

Complete Property Management

## **Barn 1 at Writtenstone Farm, Writtenstone Lane, Longridge, PR3 2ZN**

### **Structural Condition Survey for Conversion to Dwelling**



PSC-859 – B1

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# Complete Property Management Structural Condition Survey Barn 1 at Writtenstone Farm

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# Complete Property Management Structural Condition Survey Barn 1 at Writtenstone Farm

## 1.0 Terms of reference

Paul Snape was appointed by Complete Property Management to carry out a visual structural inspection and produce a structural condition survey report for the existing barn to the south-west of the farmhouse at Writtenstone Farm, Longridge. A location plan and layout of the farm is included in Appendix A

## 2.0 Purpose of the survey

It is proposed to convert the barn to form a dwelling. The proposals are currently being prepared. The visual structural survey is required to confirm the current condition of the building and to assess its suitability for conversion. There are photographic records of the building in Appendix B and these are referenced throughout the report.

The drainage and electrical systems of the building have not been inspected. These will be renewed as part of the proposals and detailed for Building Regulation purposes.

We have not inspected parts of the structure that are covered, unexposed or inaccessible. Hence, we are unable to report if such parts of the property are free from defect.

Our inspection was undertaken on 31<sup>st</sup> January 2024 at which time the weather was fine and overcast.

The survey was undertaken by a Chartered Civil Engineer, Paul Snape BEng (Hons) CEng MICE

## 3.0 Description of Building

The building is a traditional stone barn with three distinct sections. To the south west end is a smaller section of barn which appears to be the oldest area of the barn. The main section of the barn is to the north east and the final section is to the north west at the rear. The roof to the main barn is slate on timber rafters, purlins and trusses. The roof to the south west section is stone flags on timber rafters, purlins and trusses. The roof to the rear section is cement/asbestos sheets on timber purlins and trusses. The buildings have solid floors at ground level and timber floors to the loft in the main barn and the smaller south west section.

## 4.0 External Survey

### South East Elevation (Photos 1 to 14)

This elevation is in two sections covering the older barn to the south west with the more recent main barn to the north east. The walls are built in random sandstone and are 500mm thick. The walls are in reasonable condition. They are plumb and reasonably pointed. There are no signs of previous or ongoing movement except for minor issues where timber lintels have rotted or deflected (photo 3). The main barn section has three window openings at ground floor

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level together with the large main barn door (photos 1 to 6). A further door opening at the north east end has been blocked up (photo 2). There are 2 further openings at a higher level, giving access to the loft areas of the barn. The main barn door has a recessed area of stone to accommodate the sliding doors (photos 4 to 6). This section of the elevation has the benefit of guttering and downspouts which are in a poor condition.

The smaller section of barn to the south west has a single large door opening at ground floor level and 2 further openings at a higher level giving access to the loft areas of the barn (photo 10). There are also further vents at a high level formed by field tiles (photos 10 to 12 & 14). The south west corner of the elevation has been rendered at the lower levels and this may indicate some previous damage underneath caused by vehicular collisions (photo 14). This section of the elevation has the benefit of guttering and downspouts which are in a poor condition.

## **South West Elevation (photos 15 and 16)**

This elevation is the gable to the south west section of the barn and appears to have been re-built in clay brick, forming a solid 250mm thick wall. The wall has been rendered. The wall looks poor visually but there are no signs of previous or ongoing movement and it is reasonably plumb. There are two window openings at ground floor level with a former doorway which has been blocked up. There are two further openings above the former doorway giving access to the loft area. The photos indicate that the ground level rises to the rear of the building along this elevation.

## **North West Elevation of South West Section (Photo 17)**

This elevation is a 500mm thick random stone with a single opening at the upper level. The north east section of wall is rendered and this indicates a former large opening in this barn which appears to have been blocked up. This is evidenced in the internal inspection. The wall is plumb, reasonably well pointed/rendered and free from signs of movement. There are no gutters or downspouts to this section of wall.

