

STRUCTURAL INSPECTION OF REDUNDANT BARN.

ALLENS FARMHOUSE

NEATISHEAD

NORFOLK

Ref 4282

JUNE 2022

INTRODUCTION

I was instructed by Rebecca Barringer of The Rural Architect to visit the above site on behalf of Mr and Mrs Smith to inspect the disused barn and undertake a structural inspection with a view for conversion of the unit to domestic accommodation.

The site was visited during June 2022 and a visual inspection was made of the load bearing fabric. The structure was inspected from vantage points within and around the property, although no inspection was made of the rear elevation as this could only be accessed from the neighbouring enclosed courtyard. No areas were exposed or finishes removed to expose the structure and it is possible defects may be present but hidden from view.

Two shallow trial holes were excavated to determine the depth of the existing foundation

THE PROPERTY

The barn is to the rear of the property as noted on the Rural Architect`s detail 22.08/3/4/5B/8

The building, generally occupies a level site within the rear, walled garden and was originally part of the adjacent farm complex, the barns of which have been recent refurbished.

The whole complex is on the outskirts of the village and is generally surrounded by open agricultural land.

The barn for the proposed refurbishment is currently partly used for general storage and redundant equipment and may originally have been a “sail makers” area



General view-front elevation



Gable return, note raised masonry

It is linked to the main property by a recently constructed single unit built of part blockwork, part timber framed walls with corrugated obscured PVC roof sheets. This link also provides garage and storage space

Access to the unit is via an opening to the gable panel

The building is within the courtyard formed by the garden wall and farmhouse. The rear wall to the unit is the boundary wall with the gardens to the neighbouring properties

The building is a long, narrow unit with large window openings to the flank wall facing the garden.

The building is of traditional construction with a tiled roof supported from a timber frame supported from a masonry shell of soft red bricks. There are no internal partitions. The timber frame roof is of more recent construction than the walls and it appears to have been completely replaced and strengthened over time as the requirement necessitated. Felt and battens underlay the tiles.

The **masonry shell** appears to have been formed from the original boundary wall, subsequently raised to provide the appropriate headroom for the workshop/store.

The original wall is generally 300mm thick soft red brick with a ledge formed where the “lift” masonry was added.



Internal masonry , note step



General view of roof and slab

The large windows to the garden elevation are divided by substantial masonry piers which display an outward lean, almost certainly the result of horizontal thrust applied by the original roof frame. The more recent **roof** frame appears

to have has addressed this problem as no recent distress was present. No lintels were evident supporting the roof frame between the openings.



Window piers, note lintel

It is apparent openings were historically present to the rear boundary wall which have now been blocked and form part of the rear wall with indents to indicate the original position.

The **slab** to the unit is generally a reasonable tamped concrete.

Two nominal **trial holes** were excavated to determine the type and depth of foundation. Little or no effective foundation was exposed with the walls being extended some 300/400mm below the existing garden level.

The immediate bearing stratum appeared to be a mixture of, loose bricks and lime to a sandy silt. The shallow nature of the foundation probably gave rise to the historic settlements noted within the masonry panels.

GENERAL

The roof to the barn appears to be of recent construction, but appears “a little random in its form”, it is clear the work has been carried out as a full maintenance, probably as the roof became ineffective and has been added to and stiffened as required by use. The roof is framed and triangulated and shows no signs of untoward distress or areas of leakage but it will require reassessment during any refurbishment work.

The masonry shell is reasonably sound, but will require attention with respect to the window piers and the introduction of lintels over the openings.

Much of the external masonry was covered by shrubs and planting and proved difficult to inspect closely. The panels will require further inspection, during works, and repaired as required. No untoward damage was reflected within the internal elevations. The brickwork may be repaired adopting full bond or helifix resin ties or a combination of both

The proposed internal partitions are to be securely tied to the flank walls and returns to ensure adequate buttressing.

GENERAL OVERVIEW

From inspection the barn will readily convert to domestic accommodation.

The building has performed well probably as a result of a general maintenance programme.

The roof profile appears to be in reasonable condition, although slightly haphazard in form and will require reassessment.

The walls, although displaying minor historic movement, are in a reasonably robust condition and can be repaired.

I understand the main footprint will not be radically altered within the architectural proposals

The load bearing fabric is generally sound but will still require careful work to ensure the long-term stability in the domestic context. This work can readily be introduced as part of the refurbishment works programme to satisfy the requirements of the building regulations.

The depth of foundation/lack of foundation indicates the necessity to introduce a raft which will link the foundation to the slab to provide both a foundation/slab and offer overall stability to the structure. The designed depth of slab formation must be determined to ensure adequate bearing stratum, foundation size and depth for the proposal and to ensure its adequacy in relation to its formation and the external ground levels

RECOMMENDATIONS

1. If the existing timbers are to be adopted, a design check must be made to ensure their suitability, should loadings patterns be altered or increased. It is probable strengthening will be required.
2. All retained timbers to be inspected and treated against insect and fungal attack. Timbers to be replaced on a like for like basis.
3. The rainwater drainage will need attention in both long and short term to avoid further distress.
4. The retained brickwork must be carefully inspected and repaired as necessary adopting materials to match the original structure. Full thickness repair must be achieved. Helifix or similar resin anchor ties may be adopted within the repair and/or a combination of both repair and ties.
5. The introduction of loadbearing lining walls to ensure future serviceability. These walls will also help accommodate the insulation requirement
6. The existing floors are unusable. The floors are to be broken out and a well compacted hardcore should be placed to support a proposed semi-raft/slab foundation which is support the walls and internal partitions. Consideration must be given to sub-floor formation in relation to the existing and proposed ground and slab levels

These recommendations are by no means exhaustive. Further consideration should be given once the actual architectural details are finalised.

CONSIDERATION TO ARCHITECTS DETAIL

It is understood the architectural proposals have the intention of renovating the barn with minimum interference to the existing structure. The scheme will have to conform to the current building regulations and the appropriate approvals obtained before work commences.

The inclusion of internal walls, ground floor decks and closure of the building will greatly assist in ensuring the prolonged life of the building.

This report is prepared for the party named and no responsibility will be handed to third parties without written consent.

The report is based upon a visual inspection of the specific property mentioned and should not be treated as full and comprehensive. No detailed inspection was carried out on other parts of the structure which were covered, unexposed or inaccessible and thus I am unable to confirm that any such part is free from defect.

Limited trial holes were excavated to help clarify the existing foundation system.

The report is limited to a “structural” inspection which is defined as “an assessment of the behaviour of the primary loadbearing elements of the building.” Examples of items not considered are roof coverings, decoration, windows, doors, architraves, skirtings, finishes, plumbing, water services, electrical wiring or any appliance, damp penetration, rising damp, timber infestation or timber treatment as these are usually dealt with by other specialists and are not dealt with in this report.

If there are any doubts relating to this report or its context contact me immediately.

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