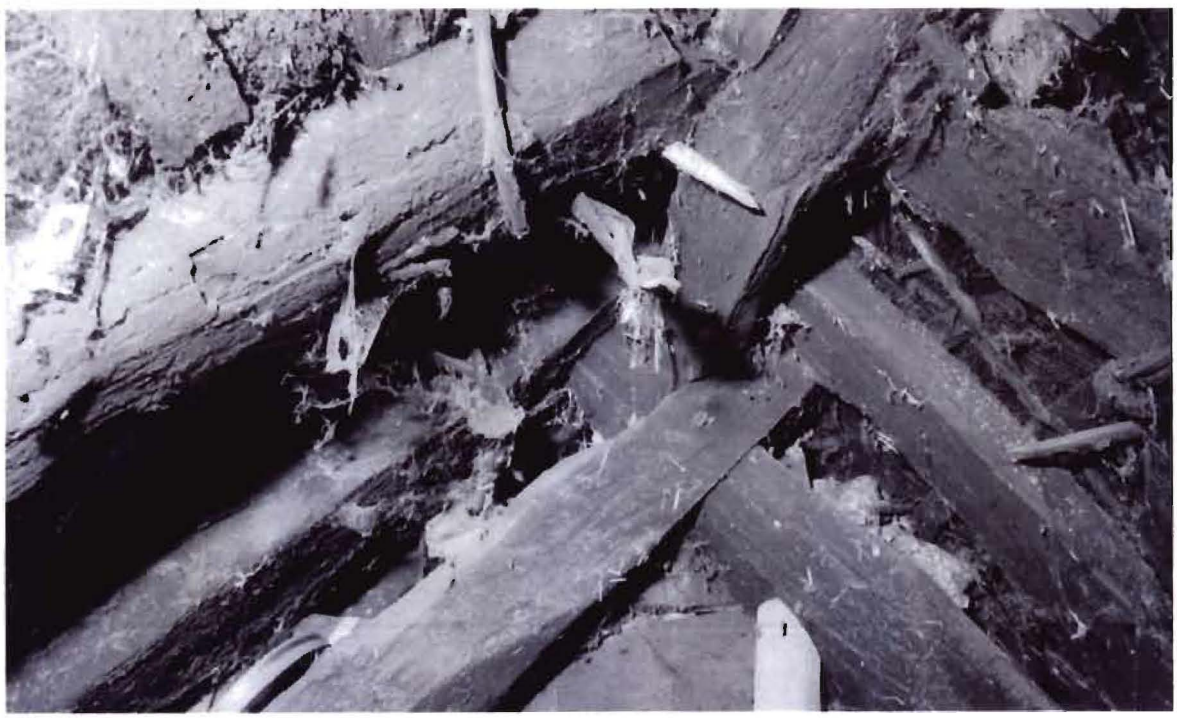


Figure 3i.2 West Hele, King's Nympton: truss 4 from the east (photograph J R L Thorp)

Figure 3j Bury Barton, Lapford: truss 3 from the east (photograph J R L Thorp)

Figure 3k Yeo Barton, Mariansleigh: south face (photograph J R L Thorp)

Figure 3l Rudge, Morchard Bishop: truss 3 from the east (photograph J R L Thorp)

Figure 3m Cleavanger, Nymet Rowland: truss 1 from the west (photograph J R L Thorp)

Figure 3n.1 Ivy Cottage, Bremridge Farm, Sandford: south face (photograph J R L Thorp)

Figure 3n.2 Ivy Cottage, Bremridge Farm, Sandford: east face of screen (photograph J R L Thorp)

Figure 3o Prowse farmhouse main range, Sandford: south face (photograph J R L Thorp)

Figure 3p Prowse farmhouse solar cross-wing, Sandford: ground floor looking north-west (photograph J R L Thorp)

Figure 3q Prowse barn, Sandford: east face (photograph J R L Thorp)

Figure 3r Lower East Coombe, Stockleigh Pomeroy: south face (photograph J R L Thorp)

Figure 3s Traymill, Thorverton: south side, trusses 4 to 7 (photograph J R L Thorp)

Figure 3t Glebe House barn, Whitestone: trusses 2 to 5 from the north-west (photograph J R L Thorp)

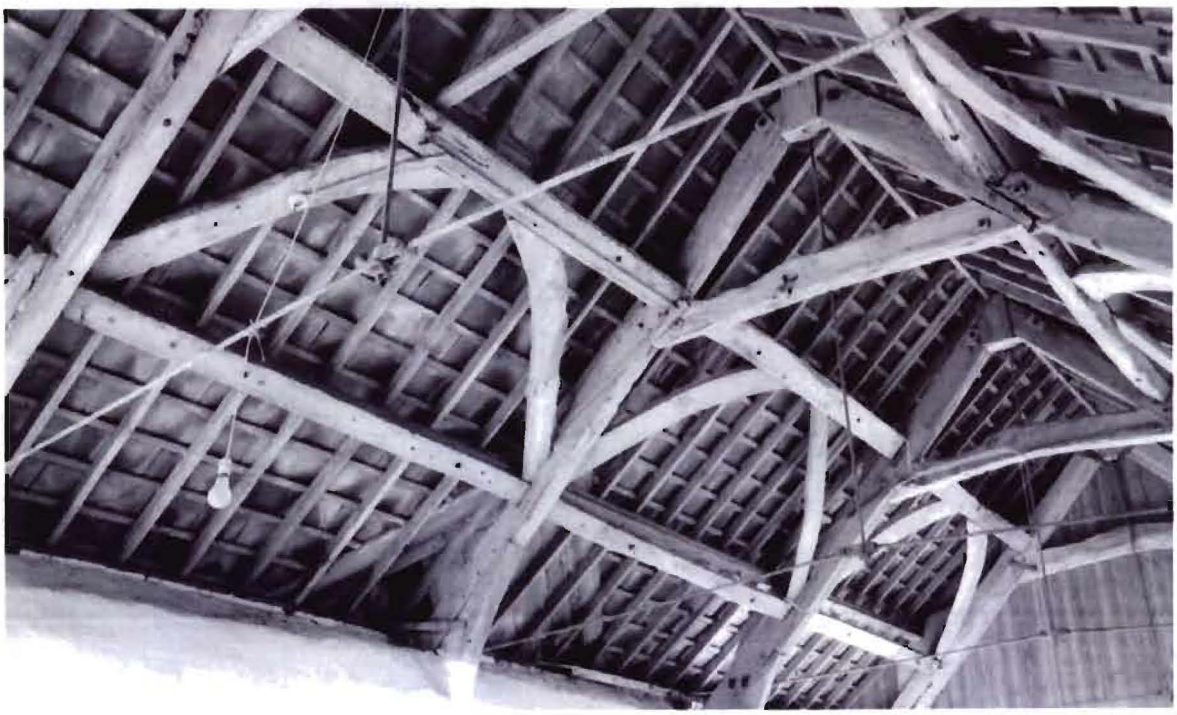


Figure 4a Cross Farm, Bishop's Nympton: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***BNCR***

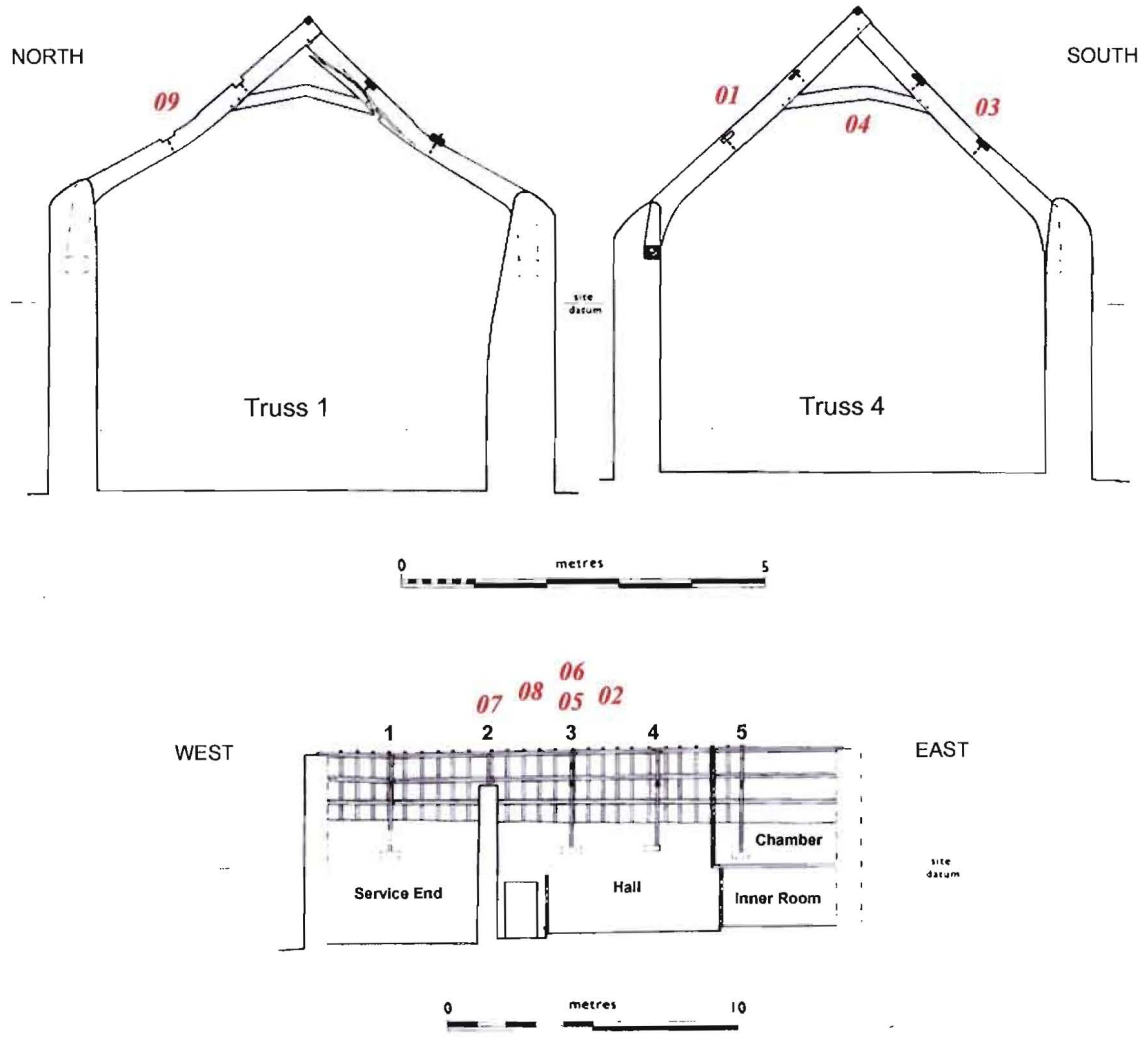


Figure 4b Chimsworthy, Bratton Clovelly: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***BCCW***

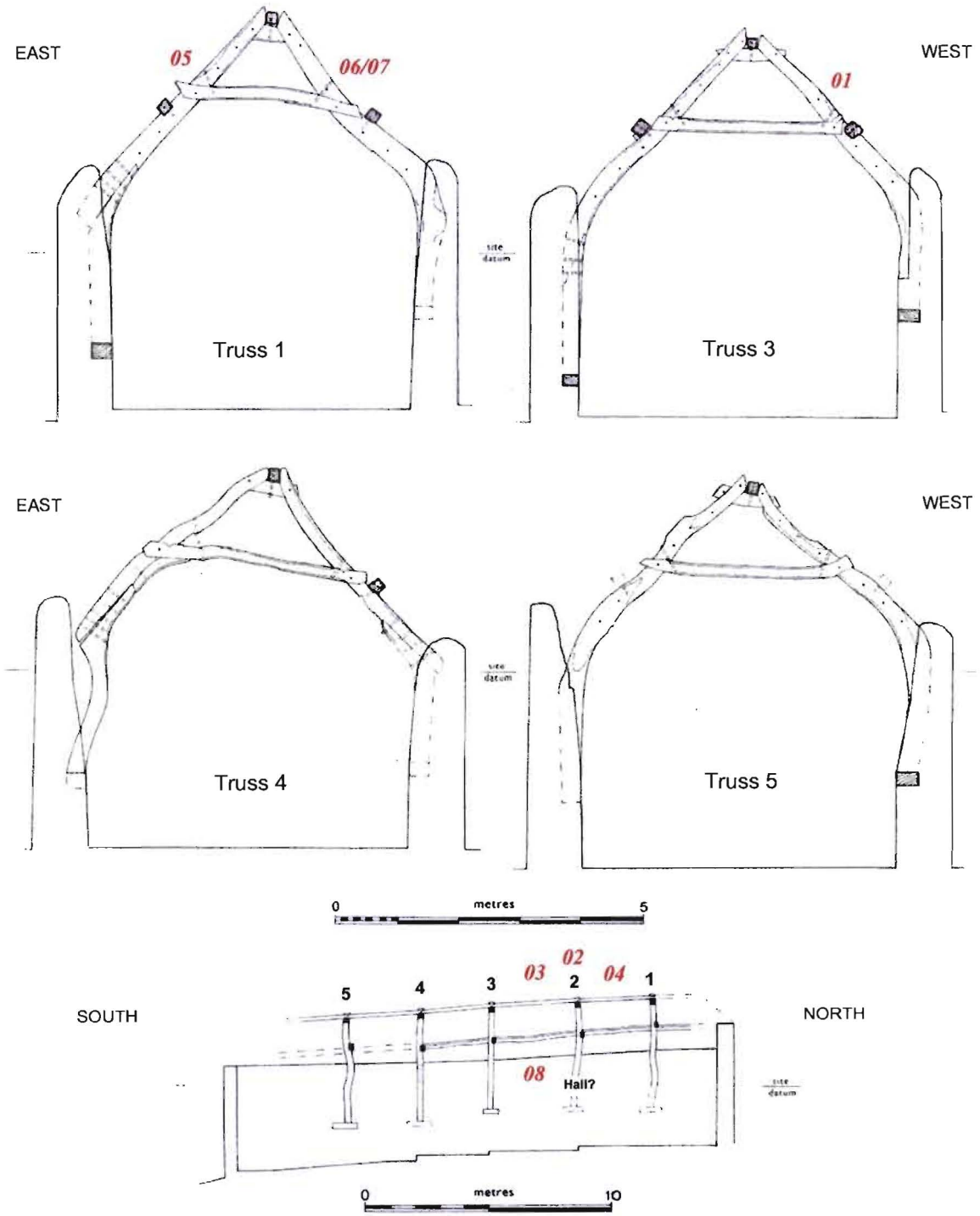


Figure 4c Old Rectory, Cheriton Bishop: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***CBOR***

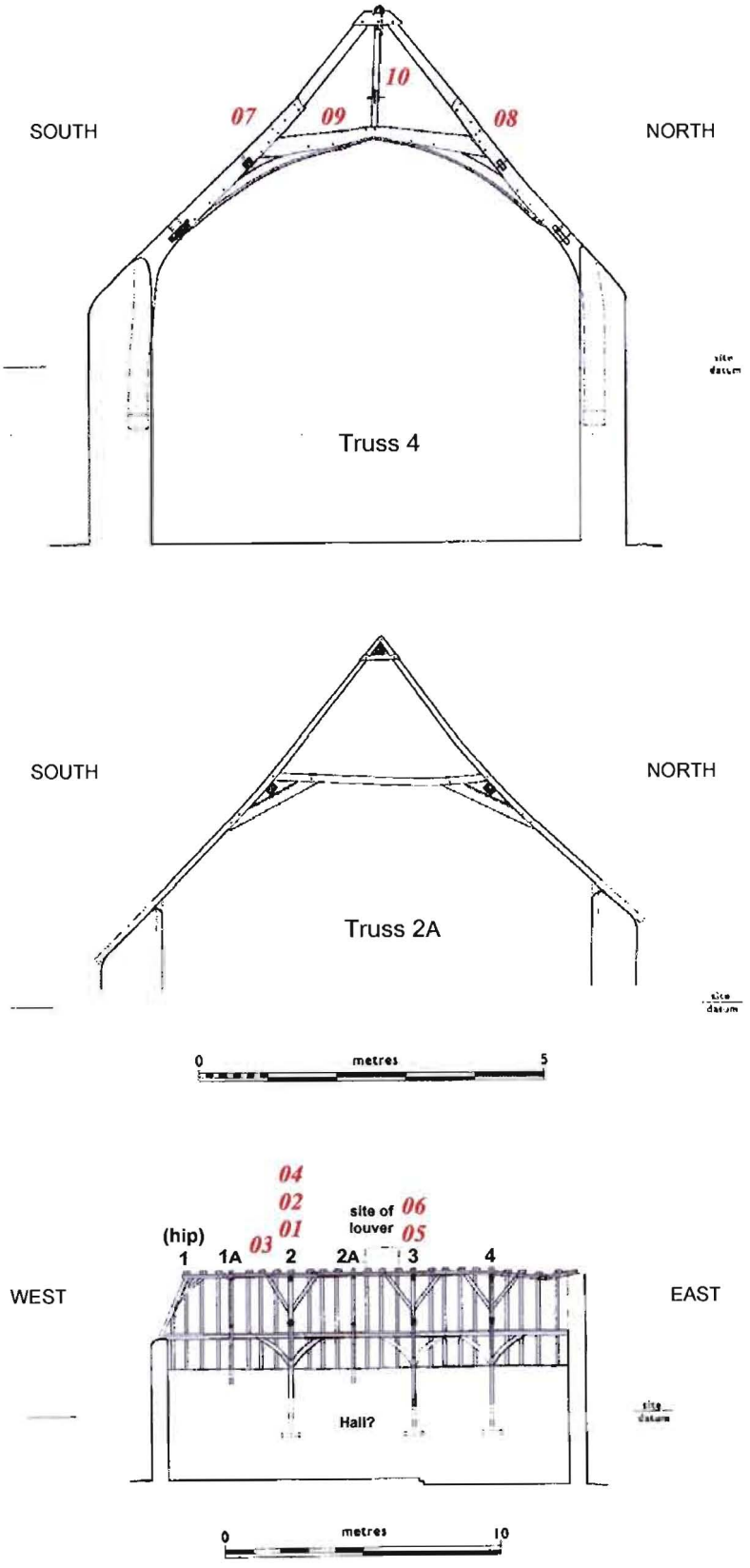


Figure 4d Thorne, Clannaborough: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***CBTH***

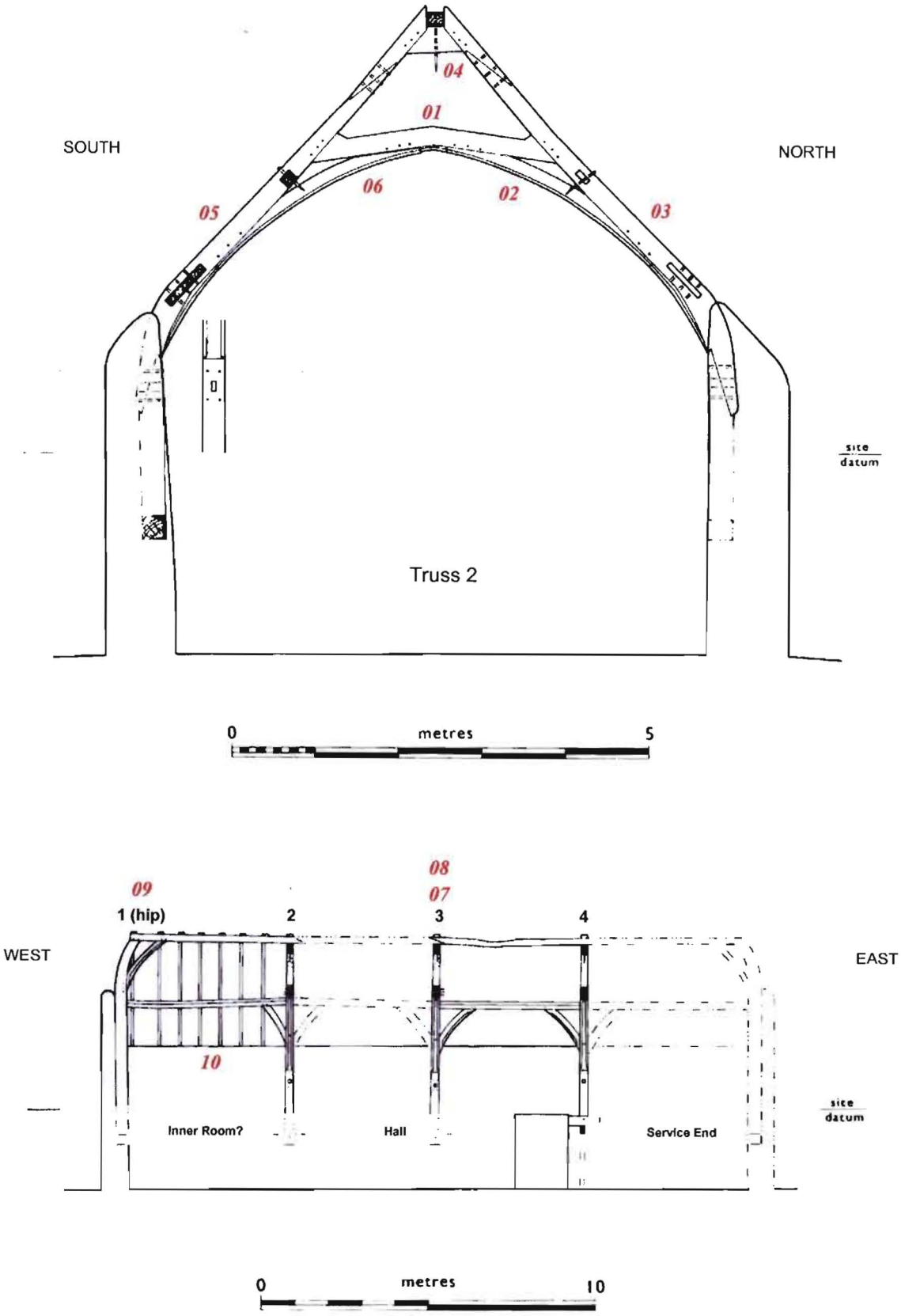


Figure 4e Leigh Barton, East Leigh, Coldridge: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***CRLB***

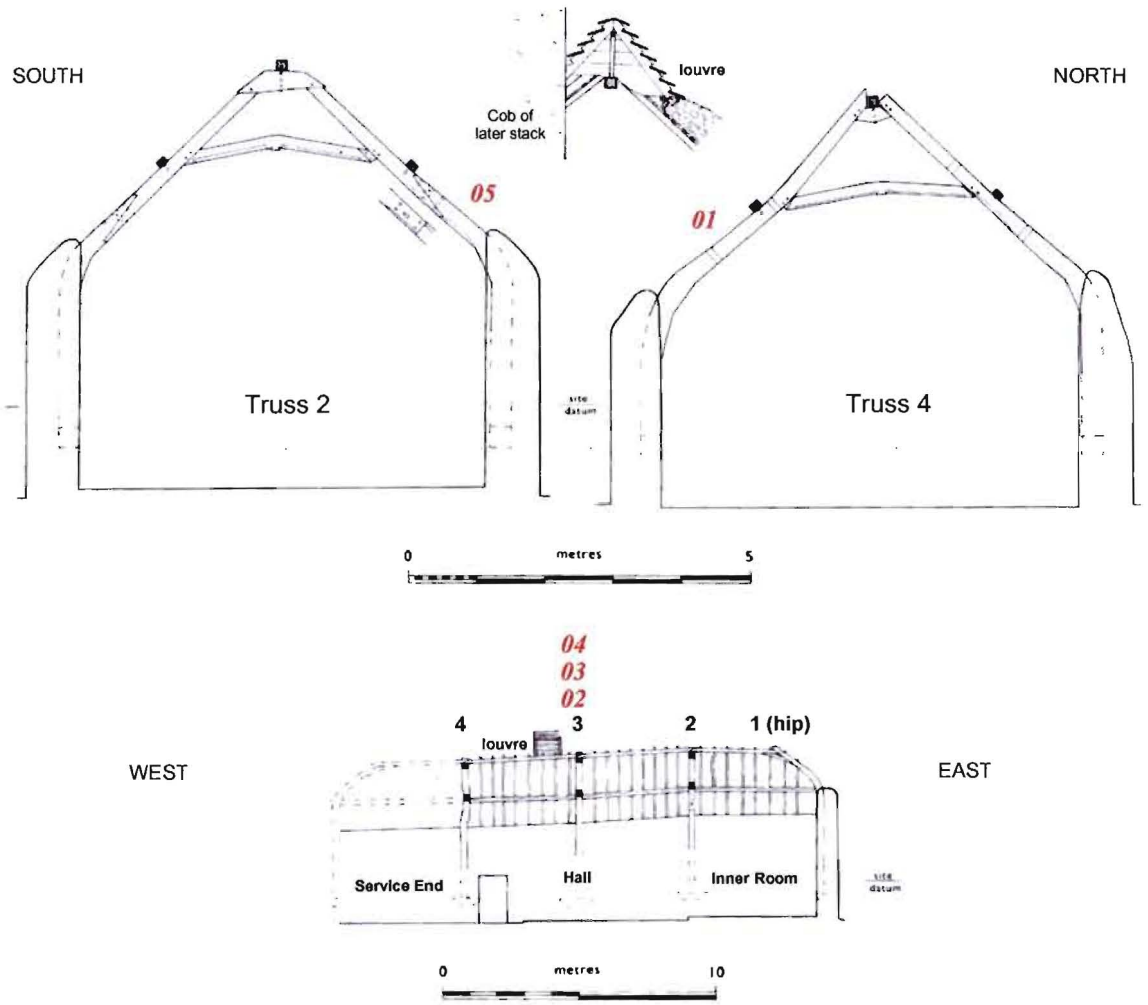
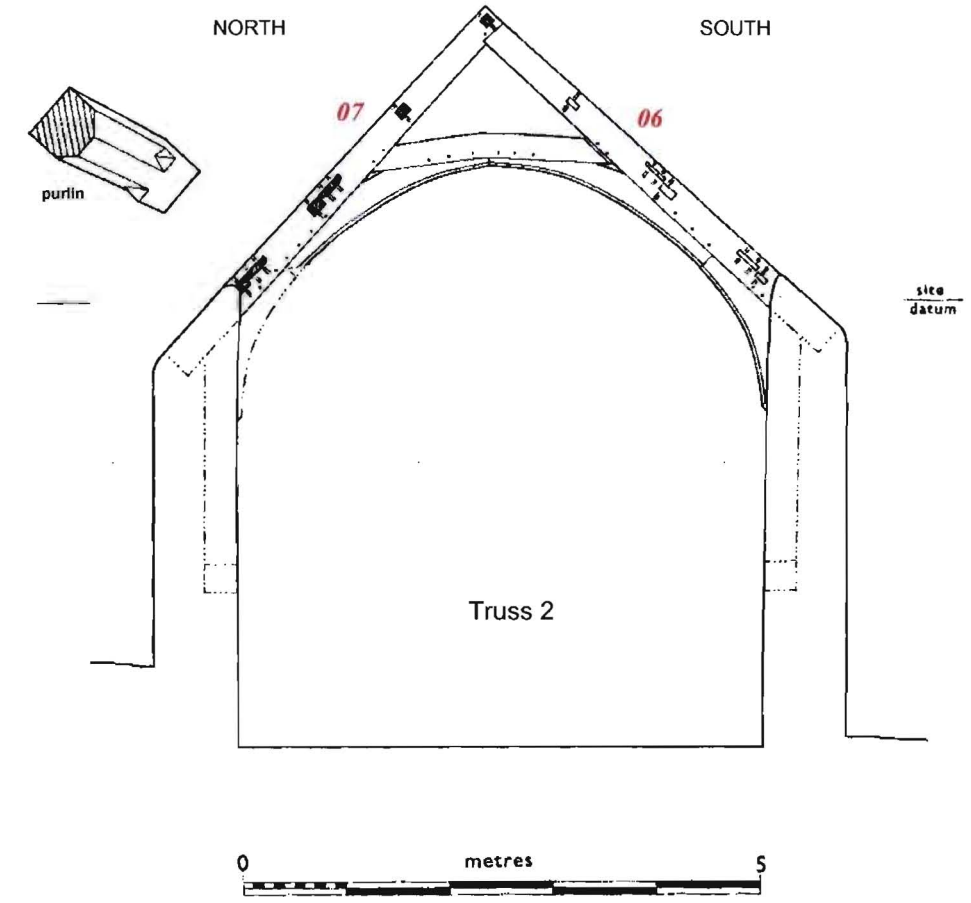