## **North West Elevation of Main Barn (Photos 20, 2, 25 & 26)**

This elevation is a 500mm thick random stone wall with no openings externally. The majority of the wall is only visible at a higher level due to the adjacent rear shippon. The wall is plumb, reasonably well pointed and free from signs of movement. This section of the elevation has the benefit of guttering and downspouts which are in poor condition and discharging onto the wall (photo 26).

## **South West Elevation of Rear Shippon (photos 18 to 21)**

This wall is a 500mm thick random stone wall with a single doorway at the junction with the main barn (photo 21). There is a vent at the apex formed by field tiles. The wall is plumb, reasonably well pointed and free from signs of movement. This elevation does not have a gutter or downspout but there is a line of sloping solid mortar indicating there may have been a further building at this location.

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## **North West Elevation of Rear Shippon (photos 22 to 24)**

This wall is a 500mm thick random stone wall with two window openings which have been blocked up. The wall is plumb, reasonably well pointed and free from signs of movement.

## **North East Gable of Rear Shippon (photo 25)**

This wall is a 500mm thick random stone wall with one large door opening and a further smaller door opening adjacent to the main barn. The wall is plumb, reasonably well pointed and free from signs of movement.

## **North East Gable of Main Barn (photo 27 to 31)**

This wall is a 500mm thick random stone wall with two door openings at ground floor level and an upper door opening to the loft area (photo 28). There are several vents at a high level formed by field tiles (photo 28). The wall is plumb, reasonably well pointed and free from signs of movement. As with the south west gable it can be seen that the ground rises along this elevation towards the rear.

## **Roof (Photos – 12, 13, 17, 18, 19, 22, 23, & 24)**

Viewed externally, the main barn roof appears in good condition with no sign of damage, slate loss, or excessive deflection. The stone flagged roof to the south west section is in poor condition with damage and missing or displaced flags. The flagged roof has excessive deflection to the purlins at the north east end (photo 17). The cement asbestos roof to the rear shippon is in good condition with no missing/damaged sheets and no sign of excessive deflection.

## **5.0 Internal Survey**

### **Rear Shippon (Photos 32 to 37)**

This section of the building is a full length shippon with a solid concrete floor (photos 32 & 35). The building shows no sign of previous or ongoing movement to walls or floors. The roof structure is of a timber construction with timber purlins and trusses (photos 32 to 35). There is evidence of damp/rot to the structural timbers but this is not extensive and likely to be treatable. Photo 37 shows an internal opening made in the rear wall of the main barn to provide access. The lintels are steel universal beam sections and these are in reasonable condition.

### **Main Barn East Section (photos 38 to 46)**

This largest area of the barn is full height at the south west end (photo 38) and has a loft area at the north east end (photo 42). The ground floor is concrete with the loft area constructed in timber. Internally, there is little or no sign of previous or ongoing movement to the walls or floor. The timber trusses are generally in a reasonable condition with little sign of rot or infestation (photos 44 & 45). The truss to the north east end appears to be older and has some signs of

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rot and/or infestation (photo 42). The slate roof can be seen to be under boarded (photo 45). The timber loft structure is in a reasonable condition with no major signs of rot or infestation.

## **Main Barn West Section (photos 47 to 53)**

As noted above, this section of the barn appears older than the rest of the structure. The gable wall has been reconstructed in clay brick (photos 49 and 50) and a large opening in the rear wall has been infilled (photo 47). The ground floor is concrete with the loft area constructed in timber supported by steelwork (photo 49). Internally, there is little or no sign of previous or ongoing movement to the walls or floor. The roof structure is in poor condition as evidenced in photos 48 and 51 to 53. There are areas of rot, damp and infestation. The purlins at the north east end have deflected excessively (photo 48). There are large areas of daylight visible in the roof where flags are missing or have been displaced. The loft floor has been renewed as can be seen in photo 49 and these timbers are in a reasonable condition.

## **6.0 Suitability for Conversion and Method of Construction**

It can be seen from the survey detailed above that this barn is generally in a good condition structurally, with little or no sign of previous movement and no sign of ongoing movement. The roof to the south west end of the barn is in a poor condition. The barn is considered suitable for conversion to a dwelling or dwellings. When converting barns, it is essential that the construction techniques and sequence are carefully considered.

