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October 2021

STRUCTURAL FEASIBILITY REPORT

On

EXISTING BARN

At

NORTH RYE HOUSE, BROADWELL

For

MR AND MRS REDWOOD

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1.0 Instructions and Limitations

1.1 Instructions were received from you requesting a structural feasibility report on the existing barn in the grounds of your property. The purpose of our survey was to inspect the building and advise on the suitability of the existing structure for conversion into residential use.

1.2 Initially, our survey was to be visual only, without damage. Our report is limited to the inspection of visible elements of structure only. No inspections have been made of woodwork, damp proof membranes or other parts of the structure which were covered, unexposed or inaccessible and we are therefore unable to report that such part is free from defect.

1.3 This report is prepared for the information and use of Mr and Mrs Redwood and any liability of Ian Harban Consulting Engineers to any third party, whether in contract or in tort, is specifically excluded. Any third party finding themselves in possession of this report may not rely upon it without first obtaining the written authority of Ian Harban Consulting Engineers.

2.0 Description and History

2.1 The property is a single storey stone barn close to the entrance to the property. The barn is orientated North to South.

2.2 There is are two distinct areas of the barn. One with a high portion of roof and another with a low portion of roof.

2.3 Little is known of the history of the barn, save that recently it has been used for general agricultural purposes.

3.0 Inspection

3.1 First inspection was made by T B Redwood and I G Harban on 08/10/2021.

3.2 All areas were visited, the walls and roof were inspected from ground level internally and externally.

4.0 Observations

4.1 Roofs

4.1.1 The higher portion of roof to the northern side of the barn consists of a Cotswold stone roof covering. This is supported on timber rafters (at approximately 400mm centres) and timber purlins (one either side of the ridge line). These purlins bear onto the gable walls with a timber truss at their midspan.

4.1.2 Some additional cross timber members are present at a high level.

4.1.3 The low portion of roof to the southern side of the barn consists of a corrugated metal roof sheeting which is supported on timber purlins. The purlins bear onto the gable walls and three intermediate trusses at approximately 3m centres. The trusses are timber but have a vertical steel tension member.

4.1.4 The timbers appear to be in good condition to the entire roof. The ridge line appears relatively level and there are no signs of excess deflection.

4.2 Walls

4.2.1 The walls are constructed in stone. There are two large openings to the eastern elevation. To the eastern elevation there are two small openings present as well as three larger openings which are framed out by stone piers.

4.2.2 The walls appear to be level and in good condition, save for some minor areas of localised cracking/damage.

4.2.3 The roof trusses to the northern side of the barn are supported on brickwork piers inboard of the main external walls. To the western side, the pier has come away from the adjacent wall.

4.2.4 Some areas of the existing walls appear to have been re-pointed internally.

4.2.5 There is cracking present to an internal half height dividing wall to the northern end of the barn.

4.3 Floors

4.3.1 The existing ground floor is concrete. To the northern end of the barn there are channels in the existing floor.

4.3.2 The floors appear to be relatively level and whilst it was not possible to inspect the entirety of the floor, the floor appears to be in good condition.

4.4 Foundations

4.4.1 Whilst the existing foundations were not inspected, there are no obvious signs of any structural shortcomings to the existing foundations.

5.0 Discussion

5.1 There is no evidence to suggest any significant structural shortcomings to the existing barns. The roof and walls are relatively level and the timbers appear to be in good condition throughout.

5.2 Localised crack repairs could be carried out to any affected areas using traditional heli-bar remedial techniques.

5.3 The brickwork pier that has come away from the adjacent wall could be locally re-built with adequate wall ties installed.

5.4 It is anticipated, based on the inspection of the existing structure, that there would not be any structural concerns with any proposed increase in roof loading based on changes to the roof covering.

5.5 A replacement concrete ground floor could be introduced into the barn without any significant structural implications.

5.6 There is no evidence to suggest that there are any structural shortcomings to the existing foundations and given the likely relatively low increase in proposed loadings, as part of any proposed conversion works, I would expect that the existing foundations would be sufficient.