Figure 4f Lower Chilverton, Coldridge: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***CRLC***



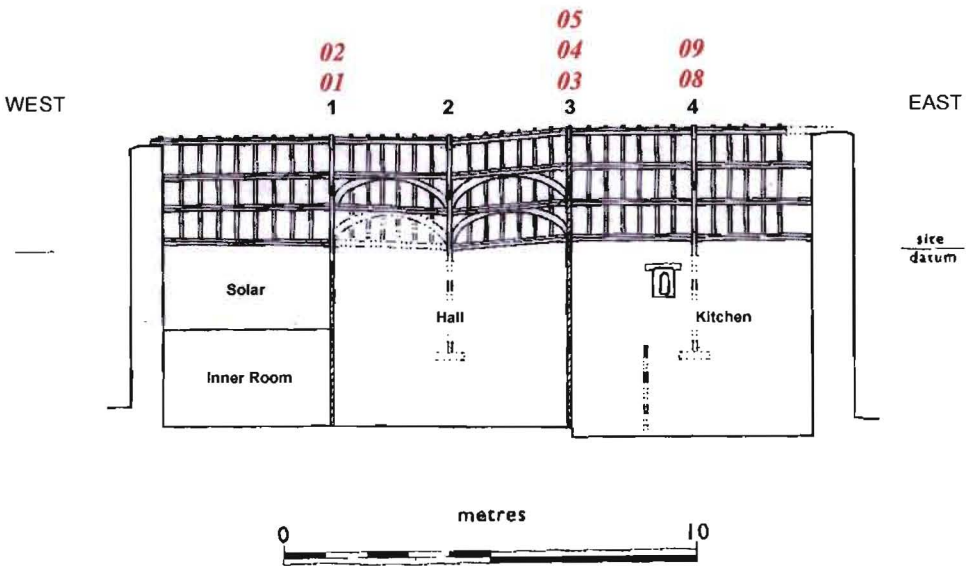


Figure 4g Chaffcombe Manor, Down St Mary: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***DMCC***

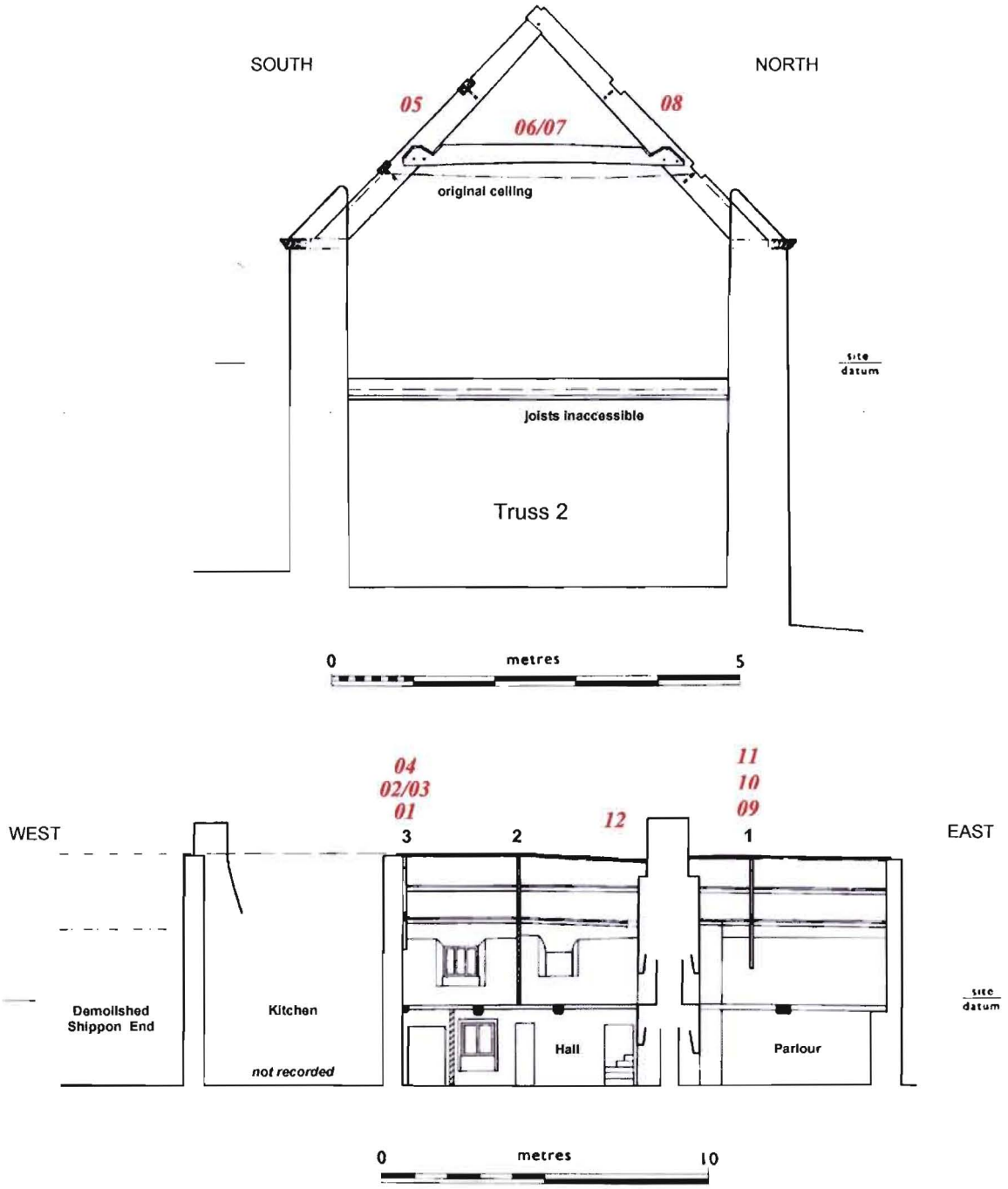


Figure 4h Broomham, King's Nympton: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***KNBH***

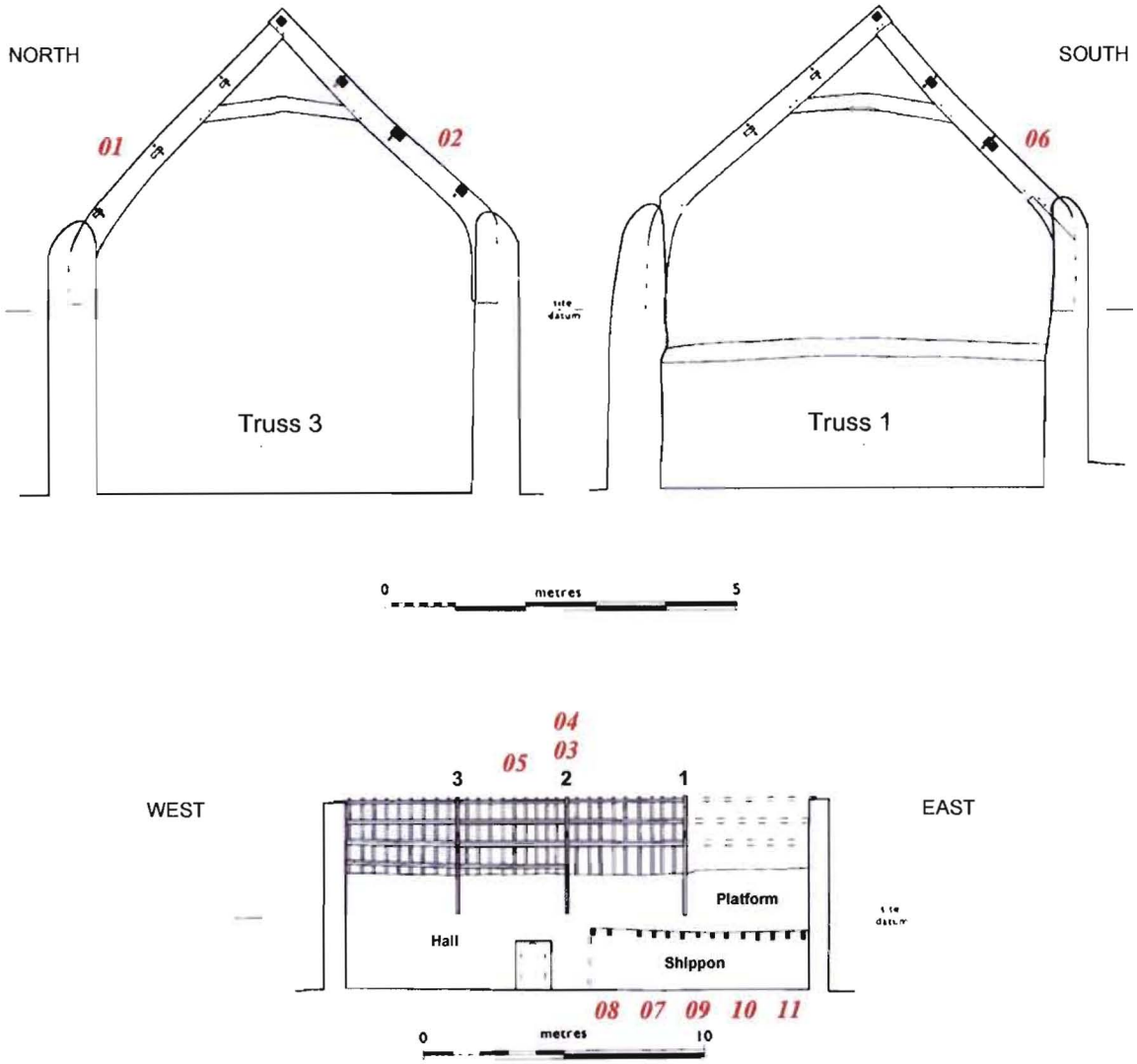


Figure 4i West Hele, King's Nympton: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***KNWH***

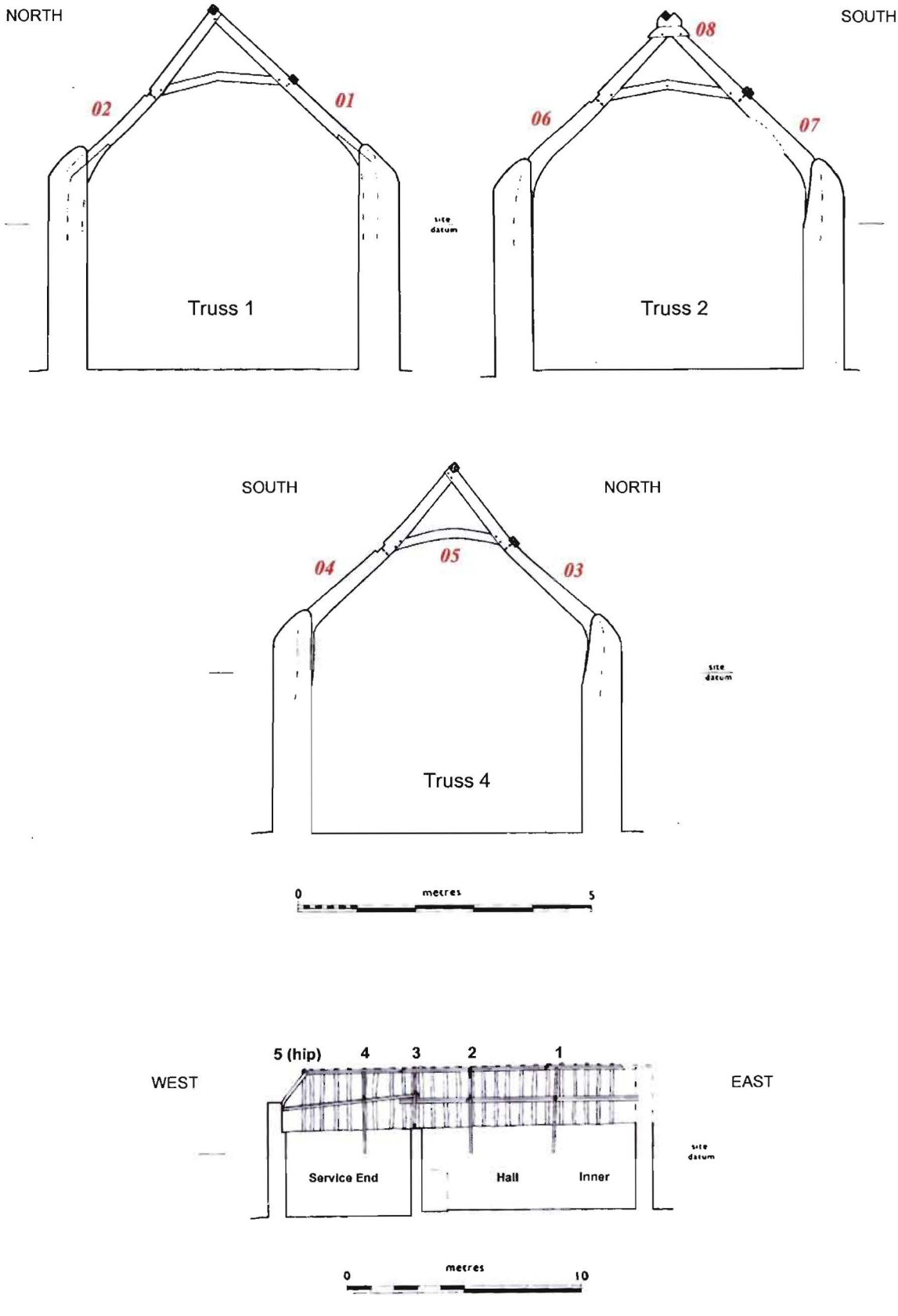


Figure 4j.1 Bury Barton, Lapford: example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***LFBB***

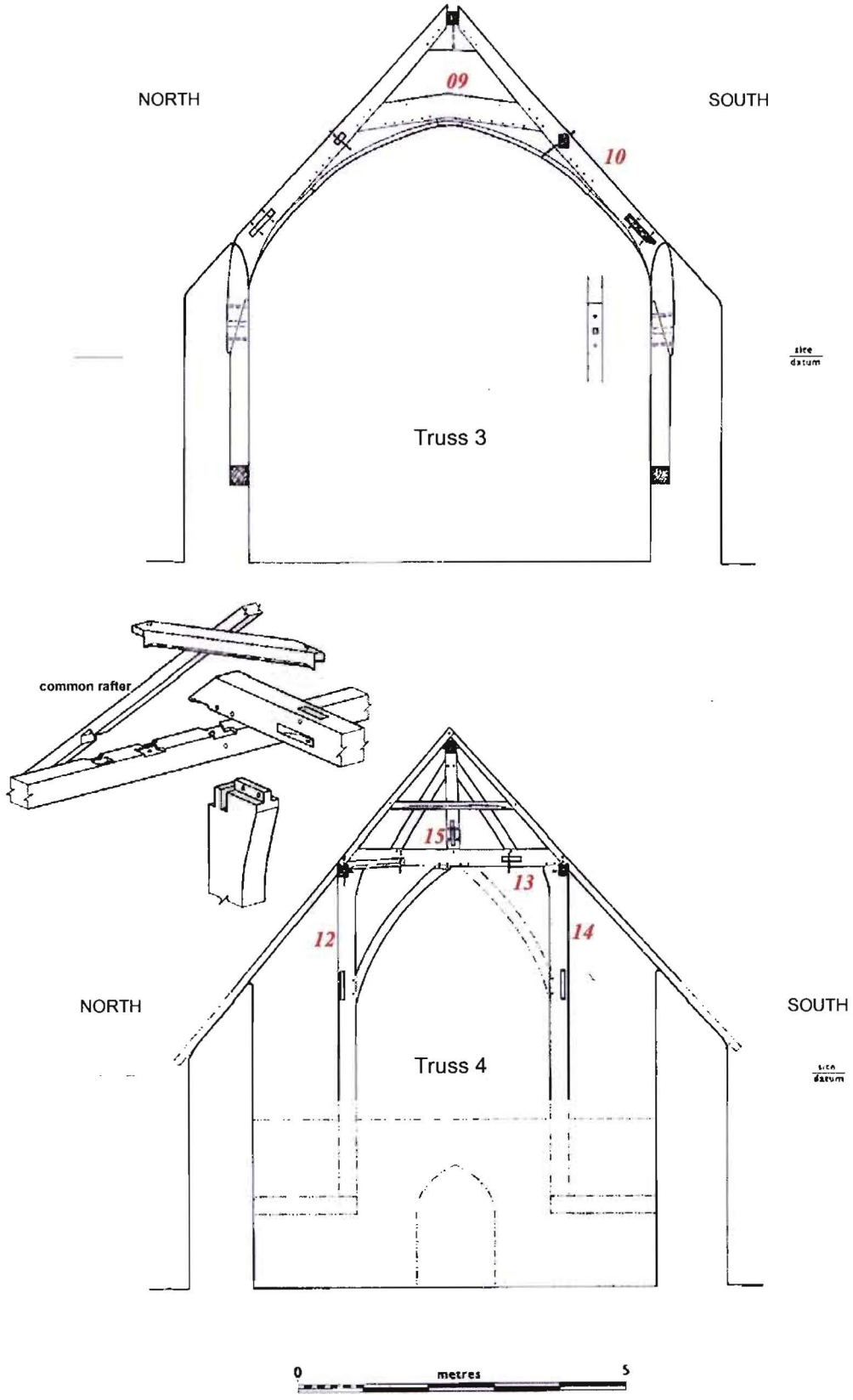
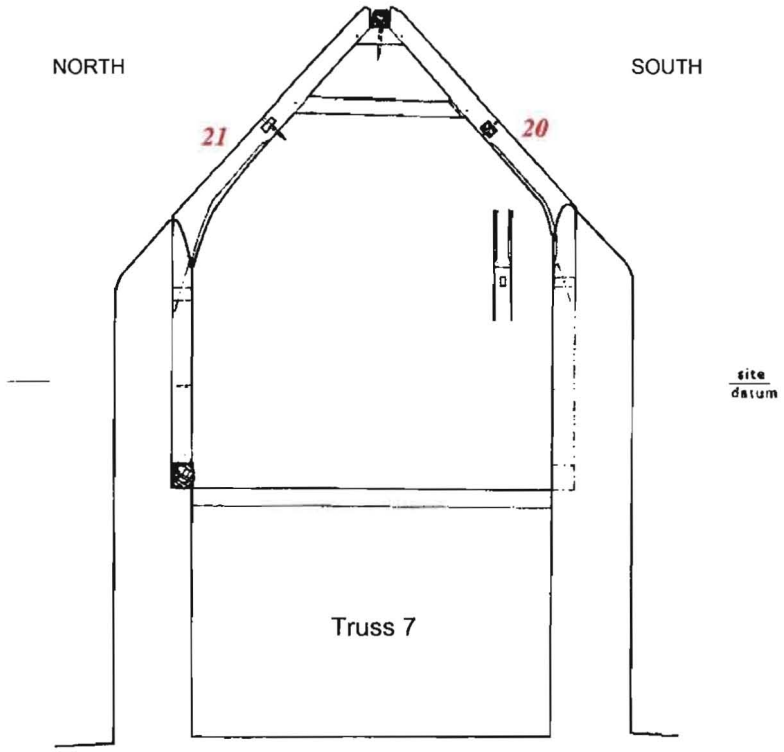
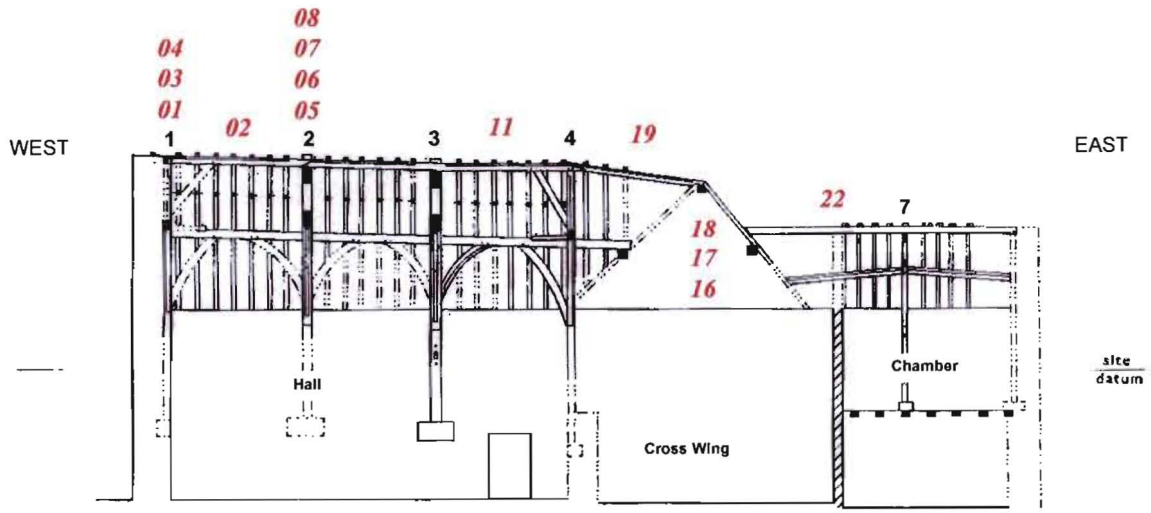


Figure 4j.2 Bury Barton, Lapford: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***LFBB***





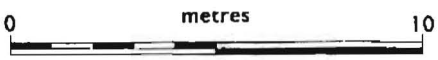


Figure 4k Yeo Barton, Mariansleigh: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***MLYB***

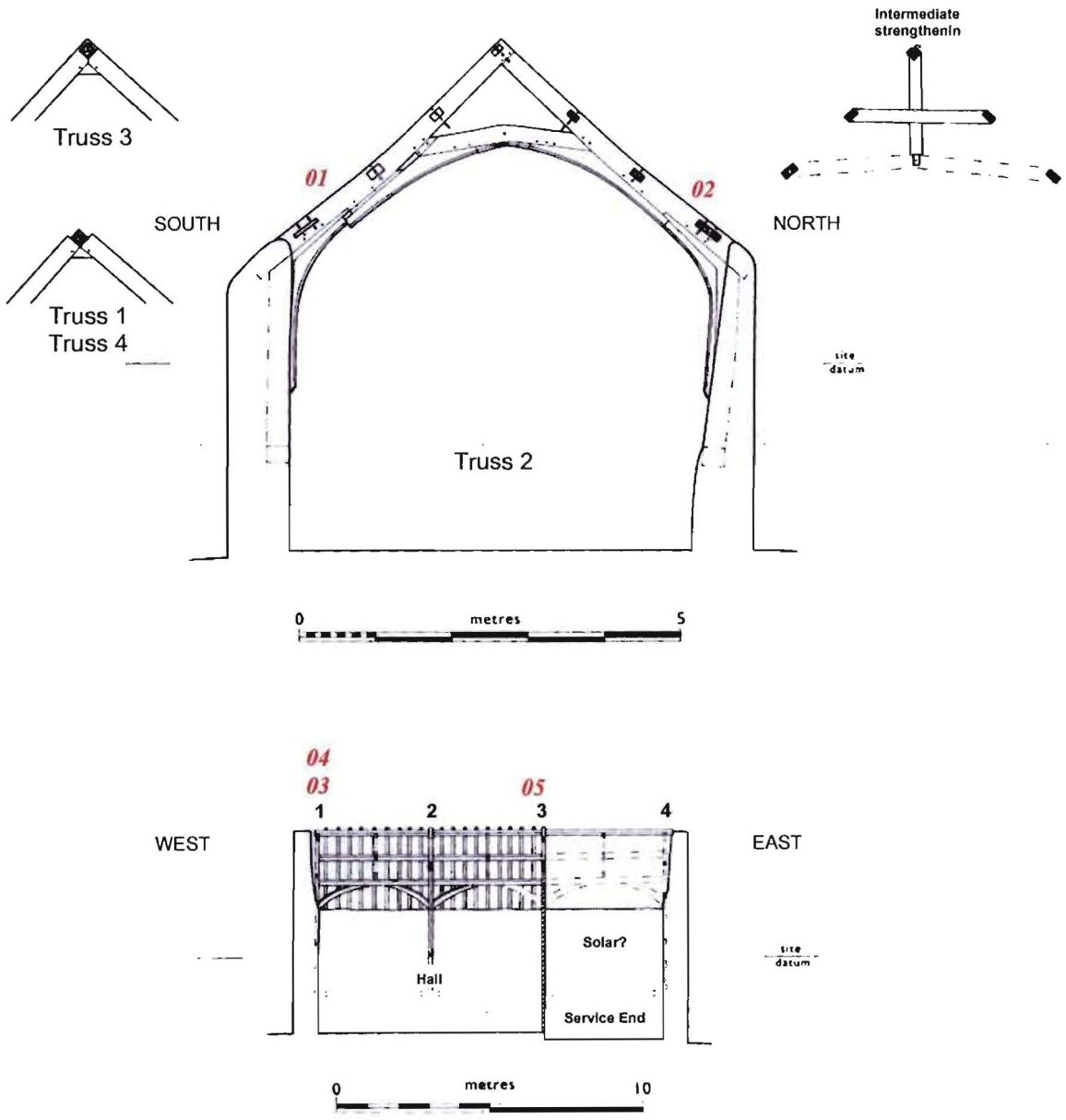


Figure 4l Rudge, Morchard Bishop: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***MBRU***

