

Structural Appraisal Report

**The Cottage,
Common Lane,
Old Leake,
Lincolnshire**



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Property:-	The Cottage, Common Lane, Old Leake, Lincolnshire. PE22 9RH	Instructed:- July 2020
Client:-	Mr Elsam c/o Neil Dowlman Architecture Ltd. 14 Main Ridge West Boston Lincolnshire PE21 6QQ	Survey & Report by:- J. Ellington BSc. CEng MStructE, FRSA MIOd J. Hicks BEng(Hons) MSc PgDipCHE, MIOd
Reference:-	JC/20/07/5555	Issued:- Aug 2020

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Our Ref;- JC/20/07/5555

Contents

- 1.0** Brief
- 2.0** Introduction & Scope
- 3.0** General Description
- 4.0** Observations and Defects Log
- 5.0** Conclusions and Recommendations
- 6.0** Photographs

1.0 BRIEF

- 1.1 JC Consultancy Limited was requested by Mr Elsam via Neil Dowlman Architecture Ltd to assess and comment on the structural condition of the existing property known as The Cottage, Common Lane, Old Leake, Lincolnshire.

2.0 INTRODUCTION & SCOPE

- 2.1 The Cottage is an existing two storey, detached dwelling, located on the outskirts of the rural village of Old Leake in Lincolnshire.
- 2.2 The client currently owns the freehold of the property and has instructed that a structural appraisal is carried out in order to advise of possible structural defects present within the building in order to evaluate options for future developments of the property.
- 2.3 This report is defined as a Structural Appraisal Report. A full Structural Survey has not been carried out on the property, as there has been no opening up works involved in this investigation. Therefore, only items relating to issues (2.3.1.) stated below will be assessed and commented upon within this structural appraisal report.

Items highlighted by the client that we have been asked to investigate and comment upon are as follows:-

- 2.3.1 *An assessment to advise of the structural condition of the property, and to identify possible structural defects within the fabric, in order to evaluate options for the buildings future development.*
- 2.4 The instruction was provided by the clients Architect, Neil Dowlman Architecture Ltd via correspondence dated 30th July 2020.
- 2.5 This report is solely for the purposes of the client and no other third parties.
- 2.6 JC Consultancy Limited visited the property on 4th August 2020 in order to carry out a structural appraisal survey.
- 2.7 The weather condition during the survey was overcast but dry.
- 2.8 This report is limited to those elements of the structural fabric noted in items 2.3.1 of this report, and comments only upon their structural condition and performance.
- 2.9 The 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 decorative plasters.

- 2.10 Decay associated to damp, fungal attack, insect infestation or contamination 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.
- 2.11 The inspection was of a visual nature only. There has been no opening up works involved in this investigation. Finishes have not been removed and carpets have not been lifted during the inspection.
- 2.12 Any part of the structure that was hidden, covered or otherwise inaccessible, either by permanent finishes such as, but not limited to wallpaper, decorative plasters, suspended ceilings, or carpets, or by items of furniture, either fitted or freestanding, have not been inspected or commented upon. We therefore cannot guarantee that any such parts are free from defect.
- 2.13 The performance of foundations may be referred to within this report, however the existing foundation system has not been inspected during this investigation, and as such we cannot guarantee that it is free from defect throughout.
- 2.14 The performance of the existing ground strata and general ground conditions may be referred to within this report; however the existing ground conditions have not been inspected therefore comments made will be based on analysis sought from indicative desktop sources including but not limited to the 'British Geological Society' (BGS). These sources generally provide sound interpretation, however local anomalies can occur, and as such we cannot guarantee their accuracy.

3.0 GENERAL DESCRIPTION.

- 3.1 The property is a small two storey detached cottage, with single storey side projections located in a rural location on the outskirts of the village of Old Leake. A traditionally constructed agricultural style barn is attached to the rear of the cottage.
- 3.2 The property appears to have been altered during its lifetime with various alterations and additions.
- 3.3 The construction of the cottage consists of:-

Roof

The duo-pitched roof consists of part concrete tile, part clay pan tile roof covering over a raised tie, cut timber roof consisting of timber rafters, collars, purlins and ties. The mono-pitch roof over the side projections consists of clay pan tile roof covering over a cut timber roof consisting of timber rafters over timber purlins.

External Walls

Traditional solid wall construction consisting of clay masonry units finished internally with traditional plasters throughout.

Internal walls

A combination of load bearing and non-load bearing single leaf partitions. The partitions are constructed using a combination of loadbearing and non-loadbearing clay masonry units, blockwork and timber studwork with plaster wall finishes to both faces.

Floors

Predominately solid ground bearing floors of unknown specification.

Foundations

Foundations appear to consist of a shallow corbelled masonry foundation system, typical of construction of this age and style in this area of Lincolnshire.

- 3.4 The construction of the attached barn consists of;-

Roof

The duo-pitched roof consists of a clay pan tile roof covering over a cut timber roof consisting of timber rafters, collars, purlins and ties.

External Walls

Traditional solid wall construction consisting of clay masonry units , fair faced both externally and internally.

Floors

No floors are present in the barn.

Foundations

Foundations appear to consist of a shallow corbelled masonry foundation system, typical of construction of this age and style in this area of Lincolnshire.

- 3.5 Published Geological records show the building to be within an area where the soil sequence consists of a solid formation of Kimmeridge Clay Formation (Mudstone) at depth overlain by soft Tidal Flat Deposits (Clay & Silts).
- 3.6 The garden surrounding the property is overgrown in parts. There are a number of mature trees and hedges in close proximity to the front and side elevations of the cottage, with further mature tree species present in the remainder of the garden and forming the boundary of the site.