6.0 Conclusions

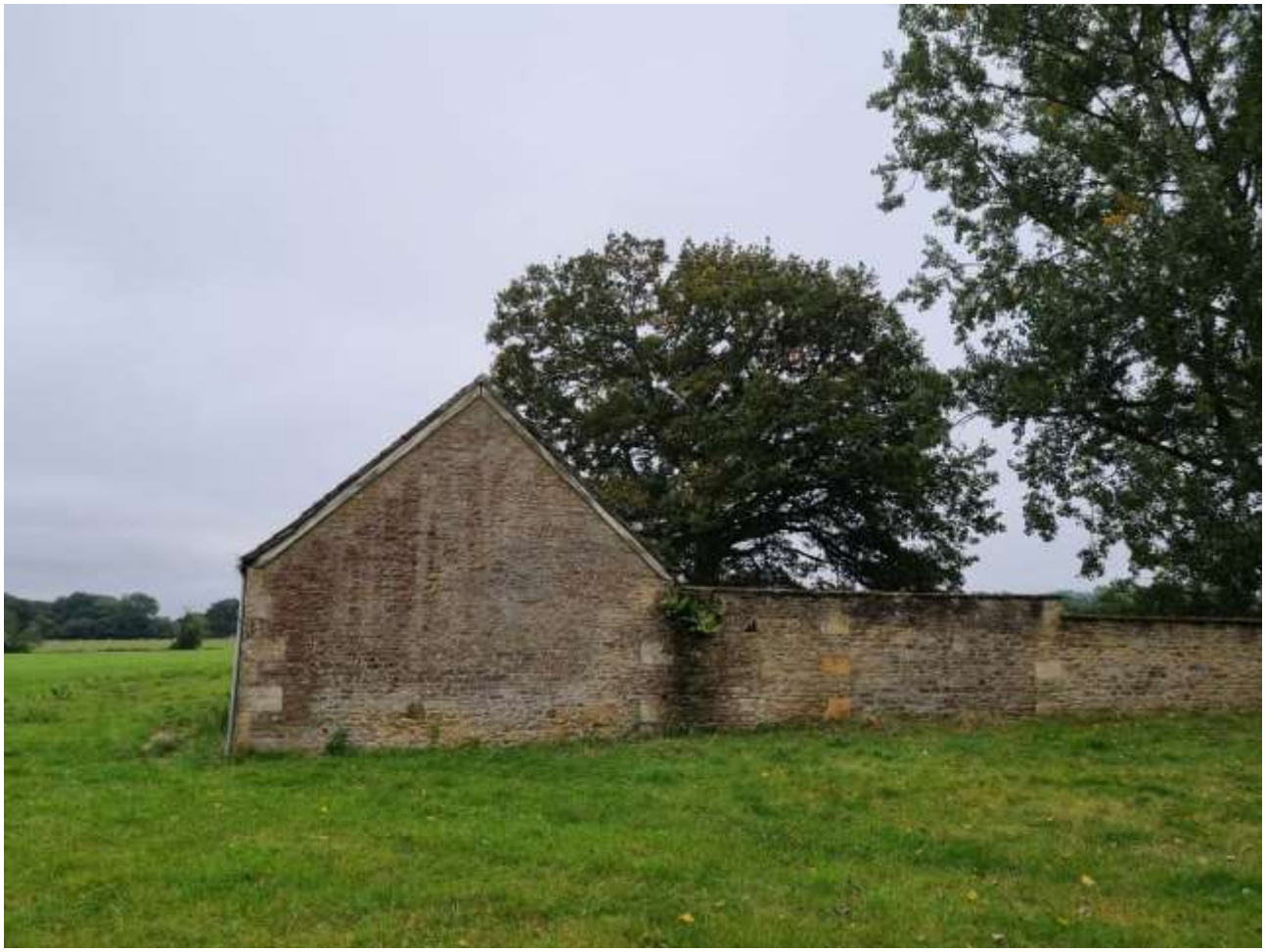
6.1 The building is structurally sound and there are no significant structural shortcomings that would prevent its conversion to residential use.

6.2 Some changes may be required to suit architectural design decisions, but these are not considered major and would not constitute a significant change to the building structure.

