



Northamptonshire Archaeology

Heritage Asset Survey: archaeological building recording and desk-based assessment of Armada House, Weston, Northamptonshire



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**Northamptonshire
County Council**

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(preliminary issue)

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		
Project name	Armada House, Weston, Northamptonshire	
Short description	Heritage Asset Survey after the house was seriously damaged by fire. Preliminary report before restoration begins	
Project type	Building recording, analysis with DBA	
Site status	Grade II Listed	
Previous work	None	
Current Land use	Private house	
Future work	Watching brief, tree-ring dating, documentary research report reissue	
Monument type/ period	Medieval/post medieval manor house	
Significant finds	None	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Armada House, Weston, South Northamptonshire	
Study area	1500 sq m	
OS Easting & Northing		
Height OD		
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	Roger Coy Partnership	
Project Design originator	Northamptonshire Archaeology	
Director/Supervisor		
Project Manager	Iain Soden	
Sponsor or funding body	Insurers acting on behalf of Mr Bryan Wilson	
PROJECT DATE		
Start date	25 January 2012	
End date		
ARCHIVES	Location (Accession no.)	Content (eg pottery, animal bone etc)
Physical		
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**HERITAGE ASSET SURVEY:
ARCHAEOLOGICAL BUILDING RECORDING AND DESK-BASED ASSESSMENT
OF ARMADA HOUSE, WESTON, NORTHAMPTONSHIRE
PRELIMINARY REPORT - MARCH 2012**

Abstract

Armada House, Weston, is reputed to be a 16th-century manor house with 17th-century and later alterations. A north range has been severely damaged by fire, a south fire-damaged and affected to a lesser degree. A pair of apparently medieval cruck-blades stand in the south range, indicating a potentially earlier origin, while that same range appears to have been re-fronted in its present form.

From the second quarter of the 20th century the house was owned by the noted literary figure Sir Sachaverell Sitwell, and his wife Georgia, one of whose principal family homes was the nearby Weston Hall.

There is disparate cartographic, documentary and photographic record for the house. A programme of further work has been scoped for watching brief attendance and thereafter production of an expansion of this report to provide an appropriate Heritage Asset Survey, leading to long-term management data on this notable building.

1 INTRODUCTION

- 1.1 Armada House, also known as Weston Manor House, is a Grade II Listed Building which was severely damaged by fire in 2011. It lies at the eastern end of the hamlet of Weston, in the parish of Weedon Lois, South Northamptonshire (NGR: SP 9163 6819; Fig 1).
- 1.2 The bedrock geology of the area is mapped as Jurassic Limestone of the Upper Estuarine Series, now known as Taynton Limestone (British Geological Survey, Sheet 202: Towcester; cf Sutherland 2003).
- 1.3 The house has enjoyed statutory Grade II listing since 1951, which describes it (externally) thus:

Weston

4/211 Armada House

GVII

House, former Manor House. Late C16. Coursed limestone rubble, ironstone dressings, old tile roof, stone and rendered stacks. L-plan. Projecting gabled bay to left of 2 storeys, 4 bays to right, of one storey and attic. Entrance in second bay from left has wood lintel and plank door. 4-light window to left with stone mullions and transoms and wide moulded entablature. Weathered stone tablet in moulded frame above, noted as having been inscribed with the date 1588. Three-light stone mullioned and transomed windows with square hood to right of doorway. 2-light casement window with stone lintel in second bay from right. light stone mullioned window with square hood in right bay. 3-light stone mullioned and transomed window in left bay on first floor. 2-light casement windows with wood lintel above entrance. 3 half dormers to right have coped gables with kneelers and stone mullioned windows with square hoods, centre window 2-lights, flanking windows 3-lights. Coped right gable end with kneelers.

Massive stack on left side, second stack between second and third bays from left. Wing projecting from right side at rear. C16/C17. Similar materials, 2 storeys, one bay. 2-light stone mullioned window on ground floor and 2-light casement window with wood lintel above. Coped gable end with kneelers. Interior not inspected but noted as having original stone fireplaces and moulded beams. (Kathleen Lewis "Weedon St. Loys: Priory and Parish" 1970 reprint, Smart & Co (Printer) Brackley; *Buildings of England: Northamptonshire*).

The house is noted by Sir Nikolaus Pevsner (Pevsner and Cherry 1990, 458), and by Gotch (1936), but in both entries, less is noted than the listing description.

2 OBJECTIVES AND METHODOLOGY

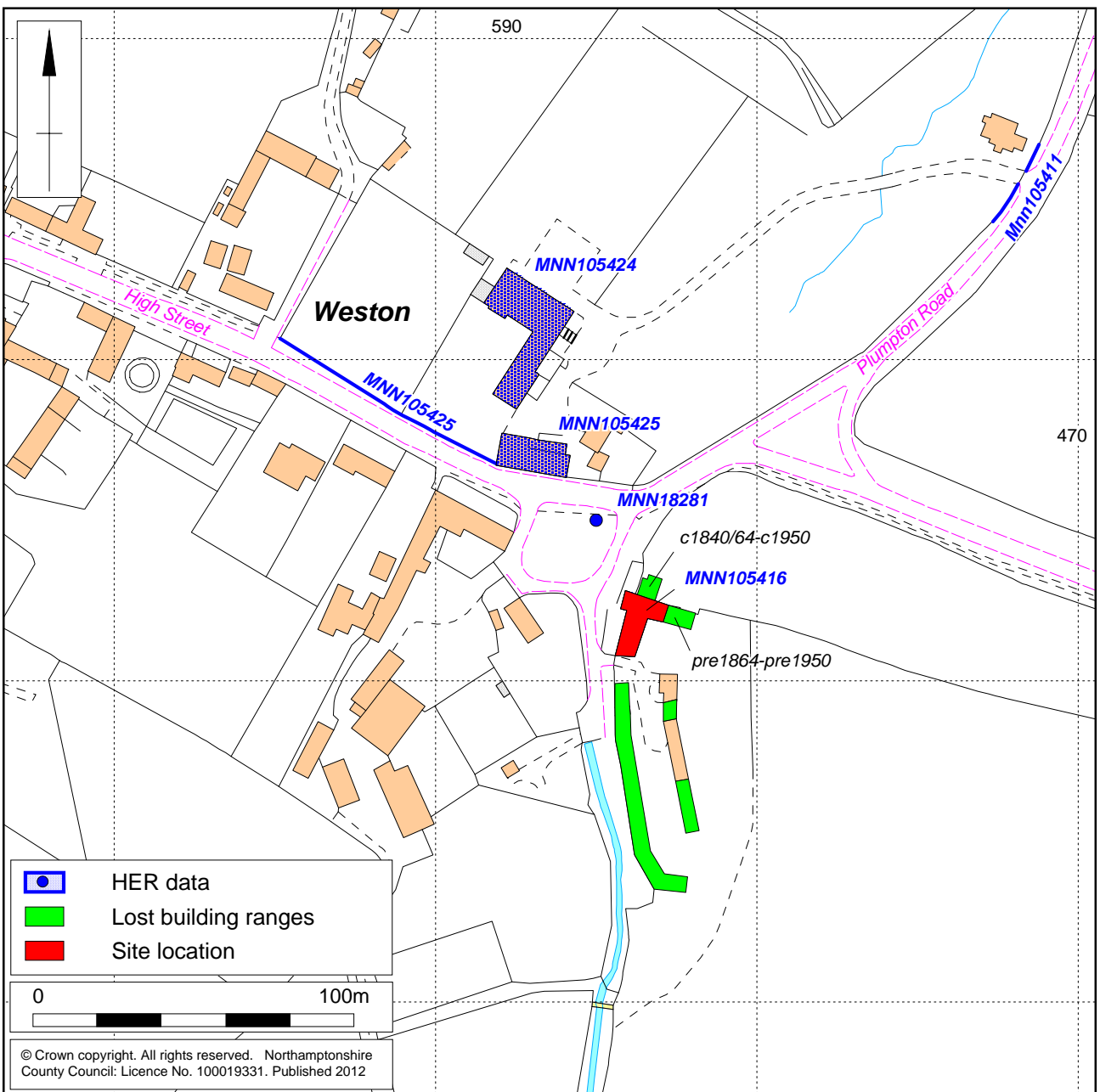
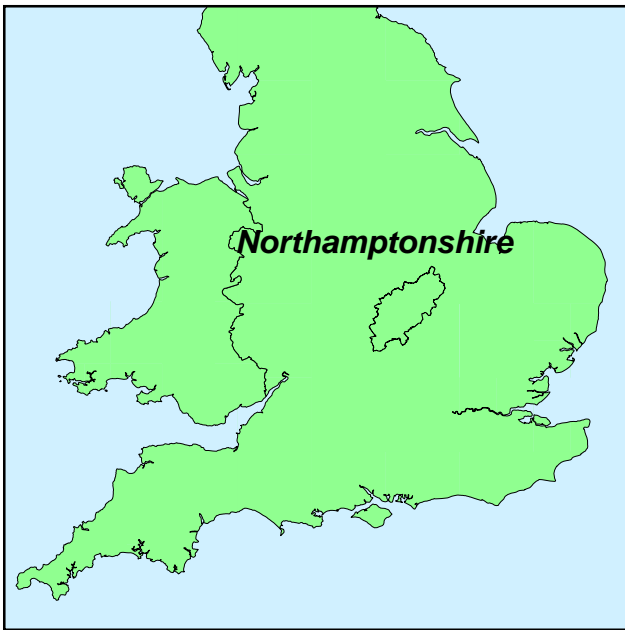
2.1 The general objectives of the recording are to:

- Establish an accurate archaeological record of the building to English Heritage Level II or Level III (EH 2006, section 5), by means of annotated phase plans and sections illustrating vertical relationships through the building. Drawings used are those verified surveys by Roger Coy Partnership;
- Undertake a comprehensive photographic survey of the building in its present, post-fire condition using digital colour and black and white negative film;
- Undertake detailed recording of significant structural features, including any architectural detailing and decoration, timber framing, graffiti, ritual marks or carpenter's marks;
- More fully appreciate the origins dating, development, former room uses, and documentary evidence for Armada House, in particular in relation to its 20th-century literary association with Sir Sachaverell Sitwell.

