STRUCTURAL SURVEY



HORTON FARM

awa
ANDREW WARING ASSOCIATES

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Consultant & Registered Address

Andrew Waring Associates
The Old Brewery House
Portersbridge Street
Romsey
SO51 8DJ

1. INTRODUCTION

AWA were commissioned to undertake a structural survey of an existing stable building which requires substantive remediation works.

The purpose of this report is to determine the general form and condition of structural elements of the building, and to assess whether it is capable of re-use.

Generally, the report is not intended to be a report recording exhaustively the detailed condition of each structural element, but a record of those elements which are likely to be retained or which may direct and inform the proposals remediation of the building. Note the intension is not to convert the building rather to undertake remedial works to make safe and extend the life of the structure.

2. INSTRUCTION

Instructions were received from Savills, on behalf of the Client, to carry out a visual structural condition survey of the building, and to report upon those matters which might adversely affect the remedial works.

3. NOMENCLATURE

For the purposes of this report the following classification has been used when describing the condition of structural elements. Note the condition of each element has not been assessed on an individual basis rather the overall condition of all members of the same type have been assessed. Individual structural elements may fall outside this classification and this will need to be addressed during the design phase of the works.

Poor – Elements of this type are unlikely to be able to be re-used and should be replaced like for like, or better

Moderate – Elements of this type can be re-used provided they are repaired/ strengthened to an adequate level

Good – Elements of this type can be re-used with only minimal structural intervention.

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4. SITE WORK

A visual survey of the building was made on the **23rd Mar 2023** by **Josh Georgiou**. The inspection was undertaken from floor level only with no opening up or destruction of the existing building fabric. Visibility was moderate with most of the building being open to daylight. Some permanent lighting was present, lighting was supplemented with a small torch used to illuminate structural elements in shadow.

The condition of the building was assessed, together with the roof structure, external walls and ground floor. Photographic records of the structural elements were taken, some of which are included in this report for reference purposes.

SITE ADRESS:

Horton Farm House
Townsend Farm Cottages,
Horton,
Devizes
SN10 3NE

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5. DISCLAIMER

This report has been prepared for the benefit of Savills on behalf of the owner therefore copyright of this report rests with them.

You should also note that this report is a written record of a visual structural inspection carried out by the author, and is not intended as a fully detailed structural survey and description of the property as would be carried out by a Chartered Surveyor. This report is also not a valuation survey.

No liability for the contents of this report is conveyed to any third party, and no third party should therefore rely on the contents of this report.

Unless specifically stated otherwise, this report has been carried out visually without the fabric of the building being exposed or opened up.

Where the fabric of the building has been visually examined, no opinion about any hidden or concealed structure or guarantee as to its condition can be given.

When comments are expressed about the external fabric of the building, observation has been carried out from viewing from ground level.

No testing or enquiries as to the presence of or susceptibility to pollution contamination, radiation, methane, radon and toxic mould, fungus or spore or other hazardous substances has been carried out.

You should also note that we have not been retained, nor shall we be expected to comment or to provide advice with respect to the presence, location or identification of asbestos or asbestos based products within the building.

You should also note that liability to you, whether in contract or tort, shall not exceed the amount, if any, recoverable by way of indemnity insurance taken out by us at the time we received instructions from you.

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6. SITE

Information on the likely ground conditions was extracted from the British Geological Survey (Figure 1). Data shows that the ground is likely to comprise a bedrock of upper greensand/sandstone with likely no drift deposits.

