

FAIRCLOUGH
CONSULTING STRUCTURAL ENGINEERS
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STRUCTURAL ENGINEERS INSPECTION REPORT

of

BUILDING 2
and
BUILDING 3

GRATTON HALL FARM, GRATTON LANE, ENDON
STAFFORDSHIRE.
ST9 9AW

24 July 2021

Report No: 210720A

INTRODUCTION

INSTRUCTIONS

1. Property to be inspected : Building 2 & Building 3
Gratton Hall Farm
Gratton Lane
Endon
Staffordshire
ST9 9AW
2. Client : Sarah & Lee Kirkham
3. We have been instructed to :

Inspect and report on the structural load bearing elements of the building.
4. The report is required for advice prior to planning consent. It is proposed to convert the buildings to domestic leisure use.
5. The property was inspected on the 14 July 2021.

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.

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 elevations will be referred to by compass direction. All references to left, right etc are given as if facing the elevation from the outside.

DESCRIPTION OF THE PROPERTY

10. The building comprises an Z shaped former agricultural barn of traditional construction with mostly solid brick elevations and a pitched roof. Building 2 is the longer leg of the barn and orientated North West to South West. The building appears to be in excess of 120 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. There is some deflection to the roof but well within the limits normally expected in a building of this type.

NORTH EAST ELEVATION

13. This elevation was visually inspected from ground level. The elevation is formed from solid brickwork. Horizontal lines are a bit out of level but within the normal tolerances expected in a building of this type. The central part of the elevation is plumb but the left and right hand ends are moderately bowed/distorted. There are no indications of structurally significant roof/eaves spread. There are no structurally significant cracks, gaps, or other signs of recent structurally significant movement.

SOUTH EAST ELEVATION

14. This elevation was visually inspected from ground level. The elevation is formed partly from solid brickwork and partly from stone faced masonry. Horizontal lines are a bit out of level but within the normal tolerances expected in a building of this type. The elevation is plumb except for some localised bowing/distortion at the

upper right hand part. There are no indications of structurally significant roof/eaves spread. There are no structurally significant cracks, gaps, or other signs of recent structurally significant movement.

SOUTH WEST ELEVATION

15. This elevation was visually inspected from ground level. The southern end of the elevation is of stone faced masonry. This part is contained within the adjoining Open Barn and Building 4. Horizontal lines are a bit out of level but within the normal tolerances expected in a building of this type. The elevation is plumb within normal tolerances. There are no indications of structurally significant roof/eaves spread. There are no structurally significant cracks, gaps, or other signs of recent structurally significant movement.
16. The northern end of the elevation is formed from solid brickwork. Horizontal lines are a bit out of level but within the tolerances normally expected in a building of this type. This part of the elevation is moderately bowed/distorted. There are no indications of structurally significant roof/eaves spread. There are no structurally significant cracks, gaps, or other signs of recent structurally significant movement.

NORTH WEST ELEVATION

17. This elevation was visually inspected from ground level. The elevation is formed from solid brickwork. Horizontal lines are a bit out of level but within the normal tolerances expected in a building of this type. The elevation is plumb within normal tolerances. There are no indications of structurally significant roof/eaves spread. There are no structurally significant cracks, gaps, or other signs of recent structurally significant movement.

INTERNAL OBSERVATIONS

ROOF STRUCTURE

18. The roof structure is of traditional form consisting of timber trusses, purlins, and rafters.
19. The roof of Building 3 is visible from first floor. There are indications of worm infestation and rot. There are no signs of recent structurally significant movement or deflection.
20. Most of the roof to Building 2 is blocked off and I was told that the first floor of Building 2 was not safe to enter. I was able to get a limited view by shining a torch through the access hatch and as far as I could see this roof structure appeared to be in a reasonable condition and probably better than Building 3.

21. There is a diagonal Truss (hipped roof) at the southern end of Building 2. This truss is more badly effected by rot/worm infestation and there is an old repair. Further strengthening is likely to be needed.

FIRST FLOOR

21. The first floor of both buildings consists of steel beams supporting timber joists and floorboards. The exposed parts of the steel beams are superficially corroded but sufficient to cause any reduction in strength. The bearings embedded in the elevations are more susceptible to corrosion but there were no visible signs of a serious problem. The timber joists mostly appear to be in a satisfactory condition.

GROUND FLOOR

22. The ground floor of both buildings is a typical old agricultural barn floor of mixed construction and changes in level. I assume the floor will be replaced as part of the conversion works.

WALLS

23. The internal wall surfaces were visually inspected. There are no recent structurally significant cracks or any other signs of recent structural movement.

CONCLUSIONS & RECOMMENDATIONS

ROOF STRUCTURE

24. The roof structure of Building 3 is effected by worm infestation and rot but there are no signs of recent deflection or movement and it is satisfactorily supporting the applied load. The proposed conversion works will probably involve an increase in loading from insulation, plasterboard etc. If this is the case I suspect that strengthening of the roof structure will be required but it will be possible to achieve this without changing the roof line. Rafter and truss feet are particularly vulnerable to rot and are largely inaccessible for a thorough inspection until the roof is stripped. It would be normal to budget for repairs. The diagonal truss at the southern end of Building 3 will need additional strengthening.
25. The roof structure to Building 2 was not accessible for inspection but as far as I could see from the access hatch it appeared to be in reasonable condition. This will have to be confirmed when safe access is available. Rafter and truss feet are particularly vulnerable to rot and are largely inaccessible for a thorough inspection until the roof is stripped. It would be normal to budget for repairs.

ELEVATIONS

24. There are no signs of structurally significant foundation movement. Large parts of the elevations are plumb within normal tolerances but other parts are moderately bowed./distorted. These parts are not bowed/distorted enough to need re-building but they should be stabilised by strapping to the first floor and to a new internal structural leaf.

FIRST FLOOR

25. The first floor of both buildings consists of steel beams supporting timber joists.
26. The steel beam are in a satisfactory condition with only superficial corrosion. They are strong enough to support normal domestic floor loads.
27. The timber joist mostly appear to be a reasonable condition but they will be overstressed and exceed normal deflection limits under the domestic loading specified in the building regulations. Additional support will be required or new joists.
28. The bearing ends of the steel beams embedded in the elevations are hidden and are susceptible to corrosion but there were no visible signs of a serious problem. It will be straightforward to introduce additional support from the new internal structural leaf to the elevations (see para 24) if a problem with the bearing ends is discovered.

OVERALL CONCLUSION.

29. My overall conclusion is that these two buildings are suitable for conversion without significant re-building.



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For Fairclough & Co Ltd