2.2 The drawn record is based upon the architect's plans. The accuracy of the plans was checked and they have been annotated and amended to produce an accurate record of the building in its current state.

2.3 All works were conducted in accordance with the English Heritage procedural document, *The Management of Research Projects on the Historic Environment* (EH 2006b, revised 2009) and the Institute for Archaeologists *Standard and Guidance for the archaeological investigation and recording of standing buildings or structures* (IfA revised 2008).

2.4 This preliminary report is intended to demonstrate that works are begun and well under way at the time of Listed Building Consent application for the repair and conservation of the building. Research is time-consuming and numerous third parties are involved throughout. This iterative report will be added to and will be reissued at the end of the project with the entire contributory specialist data added. It is to be noted that the data gathered and presented is and will be weighted towards those elements of the building which have been most damaged by the fire, and therefore require the most intensive and extensive rebuilding. The less damage, the less intensive and intrusive is the scrutiny.



Scale 1:2000

Site location Fig 1

- 2.5 The current choice of illustrations in this report is also a preliminary one from the initial recording. During reinstatement and rebuilding further records will be made which will facilitate the choice of a wider selection of interpretative material for the final report issue.

3 HISTORICAL BACKGROUND AND DOCUMENTARY RESOURCE

by Charlotte Walker

3.1 Historical background

A small priory was established in Weedon in the early 12th century as a cell of the Benedictine Abbey of St Lucien of Oise in France. The priory was neither large nor prosperous and in 1392 it was sold to the Cistercian Abbey of Biddlesden in Buckinghamshire (RCHME 1982). The priory was, along with four other alien priories, granted to Henry Chichele, Archbishop of Canterbury in the mid 15th century as an endowment of All Souls College.

Through the endowment, All Souls College were the lords of the manor, but during the 16th and 17th centuries there appears to have been some dispute as to whether Weston formed a separate manor to Weedon Lois. In 1542 Sir Edmund Peckham had license to assign the manor and rectory to himself for life. In 1567 George Lovett died in possession of the same manor, with his sixteen year old son, Pinchpole Lovett named as heir (Baker 1830). It is possible that it was Pinchpole Lovett who built/extended the old manor house. The house is first shown in the 1593 All Souls College map, where it is depicted as a single range aligned along the road. A further range shown to the south may be barns.

In 1618, depositions were taken regarding whether there were two manors in the parish. One in the tenure of Ralph Cobbett and lying in Weston and the other in the tenure of All Souls College Oxford and lying in Weedon Pinkney (National Archives ref: E134/16Jas1/Mich25). In his will, dated 9th May 1620, Ralph Cobbett left his *manor, mansion house, or capital messuage with appurtenances....situate in Weston, and all the lands, tenements etc in Weedon and Weston aforesaid latelie purchased of one Thomas Betham and Richard Betham his son*. The mansion house is likely to have been Armada House.



Weston Manor House by George Clarke, mid 19th century Fig 2

The Cobbett's (Ralph's wife and his brother) had sold all their interests in 1631, to Thomas Hiccocke. It is thought that Weston Hall was built by the Hiccocke family on the land purchased by Cobbett from the Betham's in 1616, at some time between 1680 and 1690.

Sir John Blencowe, a judge, leased it in 1715 and later bought for his daughter Susanna Jennens. From that time onwards, Weston Hall passed through seven female heirs until it came to Sir George Reresby Sitwell in the early 20th century.

It is not currently known how long Armada House had formed part of the Weston Hall estate, but it is conceivable that it was part of the estate from the Cobbetts onwards. Certainly, in a 1737 version of Susanna Jennens will, she mentions her *messuage or tenement att Weston aforesaid wherein I now live....And also all and singular my lands, tenements and hereditaments situate and being in the said Town and parish of Weston* suggests the existence of an estate.

The house was certainly used as a farmhouse by the mid-19th century and probably long before. The trade directories note the *Manor House* as being 'occupied by', suggesting it was tenanted, rather than owned by the people who lived there. Joseph Hinton, a farmer, probably occupied the house from at least 1869, although the house is not specifically mentioned until 1885.

By 1910, the *Manor House* was occupied by Richard Wilson, farmer. In 1911, the hall passed to Mrs Thomas, although Wilson retained the tenancy of the *Manor House*. In 1914, Wilson and Sons are listed for the *Manor House*.

By 1924, the hall had become the property of Sir George Reresby Sitwell, Wilson Brothers, farmers, were still the tenants of the *Manor House*.



Sacherevell and Georgia outside Armada House, c 1925 Fig 3

In 1936, Gotch describes the house thus:

This is a charming example of a small house, built according to the good traditions of the times and in the good material of the district, without any particular desire for grandeur. It derived its name from the date of its erection, 1588, the year of the attempted invasion by the Spanish Armada. The date-stone, which is just over the ground window of the large gable, used to show the date plainly, but in recent years the face of the stone has suffered from the weather and the figures have disappeared. The date of 1588 applies to the taller part in which it occurs, the lower wing to the right is some 20-30 years later and is more plainly treated especially in the interior. In the earlier portion which comprises little more than two rooms on each floor, there is an

interesting original chimney piece, or fire-place, in each room; the ceiling beams are well moulded, and the front room downstairs has a moulded door frame with a flat pointed head, all indicating that the house was one of little pretension.



Armada House in c1936 Fig 4

By 1940, when Weston Hall had passed to Sacheverell Sitwell, the Manor House and Lovells Farms both seem to be tenanted by Thomas Mawle.

For most of the later 20th century Armada House has either been leased or owned by Mr and Mrs Wilson, the present owners.

3.2 Historic Environment Record

The Northamptonshire Historic Environment Record (HER) was consulted for documented sites and monuments within the proposed development area and a nominal 250m radius surrounding it (Table 1 and Fig 1). Some of the records have been omitted for clarity; most of these comprise other unrelated Listed Building within the village.

3.3 Documentary resource

The documentary record relating to Armada House is thought to be intimately tied to the record relating to Weston Hall. Since the hall passed through so many generations of female heirs the archive has been somewhat dispersed, especially because Weston never seemed to have been the principal residence.

Northampton Record Office has recently acquired the archive of the Sitwell family, which contains documents relating to all the families who have owned the property since the time of Susanna Jennans. However, there are over 50 boxes of material, mostly letters, of which only ten have been catalogued and these only very briefly. In short the time required to sift through the material may not repay the results.

Material relating to the estate of Mary Barnardiston (owner of Weston Hall from 1773-1788) is held in Lincolnshire Archives and papers relating to Mrs Wrightson (owner 1809-1820) are held in Doncaster Archives. Documents relating to the Trustees of Miss Alexandra Sitwell regarding the Weston Estate are held in Derbyshire Record Office.

Table1: Historic Environment Record data

HER No	NGR: SP	Details of results
272	5898 4696	Weston shrunken village. There are indications that the main street once forked at each end. The village may have had a much neater layout than today (not illustrated)
272/1	5915 4685	Small green at south-east of High Street, Weston. Small green at the south-east of the main street through the village
272/0/3	590 470	Medieval closes. On the north side of the main street the existing closes form a regular pattern which, though now disrupted by the gardens of Weston Hall to the east, are shown as continuous on the 1593 map (not illustrated)
272/3/3	59277 46948	Gatepiers, gate and walls at north entrance to Weston Hall. Listed building no 4/236
272/0/21	59164 46818	Armada House, High Street. Listed building no 4/211
272/3/1	59129 46907	Weston Hall. Listed building no 4/202
272/3/2	59097 46885	Wall, stables, gates and gatepiers at entrance to Weston Hall. Listed building no 4/203
6544	59 47	Open field system, Weston and Weedon. The common fields of Weston and Weedon were enclosed by Act of Parliament of 1771. No details are known of the earlier field arrangements, but a map of 1593 depicts the strips and furlongs which then covered most of the parish. The recoverable pattern of ridge and furrow fits the strips and furlongs shown on the map exactly and indicates that the strips themselves were made of varying numbers of ridges. The map also shows that there were extensive areas of old enclosures, especially in the south-east corner of the parish and implies that the land to the north-west of Weston village was enclosed at that time. However, normal common-field ridge and furrow exists in both places. Ridge and furrow of these fields exists on the ground or can be traced on air photographs over most of the old parish of Weston and Weedon and except for a small area south of Millthorpe the pattern is virtually complete. It is arranged in end-on or interlocked furlongs; in some places there are continuous blocks of end-on furlongs running down the gentle slopes. Large areas still survive in permanent pasture, especially north-east of Weedon on either side of the road to Plumpton. A road marked on the 1593 map as <i>The Way from Helmdon</i> is still traceable as a broad open track running north-west from near the south-east boundary towards Moreton Pinkney (not illustrated)



4 BUILDING ASSESSMENT

4.1 Overview

Armada House in its present form comprises two wings set at right angles to each other. The principal facade is that which faces west, maximising the afternoon and the last of the evening light. The individual ranges are described below (Fig 5). The house is built largely of stone from the local Jurassic Taynton Limestone formation, available locally at Helmdon (although it outcrops at Weston too) with occasional blocks or patches of Northampton Sand with Ironstone, probably from slightly further afield, perhaps Culworth where both were formerly quarried together (Sutherland 2003, 92-5). The windows are also turned in the latter stone. Some brick has been used in alterations, while timber-framing at the western half is relatively intact to first floor level, although the roof is largely burnt out. The roof covering, where it survived the fire of 2011, is of clay peg tiles.

