

Linden Associates

Civil & Structural Engineering Consultants

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Structural Report on Proposed Conversion of Existing brick built Farm Outbuilding to Proposed Residential Accommodation at Clapham Holme Farm, Hull Road, Great Hatfield, East Riding of Yorkshire, HU11 4UX

for **Seatswood Architects Ltd**

Introduction

It is proposed to convert an existing brick built farm outbuilding at the above location to residential accommodation, retaining the existing brick built structure and foundations, but replacing internal floors and all external roof structure and coverings.

This report was requested by the Project Architect, Mr Colin Embleton of Seatswood Architects Ltd, to consider the basic structural suitability of the existing structure that is to be retained for the proposed use, in support of an application for Planning Approval for the conversion of outbuilding to domestic use to provide residential accommodation for the applicants' relatives.

Inspection Survey

The site was inspected jointly with the Project Architect and the proposals shown on Architects drawings MD/2101-001 to 005 were considered along with a detailed examination of the existing structure.

The application site comprises an attached brick built building, formerly used for storage, situated to the north of the existing dwelling house between a large agricultural barn and a lean-to storage area. The barn is supported by an independent steel frame with an asbestos cement roof with open jointed timber boarding to exposed walls. The storage area has blockwork walls, rendered externally, and a steel roof structure with asbestos cement roof covering, which is supported in part by the brick building which forms the subject of this application. A section of this storage building to the south of the brick building is to be removed as part of the proposed development and replaced by a new 2 storey extension. Low level rendered blockwork pig pens to the north of the brick building are also to be removed to form an enclosed garden area.

Inspection Commentary

The building is orientated north / south and is of solid brick construction, 2 storey in height, with a dual-pitch roof covered with clay pan tiles (some missing). The roof is supported on single span timber rafters with timber purlins, raised collars and ties at approximately 3.0m centres and is set at an angle of approximately 42° pitch.

It was only possible to carry out a very limited inspection of the existing foundations at the time of survey in 1 hand excavated trial hole which showed evidence of brick spread footings.

However, the building shows no signs of settlement and there is no evidence of cracking.

As an agricultural storage building with an upper storage area (now missing) the building would have been subject to significantly higher loading than for domestic use. As the proposals do not involve significant increase in loadings from that in the previous use it is considered that the existing foundations should be adequate for the proposed use.

There is a large door opening in the south gable wall, with the brickwork over supported by a substantial steel beam. The beam is in good condition but would benefit from painting with a rust proofing coating.

There are several window openings and a door opening in the west wall, facing into the adjacent barn, with brick arch detailing over and substantial timber frames. It is suspected that there are no separate lintels to these openings with the timber frames acting as supports to the brick arches. There are no signs of settlement to these openings which are all in good condition.

The brickwork generally is in a fair condition but the mortar pointing is poor with some areas of re-pointing required. There are some loose and displaced bricks which would need to be secured.

The north gable wall has a cement rendered finish which is in fair condition however some cracks and areas of delamination were noted.

There is no evidence of any form of damp proof course to the walls, which will require attention.

The internal floor is of concrete construction which is in generally good condition, with no significant deterioration of the concrete noted. There is no evidence of settlement or subsidence in the floors, with only minor surface cracking attributable to the age of the building. However, it is proposed to remove and replace the existing floor.

Although the building is 2-storey high there is no existing upper floor. It is suspected that this has been removed at some point in the past. There is evidence in the north gable of a doorway at first floor level which has been bricked up, and some evidence of pockets for floor joists, which have also been bricked up.

The roof timbers are showing some signs of deterioration and it is recommended that these should be replaced, although there are no signs of deflection or spread.

Recommendations

1. Careful removal of asbestos cement roof sheeting to sections of adjacent storage building affected by the works, disposal to a licensed disposal facility and decontamination of the site by an appropriately licensed specialist contractor.
2. Existing foundations to be further investigated to confirm their suitability or otherwise for the proposed use and action taken accordingly.
3. Removal and disposal of all timber roof joists and purlins.
4. Re-point brickwork to all walls as required.
5. Renew cement render finish to north gable wall.
6. Install chemical injected DPC to all walls.
7. Break up and remove existing concrete floor slabs and replace with new insulated concrete floors to current insulation standards.
8. Install galvanised steel lintels to new window and door openings.
9. Install new treated roof timbers set at a pitch to match existing and new roof tiles.
10. Install new gutters and downpipes connected to surface water drains discharging to on site soak-aways and/or land drainage system.

**Dennis G Mapplebeck,
Linden Associates
25 May 2021**

Survey Photos:



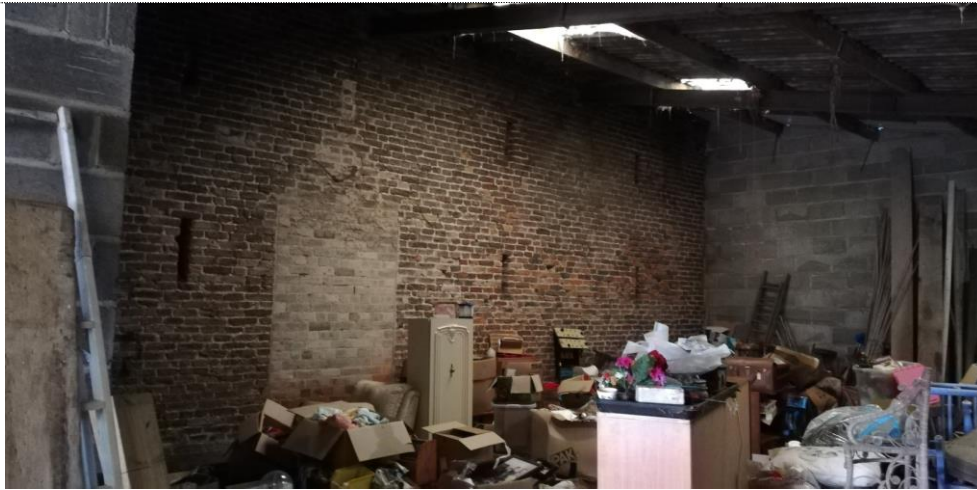
South Elevation



West Elevation (from inside adjacent barn)



North Elevation



East Elevation (from adjacent storage area)



Internal View



Internal View