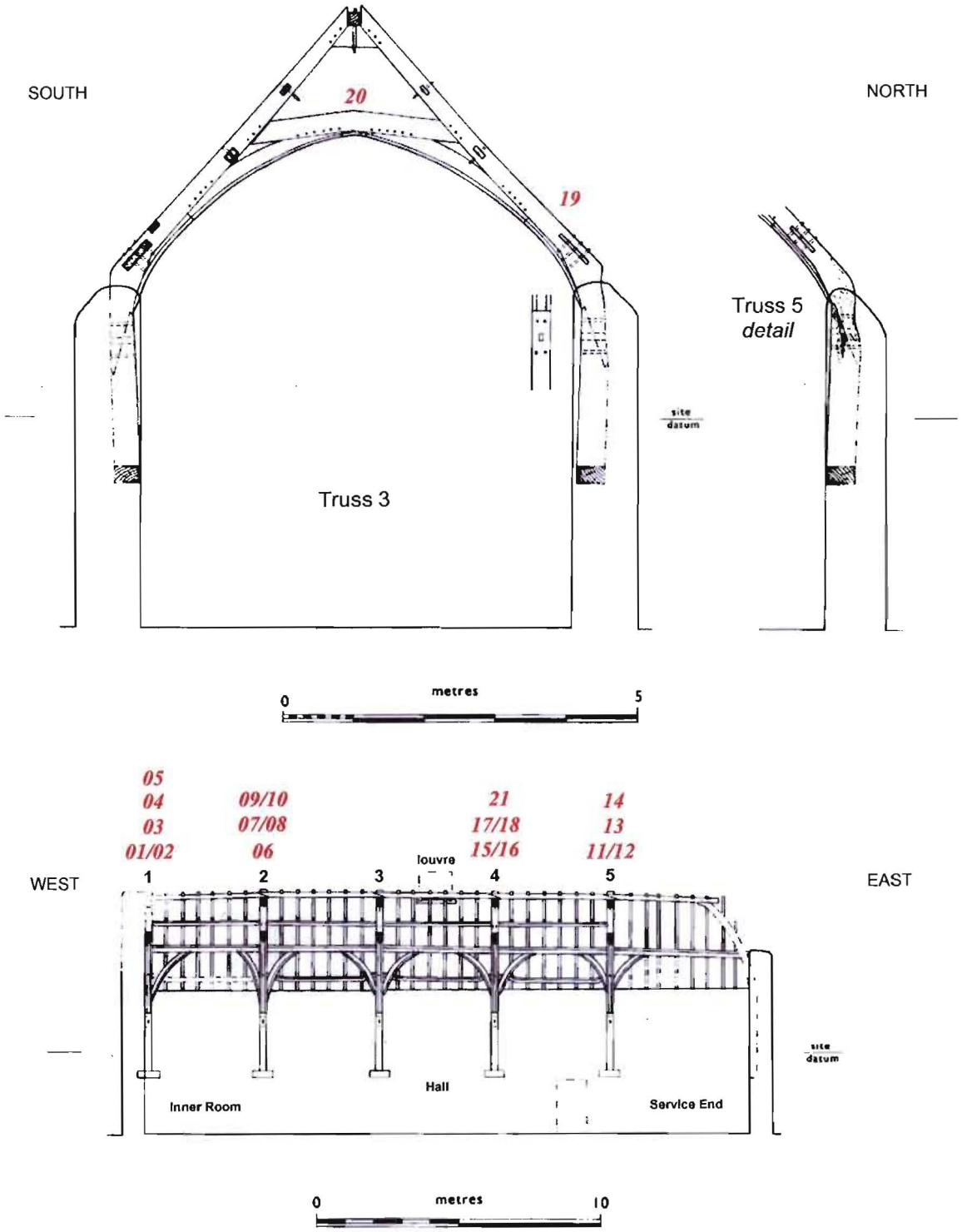


Figure 4m Cleavanger, Nymet Rowland: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***NRCV***

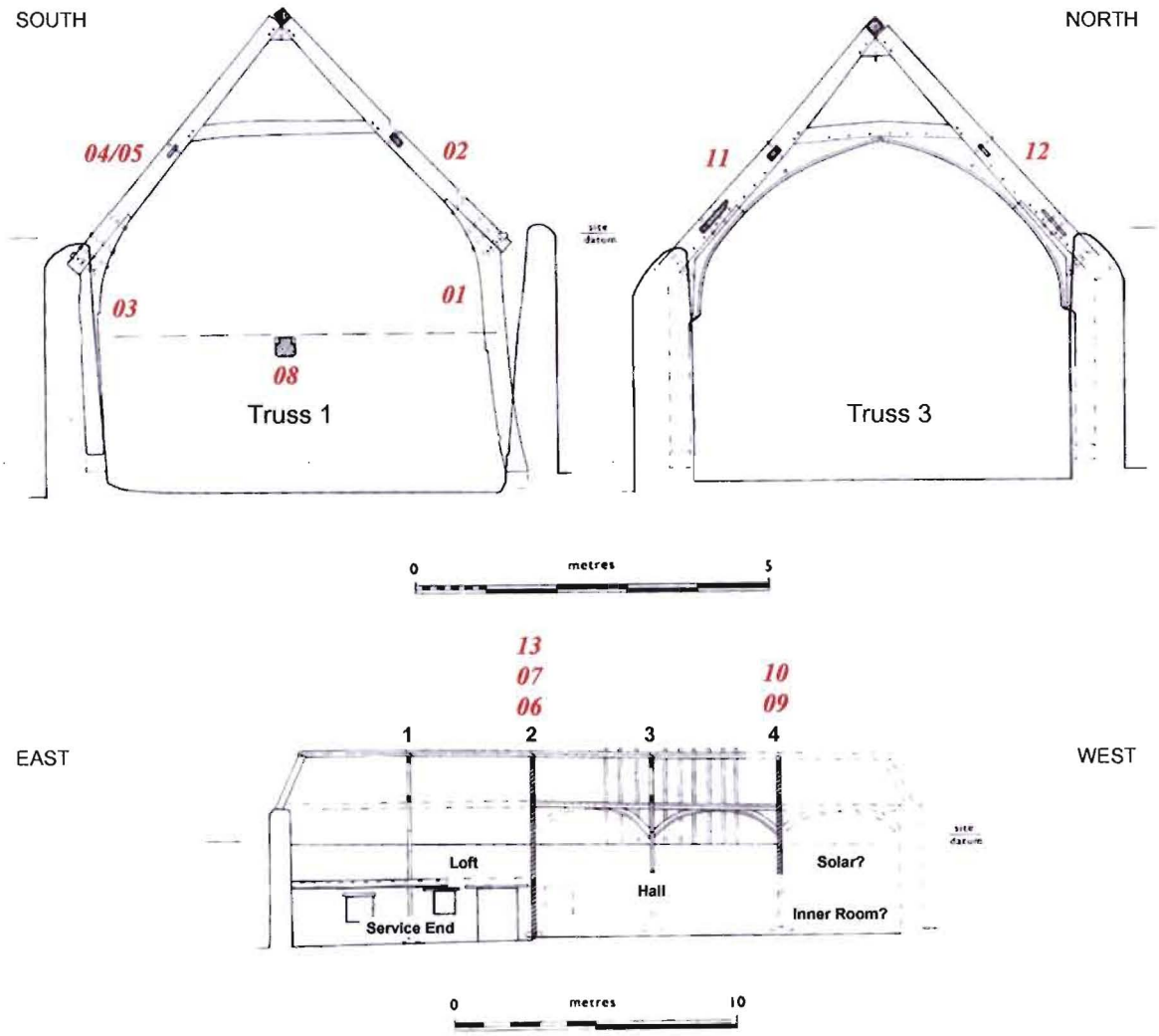
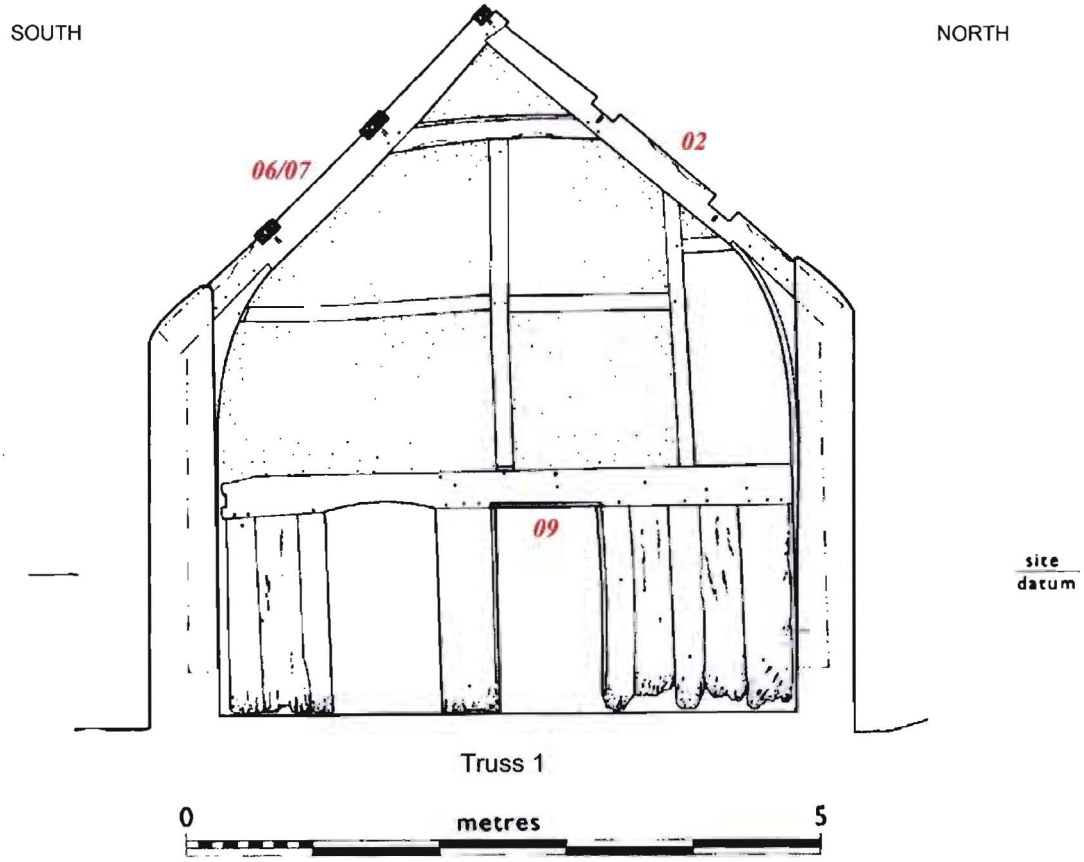


Figure 4n Ivy Cottage, Bremridge Farm, Sandford: long section and truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***SFIC***



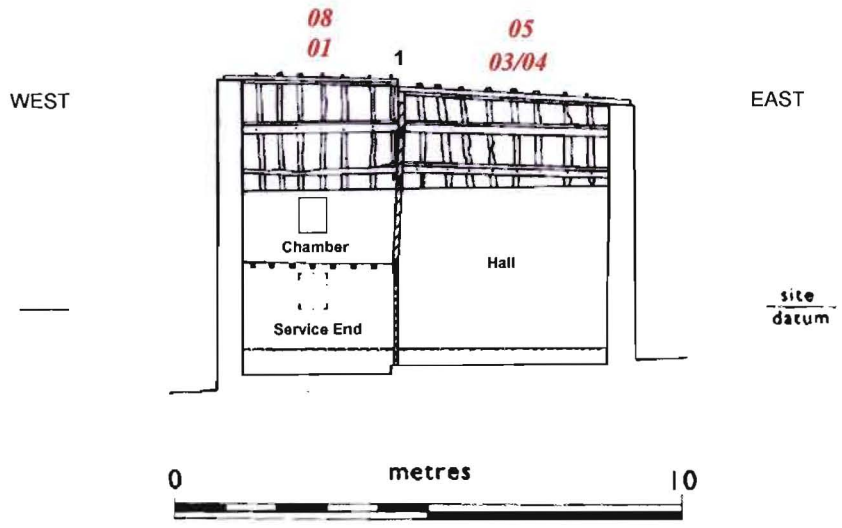
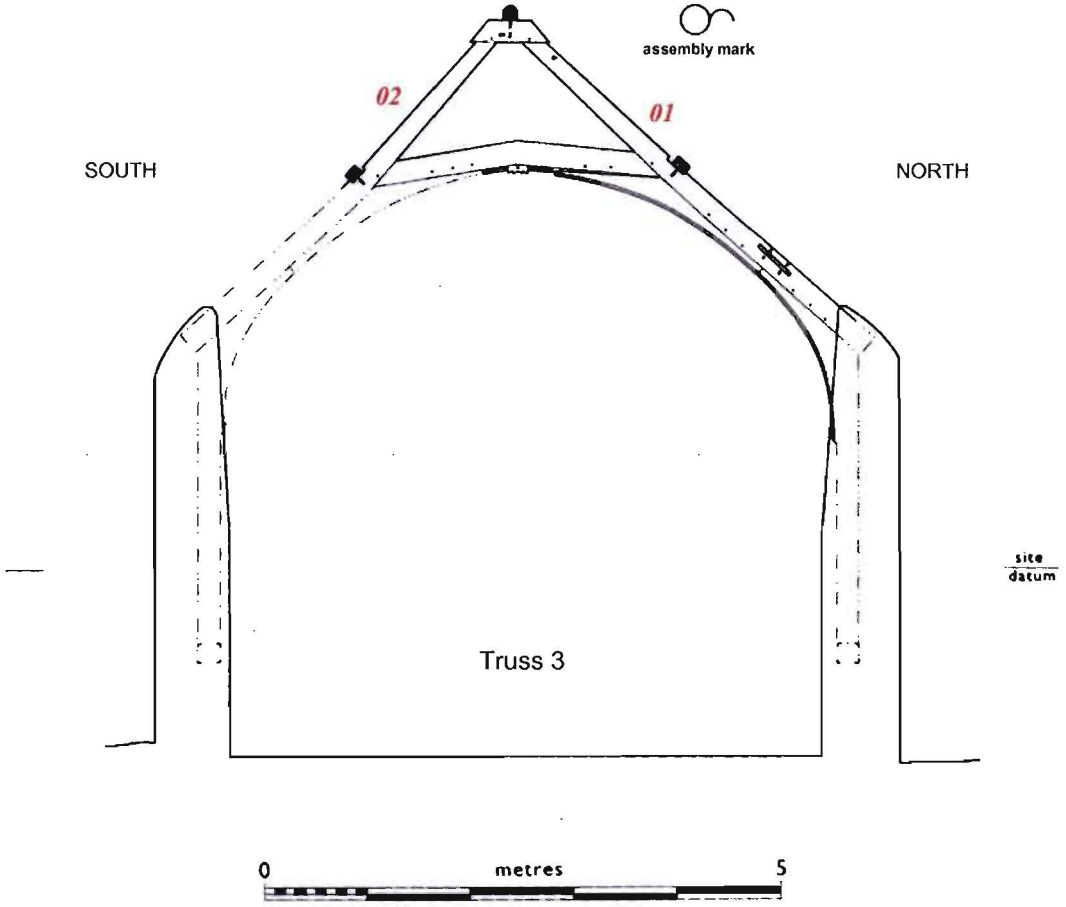


Figure 4o Prowse farmhouse main range, Sandford: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***SFPF***



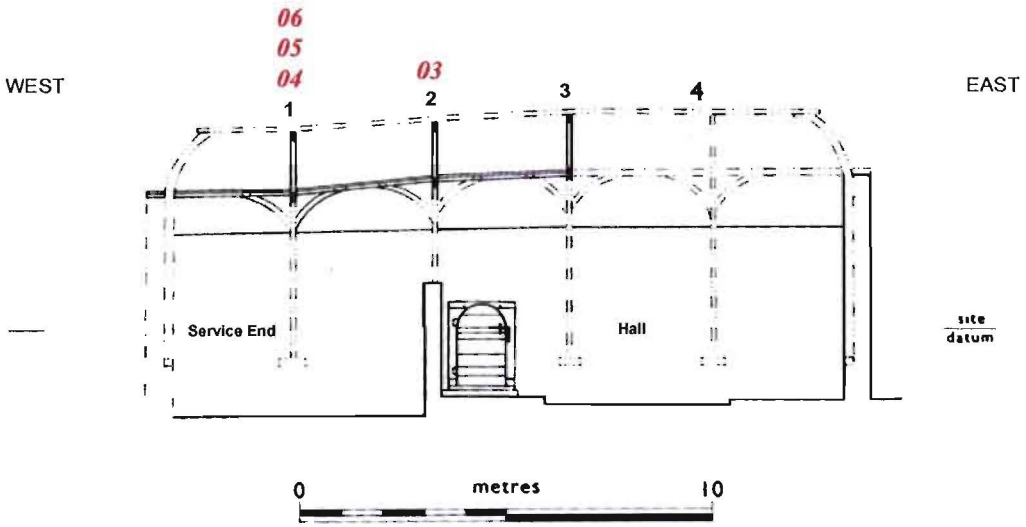


Figure 4p Prowse farmhouse solar cross-wing, Sandford: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***SFPF***

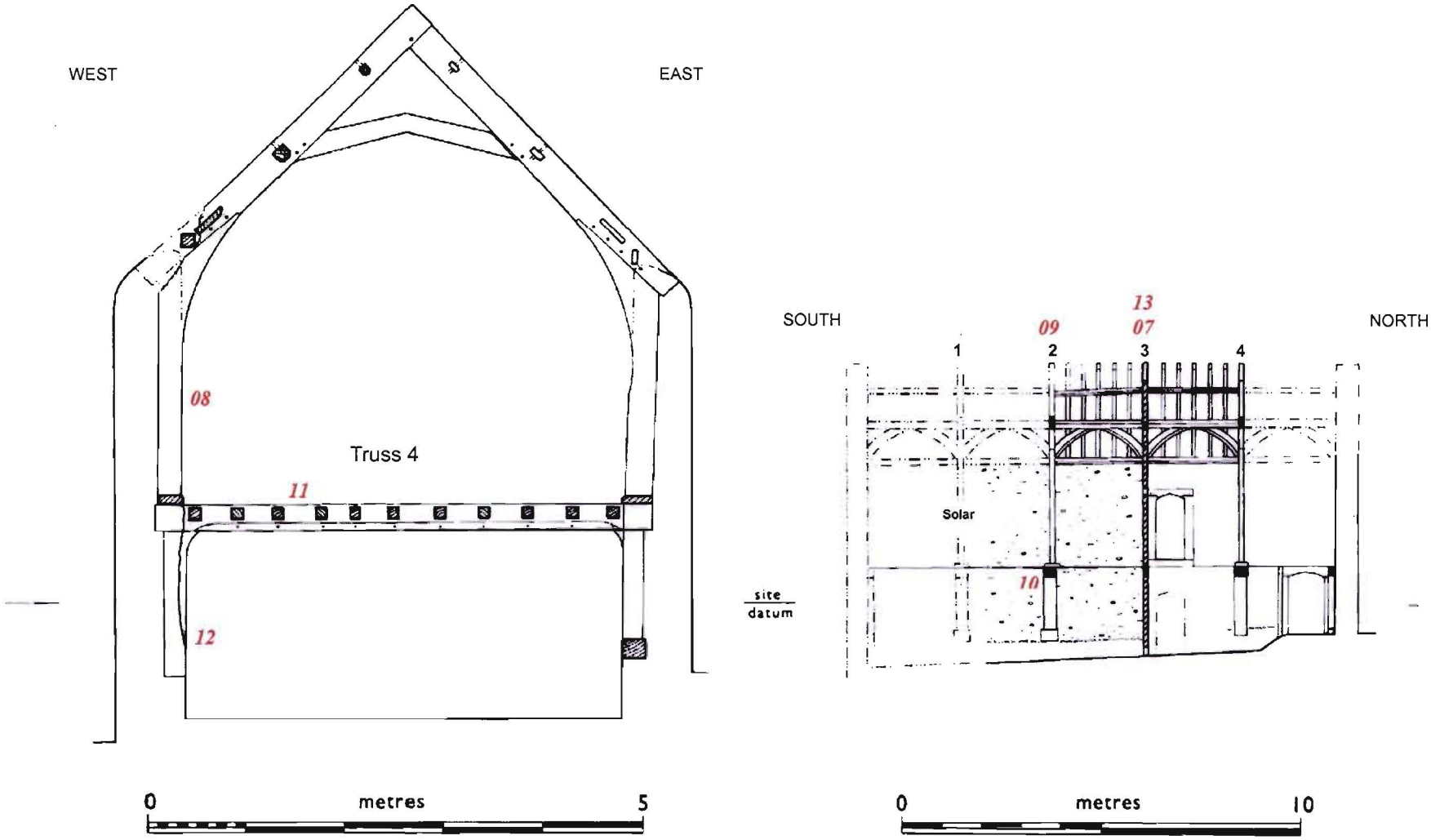
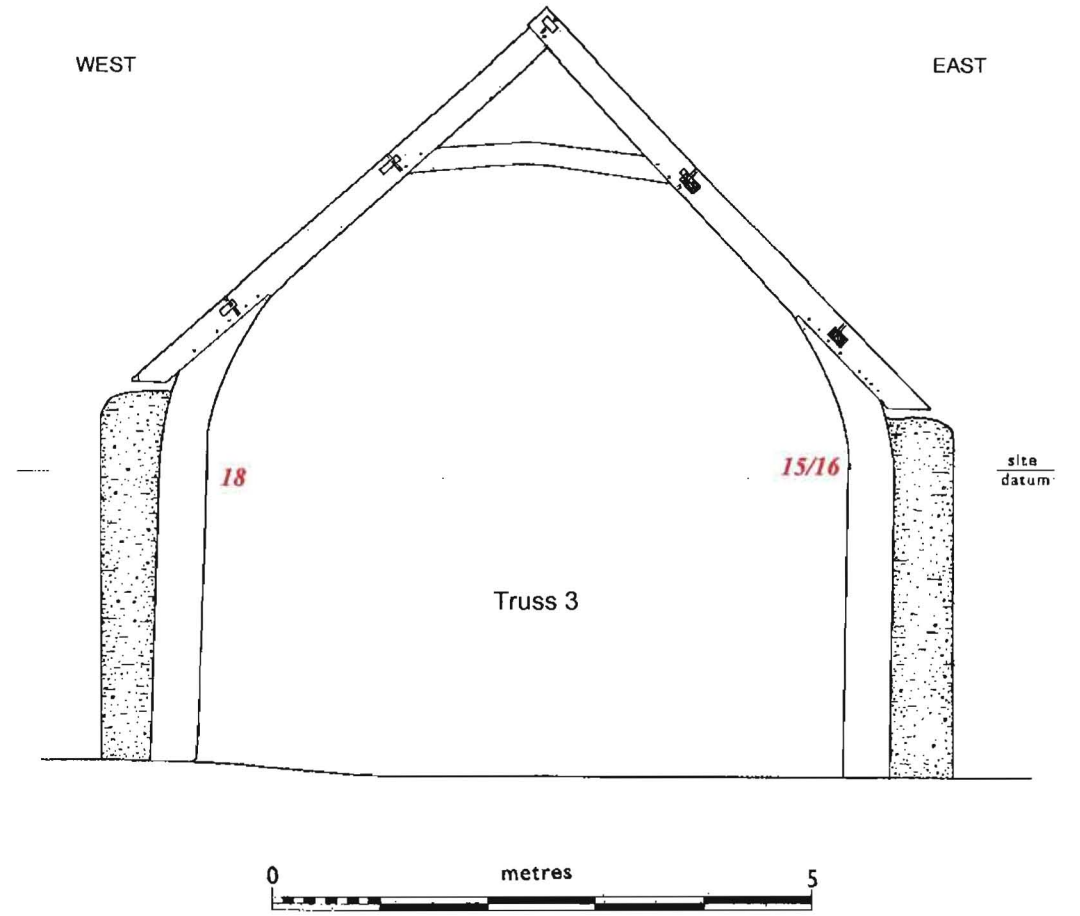


Figure 4g Prowse barn, Sandford: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***SFPF***



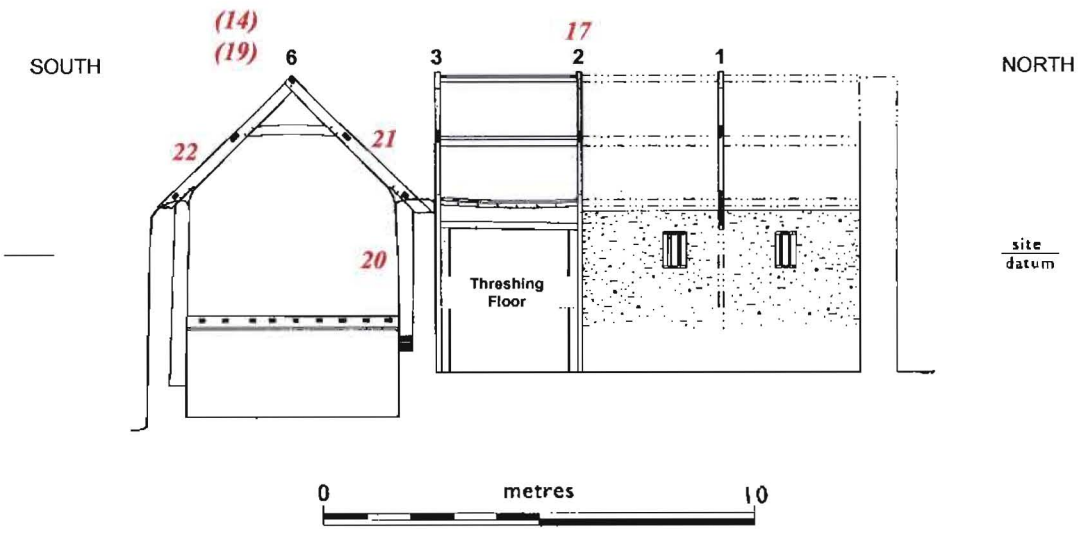


Figure 4r Lower East Coombe, Stockleigh Pomeroy: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***SPEC***