The north range, which is east to west-aligned, has as its principal facade its west-facing gable. It is unequally divided into two parts, but this is not the only former subdivision, as map evidence shows the range in 1864 extended further east, by half as much again. In addition it had a small ancillary range set at right angles further north, which is shown in maps and photographs between 1864 and 1936. Its absence from c1840 (in a drawing by the county artist George Clarke; Fig 2) suggests it was built c1840-64), although artistic license cannot be ruled out. The north range is of two storeys, ground and first floor. The 1864 map also shows the extensive array of barns which once lined the plot to the south of Armada House (see Fig 1).

The south range, north to south-aligned, faces principally west. It comprises a ground floor with a dormered first floor. It is built of similar stone to the north range and is mostly intact, although smoke-blackened over some of the interior and with some damage within the roof.

Potentially the most notable and far-reaching structural aspect of the south range is that its two of the three bays of building are divided internally by a massive pair of full-height cruck blades, fire-affected at the apex. They are visible at various points throughout the height of the house (Fig 6).

Their date is currently unknown but it is unlikely that such crucks, whether new or re-used from elsewhere, would have been put into a house of Manorial status as late as the late sixteenth century, when the construction method was old and largely relegated down the social scale. The western facing wall has been moved outwards, away from the crucks, probably in the seventeenth century. Understanding these exceptionally rare cruck blades is a key to dating the house's origins.



Cruck blade in south range (seen in Room F7) Fig 6

All of the gables in both ranges have kneelers in Northampton Sand with Ironstone, fashioned with the same basic shape and all equally crisp, suggesting a relatively recent alteration or renewal as a suite.

It is also to be noted that the window heads and jambs in the first floor rooms of the south range, are fashioned to fit with lozenge-section mullions. In each case the actual mullions are of cavetto form. It is highly likely therefore that these are windows cobbled together from disparate parts, moved from elsewhere. The fenestration of the range has seen considerable alteration.

4.2 The north range

4.2.1 The north elevation

This face of the building is plain but for the presence of a small window on each of the floors, one not quite directly above the other. Their locations are such that they most likely mark the angle of the north range and the lost northern ancillary buildings of the 19th- to 20th-centuries. The example on the ground floor is stone mullioned, of two lights, and has one reveal of brick, suggesting it is either inserted or at least altered. This would have lit the space beneath the inserted stairs. The one on the first floor, was timber casement, but again with one reveal in brick, suggesting insertion or alteration. This would have lit the top of the inserted stair.

A wide chimney stack projects north from the range at its western end. This is divided into two to take the ground and first floor chimney flues. In the c1840 drawing by George Clarke, only one stack and one chimney pot existed. This suggests that either the two

fireplaces vented into the same chimney, or that the upper room fireplace (F1) was inserted after c1840. Inspection of the two conjoined chimneys strongly indicates that the more westerly is indeed a later construction, and has involved much re-mortaring of walling stone in the projecting chimney breast below eaves level.

The wall-plate along the top of the north wall has been partly replaced and although the roof which related to this has gone totally, the smooth wall-top setting for the rafters is screeded in cement mortar, strongly suggesting that the roof over the eastern portion was fully reconfigured well into the 20th century.

In the eastern portion of this roof an early timber wall-plate sequence does survive, although scorched, and this would benefit from cleaning and recording during watching brief. It is a candidate for tree-ring dating.

4.2.2 The west gable

This is the principal face of this range and survives almost intact (Fig 7). The datestone at the top of the ground floor, purported to once have borne the date 1588, has long since been defaced irretrievably by frost.

The ground floor window of eight lights is mullioned and transomed and has a wide moulded entablature, just as the listing description. The upper storey window is of six lights with a drip moulding above. Both window forms include cavetto mouldings throughout.



North range, west gable Fig 7

The gable is surmounted by a continuous parapet, which in c1840 seems to have been topped with a stone finial, to judge by George Clarke's antiquarian drawing. This had gone by the time the same gable was photographed c1925. Close inspection shows that its stump remains, although it is unclear as to its original form.

The east gable has been all but lost in the collapse after the fire, so is not a matter for analysis.

4.2.3 The south elevation

The eastern portion of the south elevation has been lost to the fire. The western portion is mostly within the linking building which separates the ranges and as such bears internal plaster. Removal of the plaster would facilitate further scrutiny. The ground floor incorporates two badly burned timber doorways, both with moulded jambs and four-centred arched door-heads with sunk spandrels, a style usually commensurate with the fifteenth and sixteenth centuries. Each door led into one of the two downstairs rooms.

4.2.4 The ground floor interiors

Room G1 measures approximately 5m east-west x 4m north-south. The floor is of wide hardwood timber boards on joists. There may be an earlier solid floor beneath. The north wall contains a fireplace with a very large and ornate late sixteenth-century stone surround with renaissance classical detailing (Fig 8). The east wall contains a nearly full-height cupboard, where a doorway once stood. The south wall is plain but for the four-centred arched doorway. The ceiling is coffered into four by a cross of moulded and well-scribed oak beams all round. The joists between are large and cumbersome, covering 50% of the area of the floor above, with only small gaps between. This excessive use of massive moulded timbering with small gaps suggests a late medieval or 16th century date but not necessarily as late as 1588.



Room G1, fireplace

Fig 8

Room G2, measuring 7m east-west x 4m north-south, barely survived the fire. Of a former room above, even less survived. The north wall and the remains of the east and south walls have been stripped of their plaster and, while some detailing may be possible to retrieve something of their development during the watching brief. The solid floor of the room will probably be taken up in the post-fire reordering and a watching brief should retrieve any earlier floor sequence.

In the north-east corner of the room stands an inserted brick structure of unknown function. It would repay scrutiny during reordering but if it is to be retained without any dismantling, its function is unlikely to be identified. A fireplace at the foot of the east wall may be the seat of the 2011 fire. The c1840 George Clarke drawing (Fig 2) shows that this wall once sported at least three conjoined chimneys at the midpoint of the east gable, suggesting at least one fireplace serving the now lost portion of the range which extended further east. The vestiges of a small window in this gable might repay closer scrutiny since they might suggest that they are a reduced connecting doorway to that lost part of the range.

The west wall of the room, dividing it from G1, is stone-built but its middle portion comprises the 19th-century brick infill of a blocked doorway. This was replaced on the far side by a tall cupboard, but here in G2 a narrow stair was built up against it, evidence of a major reordering (Fig 9). The stairs in the range formerly stood up against this wall, but these cannot have been the original stair as the brick appears to be of 19th century date.



Room G2 (and F2), west wall and roof truss

Fig 9

4.2.5 The first floor interior.

Room F1 measures approximately 5m east-west x 4m north-south. Its east wall divides it from the eastern portion of the range and is timber-framed. It comprises a carrier beam at floor level, part of the ceiling assembly in room G1. Into the top of this are slotted the waney-edged uprights of the studding which project up to the tie beam of the roof truss.

The north wall retains half of its plaster, which is featureless. The western half contains a large carved stone fireplace of seventeenth-century form, having a moulded four-centred arched head, plain overmantel, moulded mantelshelf and pumpkin stops. The pattern of plaster survival around it indicates that this is an inserted fireplace, moved from elsewhere, confirming the western chimney as the later, added one, some time after c1840 (Fig 10).



Room F1, north wall: fireplace

Fig 10

The south wall contains a doorway into the floorless linking building (see below). The wall has otherwise lost all its plaster to the fire and most of its bonding mortar to fire-hoses.

The west wall contains the west gable window. However, inspection of the wall clearly shows that the current window is not the original one, although it has been there since before c1840. The wall bears the vertical marks of a former splayed reveal on both sides, showing that the room once mounted an even bigger window facing west, possibly of a size similar to the room below (Fig 11).



Room F1, west wall: evidence of former window Fig 11

4.2.6 The roof

The roof of the north range survived the fire only in part. The truss which divides Room F1 from the eastern portion of the range comprises tie beam, collar and principals, the spaces filled with hand-riven lath and plaster (Fig 9). A truss at the mid-point of Room F1 is only partial, but is founded upon a wall-fast corbel. The trusses are pegged to the purlins by curved wind-braces. The wall plate appears to be in two parts, but fuller recording will be possible when the restoration begins. Few common rafters survive. The former roof covering was pegged clay tiles.