Conversion will require the construction of an insulated inner leaf. This may comprise of a cavity with insulation plus a block inner leaf or a backing block to the stone with a cavity and a further block inner leaf. With this technique, care must be taken as the existing walls may be founded at a shallow depth. Trial holes should be dug to ascertain the actual depth. Ground floor levels should be set as high as possible and we would recommend the use of a concrete floor slab with thickened edges along external walls and thickenings under new internal walls. The thickening can be taken down to a similar depth as the existing walls. We would recommend a minimum depth of 400mm for the thickenings. Levels lower than the existing foundations should be avoided and if this is necessary an Engineer should be consulted as underpinning may be required. The new inner leaf (and backing block if used) should be tied to the existing wall with suitable cavity and/or specialist ties.

As an alternative, the new internal leaf could be formed with SIP panels if this is felt appropriate. Any new internal walls could be formed in masonry, SIP panels or timber stud walls as appropriate.

It is recommended that the new internal skin is in place and the internal walls, ground and first floor are put in place prior to any works to the roof. This will add stability to the existing walls.

The existing trusses and purlins vary in condition, with some having little sign of rot or infestation but others have definitely suffered damage. Any timber retained should be assessed by a timber specialist, with regard to rot and infestation. All retained timber should be treated

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against rot/infestation and an indication of residual section given for structural purposes. All retained timber to be used structurally should be checked for structural adequacy. The roof to the south west section is currently covered with heavy stone flags and if these are retained then the design of any new roof timbers must take account of this heavier covering. The roof to the rear shippon is currently covered with cement sheets or asbestos cement sheets. These should be investigated further to ascertain the exact material. If this is found to be asbestos sheeting it should be removed and disposed of to current Health & Safety Guidelines.

Given the good condition of the barn walls any new openings introduced in the barns should not affect the overall stability of the buildings but they should be assessed by a structural engineer.

The dwelling will require connection to a suitable foul and surface water system. if foul sewers are not in place at this location, a sewage treatment plant will be required meeting all current regulations in terms of treatment and outfall requirements. A sustainable surface water system will also be required for discharge to a watercourse or suitable surface water drain.

