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Quoted offices in Harnold, Essex, Lancashire

Date: 31 July 2009

Our Ref: H/D/02/0271

Your Ref:

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CO Janet Dixon

Janet Dixon, Town Planners

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Clitheroe

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320100404P

STRUCTURAL CONVERSION ASSESMENT AND METHOD STATEMENT MOOR BARN KNOWLE GREEN

TERMS OF REFERENCE

A structural inspection of the above property was carried out on 27 July, 2009, to examine and report on the current state and safety of an existing barn for conversion purposes.

The survey comprised a visual inspection of the elements and fabric of the barn in question, but did not include the following:

1. An under floor inspection.
2. A full roof space inspection
3. A moisture or timber survey.
4. An inspection of roof coverings, rainwater goods or flashings.
5. An inspection of drainage provisions on site.
6. An inspection of areas covered, unexposed or inaccessible.
7. An inspection of any outbuildings and external areas, including gardens, paving, walls and fencing, except where stated.

The recommendations given in this report relate to matters defined by the Terms of Reference and do not address other possible defects, which may exist outside the scope of this report.

The purlins generally looked in good condition showing no real signs of rotting except the second purlin in from the West wall over the first floor area which showed signs of rot and excessive warping.

- **Alteration/repair/removal of existing roof No. 1**

Requires a full re-roof for conversion as no insulation is present and areas of ingress of water can also be seen.

The actual sizes of timber purlins and rafters will also need to be checked at a later stage to assess whether they can take the additional loadings from the new roof coverings.

- **Conditions of Existing Roof No. 2**

The roof coverings are traditional blue slate constructed over rafter construction which is supported by timber purlin and truss construction.

The two main timber trusses that support the purlin construction showed numerous areas of rot due to ingress of water at various points.

The purlins in general also showed large areas of rot at the bearings due to water ingress.

Areas of wood worm attack could be seen to various places and therefore a timber survey should be carried out to assess if any of the wood requires treatment or replacement due to residual strengths of the remaining timber being adequate or not.

The slates in places are cracked and missing and therefore require attention.

- **Alteration/repair/removal of existing roof No. 2**

Requires a full re-roof for conversion as no insulation is present and areas of ingress of water can also be seen in numerous areas.

Due to areas of heavy rot to both the trusses and their purlins it is suggested that they are removed and replaced with new due to their poor condition. It is suggested that the trusses are replaced with steel beams at roof height to support the new timber purlin and rafter construction at the roof level. This will also improve the lateral stability of the existing barn wall to its full length.

- **Conditions of Existing Roof No. 3**

The roof coverings are traditional blue slate constructed over rafter construction which is supported by timber purlin and truss construction.

Assess was not possible at the time of inspection due to existing floor construction not being adequate for safe walking. It is therefore suggested that an inspection of this area will be undertaken at the time of conversion. The area in general was dry internally. No signs of slate slippage could be seen externally and therefore it is suggested that the roof coverings must be generally ok and therefore should be found to be in similar condition to the main barn area which was found to be generally in good condition.

The above wall should only be removed once adequate support has been provided to the existing roof and floor construction. The contractor must also provide lateral support to the existing barn flank walls whilst the wall in question is being re-built.

The two number walls shown as position 8 & 9 require all the existing pointing to be removed and replaced. Any loose stonework must also be replaced as necessary once the pointing has been removed with stone work to match this; should be carried out both externally and internally.

Inspections of the existing foundations are required.

All lintels to openings to be replaced with new stone lintels to external face and Catnic lintels to internal masonry as per manufacturers' details and specifications.

- **Conditions of Existing South West Walls**

The two external walls shown on the plans as position 11, 12 & 10 are reasonably plumb and in good condition showing no real signs of excessive movement or large cracking. All the pointing however is in poor condition.

No trial holes have been dug so it was not possible to ascertain if any existing foundations exist and at what depth.

Lintels to all openings are defective.