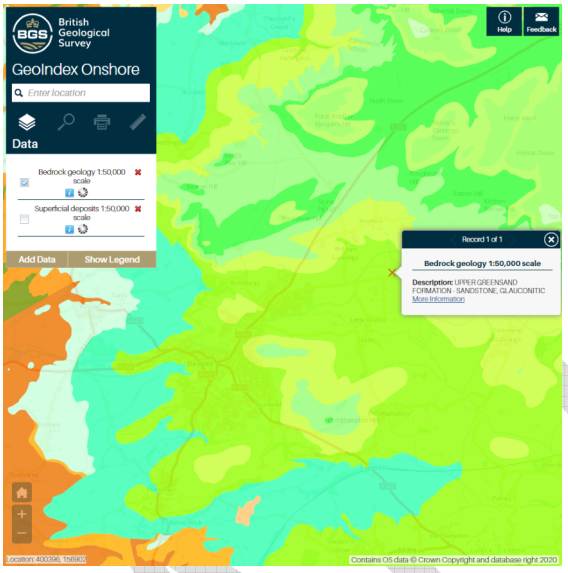

Figure 1: Extract from the British Geological Survey

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7. BUILDING STRUCTURE

The building comprises a two-storey masonry and timber framed, thatched roof barn. The building is approximately 18m x 4m on plan with a ground to eaves height of ~3m. Roof has a pitch of roof of at least 50deg. The ground floor comprises 1 ½ brick thick masonry walls supporting timber frames. Frames comprises timber cross beams supporting first floor with timber posts which extend to principal rafters. Tie beams extend from the timber post to the eaves of the principal rafters and are sat atop the masonry wall (Figure 2).

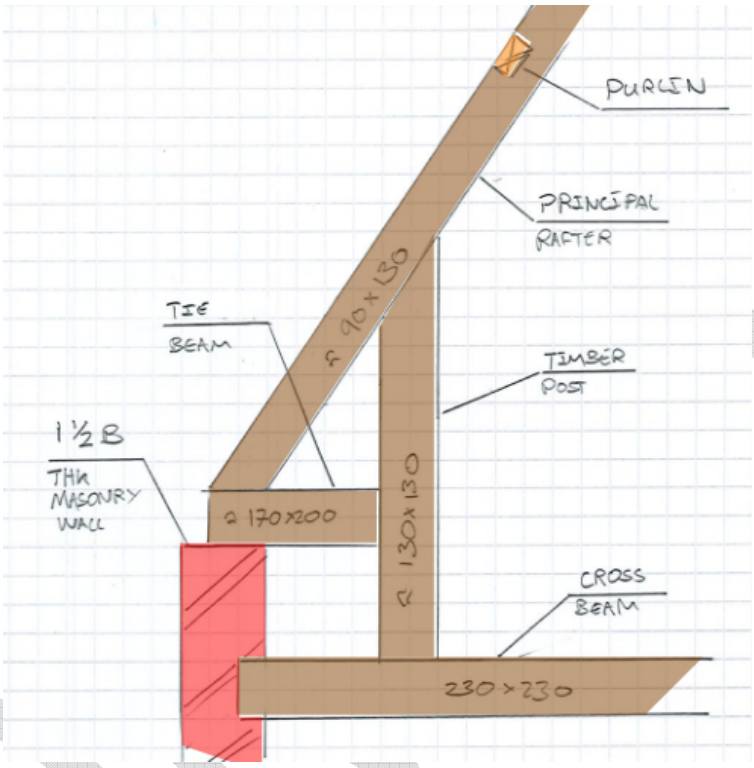

Figure 2: Sketch showing arrangement of typical principal frames

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8. OVERALL STRUCTURAL ASSESSMENT

8.1. STABILITY

Stability at ground floor is provided by 1 ½ brick thick masonry walls around the perimeter of the building and cross panels at regular centres throughout the length of the building.

The frame is assumed to behave as a pseudo hammer beam whereby roof spread is prevented by tying the principal rafters to the frame using tie beams (Figure 3). Stability in the lateral direction is provided by triangulation of the main frames, stability in the longitudinal direction is provided by roof plan bracing.

