Porter, Karen

From: Helen Raymond <rawarchitecture.hr@gmail.com>
Sent: 26 June 2015 10:09
To: _planningadvice
Subject: H19-422-15 Replacement Dwelling, Ollards Farm, Hallgate Road - Structural report
Attachments: Structural report_morton and hall.pdf

Further to my call earlier today, please find attached the structural report for the existing dwelling in relation to the above application.

As discussed, if it is possible for the report to go online, to allow it to be shared with Louise Jennings, it would be appreciated. I will then contact Phil Norman on his return to discuss the contents of the report further.

Many thanks
Helen

Helen Raymond
(Director)
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ENGINEER'S INSPECTION REPORT

OF

OLLARDS FARMHOUSE

HALLGATE ROAD

THROCKENHOLT

LINCOLNSHIRE

PE12 0QS

1.0 INTRODUCTION

1.1 Client

Mr & Mrs Proctor, Ollards Farmhouse, Hallgate Road, Throckenholt, Lincolnshire, PE12 0QS

1.2 Date of Inspection

Friday 19th June 2015

1.3 Brief

To investigate and report upon the structural elements of the property.

This report shall be for the private and confidential use of the clients and their professional advisers for whom the report is undertaken, and should not be reproduced in whole or in part or relied upon by third parties for any use without the express written authority of Morton & Hall Consulting Limited.

1.4 Age and Type of Construction

The property was a detached two storey brick built dwelling of approximately 250 years in age, all reference to which was made as viewed from the front.

It faced in an approximate Southerly direction. The roof pitched from front to rear with gable ends to each side, a gable faced in an approximate Westerly direction against Hallgate Road.

External walls were of solid brickwork construction of a stretcher thickness of approximately 215mm thickness.

There were suspended timber first floors and a variable ground floor construction probably consisting of a combination of suspended timber flooring, concrete slab replacement and some ceramic tiled flooring.

There were no outbuildings under consideration.

1.5 **Extent of Examination**

The inspection comprised an external examination from ground level together with an internal inspection of the accessible floor areas and roof spaces.

We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

The surface of all floors not covered with fixed coverings was inspected as far as was practical. Fixed floor boards were not lifted and equally fitted carpets were not lifted but the Engineer has, where possible, lifted accessible corners sufficiently to indicate the nature of the finish beneath.

Below ground drains were inspected by lifting accessible inspection chambers to establish the type of materials employed and the condition of the drains but no testing was undertaken.

We have not undertaken a detailed Environmental Search or Flood Risk Assessment.

The inspection was limited to the structural aspects only and has not included for items of fabric, finishes, fixtures, fittings or services. No assessment of potential asbestos materials was made.

1.6 **Occupancy & Condition**

At the time of the inspection the property was unoccupied and unfurnished.

It appeared that it had received some refurbishment in or around 2010 when walls and ceilings were replastered, possibly some damproof measures were undertaken and some refitting out was undertaken. This repair however appeared to be largely cosmetic.

There were significant variations in the ground floor level which was set over with a heavy duty linoleum which suggested a finish to cover potential dampness arising.

1.7 Appendices

There are the following appendices at the end of this report.

Appendix A ~ Site Photographs

2.0 SITE INSPECTION AND INVESTIGATION

2.1 The Site

The property occupies a site in open farmland on the outskirts of the village of Throckenholt. It is in an area of reclaimed Fenland and on a generally level site.

British Geological Survey Sheet Peterborough 158 indicates soils at the site to comprise Barroway Drove Beds which are silty Fen soils with occasional bands of peat.

These soils can be shrinkable and trees growing adjacent to the property could be of influence to foundation stability.

There were the following trees where root systems could potentially extend towards and under foundations through current of future root growth.

Tree	Height	Distance from the Property
Lime	16m	Within 3m of the West flank wall
Sycamore Sapling	8m	Within 6m of the West flank wall
Horse Chestnut	16m	Within 25m of the front left hand beyond the Western site boundary

There were no open water courses or dykes adjacent the property.

The property and site have not been tested for any form of contamination, pollution or any other environmental impairment and we are therefore unable to make any comment in this regard.

