



STRUCTURAL INSPECTION

**SHAWE FARM,
SHAWE PARK
ROAD,
KINGSLEY
HOLT,
ST10 2DL**

31.07.21

1. PROJECT DETAILS

Client Name:	MRS AND MRS P EMMETT
Tel:	07479 308 108
Property Address:	SHAWE FARM, SHAWE PK RD, KINGSLEY HOLT ST10 2DL
Date of Survey:	15.07.21
Survey details:	General Structural Inspection

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2. INTRODUCTION

Instructions were received on 07.07.21 from Mr P Emmett to undertake a structural inspection at the property known as Shawe Farm, Shawe Pk Rd, ST10 2DL .

3. CLIENT BRIEF

The Brief was to carry out a general structural inspection of the property. It is understood that there are plans to convert the property to residential accommodation.

4. INSPECTION

The Inspection was carried out on 07.07.21 The weather was sunny at the time of the Inspection.

All references, left and right, front and rear are taken from facing the west elevation.

The property is situated on the southern side of Shawe Park Rd in a rural area about 1 mile west of the town of Kingsley Holt .

The Property is a single storey agricultural building of traditional construction of load bearing solid brick walls supporting roof trusses and light weight sheeting roof coverings. The exact age of the property is unknown.

The site slopes down about 600mm from front to back. There is a slight slope up from left to right across the foot print of the building.

There is a previous extension to the right hand end which is outside the scope of the inspection as it is understood it is to be rebuilt as part of the proposals.

The property is rectangular on plan.

The inspection was carried out in accordance with the terms and conditions attached as Appendix A.

5. OBSERVATIONS

Front Elevation

The wall was constructed from 9 inch solid clay brickwork.

There was a vertical crack to the brickwork to the left hand corner. There was a bitumen DPC (photo 3).

The wall was relatively plumb to the lower half, but leaned in about 20mm in 1200mm at the top along its whole length.

The brickwork was generally in reasonable condition with some spalling and minor cracking in places (photo 4).

The mortar was friable and missing in places. There was evidence of previous repointing. The original mortar may be lime mortar but this would need confirming by a specialist.

Left Hand Gable

Job Ref: 21383

Shawe Farm

The gable (photo 5) was relatively plumb from ground level to the top of the window however the brickwork to the triangular gable below the ridge verge appeared to bow inwards.

There was missing and defective mortar to the brickwork/roof sheeting junction along the verges (photo 6).

The wall appeared to be 9 inch solid brickwork evidenced by the header courses.

The brickwork was generally in reasonable condition with some spalling and minor cracking in places. The mortar was friable and missing in places.

There was what appeared to be a bitumen DPC.

Rear Elevation

The rear elevation (photo 7) was partly obscured by vegetation so could not be fully inspected.

The brickwork appeared to be 9 inch solid evidenced by the header courses.

There was a bitumen DPC. The brickwork below the DOC was in poor condition, and showed signs of severe weathering and spalling. The mortar was defective and missing in places (photos 8).

There was a stepped diagonal crack extending from DPC level at the left hand corner, upwards to the underside of the window cill of about 5m width (photo 9).

There was a vertical crack to the right of the left hand window about 5mm wide (photo 10).

The brickwork in places was spalled and the mortar heavily weathered and/ or missing.

The brickwork above the DPC oversailed the DPC by up to 20mm along the full length of the rear wall (photo 11).

To the right hand side, the wall bulges outwards about 20mm above the DPC.

The brickwork below the DOC to the right hand end had moss growth suggesting damp ingress into the brickwork.

Internal Inspection

The roof was covered in lightweight corrugated sheeting which may contain asbestos.

The sheeting was supported on hot rolled steel angle sections which spanned between lightweight hot rolled steel trusses (photo 12).

The inner 4 inch of brickwork was supported on what appeared to be concrete lintels (photo 13).

The outer 4 inch of brickwork appeared to be supported on the timber window frames with no proper lintel.

The brickwork internally was generally in reasonable condition with some localised areas of defects (photo 14).

The front elevation middle section brickwork leaned in at the top about 30mm in 1200mm.

There were noticeable leans inwards to the top of the brick piers each side of the main barn doors.

The ground floor was constructed in concrete with different levels of slab formed as cattle stalls.

The lower part of the right hand rear wall leaned out.

The hot rolled steel purlins and trusses had corroded (photo 15).

6. DISCUSSION & RECOMMENDATIONS

The barn is of typical construction for agricultural buildings of this type. The walls are solid 9 inch brickwork with headers bonding the 2 leaves of brickwork together. The roof is formed in corrugated sheeting supported on hot rolled steel purlins and trusses.