- **Alteration/repair/removal to the South West Walls**

The two number walls shown as position 11, 12 & 10 require all the existing pointing to be removed and replaced. Any loose stonework must also be replaced as necessary once the pointing has been removed with stone work to match; this should be carried out both externally and internally.

Inspections of the existing foundations are required.

All lintels to openings to be replaced with new stone lintels to external face and Catnic lintels to internal masonry as per manufacturer's details and specifications.

- **Conditions of Existing North West Walls**

The external wall shown on the plans as position 13 is reasonably plumb and in good condition showing no real signs of excessive movement or large cracking. All the pointing however is in poor condition.

The external wall shown on the plans as position 14 shows signs of bulging at approximately mid height but the wall was generally in good condition showing no real signs of large cracking. All the pointing however is in poor condition.

The external wall shown on the plans as position 15 showed two areas of excessive damage. The first was the base of the right flank wall whilst facing the main entrance which did not exist and secondly the left flank wall whilst facing the front entrance had a substantial hole in the middle. All the pointing was in poor condition.

No trial holes have been dug so it was not possible to ascertain if any existing foundations exist and at what depth.

Inspections of the existing foundations are required.

All lintels to openings to be replaced with new stone lintels to external face and Castic lintels to internal masonry as per manufacturers' details and specifications.

Details of demolition work:

Total wall area, measured externally = 291m^2

Total wall area to be demolished = 64m^2

% of walls to be demolished externally = 21.99%

PROPOSED NEW OPENINGS WITH EXTERNAL WALLS

- **South East Walls**

No additional openings are to be made; only the existing openings are to be utilised.

- **South West Walls**

A large opening is to be created within the single storey barn which will be supported by a steel column and beam arrangement over which will give sufficient lateral stability to cause no harm to the existing structure.

A further opening at first floor level will be created but this is a standard window opening and will cause no detriment to the existing structure.

- **North West Walls**

No additional openings are to be made; only the existing openings are to be utilised.

- **North East Walls**

One additional standard window opening is to be created at first floor level and will cause no detriment to the existing structure.

FORMATION OF INTERNAL LINING WALLS

All the existing external walls are to be lined with 140mm thick concrete block walls to provide both additional lateral support to the walls and give support to the new first floor construction. This proposed first floor construction will also provide additional support to the existing walls.

These walls will be constructed off the new internal ground floor slab that will be thickened at the edges to provide adequate bearing pressures to the underlying strata.

EXISTING FLOOR CONSTRUCTIONS

The existing timber floor construction as shown on the attached plans is in poor condition showing extensive areas of rot and woodworm attack. The structural sizes of the structural members are also inadequate to provide resistance to imposed live loads to meet Building Regulations approval.

METHOD STATEMENT FOR THE DEMOLITION OF THE EXTERNAL WALL AREAS TO POSITION NUMBERS 7 & 15 ON THE ATTACHED PLANS

- **Initial Procedures**

The areas to be demolished are listed on the attached drawings.

As shown on the plan two areas of the external wall construction are to be demolished and replaced as detailed elsewhere.

- **Initial Precautions**

Only one wall should be demolished at a time and be re-built before any other demolition work is carried out. As mentioned elsewhere before any wall is demolished adequate lateral restraint should be provided for the adjoining walls to the proposed demolished wall area.

Adequate support by means of scaffolding must also be provided to any existing load bearing structures on the wall to be demolished. This will include any roof purlins, roof trusses and first floor construction.

All the above procedures must be carried out by the contractor and must be approved by the local building inspector before the demolition is started.