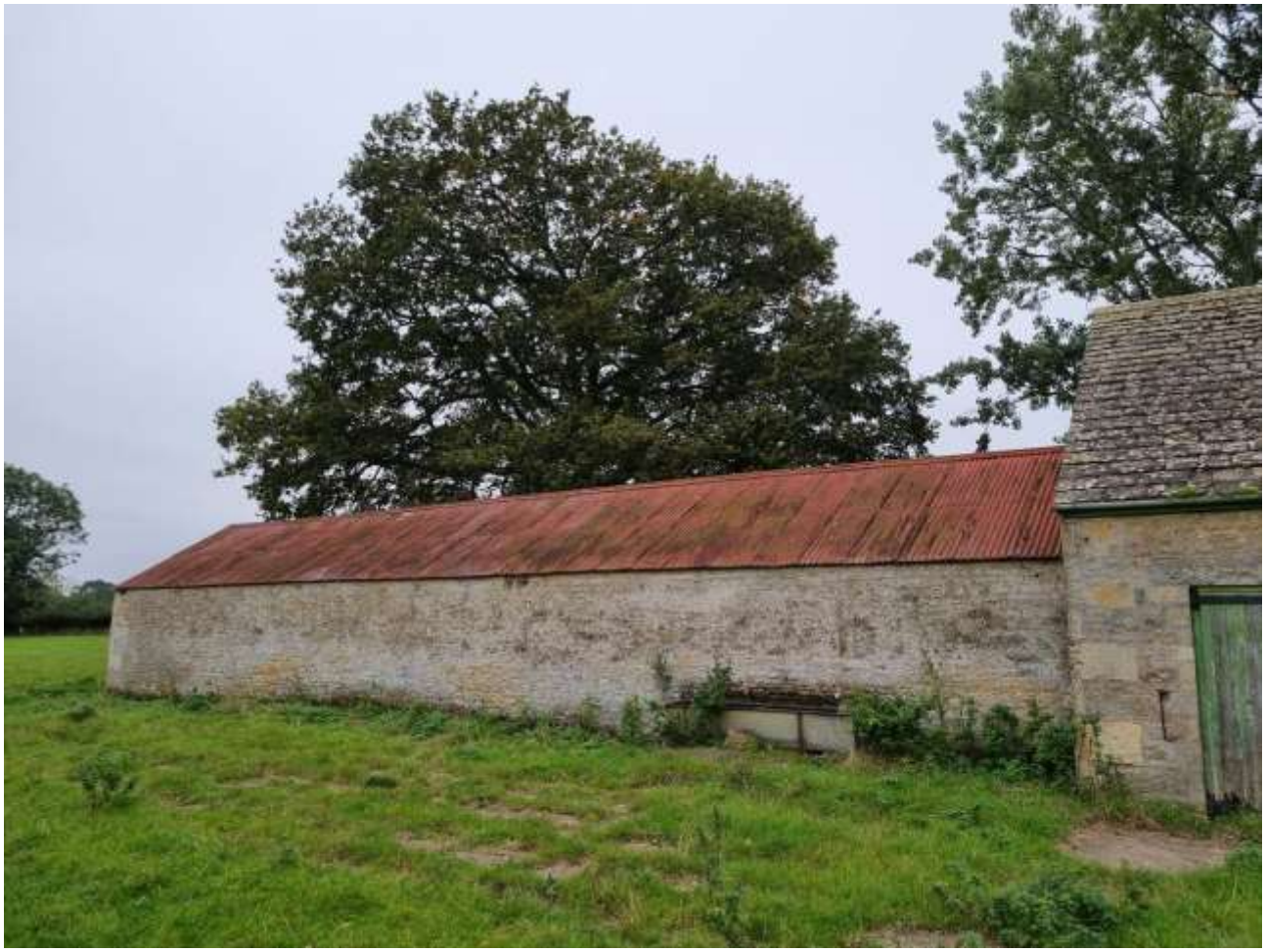
6.3 Therefore, we are of the opinion that the structural works necessary to convert this building from Agricultural use to residential are no more onerous than are usually required as part of barn conversion works, and substantial structural enhancement is not required.