4.3 The linking building

4.3.1 The ground floor

This entrance passageway is very badly fire-affected and no full interpretation is possible until the plaster is fully stripped off. The entrance formed a passageway exiting at the back of the building, and measuring approximately 5.5m x 1.5m (G9). Of note at this stage is a butt joint of stonework where the adjoining chimney breast and the west wall of the south range meet. The two are clearly of different phases, and this is felt to relate to the rebuilding of the west wall, for which there is considerable evidence (see below).

4.3.2 The first floor

This former bathroom, measuring approximately 3.5m x 1.5m, has been destroyed by the fire (F2). It is currently inaccessible. No interpretation is possible until access is gained and the plaster stripped off. To the rear is a plain access or ante-room approximately 1.5m square, linking through to the south range (F3). It has no outstanding detail and retains its plaster. Its window is a fine 17th- or 18th-century three-light timber casement with an opening centre light, set with iron frames with a typical turnbuckle catch and moveable leaded panels.

4.4 The south range

4.4.1 The west, principal elevation (Front cover photo)

The west front of the south range is regular but asymmetrical, partly due to former alterations carried out and subtle differences in the windows. In all three dormers there is a reliance on Northampton Sand with Ironstone to form the quoins, not seen anywhere else in the building, suggesting the dormers are all added to the roof, probably at one time. Subtle differences in the geology of the windows, suggests two basic periods of fenestration.

The face is dominated by three tall gabled dormers, one in each of the range's three bays. The central gable is smaller than the flanking ones and surmounts two storeys of small, one or two-light windows. The single light window on the ground floor is a replacement between c1840 and 1925 for what seems to have been a traceried two-light window of late medieval form. A vertical butt-joint in the wall shows that there was an earlier window taken out, or at least a slightly different reveal to some kind of opening.

The northernmost gabled bay contains two windows, a three light mullioned example in the dormer, with a six-light mullioned and transomed example on the ground floor. This is set at a higher level than the other ground floor windows and is in a lighter version of the Northampton Sand with Ironstone, in keeping only with the gable-mounted windows of the north range. Its counterparts across this west-facing facade are all of a uniformly darker stone. While these are basically simply different horizons from the same geological beds, they probably do indicate a different date of fenestration. Notably the drip-moulding of this same window is in the darker stone.

The southernmost gabled bay has a similar window arrangement to the northern one, but for its windows being both three-light mullioned examples and their being set at greater distances apart. The drip moulding of the lower window has been re-set, its form broken by the process.

4.4.2 The east, rear elevation (Rear cover photo)

This east elevation, in contrast to the west, is plain, minimally provided with much smaller windows and workaday in its aspect. It has had some re-pointing done in the recent past so the stonework bears little sign of any alterations. A simple central doorway enters a hall lit by a two-light timber casement window to the north. At the north end of the elevation is another small two-light timber casement, with a small gabled dormer above, fire-damaged. At the south end stands a similar arrangement, but with a bigger dormer, the gable of which is formed in brick of the 19th century. By contrast with the front stone-fenestrated elevation, all the windows facing east are simple timber casements.

4.4.3 The south gable

This is a plain and apparently featureless gable. It seems to contain nothing of note, at least which is visible without full raking out the mortar.

4.4.4 The ground floor interiors

Room G4 is a kitchen, and probably has been throughout, served by a single chimney flue in the north gable. It measures 5m x 3m and is dominated by a massive fireplace

with a huge timber bressumer with chamfered underside (Fig 12). The room has a quarry-tile floor, while the ceiling comprises a stop-chamfered axial carrier beam with chamfered joists (meant to be seen originally), lost examples revealing housed diminished shoulders in mortices in the carrier beam, suggesting an 18th century (or possibly late 17th century) date.



Room G4: kitchen fireplace Fig 12



Room G4: moved west wall evidence Fig 13

The trimmer joist along the west side of the ceiling (carrying the joist-ends) rests clear of the west wall completely, at a point where the west wall has clearly been moved outwards or thinned considerably from the interior. A notable crack in both the north and south walls at this point confirms this (Fig 13). The window placed there now relates poorly to the levels, its upper portion level with the ceiling.

The south wall is dominated by one of two cruck blades which rises through the building on its east side, seated now on a short brick pier (Fig 14). The other example remains hidden behind plaster at this level.



Room G4, cruck blade rising through G4 and G9 Fig 14

Room G5 is an entrance lobby accessed by the back door in the east elevation. Measuring approximately 2.5 x 3.5m, it has a door through to G6 to the west and stairs rise to the first floor. It is divided from G6 along the axis of the building, the partition lying under the axial ceiling beam.

Room G6 is a plain room measuring 2.5m x 3.5m, with a stone-flagged floor. Its south wall is of inexpert box-framing with brick nogging.

Room G7 is another plain room but for the blocking of an apparent opening in the south wall (the external gable). It measures 3.5m x 2.5m. This had once been edged and subsequently partly blocked in brick. No sign of this has been noted on the gable exterior. The west wall dividing it from G8 is of inserted brick.

Room G8 is relatively plain, having most recently been a bathroom, measuring approximately 3.5 x 2.5m. The axial beam aligned north-south has a run-out chamfer

stop. In none of the rooms G5-G8 are the joists chamfered. These rooms were hardly fire-damaged.

4.4.6 The first floor interiors

Room F3 is the stair leading up from G5. The wall to the left is timber-framed while to the right stands a panelled partition. At the top of the stairs is a cupboard made of reused panelling, some of it probably 17th century and decorated with a row of lunettes above. This is probably moved from elsewhere, possibly not even originating in this house.

Leading south off the stair is F5, the largest bedroom at 5.5m x 4m approximate dimensions. Its distinguishing feature is the visible roof truss which frames the north wall of the room. The principals are unevenly set across the interior wall, indicative once more perhaps of the major alteration believed to have been made to the front, west wall. These form a counterpart to the pair of cruck blades further north and suggest the framing of these two bays has been rebuilt (assuming it is later than the cruck-construction – to be confirmed). The west-facing stone window elements of this room are mis-matched, indicating reuse.

Off the north east corner of F5 is room F7. This is an entirely modern construct of 2m x 2m plan, to create an en suite bathroom. No historic features are visible.

Room F6 is a small room leading off the top of the stairs, measuring 3.5m x 2.5m. At its north-west corner is the blade of the cruck construction within the north wall. Above the tie-beam connecting the cruck blades is a substantial panel of *in situ* lath and daub. The window elements facing west are mis-matched, indicating reuse.

In a north-south line adjacent to the cruck blade, it is clear that the floorboards have also been replaced and run at right-angles to the main transverse trend. Across this line the floor level steps up into Room F8 above the kitchen G4.

Room F8 measures 3.5m x 3m. In its north wall can be seen the stone chimney breast rising from below. This was once stepped in and corbelled as it rose. The shelf this created has been filled in with brick, as has the gap to the west where the west wall has clearly been moved out (Fig 15). Again a change on the floorboards confirms this.

Room F9, east of F8, does not currently exist, its floor having been lost to the fire. From the plan it measures approximately 4m x 2m. Insertion of a new floor will facilitate assessment, which will give direct access to the eastern cruck-blade at first floor level.

4.4.7 The roof of the south range is not currently accessible. The cruck blades remain the most notable aspect of what can be seen from below. Some access to the roof space may be facilitated by the restoration works.



Room F8: moved west wall evidence Fig 15

5 TREE RING DATING

To be added, including sampling by Dr Robert Howard, Nottingham Tree ring Laboratory. A suite of 18 core samples was taken on 8 March and is now being processed.



Dendrochronology, timber analysis, and historic building consultants



**ARMADA HOUSE,
HIGH STREET,
WESTON,
NEAR TOWCESTER,
NORTHAMPTONSHIRE;
TREE-RING ANALYSIS OF TIMBERS**

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APRIL 2012

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TREE-RING ANALYSIS OF TIMBERS**

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SUMMARY

Analysis by dendrochronology of 10 of the 18 samples obtained from Armada House (eight samples being unsuitable for tree-ring dating), has resulted in the production of three site chronologies.

The first site chronology, WSTASQ01, comprising four samples from the ground-floor ceiling of the north range, is 90 rings long, these rings dated as spanning the years 1386–1475. Interpretation of the sapwood on these samples would indicate that the timbers were probably all cut in a single episode of felling at some point between 1487 and 1512.

The second site chronology, WSTASQ02, also comprises four samples, a pair from an axial ceiling beam and the fireplace bressumer in the kitchen in the south range, and a pair from two fallen, ex-situ, rafters, originally from the roof of the north range. Interpretation of the sapwood on these samples indicate that the kitchen timbers were probably both cut in a single episode of felling at some point between 1566 and 1591, while both the rafters were again probably cut together at some point between 1592 and 1617.

The third site chronology, WSTASQ03, comprises two samples from the principal rafter truss at the southern end of the south range. Both timbers were probably cut at the same time as each other in 1640.

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Introduction

Armada House, believed to be so called because of a now much degraded and virtually illegible date stone of 1588 (the date of the Spanish Armada) to a gable wall, also known as Weston Manor House, is a Grade II Listed Building which is believed to be of sixteenth-century date with seventeenth-century and later alterations. The house lies at the eastern end of the hamlet of Weston, in the parish of Weedon Lois, South Northamptonshire (SP 591 468, Figs 1a/b). It was severely damaged by fire in 2011.

