Structural Inspection of Existing Hay Loft Barn Building at Ghyll House Farm Egremont Cumbria CA22 2UB

8th June 2026

Prepared By D. Parke

(HNC Structural Engineering – Bolton Tech)

Introduction

Cumberland council planning dept have requested a structural inspection is carried out on the existing barn at Ghyll House Farm as part of the recent planning application. The proposal is to convert part of the ground floor and the first floor of the barn into part of the existing dwelling. A section of the barn ground floor currently serves the existing dwelling in the form of entrance hall, utility and WC area.

The proposal is to demolish the internal walls and reconfigure the layout to form the following:-

Ground floor	**Entrance hall, WC, utility/pantry, cupboard space.**
First Floor	**Bedroom, bathroom, en-suite, dressing room.**

References

Drg No1 Ground floor plan, front and side elevation as existing

Drg No2 First floor plan, rear and side elevation as existing.

Drg No5 Ground floor plan as proposed

Drg No6 Ground floor plan as proposed

Description of Building

The building was originally constructed circa 1829 as a working farm house. It is evident that the barn was constructed at the same time as the farm house as the external sandstone façade on the front elevation is continuous with no evidence of a vertical joint. The barn was

originally used as an area for farm animals on the ground floor and a hay loft on the first floor. More recently, part of the

ground floor has been converted and used as part of the farm house dwelling. It is unknown when this work was undertaken. The barn dimensions are 8.4m long x 5.4m wide. The barn walls are 500mm thk externally.

The barn roof is constructed from slates, on timber rafters on purlins onto timber trusses located at 3rd points. Lathing is present between the rafters.

The first floor is timber boarding onto timber floor beams which are built into the external walls and supported at mid span from timber beams and internal walls.

The ground floor is solid stone of thickness and sub-base materials unknown.

The external walls are 500mm thk solid sandstone. Internal walls are 330mm solid sandstone and 100mm thk brickwork. Foundations are unknown.

Inspection

The inspection was carried out on 31st May 2026. The weather conditions were dry and sunny. The inspection was a visual inspection only. No intrusive inspections were carried out. With the exception of the roof, access to all areas was permitted.

Inspection Findings

The existing roof appears to be in a relatively sound condition with no evidence of any sagging of the roof members. All roof timbers appeared to be in a sound condition with no signs of rot or excessive deflection. The majority of all slates appeared to be present and in tact with some minor areas where holes have appeared however, no signs of any severe water ingress was evident. One section of the roof appeared to have been recently repaired.

The timber first floor appeared to be in a reasonable condition with exception of one area directly adjacent to the arched opening where the boards have collapsed resulting in a large hole approx. 0.6m x 0.6m.

The stone ground floor within the storage area appeared to be in a reasonable condition with no evidence of any cracking. The ground floor within the utility room and hall could not be inspected as these were covered with carpets. The floor level within the utility room has a large cross fall from back to front.

With the exception of localised vertical cracking to the bed joints at the front and rear sides of the gable end, the external walls are generally in a sound condition with no evidence of any movement or settlement.

There were minor areas of loose sandstone to the rear elevation at eaves level.

Viewing the external walls along their lengths there are no signs of any bowing or lateral movement.

A steel round bar tie member running from front to back walls has been installed at some point in the past however there were no signs of any cracking or deformation of the walls both locally or globally. The external plates of the tie member are showing signs of corrosion. Localised loose sandstone is evident local to the rear tie plate on the rear elevation.

Conclusions and Recommendations

The building is approximately 200 years old and the inspection has found the existing barn to be in a reasonably good condition and with the exception of the vertical bed joint cracking to the gable end, there are no signs of any movement or settlement of the external walls.

As part of the proposed development, the existing roof, sub-standard first and ground floors will be removed and replaced with new to current building regulation standards. In addition to this proposed construction works, the following remedial works are recommended:-

On completion of roof removal all areas of vertical cracking to the gable end shall have the bed joints fully raked out and re-pointed as necessary. Any loose sandstone shall be carefully removed and re-bedded as necessary.

The existing walls shall be re-pointed as necessary throughout.

The existing horizontal tie member shall be wire brush cleaned free from rust and debris and painted one coat zinc rich primer and 2 coats gloss. The tie member should be boxed out as necessary as part of the proposed development. All loose sandstone local to the existing face plates shall be re-bedded as necessary.

It can therefore be concluded that on completion of these recommendations, the existing barn is in a suitable condition for the proposed development.

Photographs

Fig 1 Photograph showing existing roof with repaired section.

Fig 2 Photograph showing existing timber first floor within hay loft

Fig 3 Photograph from underside of first floor showing collapsed section over store room.

Fig 4 Photograph within store room showing internal wall, underside of timber first floor and stone ground floor.

Fig 5 Photograph of vertical cracking to front side of gable end wall

Fig 6 Photograph of vertical cracking to rear side of gable end wall

Fig 7 photograph showing external tie member plate on rear elevation

Fig 8 Photograph showing tie member within barn.