- **Sequence of Works**

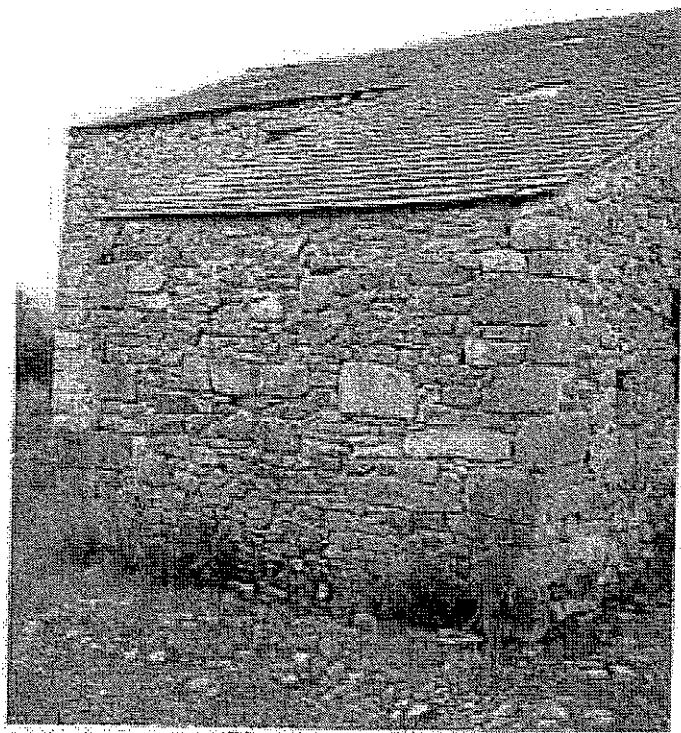
All scaffolding should be placed first to provide support to the existing purlins that sit on the wall to be demolished.

Additional scaffolding must also be provided to support to any existing floor constructions.

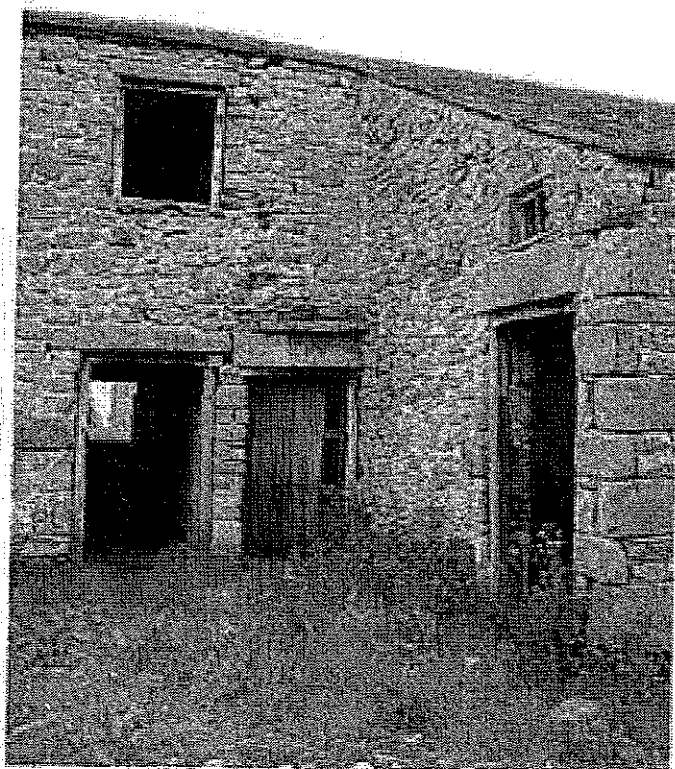
Additional scaffolding should also be placed externally and tied to existing flank walls to provide lateral restraint to the full height of the adjoining walls.

The demolition of the walls should start from the roof level and work down accordingly.

