

Itford Farmhouse, Beddingham

(TQ 4332 0550)

Supplementary Historic Building Survey of The Roofs

Commissioned by The Greenbank Trust

Project No. 3443

Report No. 2008060



May 2008

Prepared by Maggie Henderson

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ABSTRACT

A programme of recording was commissioned by the Greenbank Trust for Itford Farmhouse in Beddingham, East Sussex. The work was carried out by Archaeology South East in May 2008 after the tile roof cover had been removed from the roof structure in order to assess requirements for the repair of the underlying elements. The stripping of the tile cover provided a unique opportunity for additional recording of the roof, which supplements the initial historic building interpretative survey of the farmhouse carried out by Archaeology South East in 2000.

The recording action comprised the creation of a full measured roof plan showing the elements of the roof construction. The drawn record was supplemented by a photographic survey, both general of the exposed roof and specific with a focus on the structural elements proposed for repair. The roof structure bore clear evidence of a historic failure and the subsequent repairs. The historic repairs comprised some replacement of the original fabric in addition to the insertion of strengthening members. The proposed schedule of repairs involves the addition of members and supports to the current structure but unlike earlier works, no historic fabric will be removed from the roof, ensuring a minimal impact upon the existing structure.

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1.0 INTRODUCTION

Archaeology South East (a division of the Centre for Applied Archaeology, UCL) was commissioned by the Greenbank Trust to carry out a supplementary measured survey of the roofs at Itford Farm (Figure 1) in order to record the roof as existing prior to the proposed programme of repairs and in so doing, focus upon those timbers earmarked for specific repairs. The drawn record of the roofs will form a supplement to the Historic Building Survey previously carried out by Archaeology South East (Martin, D. *et al* 2000).

2.0 SCOPE & METHODOLOGY

The survey involved a visual inspection of the roof construction (block plan - Figure 2). No intrusive techniques were carried out, as this would have been inappropriate and potentially damaging to the property. Interpretation of the structure therefore relies principally upon inspection of the visible evidence.

The visual survey encompassed the inspection of the roof structures only, after the clay tile cover had been removed. No survey of the interior of the property was carried out as this was covered in the initial survey of the farm (Martin, D. *et al* 2000). As the removal of the roof cover allowed access to the construction of the roofs it was deemed an ideal opportunity to create a detailed measured survey showing the roof construction of the main L-plan building, its porches and extension to the east.

In addition to the drawn record, a full photographic record (digital and 35 mm film) of the structures was undertaken. Each photograph was numbered and its location shown on plan (Figures 3 and 4). The timbers earmarked for repair were identified using the repair schedule (prepared by Mackellar Schwerdt Architects) and subjected to a specific photographic record. The investigation of the roof included a brief description, based upon that prepared during the initial survey with the addition of any further details.

3.0 LOCATION

The Itford Farmhouse stands on the eastern side of the Ouse valley adjacent and to the west of the A26 between Lewes and Newhaven, with Itford Hill (part of the South Downs) rising to the east. The farm is located towards the southern edge of Beddingham parish, 2.7 km south south-west of Beddingham Church.

4.0 DEVELOPMENT OF ITFORD FARMHOUSE

The development of the house as identified during the 2000 survey is summarised here. Some revisions to the report were made following a second

visit to the property in November 2007 when additional elements of the fabric were revealed by the programme of works. The basic sequence of development of the property as recorded in the initial report remained unchanged by these revisions.

The initial survey identified three distinct phases of construction concerning the farmhouse. The first phase (**Period A**) is dated to the 13th century and comprises ground floor walls within the southern cross-wing (east - west orientated range of the main L-plan house). Additional remains of this phase include a piscina and three re-used lancet windows.

The second phase of development (**Period B**) was carried out in 1580 and comprised the construction of an L-plan building incorporating the earlier remains. The east and west porches are contemporary with the construction of the main building.