APPENDIX A

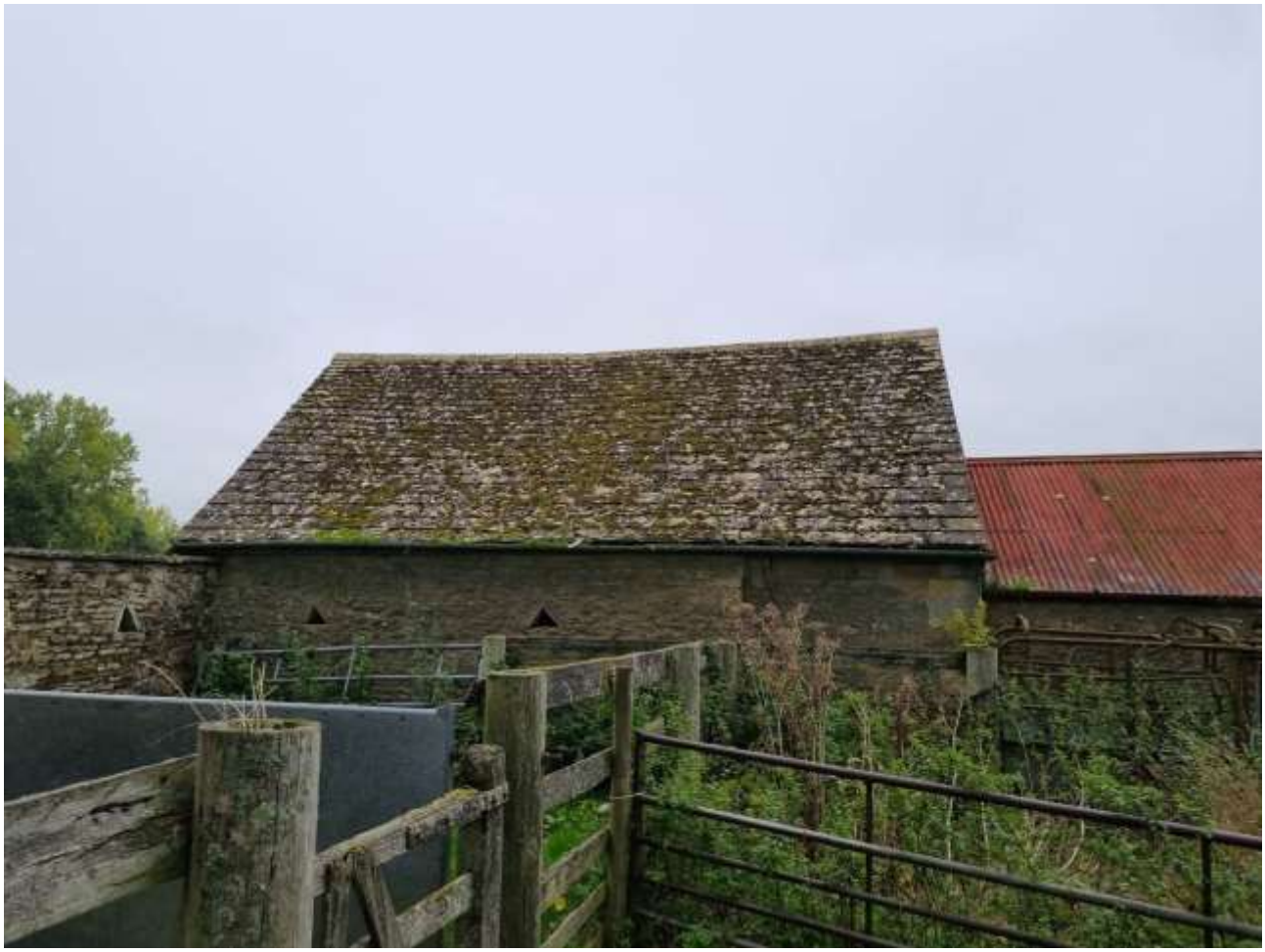
Photographs