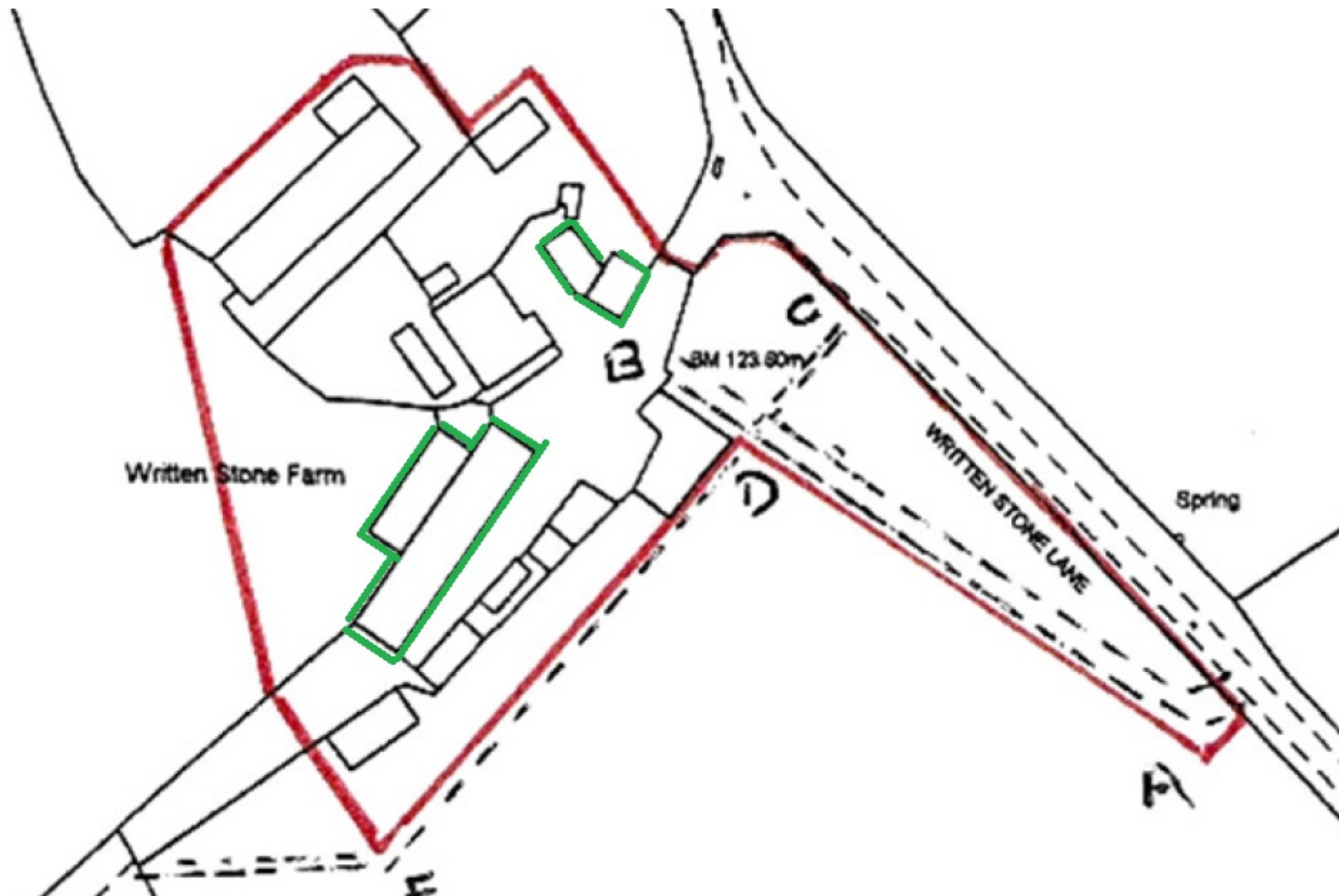
## **7.0 Conclusions**

The barn is considered suitable for conversion to a dwelling. The construction should follow the guidance set out above and a structural engineer should be consulted with regard to the final layout for Building Regulation compliance.



Complete Property Management  
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Appendix A  
Drawings



Complete Property Management  
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Appendix B  
Photographs





Photo 1 - South East and North East Elevations



Photo 2 – South East Elevation





Photo 3- South East Elevation



Photo 4 - South East Elevation





Photo 5 – South East Elevation



Photo 6 – South East Elevation





Photo 7 – South East Elevation



Photo 8 – South East Elevation





Photo 9 – South East Elevation – looking east



Photo 10 – South East Elevation – west extension





Photo 11 - South East Elevation – west extension



Photo 12 - South East Elevation – west section showing flags to roof





Photo 13 - South East Elevation – junction with west section and slate roof to main section



Photo 14 - South East Elevation – west section





Photo 15 - South West Elevation



Photo 16 - South West Elevation





Photo 17 – North West Elevation to west section



Photo 18 – North West Elevation showing rear shippon





Photo 19 – South West Gable to rear shippon



Photo 20 - South West Gable to rear shippon and north west elevations to main barn