The brickwork to the walls is in reasonable condition and considered suitable for retention. In places there was spalled bricks and missing and friable mortar. It is considered however that appropriate brickwork repairs will resolve these issues. All cracked or spalled bricks should be replaced. All mortar joints should be raked out to a depth of 20mm and repointed to match existing. Where mortar is missing and brickwork loose, these areas should be carefully taken down and rebuilt.

The brickwork to low level on the rear elevation (below DPC) had moss growth, suggesting damp ingress. All vegetation should be removed from next to the wall to allow a full inspection of the lower brickwork and for suitable repairs to be carried out.

There was evidence of a bitumen DPC. It is considered however that this may not be effective due to its age and condition therefore consideration should be given to providing a new remedial DPC, specified to suit the brickwork.

There was diagonal and vertical cracking to the rear left hand corner of the rear wall. The foundations could not be inspected so their condition could not be confirmed. It is considered a possibility that settlement of the foundations to the rear left hand corner could have caused the cracking.

The cracks to the brickwork should be repaired by providing stainless steel anticrack bedjoint reinforcement embedded in the mortar beds, such as Helifix Helibars. This will prevent cracking re-occurring again. The detailed specification should be provided by a structural engineer.

The walls to the rear bulged out and the front wall bulged in in places. It is considered that this is likely due to ineffective horizontal lateral restraint at eaves level. It is recommended that remedial lateral restraint is provided to the walls by strapping the new roof structure to the walls at ceiling level and along the verges.

The proposals to convert the barn into habitable accommodation involves the construction of a tiled roof on timber rafters. The loading of the proposed roof will be heavier than the existing lightweight sheeting. It is advisable to expose the existing footings in a few places to confirm their detail and suitability to withstand the extra roof loading. The rear left hand corner foundation should be exposed in particular to confirm if any settlement has occurred causing the cracking to the brickwork. If it has then this section of wall should be underpinned. If the foundations are generally considered unsuitable to support the proposed roof then underpinning may be required throughout. This is likely to consist of traditional mass concrete underpinning taken down to a suitable depth to suitable bearing strata.

The new roof is proposed to be constructed from timber rafters and purlins supported either on new load bearing masonry walls or new feature timber trusses. It is considered that the existing brickwork is suitable to support such construction.

New masonry walls to support the new roof structure should be specified by a structural engineer and built off new strip footings taken down to suitable bearing strata.

The new roof structure should be designed by a structural engineer to comply with Building Regulations part A. The new feature roof trusses should be designed by a specialist timber truss designer, to support the roof weight and snow and wind loading.

The existing windows and doors did not appear to have suitable lintels to support the outer 4 inches of brickwork. New lintels should be provided over all new openings.

The existing slab is considered unsuitable for retention and should be replaced with a new concrete slab cast at one level, on minimum 150mm compacted hardcore and 1200g visqueen DPM. Any slab insulation should be specified by the architect to meet Building Regulation requirements.

The external walls are of 9 inch solid construction. The architect should specify a suitable dry lining and insulation system to achieve compliance with building regulations. It is considered that a damp proofing membrane should be installed to the walls internally to prevent moisture ingress through the solid brickwork.

An asbestos survey should be carried out before any work is started.

7. CONCLUSIONS

The visual inspection revealed that the barn is considered suitable for conversion (subject to planning consent) to habitable accommodation subject to the recommendations of this report. A detailed specification for the conversion works should be prepared by the Architect and structural engineer.

The works should be carried out to all relevant standards and Building Regulation approval should be obtained. A suitably qualified and experienced contractor should be employed to carry out the work.

Prepared by:-



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Photo 1 Front elevation



Photo 2 Front elevation



Photo 3 Front elevation crack to brickwork



Photo 4 Front elevation brickwork



Photo 5 Left hand gable



Photo 6 Verge to left hand gables



Photo 7 rear elevation



Photo 8 defective brickwork below DOC to rear wall



Photo 9 crack to rear wall



Photo 10 Crack to rear wall



Photo 11 Brickwork to right hand side of rear wall oversailing DPC



Photo 12 roof structure



Photo 13 typical lintel to internal leaf of brickwork



Photo 14 Internal brickwork



Photo 15 corroded hot rolled steel trusses and connections

Appendix A – Terms and Conditions

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An asbestos survey has not been undertaken. Your attention is drawn to the fact that unless proven otherwise it should be considered that the building does contain asbestos containing materials, as part of some of the components. The building owner has a responsibility to identify the presence of asbestos in all its forms, and to manage the asbestos presence safely.

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