The third phase of construction (**Period C**) included several alterations to the house, the main one being the construction of the sizable extension abutting the eastern elevation of the Period B house. The extension, built to create a kitchen wing, is canted along its northern elevation in order to follow a pre-established boundary on the property. The building has been subject to many additions and alterations since the 18th century but these are beyond the scope of the present programme of work.

5.0 THE ROOF AS EXISTING (MAY 2008)

For the purposes of this report, the building has been divided into blocks as shown on Figure 2. A very brief description of the stylistic elements of the roof construction to the blocks is given here and includes information from the May 2008 survey.

5.1 The Main L-plan Farmhouse Roof Construction

The L-plan farmhouse roof is of the in-line butt-purlin type (Plate 1), comprising five bays in each wing numbered as shown on Figure 2. The bay lengths for the east -west wing (southern cross-wing) are as follows: Bay 1 and 2 at 2.60 m; Bays 3 and 4 at 1.75 m and the western most bay (Bay 5) at 2.70 m. Those in the north - south wing comprise a narrow bay (Bay 6) at 0.60 m built to incorporate the chimney stack at the western side of the bay in this location. Bay 7 measures 1.80 m wide, Bay 8 at 2.00 m with narrow Bay 9 at just over 1.00 m wide (Bay 9 was originally the stair access from the lower floors into the attic in this wing), Bays 10 to 12 measure 1.50 m, 2.00 m and 1.86 m respectively.

Within the entire L-plan roof construction, the bays are created by six trusses to the east - west orientated wing and seven trusses in the north - south wing (Figure 5), all of which had originally comprises a tie-beam at 240 mm wide by 220 mm thick linked by a pair of principal rafters at 165 mm by 175 mm

(average) scantling jointed into the ends of the tie-beam which is in turn jointed over the corresponding outer wall plates. The mass-constructed walls of the building carry a second inner set of wall plates over which the trusses are situated (Figure 5). Both sets of plates measure 110 mm wide by 135 - 140 mm thick. The principal rafter pairs are jointed and pegged at the apex: there are no collars, struts or ridge board to the original roof construction.

The in-line butt-purlins are set flush to the slope of the roof. The purlins are 140 mm wide by 120 mm thick on average, with the longer side against the slope of the rafters. The purlins are tenoned into the corresponding principal rafters of the trusses.

Due to the weak nature of such an arrangement, with the joints at the ends of the purlins meeting within the through mortise of the principal rafter, failure has occurred resulting in the extensive replacement of the purlins (Plate 2). The failure of the purlins required the insertion of a series of raking queen struts (Plate 1) at 150 mm wide by 110 mm thick, rising from the upper face of the tie beam to terminate in the soffit of the corresponding rafters, perhaps as an initial attempt at strengthening the structure. Nailed timber plates were also placed over the ends of some of the purlins at the junction with the principal rafters (Plate 7). A second series of struts were then added, some of which were set over boards adjacent to the tie-beams supported upon the joists, terminating at the junction of later purlin and principal rafter (Plate 3). The later struts have clear circular saw marks indicating an 18th or 19th century origin for some of the repairs.

The common rafters (Figure 6) are single length, jointed at apex and extending out to terminate within sockets in the outer wall plates. Nailed on sprockets have been added to the rafters on the main elevations of the north - south orientated range and to the porches, but not the southern cross wing.

The rafters measure 145 mm by 95 mm thick. Several additional 'sister' rafters have been added alongside failed originals (Plate 4) and these are slightly lesser scantling at 120 mm wide by 70-90 mm thick also bearing circular saw marks. Several original rafters are missing, particularly at the eastern end of the southern cross-wing, however the locations are indicated by the sockets in the outer wall plate intended for the bridsmouth at the foot of the rafter.

The second phase of roof construction comprising the replacement of the failed purlins, the addition of the raking struts and the replacement of several of the rafters may also include the addition of iron stirrup straps at the corners of the roof structure extending between principal rafters, over tie-beam to plate (Plate 5).