In its present form the house comprises two ranges set at right angles to each other, the principal facades of which both face west (see plans Figs 2a/b). The north range, of two storeys aligned east–west, is unequally divided into two parts, and, as map evidence of 1864 shows, once extended further east by half as much again. The roof of the north range survived the fire only in part, with the truss which divides Room F1 from the eastern portion of the range comprising a tie beam, collar and principal rafters (Fig 3a). Other more severely damaged roof timbers from the north range have been removed but have been stored on-site (Fig 3b)

The ceiling of the main ground-floor room to this north range is coffered into four by a cross of moulded and well-scribed oak beams. The joists of the ceiling are large and cumbersome, with only small gaps between (Fig 3c). This excessive use of massive moulded timbering with small gaps suggests a late medieval or sixteenth century date but not necessarily as late as 1588.

The north–south aligned south range comprises a ground floor with a dormered first floor above. It is built of similar stone to the north range and is mostly intact, although smoke-blackened over some of the interior, and with some fire damage within the roof. The most notable structural aspect here is that two of the three bays of building are divided internally by a massive pair of full-height cruck blades (Fig 3d/e). The date of this truss is unknown but it is unlikely that such crucks, whether new or re-used from elsewhere, would have been put into a house of Manorial status as late as the late sixteenth century, when the construction method was old and largely relegated down the social scale. The presence of such a truss may indicate a potentially earlier than expected origin, for this part of the building at least.

The southern bay of the roof of the south range also contains a principal rafter with collar truss (Fig 3f), while the ceiling of the kitchen to the ground floor is supported by a single main beam. There is also a large bresummer beam to the fireplace, this timber appearing to be primary and integral to its setting (Fig 3g).

Sampling

Sampling and analysis by tree-ring dating of the timbers within the Armada House were commissioned by the Iain Soden of Northamptonshire Archaeology. This was undertaken as part of a larger and more detailed survey and recording of the building prior to its conservation and restoration following the recent blaze (Soden 2012 forthcoming). It was hoped in particular that tree-ring dating would establish the date of both the cruck truss and the kitchen ceiling and fireplace timbers in the south range, along with the coffered ceiling and roof of the north range, thus demonstrating the possible sequential development of the

site. With the aim of fulfilling this brief, at the direction of Northamptonshire Archaeology, core samples were obtained from 18 different timbers in the building, an attempt being made to distribute the samples between different localities and the different types of beam available.

Each sample was given the code WST-A (for Weston – site 'A'), and numbered 01–18. The sampled timbers are located on plans and drawings made and provided by Northamptonshire Archaeology, these being given here as Figures 2a/b. Details of the samples are given in Table 1. These details include the timber sampled and its location, the total number of rings each sample has, and how many of these, if any, are sapwood rings. The individual date span of each dated sample is also given. In this Table, and on the drawings, the individual timbers have been located following the schema provided by Northamptonshire Archaeology.

Acknowledgements

The Nottingham Tree-ring Dating Laboratory would like to take this opportunity to thank Ian Soden of Northamptonshire Archaeology, for commissioning this programme of tree-ring analysis, and for not only providing valuable assistance during sampling, but for also promptly providing drawings and information and advice on the interpretation and phasing of the building, this information used extensively in the introduction above. We would also like to thank the architects for their keen interest and involvement with the sympathetic restoration of this very fine building

Tree-ring dating

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

Secondly, because the weather over a certain number of consecutive years (the statistically reliable minimum calculated as being 54 years) is unique, so too is the growth-ring pattern of the tree. The pattern of a shorter period of growth, 20, 30, or even 40 consecutive years, might conceivably be repeated two or even three times in the last one thousand years, and is considered less reliable. A short pattern might also be repeated at different time periods in different parts of the country because of differences in regional micro-climates. It is less likely, however, that such problems would occur with the pattern of a longer period of

growth, that is, anything in excess of 54 years or so. In essence, a short period of growth, anything less than 54 rings, is not reliable, and the longer the period of time under comparison the better.

Tree-ring dating relies on obtaining the growth pattern of trees from sample timbers of unknown date by measuring the width of the annual growth-rings. This is done to a tolerance of 1/100 of a millimeter. The growth patterns of these samples of unknown date are then compared with a series of reference patterns or chronologies, the date of each ring of which is known. When the growth-ring sequence of a sample 'cross-matches' repeatedly at the same date span against a series of different reference chronologies the sample can be said to be dated. The degree of cross-matching, that is the measure of similarity between sample and reference, is denoted by a 't-value'; the higher the value the greater the similarity. The greater the similarity the greater is the probability that the patterns of samples and references have been produced by growing under the same conditions *at the same time*. The statistically accepted fully reliable minimum t-value is 3.5.

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

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

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

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

Analysis of the Armada House samples

Each of the 18 samples obtained from Armada House was prepared by sanding and polishing at which time it was seen that eight samples were unsuitable for analysis. Two of these unsuitable samples, WST-A03 and A04, from the west blade and collar of a cruck truss in the main south range, were rejected by virtue of being from elm timbers, a material which, as yet, is not reliable datable by tree-ring analysis; the two samples also had low numbers of rings. The other six unsuitable samples were rejected as having fewer than the minimum of 50 rings deemed necessary for satisfactory dating. It may be noticed from Table 1 that such short samples include those from the yoke of the critical cruck truss, and two from the wall plates of the north range. The widths of the annual growth rings of the remaining 10 samples were, however, measured, and the data of these measurements then compared with each other as described in the notes above. By this process three separate groups of cross-matching samples could be formed.

Site chronology WSTASQ01

The first group comprises four samples, all of them from the coffered ground-floor ceiling of the north range, these samples cross-matching with each other at the relative positions shown in the bar diagram Figure 4. The four cross-matching samples were combined at their indicated off-set positions to form WSTASQ01, a site chronology with an overall length of 90 rings long. This site chronology was then satisfactorily dated by repeated and consistent comparison with a large number of relevant reference chronologies for oak as spanning the years 1386 to 1475. The evidence for this dating is given in the *t*-values of Table 2.

None of the four samples in site chronology WSTASQ01 retain complete sapwood (the last ring produced by the tree before it was cut down), and it is thus not possible to indicate a precise felling date for any of the timbers represented. All four samples do, however, retain the heartwood/sapwood boundary (indicated by h/s in Table 1 and the bar diagram), meaning that all the sapwood rings, but *only* the sapwood rings, are missing. Importantly, furthermore, as may be seen from the bar diagram Figure 4 (and from Table 1), the heartwood/sapwood boundary on each of the four samples in site chronology WSTASQ01 is at an almost identical relative position and date. This strongly suggests that the four trees represented were all cut at the same time as each other, ie, they represent a single phase of felling. In such circumstances, it is usual to find the average date of the heartwood/sapwood boundary on the samples, here being 1472, and add the 95% confidence figure for the number of sapwood rings found on oak trees, 15–40. Using this figure it is estimated that the trees were probably all cut in a single episode of felling at some point between 1487 at the earliest (1472 + a minimum of 15 sapwood rings) and 1512 at the latest (1472 + a maximum of 40 sapwood rings).

Site chronology WSTASQ02

The second group also comprises four samples, WST-A06 and A07, from the axial ceiling beam and the fireplace bressumer in the kitchen of the south range, and WST-A11 and A12, from two fallen, ex-situ, rafters, originally from the roof of the north range. These samples

cross-match with each other at the relative positions also shown in the bar diagram Figure 4. The four cross-matching samples were combined at their indicated off-set positions to form WSTASQ02, a site chronology with an overall length of 128 rings long. This site chronology was also satisfactorily dated by repeated and consistent comparison with a large number of relevant reference chronologies for oak as spanning the years 1450 to 1577. The evidence for this dating is given in the *t*-values of Table 3.

Again, none of the four samples retains complete sapwood and it is thus not possible to indicate a precise felling date for any of these timbers. Three of the samples do, however, retain some sapwood, or at least the heartwood/sapwood boundary. In this instance, however, as may again be seen from Figure 4 and Table 1, the relative position and date of the heartwood/sapwood boundary on samples WST-A06 and A07, while being very similar to each other, and probably representing one single phase of felling, is much earlier than that on the sample with the latest dated heartwood/sapwood boundary ring, WST-A12. Such a difference suggests that at least two separate phases of felling are represented by these samples.

The average heartwood/sapwood boundary date on samples WST-A06 and A07 is 1551, which, using the 95% confidence figure of 15–40 sapwood rings, would suggest that the trees represented were felled at some time between 1566 and 1591. The heartwood/sapwood boundary date on sample WST-A12 is 1577. Using the same sapwood estimate, 15–40 rings, would give the tree represented by this sample an estimated felling date in the range 1592 to 1617.

The likely felling date range of the tree represented by the final sample in this site chronology, WST-A11, cannot be reliably determined because it does not have the heartwood/sapwood boundary and is thus missing not only all the sapwood rings, but an unknown number of heartwood rings as well. Given that the sampled timber is a principal rafter it is *possible* that it was felled at the same time as the other sampled rafter (represented by WST-A12), but this cannot be demonstrated by dendrochronology. All that can be said is, given that the last extant, heartwood, ring on sample WST-A11 is dated to 1560, and allowing that the next (missing) ring could have been at the heartwood/sapwood boundary, it is unlikely to have been felled before 1576, assuming the 95% probability of a minimum of 15 sapwood rings.

