

# HWA

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## STRUCTURAL APPRAISAL OF UNITS 2 & 3

Arbour Tree Farm  
Chadwick End  
Solihull

Contract Number 18082

## **INTRODUCTION**

We were instructed by Ms F Ashton to undertake a structural appraisal of Units 2 & 3, Arbour Tree Farm, Chadwick End, Solihull, and report our findings to them.

Accordingly, the property was attended on the afternoon of 2<sup>nd</sup> December 2020 during which time an inspection was made of both units, both externally and internally.

We are required to state that we did not inspect woodwork or parts of the structure which were covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

It should be noted that this report is limited to the elements of the structure of the property, and is not a structural report in the sense used by a Building Surveyor or Architect. It is intended to deal with the strength, stiffness, stability and durability of the structural elements of the building only. Reference is made to matters beyond that scope only where deficiencies have been found which ought to be dealt with in order to avoid problems with the structural elements of the property in the future.

## **DESCRIPTION**

Unit 3 comprises a two-storey dwelling fronting Warwick Road beyond which exist an attached single/two-storey store. A through passageway then exists beyond which, is a further single/two storey building. All buildings are generally of masonry construction with a section of timber framing to part of the structure. Walls support timber floor in part and a traditional timber purlin roof.

Unit 2 consists of a single-storey outbuilding or stable block, again currently being used for storage or garaging. This unit is constructed of 230mm masonry walls supporting timber trusses which in turn support a timber purlin roof.

We attach a layout ref DS/01 indicating the units inspected.

The buildings have clearly been extended/altered over time with general modifications to accommodate ongoing usage. The age of the units appear to vary, we would generally estimate these to be between 150 - 200 years old.

## **OBSERVATIONS**

### **Unit 3:**

The inspection of the dwelling, both externally and internally, fronting the Warwick Road, revealed no indication of marked damage or significant cracking or twisting of door reveals to indicate ongoing structural distress. The property is currently occupied and in reasonable condition considering its age.

An inspection to the outer face of the attached store room revealed no indication of recent damage. Internally, it is predominantly of two-storey construction with a small mezzanine having been



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inserted. Slight cracking was noted to the gable wall of the attached two storey dwelling. The damage appeared longstanding. A timber beam exists at high level, presumably an original lintel.

Roof purlins appeared in satisfactory condition with no marked deflections evident. The wall to the gable/passageway appeared of timber framing with masonry infill. We again noted no significant damage to this elevation.

Beyond the passageway existed a single/two storey building. Internally, this again appeared in satisfactory condition with no marked deformation of masonry. To the external elevation, this facing the courtyard with unit 2, a marked bowing of masonry was evident along its length.

#### **Unit 2:**

An inspection was made externally of this unit. Numerous roof tiles were slipping to both front and rear slopes. Within the open barns timber purlins existed, these supported off timber trusses spanning front to rear. A number of purlins showed signs of significant deflection. Masonry walls appeared satisfactory with no significant deformation evident. Within the outbuildings and hay stores, timber purlins were again supported off timber trusses. These generally appeared in satisfactory condition considering the age of the buildings. We noted no indication of recent or significant damage to masonry walls to warrant concern.

We were unable to fully inspect the rear elevation of the outbuildings due to a number of bushes growing against the elevation. Where it was possible to review, we noted no indication of marked damage.

### **CONCLUSIONS AND DISCUSSIONS**

#### **Unit 3:**

The dwelling to unit 3 facing the Warwick Road is currently occupied. From our inspection both externally and internally we noted no marked indication of ongoing distress. Obviously, the unit will need general maintenance and repair.

The attached store is generally of single storey construction, having a small mezzanine to part of the area. The end wall is of timber frame with masonry infill. The external wall facing the courtyard to units 2 and 3 appears to be uneven along its length, with bowing noted to two or three areas. This is possible as a result of insufficient restraint at eaves level, or first floor level, or due to deflection of roof purlins. We were unable to obtain access to the end store room and could not inspect roof purlins to this area. Notwithstanding this, the damage throughout appears longstanding and during the course of any refurbishment further restraint should be incorporated with all new floors and ceilings fully fixed/strapped to the flank wall.

The timber frame wall within the passageway generally appeared satisfactory. However, again during refurbishment, a more detailed check of the condition of timber members should be carried out by a suitable specialist.

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Timber purlins generally appeared satisfactory considering the age of the building, with only slight deflections noted where purlins had been placed at 90° to rafters.

Damp ingress was noted to a number of areas, no doubt due to the deterioration in flashings and weatherproofing. Obviously this would need further investigation during the course of refurbishment.

**Unit 2:**

Numerous tiles to the roof of unit 2 had slipped to all slopes. Purlins to a number of areas had suffered significant deflections and during the course of any refurbishment in part these will require replacement. The primary timber trusses generally appeared satisfactory. However, again, the condition of the timbers should be examined for re-use during the course of refurbishment.

Masonry walls generally appeared satisfactory, with no significant cracking or distortion noted.

**RECOMMENDATIONS/SUMMARY**

**Unit 3**

1. The end dwelling is currently occupied. This will need general updating and maintenance/repair.
2. The remaining units to this block will require complete updating/refurbishment. The roof purlins in part will need to be either replaced or strengthened locally.
3. During the course of refurbishment all floors ceilings and roofs will need to be 'strapped/tied' to all masonry walls using 30 x 5thk m.s straps fixed at approximately 600mm c/c.
4. All timber framing would need to be inspected during the course of refurbishment with localised repairs being made to any areas of marked deterioration.

**Unit 2**

1. The roof coverings to this unit will require replacement. Timber trusses could remain subject to localised repair similarly purlins may need localised strengthening.

**HWA (Structural Engineers) Limited**



**T A WHEELDON IEng AMIStructE AMICE**  
**January 2021**



# Detail Sheet

HWA (Structural Engineers) Limited

Contract

UNITS 2 & 3 Arbour Tree Farm

Contract Number 18082

Sheet Number PS/01

Title

Site Layout for Ref.

Date Dec '20

Initials DW