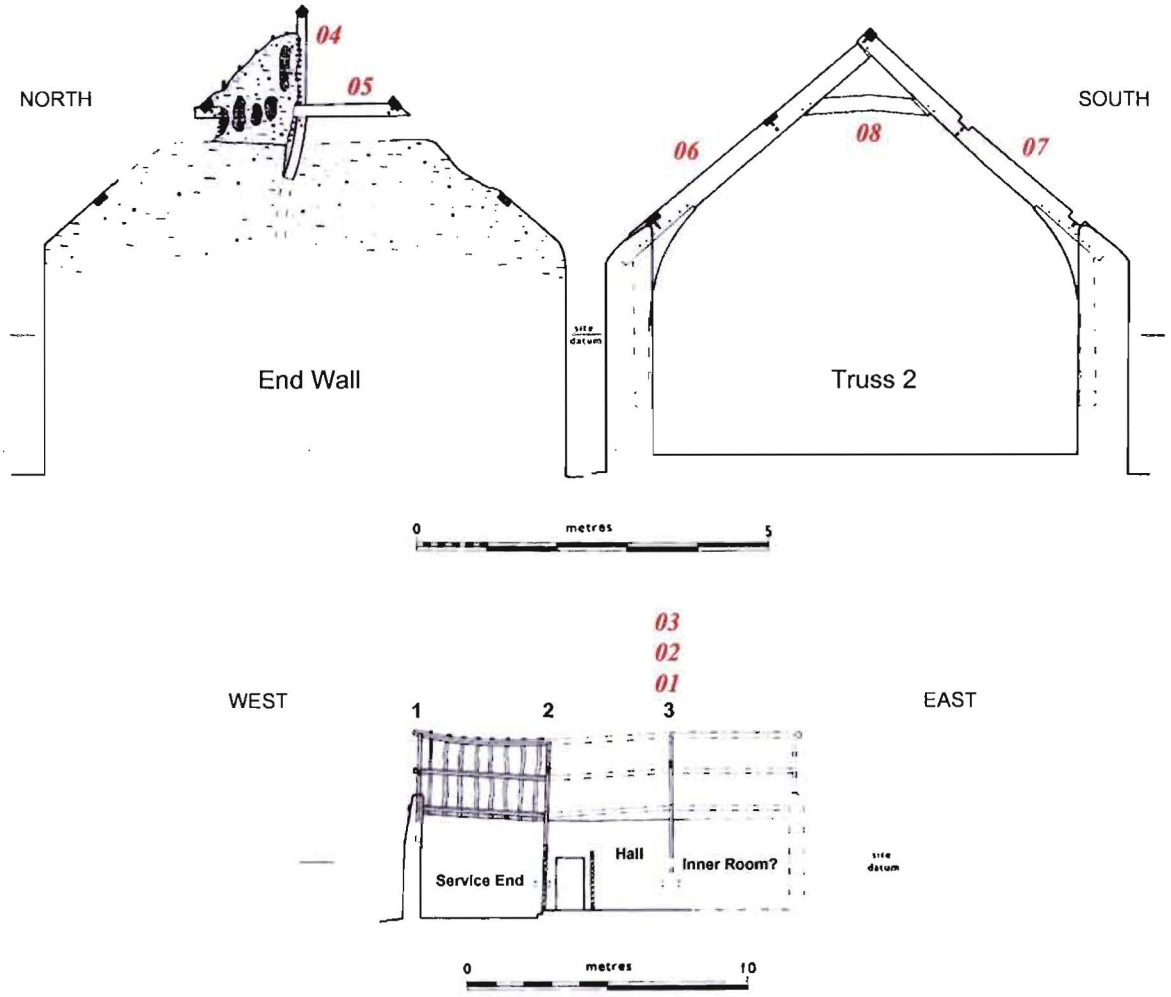
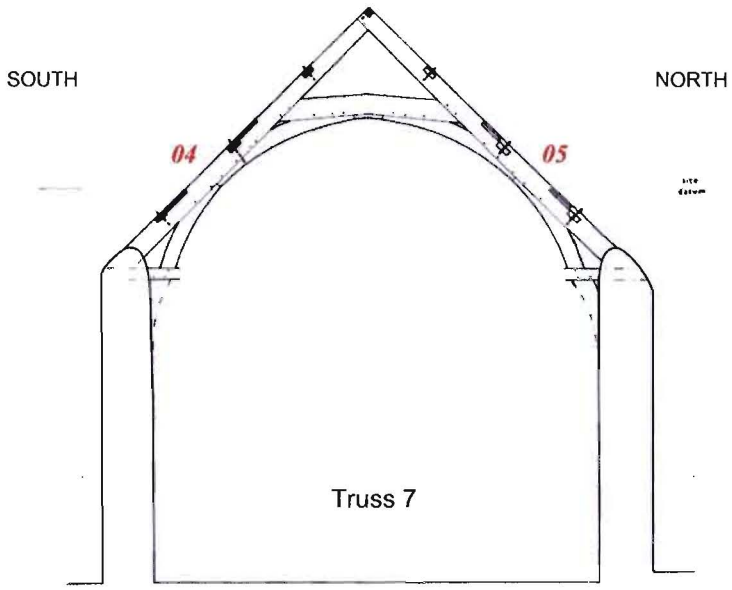
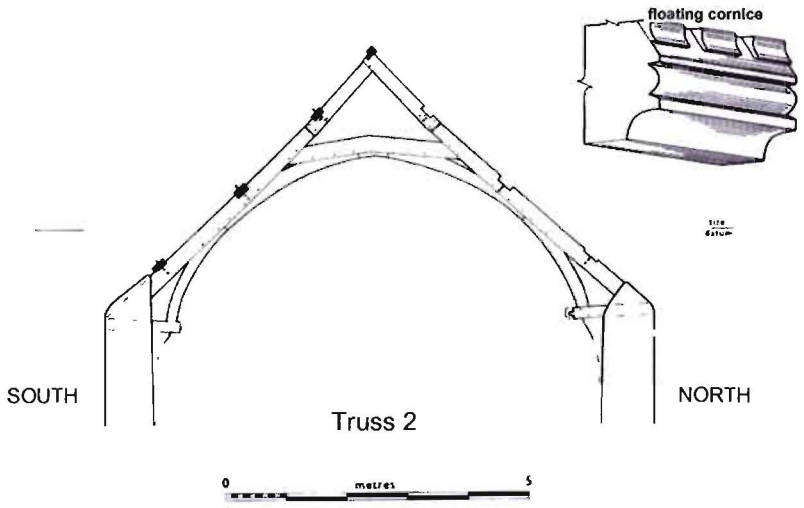


Figure 4s Traymill, Thorverton: long section and example trusses. The location of sampled timbers is indicated. Sample numbers are prefixed by ***TVTM***





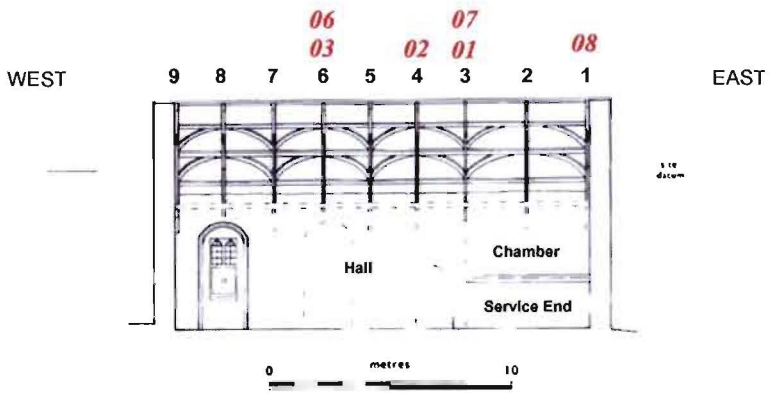
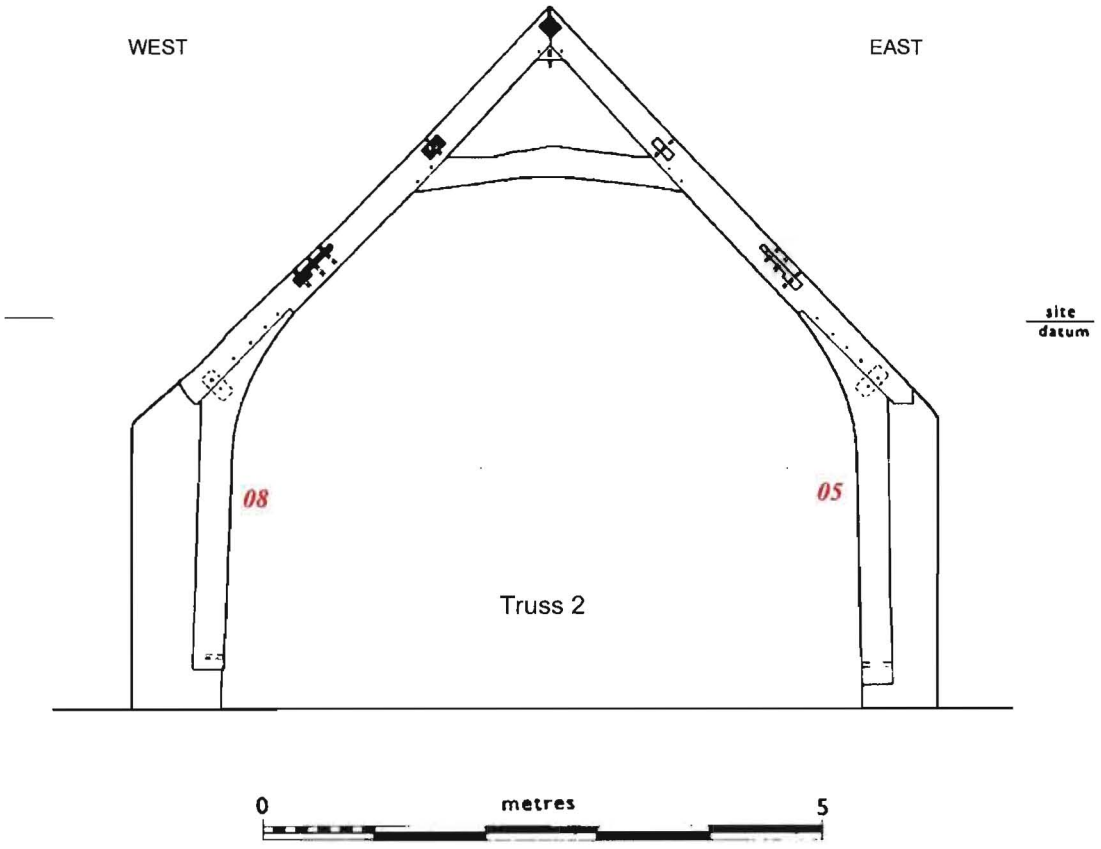


Figure 4t Glebe House barn, Whitestone: long section and example truss. The location of sampled timbers is indicated. Sample numbers are prefixed by ***WSGH***



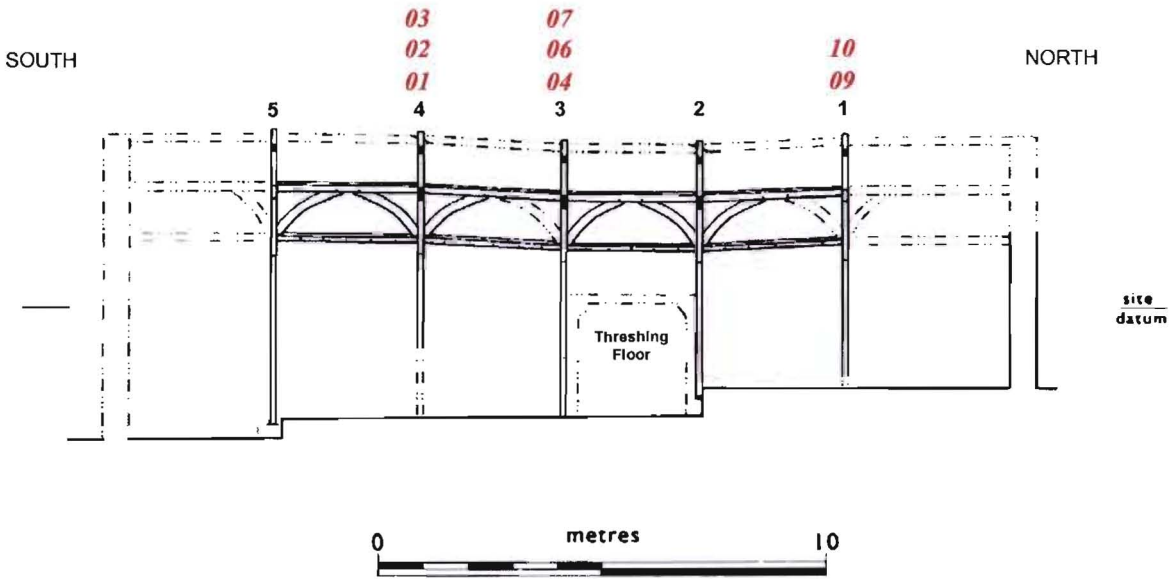


Figure 1

Figure 5a Bar diagram showing the relative positions of the matching ring sequences from Cross Farm, Bishop's Nympton

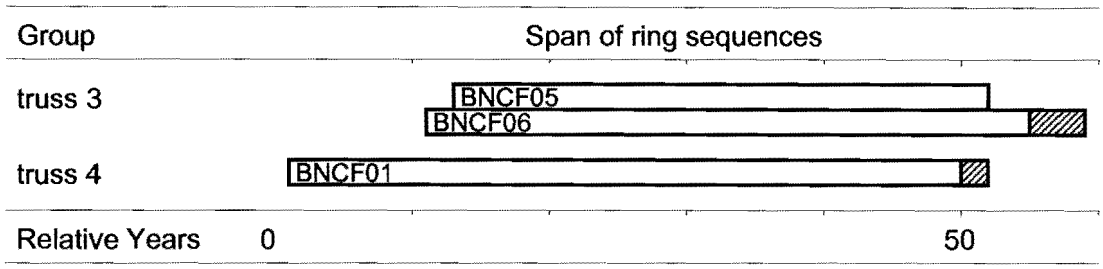


Figure 5b Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Chimsworthy, Bratton Clovelly

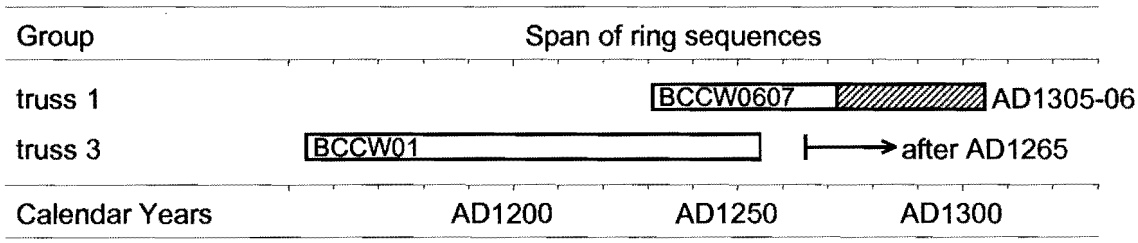
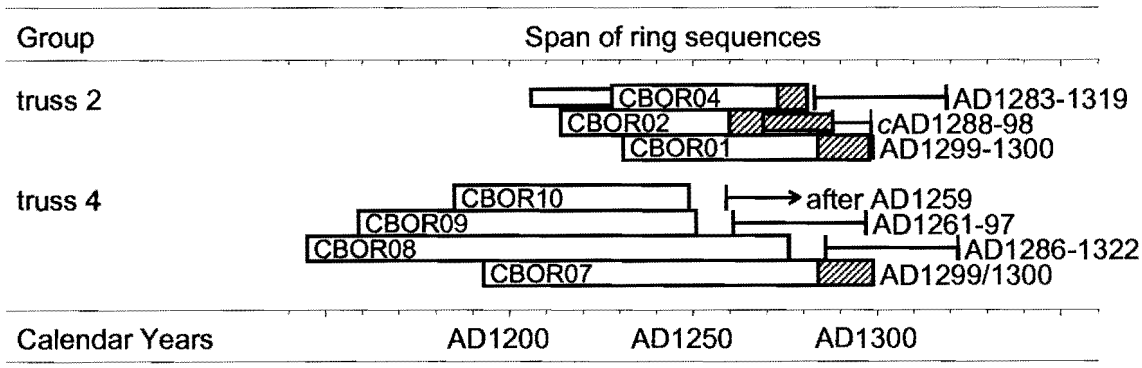


Figure 5c Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Old Rectory, Cheriton Bishop



KEY

Figure 5d Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Thorne, Clannaborough

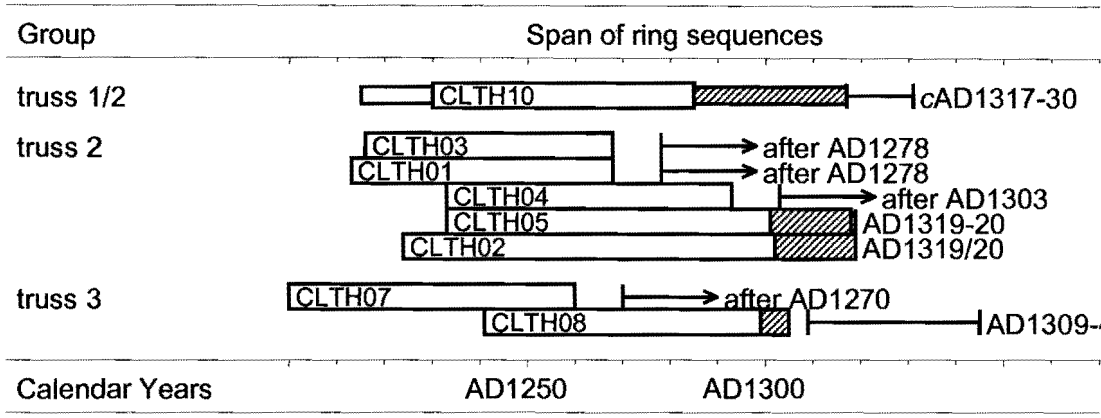
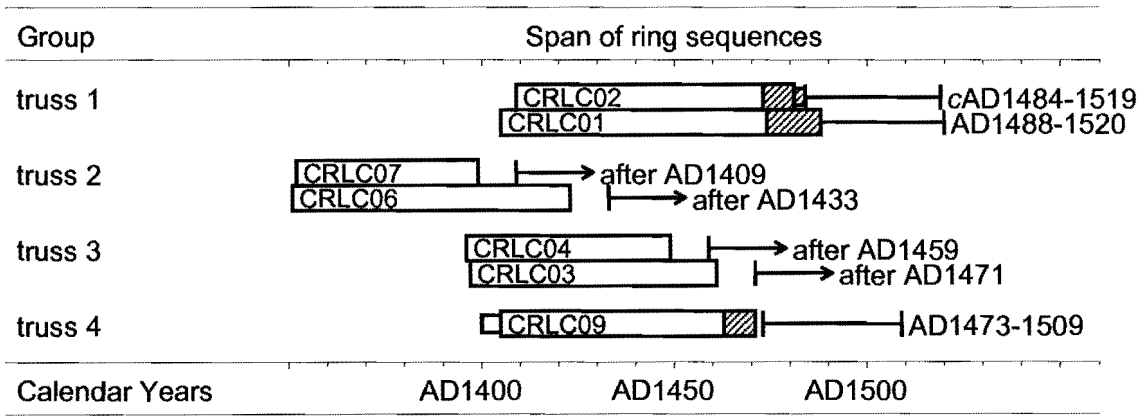


Figure 5f Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Lower Chilverton, Coldridge



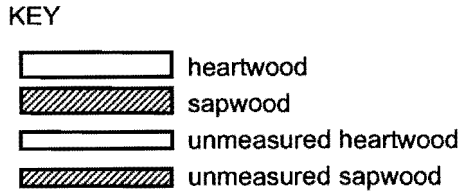


Figure 5g Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Chaffcombe Manor, Down St Mary

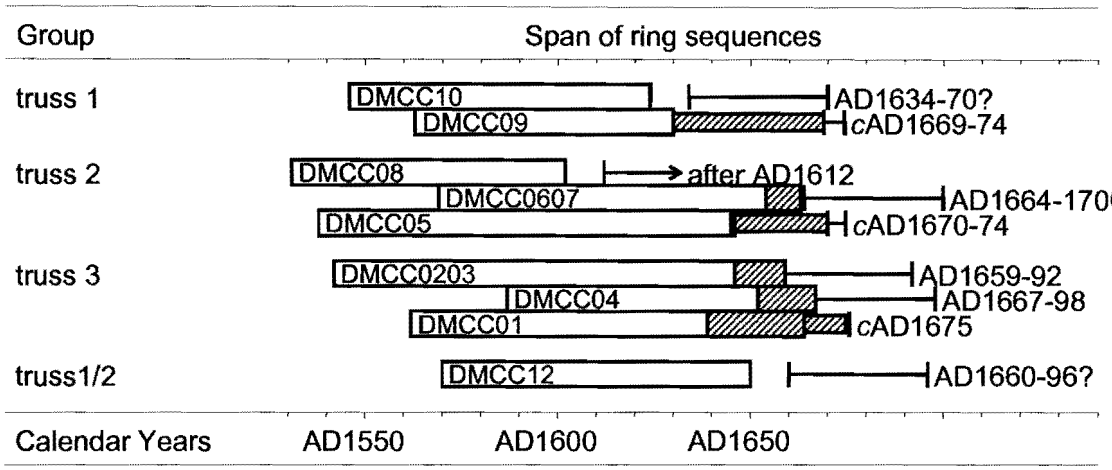
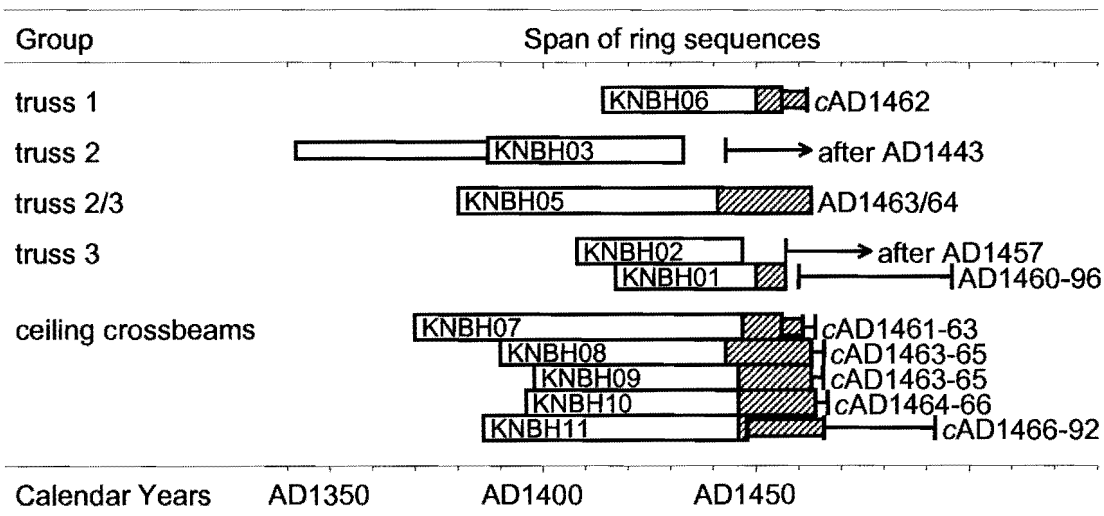


Figure 5h Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Broomham, King's Nympton



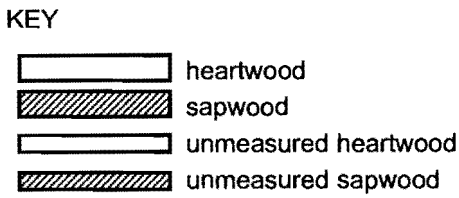


Figure 5i.1 Bar diagram showing the relative positions of the dated ring sequences and their felling dates from West Hele, King's Nympton

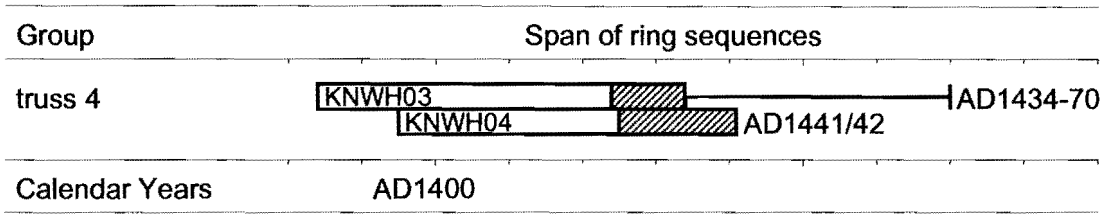
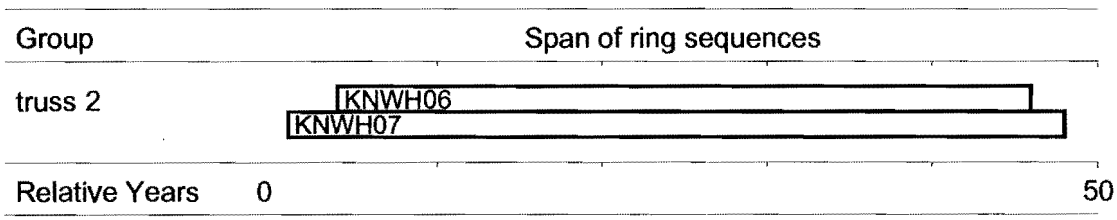


Figure 5i.2 Bar diagram showing the relative positions of the matching ring sequences from West Hele, King's Nympton



KEY

heartwood

sapwood

unmeasured heartwood

unmeasured sapwood

Figure 5j Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Bury Barton, Lapford