Site chronology WSTASQ03

The third and final group comprises two samples, WST-A01 and A02, respectively from the east and west principal rafters of the truss at the south end of the south range. These samples cross-match with each other at the relative positions shown in the bar diagram, Figure 4. The two cross-matching samples were combined at their indicated off-set positions to form WSTASQ03, a site chronology with an overall length of 73 rings. This site chronology was then also satisfactorily dated by repeated and consistent comparison with a large number of relevant reference chronologies for oak as spanning the years 1568 to 1640. The evidence for this dating is given in the *t*-values of Table 4.

One sample in this site chronology, WST-A01, retains complete sapwood, meaning that it has the last ring produced by the tree represented before it was felled (this denoted by upper case 'C' in Table 1 and the bar diagram). In this case, the last, complete, sapwood rings, and thus the felling of the tree, is dated to 1640.

The other sample in this site chronology, WST-A02, is from a timber which had complete sapwood on it, but from which, due to the soft and fragile nature of this part of the wood, a portion of the sapwood has been lost in coring. Under such circumstances, having noted at the time of sampling the amount of sapwood lost from the core, it is possible to estimate the likely number of sapwood rings the lost portion might have contained. In this instance the lost sapwood portion is about 5 millimetres. Given that last existing ring on sample WST-A02 is dated to 1633, it is estimated that the tree represented by this sample was almost certainly felled in 1640 as well.

This analysis may be summarised as below:

Site chronology	Number of samples	Number of rings	Date span	Estimated felling date
WSTASQ01	4	90	1386–1475	1487–1512
WSTASQ02	4	128	1450–1577	(6/7) 1566–1591 (11) not before 1575 (12) 1592–1617
WSTASQ03	2	73	1568–1640	1640
Unmeasured	8	---	---	-----

To show the relative dating of each group of timbers, the three site chronologies, WSTASQ01, SQ02, and SQ03, with their component samples, are shown in a single bar diagram, Figure 4.

Conclusion

Analysis of 10 samples from Armada House would indicate that four phases of felling are found amongst the dated timbers. It would appear that the earliest phase is represented by the coffered ceiling to the ground floor of the north range, these timbers being felled in the very late fifteenth century to the very early sixteenth century.

The next phase of felling is represented by the axial ceiling beam and fireplace bressumer of the kitchen to the south range, these being felled in the later sixteenth century, with a third phase of felling being found in two principal rafters to the roof of the north range, these felled in the very late sixteenth century or the very early seventeenth century.

The fourth and final phase of felling is found in the two principal rafters to the southern truss of the south range. These were both felled in 1640.

It may perhaps be seen therefore, that the earlier than expected origin for Armada House postulated in the survey and record undertaken by Northamptonshire Archaeology appears

to be correct, this phase represented by the coffered ceiling to the north range, of, say, early sixteenth century date. To this north range, in the later sixteenth century, *possibly* just after the time of the Armada, was added the south range, this work, and perhaps the historic event, being commemorated by the plaque. Sometime after this, perhaps in the early seventeenth century, the roof to the north range was replaced, repaired, or altered in some way. Finally, in 1640, the roof to the south range was altered.

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Table 1: Details of tree-ring samples from Armada House, Weston, Northamptonshire

Sample number	Sample location	Total rings	Sapwood rings*	First measured ring date (AD)	Heart/sap boundary (AD)	Last measured ring date (AD)
WST-A01	F7 Eastern roof truss (south bay)	59	20C	1582	1620	1640
WST-A02	F5 Western roof truss (south bay)	66+	11c	1568	1622	1633
WST-A03	F8 Western cruck blade (north bay). ELM	nm	---	-----	-----	-----
WST-A04	F6 Collar to cruck frame. ELM	nm	---	-----	-----	-----
WST-A05	Roof: Yoke or saddle at apex of cruck frame	nm	---	-----	-----	-----
WST-A06	G4 Axial beam in kitchen ceiling (Floor of F8/F9)	91	h/s	1459	1549	1549
WST-A07	G4 Fireplace bressumer (1 st core broke, 2 nd taken)	109	6	1450	1552	1558
WST-A08	F1 Outer wallplate	nm	---	-----	-----	-----
WST-A09	F1 Inner wallplate (1 st core broke up, 2 nd taken)	nm	---	-----	-----	-----
WST-A10	F1/F2 Principal rafter of main surviving truss	nm	---	-----	-----	-----
WST-A11	Principal fallen rafter from over (F1/F2)	61	no h/s	1500	-----	1560
WST-A12	Principal fallen rafter from over (F1/F2)	70	h/s	1508	1577	1577
WST-A13	G1 5 th joist from west end, north-western ceiling coffer	nm	---	-----	-----	-----
WST-A14	G1 4 th joist from west end, north-western ceiling coffer	82	h/s	1394	1475	1475
WST-A15	G1 West arm of cross in coffering (core broke)	54	h/s	1417	1470	1470
WST-A16	G1 East arm of cross in coffering (same beam as 15)	85	h/s	1386	1470	1470
WST-A17	G1 6 th joist from west end, north-western ceiling coffer	nm	---	-----	-----	-----
WST-A18	G1 10 th joist from west end, south-eastern ceiling coffer	55	h/s	1418	1472	1472

*h/s = heartwood/sapwood boundary, i.e., only the sapwood rings are missing

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

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

nm = sample not measured

Table 2: Results of the cross-matching of site chronology WSTASQ01 and the reference chronologies when the first ring date is 1386 and the last ring date is 1475

Reference chronology	t-value
Chicksands Priory, Chicksands, Beds	6.0 (Howard <i>et al</i> 1998)
Naunton Court, Naunton Beauchamp, Worcs	5.9 (Arnold <i>et al</i> 2008b)
Redroofs, Sawbridge, Warwicks	5.7 (Howard <i>et al</i> 1995)
Staircase House, Stockport, Greater Manchester	5.2 (Howard <i>et al</i> 2003)
Flore's House, Oakham, Rutland	5.2 (Hurford <i>et al</i> 2008)
Primrose Hill, Kings Norton, Birmingham	5.2 (Arnold and Howard 2008)
Nevill Holt, Leics	5.1 (Arnold <i>et al</i> 2008a)
Newnham Hall Farm, Newnham Murren, Oxon	5.0 (Arnold and Howard 2006 unpubl)

Table 3: Results of the cross-matching of site chronology WSTASQ02 and the reference chronologies when the first ring date is 1450 and the last ring date is 1577

Reference chronology	t-value
Kenilworth Castle (gatehouse), Warwicks	8.0 (Arnold and Howard 2007)
Newnham Hall Farm, Newnham Murren, Oxon	7.0 (Arnold and Howard 2006 unpubl)
East Midlands Master Chronology	6.9 (Laxton and Litton 1988)
Cobham Hall, Cobham, Kent	6.5 (Arnold <i>et al</i> 2003)
Avebury Manor, Avebury, Wilts	6.2 (Arnold and Howard 2011 unpubl)
South (composite working chronology)	6.2 (Howard 2002 unpubl)
Pond Cottage, Botolph Claydon, Bucks	6.2 (Alcock <i>et al</i> 1990 unpubl)
Apethorpe Hall, Apethorpe, Northants	5.9 (Arnold and Howard forthcoming)

Table 4: Results of the cross-matching of site chronology WSTASQ03 and the reference chronologies when the first ring date is 1568 and the last ring date is 1640

Reference chronology	t-value
Apethorpe Hall, Apethorpe, Northants	6.5 (Arnold and Howard forthcoming)
Stoneleigh Abbey, Stoneleigh, Warwicks	5.7 (Howard <i>et al</i> 2000)
Wren Wing, Easton Neston, Northants	5.6 (Arnold <i>et al</i> 2008b)
Lodge Farm, Staunton Harold, Leics	5.4 (Arnold <i>et al</i> 2008c)
Nevill Holt, Leics	5.1 (Arnold <i>et al</i> 2008a)
Hampshire county chronology	5.1 (Miles 2003)
East Midlands Master Chronology	4.9 (Laxton and Litton 1988)
Church of St Andrew, Welham, Leics	4.9 (Arnold <i>et al</i> 2005)

Site chronologies WSTASQ01, SQ02, and SQ03 are composites of the data of the relevant cross-matching samples as seen in the bar diagram Figures XXX. This composite data produces 'average' tree-ring patterns, where the overall climatic signal of the growth is enhanced, and the possible erratic variations of any one individual sample are reduced. These 'average' site chronologies are then compared with several hundred reference patterns covering every part of Britain for all time periods. Each site chronology dates only at the time periods indicated, each table giving only a small selection of the very best matches as represented by 't-values' (ie, degrees of similarity).