2.2 **Global Movement**

Viewing about the property and accessing through internally, there was distortion to the first and ground floors and at various points there were twists on door and window openings and some leaning out on gables.

There was not distinct overall tilting in any one direction rather the whole property had been affected at various stages in various sections.

2.3 **Roof Exterior**

The roof was covered with slate tiles and clay capping ridge tiles. The covering was old and slates were in poor condition with several slates having been previously clipped where holding down nails had corroded out. The roof lines were variable dropping in from gable end walls.

2.4 **Chimney Stacks, Parapets & Flashings**

Parapets continued above each gable end wall against roof lines and these had been recently capped over with leadwork both sides. There were chimney stacks on each gable. The stack on the West gable leant into the property and appeared to have been rebuilt in the early part of the 20th Century. The stack on the East gable was better aligned where parapets had been capped over, it is expected that these would be in poor condition.

2.5 **External Walls**

The external walls were of a solid brick stretcher thickness with brick arch lintels over door and window openings. Red bricks were set in a lime:sand mortar although there had been various sections of repointing and crack repair with some sand:cement repairs undertaken.

Viewing to the South front elevation, there was evidence of previous crack repair full height about the window openings to the West side. The brick arched lintel at ground floor level had further slipped.

At centre some earlier repointing had been made over the front entrance lintel and the window above showed distortion dropping to the West side at eaves.

To the windows at the right hand side, there was some slippage of the ground floor lintel and twisting over the first floor windows. Recent windows had been set in or around 2010 within the slightly distorted openings. There was evidence of previous settlement of foundations to the front of the Eastern gable and brickwork had been earlier repointed through the lower sections.

Spirit levels placed on the front wall indicated some twisting in the height of the wall towards the centre and Eastern side, leaning back into the property with a tilt of approximately 1:150. There was some further bowing out over the central front entrance lintel.

The West facing gable was twisted in its height. Towards the front, the wall leant into first floor level but then further twisted in the height of the building leaning in towards the top of the gable. The wall twisted towards the rear, overall twisting being in the order of 1:100. Quite substantial repointing had been earlier made in the height of the gable suggesting some earlier crack repair on the lines of the chimney and horizontally at first floor level.

There was similarly twisting on the East facing gable. At the front there was slight leaning out to first floor level, the wall straightening towards the rear. In the height of the wall, there was some concave bowing in about the line of the chimney with some further twisting out about the chimney to the top of the gable. Some earlier repointing had been made towards the top of the gable with some further more recent sand:cement repointing through various sections.

On the North rear elevation, recent repointing had been made over a slipped ground floor lintel to the Western side and there was evidence of earlier repointing in the height of the wall at this side towards the gable. Repointing had similarly been made at centre over the rear door opening. To the Eastern side of the door opening, a brick arch lintel was severely corroded and had slipped to the side, there had been previous crack repair in the height of the wall at this point suggesting earlier crack repair.

There was also substantial earlier repointing made to the Eastern end of the elevation. To the Western side of the rear wall, spirit levels placed on the wall suggested tilting into the property in the order of 1:100, the wall straightened to the Eastern side.

2.6 **Damproof Course and Subfloor Ventilation**

A distinct damproof course was not seen to the property nor was there any evidence of injection damproof coursing having been set. Brickwork at the lower levels was quite severely eroded with several open mortar joints. There were two subfloor ventilation panels on the front elevation to the Eastern side but elsewhere these were either not in existence or had been mortared over. There was a section of suspended timber flooring in the front Eastern side room.

2.7 **Roof Interior**

An inspection of the roof space was made through a newly formed loft hatch to the rear of the stair landing. The structure appeared to date from the early part of the 20th Century or late 19th Century and was covered with what appeared to be the then reset slate tiles directly on battens with no felt between.

The structure comprised rafters spanning between the front and rear walls bearing their own thrust through a ridge board but gaining support on a central purlin with cross collars between. Ceilings joists spanned from front to rear gaining support on internal cross partitions and tying against rafters. Although of a stable configuration, the structure was undersized and this had resulted in some deflection in from gable walls.