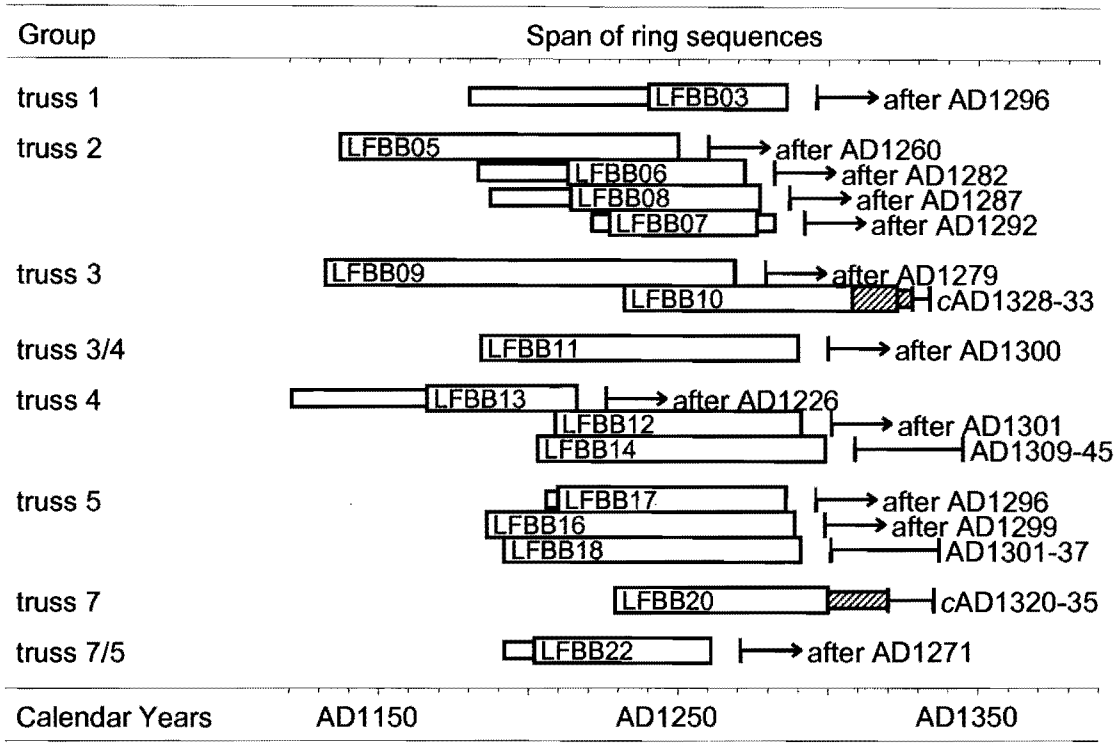
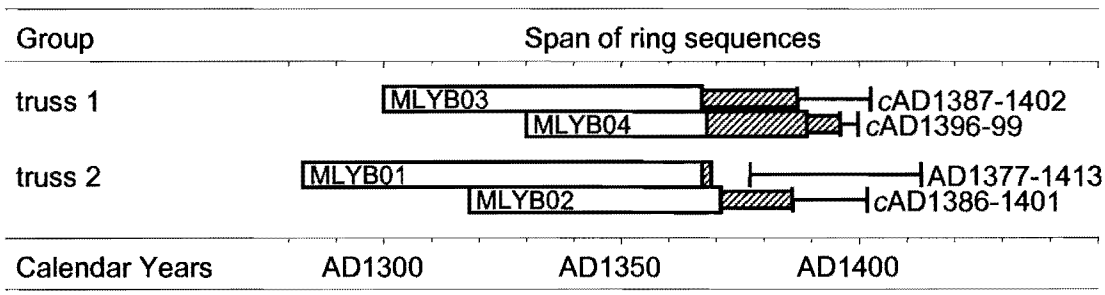


Figure 5k Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Yeo Barton, Mariansleigh



KEY

- heartwood
- sapwood
- unmeasured heartwood
- unmeasured sapwood

Figure 5l Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Rudge, Morchard Bishop

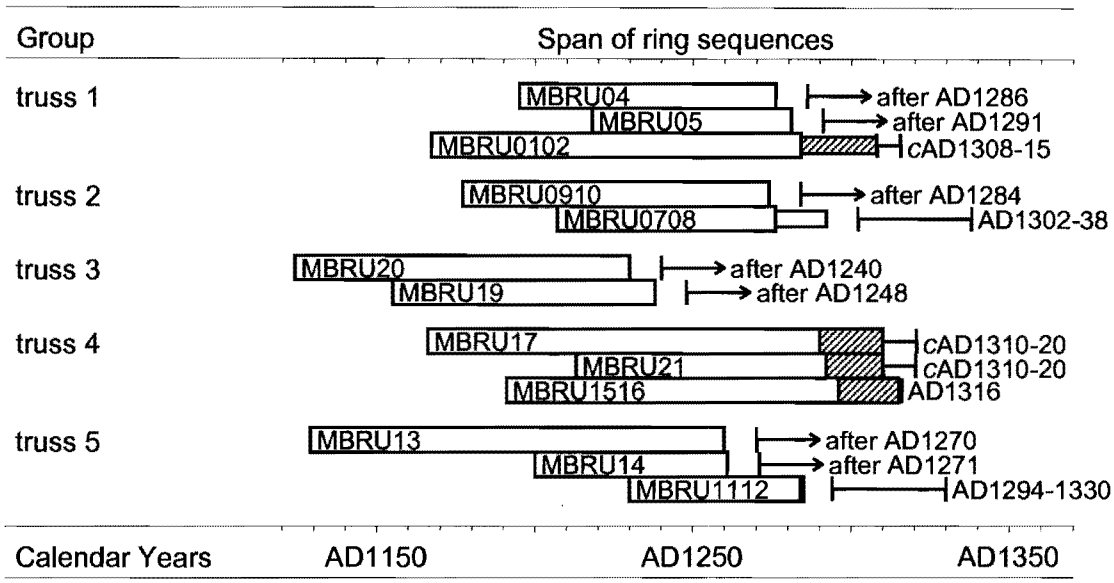
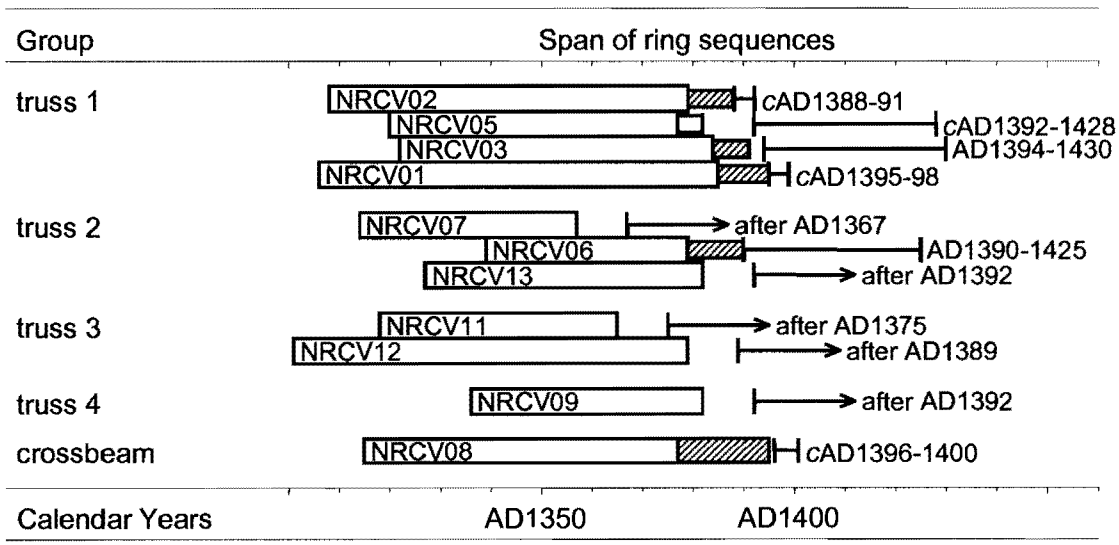


Figure 5m Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Cleavanger, Nymet Roland



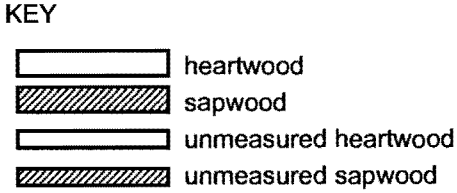


Figure 5n Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Ivy Cottage, Sandford

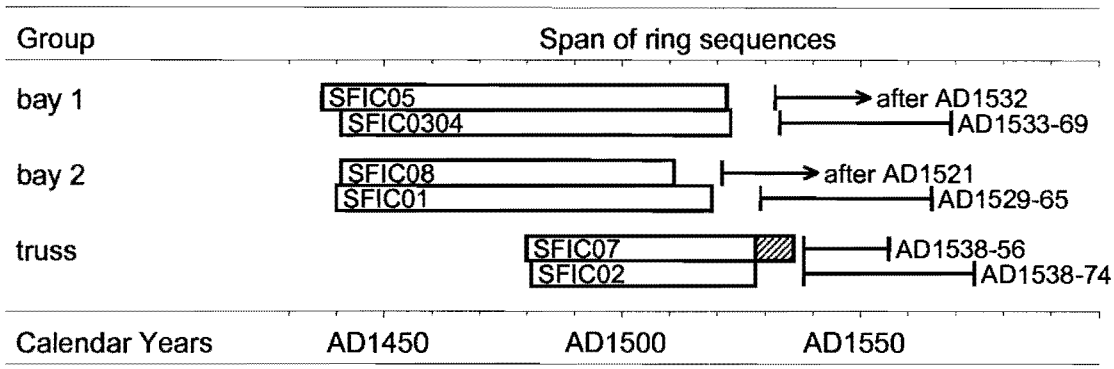
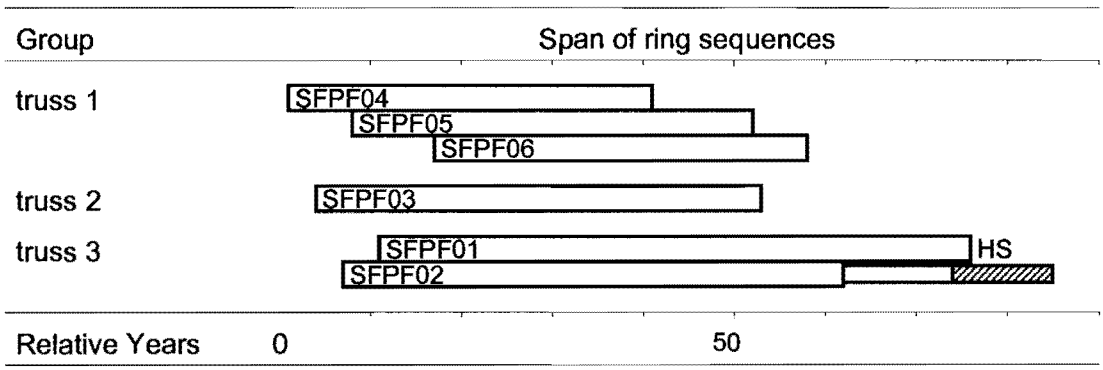


Figure 5o Bar diagram showing the relative positions of the matching ring sequences from Prowse farmhouse main range, Sandford



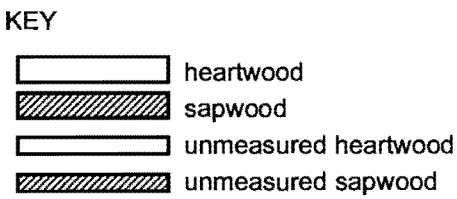


Figure 5q Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Prowse barn, Sandford

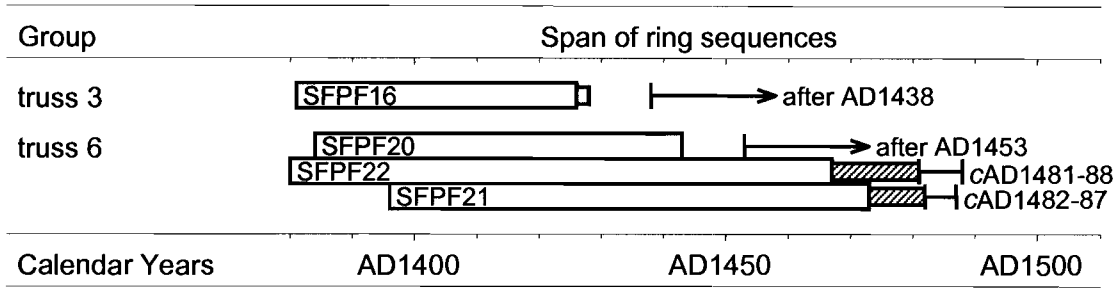


Figure 5r Bar diagram showing the relative positions of the dated ring sequences and their felling dates from Lower East Coombe, Stockleigh Pomeroy

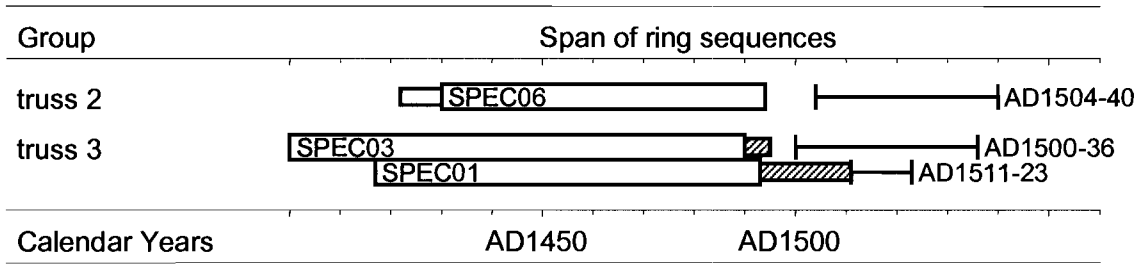
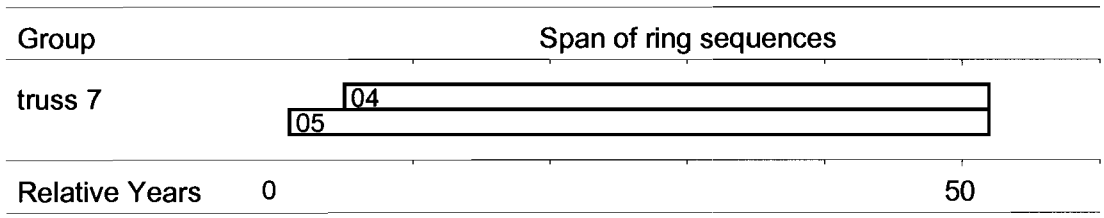


Figure 5s Bar diagram showing the relative positions of the matching ring sequences and their felling dates from Traymill, Thorverton



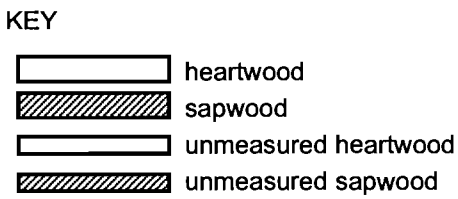


Figure 5t.1 Bar diagram showing the relative positions of the matching ring sequences included in the site master ***WSGH-T4*** from Glebe House barn, Whitestone

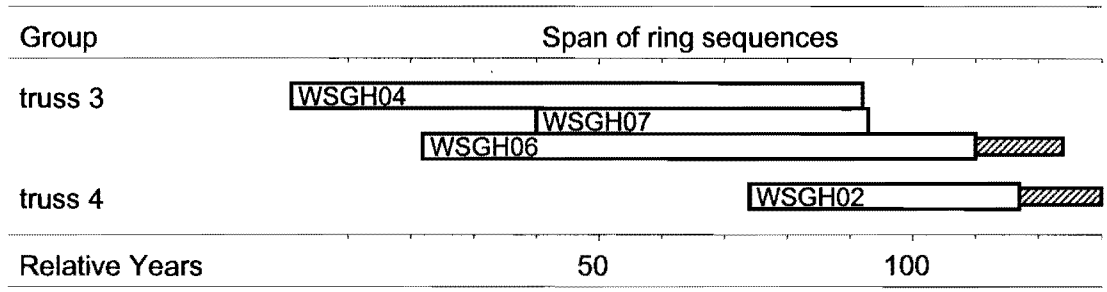
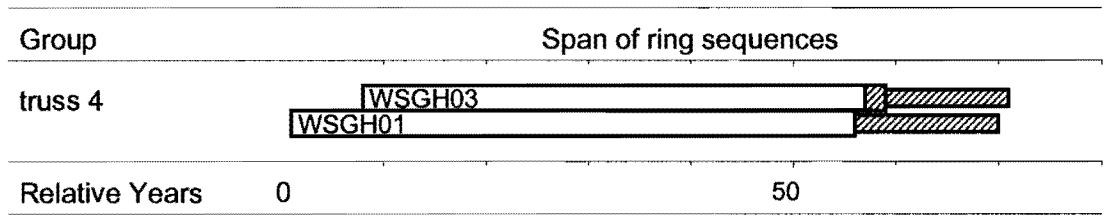


Figure 5t.2 Bar diagram showing the relative positions of the matching ring sequences included in the site master ***WSGH-T2*** from Glebe House barn, Whitestone



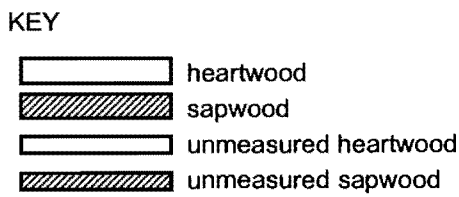


Figure 6 Diagram showing the percentage of buildings within each assessment grade for the 43 phases in the initial countywide assessment

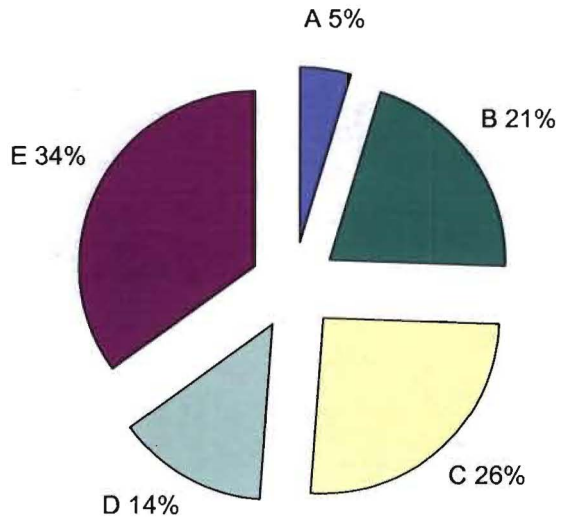


Figure 7 Diagram showing the percentage of buildings within each assessment grade for all 72 phases assessed, therefore with a bias towards the area selected for analysis

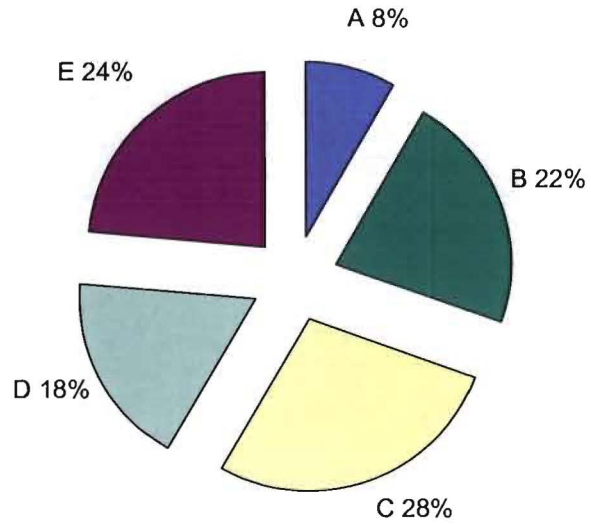
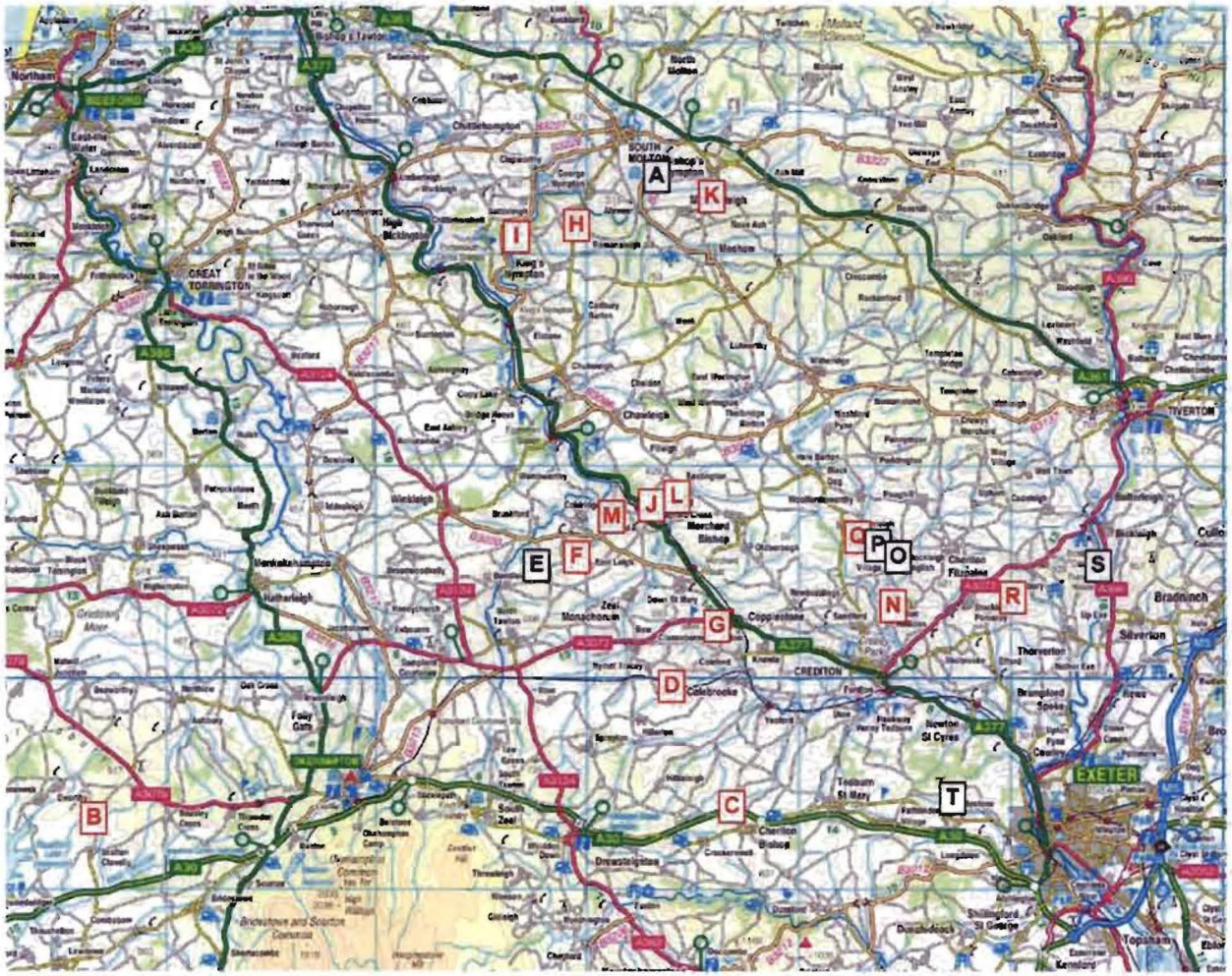


Figure 8 Map showing the location of the **dated** and **undated** buildings/phases.



