FAIRCLOUGH

CONSULTING STRUCTURAL ENGINEERS

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STRUCTURAL ENGINEERS INSPECTION REPORT

of

BARN AT
NEW HOUSE FARM, HULME, STOKE ON TRENT. ST3 5YL

8th August 2019

Report No: 190805

INTRODUCTION

INSTRUCTIONS

1. Property to be inspected : Barn at
New House Farm
Hulme
Stoke on Trent
ST3 5YL

2. Client : Mr Andy Beckett
New House Farm
Hulme
Stoke on Trent
ST3 5YL

3. We have been instructed to :

   Inspect and report on the structural load bearing elements of the property.

4. The report is required in connection with a planning application.

5. The property was inspected on the 6th August 2019.

EXTENT AND LIMITATIONS OF THE SURVEY & REPORT

6. This inspection report is limited in its scope to the instructions as noted above. We have not inspected parts of the property or defects that are not relevant to the instructions unless noted in this report. Our inspection was a visual inspection internally and externally as necessary subject to safe and reasonable access being available. We shall only report upon those structural defects that materially affect the stability of the property and provided that these defects are reasonably detectable at the time of our inspection. Whilst we will use all reasonable skill and care in preparing this report, it should be appreciated that we cannot offer any guarantee that the property will be free from future defects or that existing defects will not become worse. Internal inspection is made within the limits of ready accessibility and it is not normal practice to lift floor coverings or floor boards, remove panels or plaster, or move heavier items of furniture. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect. Such unexposed parts may contain problems and you would need to make special arrangements for these areas to be investigated if you require confirmation about their condition.

7. We are not qualified to comment upon: drainage, electrical systems, water systems, heating systems, gas and electrical systems, condition/rot/insect infestation/fungal infestation of timber, damp penetration, mechanical installations, decorative condition, mouldings, coverings, and all other non-structural matters. If we happen to notice any problems in these areas which we recognise we will draw this to your attention, however you should not assume that the absence of any such comments means that the property is free from defect in these areas.

8. This report has been prepared for the named client and for a particular purpose. Any liability, which may arise, is therefore restricted to the client and the client's professional advisers in relation to that stated purpose.

ORIENTATION

9. For the purpose of this report, unless otherwise stated, the front elevation is that which faces the public road or path from which access to the property is given and all references to left and right are given as if viewing the property from the front.

DESCRIPTION OF THE PROPERTY

10. The property comprises a two storey traditionally constructed agricultural barn with masonry elevations, and a pitched roof. The property appears to be in excess of 150 years old.

11. No details were available of any structural problems that may have occurred, nor of any structural repairs or structural alterations that may have been made to the property or to neighbouring properties except as noted in this report.

EXTERNAL OBSERVATIONS

ROOF

12. The roof was observed from ground level. The roof is pitched and covered with tiles. Most of the roof is free from significant deflection or distortion. There is a moderate amount of deflection to the left hand end of the roof.

ELEVATIONS

13. The elevations to the main part of the barn at the left hand end are of solid stone faced masonry. The remaining parts of the elevations to the main barn are of solid 9" brickwork and have been rendered. Horizontal lines are somewhat out of level but within the limits expected in a building of this type and age. The elevations are plumb within the tolerances normally expected.

14. There are no indications of roof/eaves spread except at the upper right hand end of the front elevation where there is a moderate amount of eaves/roof spread. Extra restraint can be installed here as part of the conversion works without significant re-building of the elevation.

15. There are a number of cracks in the rendered parts of the elevations; these cracks are not significantly tapered and have rounded and weathered edges indicating that they are old.

    a. Some of these cracks radiate from steel beams and other metal fixings embedded within the elevations and have been caused by rust expansion. These steel elements should be removed and then the render/brickwork repaired.

    b. The other cracks have been formed by differential thermal movement between the old brickwork and the very hard cement based render. No action is required other than cosmetic repair but these cracks are likely to re-occur in future.

16. At the front left hand corner of the barn there is a single storey flat roofed extension which I understand forms part of the planning application. This part has solid concrete blockwork elevations and a flat roof. There are no signs of significant structural movement between this extension and main barn or within the extension itself. I understand that this part of the building is to be used as a utility space. This part of the barn is satisfactory for conversion to a utility space but its foundations are probably not sufficient to form part of the habitable space of the barn.

17. There is a conservatory/garden room attached to the right hand elevation. The lower parts are of solid concrete blockwork construction and the upper parts are of timber. The timber parts are in a very poor state of repair. There are no signs of significant structural movement to the lower parts and it is suitable for use as a utility space but its foundations are probably not adequate to form part of the habitable space.

INTERNAL OBSERVATIONS

ROOF STRUCTURE

18. The roof structure is of traditional form consisting of timber rafters and purlins. The purlins are supported on the end elevations, an internal load bearing wall, and four substantial timber posts which in turn are supported on steel beams within the depth of the first floor. The purlins and timber props are substantial and appear to be in relatively good condition except as noted in paragraph 19.

19. The two purlins at the left hand end are spliced with new timber where they are supported on the elevation. It would be preferable to remove these splices and to completely double up the purlins with new timber spanning from the elevation to the first set of timber posts.

20. The rafters generally appear to be in a satisfactory condition but at the building regulations stage a detailed design check will be required and it might be that they have to be either replaced or strengthened to accommodated the increased weight of the modern roof covering and internal plasterboard etc and perhaps also to create additional depth for the installation of insulation.

21. The steel beams within the first floor construction that support the timber posts which in turn support part of the roof structure are relatively small by modern standards and I suspect that at the building regulation stage it will be shown that these steel beams are overstressed and will require either replacement or strengthening. Replacement would be preferable so that they can be galvanised to protect the ends embedded within the elevations.

FIRST FLOOR

22. The first floor is of suspended timber construction. The floor is affected by woodworm and the central portion in particular is exceptionally springy underfoot. I also suspect that many joists ends where they are embedded in the elevations will be rotten to some extent. It would be preferable to replace all of the first floor with new. The floor should be detailed to minimise the extent of joist ends embedded within the elevations.

GROUND FLOOR

23. The ground floor is a typical agricultural barn floor with changes in level etc., and is highly unlikely to incorporate a damp proof membrane. I anticipate that the entire floor will be dug up and replaced with a new concrete floor to current building regulations standards.

WALLS

24. The internal wall surfaces were visually inspected. There are no recent structurally significant cracks, or any other signs of recent structural movement. The internal face of the left hand elevation has been lined with concrete clockwork. I understand that the entire gable elevation had to be re-built relatively recently because of vehicle impact.

CONCLUSIONS & RECOMMENDATIONS

25. Apart from the minor points already noted in this report I saw no indication of any significant structural defect to the structural load bearing elements of this property and my overall conclusion is that the building is stable and that it can be converted to habitable use without extensive rebuilding works being required.

26. Prior to building regulations work being carried out I recommend that trail holes are excavated to check the depth of the foundations at a number of locations around the barn. The depth of the foundations will effect the detailing of the new ground floor construction, the required ground floor finished floor level, and therefore potentially the level of the new first floor, in order to achieve the required head heights without having to underpin the foundations.

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For Fairclough & Co Ltd