There was not adequate tying into gables and although there were some binders to ceiling joists, these were undersized and could have sagged.

2.8 **Fireplaces, Flues & Chimney Breasts**

In the roof space to the Eastern side, some alterations to the chimney appeared to have been made, propping this onto the central dividing load bearing wall with the chimney stack continuing to the rear.

This continued full height to ground floor level. At the Western side the chimney corbelled front to rear also gaining support on the central cross wall. Chimney breasts continued at each side at first floor level but were removed to the front at ground floor level, the rear stack being boxed about in the rear room. There was no evidence of a beam having been set to give vertical support to the chimney and this probably corbelled from the wall.

Normally flues to open fireplaces should be swept prior to occupation. It was not possible to indicate the condition of flues nor the presence of a flue liner. No assumptions were made as to the practicality of using the chimney.

It is unlikely that there would be adequate flue liners to the chimneys.

2.9 **Ceilings, Walls and Partitions**

Ceilings had been reboarded out at first floor level where seen in the roof space and similarly appeared to have been reboarded out above ground floor level. All walls and partitions were recently plastered. Although giving the appearance of a reasonable finish, this work was largely cosmetic. Some cracking was noted against the rear wall window in the bathroom above and below the window.

New doors had been rehung in distorted frames throughout. This was similarly the case at ground floor level, clear distortion being seen in the central corridor door leading to the rear where this dropped to the Western side.

2.10 **First Floor Structure and Staircase**

Suspended timber floors were set at first floor level and these appeared to be original.

A section of boarding was seen in the front left hand side room. Some beetle bore was noted. Floors dropped to the rear and to the Eastern side with tilts in the order of 1:100. In the right hand side front room, flooring also dropped to the rear and Eastern side.

In the en-suite at the rear right hand corner, the floor dropped towards the central partition to the front. There remained a significant tilt to the East gable. Floors were otherwise reasonably sound underfoot. In the rear left hand room the floor had sagged to centre.

The staircase appeared to be original set around with an old banister rail. Although this was low, this was original and had some merit. The rail was reasonably sturdy. The stair was reasonably aligned and sound underfoot.

The door to the understair cupboard caught in its frame.

2.11 **Ground Floor Structure**

Ground floor carcassing was variable throughout the property.

Flooring was boarded out in the front right hand room. Some beetle bore was noted through boards. The floor was reasonably aligned suggesting it had been reboarded at some stage.

Elsewhere floors were exceedingly variable to all rooms. These were not necessarily tilted but sections showed distortion in the order of 5 to 10mm in 1.0m length. Sections appeared to be covered in some instances with latex screws over poor quality subflooring be it either cracked and distorted concrete or ceramic tiled flooring. Heavy duty linoleum was laid over floors in the rear rooms.

Overall the ground floors appeared to be inadequate.

2.12 **Dampness, Dry Rot & Other Timber Defects**

It appeared that a waterproof render had lined internal walls prior to plastering, this being seen in the rear left hand side utility room above the linoleum flooring. Nevertheless moisture would be trapped in old brick walls and this type of finish would not allow the walls to breath. Positive damp meter readings were recorded where brickwork was exposed in the rear right hand side boiler room and on the adjoining central room above the skirting level.

Overall it appeared that the property had been recently set with waterproof render internally with Gypsum plaster over but this would have very limited longevity in preventing damp penetration.

Equally the roof would not be weathertight where slate tiles were starting to slip and had been clipped at several locations.

There was some evidence of beetle bore to timber boarding and it is probable that there had not been adequate timber treatment carried out to structure when cosmetic repair was last undertaken.

2.13 **Drainage**

The roof drained into replacement uPVC gutters and downpipes but these were incomplete. There was no below ground drain to the downpipe set at the front of the West gable.

At the rear the downpipe connected into a recently set uPVC gully although it was not known without excavation, whether this continued to a soakaway. There was a soil stack set to the front and there appeared to be some recently laid uPVC drains.

Below ground drains only appeared to be partly completed and the location of any septic tank or water treatment plant was not established.

