



FRITH:BLAKE
CONSULTING LTD

**PROPOSED CONVERSION OF BARN ADJACENT TO:
White House, Long Road, Silfield, Norfolk. NR18 9NT
STRUCTURAL APPRAISAL**

For Mr Rupert Baker

Quality Assurance

Report Title: Structural Appraisal
Project: 3203 – Barn adjacent to White House, Long Road, Silfield, Norfolk.
Client: Mr Rupert Baker
Date: May 2021
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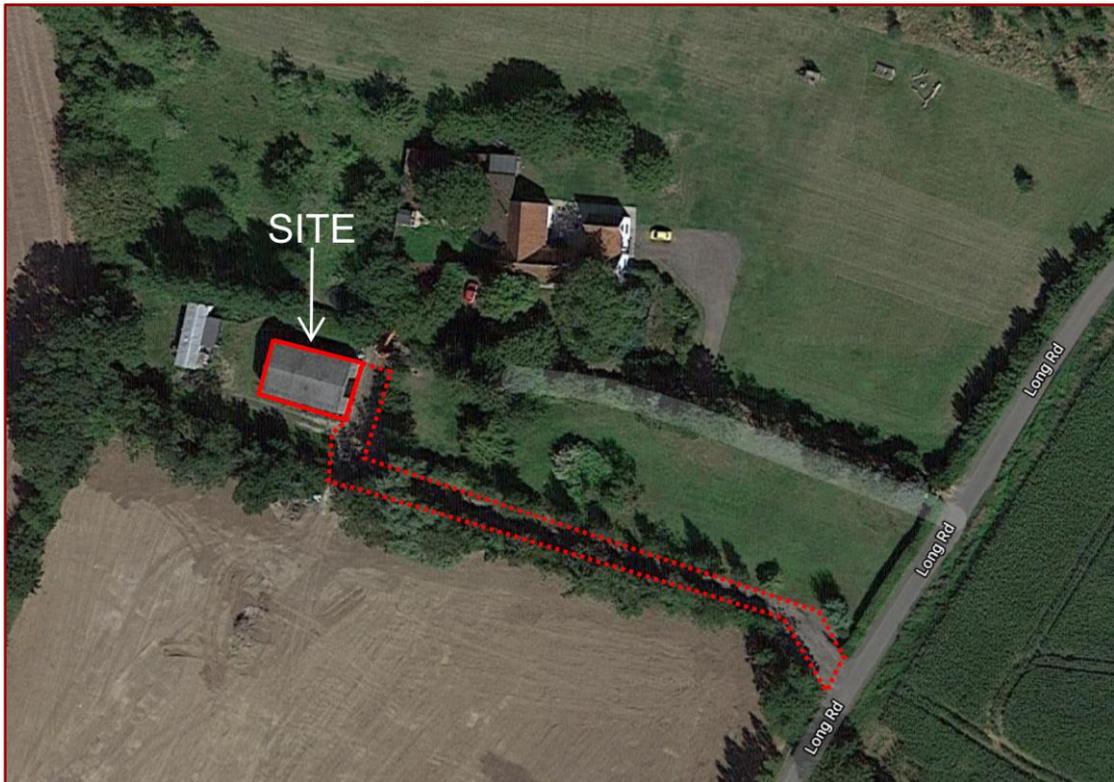
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1 Introduction

Frith Blake Consulting Ltd were instructed to undertake a structural appraisal of an agricultural building located adjacent to White House, Long Road, Silfield, Norfolk, NR18 9NT. The purpose of the appraisal is to establish the suitability for conversion into a residential dwelling.

An aerial photograph showing the barn surveyed is included below.



We have prepared this report based on a visual appraisal of the structure and a review of the information pertaining to permitted development rights under the General Permitted Development Order (GPDO) as outlined below and understand this will be submitted to South Norfolk District Council in support of the application:

- 1.1** We understand that Part 3 Class Q.1(i) of the General Permitted Development Order (GPDO) restricts building operations pursuant to Class Q to:
- a. the installation or replacement of –
 - i. windows, doors, roofs or external walls, or
 - ii. water, drainage, electricity, gas or other services, to the extent reasonably necessary for the building to function as a dwellinghouse; and

- iii. *partial demolition to the extent reasonably necessary to carry out building operations allowed by para. Q.1(i)(i), above.*

- 1.2 Further guidance on the extent of building works allowed when changing to residential use is provided in the National Planning Policy Guidance (NPPG) where at para. 105 it states:

Paragraph: 105 Reference ID: 13-105-20180615 Revision date: 15 06 2018

"... the (Permitted Development) right assumes that the agricultural building is capable of functioning as a dwelling. The right permits building operations, which are reasonably necessary to convert the building, which may include those, which would affect the external appearance of the building and would otherwise require planning permission. This includes the installation or replacement of windows, doors, roofs, exterior walls, water, drainage, electricity, gas or other services to the extent reasonably necessary for the building to function as a dwelling house; and partial demolition to the extent reasonably necessary to carry out these building operations. It is not the intention of the permitted development right to allow rebuilding work, which would go beyond what is reasonably necessary for the conversion of the building to residential use. Therefore it is only where the existing building is already suitable for conversion to residential use that the building would be considered to have the permitted development right Internal works are not generally development. For the building to function as a dwelling it may be appropriate to undertake internal structural works, including to allow for a floor, the insertion of a mezzanine or upper floors within the overall residential floor space permitted, or internal walls, which are not prohibited by Class Q.

It is the intention of this report to demonstrate that the proposed residential conversion may be executed in compliance with the terms of the GPDO.

