

STRUCTURAL APPRAISAL REPORT

Existing Barn;-
Ivy House Farm,
Sutton Road,
Sutton St James,
Spalding, Lincolnshire.
PE12 0HU.



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Property;-	Existing Barn;- Ivy House Farm, Sutton Road, Sutton St James, Spalding, Lincolnshire. PE12 0HU.	Instructed;- Jul 2024 Survey & Report by;- JC Consultancy Limited Aug 2024
Client:-	Mr P Roffe c/o G.R.Merchant Ltd 4 Wright Mews, Holbeach, Spalding, Lincolnshire. PE12 7EE.	Checked by;- J. Ellington BSc. CEng MStructE, FRSA, MIOD Authorised By;- J. Hicks BEng(Hons) MSc. PgDipCHE., MIOD
Reference:-	JC/24/07/7713	Issued:- Sep 2024

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1.0 BRIEF

- 1.1** JC Consultancy Limited was requested by Mr P Roffe, to assess and comment on the structural condition of an existing barn that is located at Ivy House Farm, Sutton Road, Sutton St James, Spalding, Lincolnshire. PE12 0HU.

2.0 INTRODUCTION & SCOPE

- 2.1** The building is located in a rural countryside location, North of the village of Sutton St James in Lincolnshire. The barn is accessible off the highway known as Sutton Road.
- 2.2** The client has instructed a structural appraisal report is to be carried out in order to assess possible options for future development, change of use and conversion. The enquiry was received from the client in July 2024. The instruction to carry out the structural appraisal was provided by the clients agent, G.R.Merchant Ltd on the 26th July 2024.
- 2.3** This report is to be regarded as confidential to the party to whom it is addressed, and it is intended for the use of that party only. No responsibility will be accepted to any other party in respect of its contents in whole or in part. Prior to the report or any part of it being reproduced or referred to in any documents, our written approval as to its form and content must first be obtained.
- 2.4** JC Consultancy Limited visited the property on 14th August 2024, in order to carry out a structural appraisal survey.
- 2.5** The weather conditions at the time of the visit was warm and dry.
- 2.6** The purpose of this report is limited to an opinion on the structural condition of the building. We have only reported upon those structural defects that materially affect the stability of the building and provided that these defects are reasonably detectable at the time of our inspection. Whilst we have used all reasonable skill and care in preparing this report it should be appreciated that we cannot offer any guarantee that the buildings will be free from future defects or that existing ones will not suffer from further deterioration. This report is limited to commenting on elements of the structural fabric only. No further assessment will be made to elements elsewhere in the property. Comments will relate to structural condition and performance of elements only.
- 2.7** This report does not contain observations, comments or recommendations to any non-structural items including, but not limited to drainage, electrical, heating and plumbing services, timber work and any decorative finishes / plasters.

- 2.8 Decay associated to damp, fungal attack, insect infestation or contamination (including the presence of asbestos materials or similar) is outside the scope of our appointment or report. Any reference to decay associated to damp, fungal attack, insect infestation or contamination to either structural or non-structural items are observations only. As such we recommend that further advice is sought from specialists in the fields of damp, fungal attack, insect infestation or contamination in order to guarantee peace of mind from these potential defects.
- 2.9 The inspection was of a visual nature only. There has been no opening up works involved in this investigation.
- 2.10 Any part of the structures that were hidden, covered or otherwise inaccessible, have not been inspected or commented upon. We therefore cannot guarantee that any such parts are free from defect.
- 2.11 The performance of the existing ground strata, general ground conditions and foundations may be referred to within this report; however, the ground conditions and foundations have not been fully inspected or investigated as part of this survey. Therefore, comments made will be based on analysis sought from indicative desktop sources including but not limited to the 'British Geological Society'. These sources generally provide sound interpretation, however local anomalies can occur, and as such we cannot guarantee their accuracy.
- 2.12 The observations and defects noted within this report should not be read as a comprehensive inventory of each and every single item witnessed during our survey. Instead the records should be taken as an indication of the condition of the barn in general and should demonstrate the likely defects that may be present elsewhere in areas of the fabric that have not been surveyed or recorded.

3.0 GENERAL DESCRIPTION

3.1 The barn is accessed off Sutton Road via a gated entrance, and is located on a large, predominantly level site, within the farmyard known as Ivy House Farm. The original construction date of the barn is unknown, but it is clearly longstanding. To the best of our understanding and belief the property is not Listed.

3.2 For the purposes of this report, the barn can be described as consisting of three main elements.

The first element consists of a steel, duo-pitched, portal frame building, constructed in four equally spaced bays. The frames consist of Universal Beam (UB) style steel columns and rafters. The internal pair of frames are traditional portal frame arrangement, whereas the two outer frames forming the gables elevations incorporate a truss element at the roof in order to provide vertical restraint for verge cladding. The steel frames support timber equally spaced timber purlins and a lightweight profiled roof finish.

The second and third elements are timber constructed, mono pitched, lean-to structures that flank both sides of the main steel framed building, and form both the North-West and South-East facing elevations respectively. The timber frame elements are equally spaced, matching the steel frame bays. The timber frame gains support off the steel frame column via substantial steel brackets. The timber frame elements consist of spaced timber rafters, timber support columns, timber eaves braces and purlins, which in turn support a continuation of the lightweight profiled roof finish.

3.3 The barn is predominately open sided, but does have localised areas of vertical sheeting and other areas of shiplap style boarding in parts.

Further clarification of the general description can be seen from the photographs within Section 6.0 of this report.

3.4 The building is currently used for the keeping and feeding of livestock, storage for livestock feed and general agricultural use.

