

Simon Bastone Associates Ltd

Consulting Civil and Structural Engineers

Structural Inspection

Inspection of Timber Framed Building for Permitted Development at

Trevenn,
Clubworthy, North Petherwin,
Launceston,
Cornwall,
PL15 8NZ



For Dan and Emma Miles



Reference R230612/SI/00

Units 4 & 5 The Boat Shed
Michael Browning Way, Exeter
Devon, EX2 8DD

27 July 2023

t: 01392 671616

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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 this agricultural barn into a dwelling under Class Q of the Town & Country Planning (General Permitted Development) Order 2015 (Amended), hereafter the Regulations. Our instruction is to carry out an inspection of the existing structure and report on the nature of construction, suitability for incorporation within the conversion and condition.

1.1.3 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.

1.1.4 My brief is to consider whether the existing structure complies with Approved Document A of the Building Regulations taking into account the loading which comes with the external works for conversion to residential use.

1.2 Limitations of the Investigation

1.2.1 Certain limitations apply to the inspection and this report. These limitations are detailed in my 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 Authorisation

1.3.1 The investigation on which this report is based was carried out in response to an email instruction from Richard White of Moor Planning, on behalf of the Clients Dan and Emma Miles, to proceed with the work on 7th June 2023.

1.4 Use of the Report

1.4.1 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.

1.4.2 Also see our Terms and Conditions of Engagement.

1.5 The Investigation and Weather

1.5.1 The investigation was undertaken by Robert Thomson, on behalf of Simon Bastone Associates Ltd. on 13th June 2023. The weather at the time of the survey was overcast but hot.

1.6 The Surveyor's Qualifications and Experience

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

1.6.2 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.

1.6.3 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.

1.7 Photographs

1.7.1 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.

1.8 Descriptions

1.8.1 For the purpose of identification of parts of the structure, the front is taken to be the wall facing the main road and the right or left hand side walls would be taken when looking towards the structure from the outside at the front.

1.8.2 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 single storey duo-pitched roof timber framed barn consisting of four bays with portal frames within each gable wall resulting in five equivalent portals. The frames are at approximately 4.6m centres. There are gable walls to the front and rear walls. The building is relatively narrow (approximately 5.0m between the face of the columns) and low (just above 3.0m to eaves level).

2.1.2 The timber frame columns and rafters consist of 125mm wide x 225mm deep rectangular timbers sections. The eaves levels are relatively low at 3.0m to the underside of the beams to the front.

2.1.3 There are haunches at both eaves and apex connections consisting of 18mm thick plywood nailed to each side of the columns and/or rafters, with a diagonal strut infilling the third side. This is a typical portal frame connection detail for a timber framed agricultural building.

2.1.4 There is a 150mm x 125mm timber door post each side of the vehicular access door within the front wall.

2.1.5 There are 100mm x 100mm timber door/window posts and rails in the left side wall in the third and last bays trimming these openings.



Internal view looking towards front wall



Internal view looking towards rear wall



Eaves haunch connection



Haunch apex connection

2.1.6 Other window openings are adequately trimmed using 100mm x 100mm rails.

2.1.7 Within the second bay to the right side there are two additional posts that appear to have no function. However, the client provided me with the following photograph showing threshing machine pulleys that were attached to the rails. The forces applied by this mechanism would be in excess of any lateral loading applied by the proposed conversion.



Historical threshing mechanism with pulleys attached to barn, now removed

2.1.8 The double front door is clad with butted up timber boarding within a timber frame. The doors are hinged to the posts each side with a timber rail over the head of the door. There is painted box profile steel sheeting to the side and above the doors for the remainder of this wall. The sheeting is supported by timber rails.

2.1.9 There is a timber clad and framed double pedestrian door within the third bay to the left side wall. There are two windows within the left side wall. There are painted box profile steel sheet clad, timber framed, double vehicular access doors within the last bay.

2.1.10 The remainder of the left side wall and all of the rear and right side walls consist of painted box profile steel sheeting. The sheeting is supported by 100mm x 75mm timber rails and 175mm x 65mm timber eaves beams. Where there are no openings, the rails are at approximately 150mm and at 1550mm (approximately midway up the wall) above the internal floor level.

2.1.11 The roof structure consists of substantial timber purlins and ridge beams at close centres, supported on top of the portal rafters, fixed with timber cleats. The roof covering consists of painted corrugated steel sheeting.

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

2.2 Foundations

2.2.1 The foundations and the subsoils were not observed although generally for this form of construction the timber columns and timber posts are set into concrete pad foundations formed on an adequate bearing strata.



Front wall



Left side wall from front



Left side wall from rear



Rear wall



Right side wall

3 OBSERVATIONS, COMMENTS AND RECOMMENDATIONS

3.1 Superstructure

- 3.1.1 There is no evidence of any damage or significant decay within the timber framework.
- 3.1.2 The existing building is completely clad to all elevations. The eaves levels are relatively low and narrow with moment connections at eaves and apex connections to the portal frames.
- 3.1.3 Although measurements of the applied loading from the threshing mechanism were never taken, my engineering judgement indicates that the applied loading would locally be in excess of the lateral loading when the building is converted.
- 3.1.4 As there is no increase in lateral wind loading to the building, it could be deemed to satisfy Approved Document A of the Building Regulations.

3.2 Roof

- 3.2.1 The structural roof timbers are in a reasonable condition as is the roof covering with no signs of decay, corrosion or water ingress.
- 3.2.2 It is intended to retain the corrugated roof sheets. As there would be no increase in loading the existing roof structure, including portal frames, would be deemed to satisfy Approved Document A of the Building Regulations.

3.3 Exterior walls

- 3.3.1 It is proposed to line the perimeter walls with insulation to conform to Approved Document L of the Building Regulations.
- 3.3.2 As far as possible existing adequately trimmed openings will be used, with additional openings formed between the existing rails. This will ensure the building operations to complete the conversion can be deemed to be reasonable.
- 3.3.3 Where existing openings are infilled, the timber framing will be detailed to be supported by the existing foundations.

3.4 Foundations.

3.4.1 The existing foundations will be reused to support all the loads from the proposed conversion.

4 CONCLUSION

4.1 Feasibility for Conversion

4.1.1 It is my opinion that it is feasible to convert the building and to retain the existing structure for support.

4.1.2 The existing structure complies with Approved Document A of the Building Regulations taking into account the loading which comes with the external works for conversion to residential use. The building structure is therefore understood to comply with the requirements within Class Q.