2.14 **Foundations & Underlying Soil Strata**

Trialholes were not excavated to expose the foundations however we would expect the property to be founded upon a shallow corbelled brick footing.

An excavation had been made to establish the electricity supply at the Southwest corner and here silty soils were revealed with large roots of up to 20mm diameter extending through in close proximity to the property.

A trialhole was excavated with a JCB to the front of the site which revealed silty soils continuing to approximately 2.5m depth where they were becoming moist.

The silty soils would be of a low shrinkage potential but would still be vulnerable to tree root action.

There appeared to have been widespread subsidence damage at intermittent periods in the history of the property. This appeared to be associated with the growth of the Lime tree to the Western side of the property.

3.0 CONCLUSIONS

3.1 Subsidence Damage

The property indicated substantial areas of distortion which had only recently been cosmetically covered over.

There appeared to have been a history of subsidence damage linked to the growth of the Lime tree adjacent the Western flank wall. This tree can dry out subsoils and cause drying shrinkage.

If the tree was to be removed, although it is unlikely that heave would arise, there would be voids left in subsoils where roots could rot and therefore there would be expected to be continuing foundation instability.

Subsidence damage would typically arise in long hot dry summers when moisture levels are depleted.

This appeared to be the cause of the various distortion and twisting in the property and earlier history of crack repair.

3.2 Unsupported Chimney Stack

The chimney breast had been removed to the front of the West gable wall at ground floor level and this would cause some instability. The stack was leaning in the height of the property.

3.3 Undersized Roof Structure & Lack of Roof Felting

The roof structure was undersized and had deflected and pulled in the gable walls to the property. Slate tiles were set directly on battens with no felt between and this was effecting the performance of the roof. Slate tiles slip where holding down nails corrode out and the roof was at a stage where it required substantial strengthening and tiling on new felt and battens.

3.4 **Eroded Brickwork & Dampness**

There was substantial erosion to external brickwork and moisture will have penetrated leading to damp external walls and probably damp internal load bearing partitions.

It appeared that a short term cosmetic repair only had recently been made to the property. Render was set to brickwork internally with gypsum plaster skim over and this would not allow walls to breath. The dampness will eventually break through this finish and there was evidence of dampness when Protimeter readings were taken at some sections through the property. This will continue and worsen.

A system of drylining would have been required to the property with some provision for the walls to breathe with full damp and timber treatment measures undertaken. There was no evidence of timber treatment measures having been made at the time of recent fitting out.

3.5 **Inadequate Ground Floor Structure**

There appeared to be inadequate ground floor structure. This was probably either cracked replacement slabs or ceramic tiled flooring which had been merely covered over with a self-levelling screed or with a heavy duty linoleum to prevent dampness being apparent to surface finishes. The entire ground floor carcassing was considered to be inadequate.

3.6 **Repair Requirements**

Substantial repair requirements would therefore be required to the property.

In the first instance wall linings including plaster finishes and ceilings would require stripping to the basic structure. Ground floor carcassing would need to be broken out and therefore all fixtures and fittings would need to be removed at ground floor level.

The property would require full mass concrete underpinning with pad and beam sections about the West side to avoid cutting through numerous tree roots and de-stabilising the Lime tree.

New suspended reinforced concrete ground slabs would be required.

Full damp and timber treatment measures would need to be undertaken.

A steel beam would be required to support the chimney breast unsupported in the front section of the West gable.

Roof tiles would require stripping and the roof strengthening prior to refelting and rebattening out.

Substantial repointing would be required to all external walls, resetting lintels where slipped.

A system of drylining would be required internally fitting insulation to walls and floors would also require insulation and finishing in accordance with current Building Regulations requirements, as more than 25% of the floor and wall areas would be affected.

The property would require completely new services, fixtures, fittings and joinery.

Adjustments to below ground drainage systems would be required.

Even on completion of these extensive repairs, lenders may be deterred from offering mortgages on properties that have been underpinned and insurance cover against the peril of ground subsidence may not be offered.

The cost of repair would probably therefore outweigh the end value of the property.

3.7 **Demolition & Rebuilding**

An appropriate course of action concerning the property would be to consider demolition and rebuilding a new property to current Building Regulations standards.