Note on the quantity of thatch like material found within the roof construction:

Small deposits of thatch-like material occurred in several locations throughout the stripped roof. The material may have been insulation under the tile roof,

however, there were no nailed-on battens in the interior of the roof construction as would be usual if insulation had been *in situ*. Some rafters bore faint traces of possible lash marks, which could indicate that the roof was originally thatched (Plate 6).

It should be noted that no collars, braces, posts or struts were included in the initial roof design to counteract the inward pressure of the weight of the roof cover. The weight of a single covering of thatch is approximately half that of tile (Leo Wood, Master Thatcher, pers. comm.). Subsequent cover of thatch over three centuries or more could possibly have caused the purlins to fail due to the increased weight upon an essentially weak roof design. The failure of the structural roof members may have instigated a change to tile. It is possible then that the struts, replacement purlins and general addition of strengthening members were applied when the roof was changed to tile.

However, it is also possible that the roof was tiled from the outset but opened up for extensive repairs in the 18th or 19th century following a limited earlier programme of repairs when the first struts and nailed timber plates were added.

5.2 The Main L-plan Farmhouse Floor Construction

The floor of the attics (Figure 7) within the main wings of the L-plan house comprised 12 joists to each bay jointed into the tie beams of the corresponding trusses using double mortises (Plate 8). Each joist had sequential carpenter's marks carved into the upper face adjacent to the beams (Plate 9). The floor of the attic had originally been boarded with the boards abutting the tie-beams rather than placed to overlie them.

The removal of the attic flooring revealed the stair location in the narrow bay (Bay 9) of the north-south orientated wing. The north and south upper edges of the tie beams (T9 and T10, Figure 7) had rebates perhaps for the addition of partitions, further supported on the north side (T10) of the bay by discolouration on the rafters and a redundant mortise on the upper face of the tie beam, all of which indicate the construction of a partition. In addition, the narrow bay had a different arrangement of joists to that *in situ* throughout the rest of the roof: here the joists had been set within mortises on the south face of truss T10 tie beam and manoeuvred into place in the long corresponding sockets in the north side of truss T9 tie beam (Plates 8 and 10).

5.3 The Porches

There are two porches, one to the west and the other to the eastern elevation of the north-south wing of the main building. Both porches have roofs constructed in the same manner with broad wall plates at 270 mm wide by 120 mm thick. A single tie beam (185 mm wide by 172 mm thick) is jointed into the north and south plates on the outer edge of each porch (Figure 5). A pair of principal rafters at 108 mm wide by 90 mm thick are jointed into the tie

beam and jointed together at the apex. A series of common rafters are situated between the truss at the gables of the porches and the valley boards which connect the porch to the main body of the house roof. The common rafters measure 127 mm wide by 98 mm thick. The rafter feet terminate within sockets on the wall plate and the upper ends are jointed together at the apex of the roof. A series of nailed on sprockets are attached to the sides of the rafters to create oversailing eaves. Two pairs of jack rafters extend between plate and valley boards at the junction of the porch and main roof. The valley boards are laid over the main rafters of the roof; however, those adjacent to the west porch are later additions or replacements: of oak but with clear circular saw marks (Plate 11).

The roof construction over the porches is placed upon the mass constructed walls. The plates rest on the wall tops and abut that of the main roof, there is no visible attempt at tying the two together. The valley boards rest over the rafters of the main roof connecting the two roofs together. The construction of both main roof and porch is very similar in nature and in the timber used, indicating contemporary builds.

5.4 The Eastern Extension

The eastern extension abuts the east elevation of the main north - south orientated wing of the L-plan house. The construction is 18th century in design and use of materials as described in the initial survey report (Martin, D *et al*, 2000). No new constructional details were revealed during the May 2008 survey.