2 Limitations

This report is based on an appraisal of elements visible from ground floor level externally and internally. Additionally, internal finishes and stored materials covered other elements preventing a detailed inspection, particularly at low level. We can therefore not accept responsibility for items which were not seen at the time of the inspection, nor made aware of. Access at high level was not possible in all areas, nor were there any intrusive investigation works to determine the extent and condition of foundations or concealed structures.

This report is based on conditions which were apparent at the time of our inspection in May 2021. We cannot accept responsibility for conditions which may occur at other times. The appraisal is not intended to form a detailed schedule of all required repairs, but to highlight the overall condition of principal structural members and the viability of the proposed works.

The appraisal covers structural aspects of the buildings only and comments made on any other aspects are noted for information only and should be verified by a specialist in that particular field. Any other issues noted within the report are for information only and should not be relied upon.

This information is provided for the sole use of the named client and is confidential to them and their professional advisors. No responsibility to other parties will be accepted.

Recommendations made in this report represent the views of Frith Blake Consulting Ltd acting as Chartered Structural Engineers with over 20 years relevant experience in the assessment of agricultural buildings.

3 Site Description

3.1 Site Location:

- The site is located off Long Road, to the south of Silfield, which lies approximately 1km to the south of Wymondham.
- The nearest postcode for the site is NR18 9NT;
- The approximate National Grid Reference to the centre of the site is TM 12578 99129
- The location is indicated on the below images:



Figure 3.1 Site Location Plan



Figure 3.2 Aerial Photograph

3.2 Existing Site Description:

Access to the site is off to the west of Long Road, to the south of Silfield, near Wymondham. The access is via a gravel track with a metal gate leading to a small gravel yard area which also provides access to the White House adjacent which is situated off the northern boundary of the barn curtilage.

The access track continues to the south and west of the barn, leading to further outbuildings and curtilage. The western boundary is bordered by open fields. The northern & eastern boundaries border land occupied by the neighbouring White House.

3.3 Proposed Development:

The application proposes the conversion of the barn into a single residential dwelling. The conversion will be carried out within the constraints of the GPDO as cited in Section 1. Where the installation of new windows or doors or infilling/replacement of cladding is required, these will not extend beyond the existing external dimensions of the barn.

There are no significant alterations that affect the structural integrity of the existing frame. A limited number of new openings to the elevations are likely, as is the installation of insulation and internal linings to the roof and walls.

New internal walls could be constructed off the existing ground floor slab.

4 Description of Barn



Figure 4.1 - Existing Agricultural Building

The existing barn comprises a duo-pitch steel frame building, a ground bearing concrete slab with block walls built between the columns to mid-height. Above the walls consists of timber cladding rails supporting asbestos/cement corrugated sheeting. Timber eaves beams and purlins spanning between the rafters support corrugated asbestos/cement roof sheeting forming the roof structure.

The barn is accessible via large sliding timber doors to the front gable on the eastern elevation pictured above in Fig 4.1.

The internal layout of the building is open plan. The ground floor is typically a mass concrete slab built up to the surrounding walls which appear to be constructed off an independent foundation.

The principal structure consists of steel universal columns and rafters. The rafters support timber purlins which in turn support the roof cladding. The building is braced by a combination of the external concrete block walls, together with the cladding to the side elevations and roof structure.

General photographs are included below:



Photo 1: East elevation



Photo 2: South elevation



Photo 3: West Elevation



Photo 4: North elevation

5 Site Observations

The barn appears to have been well maintained with roof and wall coverings protecting the main structural elements all of which are in good condition. The principal structure comprises steel columns supporting steel rafters and timber purlins supporting the roof cladding. External walls are predominantly enclosed by block walls built tight between the columns to mid-height, above the walls are timber rails fixed to the columns supporting vertical cladding. The condition of the steel structure is in good condition with no sign of any structural defects or deterioration. The overall building and primary structure is not displaying any significant vertical or lateral displacement, indicating the building is performing adequately.

The roof is permanently covered and well maintained, with little sign of deterioration to the structure or cladding.

A single timber eaves beam, appears to have suffered from damp and will require repairing at the column connection. A splice repair can be undertaken insitu, without the need for any removal or replacement to the main structure.

There are no signs of vertical displacement or settlement to any of the surrounding walls or ground floor slab.

The building was previously used as a general purpose agricultural building. Under these uses the building was potentially accommodating loads in excess of 2.5kN/m² to the floor areas.

Currently the stability of the building is provided by the rigidity of the substantial masonry walls and cladding materials.

6 Conclusions

The existing walls and roof are in good condition. There are no signs of significant vertical or lateral displacement indicating that the foundations and structural frames are performing adequately.

We can confirm that none of the existing structures will be required to be replaced as part of the proposals. Isolated remedial works will be required to repair one of the eaves timbers, but these works can be undertaken insitu without the need to deconstruct elements of the principal structure.

We consider that the installation of infill wall panels (where appropriate), insulation and internal lining are reasonably necessary to convert the agricultural building into a dwelling in order to ensure compliance with current Building Regulations. Using lightweight materials, a comparison of the weights of the existing and proposed materials are such that the loading will be comparable to the existing and will therefore place no significant additional load on the existing structures.

Due to the above there will not be a significant increase in the vertical loads transferred to the existing foundations from the installation of insulation and internal linings. The existing foundation sizes will have been dictated by the existing agricultural uses and therefore the loadings generated by use of a domestic property should not affect existing foundations.

The existing floors have been subjected to agricultural loadings, which are in excess of domestic loadings.

New openings can be formed in the external envelopes without any consequence to the principal structural elements.

The only external building operations necessary in order to convert the existing agricultural building into residential dwellings will include the installation and replacement of windows and doors.

As outlined above, the existing building is structurally strong enough to take the loading to undertake these building operations.