A – Bishop's Nympton: Cross Farm
B – Bratton Clovelly: Chimsworthy
C – Cheriton Bishop: Old Rectory
D – Clannaborough: Thorne
E – Coldridge: Leigh Barton, East Leigh
F – Coldridge: Lower Chilverton
G – Down St Mary: Chaffcombe
H – King's Nympton: Broomham
I – King's Nympton: West Hele
J – Lapford: Bury Barton
K – Mariansleigh: Yeo Barton
L – Morchard Bishop: Rudge
M – Nymet Rowland: Cleavanger
N – Sandford: Ivy Cottage, Bremridge Farm
O – Sandford: Prowse farmhouse main range
P – Sandford: Prowse farmhouse solar cross-wing
Q – Sandford: Prowse barn
R – Stockleigh Pomeroy: Lower East Combe
S – Thorverton: Traymill
T – Whitestone: Glebe House barn

Figure 9 Bar diagram showing the components of the 544-year continuous chronology sorted by end-date

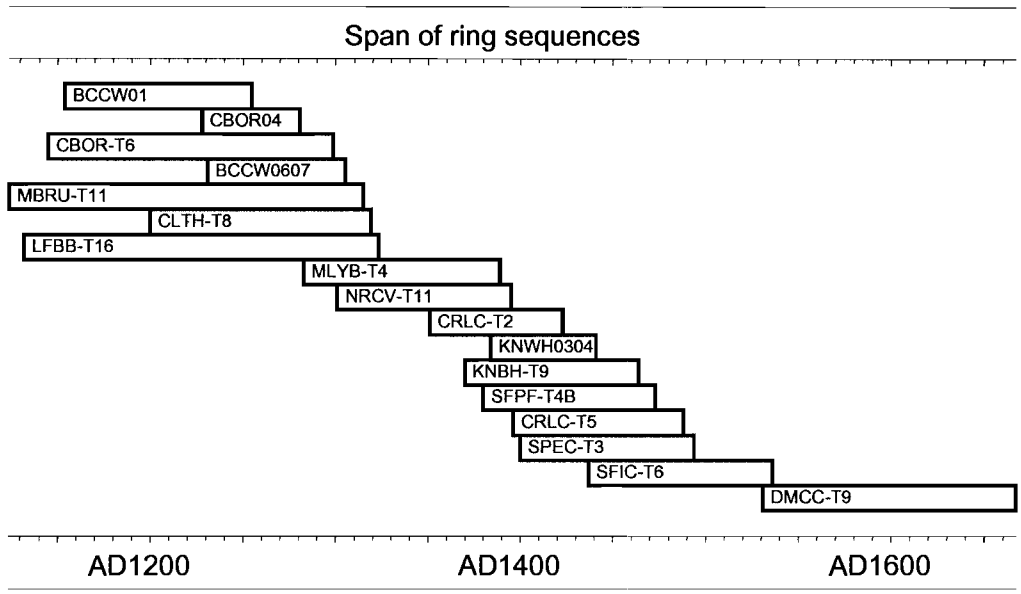


Figure 10 Diagram comparing the dendrochronologically derived dating evidence with the [illegible] construction dates

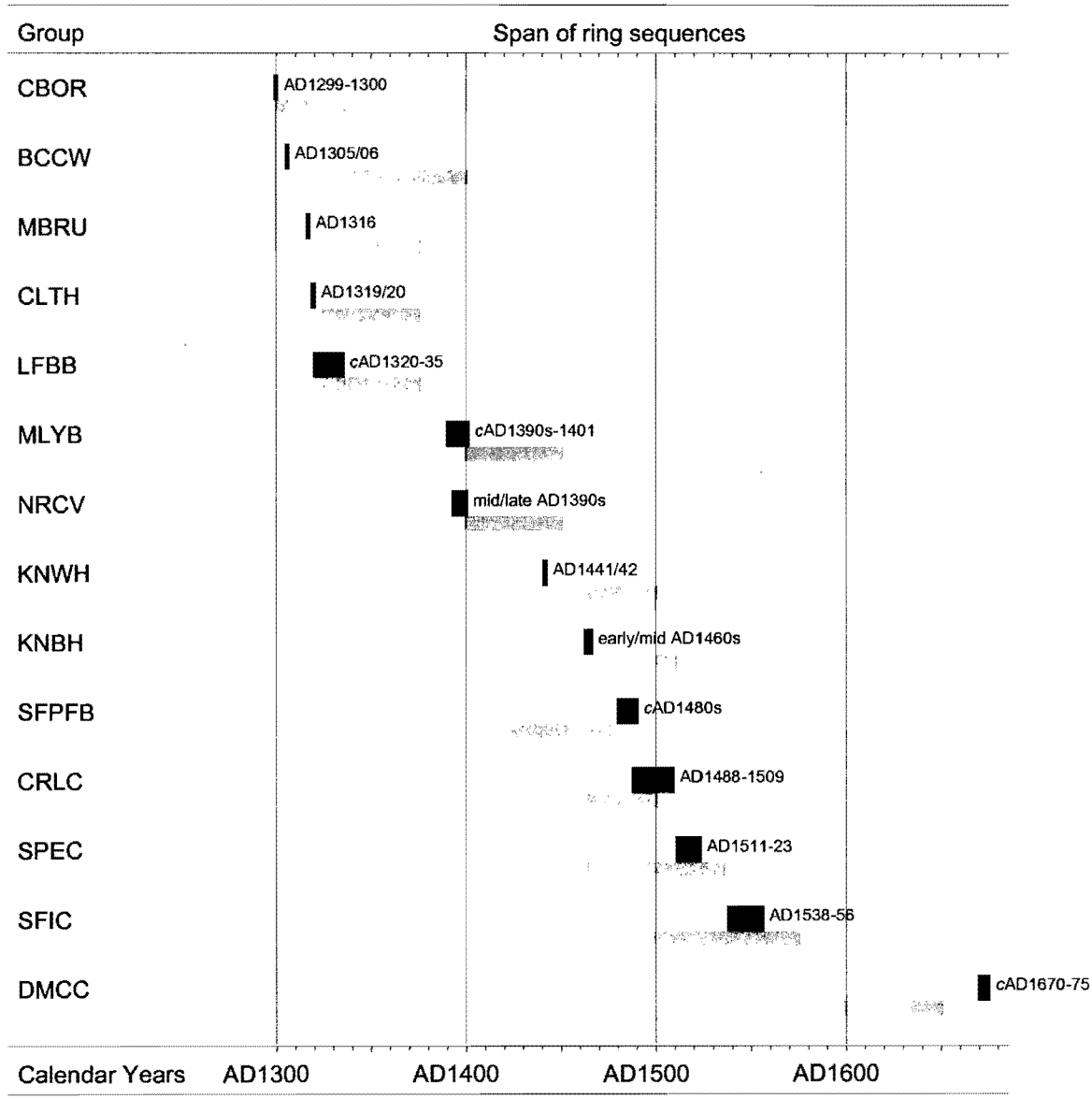


Figure 11 Diagram showing the overall chronology length through time

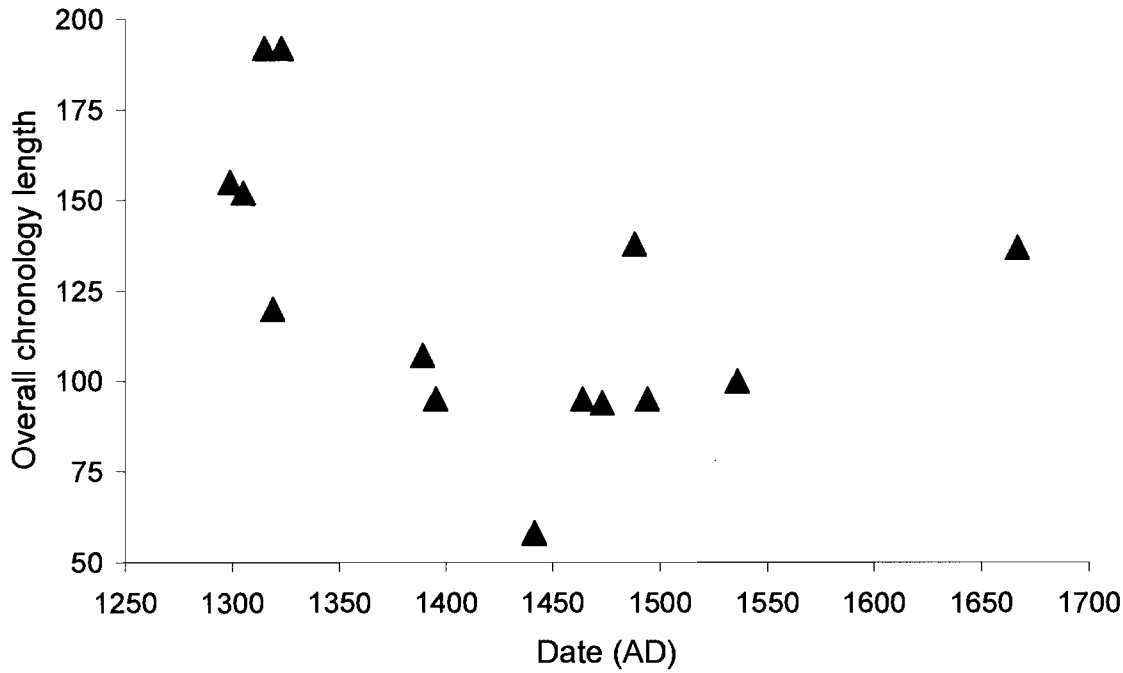


Figure 12a Diagram showing the percentage of buildings within each assessment grade thought to date to the fourteenth century

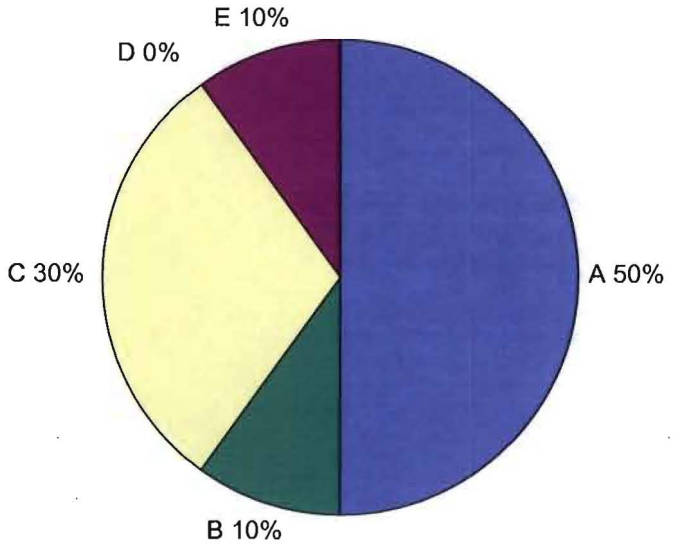


Figure 12b Diagram showing the percentage of buildings within each assessment grade thought to date to the fifteenth century

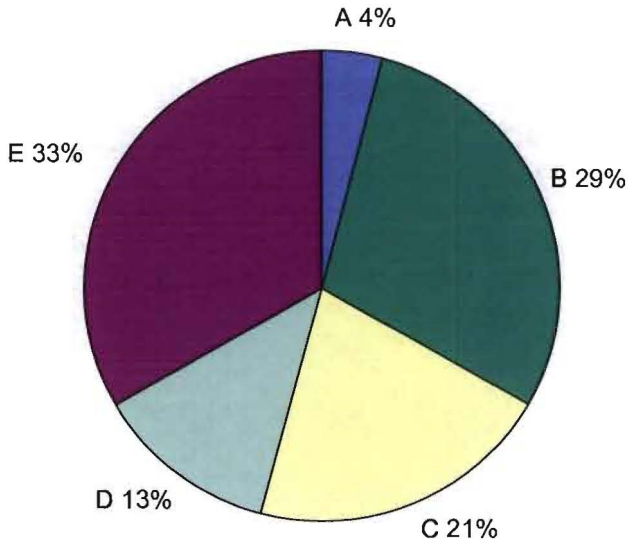


Figure 12c Diagram showing the percentage of buildings within each assessment grade thought to date to the sixteenth century

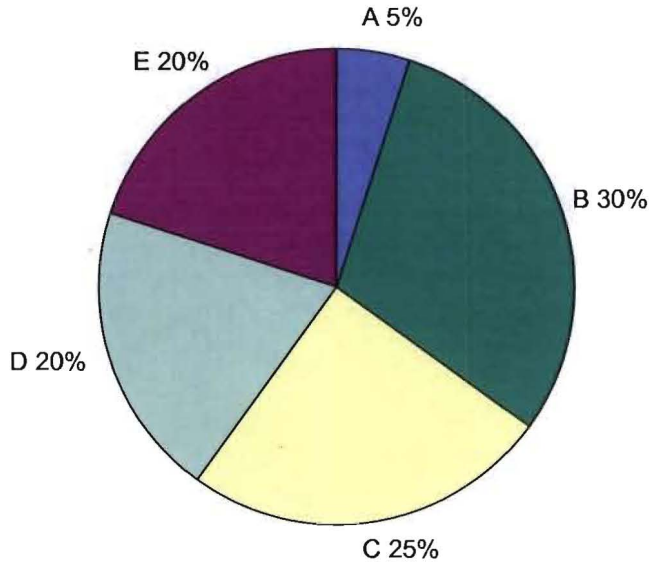


Figure 12d Diagram showing the percentage of buildings within each assessment grade thought to date to the seventeenth century

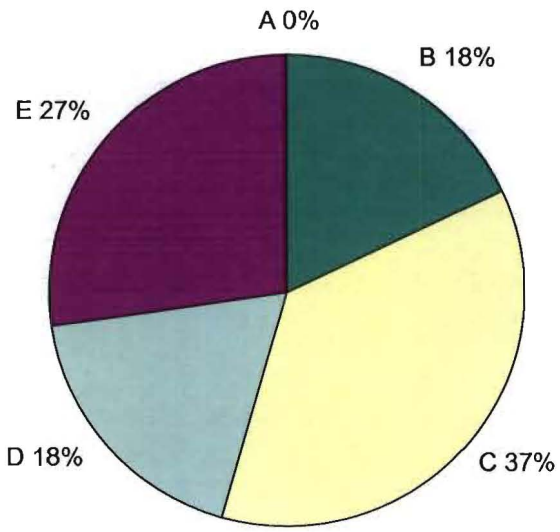


Table 1 List of all buildings or buildings phases assessed for dendrochronological analysis. Those assessed in the first intensive assessment week are highlighted in italics and those sampled are highlighted in blue. Assessment grade A indicates the phases with most dendrochronological potential; assessment grade E indicates phases with no dendrochronological potential

Parish	Site	Phase	National grid reference	Expected date	Assessment Grade
Bishop's Nympton	*Cross Farm*		*SS746236*	*late 15/early 16*	*D*
Bratton Clovelly	*Chimsworthy*	*1*	*SX463938*	*mid/late 14*	*A*
Bratton Clovelly	*Chimsworthy*	*2*	*SX463938*	*late 15*	*E*
Bratton Clovelly	*Chimsworthy*	*barn*	*SX463938*	*?*	*D*
Bratton Clovelly	*Wrixhill*		*SX464906*	*late 15*	*C*
Bridestowe	*Fernworthy*		*SX511870*	*15*	*C*
Bridestowe	*Great Bidlake*	*1*	*SX494886*	*early 16*	*D*
Bridestowe	*Great Bidlake*	*2*	*SX494886*	*late 16*	*E*
Bridford	*Bridford Barton*	*1*	*SX8186*	*early/mid 14*	*C*
Bridford	*Bridford Barton*	*2*	*SX8186*	*early 15*	*E*
Bridford	*Bridford Barton*	*3*	*SX8186*	*late 15/early 16*	*E*
Cheriton Bishop	*Old Rectory*		*SX773934*	*early 14th*	*C*
Cheriton Fitzpaine	*Bowdel Cottage*		*SS8706*	*early 17*	*C*
Cheriton Fitzpaine	*Stockadon*		*SS870062*	*late 15/early 16*	*E*
Cheriton Fitzpaine	Upcott Barton		SS868085	c1670	C
Christow	*Aller*		*SX834841*	*14*	*E*
Christow	*Hill*	*1*	*SX835842*	*15*	*E*
Christow	*Hill*	*2*	*SX835842*	*early 16*	*E*
Christow	*Hill*	*3*	*SX835842*	*mid 17*	*E*
Christow	*Hill*	*barn*	*SX835842*	*c1600-40*	*B*
Clannaborough	Thorne		SS736002	mid 14	A
Clyst Hydon	*Town Tenement*	*1*	*ST033014*	*early 16*	*C*
Clyst Hydon	*Town Tenement*	*2*	*ST033014*	*early/mid 16*	*B*
Coldridge	*Leigh Barton, East Leigh*		*SS697054*	*late 14/early 15*	*C*
Coldridge	Lower Chilverton		SS698063	late 15	A
Colebrooke	Whelmstone Barton barn		SS750006		D
Cotleigh	*South Wood Farm*	*1*	*ST208040*	*early 15*	*E*
Cotleigh	*South Wood Farm*	*2*	*ST208040*	*16/mid 17*	*B*
Down St Mary	Chaffcombe		SS759031	1st half 17	B
Farway	*Boycombe*		*SY167961*	*late 16/early 17*	*A*
Halberton	Moorstone Barton	1	ST016099	early/mid 14	B
Halberton	Moorstone Barton	2	ST016099	15	B
Kennerleigh	Lower Woodbeer		SS820071		D
King's Nympton	Broomham	1	SS708212	c1500	B
King's Nympton	Broomham	?1	SS708212	early 16	B
King's Nympton	Broomham	2	SS708212	c1630	E
King's Nympton	*Sletchcott*	*1*	*SS680211*	*early/mid 15*	*E*
King's Nympton	*Sletchcott*	*2*	*SS680211*	*mid/late 15*	*E*
King's Nympton	*West Hele*		*SS667209*	*late 15*	*C*
Lapford	Bury Barton	1	SS733071	mid 14	A
Lapford	Bury Barton	2	SS733071	17	C
Lapford	Bury Barton	outbuildings	SS733071	17	C
Lapford	Court Barton	1	SS732082	med	C
Lapford	Court Barton	2	SS732082	16	D
Mariansleigh	*Yeo Barton*		*SS760230*	*1st half 15th*	*B*
Membury	*Membury Court*		*ST263038*	*early 15*	*B*
Milton Abbot	*Foghanger House*		*SX428788*	*early 16*	*D*
Morchard Bishop	Rudge		SS744076	mid 14	A
Nymet Rowland	*Cleavanger*		*SS712070*	*1st half 15th*	*B*
Plymtree	*Middle Clyst William*	*1*	*ST068026*	*mid/late 15*	*C*
Plymtree	*Middle Clyst William*	*2*	*ST068026*	*17*	*D*
Sandford	Higher Furzeland		SS784034	late 16/early 17	C
Sandford	*Ivy Cottage, Bremridge Farm*		*SS847041*	*early/mid 16*	*B*
Sandford	*Prowse*	*barn*	*SS843054*	*mid 15*	*B*
Sandford	*Prowse farmhouse*	*1*	*SS843055*	*early/mid 15*	*C*
Sandford	*Prowse farmhouse*	*2*	*SS843055*	*early 16*	*C*
Sandford	White Rose Farm		SS851045		E
Sandford	Woolsgrove		SS792026	c1550	C
Stockleigh Pomeroy	Frogpool		SS876036		D
Stockleigh Pomeroy	Lower East Coombe		SS888039	late 15/early 16	B
Stockleigh Pomeroy	No 1 The Green		SS875036	14	C
Tawstock	*Sunset Cottage*		*SS5529*	*early/mid 16*	*E*
Thorverton	Traymill		SS940055	c1500	C
Upton Hellions	Upton Hellions Barton		SS837035		C

Table 1 (cont)of all buildings or buildings phases assessed for dendrochronological analysis. Those assessed in the first intensive assessment week are highlighted in italics and those sampled are highlighted in blue. Assessment grade A indicates the phases with most dendrochronological potential; assessment grade E indicates phases with no dendrochronological potential

Parish	Site	Phase	National grid reference	Expected date	Assessment Grade
Walkhamton	*Welltown Farmhouse*	*1*	*SX541700*	*early 16*	*E*
Walkhamton	*Welltown Farmhouse*	*2*	*SX541700*	*17*	*E*
Whitestone	*Glebe House*	*barn*	*SX868943*	*mid/late 15*	*B*
Whitestone	*Glebe House*	*house*	*SX868943*	*15/early 16*	*D*
Zeal Monachorum	Hayne	house	SS716033	17	D
Zeal Monachorum	Hayne	barn	SS716033	16	D
Zeal Monachorum	Heron Court	1	SS719039	16/17	B
Zeal Monachorum	Heron Court	coach house	SS719039	15	D

Table 2 Details of the samples

Number of rings - total number of measured rings including both heartwood and sapwood; + - indicates the presence of unmeasured heartwood rings
Sapwood rings – number of measured sapwood rings only; + - indicates the presence of unmeasured sapwood rings; hs – heartwood/sapwood boundary present; ?hs – possible heartwood/sapwood boundary present; bw – bark edge present with an apparently complete outermost ring; bs – bark edge present but the outermost ring is incomplete and not measured
ARW – average ring width in millimetres; those given in *italics* are approximate
Cross-section type – a rough guide to conversion type
Cross-section dimensions – maximum dimensions of the cross-section in millimetres

Sample number	Timber location and function	Number of rings	Sapwood rings	ARW	Cross-section type	Cross-section dimensions	Date of measured sequence	Comment
Bishops Nympton: Cross Farm								
BNCF01	truss 4, north principal	52	2	3.21	tangential	295 x 85	-	-
BNCF02	truss 3/4, north purlin	10	-	*3.60*	halved	165 x 85	-	rejected
BNCF03	truss 4, south principal	31	?hs	*4.00*	tangential	285 x 90	-	rejected
BNCF04	truss 4, collar	52	12 bw	1.59	halved	175 x 100	-	-
BNCF05	truss 3, south principal	40	-	*3.18*	halved	260 x 100	-	-
BNCF06	truss 3, north principal	49	4	3.20	halved	255 x 100	-	-
BNCF07	truss 2, north principal	48	4	1.88	halved	255 x 100	-	-
BNCF08	truss 2/3, north purlin	32	8+	*2.10*	halved	170 x 90	-	rejected; +1 or 2 rings to bark edge
BNCF09	truss 1, north principal	32	-	*5.50*	halved	280 x 110	-	rejected
Bratton Clovelly: Chimsworthy								
BCCW01	truss 3, west principal	102	-	1.95	halved	-	AD 1154-1255	-
BCCW02	truss 2, west principal	80	20 bw	1.85	whole	-	-	-
BCCW03	truss 2/3, ridge piece	47	8	2.25	whole	-	-	-
BCCW04	truss 1/2, ridge piece	40	14 ?bw	1.94	whole	-	-	-
BCCW05	truss 1, east principal	48	6	3.97	whole	-	-	-
BCCW06	truss 1, west principal	42	34 b	1.03	whole	-	AD 1263-1305	duplicate of BCCW07; felling season indeterminate
BCCW07	truss 1, west principal	73	30+	2.85	whole	-	AD 1231-1304	duplicate of BCCW 06;+1 ring to bark edge
BCCW08	truss 2/3, west wall plate	35	-	*1.70*	whole	-	-	rejected
Cheriton Bishop: Old Rectory								
CBOR01	truss 2, north principal	68	14+	1.56	whole	185 x 180	AD 1231-1298	+1-2 rings to bark edge
CBOR02	truss 2, collar	54	8+	0.89	halved	200 x 180	AD 1214-1269	+20-30mm sapwood to bark edge
CBOR03	trusses 1A/2, north rafter	58	24 bw	1.69	quartered	135 x 80	-	-
CBOR04	truss 2, south principal	+54	8	1.91	halved	170 x 165	AD 1228-1281	+22 inner heartwood rings
CBOR05	truss 3, south principal	43	19 ?bw	2.54	quartered	170 x 150	-	-
CBOR06	truss 3, north principal	~45	15+	*2.00*	whole	175 x 165	-	rejected; core fragmented; + *circa* 1-5 rings to bark edge
CBOR07	truss 4, south principal	107	15 bw	1.89	halved	175 x 165	AD 1193-1299	-
CBOR08	truss 4, north principal	130	hs	1.84	quartered	190 x 165	AD 1145-1276	-
CBOR09	truss 4, collar	93	hs	1.18	halved	195 x 125	AD 1159-1251	-
CBOR10	truss 4, king post type	65	-	1.76	quartered	145 x 80	AD 1185-1249	-
								-
Clannaborough: Thorne								
CBTH01	truss 2, collar	56	-	2.67	?halved	230 x 170	AD 1213-1268	-
CBTH02	truss 2, north archbrace	96	17 bw	1.75	quartered	185 x 135	AD 1224-1319	-
CBTH03	truss 2, north principal	53	-	1.88	halved	210 x 200	AD 1216-1268	-
CBTH04	truss 2, yoke	61	-	2.52	halved	315 x 160	AD 1233-1293	-
CBTH05	truss 2, south principal	86	17+	2.14	whole	200 x 200	AD 1233-1318	+1 ring to bark edge
CBTH06	truss 2, south archbrace	37	-	*4.20*	?halved	195 x 130	-	rejected
CBTH07	truss 3, south principal	61	-	3.25	halved	210 x 210	AD 1200-1260	-
CBTH08	truss 3, north principal	65	6	2.61	halved	205 x 200	AD 1241-1305	-
CBTH09	truss 1, hip cruck	-	-	-	-	370 x ?	-	rejected: core fragmented
CBTH10	truss 1/2, north wall plate	56	hs+	1.05	-	-	AD1230-1285	+15 inner heartwood rings; +25-35 mm sapwood to bark edge
Coldridge: Leigh Barton								
CRLB01	truss 4, south principal	40	-	2.60	quartered	*circa* 200 x 200	-	-
CRLB02	truss 3, north principal	-	-	~2.60	quartered	*circa* 200 x 200	-	rejected: core fragmented
CRLB03	truss 3, south principal	30	-	~2.70	quartered	*circa* 200 x 200	-	rejected
CRLB04	truss 3, collar	17	3	~5.60	halved	*circa* 200 x 200	-	rejected
CRLB05	truss 2, north principal	22	-	~3.30	halved	*circa* 200 x 200	-	rejected
Coldridge: Lower Chilverton								
CRLC01	truss 1, south principal	84	14	2.37	halved	280 x ?	AD1405-1488	-
CRLC02	truss 1, north principal	73	8+	2.12	halved	285 x ?	AD 1409-1481	+5mm sapwood
CRLC03	truss 3, south principal	65	-	1.87	halved	280 x ?	AD 1397-1461	-
CRLC04	truss 3, north principal	54	-	2.52	halved	280 x ?	AD 1396-1449	-
CRLC05	truss 3, collar	20	-	~4.40	halved	260 x 120	-	rejected
CRLC06	truss 2, south principal	73	-	1.87	halved	300 x 115	AD 1351-1423	
CRLC07	truss 2, north principal	48	-	1.90	halved	300 x120	AD 1352-1399	
CRLC08	truss 4, south principal	35	-	~3.20	halved	280 x 130	-	rejected
CRLC09	truss 4, collar	+67	8	1.89	halved	250 x 125	AD 1405-1471	+ 5 inner heartwood rings
Down St Mary: Chaffcombe Manor								
DMCC01	truss 3, north principal	103	25+	1.01	halved	300 x 100	AD 1562-1664	+10mm sapwood to bark edge
DMCC02	truss 3, south principal	107	?hs	1.25	halved	290 x 90	AD 1542-1648	duplicate of DMCC03
DMCC03	truss 3, south principal	91	16	0.89	halved	290 x 90	AD 1569-1659	duplicate of DMCC02
DMCC04	truss 3, collar	81	15	0.93	halved	215 x 80	AD 1587-1667	-
DMCC05	truss 2, south principal	109	1+	1.13	halved	300 x 100	AD 1538-1646	+ *circa* 24-28 sapwood rings to bark edge
DMCC06	truss 2, collar	77	9	0.97	halved	225 x 75	AD 1587-1663	duplicate of DMCC07

Table 2 (cont)