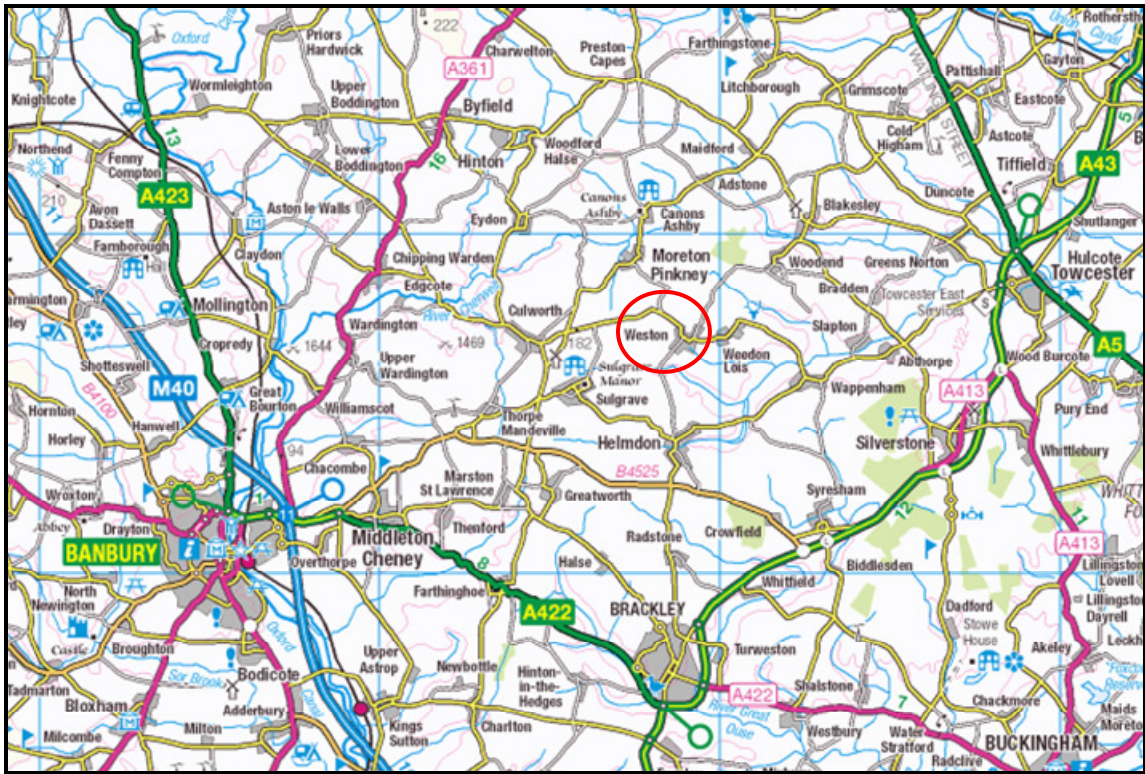


Figure 1a/b: Maps to show location of Weston (top) Armada House (bottom)

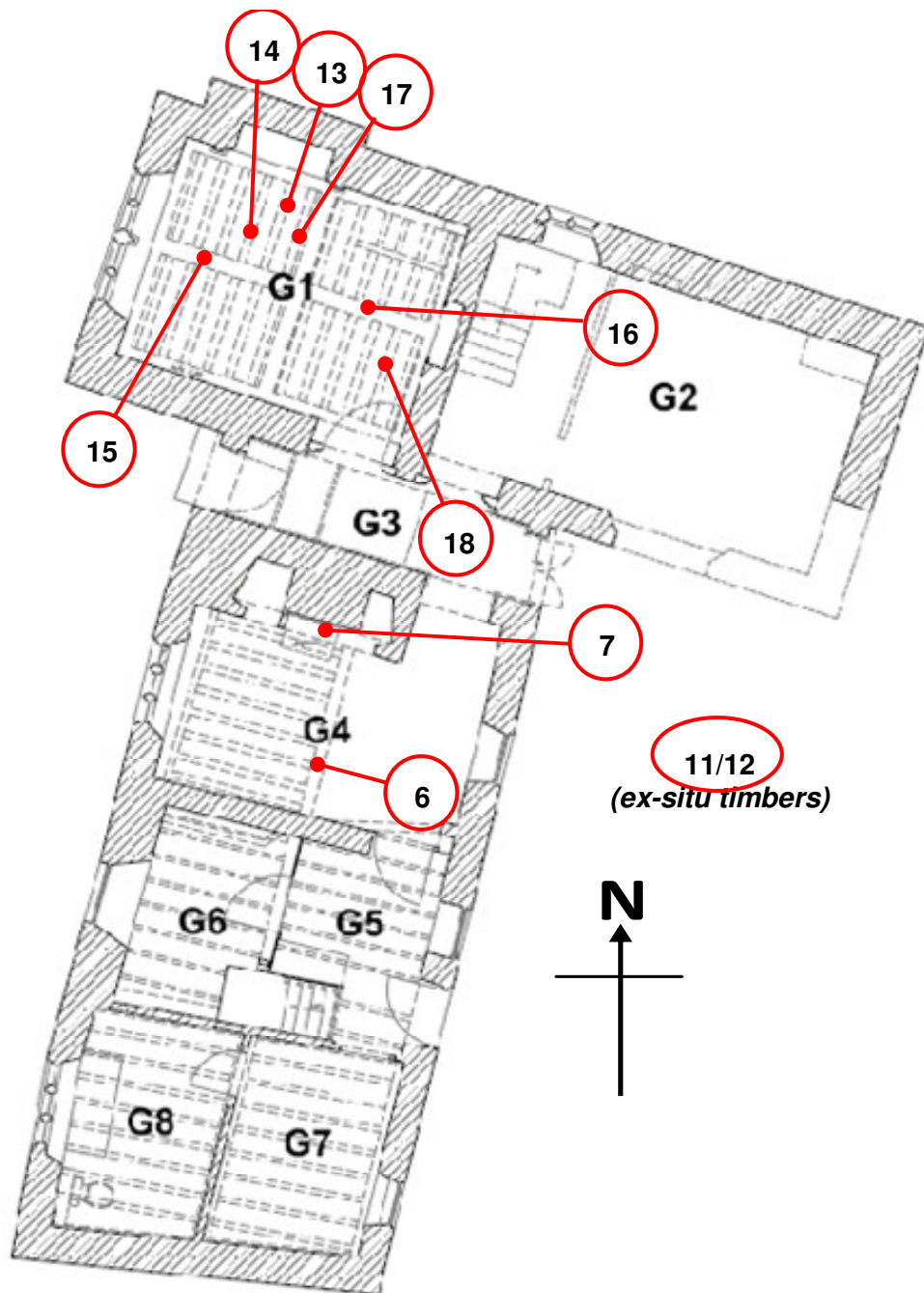


Figure 2a: Plan at ground-floor level to show approximate positions of the sampled timbers (after Iain Soden, Northamptonshire Archaeology)

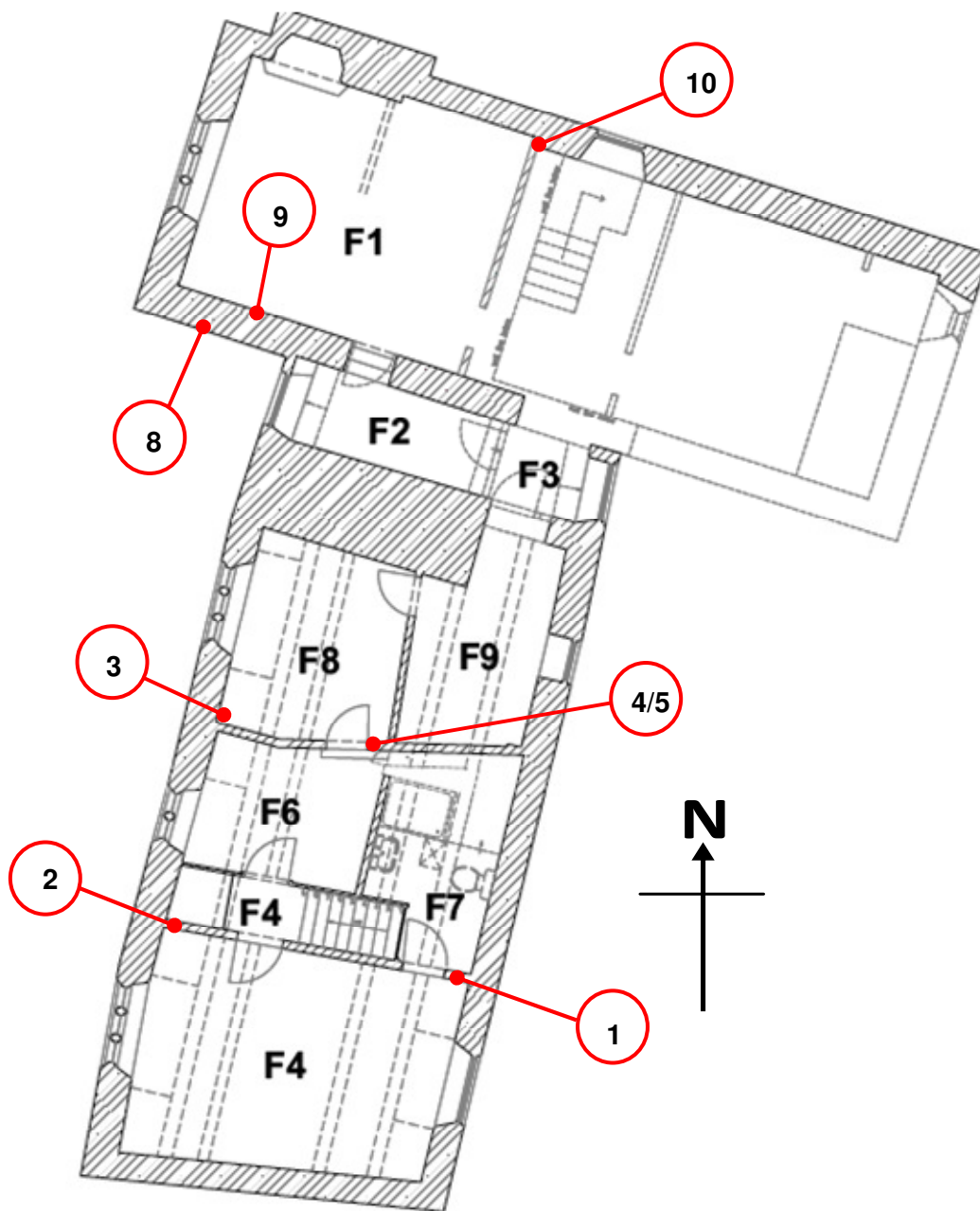


Figure 2b: First floor plan to show approximate positions of the sampled timbers (after Iain Soden, Northamptonshire Archaeology)