3.8 **Vegetation Management**

As a general rule no trees or large shrubs should be planted within 5.0m of any building and elsewhere trees and shrubs should be kept pruned at heights no greater than their distance from any building.

The Lime tree on the Western boundary was in too close proximity to the property and should not have been planted.



Signed .....

for and on behalf of

MORTON & HALL CONSULTING LIMITED

Richard A Morton, BSc, (Hons), C.Eng. MIStructE. RMaPS MSEE

Managing Director

APPENDIX A

H4278

PHOTOGRAPHIC SURVEY

1. Front view of the property.
2. Rear view of the property with the Lime tree overgrowing against the Western side.
3. Trialhole location.
4. View of trialhole.
5. Spoil from trialhole.
6. The roof had sagged and several slate tiles had slipped.
7. There was evidence of earlier repair to brickwork between the window openings at the front Western side.
8. The ground floor window and lintel had slipped at the front Western side.
9. There was evidence of crack repair to the lower section of brickwork.
10. The central front window at eaves was distorted to the Western side.
11. The right hand side window at the front was distorted to the Western side.
12. Brickwork had been previously repaired and repointed on the Western gable.
13. View of the Eastern gable.
14. Previous repointing had been made to the Western side of the rear wall.
15. Previous crack repair had been made centrally on the rear wall.
16. Previous crack repair had been made between the ground and first floor rear windows to the Eastern side with fresh cracking at the lintel ends.
17. Previous repointing and repair had been made to the Eastern side of the rear elevation.
18. There was considerable erosion about ground level to brickwork.
19. Internal view of the roof space.
20. Slate tiles were set directly onto battens with no roof felting.
21. View of the chimneys against the Western gable in the roof space.
22. The chimney was unsupported where removed in the kitchen.
23. There was some cracking about the rear bathroom window.

24. The door frame in the ground floor hallway was distorted.
25. There was render set to internal walls as a damproofing measure.
26. Positive damp meter readings could be taken in the Eastern gable wall at ground level.
27. Large tree roots continued adjacent the property when excavation was made.