Sample number	Timber location and function	Number of rings	Sapwood rings	ARW	Cross-section type	Cross-section dimensions	Date of measured sequence	Comment
DMCC07	truss 2, collar	70	-	0.93	halved	225 x 75	AD 1569-1638	duplicate of DMCC06
DMCC08	truss 2, north principal	72	-	2.03	halved	295 x 90	AD 1531-1602	-
DMCC09	truss 1, north principal	68	hs+	1.40	halved	275 x 105	AD 1563-1630	+40mm sapwood
DMCC10	truss 1, south principal	79	?hs	1.53	halved	270 x 110	AD 1546-1624	-
DMCC11	truss 1, collar	16	-	~1.40	tangential	230 x 65	-	rejected
DMCC12	truss 1/2, north purlin	81	?hs	1.58	?halved	175 x 120	AD 1570-1650	-
King's Nympton: Broomham								
KNBH01	truss 3, north principal	41	7	3.57	halved	-	AD 1417-1457	-
KNBH02	truss 3, south principal	40	-	4.64	halved	-	AD 1408-1447	-
KNBH03	truss 2, south principal	+47	-	1.67	halved	-	AD 1387-1433	+45 inner heartwood rings
KNBH04	truss 2, north principal	49+	-	3.61	halved	-	-	+20 heartwood rings
KNBH05	truss 2/3, north lower purlin	84	22 bw	1.69	-	-	AD 1380-1463	-
KNBH06	truss 1, south principal	43	6	4.66	-	-	AD 1414-1456	+ *circa* 6 rings to bark edge
KNBH07	shippon, ceiling crossbeam 09	87	9+	1.93	-	-	AD 1370-1456	+10-15mm sapwood to bark edge
KNBH08	shippon, ceiling crossbeam 11	74	20+	2.31	halved	255 x 135	AD 1390-1463	?+1 or 2 rings to bark edge
KNBH09	shippon, ceiling crossbeam 08	66	17+	2.62	halved	230 x 145	AD 1398-1463	?+1 or 2 rings to bark edge
KNBH10	shippon, ceiling crossbeam 05	69	18+	2.48	halved	235 x 145	AD 1396-1464	?+1 or 2 rings to bark edge
KNBH11	shippon, ceiling crossbeam 04	63	2+	2.60	halved	270 x 130	AD 1386-1448	+35-40mm sapwood
King's Nympton: West Hele								
KNWH01	truss 1, south principal	46	3	2.49	halved	180 x 85	-	-
KNWH02	truss 1, north principal	52	14+	2.05	halved	175 x 100	-	+ 4 sapwood rings
KNWH03	truss 4, north principal	51	10	2.27	halved	195 x 100	AD 1384-1434	-
KNWH04	truss 4, south principal	47	16 bw	2..19	halved	195 x 90	AD 1395-1441	-
KNWH05	truss 4, collar	13	1+	~4.00	halved	180 x 110	-	rejected; +35-45mm sapwood to bark edge
KNWH06	truss 2, north principal	43	-	3.96	quartered	210 x 125	-	-
KNWH07	truss 2, south principal	48	-	4.10	quartered	210 x 125	-	-
KNWH08	truss 2, saddle	23	-	~3.40	halved	175 x 120	-	rejected
Lapford: Bury Barton								
LFBB01	truss 1, south post	-	-	-	halved	200 x 175	-	rejected: core fragmented
LFBB02	truss 1/2, south arcade plate	34	-	~2.60	halved	185 x 135	-	rejected
LFBB03	truss 1, north post	+47	-	1.76	halved	300 x ?	AD 1240-1286	+60 inner heartwood rings
LFBB04	truss 1, tiebeam	24	-	~4.60	halved	270 x 180	-	rejected
LFBB05	truss 2, collar	114	-	1.71	halved	480 x 180	AD 1137-1250	-
LFBB06	truss 2, yoke	+60	-	1.24	halved	305 x 105	AD 1213-1272	+30 inner heartwood rings
LFBB07	truss 2, south principal	+50+	-	1.68	whole	230 x 210	AD 1227-1276	+6 inner heartwood rings; +6 hearwood rings
LFBB08	truss 2, north principal	+64	-	1.59	whole	235 x 210	AD 1214-1277	+27 inner heartwood rings
LFBB09	truss 3, collar	138	-	1.75	halved	490 x 195	AD 1132-1269	-
LFBB10	truss 3, south principal	92	15+	2.54	quartered	260 x 250	AD 1232-1323	+5-10 rings to probable bark edge
LFBB11	truss 3/4, north arcade plate	107	-	1.76	quartered	195 x 150	AD 1184-1290	-
LFBB12	truss 4, north post	83	-	2.39	halved	380 x 160	AD 1209-1291	-
LFBB13	truss 4, tiebeam	+51	-	2.32	halved	275 x 185	AD 1166-1216	+45 inner heartwood rings
LFBB14	truss 4, south post	97	hs	1.85	halved	390 x 160	AD 1203-1299	-
LFBB15	truss 4, central post on top of tiebeam	-	-	-	whole	210 x 150	-	rejected: core fragmented
LFBB16	truss 5, collar	104	-	1.73	halved	350 x 205	AD 1186-1289	-
LFBB17	truss 5, west principal	+77	-	1.55	whole	265 x 250	AD 1210-1286	+4 inner heartwood rings
LFBB18	truss 5, east principal	100	hs	1.55	whole	275 x 255	AD 1192-1291	-
LFBB19	north of truss 5, truncated east purlin				halved	-		-
LFBB20	truss 7, south principal	72	hs+	2.51	halved	175 x 145	AD 1229-1300	+30-40mm sapwood with very narrow rings to bark edge
LFBB21	truss 7, north principal	76	-	1.50	halved	205 x 150	-	-
LFBB22	west of truss 7, truncated south purlin	+60	-	1.91	quartered	130 x 110	AD 1202-1261	+10 inner heartwood rings
Mariansleigh: Yeo Barton								
MLYB01	truss 2, south principal	87	2	2.92	quartered	260 x 140	AD 1283-1369	-
MLYB02	truss 2, north principal	54	hs+	3.13	quartered	250 x 145	AD 1318-1371	+35-45mm sapwood with very narrow rings
MLYB03	truss 1, north principal	68	hs+	2.21	quartered	250 x 80	AD 1300-1367	+30-40mm sapwood with very narrow rings
MLYB04	truss 1, south principal	60	21+	1.63	quartered	240 x 80	AD 1330-1389	+7-10 sapwood rings to bark edge
MLYB05	truss 3, north principal	-	-	-	halved	235 x 105	-	rejected: core fragmented
Morchard Bishop: Rudge								
MBRU01	truss 1, south principal	98	hs+	1.35	halved	240 x 200	AD 1187-1284	+35-45mm sapwood to bark edge; duplicate of MBRU02
MBRU02	truss 1, south principal	116	-	1.43	halved	240 x 200	AD 1167-1282	duplicate of MBRU01; near to hs
MBRU03	truss 1, south arch brace	64	16	1.53	quartered	215 x 125	-	near to bark edge
MBRU04	truss 1, collar	82	-	2.04	halved	280 x 155	AD 1195-1276	near to hs
MBRU05	truss 1, north arch brace	64	-	1.08	quartered	220 x 115	AD 1218-1281	rings severely distorted
MBRU06	truss 2, north principal	46	-	1.87	whole	230 x 225	-	-
MBRU07	truss 2, collar	70+	-	1.85	quartered	290 x 165	AD 1207-1276	+16 rings to hs; duplicate of MBRU08

Table 2 (cont)

Sample number	Timber location and function	Number of rings	Sapwood rings	ARW	Cross-section type	Cross-section dimensions	Date of measured sequence	Comment
MBRU08	truss 2, collar	46	-	1.83	quartered	290 x 165	AD 1212-1257	duplicate of MBRU07
MBRU09	truss 2, south principal	82	-	1.45	-	-	AD 1193-1274	duplicate of MBRU010
MBRU10	truss 2, south principal	93	-	1.63	-	-	AD 1177-1269	duplicate of MBRU09
MBRU11	truss 5, north principal	53	?hs	2.46	quartered	240 x 230	AD 1230-1282	duplicate of MBRU12
MBRU12	truss 5, north principal	44	1	2.64	quartered	240 x 230	AD 1242-1285	duplicate of MBRU11
MBRU13	truss 5, collar	132	-	1.69	halved	350 x 160	AD 1129-1260	-
MBRU14	truss 5, north arch brace	62	-	1.81	halved	255 x 145	AD 1200-1261	-
MBRU15	truss 4, collar	117	11	2.12	halved	290 x 210	AD 1191-1307	duplicate of MBRU16
MBRU16	truss 4, collar	85	19 bs	1.68	halved	290 x 210	AD 1231-1315	duplicate of MBRU15
MBRU17	truss 4, north principal	145	20	2.13	quartered	260 x 240	AD 1166-1310	near to bark edge; duplicate of MBRU18
MBRU18	truss 4, north principal	-	-	-	quartered	260 x 240	-	rejected: fragmented; duplicate of MBRU17
MBRU19	truss 3, north principal	84	-	1.46	whole	250 x 240	AD 1155-1238	-
MBRU20	truss 3, collar	107	-	2.33	halved	290 x 165	AD 1124-1230	-
MBRU21	truss 4, yoke	98	18	1.78	halved	330 x 170	AD 1213-1310	near to bark edge
Nymet Rowland: Cleavanger								
NRCV01	truss 1, north post	80	hs+	2.14	halved	320 x 150	AD 1306-1385	+20-25mm sapwood to probable bark edge
NRCV02	truss 1, north principal	72	hs+	2.70	halved	270 x 140	AD 1308-1379	+20-25mm sapwood to possible bark edge
NRCV03	truss 1, south post	63	hs+	2.39	halved	340 x 145	AD 1322-1384	+15-20mm sapwood
NRCV04	truss 1, south principal	-	-	-	halved	280 x 140	-	rejected: core fragmented; duplicate of NRCV05
NRCV05	truss 1, south principal	58+	-	2.67	halved	280 x 140	AD 1320-1377	+5-10 rings to hs; duplicate of NRCV04
NRCV06	truss 2, south post	41	hs	2.48	halved	-	AD 1339-1379	+20-25mm sapwood
NRCV07	truss 2, north post	44	-	3.13	halved	-	AD 1314-1357	-
NRCV08	hip truss/truss 1 east-west ceiling beam	81	18+	1.98	whole	-	AD 1315-1395	+ *circa* 1-5 rings to bark edge
NRCV09	truss 4, north principal	47	-	2.20	halved	205 x 140	AD 1336-1382	-
NRCV10	truss 4, south principal	-	-	-	halved	215 x 135	-	rejected: core fragmented
NRCV11	truss 3, south principal	48	-	3.25	halved	250 x 140	AD 1318-1365	-
NRCV12	truss 3, north principal	79	-	1.85	halved	245 x 145	AD 1301-1379	-
NRCV13	truss 2, south principal	56	-	2.98	halved	260 x ?	AD 1327-1382	-
Sandford: Ivy Cottage								
SFIC01	north lower purlin, bay 2	80	hs	1.51	quartered	-	AD 1440-1519	-
SFIC02	north principal, truss 1	48	hs	3.24	halved	-	AD 1481-1528	-
SFIC03	north lower purlin, bay 1	80	-	1.55	quartered	-	AD 1441-1520	duplicate of SFIC04
SFIC04	north lower purlin, bay 1	65	hs	1.50	quartered	-	AD 1459-1523	duplicate of SFIC03
SFIC05	south lower purlin, bay1	86	-	2.12	quartered	-	AD 1437-1522	-
SFIC06	south principal, truss 1	-	-	-	halved	-	-	rejected: core fragmented; duplicate of SFIC07
SFIC07	south principal, truss 1	57	8	1.96	halved	-	AD 1480-1536	duplicate of SFIC06
SFIC08	south lower purlin, bay 2	71	-	1.73	quartered	-	AD 1441-1511	-
SFIC09	ground floor, screen crossbeam	-	-	-	tangential	-	-	rejected: core fragmented
Sandford: Prowse farmhouse - main range								
SFPF01	truss 3, north principal	66	hs	3.38	quartered	-	-	-
SFPF02	truss 3, south principal	54+	-	2.98	quartered	-	-	+12 heartwood rings; +25-35mm sapwood to probable bark edge
SFPF03	truss 2, south principal	50	-	2.18	-	-	-	+120mm distorted rings
SFPF04	truss 1, south principal	41	-	4.13	quartered	-	-	-
SFPF05	truss 1, north principal	45	-	3.75	quartered	-	-	-
SFPF06	truss 1, decorated collar	42	-	3.61	-	-	-	-
Sandford: Prowse farmhouse - solar cross-wing								
SFPF07	truss 3, west post, first floor	35	?hs	~2.80	halved	240 x 135	-	rejected
SFPF08	truss 4, west post, first floor	-	-	-	halved	235 x 125	-	rejected: core fragmented
SFPF09	truss 2, west post, first floor	13	-	~5.80	halved	? x 130	-	rejected
SFPF10	truss 2, east-west crossbeam, ground floor ceiling	38	hs	~3.60	whole	330 x ?	-	rejected; +25-35mm sapwood to bark edge
SFPF11	truss 4, east-west crossbeam, ground floor ceiling	38	?hs	~3.80	whole	340 x ?	-	rejected
SFPF12	truss 4, west post supporting 11, ground floor	27	hs	~4.00	?halved	290 x ?	-	rejected
SFPF13	truss 3, east post, first floor	52	-	3.94	?halved	? x 135	-	-
Sandford: Prowse barn								
SFPF14	truss 4, north post	82	hs	2.39	quartered	240 x 125	-	+35-50mm sapwood to probable bark edge
SFPF15	truss 3, east post	31	?hs	1.78	halved	250 x 145	-	rejected, duplicate of SFPB16
SFPF16	truss 3, east post	46+	-	2.85	halved	250 x 145	AD 1381-1426	+5-10mm heartwood; duplicate of SFPB15
SFPF17	truss 2, east post	36	-	~2.50	halved	210 x 110	-	rejected
SFPF18	truss 3, west post	-	-	-	quartered	? x 145	-	rejected: core fragmented
SFPF19	truss 4, south post	38	?hs	~2.80	halved	? x 115	-	rejected
SFPF20	truss 6, north post	60	-	1.91	quartered	? x 110	AD 1384-1443	
SFPF21	truss 6, north principal	78	hs+	2.03	halved	245 x 110	AD 1396-1473	+20-30mm sapwood to bark edge
SFPF22	truss 6, south principal	88	hs+	1.79	halved	240 x 110	AD 1380-1467	+20-30mm sapwood to bark edge

Table 2 (cont)

Sample number	Timber location and function	Number of rings	Sapwood rings	ARW	Cross-section type	Cross-section dimensions	Date of measured sequence	Comment
Stockleigh Pomeroy: Lower East Coombe								
SPEC01	truss 3, north principal	77	hs+	1.99	halved	225 x 125	AD 1417-1493	+30-50mm sapwood to bark edge
SPEC02	truss 3, collar	62	9+	2.10	quartered	235 x 115	-	+15-25mm sapwood to bark edge
SPEC03	truss 3, south principal	91	hs+	2.25	halved	265 x 120	AD 1400-1490	+5 sapwood rings
SPEC04	truss 1, central post	21	hs	~2.30	whole	150 x 130	-	rejected
SPEC05	truss 1, horizontal cross-member	55	hs	3.14	halved	150 x 85	-	-
SPEC06	truss 2, north principal	+65	hs	2.05	halved	285 x 120	AD 1430-1494	+8 inner heartwood rings
SPEC07	truss 2, south principal	78	2	2.13	halved	-	-	-
SPEC08	truss 2, collar	38	?hs	~2.30	halved	-	-	rejected
Thorverton: Traymill								
TVTM01	truss 3, south principal	-	-	-	halved	330 x ?	-	rejected: core fragmented
TVTM02	truss 4, south principal	33	-	~3.90	halved	275 x 140	-	rejected
TVTM03	truss 6, south principal	33	-	~5.50	halved	285 x 150	-	rejected
TVTM04	truss 7, south principal	48	-	3.27	halved	320 x 150	-	near to hs
TVTM05	truss 7, north principal	52	-	3.89	halved	320 x 145	-	near to hs
TVTM06	truss 6, north principal	29	hs+	~5.30	halved	270 x 140	-	rejected; +40-50mm sapwood
TVTM07	truss 3, north principal	36	hs+	~4.70	halved	-	-	rejected; +40-50mm sapwood
TVTM08	truss 1, north principal	-	-	-	halved	310 x 155	-	rejected: core fragmented
Whitestone: Glebe House barn								
WSGH01	truss 4, east post	56	hs+	3.61	halved	320 x 145	-	+40-50mm sapwood to bark edge
WSGH02	truss 4, east principal	44	hs+	3.36	halved	270 x 145	-	+35-45mm sapwood
WSGH03	truss 4, west post	52	2+	3.34	halved	300 x 145	-	+40-50mm sapwood to bark edge
WSGH04	truss 3, east post	92	-	2.12	halved	315 x 135	-	
WSGH05	truss 2, east post	10	-	~5.50	halved	300 x 140	-	rejected: core fragmented
WSGH06	truss 3, west post	89	hs+	1.74	halved	305 x 140	-	+25-35mm sapwood to probable bark edge
WSGH07	truss 3, west principal	54	-	3.55	halved	300 x 140	-	-
WSGH08	truss 2, west post	58	-	5.13	quartered	310 x 135	-	-
WSGH09	truss 1, west post	35	-	~2.90	halved	320 x 120	-	rejected
WSGH10	truss 1, west principal	64	?hs	2.91	halved	270 x 145	-	-

Table 3a Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***BNCF-T3***, Cross Farm, Bishop's Nympton; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	BNCF05	BNCF06
BNCF01	5.14	3.47
BNCF05		7.34

Table 3b Matrix showing the *t*-values obtained between the two ring sequences derived from the west principal of truss 1 at Chimsworthy, Bratton Clovelly; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	BCCW07
BCCW06	10.66

Table 3c Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***CBOR-T6***, Old Rectory, Cheriton Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	CBOR02	CBOR07	CBOR08	CBOR09	CBOR10
CBOR01	-	4.59	-	\	\
CBOR02		3.53	-	8.50	3.28
CBOR07			7.23	4.85	6.57
CBOR08				5.02	6.55
CBOR09					4.17

Table 3d Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***CLTH-T8***, Thorne, Clannaborough; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	CLTH02	CLTH03	CLTH04	CLTH05	CLTH07	CLTH08	CLTH10
CLTH01	3.66	6.64	3.16	4.92	3.38	\	4.04
CLTH02		-	4.60	-	7.59	4.30	3.37
CLTH03			3.37	6.26	-	\	3.31
CLTH04				-	\	4.08	3.38
CLTH05					\	3.41	4.81
CLTH07						\	-
CLTH08							4.21

Table 3f.1 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***CRLC-T5***, Lower Chilverton, Coldridge; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	CRLC02	**CRLC03**	**CRLC04**	**CRLC09**
CRLC01	9.02	4.24	3.78	4.30
CRLC02		3.57	-	5.17
CRLC03			6.64	-
CRLC04				-

Table 3f.2 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***CRLC-T2***, Lower Chilverton, Coldridge; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	CRLC07
CRLC06	6.99

Table 3g.1 Matrix showing the *t*-values obtained between the two ring sequences derived from the south principal of truss 3 at Chaffcombe Manor, Down St Mary; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	DMCC03
DMCC02	5.44

Table 3g.2 Matrix showing the *t*-values obtained between the two ring sequences derived from the collar of truss 2 at Chaffcombe Manor, Down St Mary; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	DMCC07
DMCC06	8.39

Table 3g.3 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***DMCC-T9***, Chaffcombe Manor, Down St Mary; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	DMCC0203	DMCC04	DMCC05	DMCC0607	DMCC08	DMCC09	DMCC10	DMCC12
DMCC01	4.44	4.71	3.78	5.22	-	3.63	3.62	4.18
DMCC0203		5.23	11.58	6.42	14.64	-	-	3.94
DMCC04			3.91	7.94	\	-	-	5.72
DMCC05				4.33	11.60	-	3.19	-
DMCC0607					4.14	4.61	4.06	6.56
DMCC08						3.09	-	-
DMCC09							9.53	4.83
DMCC10								3.79

Table 3h Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***KNBH-T9***, Broomham, King's Nympton; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	KNBH02	KNBH03	KNBH05	KNBH06	KNBH07	KNBH08	KNBH09	KNBH10	KNBH11
KNBH01	6.75	\	5.89	6.16	5.50	7.40	4.08	3.77	5.69
KNBH02		\	3.68	6.97	3.46	6.12	3.59	4.02	6.19
KNBH03			6.07	\	3.25	5.06	4.53	-	5.26
KNBH05				3.15	6.79	8.73	5.67	3.76	7.34
KNBH06					-	5.19	-	-	5.32
KNBH07						8.19	10.90	3.31	4.96
KNBH08							6.86	3.77	8.09
KNBH09								4.05	4.36
KNBH10									4.81

Table 3i.1 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***KNWH0304***, West Hele, King's Nympton; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	KNWH04
KNWH03	11.31

Table 3i.2 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***KNWH0607***, West Hele, King's Nympton; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	KNWH07
KNWH06	9.15

Table 3j Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***LFBB-T16***, Bury Barton, Lapford; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	LFBB05	LFBB06	LFBB07	LFBB08	LFBB09	LFBB10	LFBB11	LFBB12	LFBB13	LFBB14	LFBB16	LFBB17	LFBB18	LFBB20	LFBB22
LFBB03	\	-	5.54	4.39	-	-	4.38	7.59	\	4.84	-	4.51	4.79	3.82	\
LFBB05		4.31	\	3.06	16.07	\	6.54	3.33	3.73	4.99	4.49	5.96	6.09	\	3.08
LFBB06			-	-	4.83	-	3.86	-	\	4.22	3.09	5.37	3.88	4.70	-
LFBB07				8.79	-	4.55	5.44	5.07	\	5.14	-	4.62	3.76	-	3.40
LFBB08					3.55	3.59	7.43	4.68	\	5.16	-	5.72	5.25	-	5.29
LFBB09						-	6.70	3.33	3.82	4.87	5.88	6.40	4.91	3.24	3.98
LFBB10							5.32	5.53	\	6.09	3.95	3.45	3.61	4.18	-
LFBB11								3.79	-	4.67	6.38	7.58	5.04	3.32	5.42
LFBB12									\	9.85	4.18	5.53	7.25	5.33	4.05
LFBB13										\	3.51	\	\	\	\
LFBB14											3.72	4.61	7.36	5.41	3.63
LFBB16												3.53	5.78	3.53	5.07
LFBB17													5.71	4.77	6.08
LFBB18														4.63	4.44
LFBB20															-

Table 3k Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***MLYB-T4***, Yeo Barton, Mariansleigh; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MLYB02	MLYB03	MLYB04
MLYB01	8.31	8.29	4.72
MLYB02		9.24	4.40
MLYB03			5.64

Table 3l.1 Matrix showing the *t*-values obtained between the two ring sequences derived from the south principal of truss 1 at Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU02
MBRU01	15.23

Table 3l.2 Matrix showing the *t*-values obtained between the two ring sequences derived from the collar of truss 2 at Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU08
MBRU07	9.04

Table 3l.3 Matrix showing the *t*-values obtained between the two ring sequences derived from the south principal of truss 2 at Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU10
MBRU09	34.39

Table 3l.4 Matrix showing the *t*-values obtained between the two ring sequences derived from the north principal of truss 5 at Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU12
MBRU11	20.52

Table 3l.5 Matrix showing the *t*-values obtained between the two ring sequences derived from the collar of truss 4 at Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU16
MBRU15	13.67

Table 3l.6 Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***MBRU-T11***, Rudge, Morchard Bishop; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	MBRU04	MBRU05	MBRU0708	MBRU0910	MBRU1112	MBRU13	MBRU14	MBRU1516	MBRU17	MBRU19	MBRU20	MBRU21
MBRU0102	5.36	5.18	4.59	6.79	6.37	6.08	3.76	-	5.77	6.14	4.32	4.45
MBRU04		-	7.01	7.53	7.17	8.88	6.18	5.65	6.26	3.39	6.61	5.56
MBRU05			-	4.46	5.21	-	3.01	-	3.44	\	\	3.40
MBRU0708				6.48	5.03	5.68	5.46	9.78	6.49	3.26	\	10.31
MBRU0910					8.90	10.85	4.35	6.33	6.19	4.72	5.36	5.45
MBRU1112						7.70	-	3.32	5.14	\	\	4.52
MBRU13							6.77	5.37	4.88	6.82	7.41	4.26
MBRU14								5.41	6.83	5.09	-	4.08
MBRU1516									6.62	4.78	-	7.92
MBRU17										5.49	3.84	5.80
MBRU19											4.26	\
MBRU20												\

Table 3m Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***NRCV-T11***, Cleavanger, Nymet Roland; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	NRCV02	NRCV03	NRCV05	NRCV06	NRCV07	NRCV08	NRCV09	NRCV11	NRCV12	NRCV13
NRCV01	-	4.20	-	3.39	3.78	3.28	5.45	-	-	-
NRCV02		-	9.22	-	-	-	3.57	3.22	4.20	3.00
NRCV03			-	5.02	3.94	3.06	-	-	-	3.13
NRCV05				-	-	-	-	4.78	4.16	-
NRCV06					\	-	-	\	-	-
NRCV07						4.02	\	-	4.80	4.55
NRCV08							6.08	3.94	4.46	5.32
NRCV09								-	4.28	3.92
NRCV11									7.30	4.32
NRCV12										3.09

Table 3n.1 Matrix showing the *t*-values obtained between the two ring sequences derived from the north lower purlin in bay 1 at Ivy Cottage, Sandford; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	SFIC04
SFIC03	11.44

Table 3n.2 Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***SFIC-T6***, Ivy Cottage, Sandford; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	SFIC02	SFIC0304	SFIC05	SFIC07	SFIC08
SFIC01	-	14.84	5.82	3.79	7.81
SFIC02		-	5.39	8.53	-
SFIC0304			6.05	3.42	9.03
SFIC05				4.88	4.93
SFIC07					-

Table 3o Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***SFPF-T4M***, Prowse farmhouse main range, Sandford; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	SFPF02	SFPF03	SFPF04	SFPF05	SFPF06
SFPF01	10.43	3.61	6.43	11.51	4.11
SFPF02		3.68	5.02	8.03	3.99
SFPF03			3.91	3.32	4.07
SFPF04				8.57	\
SFPF05					3.06

Table 3q Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***SFPF-T4B***, Prowse barn, Sandford; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	SFPF20	SFPF21	SFPF22
SFPF16	3.52	3.33	4.19
SFPF20		3.28	3.81
SFPF21			4.61

Table 3r Matrix showing the *t*-values obtained between the dated ring sequences included in the site master chronology ***SPEC-T3***, Lower East Coombe, Stockleigh Pomeroy; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	SPEC03	SPEC06
SPEC01	6.09	4.06
SPEC03		5.89

Table 3s Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***TVTM-T2***, Traymill, Thorverton; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	TVTM05
TVTM04	7.31

Table 3t.1 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***WSGH-T4***, Glebe House barn, Whitestone; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	WSGH04	WSGH06	WSGH07
WSGH02	\	4.80	\
WSGH04		6.65	3.56
WSGH06			4.56

Table 3t.2 Matrix showing the *t*-values obtained between the matching ring sequences included in the site master chronology ***WSGH-T2***, Glebe House barn, Whitestone; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	WSGH03
WSGH01	8.50

Table 4a Ring width data in units of 0.01mm from the undated site master chronology ***BNCF-T3*** from Cross Farm, Bishops Nympton

692	271	383	268	403	340	497	620	465	265
339	571	470	480	447	407	283	231	325	335
397	212	402	314	193	228	268	382	341	254
308	264	239	339	318	401	383	387	375	352
303	233	147	136	166	274	263	313	216	311
261	260	355	317	330	418	309	303	286	

Table 4b.1 Ring width data in units of 0.01mm from sample ***BCCW01*** from Chimsworthy, Bratton Clovelly. Dated AD 1154-1255 inclusive

284	272	231	267	230	327	398	230	215	261
255	284	311	191	272	321	244	169	228	221
224	216	147	124	137	196	202	246	296	215
121	118	161	203	128	126	189	252	137	177
247	173	182	150	153	123	130	197	169	121
83	85	116	85	145	221	258	209	143	204
172	181	167	141	111	171	205	262	187	156
271	246	318	159	275	301	310	196	143	109
140	134	131	245	170	132	197	208	223	328
222	148	185	195	114	202	128	135	110	90
143	194								