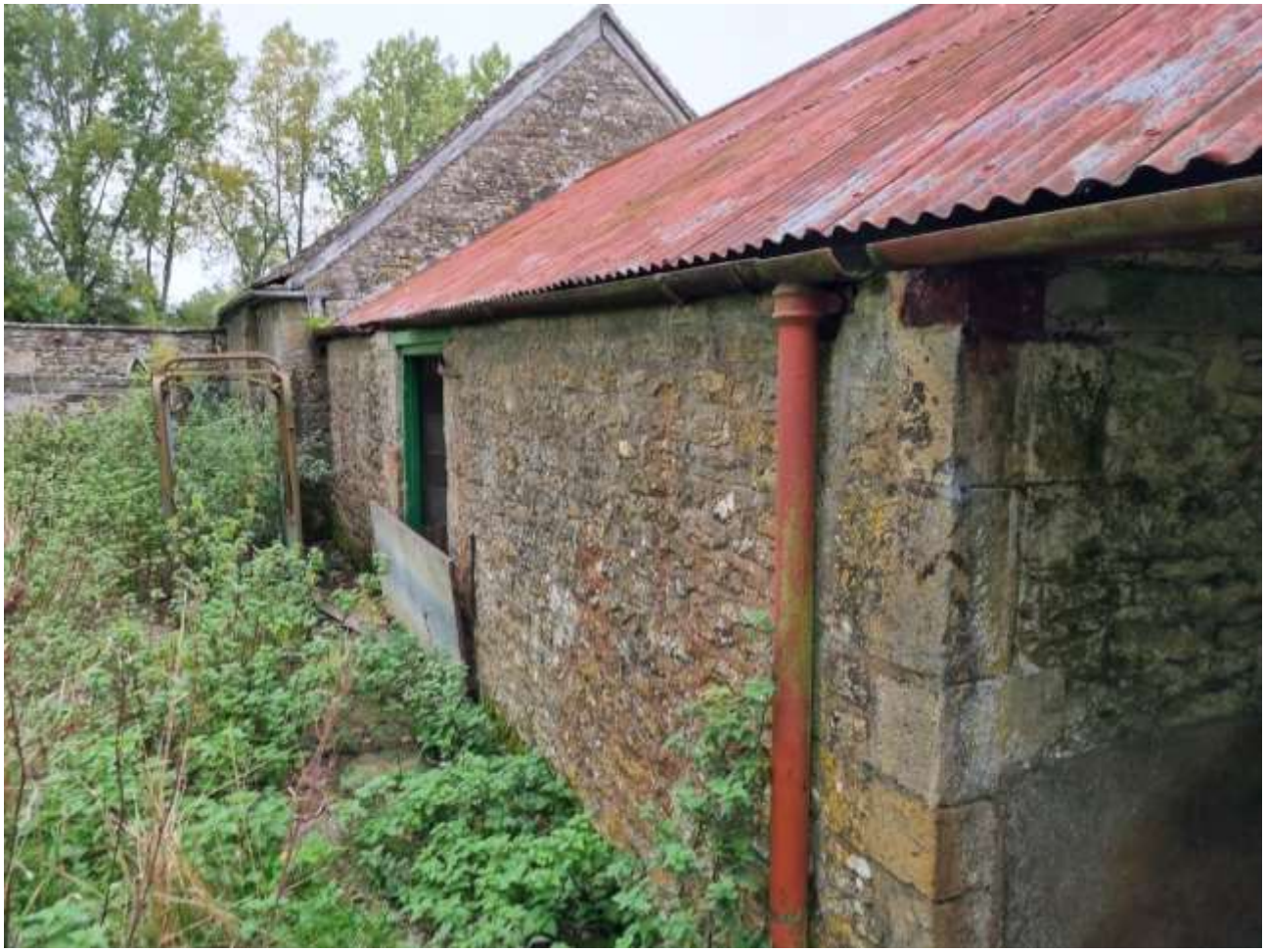
Photograph 1: Showing Northern Elevation



