Simon Bastone Associates Ltd

Consulting Civil and Structural Engineers

Structural Inspection

Inspection for Full Plans Application for Conversion at

Moor Farm,
Talaton,
Exeter,
Devon, EX5 2RF

For Ms Pascoe

Reference R220516/SI/00

25 August 2022

Units 4 & 5 The Boat Shed
Michael Browning Way, Exeter
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1 INTRODUCTION

1.1 Scope of Investigation

1.1.1 I (Robert Thomson) have been instructed to produce this report for and on behalf of Simon Bastone Associates Ltd.

1.1.2 It is proposed to convert a redundant Building into domestic accommodation. I have been instructed to prepare this report, highlighting any major structural defects with recommendations for remediation as appropriate. The purpose of the report is to support the planning application for the scheme.

1.1.3 I confirm that I have not been instructed to inspect any other parts of the structure.

1.1.4 I have not been instructed to inspect outbuildings, boundary walls etc.

1.1.5 My brief for this investigation is to carry out a visual inspection of the finishes of the structure and report on any relevant defects that could reasonably be observed within the limitations of the investigation outlined below.

1.1.6 We have not been asked to carry out an asbestos survey or a survey for toxic mould so we will not report on these items. Specialist consultants will be required for such inspections.

1.1.7 The word "significant" shall mean significant in relation to what we are reporting about only.

1.2 Limitations of the Investigation

1.2.1 Certain limitations apply to the inspection and this report. These limitations are detailed in our Terms and Conditions of Engagement. Please ensure that these limitations are fully understood before relying on any information contained in this report.

1.2.2 We will inspect as much of surface areas as is practical, but will be under no obligation to inspect those areas of the structure that are covered, unexposed or are not readily accessible. We are therefore unable to report that any such parts of the structure are free from defect.

1.3 General Information

1.3.1 Minor cracks in the finishes were apparent in the usual areas for a structure of this type and age, such as hairline cracks due to seasonal, thermal and drying shrinkage. These cracks have all been assessed and categorised but have not necessarily been commented upon in the report unless considered relevant. If cracks exist that are thought to be signifying progressive movement, they will be assessed in a separate section of the report.

1.4 Authorisation

1.4.1 The investigation on which this report is based was carried out in response to an instruction from the Client to proceed with the work.

1.4.2 The instruction together with our terms and conditions were confirmed in our quotation by email.

1.5 Use of the Report

1.5.1 This report shall be for the private and confidential use of the Client for whom the report is undertaken, and shall not be reproduced or copied in any way in whole or in part or relied upon by third parties for any use without the express written permission of Simon Bastone Associates, the copyright owner. However, the report may be shown to other professional advisors such as Planners, Architects, Solicitors or sources of finance such as banks and building societies that may require knowledge of its recommendations for your benefit. It may not be passed to future purchasers or investors.

1.5.2 Also see our Terms and Conditions of Engagement.

1.6 The Investigation and Weather

1.6.1 The investigation was undertaken by Robert Thomson, on behalf of Simon Bastone Associates Ltd. on 18th May 2022. The weather at the time of the survey was rainy.

1.7 The Surveyor's Qualifications and Experience

1.7.1 I graduated from The University of Cape Town in 1983 BSc Civil Engineering and I am a fully qualified Chartered Engineer (CEng).

1.7.2 I have been a Member of the Institution of Structural Engineers (MIStructE), achieving chartered status, since 1995. I have worked in a senior position since then, which has provided me with extensive experience in the construction industry.

1.7.3 I have considerable experience in surveying both modern and older structures, including buildings of great historic interest. With a background of structural design, extensive knowledge of modern and historic construction techniques and the building regulations, this is the ideal experience to carry out this type of survey work.

1.8 Photographs

1.8.1 A photographic record was taken, which is held in my records, from which a selection is appended to this report. Photographs generally relate to the text in the preceding paragraph.

1.9 Descriptions

1.9.1 For the purpose of identification of parts of the structure, the front is taken to be the wall facing the courtyard and the right or left hand sides would be taken when looking towards the structure from the outside at the front.