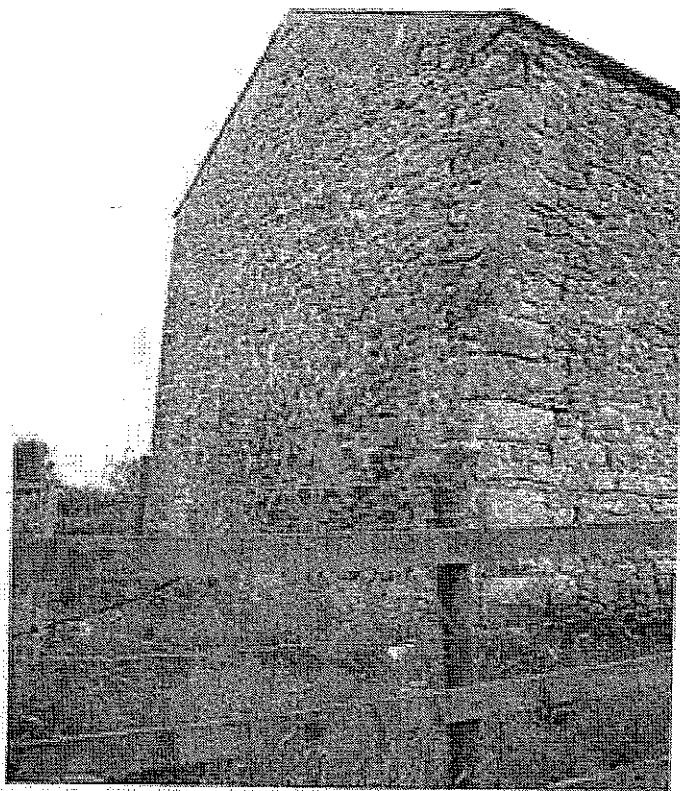
APPENDIX



Photograph No. 3



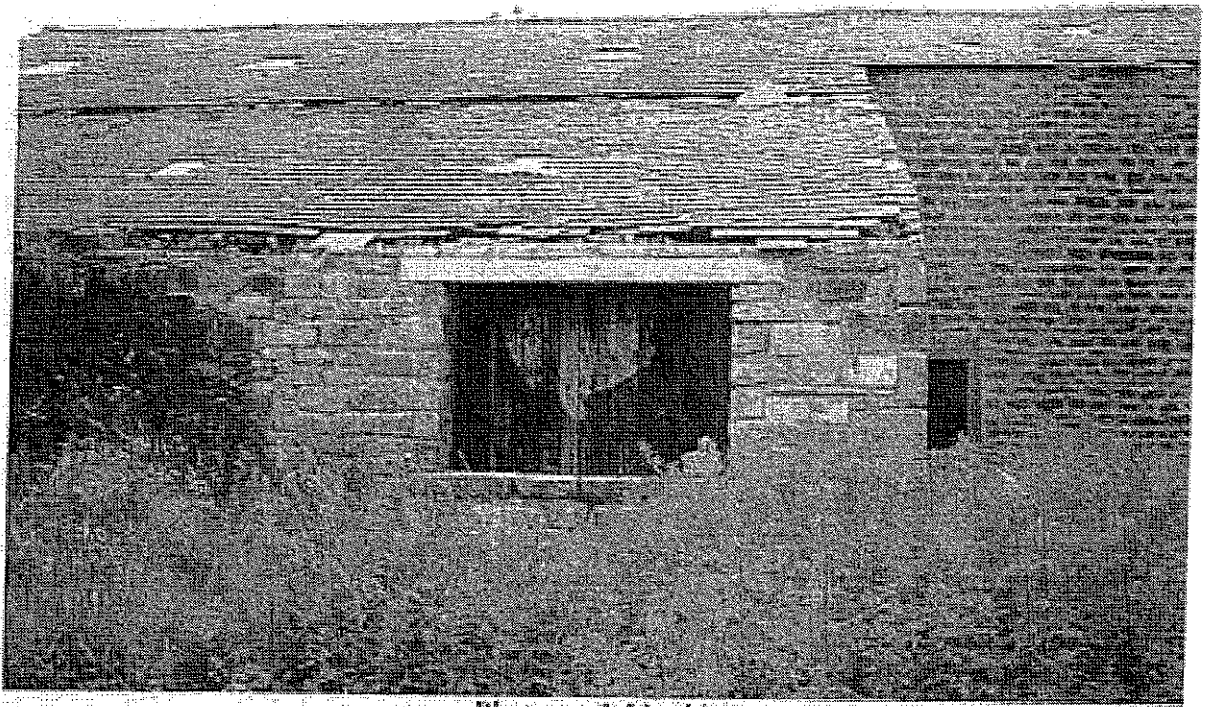
