CVM
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

Report 17158_R001

134 Mow Lane, Gillow Heath

Stoke-on-Trent, ST8 6RJ

Visual Structural Report in respect of an Existing Barn Structure for the purpose of a proposed conversion to a dwelling

November 2017

Revision 0

Revision	Description	Issued by	Date
0	First Issue	AM	22/11/17

This report has been prepared for the sole benefit, use and information of the Client, Mr & Mrs Heathcote, for the purposes set out in the report or instructions commissioning it. The liability of CVM Projects Limited in respect of the information contained in the report will not extend to any third party. The benefit of this report may not be assigned to any party.

Author	A Massey BEng(Hons) CEng MIStructE
Date	22/11/17

Contents

1 Introduction

CVM Projects Limited have been appointed to carry out a visual inspection of the primary structural elements of the barn to identify its suitability for conversion to a dwelling.

The purpose of the inspection was to determine, so far as is possible from a visual inspection, any major defects with the structure that could prevent the conversion from taking place.

This report refers only to the specific structural elements described herein, and does not extend to, inter alia, the roof covering, secondary support fixings for services, or other fixtures and fittings such as gas, water and electricity. It does not constitute a valuation or dilapidations report for the entire building and its services and should not be relied upon in this context.

The report is a visual Structural Inspection only and not a Structural Survey, which would be undertaken by a Chartered Surveyor.

The report does not comment on structures that are hidden. We have not drilled holes or removed finishes or floor boards.

The inspection has been undertaken from ground level only externally. The report does not include items such as damp, water ingress or the condition of timber elements which should be undertaken by the relevant specialists.

No examination of foundations or ground conditions has been undertaken.

The report does not cover any items which are not listed in the scope of duties and excludes such items as: -

1. Joinery including doors, windows, cupboards.
2. Roof, floor or wall coverings such as tiles, asphalt, wallpaper etc.
3. Services, including electrical apparatus, water pipes and fittings, drainage and gas pipes etc.
4. Other matters including legal status or the property boundaries, planning application, easements, ownership etc.
5. Asbestos.

We have not carried out any land registry or other types of legal searches, such as for mining activity, public utilities and the like and strongly recommend that, if not already obtained, where applicable these are obtained as part of the conveyancing services carried out by the client's appointed legal professionals.

We did not carry out sampling or testing of materials or inspect any part of the structure that was covered, unexposed or inaccessible and we are therefore unable to report that any such part of the building fabric is free from defect.

Furthermore, we have not specifically inspected for asbestos and the absence of reference in our report does not imply that the property is free from its presence.

2 Visual Inspection

2.1 Timing and method of Inspection

The inspection was undertaken on Friday 20th October 2017 at approximately 10.00 am. The weather conditions at the time of the inspection were overcast and rainy.

The external inspection was carried out from ground level. The internal inspection was carried out from floor level within the relevant rooms.

The inspection documents the general form of construction of the primary structural load bearing elements. No sampling or testing was carried out during the inspection.

The inspection considers defects which are considered to be structural and does not report upon defects considered within finishes or which are considered to be cosmetic.

2.2 Observations

2.2.1 General Description

The property is a terraced barn part of which has been previously converted (not considered within this report).

The barn has two storeys with a gabled pitched roof construction with rafters supported by timber purlins which are in turn supported by load bearing gable walls. There are a number of openings which are supported by stone and timber lintels. The walls are constructed from coursed local gritstone externally and random stone internally originally using lime based mortar, however, the joints have been repointed using a cement based mortar in the past.

Data from the British Geological Survey indicates that the underlying strata is likely to be Glacial Till overlying Mudstone, Siltstone & Sandstone of the Pennine Lower Coal Measures formation. Bearing capacity of this material is likely to be adequate, and significant initial settlements under load would therefore be unlikely. Weathered, superficial strata could however potentially be susceptible to the effects of excessive moisture, and it is therefore important that underground drains and water services are watertight in the vicinity of the foundations and that paved areas do not discharge water into the ground adjacent to the building.

2.2.2 Visual Inspection

2.2.2.1 Walls

The external walls were constructed from an external leaf of coursed gritstone with an inner leaf of random stone, it is likely that loose stone is contained between the two leaves, however, this was not possible to confirm without intrusive investigation. The external leaf of coursed stone had originally been bonded with a lime based mortar, however, repointing had been undertaken in the past using a cement based mortar. Generally, the external walls were in good structural order considering the age of the building, however, a portion of the front wall had moved significantly outwards (Refer to Photographs 6 & 27), in our opinion it is likely that this could be due to the spreading of the original roof which has been replaced, however, this could not be confirmed. This section of the wall will require support and it is recommended that the proposed conversion consider the use of both external feature buttressing and the tying of the wall to the internal structure to prevent further movement from occurring.

