

Structural Report

Coed Derwen
Erbistock
Wrexham
LL13 0DN

CLIENT
Etonbrook Limited

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1. INTRODUCTION

- 1.1. AJF Structural Engineering Ltd were appointed by Etonbrook Limited to undertake an inspection and prepare subsequent report commenting on the general structural condition of the property at Coed Derwen, Erbistock, Wrexham, LL13 0DN.



- 1.2. The purpose of the structural inspection is to assess suitability of the two-storey barn building for conversion into a residential dwelling.
- 1.3. A visual inspection was conducted by AJF Structural Engineering on 9th February 2021.
- 1.4. Our survey does not include for a comprehensive appraisal as to the condition of timber with respect to insect and fungal attack or consider the cause and effect of damp ingress.
- 1.5. During the inspection, no covered, unexposed, or inaccessible areas of the building were examined. We are, therefore, unable to report that any such part was free from defect. We did not cut into the fabric of the building and our inspection should be considered in this light.
- 1.6. We have not lifted any manhole covers or examined the condition of the below ground drainage.
- 1.7. All directions are referred to in the report assuming the reader is outside facing the front elevation.
- 1.8. We took several photographs at the time of inspection, some of which are included in Appendix 1.
- 1.9. The report is prepared only for the rights and benefit of yourself as our client. It should not be relied upon by any other party and we give no assurances or bear any obligation to such third party without our expressed permission having been requested by, and confirmed in writing, to that third party.

2. PROPERTY DESCRIPTION

- 2.1. The site is located in a rural setting to the West of Overton on the South side of the Lane.
- 2.2. The farm comprises a single-storey dwelling, two-storey barn building, and various agricultural outbuildings. **This report considers the two-storey barn building only.**
- 2.3. The barn comprises various lean-to structures of varying constructions.



- 2.4. The main barn building is a mixture of stone and brickwork walls. There is a concrete ground bearing slab located below the external ground level.
- 2.5. First floors are split over two levels and are suspended timber construction supported by masonry walls and various timber beams.
- 2.6. The roof structure comprises a mixture of sheet metal cladding and slate tiles supported by timber purlins and trusses.



3. INSPECTION

External:

- 3.1. The external walls of the main barn appear to be in relatively good condition however suffer from a general lack of maintenance. Cracking is mainly located above openings where there is an absence of a lintel or lintel failure. The stonework to the south elevation is in poor condition.



- 3.2. The roof appears to be in relatively good condition when viewed from outside however some areas have deteriorated.
- 3.3. The rooves to the lean-to structures are generally in poor condition. They show signs of structural distress and suffer from a general lack of maintenance.
- 3.4. The various lean-to structures are of single skin masonry construction and not generally considered suitable for residential dwellings.



- 3.5. Foundations were not visible during the time of the inspection there are no visible signs indicative of excessive settlement.

Internal:

- 3.6. The masonry appears to generally be in good condition however localised areas show signs of severe deterioration. There also appears to be localised masonry bearing failure below timber purlins. The areas showing signs of deterioration are generally mirrored on the external elevations.



- 3.7. The first-floor joists appear to be in poor condition and feel unstable underfoot. There is also evidence of ongoing woodborer activity.



- 3.8. The roof structures throughout appear to be in relatively poor condition. There is evidence of water ingress and ongoing woodborer activity throughout.



- 3.9. The second floor below the slate roof was not safely accessible at the time of the survey so its condition cannot be commented on.

4. CONCLUSIONS & RECOMMENDATIONS

- 4.1. Recommendations are shown in **bold**.
- 4.2. It is proposed that the existing two-storey barn is to be converted into a residential dwelling. The proposed works would comprise replacing the existing roof & first floor structures and replacing the existing ground floor slab. The main barn structure is considered suitable for the proposed works to take place following suitable remedial works. **The existing roof and first-floor structures should be replaced. The new roof and first-floor structure should be tied to the external walls to provide adequate restraint. The ground floor slab should be replaced with consideration given to the fact that it is currently lower than the external ground level.**
- 4.3. The associated lean-to structures and various agricultural out-buildings are of single skin masonry construction and they are unlikely to have adequate foundations. They are not considered suitable for conversion into residential dwellings. **The lean-to structures could be used for residential purposes following some remedial works.**
- 4.4. Although there are areas of masonry showing signs of deterioration, the walls appear relatively plumb with no visible signs of historic or ongoing excessive settlement. **The areas of the masonry showing signs of severe deterioration should be rebuilt locally and the whole building repointed as required. Consideration should be given to the proposed mortar mixes due to the varying nature of the existing masonry.**
- 4.5. The timber elements within the building vary in condition and there is evidence of ongoing woodborer activity. **Any existing timber that is proposed to remain should be examined by a suitably qualified and insured specialist.**
- 4.6. Foundations were not exposed at the time of the survey and so their condition cannot be commented on. **Foundations should be exposed, and their suitability assessed and agreed with the Building Control Officer.**

Appendix 1.

PHOTOGRAPHS







































































































OUT OF
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