Photograph No. 4



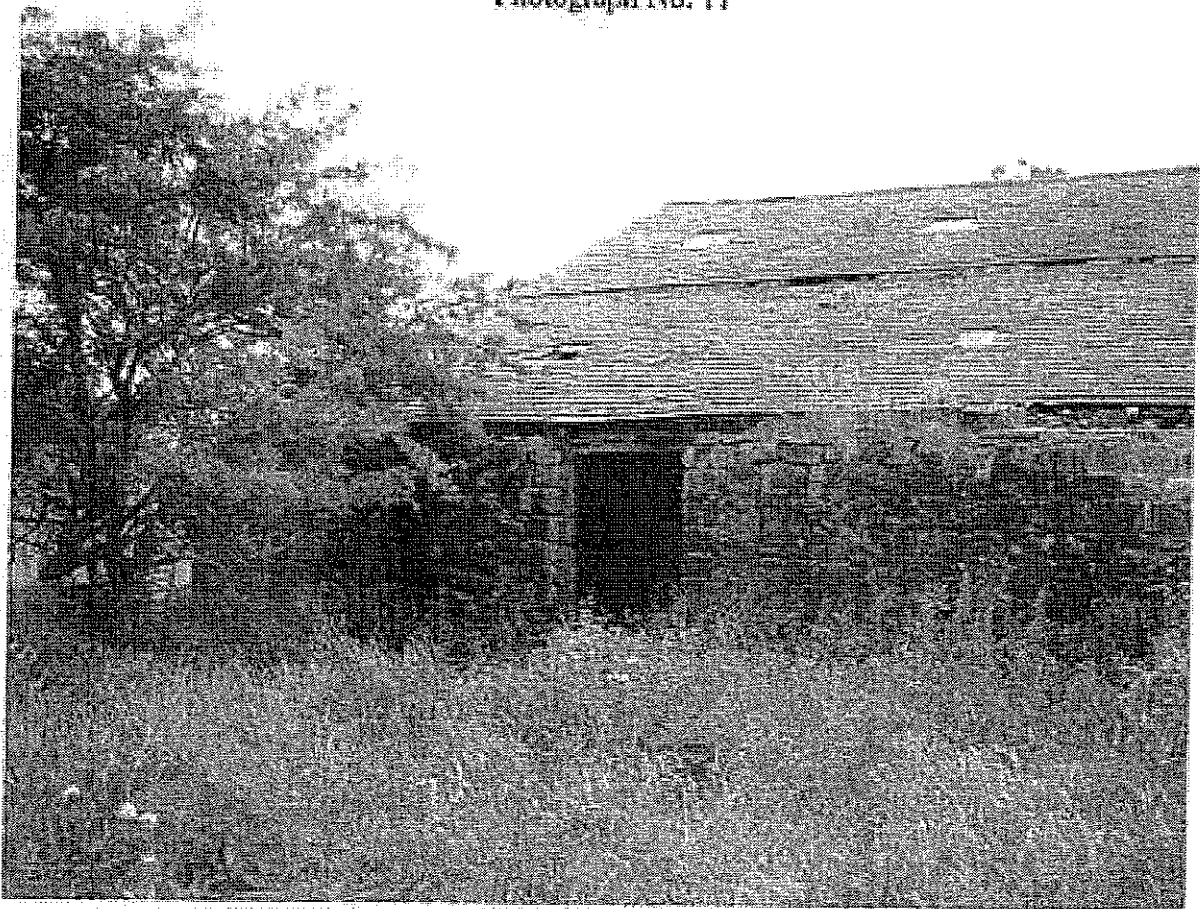
Photograph No. 7