4.0 OBSERVATIONS AND DEFECTS LOG

The observations and defects noted below 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 property 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.

4.1 Cottage Roof

- The ridge line displays significant unevenness along its length.
- The roof slopes are dished (sagging).
- Small areas of missing / slipped tiles.
- Internally there were areas of defective / sagging ceilings.
- Ceiling finishes were missing in parts.
- Sagging purlins noted to mono-pitch roof.
- Defective rainwater goods.

4.2 Cottage Walls

- Large areas of outward bulging of masonry panels to side elevations.
- Masonry units defaced / eroded in parts.
- Evidence of cracking throughout the elevations.
- Significant movement / vertical tapered cracking noted at junctions of walls.
- Tie bars noted.
- Evidence of vertical movement to all elevations. Bed joints display large amounts of horizontal variation along their length.
- Elevations covered in Ivy growth in parts.
- Single storey Porch displaying signs of differential movement away from the main dwelling.

4.3 Cottage Floors

- Ground floors display significant amount of movement, with unevenness / settlement noted throughout.
- Wall and ceiling finish debris throughout.
- First floors were partially inspected but considered un-safe for general walk over.
- Wall and ceiling finish debris throughout.

4.4 **Cottage Foundations**

- Significant settlement and differential movement noted.
- The movement and defects noted to the superstructure suggests that the foundation system is unable to accommodate and distribute the loading of the building.
- Trees are close to the front / side elevation.

4.5 **Cottage General**

- Whilst our reports do not comment upon damp and timber decay, it was noted that large areas of plasters, wall finishes, skirtings and other timberwork appeared damp, had become delaminated, and were displaying signs of decay. The fabric has been part open to the elements due to defective roof finishes and as such the evidence of damp was significant in parts.

4.6 **Barn Roof**

- The ridge line displays a degree of unevenness along its length.
- The roof slopes are dished (sagging).
- Small areas of missing / slipped tiles.
- Roof timbers and rafters displaying evidence of deflection and bending.
- Defective rainwater goods.

4.7 **Barn Walls**

- Side elevation walls are leaning outwards – roof spread.
- Large areas of the side elevation have eroded / perished masonry units.
- Evidence of cracking throughout the elevations.
- Tie bars noted.
- Evidence of vertical movement to all elevations. Bed joints display large amounts of horizontal variation along their length.
- Elevations covered in Ivy growth in parts.
- Lower levels of masonry are damp.

4.8 **Barn Foundations**

- A degree of settlement and differential movement noted.
- The movement and defects noted to the superstructure suggests that the foundation system has rotated in parts, likely due to forces associated with roof spread and is unable to accommodate and distribute the loading of the building.

5.0 CONCLUSIONS AND RECOMMENDATIONS.

- 5.1 The structural fabric of the existing cottage and barn is considered to be extremely fragile. The key elements of the structure including roofs, walls and floors have all suffered significant material fatigue. The overall structural stability of the building appears to have been compromised and as such it is currently deemed to be unstable in a number of areas.
- 5.2 The property appears to be accommodating a combination of continued structural movement, with both vertical (downward) and lateral (outward) movement noted in large parts during our survey. The vertical 'settlement' of the foundations, floors and walls is likely to have been heavily contributed by an insufficient foundation system, exacerbated by general poor ground conditions and the effects of trees. The lateral movement of wall panels will have been contributed by a defective roof structure, resulting in 'roof spread' which in turn exerts horizontal stresses onto the walls and subsequent outward movement. A lack of tying action throughout the building and general material fatigue will also result in the lateral movement and bulging of masonry panels observed.
- 5.3 There is evidence that progressive attempts have been made to stabilise the building, both via the introduction of tie bars and repair of cracking and fractures. However due to the fatigued nature of the base materials, the attempts have predominantly failed and further movement has occurred.
- 5.4 Whilst we always attempt to reinvigorate structures with sound and sensible repair solutions, sometimes it needs to be considered that the existing fabric of a building will not be able to accommodate such intrusive intervention. Stresses and changes to load paths imposed upon the materials 'temporarily' during stabilisation works, can have an exhaustive effect on their long-term performance. In our experience, enthusiastic repair schemes at Planning stage can often deviate dramatically once works commence, and it is not uncommon for extensive loss of original fabric to occur.
- 5.5 In this instance, having reviewed the existing condition of the cottage and barn, we do not feel it is possible to provide a stabilisation and repair schedule to this property. The degree of existing movement is too high and the extent of structurally sound materials remaining is minimal. We feel any attempt to strengthen the structure in a sound and sensible manner would likely lead to high losses of the remaining structure.
- We therefore recommend that consideration is made to record the existing fabric of the building to enable the careful demolition and construction of a replacement dwelling, should local planning regulations provide this opportunity. The progression of any proposals for demolition and construction of a replacement dwelling should be done only following liaison with, and guidance from, the Local Authority Planning Department.

JC Consultancy Ltd – Aug 2020

Consulting Structural Engineers

6.0 PHOTOGRAPHS



Front Elevation



Side Elevation



Part Rear Elevation



Side Elevation



Part Side Elevations



Front / Side Elevations



Side / Gable Elevation



Front / Gable Elevation



Front / Gable Elevation



Side Elevation – Adj Trees



Cottage - Typical Internal – Roof / First Floor



Cottage - Typical Internal – Roof / First Floor



Cottage - Typical Internal – Stairwell / Ground Floor



Cottage - Typical Internal – Ground Floor



Cottage - Typical Internal – Ground Floor



Cottage - Typical Internal – Ground Floor



Barn - Typical Internal – Roof / Walls



Barn - Typical Internal – Roof / Walls



Barn - Typical Internal – Walls



Barn - Typical Internal – Floors

END OF REPORT