

Red Lion
Southampton Street, Reading

**Structural Survey & Report undertaken
on behalf of Vogue Assets Ltd**

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Structural
Engineering



Civil
Engineering



CDM
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Sustainability
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Traffic and
Transport



Flood Risk
Assessments



Highway
Engineering



Event
Engineering

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1.0 Introduction

- 1.1** Scott White and Hookins LLP was instructed by Martin Baker by email dated 29 August 2017 to carry out an inspection of the property.
- 1.2** The Survey was to inspect the current condition of the former Public House, and it's suitability for conversion to residential. We have not carried out a full structural survey of the property. You must not assume that any part of the structure upon which we have not commented is free from defect.
- 1.3** This report shall be for the private and confidential use of Vogue Assets. The report cannot be copied to in whole or in part, or relied upon by, any other third party for any use without our written permission.
- 1.4** This report covers only the engineering aspects of a structural inspection. We are unable to advise on how any structural defects may affect the value or marketability of the property, such advice may be obtained from the Client's Building Society Valuer, or an independent Valuer or Chartered Building Surveyor.

2.0 Survey

2.1 Michael Lakey CEng MIStructE inspected the property on 31st August 2017. The survey was restricted to a visual inspection of the external and internal wall elevations, floor and ceiling surfaces or where they were exposed by previous opening up or finishes removed. The roof space was inspected from the loft hatch only.

2.2 The terms "LEFT" and "RIGHT", describe the positions of parts of the building as viewed facing the front wall of the property. The terms "left" and "right" describe the position as viewed facing the part under discussion.

2.3 The property is a disused public house that has been vacant for some time. The age of the property is unknown but appears to be late Victorian. The building is primarily loadbearing brickwork with some internal timber and steel beams supporting floors. The property is two and three storey, plus partial basement to the front RIGHT hand corner.

The salient structure features are:

- Solid masonry external walls. The external walls to original building are of solid brickwork.
- Cavity masonry external walls to the rear extension.
- The floors are generally suspended timber.
- Timber cut rafter roof structure felted and tiled with plain clay tiles. Observations of the roof were very limited externally due to the confines of the surrounding buildings.
- There was a fairly modern single storey flat roof extension to the rear constructed in face brickwork cavity wall.

2.4 Geological Map indicates that the building is situated over a complex and variable stratum on the boundary between Lambeth group Clay, Silts and Sand and Seaford group Chalk formation. Overlain by superficial deposits of Taplow gravel: sands and gravels and also in close proximity to an area of Alluvium associated with the nearby River Kennet.

2.5 We have not inspected parts of the structure which are covered, unexposed or inaccessible and are therefore unable to report that any such part is free from defect; neither have we inspected any part of the building which is not mentioned in this report. This report must not be assumed to be a full structural survey, such as that defined by the Royal Institution of Chartered Surveyors.