3.5 Published Geological records show the building to be within an area where the soil sequence consists of a solid formation of Ampthill Clay Formation (Mudstone) at depth overlain by a considerable thickness of Tidal Flat Deposits (Clays & Silts).

4.0 OBSERVATIONS & DISCUSSIONS.

- 4.1 The steel, duo-pitched, portal frame building, which adopts a basic, rectangular shape and includes portalised eaves haunches appears to be a generally robust structure which can be seen to have performed well under applied loading during its lifetime.

There was no evidence of significant deflection of steel elements, and whilst corrosion and rusting were present in parts, the extent was as expected on a predominantly exposed structure, and its presence has not impacted the overall structural stability or performance of the frame.

The later, mono-pitched timber lean-to elements that flank both sides of the main steel frame each consists of reasonably deep spaced timber rafters, substantial timber support columns, timber eaves braces and timber purlins.

The timber frames can be seen to have performed well, with little distortion or lateral deflection noted. The arrangement incorporates timber knee bracing elements throughout which have provided and will continue to provide the framed elements with their overall structural stability. Areas of wall cladding including a shiplap style boarding over robust timber rails provide further diaphragm action against racking on the South-East facing elevations.

- 4.2 As with all buildings of this type and age it may have suffered from a degree of vertical movement, however with no fragile finishes to roof, walls or floor slabs applicable, which would normally display evidence of movement, the degree of movement exhibited in the past is somewhat unknown. However, steel and timber frame elements were generally observed to be plumb and true when observed along their length and height. suggesting that the structure has not been materially affected to foundation or ground movement to such an extent that it would be deemed obvious and noticeable.

One of the timber support posts on the North / West facing elevation was suffering from a degree of distortion, which is likely to have manifested from general decay, exposure, and a temporary reduction of restraint following a localised loss of the roof structure / roof finish in this isolated location.

Notwithstanding the above, a reasonable amount of foundation movement would be expected for this geographical area, however considering the age and style of the building, observed movement was considered as being minimal and low. Any movement within the structure is more likely to be a combination of fatigued / aged materials, isolated areas of decay to timber, together with the general exposure that comes from agricultural activities and keeping agriculture livestock as opposed to overloading and / or failure of any foundations.

- 4.3 The existing foundations will be basic and likely to be of isolated shallow 'pad' foundations which is typical of this style and age of building. With no walls currently present within the arrangement, it is likely that any conversion will need to incorporate additional new foundations, spanning between existing pad foundations, in order to support the new wall panels. As such any additional loading onto the existing foundation system is likely to be minimal and we see no reason at the time of writing why the building will be subject to any long-term progressive movement that will cause building instability in the future as a result of a proposed conversion.
- 4.4 The roof of the barn is of simple construction consisting of timber purlins supporting a profiled roof sheeting. These roofs are not displaying any signs of excessive deflection or distortion, and the main steel and timber frame elements will continue to provide suitable support for any new roof sheeting that is considered as part of a potential conversion. Adaptation of purlins will likely be required subject to chosen roof system.
- 4.5 There are currently no ground floors slabs present within the barn, due to its current function of an area for feeding livestock and general crew yard activities. Therefore, new floor slabs will need to be adopted throughout as part of any conversion. Should current ground floor levels need to be increased to accommodate flood risk requirements, then this could be achieved via a number of methods. Consideration could be made for the installation of a suspended floor system off plinth walls for instance, or alternatively a raised ground bearing floor build up using a combination of slabs and retaining walls could be adopted.

5.0 CONCLUSIONS

- 5.1 In general, the existing building, which consists of a steel, duo-pitched, portal frame building, flanked both sides with timber constructed, mono pitched, lean-to structures is considered to be in a reasonable structural condition considering its age and previous use. The building is long-standing and there was no evidence that the building is currently accommodating any significant structural defects that compromises its overall structural stability as a whole.
- 5.2 The construction of the barn is basic; however, its primary structural elements provide it with sufficient robustness that it can be seen to have accommodated and safely distributed applied loadings during its lifetime without suffering from any undue distortion. Given the simplicity of the existing structure, the proportion requiring strengthening adaptation and repair as part of a conversion process is likely to be far less onerous than those experienced in successful conversions of more elaborate agricultural barns that we have provided guidance on in the past.
- 5.3 **In conclusion, having considered the existing structural arrangement, we are satisfied that the existing building is deemed structurally stable and appears capable of conversion without the need for significant extension, alteration or rebuilding of any of the existing elements that are currently present.**
- 5.4 Whilst reference to damp is outside the scope of this report it can be seen that the structure is predominantly open sided to the elements and as such will have suffered from continued weathering and water penetration over the years. In addition, the barn has been used for the keeping and feeding of animal livestock. As such it is essential that advice and any required treatment from specialists in the field of damp, decay and material contamination should be carried out in conjunction with the conversion, in order to ensure that damp and timber decay are not trapped within the fabric post completion.
- 5.5 Whilst reference to contamination, including the identification and survey of asbestos based materials, is outside the scope of our reports, we must highlight that the use of asbestos materials was common practice during the original construction of these types of building. We therefore recommend that further advice is sought from specialists in the fields of asbestos survey, protection and removal during any design and planning stages, in order to guarantee peace of mind from the potential hazards when dealing with materials of this kind.

Finally, we confirm that this report is for advice and guidance only, and that consideration of any conversion proposals should be done only following liaison with the Architect, and guidance / Approval from the Local Authority Planning Department.

JC Consultancy Limited

Consulting Structural & Civil Engineers

September 2024

6.0 PHOTOGRAPHS



Photograph # 1



Photograph # 2



Photograph # 3
(



Photograph # 4



Photograph # 5



Photograph # 6



Photograph # 7



Photograph # 8



Photograph # 9

*****END OF REPORT*****