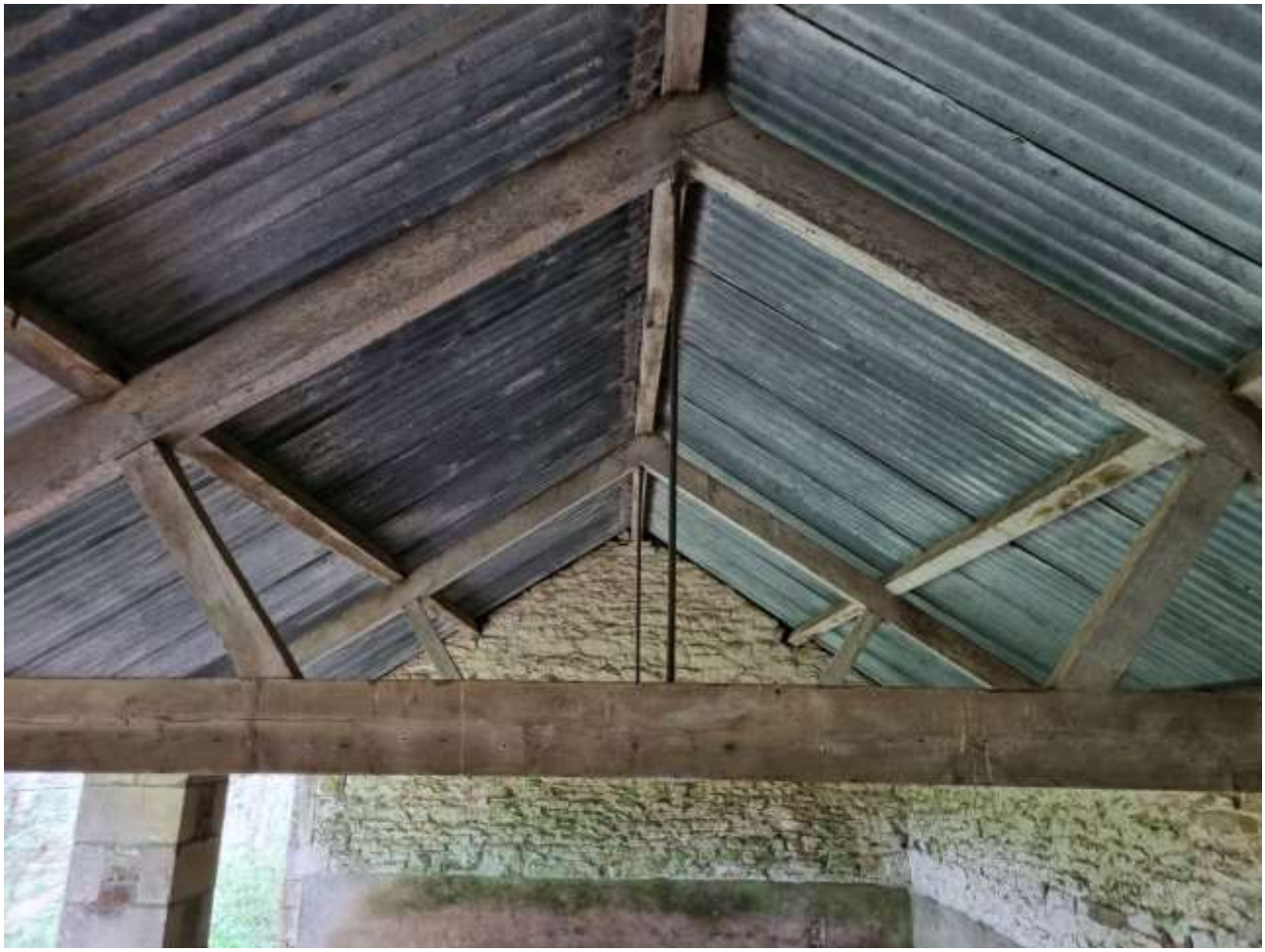
Photograph 2: Showing Eastern Elevation



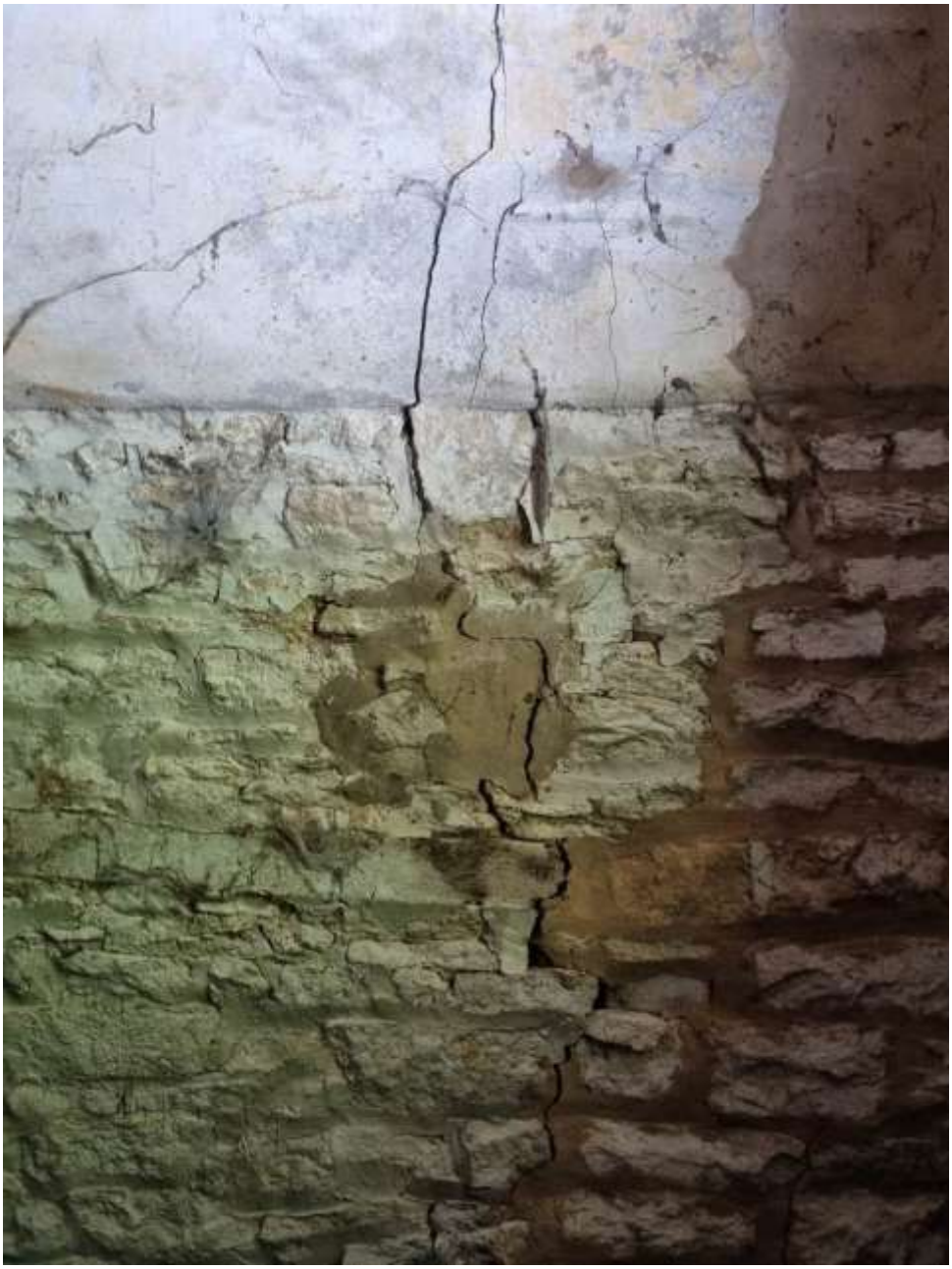
Photograph 3: Showing Western Elevation