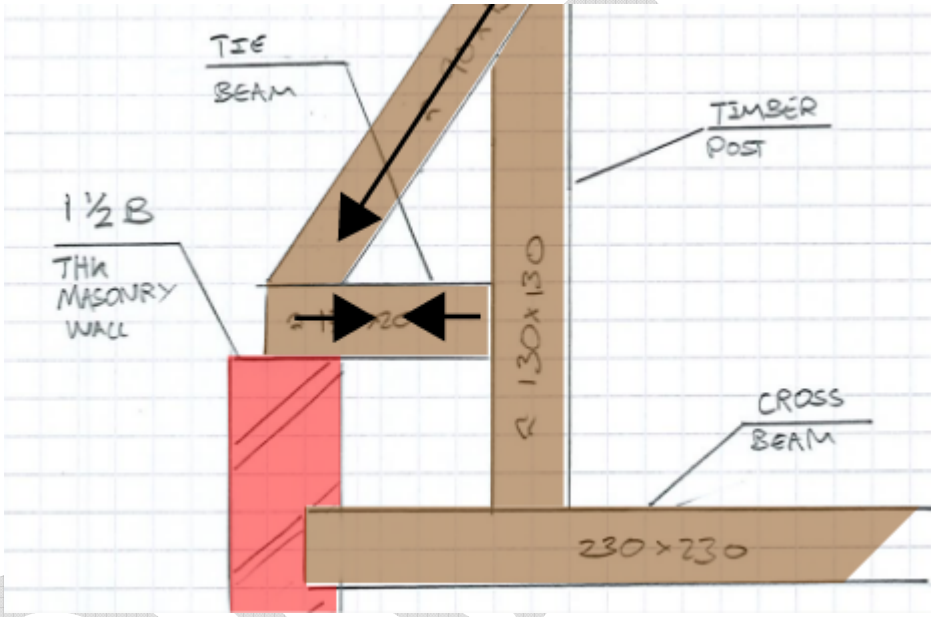

Figure 3: Sketch showing proposed forces

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9. ROOF

9.1. THATCH

To be assessed by thatch specialist but is generally in a **poor** condition and should be replaced.

9.2. BATTENS

Battens appear to be in **poor** condition, particularly in areas directly under trees (Figure 4). These elements cannot be re-used should be replaced.



Figure 4: (left) image showing covered battens; (right) image showing condition of battens

9.3. RAFTERS

The rafters that could be observed were in **poor** condition being severely rotten particularly at eaves level and in areas under trees (Figure 5). In places where roof plan bracing has been installed, the bracing cuts through the rafters breaking the span of the rafter resulting in the plan bracing unintentionally supporting the rafters. This arrangement has led to overloading of the timber plan brace and thus significant bowing in the roof.

Some rafters may be salvageable, but should not be relied upon to provide a structural function, rather they could be retained for heritage purposes only and would be fixed to new structural rafters.

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Figure 5: Image showing; (left) condition of rafters at eaves; (right) bracing member interrupting rafters

9.4. WALL PLATE

The wall plate that could be observed is in a **poor** condition, also being severely rotten. The entire extent of the wall plate could not be observed but from the limited inspection undertaken at this time it would be prudent to assume that condition is consistent throughout the building, and the wall plate should be replaced. If there are places where the wall plate is in a better condition these areas could be retained and scarfed into a new timber wall plate.

9.5. PRINCIPAL FRAMES

Principal frames that could be inspected are in **moderate** condition. Some evidence of wood worm and loss of section is evident. A bradawl was used to test for softness in the timber and it was found that the principal frame has retained much of its strength. Principal members could potentially be re-used, however a full inspection of all members with the building fabric removed will be need be undertaken to establish viability for re-use. It is likely strengthening will be required. Connections between members will need to be assessed on an individual basis.



Figure 6: Image showing; (left) condition of timber post; (right) principal rafters

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10. FIRST FLOOR

Joists that could be inspected appear to be in **moderate** condition. Individual inspection would be required but timber joists could likely be re-used and supplemented with new structural timbers.

11. WALLS

Walls are generally in **moderate** condition. Areas around cross beams show clear evidence of past and present distress particularly where cross beams bear directly onto the wall (Figure 7). These areas of wall should be rebuilt with adequate bearing support for timber cross beam.



Figure 7: Image showing cross beam bearing on wall

There is evidence of remedial works which include; the installation of masonry piers and steel wall ties connecting to external cast iron pattress plates. The remedial works appear to have prevented cracking in these areas. These areas are in a much better condition and it is likely that similar structural intervention would be required elsewhere.



Figure 8: Image showing; (left) steel wall ties fixed to cross beam; (right) external cast iron pattress plate

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12. FLOORS

Floors are generally either cobbled or concrete. They are in **moderate** condition.



Figure 9: Image showing; (left) Cobbled floor; (right) concrete floor

13. FOUNDATION

Condition of the foundation could not be assessed however there were no obvious signs of geotechnical failure. Given the age of the building it is likely the footings comprise corbelled brickwork bearing directly onto the ground

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14. FURTHER INVESTIGATION

It is recommended that a full dimensional building survey is conducted to get accurate building layouts and dimensions for all principal structure elements. It is noted that some areas may be inaccessible due to the condition of the structure being too poor to safely access or due to stored items obstructing access. These areas should be adequately supported using appropriate temporary propping and free of all items prior to undertaking the building survey. The thatch is in a poor condition and will need to be replaced. A full structural survey should be undertaken once the building is structurally secure and the thatch is removed. This will substantiate the high-level assessment in this report and can detail likely structural interventions required.

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15. RECOMMENDATIONS

Section to be filled out on completion of the full structural survey.

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