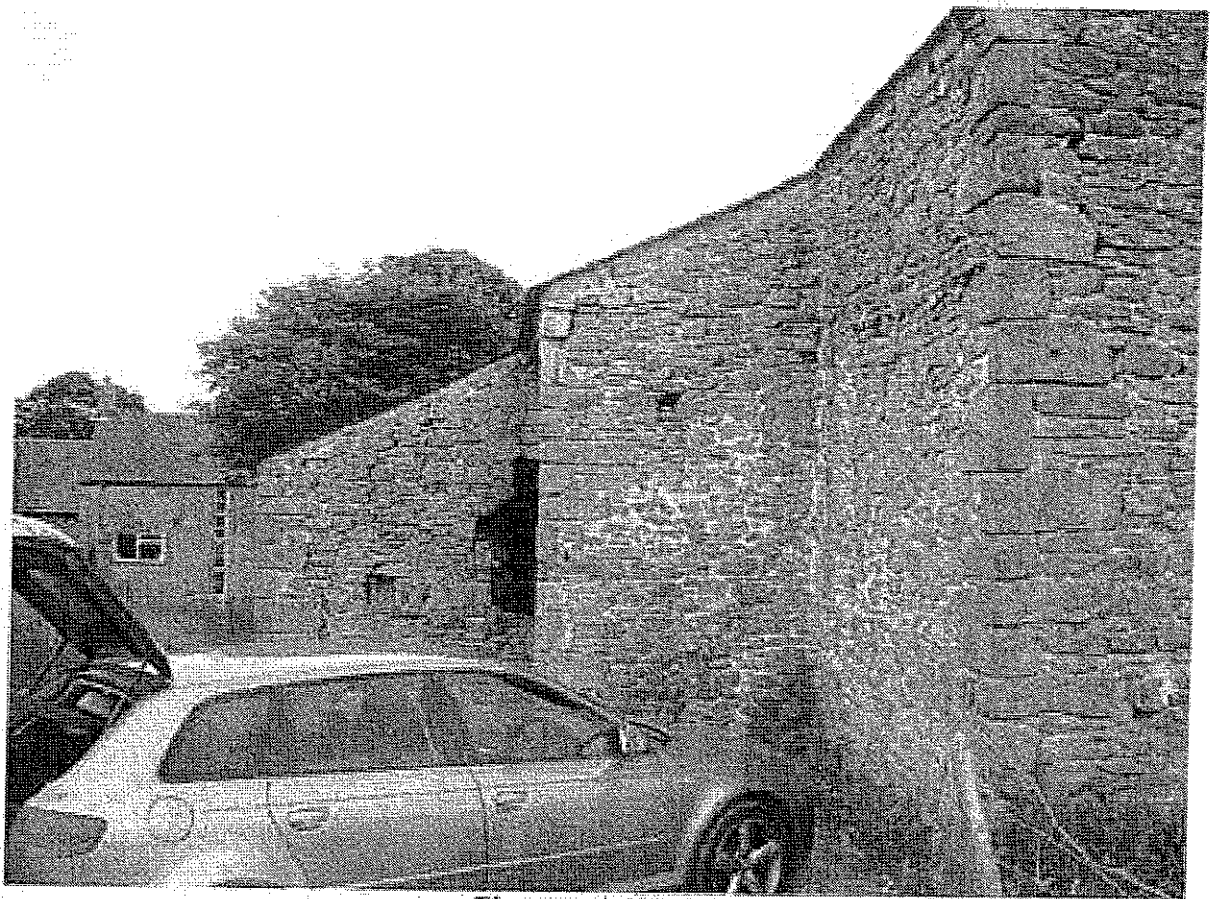
Photograph No 8



Photograph No. 11



Photograph No. 12



Photograph No. 15