1.9.2 Descriptions of individual walls or elevations are taken when looking at the wall from the relevant side.

2 CONSTRUCTION

2.1 General Description

2.1.1 The building is a mono-pitched roof single storey masonry barn with gable walls to the left and right side elevations.

2.1.2 The dimensions of the building are shown on the Architect's drawings.

Internal view looking towards right side wall

2.1.3 There are two full height 450mm wide x 215mm thick blockwork masonry piers within the front elevation with a third pier, two thirds height, to the right side of the opening in the left hand end.

2.1.4 There are three 450mm wide x 215mm thick blockwork masonry piers within the rear wall.

2.1.5 There are two 450mm x 215mm thick blockwork masonry piers within each side walls. There is an opening between the last pier and the corner pier.

2.1.6 There are 450mm x 215mm thick blockwork masonry piers within each corner of the building.

2.1.7 There is 100mm thick blockwork masonry wall between each pier. There are a few courses of brickwork at high level. There is a wider plinth at low level. There are two steps in the plinth to the front with 215mm and then 150mm thick walls. There is a 150mm thick plinth to the rear wall and for two bays in the side walls.

Internal view looking towards rear left corner

2.1.8 The external ground level slopes up from the front to the rear resulting in a maximum 600mm retained soil height.

2.1.9 The roof structure consists of beams spanning between the rear piers and the front wall. The left and right beams are 65mm wide x 250mm deep timber sections. An additional strengthening timber is bolted to the side of the original beams although they are not for the full length. These beams have a noticeable bow due to excessive deflections. The central beam is a 203 x 133 UB steel section. This beam is in a reasonable condition with no evident deflection.

2.1.10 The purlins are a minimum of 50mm wide x 100mm deep timber sections at approximately 1.0m centres.

2.1.11 The roof is covered with box profile steel sheeting.

2.1.12 There is a ground bearing concrete slab throughout the building.

Front wall

Right side wall

Rear wall

Left side wall

3 OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

3.1 Perimeter walls

3.1.1 The blockwork masonry is in a reasonable condition allowing it to be retained within the proposed conversion without the need for any repairs or rebuilding.

3.1.2 It is proposed to reduce the external ground levels around the building to allow for a door within the rear wall. This will ensure the walls are not retaining.

3.1.3 It is proposed to line the perimeter walls with insulation to conform to Approved Document L of the Building Regulations.

3.2 Roof

3.2.1 It is proposed to replace the existing roof covering with a single ply membrane on plywood decking. This will increase the applied loading to the existing roof structure. In addition, it is proposed to line the ceiling with plasterboard further increasing the applied loading.

3.2.2 The timber roof beams are deflected with the result that there are areas of water ingress into the building through the roof covering and localised water damage to some purlins.

3.2.3 As a plywood deck and ceiling board is proposed additional purlins will be required to provide support, at a minimum 400mm centres.

3.2.4 A design check indicates that the existing 203 x 133 UB steel beam is adequate for the existing and proposed loading.

3.2.5 It is recommended that the timber beams are replaced with 203 x 133 UB steel beams to match the existing one. As additional rows of purlins will be required to support the decking and ceiling boards plus it would be impractical to temporary prop the existing purlins, it is recommended that the purlins are all replaced.

3.3 Foundations

3.3.1 They were not observed, but there is no evidence of historical, recent or ongoing damage related to foundation movements.

4 SUMMARY OF RECOMMENDATIONS

4.1.1 This is a summary of the conclusions and recommendations, full details of which are described in the observations, comments and recommendations section of this report.

4.2 Suitability of Barn for Conversion

4.2.1 It is my opinion that the main structure of the barn is in reasonable condition and suitable for conversion.

4.3 Feasibility of Proposals

4.3.1 The proposals involve little alteration to the existing structure, retaining all areas of existing wall.

4.3.2 Two new steel roof beams and replacement purlins are recommended to allow for a plywood decking for the single ply membrane with ceiling boards to replace the existing lightweight box profile steel sheeting.