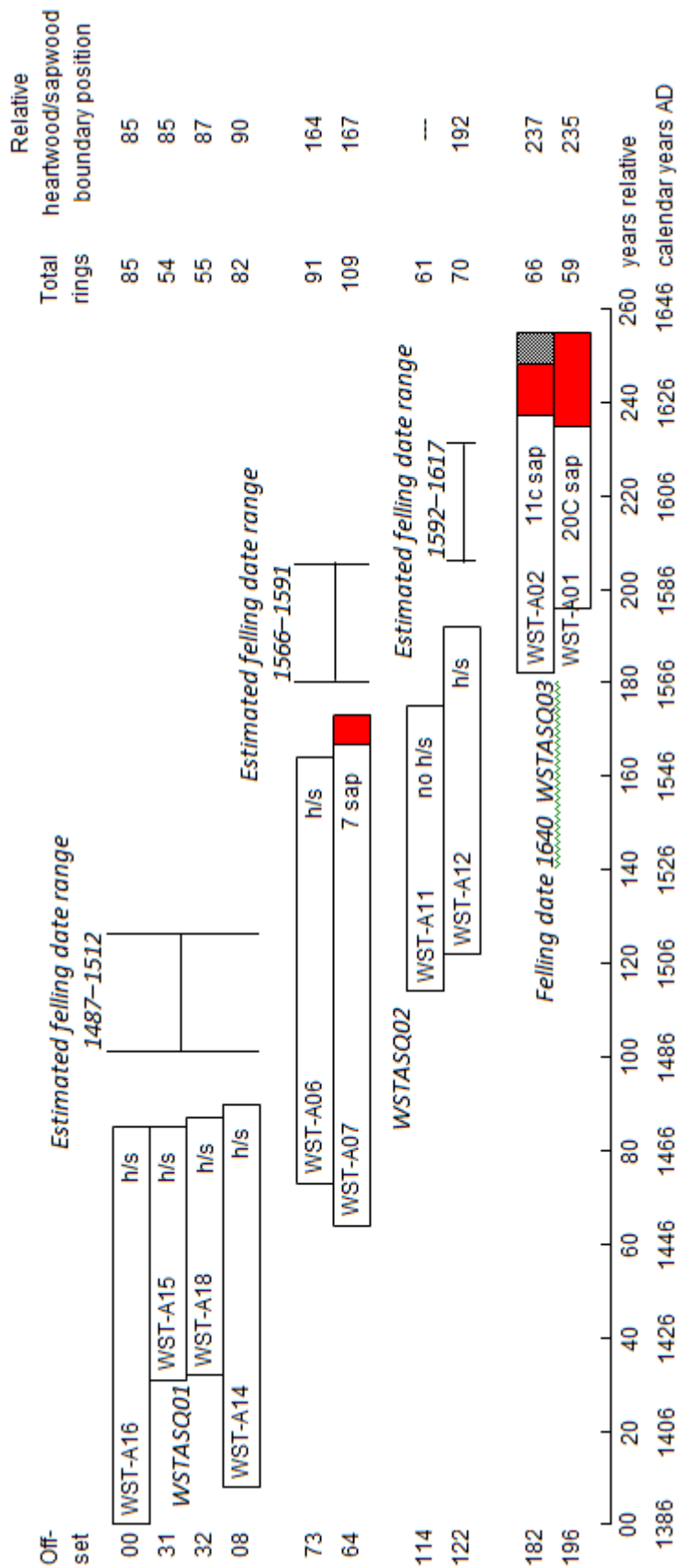
Figure 3a/b/c: Views of the in-situ truss to the north range (top), the ex-situ timbers salvaged from this roof (middle), and the ground floor ceiling beams (bottom)



Figure 3d/e/f: Views of cruck truss in the south range (top and middle), and the principal rafter truss to the southern end of the south range roof



Figure 3g: Views of the kitchen ceiling beam and fireplace bressumer to the ground floor of the south range



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

Figure 4: Bar diagram of the samples in site chronologies WSTASQ01, SQ02, and SQ03 at positions indicated by their separate dating. The samples are shown in the form of bars at positions where the ring variations of the samples within each group cross-match with each other. This similarity is produced by the trees represented by each site chronology growing, *at the same time*. The samples of each cross-matching group are combined to form 'site chronologies', each of which is dated by comparison with the 'reference' chronologies (Tables 2-4).

6 CONCLUSIONS AND SCOPE OF FINAL WORKS

- 6.1 Maps depict the house back to 1593. These will be reproduced as appropriate in the final report.
- 6.2 Documentation is disparate. It suggests that the house was originally the capital messuage, or manor house, of Weston but was probably supplanted by Weston Hall in the late 17th century. From at least the mid-19th century, but probably as early as the late 17th century, the house has served as a farmhouse and has been subject to little elaboration. Easily accessible documentation relating to the house is concentrated in the period from the mid-19th to 20th centuries. This is now known to include a 1957 schedule of repair works and Bill of Quantities with plans from the client, which will indicate an array of modern fabric within the fire-damaged and (by comparison) relatively unscathed parts of the building. A summary of this documentation will be fully integrated.
- 6.3 Photographs indicate little change has been wrought on the exterior of the surviving house during the 20th century. Exceptions are the loss of the former north ancillary range and an eastern, longer portion of the north range.
- 6.4 Tree-ring dating has taken place (8 March) on a suite of surviving *in-situ* and provenanced *ex-situ* timbers. This should provide a relative seriation for the origins and development of the house, without the need to rely solely upon the architectural and artistic trends which mark aspects of the house. Scientific dating is reliable on its own but will overlay a level of certainty and identify where re-use of timber has confused dating issues.
- 6.5 Specific features in the fire-damaged portions of the building can at this preliminary stage be identified as definite Heritage Assets within the building for repair, reconstruction or replacement. These comprise a preliminary list of the following:

North range

G1: ceiling timbers, window and fireplace

G2: west wall fabric

F1: fireplace, timber-framed east wall and former window evidence

Roof of north range: Wall-plate and surviving truss elements

South range

G4/F6/F7/F8/F9: Pair of cruck-blades

G4: Kitchen fireplace

G4: axial beam

Ground floor: Visible record of evidence for west wall having been moved

First floor: Record of evidence for addition of gabled dormers

- 6.6 The works of repair and restoration will entail further intrusion into existing fabric, either because surviving elements are structurally perished or unsafe, or exploratory work is needed to ascertain this or meet more stringent planning regulations. The following elements of the rebuilding are felt to contain a strong potential to reveal valuable data on the origins and development of the house, and should be encompassed within the watching brief:

North range

G1: Replacement of the timber floor (close inspection of sub-floor); digging out.

G1: Inspection of bare stonework if plaster to be stripped off

G2: Lowering of the existing floor

G/F: Close inspection of timber frame of dividing wall if to be replaced

G9: Close inspection of bare stonework if plaster to be stripped off

South range

F1,F2: Close inspection of bare stonework if plaster to be stripped off

G4/F8/9: closer record of open timber mortices in axial beam

G4/F6/F7/F8/F9: Measured drawn record when access available the full pair of cruck-blade profiles

- 6.7 It is requested that window-leads partly destroyed and to be replaced are not discarded or melted down, before they have been inspected by the attending archaeologist. They should be tagged as to their origin and put to one side. The H-section leads sometimes bear makers' marks and dates through the 17th and 18th centuries from purpose-made milling-wheels.
- 6.8 It is suggested that, so long as intrusion in the less-fire-damaged South Range is kept to a minimum, no further scrutiny other than that above, will be necessary for the understanding of the origin and development of that building.
- 6.9 It is suggested that any excavation work to the north of the North Range or east of the North Range, be brought to the attention of the archaeologist, so that a note can be made of any foundations uncovered. Whether they are to be retained or not is not a material consideration.
- 6.10 The results of the above (6.1-6.9) will be brought together in an expanded reissue of this report, in support of an application to sign off the Planning Condition for a Heritage Asset Survey of Armada House. This will be commensurate in scale and detail with the status of the building, the extent of the fire-damage, and the extent of the rebuilding.

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