6.0 THE IMPACT OF THE PROPOSED REPAIR SCHEDULE

The proposals for the repair schedule to the L-plan main build roof comprises the addition of 'sister' members to be placed adjacent to those already *in situ* but found to be defective due to natural processes such as rot or insect attack, or from structural failure such as the purlins pushing out or cracking and the rafter pairs parting at the apex. A second issue highlighted in the proposed repair schedule is the strapping of the tie-beam ends to the wall plate - this has already occurred historically, particularly at the corners of the structure (Plate 5) and as such is in line with the historic maintenance of the roof.

The proposed programme of work is in line with that already carried out historically within the roof where later members have been inserted to strengthen the original elements of the structure such as the struts and several sister rafters. There is also evidence within the roof of whole-sale replacement of the original timbers: such is the case for the majority of the purlins and the rafters supporting the valley boards of the western porch.

There appears to have been two phases of historic repairs: the first comprising the addition of nailed on laths of timber at the junctions of the in-

line purlins and principal rafters (Plate 7) in addition to the first struts placed to rise from tie-beam to the underside of the nailed on reinforcements (Plate 12).

The second phase, of later date comprised cutting out the original failed purlins (Plate 12), inserting the new ones and reinforcing the repairs with the added struts which are placed on separate boards supported on the roof joists. It is during the second phase of repairs that the new rafters were inserted. Over the course of the life of the roof, additional stiffening members have been added when and where required including several lengths of secondary timbers (furring - Plate 13) on the sides and over the backs of the *in situ* rafters to create a flush roof line for the tiles.

The new proposals do not call for the removal of the historic structural elements, whether original or historic repairs to the original, but only the removal of affected areas of single timbers to prevent the continuation of the decay. The proposed repair schedule also stipulates the use of additional members in softwood. The noticeable difference in material will enable the ongoing repairs, additions and alterations to the roof to be readily identifiable as modern, and as such clearly later than the construction of the roof and the historic repairs. The historic replacements and repairs are indicated by the clearly evident circular saw marks of the later timbers.

The repair proposals for the joists follow the above criteria in that readily identifiable softwood sister members will be inserted into the existing structure to create the repair and stability required without removing or altering the original ceiling construction.

7.0 KEY CONSERVATION AND MANAGEMENT OBJECTIVES

The Government's Planning Policy Guidance Note (PPG) 15: Planning and the Historic Environment states that the best use for a building is the one for which it was originally built. However, as this cannot be the case for Itford Farm then due consideration should be made to any proposed alterations required for a change of use, in this case to Youth Hostel facilities.

7.1 General Conservation Guidelines

In general terms the structures should be repaired when required in a low-key fashion, i.e. all original material should be retained where possible and extensive removal of material should be prevented. All repair materials and the techniques employed should be as per the original and the building should be maintained as a 'breathing building'. All proposals for works should be prepared in conjunction with a recognised qualified conservation surveyor, architect or builder so that the conservation objectives can be integrated at the outset. These proposals should be agreed with the Conservation Officer. All works on site should be undertaken by an experienced conservation builder.

The proposed schedule of repairs to the roof and floor construction within the attics of Itford Farmhouse follow the conservation guidelines in that no structural element, original to the building, or part of the subsequent historic repairs will be removed. The repair materials in this instance are proposed to be softwood which will be a contrast to the original timber and as such clearly visible against that of the original construction. The use of currently available materials in this case follows the programme of historical repairs visible within the roof, which was carried out utilising new techniques and materials. The second phase of historic repairs clearly makes use of machine sawn material in contrast to the original construction: this is echoed in the proposed use of softwood and the insertion of sister members as reinforcement rather than removal and replacement which would impact upon the integrity of the original historic roof structure.

8.0 SOURCES CONSULTED

Martin D, Martin, B and Knight, S. 2000 An Archaeological Interpretative Survey of Itford Farmhouse, Beddingham, East Sussex commissioned by The Greenbank Trust

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