2.6 The survey was undertaken during a period of sunshine and heavy showers.

3.0 Observations / Discussion

3.1 External observations

- 3.1.1 The RIGHT hand end gable wall was of face brickwork towards the rear and rendered masonry towards the front. There were seven cruciform pattress plates to the gable end; three at first floor level and four at second floor level (photo 2).
- 3.1.2 There was a full height vertical crack to the brickwork just forward of the centre of the gable wall (photo 6). There was displacement of the brickwork and missing / spalling pointing associated with this crack, with indications of recent movement / ongoing cracking (photo 7). There was a second vertical just rearward of the centre of the gable wall. This crack extended for approximately two thirds the wall height from first floor upwards. This crack has been previously filled possibly on several occasions (Photo 8). There was third vertical crack further towards the rear extending again about two thirds the wall height. A fourth vertical crack was noted between the two rear cracks only at ground floor level.
- 3.1.3 There was a significant bulge / bowing to the RIGHT hand gable wall at first and second floor levels. The extent of the bulge was difficult to determine but appeared to be 30 to 50mm out of plumb at the centre.
- 3.1.4 In considering the main gable wall to the LEFT hand side of the main three storey section of the property, where the rendering externally was exposed above the two storey section (Photo 3); There were several notable stepped cracks to the render on the gable wall; particularly a diagonal crack across the chimney breast from the top of the landing window to the parapet level (photo 9).
- 3.1.5 The front elevation is also of rendered brickwork. There were numerous stepped / random cracks to the render. Each window pier has several horizontal cracks across the pier width.
- 3.1.6 There was a small courtyard to the rear with an area of raised timber decking. The rear elevation of the main building was visible is of facing brickwork. Observations were limited but no major structural defects were observed. The single storey extension occupies much of the rear space. No major structural defects were observed to the external masonry.
- 3.1.7 The LEFT hand side and rear of the single storey extension was only accessible from the rear of the adjacent residential flats. There is a significant change in level between the rear wall of the single storey extension and the property at the rear (photo 10).
- 3.1.8 Observations of the upper roof to the main building were very limited. The lower level section of pitched roof appeared in reasonable condition but at the junction with the neighbouring property the roof tiles were displaced.

- 3.1.10 There is a chimney at the corner of the flat roof area at the junction with the neighbouring property. The chimney brickwork appeared to be in poor condition (photo 11).

3.2 Internal observations

3.2.1 Basement Level

- 3.2.1.1 The basement was separated into two adjoining rooms. Two areas of the ceiling have previously been locally broken out; one in the centre of the right hand basement room, this has exposed floor joists locally. One of the joists exposed was split through possibly due to previous overloading or impact damage (photo 12). The second area of opening up to ceiling was at the front LEFT hand corner of the LEFT hand room. Where exposed there was notable decay to the joists at the wall junction (photo 13).
- 3.2.1.2 Two timber floor beams were noted supporting the floor over the basement. One at the centre of the RIGHT hand room halving the span of the floor joists. There was evidence of decay to this beam particularly at the front external wall junction (photo 14). Part of the beam bearing was also eroded away. The second timber floor beam was on the rear basement wall closing the sub-floor void along the line of the masonry wall and possibly providing a bearer for a steel column at the corner of the bar over. This beam has signs of decay and worm; the holes were larger than common woodworm so could be indications of death watch beetle.
- 3.2.1.3 There was a steel goal post frame in the basement adjacent to the RIGHT hand gable wall; possibly supporting the chimney breast (photo 15). There was significant corrosion of this frame particularly to the baseplate (photo 16).
- 3.2.1.4 There was a leaking water pipe in the basement dripping constantly. Whilst it was raining water was running down the barrel ramp. There is an open gulley in the basement floor. Water was overflowing from this gulley (photo 17).

3.2.2 Ground floor Level

- 3.2.2.1 There was indications of displacement between the ceiling and RIGHT hand gable wall. Any cracking is obscured by the heavy embossed wallpaper, which has buckled and distorted but has remained intact (photo 18). There are various hairline cracks to the flank wall.
- 3.2.2.2 There is a full height 1mm to 2mm vertical crack to end of the main internal cross wall at the end of the bar; extending down from the lintel bearing adjacent to the stair. There is extensive damp to the internal walls at ground floor of the single storey extension particularly into the kitchen corridor (photo 19). There was heavy

rain during the survey and water was pouring into the corridor through the defective roof coverings and into the kitchen area through a broken roof light.

- 3.2.2.3 Localised areas of cracking to walls and damp staining were also observed in the lounge bar.

3.2.3 First floor

- 3.2.3.1 The downstand beam spanning across the lounge area has deflection in excess is 50mm (photo 20). There is a full height hairline to 1mm vertical crack and a hairline vertical crack to the RIGHT hand flank wall extending down from the cross beam bearing. Similar cracking was noted to the internal beam bearing with a diagonal crack extending down to the top corner of the door opening.
- 3.2.3.2 There is significant bowing and cracking to the masonry wall to the rear of the stair (photo 21).
- 3.2.3.3 The LEFT hand room at first floor was not inspected as the door was screwed shut.