Table 4b.2 Ring width data in units of 0.01mm from the single timber sequence ***BCCW0607*** from Chimsworthy, Bratton Clovelly. Dated AD 1231-1305 inclusive

756	462	729	930	890	459	743	753	578	648
364	820	719	636	292	629	517	613	744	479
441	351	322	488	434	288	214	234	165	127
200	181	178	134	116	124	197	183	199	156
219	155	168	123	123	117	114	102	80	93
98	108	90	67	81	138	68	48	83	112
78	130	86	86	106	105	114	100	68	63
62	61	47	38	40					

Table 4c.1 Ring width data in units of 0.01mm from the site master chronology ***CBOR-T6*** from Old Rectory, Cheriton Bishop. Dated AD 1145-1299 inclusive

289	189	224	250	224	327	328	347	325	245
263	227	128	61	273	365	290	261	285	186
214	212	165	208	254	217	190	176	167	143
155	155	75	127	186	167	148	164	121	99
129	94	73	76	70	93	116	134	223	176
182	175	158	144	174	149	193	194	254	167
229	148	121	185	159	177	127	124	173	156
157	196	146	102	160	192	157	149	100	103
169	215	141	209	227	155	163	172	179	148
137	106	180	132	177	163	113	161	171	154
118	132	169	125	200	117	119	92	100	100
150	106	137	135	163	143	132	131	96	88
92	94	94	142	100	95	190	113	160	166
208	179	139	110	175	195	141	140	153	177
215	217	154	99	138	188	234	195	262	236
185	214	199	160	136					

Table 4c.2 Ring width data in units of 0.01mm from sample ***CBOR04*** from Old Rectory, Cheriton Bishop. Dated AD 1228-1281 inclusive

416	271	342	187	171	211	119	142	96	128
124	116	204	156	127	219	146	145	159	201
249	294	179	256	154	350	425	437	255	180
274	314	163	202	158	134	100	113	112	79
118	170	147	302	141	141	201	135	119	109
146	125	187	151						

Table 4d Ring width data in units of 0.01mm from the site master chronology ***CBTH-T8*** from Thorne, Clannaborough. Dated AD 1200-1319 inclusive

435	715	378	338	286	333	518	312	505	541
578	563	380	387	416	388	387	397	262	228
248	246	271	206	217	247	337	218	314	267
201	124	143	212	160	217	127	252	212	197
234	177	220	274	194	161	205	213	190	254
211	205	140	228	230	275	189	215	270	328
224	242	279	180	164	219	206	165	287	219
207	257	189	240	222	182	167	177	160	197
210	189	207	202	200	168	201	161	132	150
202	180	212	264	270	206	184	170	173	154
175	160	211	151	157	151	150	223	207	211
211	195	165	166	181	298	268	333	266	289

Table 4f.1 Ring width data in units of 0.01mm from the site master chronology ***CRLC-T5*** from Lower Chilverton, Coldridge. Dated AD 1396-1488 inclusive

384	278	246	201	250	245	182	235	264	244
262	223	248	238	224	247	274	253	329	295
270	224	216	163	275	196	163	320	290	307
309	229	250	182	195	247	245	211	252	266
250	209	169	152	178	198	202	260	219	215
190	220	243	230	195	201	173	177	220	171
207	188	192	156	181	136	111	151	103	135
165	183	189	137	135	114	116	155	122	178
162	126	158	143	157	162	199	219	252	280
169	255	198							

Table 4f.2 Ring width data in units of 0.01mm from the site master chronology ***CRLC-T2*** from Lower Chilverton, Coldridge. Dated AD 1351-1423 inclusive

352	219	282	251	240	210	238	255	301	245
265	244	290	233	178	164	175	139	195	211
187	206	142	203	182	187	153	229	181	185
180	165	169	169	155	219	188	188	171	141
149	149	161	166	179	224	136	150	162	172
144	122	220	206	212	192	154	125	121	153
119	149	173	149	145	112	110	114	104	123
155	123	179							

Table 4g Ring width data in units of 0.01mm from the site master chronology ***DMCC-T9*** from Chaffcombe, Down St Mary. Dated AD 1531-1667 inclusive

407	412	363	386	412	321	338	498	459	404
450	349	436	360	380	229	312	209	296	290
272	230	173	163	282	176	198	169	144	119
92	123	131	161	130	125	121	129	154	191
209	153	132	154	172	124	79	127	144	171
119	108	127	147	147	131	126	104	131	96
117	102	108	117	121	119	124	118	135	123
110	73	91	110	98	108	109	118	78	114
128	99	130	92	103	75	64	101	92	117
108	112	109	92	92	96	89	76	83	74
62	78	70	57	76	75	106	92	72	65
66	56	63	67	80	83	71	80	76	61
44	45	61	79	116	91	111	93	80	108
92	98	148	117	137	124	158			

Table 4h Ring width data in units of 0.01mm from the site master chronology ***KNBH-T9*** from Broomham, King's Nympton. Dated AD 1370-1464 inclusive

139	162	205	230	393	195	342	265	173	183
194	185	262	219	266	171	262	187	134	164
149	217	151	213	153	219	258	235	263	297
231	244	248	285	247	254	329	226	285	362
206	183	214	238	355	342	320	313	283	177
351	294	219	422	350	343	396	336	352	297
321	268	362	265	329	434	307	283	255	126
181	231	198	261	272	254	227	240	258	264
220	242	199	195	268	197	260	190	190	179
196	176	194	164	182					

Table 4i.1 Ring width data in units of 0.01mm from the single tree sequence ***KNWH0304*** from West Hele, King's Nympton. Dated AD 1384-1441 inclusive

422	300	527	478	247	286	254	326	239	212
181	272	347	229	348	361	284	412	283	307
297	218	253	189	229	248	211	173	255	286
260	261	180	191	191	108	174	164	98	197
151	130	157	134	167	144	156	152	221	151
153	171	127	155	114	79	96	143		

Table 4i.2 Ring width data in units of 0.01mm from the undated single tree sequence ***KNWH0607*** from West Hele, King's Nympton

348	289	188	258	112	229	143	248	392	495
457	617	342	303	373	436	424	410	502	526
188	109	92	154	248	322	428	379	305	314
469	497	472	646	664	509	470	634	584	428
525	514	641	435	617	544	552	409		

Table 4j Ring width data in units of 0.01mm from the site master chronology ***LFBB-T16*** from Bury Barton, Lapford. Dated AD 1132-1323 inclusive

268	297	236	200	188	142	184	191	332	222
236	212	238	164	137	165	175	198	190	232
208	271	192	219	297	299	264	302	337	227
197	228	270	269	220	216	213	279	193	238
230	217	259	264	248	169	187	268	231	259
310	191	143	185	190	194	119	195	180	222
220	260	241	283	245	234	202	207	183	235
191	221	194	202	231	153	221	249	270	289
244	251	207	187	232	248	198	201	237	218
168	147	177	205	246	178	211	222	174	126
159	189	176	214	151	242	202	183	164	132
167	247	214	165	193	192	142	140	143	156
105	177	170	203	144	153	167	156	137	159
195	135	134	163	145	128	156	136	168	202
142	194	174	156	141	141	132	166	163	152
164	163	167	144	149	125	125	139	160	128
149	188	192	178	185	185	168	152	198	264
277	133	235	213	163	197	149	160	165	160
170	179	246	448	360	306	198	191	236	169
239	182								

Table 4k Ring width data in units of 0.01mm from the site master chronology ***MLYB-T4*** from Yeo Barton, Mariansleigh. Dated AD 1283-1389 inclusive

354	384	350	383	386	476	556	511	613	337
287	212	274	391	289	244	393	174	201	184
214	312	259	262	361	269	198	218	242	258
244	223	258	263	244	310	305	278	255	325
339	269	208	258	390	345	466	310	320	298
290	301	219	215	295	251	277	238	245	286
303	279	271	184	209	247	303	213	384	180
225	226	342	245	231	279	260	206	175	149
181	239	160	171	176	119	119	103	108	109
73	106	108	95	110	112	108	120	115	120
104	76	85	134	130	119	103			

Table 4l Ring width data in units of 0.01mm from the site master chronology ***MBRU-T11*** from Rudge, Morchard Bishop. Dated AD 1124-1315 inclusive

311	247	108	194	133	67	96	100	108	71
77	93	82	60	54	46	58	38	42	59
54	86	101	233	302	376	286	457	309	343
280	171	252	271	247	314	298	285	291	304
351	300	281	174	295	298	179	235	229	267
241	201	190	120	142	242	232	309	303	237
135	183	184	205	98	213	216	279	253	262
235	275	232	185	170	206	182	231	235	227
173	190	206	134	222	209	252	251	179	199
158	166	234	271	195	196	234	235	159	144
173	181	239	154	215	239	199	127	158	187
166	177	116	190	151	163	133	106	140	228
190	172	181	203	166	153	147	177	114	185
147	211	154	158	175	171	127	187	239	128
128	157	135	118	158	129	161	205	135	175
167	134	135	129	119	153	162	160	216	190
206	191	200	145	166	197	253	178	222	184
237	174	162	123	154	129	132	156	153	92
83	112	189	194	150	133	158	164	120	124
83	91								

Table 4m Ring width data in units of 0.01mm from the site master chronology ***NRCV-T11*** from Cleavanger, Nymet Roland. Dated AD 1301-1395 inclusive

283	263	353	291	228	186	260	210	204	225
209	220	209	236	257	262	241	239	252	300
319	302	346	275	231	196	275	293	336	239
201	239	278	320	282	273	350	338	305	311
280	269	304	278	324	266	245	278	295	201
293	203	280	234	262	240	277	283	243	191
214	183	262	226	165	155	185	193	206	190
180	225	151	191	173	181	164	188	223	208
186	207	194	187	140	189	154	203	166	124
112	127	151	153	177					

Table 4n Ring width data in units of 0.01mm from the site master chronology ***SFIC-T6*** from Ivy Cottage, Bremridge Farm, Sandford. Dated AD 1437-1536 inclusive

256	306	332	297	366	237	242	328	273	260
268	274	251	173	278	125	139	260	175	173
146	183	164	245	199	189	194	169	195	211
218	257	185	196	149	117	133	174	219	174
144	131	134	129	174	177	166	182	222	196
271	252	239	194	180	141	175	180	148	180
154	114	232	262	191	149	197	284	205	196
168	181	205	191	209	241	232	222	191	137
198	144	108	123	173	191	146	141	154	173
166	160	140	142	170	109	88	66	69	132

Table 4o Ring width data in units of 0.01mm from the undated site master chronology ***SFPF-T4M*** from the main range of the farmhouse at Prowse, Sandford

448	442	531	437	463	526	397	446	373	385
312	298	292	416	353	322	349	287	271	316
348	275	268	321	361	335	360	306	238	306
360	337	307	323	284	364	373	312	359	308
315	483	380	326	355	273	239	277	270	267
305	260	298	261	213	304	306	364	198	213
138	219	341	318	257	252	213	218	335	336
271	255	251	296	262	273				

Table 4q Ring width data in units of 0.01mm from the site master chronology ***SFPF-T4B*** from the barn at Prowse, Sandford. Dated AD 1380-1473 inclusive

325	245	402	308	285	194	353	348	313	260
202	299	254	199	220	286	309	209	225	325
277	308	252	258	246	227	258	197	212	205
134	151	183	163	197	197	187	194	227	121
188	179	143	265	241	216	207	151	172	170
147	160	234	177	162	227	177	175	128	126
117	128	133	136	135	135	161	149	162	129
129	148	144	138	229	193	182	184	166	187
172	164	131	179	118	153	204	192	222	150
311	220	255	274						

Table 4r Ring width data in units of 0.01mm from the site master chronology ***SPEC-T3*** from Lower East Coombe, Stockleigh Pomeroy. Dated AD 1400-1494 inclusive

315	333	301	290	260	291	317	271	258	216
189	218	216	262	282	296	338	247	251	194
262	243	305	440	409	311	297	171	212	172
187	256	214	226	264	350	254	236	169	147
137	169	208	263	247	240	277	254	237	210
182	160	152	161	204	184	180	251	208	166
206	199	160	163	137	153	176	179	135	98
134	179	213	226	202	233	212	148	165	143
158	191	191	196	209	175	204	181	200	171
207	185	196	231	249					

Table 4s Ring width data in units of 0.01mm from the undated site master chronology ***TVTM-T2*** from Traymill, Thorverton

444	371	383	317	384	240	252	299	367	418
449	354	505	483	416	520	374	506	422	323
411	425	642	452	363	470	407	459	445	413
296	242	214	372	340	281	226	250	308	305
234	277	275	285	248	344	345	349	291	259
363	297								

Table 4t.1 Ring width data in units of 0.01mm from the undated site master chronology ***WSGH-T4*** from Glebe House barn, Whitestone

447	291	301	418	372	336	213	315	270	317
336	432	535	332	443	411	414	365	417	336
175	217	225	159	213	237	269	351	293	221
271	255	263	262	181	147	116	126	119	167
137	139	172	143	96	88	129	229	211	226
164	128	142	163	237	193	243	235	269	230
218	263	269	264	247	304	239	248	282	292
240	336	282	322	322	304	309	293	399	325
246	354	268	252	258	226	193	217	244	300
255	246	283	179	227	176	173	173	228	297
259	225	259	205	236	294	253	198	249	232
237	221	208	274	218	364	335			

Table 4t.2 Ring width data in units of 0.01mm from the undated site master chronology ***WSGH-T2*** from Glebe House barn, Whitestone

364	543	518	496	408	475	343	293	355	373
359	440	414	457	400	394	302	410	355	366
369	334	455	369	282	447	493	485	467	362
467	576	248	209	192	197	193	304	301	238
240	261	288	307	324	319	256	300	348	298
324	299	298	277	321	314	279	412	366	

Table 5a Dating the site master chronologies. Example *t*-values with a selection of site reference chronologies. – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

		t-values						
Reference chronology	**Date span**	**BCCW01**	**BCCW0607**	**CBOR-T6**	**CBOR04**	**CLTH-T8**	**LFBB-T16**	**MBRU-T11**
Staffordshire Burton Abbey Green (Howard *et al* 1998)	AD1162-1339	5.32	3.74	3.89	-	4.45	6.61	6.99
Staffordshire Sinai Park nr Burton (Tyers 1997)	AD1227-1750	\	3.97	4.36	-	4.05	5.44	3.41
Herefordshire Wigmore Abbey (Tyers 2002)	AD1055-1729	4.96	3.03	-	3.13	6.93	7.11	7.39
Worcestershire Droitwich UPWICH2 (Groves and Hillam 1997)	AD946-1415	3.63	-	4.12	-	5.77	7.33	5.99
Worcestershire Woodmanton Manor Clifton on Teme (Tyers 2001)	AD1162-1311	5.64	-	4.97	-	5.91	6.91	6.80
Somerset Bridge Farm1 Butleigh (Miles *et al* 1997)	AD1195-1331	-	4.00	5.27	-	6.35	5.46	6.76
Dorset Fiddleford Manor1 Sturminster Newton (Bridge 2003)	AD1167-1315	4.61	4.20	5.18	-	6.84	7.65	7.42
Somerset Abbey Barn Glastonbury (Bridge 2001)	AD1095-1334	6.57	4.62	7.18	4.15	7.63	9.54	9.82
Gloucestershire New Inn House Kingswood (Arnold *et al* 2004)	AD1191-1519	4.87	-	3.67	-	6.45	5.15	6.30
Somerset Manor Farmhouse Meare (Bridge 2002)	AD1156-1315	3.86	4.73	5.80	-	6.34	8.61	10.54
Somerset Muchelney Abbey (Bridge 2002)	AD1148-1498	5.68	-	6.45	3.89	7.53	7.71	7.80
Dorset Hall House Newland Sherborne (Bridge 1993)	AD1190-1292	3.89	3.82	5.05	4.03	8.07	6.90	6.77
Somerset St Catherines Chapel Wells Cathedral (Arnold *et al* 2004)	AD1169-1325	4.89	3.95	5.36	-	7.56	8.22	10.38
Somerset Bridge Farm Butleigh (Miles *et al* 1997)	AD1195-1263	5.07	3.40	5.33	3.23	4.85	4.28	4.32
Somerset 31 High Street Bruton (Miles *et al* 1997)	AD1221-1270	-	3.51	3.51	3.52	6.02	5.59	5.33
Gloucestershire 66/68 Westgate St Gloucester T28/S30 (Tyers and Wilson 2000)	AD1209-1518	4.44	4.26	3.06	3.83	8.08	6.16	5.87
Gloucestershire Tredington Manor Farm (Tyers 2002)	AD1218-1356	-	3.35	3.40	5.52	7.69	6.54	5.52
Devon Bradworthy Church nave and south transept (Tyers 2003)	AD1125-1367	4.52	5.53	5.62	4.01	8.61	10.49	11.47
Devon Braunton St Brannock Nave roof (Tyers 2004)	AD1215-1378	-	4.07	4.45	-	5.66	5.72	6.27
Devon Bishops Clyst Barn (Miles and Worthington 1997)	AD1145-1386	-	4.00	6.20	-	4.64	5.34	7.01
Devon Elmside East Leigh (Hillam and Groves 1991)	AD1190-1283	4.64	5.68	4.59	3.02	5.66	5.50	4.96
Devon Archdeacons House Exeter (Howard *et al* 1999)	AD1186-1404	4.00	3.76	4.03	4.82	7.36	6.12	7.27
Devon Exeter Cathedral (Mills 1988)	AD1137-1332	7.22	6.55	5.38	3.83	9.63	10.30	10.36
Devon Exeter Bishops Throne (Bridge 1986)	AD1102-1284	5.85	3.36	3.64	3.23	5.29	5.69	6.39

Table 5b Dating the site master chronologies. Example *t*-values with a selection of site reference chronologies. – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

		t-values		
Reference chronology	**Date span**	**CRLC-T2**	**MLYB-T4**	**NRCV-T11**
Herefordshire Presbytery Roof Abbey Church of St Albans (Howard *et al* 2002)	AD1302-1369	\	4.22	4.73
Shropshire Condover Court (Miles *et al* 1993)	AD1318-1444	4.41	-	3.85
Shropshire Upton Cressett hall (Miles *et al* 1994)	AD1298-1498	3.57	-	4.30
Herefordshire Cradley Village Hall Cradley (Worthington and Miles 2004)	AD1347-1530	3.65	3.00	-
Herefordshire Widemarsh St Hereford Farmers Club (Tyers 1996)	AD1313-1617	3.62	-	4.29
Herefordshire Hereford 16-18 Hightown/Booth Hall (Boswijk and Tyers 1997)	AD1302-1489	5.24	-	4.85
Herefordshire Pembridge West End Farm (Tyers 2002)	AD1322-1424	3.89	3.75	4.52
Herefordshire Olde Salutation Inn Weobley (Tyers and Groves 1999)	AD1355-1580	4.35	-	4.50
Northumberland Moot Hall Market Place Hexham (Arnold *et al* 2004)	AD1341-1539	4.02	3.82	-
Oxfordshire Crowmarsh Gifford 17-19 The Street (Haddon-Reece *et al* 1989)	AD1347-1438	3.75	3.63	3.85
West Sussex Pendean Farm Midhurst (Tyers pers comm)	AD1313-1609	-	3.93	4.36
Berkshire-WindsorAndMaidenhead Windsor Castle Kitchen (Tyers *et al* 1997)	AD1331-1573	-	3.02	4.44
Hampshire Trees Cottage Froxfield (Haddon-Reece and Miles 1992)	AD1294-1359	\	3.81	4.69
Gloucestershire Gloucester Mercers Hall (Howard *et al* 1996)	AD1289-1541	4.22	-	3.36
Gloucestershire Kingswood Abbey Gatehouse Kingswood (Arnold *et al* 2003)	AD1307-1428	3.44	-	3.74
Gloucestershire New Inn House Kingswood (Arnold *et al* 2004)	AD1191-1519	3.20	-	4.14
Somerset East Cloister roof Wells Cathedral (Howard *et al* 2001)	AD1279-1451	-	3.57	4.86
Devon Exeter Bowhill T4 (Groves 2002)	AD1292-1468	3.21	-	4.31
Devon The Deanery Exeter (Howard *et al* 2000)	AD1233-1406	4.84	-	6.08
Devon Guildhall High St Exeter (Howard *et al* 1999)	AD1314-1456	-	3.37	5.51
Devon 21 The Mint Exeter (Nayling 2001)	AD1261-1414	3.67	-	4.29
Devon West Challacombe Devon (Tyers and Groves 1999)	AD1319-1452	-	5.01	5.56

Table 5c Dating the site master chronologies. Example *t*-values with a selection of site reference chronologies. – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

		t-values					
Reference chronology	**Date span**	**CRLC-T5**	**KNBH-T9**	**KNWH0304**	**SFIC-T6**	**SFPF-T4B**	**SPEC-T3**
Staffordshire Black Ladies nr Brewood (Tyers 1999)	AD1372-1671	4.71	6.38	5.83	5.63	4.45	-
Staffordshire Sinai Park nr Burton (Tyers 1997)	AD1227-1750	5.94	4.83	5.78	4.15	5.43	-
Herefordshire Widemarsh St Hereford Farmers Club (Tyers 1996)	AD1313-1617	4.90	5.57	5.69	4.70	5.12	5.13
Hampshire Winchester College panels (Lewis 1995)	AD1403-1537	4.26	3.82	4.41	3.91	5.47	3.93
Cornwall Cullacot Hall (Miles 1996)	AD1394-1481	5.98	4.47	3.77	-	4.35	4.84
Gloucestershire Gloucester Mercers Hall (Howard *et al* 1996)	AD1289-1541	4.56	7.33	7.21	4.52	5.33	-
Gloucestershire 26 Westgate Street Gloucester (Howard *et al* 1998)	AD1399-1622	5.23	4.82	3.99	4.46	4.02	-
Gloucestershire New Inn House Kingswood (Arnold *et al* 2004)	AD1191-1519	4.36	4.06	3.30	3.77	5.00	3.58
Somerset Lancin Farmhouse Wambrook (Tyers 1994)	AD1374-1533	7.13	3.94	5.62	3.89	4.59	4.75
Cornwall Pendennis Castle nr Falmouth (Tyers 2004)	AD1358-1541	6.44	7.13	7.05	5.28	8.27	4.37
Cornwall Roscarrock nr St Endellion (Tyers 2004)	AD1373-1500	3.54	4.70	5.29	3.66	6.94	3.59
Somerset Springfield Post Office Lane South Chard (Arnold *et al* 2004)	AD1366-1445	5.54	5.82	4.69	\	5.46	4.75
Devon Crediton Holy Cross church (Tyers 2004)	AD1317-1536	5.97	6.50	8.54	4.88	8.01	4.52
Devon Eastleigh Manor (Miles 1994)	AD1405-1474	5.68	5.47	4.93	-	4.95	4.30
Devon Leigh Barton Churchstow (Tyers and Groves 1999)	AD1345-1484	7.34	5.60	4.53	-	6.28	4.81
Welsh Border (Siebenlist-Kerner 1978)	AD1341-1636	4.52	6.52	5.31	5.04	4.47	-

Table 5d Dating the site master chronologies. Example *t*-values with a selection of site reference chronologies. – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

		t-values
Reference chronology	**Date span**	**DMCC-T9**
Derbyshire The Keep/Little Castle Bolsover Castle (Arnold *et al* 2003)	AD1532-1749	4.29
Derbyshire Riding School Bolsover Castle T29 (Howard *et al* forthcoming)	AD1494-1744	4.83
Derbyshire Bretby Hall Bretby T30 (Howard *et al* 1999)	AD1494-1805	3.52
Derbyshire Kent House Ridgeway T8 (Groves and Hillam 1990)	AD1431-1646	4.53
Staffordshire Sinai Park nr Burton T22 (Tyers 1997)	AD1227-1750	4.88
Herefordshire Pembridge bell tower C T16 (Tyers 1999)	AD1559-1668	4.25
Cheshire Hulme Hall Allostock (Arnold *et al* 2003)	AD1574-1689	7.39
GtrManchester-Stockport 30-31 Market Place (Howard *et al* 2003)	AD1489-1656	3.68
Cornwall Goldophin House Godolphin Cross T15 made CG 14/03/2003 Groves pers comm	AD1376-1620	3.79
Gloucestershire 66 Westgate St Gloucester floorboards (Tyers and Wilson 2000)	AD1464-1602	4.76
Gloucestershire Old Hat Shop Tewkesbury T5lat (Nayling 2000)	AD1484-1664	3.52
Devon Lower Coombe Farmhouse Bradninch (Miles *et al* 2003)	AD1548-1624	6.39
Devon Exeter Quay T4 415 416 451 452 (Mills 1988)	AD1407-1606	3.10
Wales Anglesey Hafoty Llansadwen 2 T2 (Hillam and Groves 1992)	AD1568-1708	4.30

Table 6 Matrix showing the *t*-values obtained between the dated site master chronologies from Devon phase 1. Note that the chronology from Chaffcombe, Down St Mary (DMCC-T9) does not overlap sufficiently with any of the other site master chronologies produced in this phase of the project; – indicates *t*-values less than 3.00; \ - indicates overlap of less than 30 years

	CBOR 04	CBOR-T6	BCCW 0607	MBRU-T11	CLTH-T8	LFBB-T16	MLYB-T4	NRCV-T11	CRLC-T2	KNWH 0304	KNBH-T9	SFPF-T4B	CRLC-T5	SPEC-T3	SFIC-T6	DMCC-T9
BCCW01	\	4.63	\	6.21	4.61	6.27	\	\	\	\	\	\	\	\	\	\
CBOR04		-	-	4.45	6.32	4.42	\	\	\	\	\	\	\	\	\	\
CBOR-T6			3.56	5.42	6.61	6.85	\	\	\	\	\	\	\	\	\	\
BCCW0607				3.74	4.36	3.47	\	\	\	\	\	\	\	\	\	\
MBRU-T11					9.61	13.81	-	\	\	\	\	\	\	\	\	\
CLTH-T8						11.23	-	\	\	\	\	\	\	\	\	\
LFBB-T16							-	\	\	\	\	\	\	\	\	\
MLYB-T4								5.94	3.21	\	\	\	\	\	\	\
NRCV-T11									4.26	\	\	\	\	\	\	\
CRLC-T2										-	-	-	\	\	\	\
KNWH0304											8.90	7.53	4.20	-	\	\
KNBH-T9												6.46	5.41	3.07	\	\
SFPF-T4B													5.85	4.47	-	\
CRLC-T5														5.14	3.02	\
SPEC-T3															-	\
SFIC-T6																\