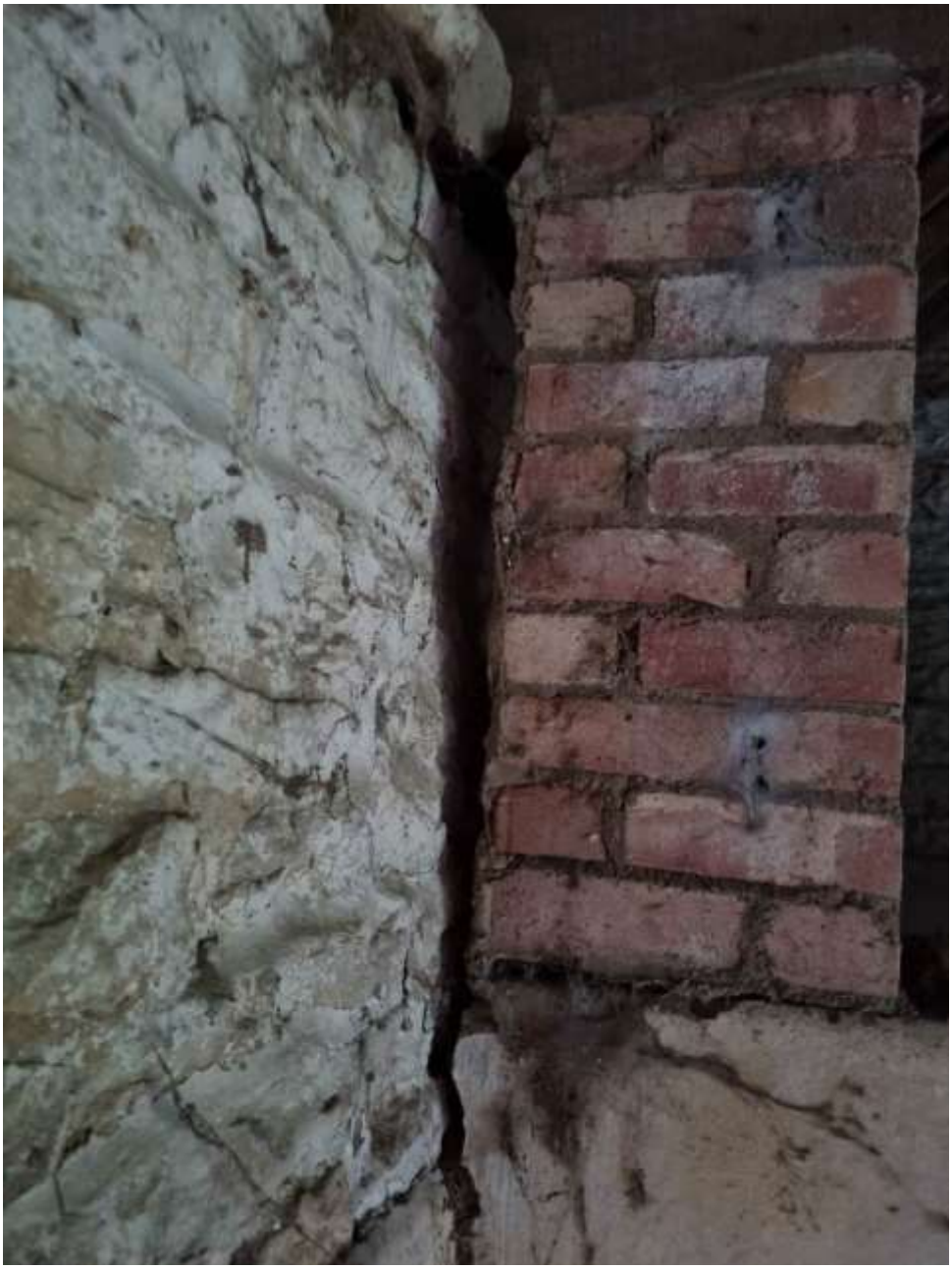
Photograph 4: Showing Western Elevation



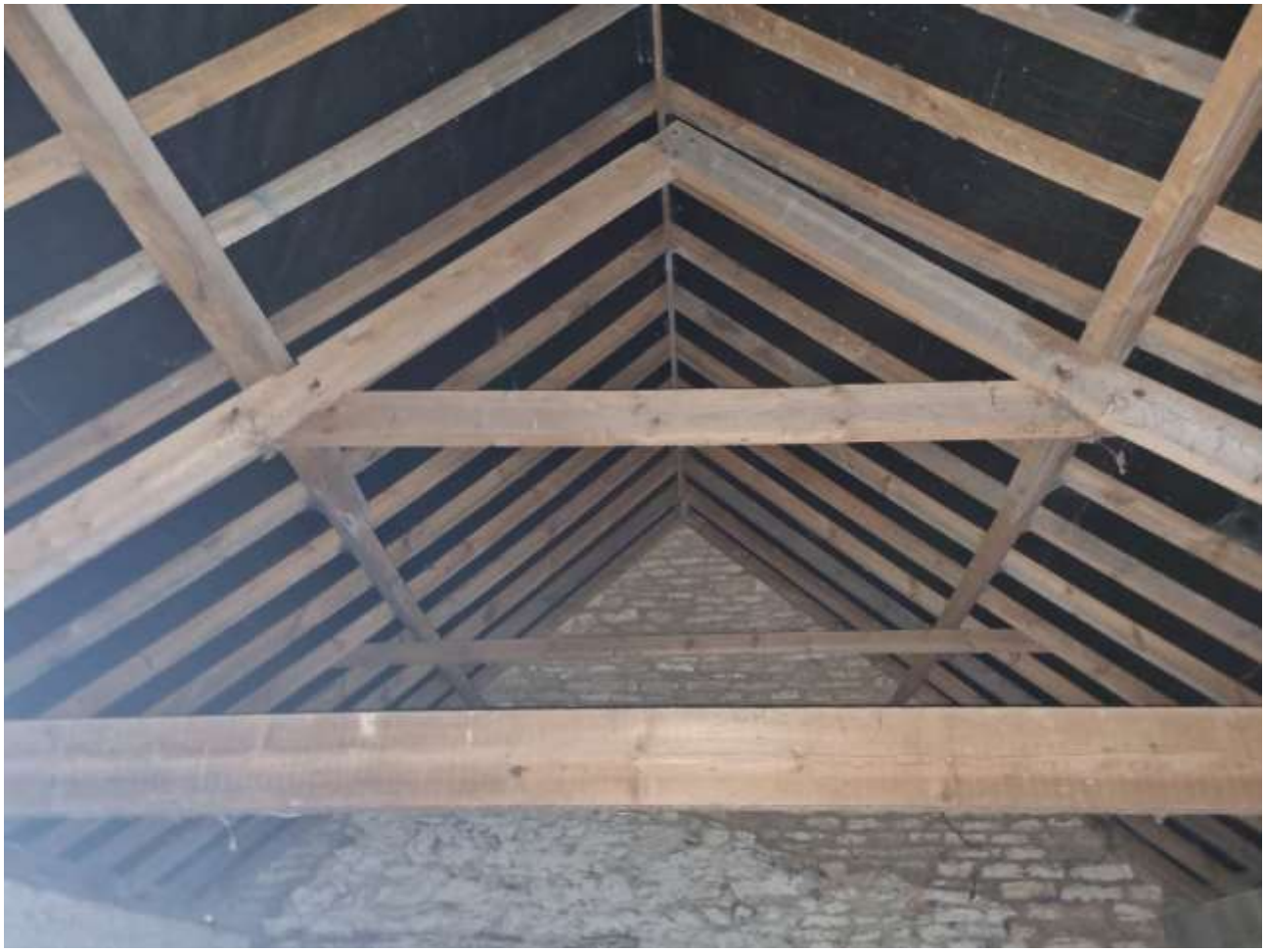
Photograph 5: Showing roof structure to Southern Part of Barn



Photograph 6: Showing internal cracking to walls



Photograph 7: Showing brickwork pier



Photograph 8: Showing roof structure to Northern Part of Barn