There was evidence of movement to a section if the rear wall (Refer to Photograph 11) which again, in our opinion, appeared to have been caused by spread of the original roof, however, this could not be confirmed. It is recommended that during the conversion of the barn, this section of wall is rebuilt and adequately tied to the structure to prevent further movement from occurring.

The aforementioned movement has also affected some of the internal cross walls which have become detached from the external walls (Refer to Photographs 13, 14 & 16). As part of the conversion works, it is recommended that these walls are tied into the external walls and strapped to the floors. The proposed method of tying should be determined during the design of the conversion works.

There were a number of timber lintels which were supporting the inner leaf of the external wall which should be replaced with new pre-cast concrete lintels as part of the conversion works due to deterioration and possible woodworm (Refer to Photographs 25 & 26).

2.2.2.2 Roof

The roof structure is understood to have been replaced recently and comprised of a traditional timber rafter and purlin construction with the purlins supported from load bearing masonry walls (Refer to Photographs 15, 19, 20 & 24). The gable walls appeared to be supported from steel beams in places. There were no apparent structural defects to the timber roof structure as would be expected of a recently replacement structure. However, the bearings of the steel beams onto the inner leaf of the external wall did not have concrete padstones (Refer to Photograph 23) and we

would recommend that these are installed during the conversion. There was no evidence of strapping from the roof to the walls of the barn and again this should be undertaken as part of the conversion works to comply with current Building Regulations.

2.2.2.3 Upper Floors

The suspended timber upper floors were not in an acceptable structural condition for use in a dwelling (Refer to Photographs 21 & 22) and should be replaced with new joists sized in accordance with current Building Regulation standards as part of the conversion. The floors should be strapped both the internal and external walls to enhance the stability of the structure in accordance with current Building Regulation standards.

2.2.2.4 Foundations

A number of small hand dug trial holes had been undertaken by the client which exposed the stone spread footings supported from a firm natural clay sub-stratum (Refer to Photographs 7 & 12). There was no evidence of settlement to the structure and the foundations should be suitable for conversion provided that both the external and internal floor levels are not reduced from the current levels.

2.2.2.5 Ground Floor

The ground floor is unlikely to meet current building regulation requirements and should be broken out and replaced with a new ground floor construction in accordance with current Building Regulations as part of the future conversion works.

3 Conclusion

3.1 Conclusion

3.1.1 Suitability for Conversion

It is our opinion that the barn is suitable for conversion as the works stated are primarily required to allow the sympathetic conversion of this historical structure and update it to current Building Regulation standards. No major rebuilding is anticipated from the visual survey and it is our opinion that the character of the building will be maintained without any significant amendments to its appearance during the conversion works.

It is our opinion that it is feasible to convert the structure and update it to comply with current Building Regulation standards required for a residential dwelling with careful consideration given to maintain the external appearance.

.

4 Appendix A – Reference Photographs

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

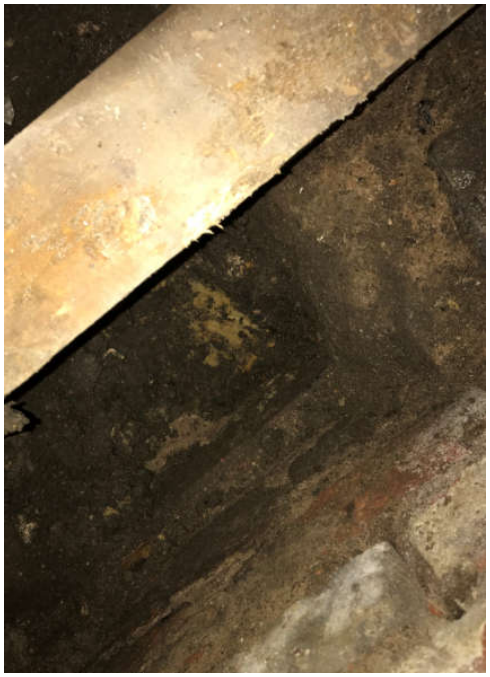

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

CVM Projects Limited

31 Ironmarket

Newcastle

Staffordshire

ST5 1RP

T: 01782 944001

www.cvmconsulting.co.uk