Photo 21 – North West Elevation – junction of 3 sections



Photo 22 – North West elevation showing roofs





Photo 23 - North West elevation showing roofs



Photo 24 - North West elevation showing roofs





Photo 25 – North East gable of shippon



Photo 26 – North West Elevation





Photo 27 – North East Elevation



Photo 28 - North East Elevation





Photo 29 - North East Elevation



Photo 30 - North East Elevation





Photo 31 - North East Elevation



Photo 32 – Internal rear shippon





Photo 33 - Internal rear shippon



Photo 34 - Internal rear shippon





Photo 35 - Internal rear shippon



Photo 36 - Internal rear shippon – along main barn wall





Photo 37 - Internal rear shippon – access to main barn



Photo 38 – main barn east





Photo 39 - main barn east



Photo 40 - main barn east





Photo 41 - main barn east



Photo 42 - main barn east





Photo 43 - main barn east



Photo 44 - main barn east





Photo 45 - main barn east – truss detail



Photo 46 - main barn east





Photo 47 - main barn west section

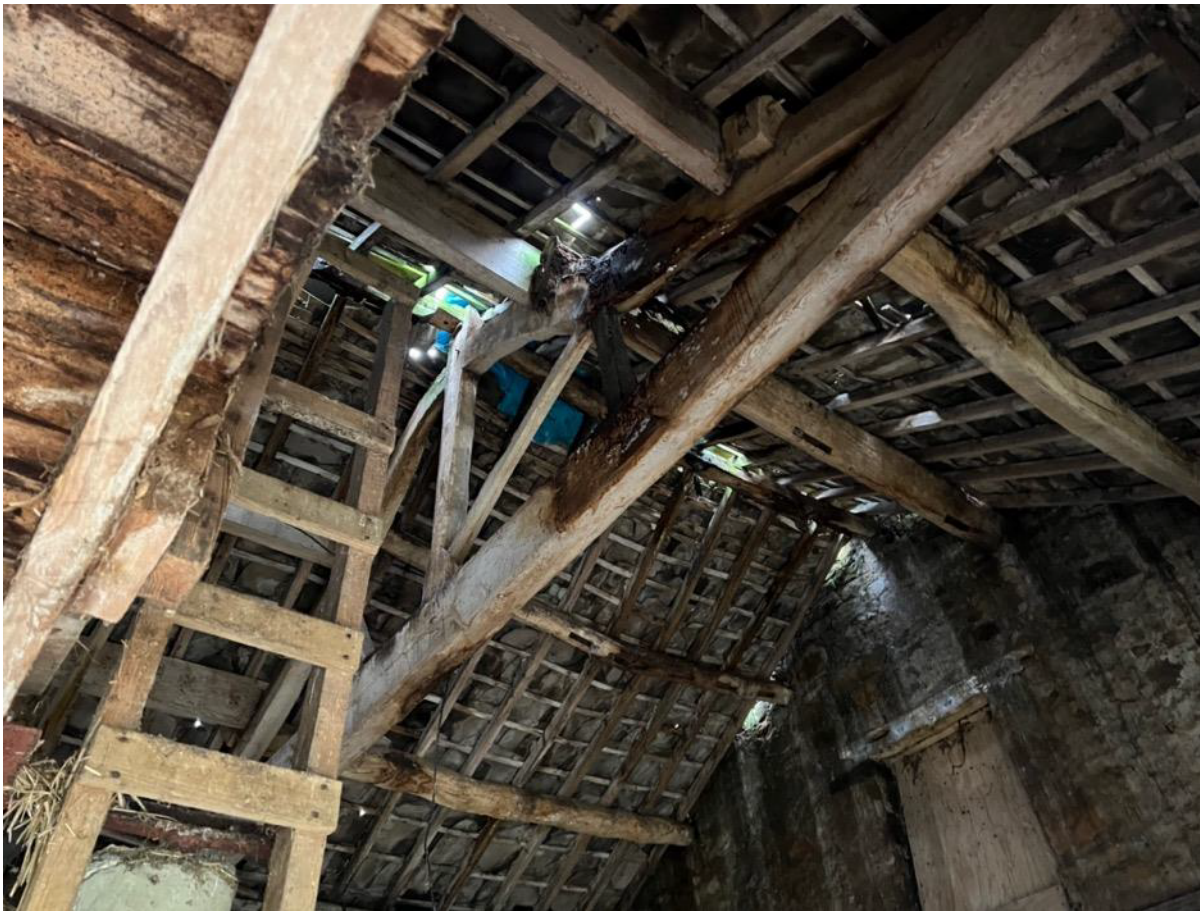


Photo 48 - main barn west section





Photo 49 - main barn west section



Photo 50 - main barn west section





Photo 51 - main barn west section - roof



Photo 52 - main barn west section - roof





Photo 53 - main barn west section – roof timber