PHOTO REF: H4278/01



PHOTO REF: H4278/02



PHOTO REF: H4278/03



PHOTO REF: H4278/04



PHOTO REF: H4278/05



PHOTO REF: H4278/06



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PHOTO REF: H4278/14

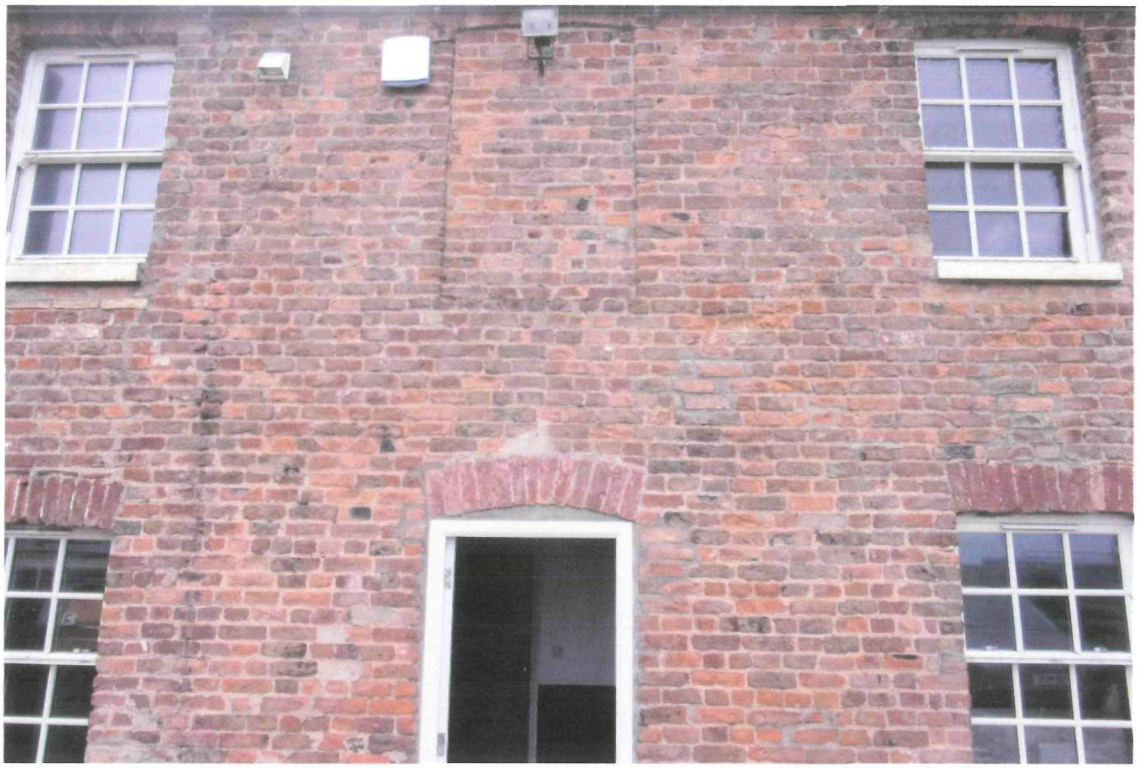


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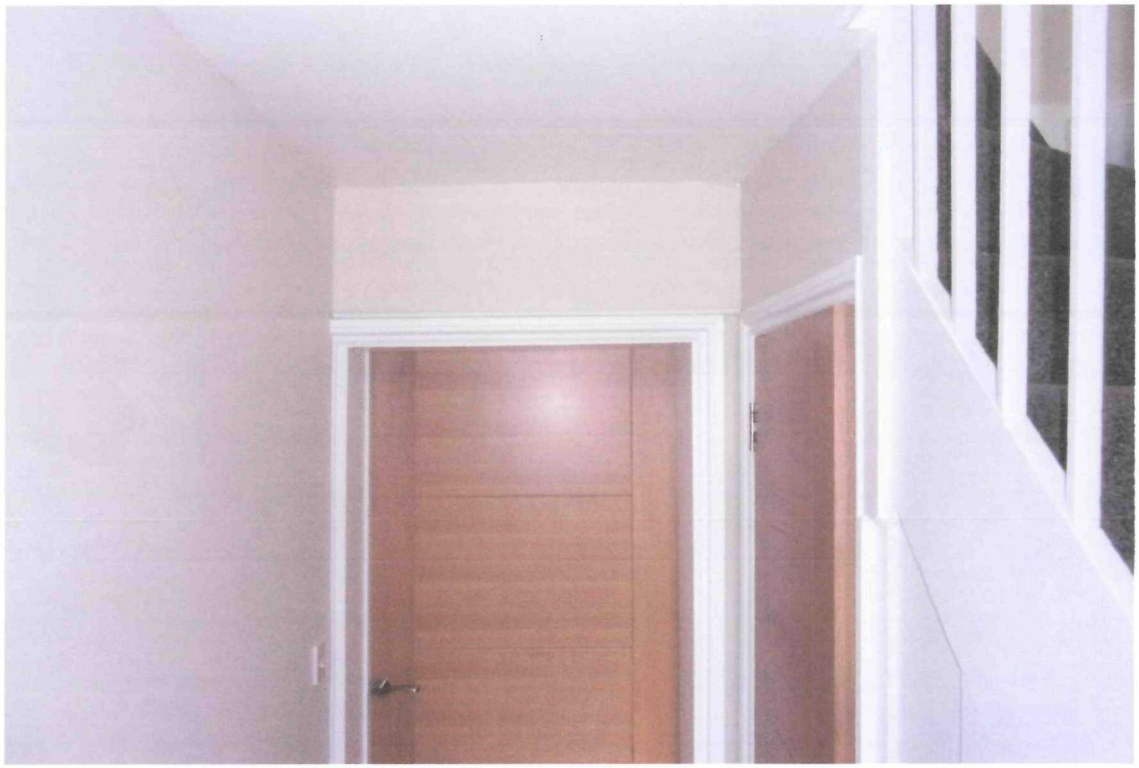


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