3.2.4 Second Floor

- 3.2.4.1 The second floor to the two RIGHT hand bedrooms is notably sagging towards the centre. The floor also has excessive springing / vibration. The wall between the front and rear bedrooms is built directly off the beam that downstands in the lounge. The wall separating the two front bedrooms and also separating the corridor is also built off the floor.
- 3.2.4.2 There are stepped diagonal cracks above the door openings between the bedrooms and corridor. The door frames were distorted by more than 50mm with supplementary frames provided to re-align the doors (photos 22 and 23).
- 3.2.4.3 There was damp staining and cracking to the ceiling finishes in the front and rear bedrooms; both at the eaves level and at flat ceiling / skilling ceiling junctions.
- 3.2.4.4 The LEFT hand rear bedroom door was screwed shut so not inspected.

4.0 Conclusions and Recommendations

- 4.1** The RIGHT hand full gable wall is bulging and has a series of vertical cracks. These have been historically been repaired but cracking has recurred to the full length of the remediated crack, suggesting this movement is still active and that the cruciform pattress plates have not provided lateral restraint to resolve the issue. Considering the extent of cracking and bulging it will be necessary to fully rebuild the flank wall and associated chimney breasts.
- 4.2** The main timber beams over the basement show indications of decay. It is likely that the two main beams supporting the ground floor will require replacement.
- 4.3** The ground floor joists over the basement show indications of decay and structural damage in the small number of locations exposed. The extent of defects was not fully determined, but it is likely that a large proportion of the ground floor over the basement will require replacement to rectify defects and to replace basement beams.
- 4.4** A localised area of decayed timber to the ground floor in the corridor area appears to be at the junction between the original building and the single storey extension. Remedial works will be required to the floor in this area.
- 4.5** The steel goalpost in the basement is considered to be temporary remedial work and with the observed corrosion would not be acceptable as a permanent strengthening in a fully refurbished building. Therefore an alternative form of strengthening or remedial work to the structure would be required to eliminate the frame.
- 4.6** The water ingress in the ground floor corridor is likely to have caused decay to the floor structure and damage to the walls and plaster associated with rising damp. We would recommend specialist timber expert be appointed to determine the extent of decay and confirm the presence of any active woodworm or death watch beetle.
- 4.7** The beam over the lounge supporting the second floor has excessive deflection and is clearly beyond adequate design limits, therefore will require replacement. The beam is partially within the floor depth so replacement without removing the floor will be very difficult.
- 4.8** The sloping to the second floor is unlikely to be acceptable to potential occupants so the second floor will require replacement. Furthermore second floor walls are built off the floor and these in turn support roof purlin props. The walls and roof over must have also deflected, with any resulting cracking repaired over time; such as the misshapen door frames (Photos 22 & 23). The cracking to the walls above these doors suggest that movement is still active, possibly due to springing or ongoing creep deflection. It is not possible to jack these walls to level the floor without removing the roof tiles to jack up the roof structure.

- 4.9** The cracking to the stair wall has possibly been caused by lack of restraint or possibly due to disturbance cause by movement described in 4.7 above. The wall is bulging and fractured horizontally so will require rebuilding.
- 4.10** We consider that major refurbishment of the property, in a manner sufficient to enable warranties to be provided to new residential owners, will require rebuilding of large sections of the building. Elements that require rebuilding include;
- The three storey end gable wall complete,
 - The ground floor over the basement and timber ground floors elsewhere.
 - The second floor construction and supported walls
 - Removal and reinstatement of roof structure supported on the second floor.
 - Rebuilding of stair wall.
 - Removal of saturated elements and hacking off of plaster to all damp areas
- 4.11** Our experience on a recent similar public house conversion project where the disturbance caused by local demolitions and activities such as hacking off of render and plaster and removal of windows, caused instability in the walls particularly to the tall slender sections of masonry between windows; similar to the windows on this building. Considering the evidence we have seen as to the works required and the potential for more extensive rebuilding once building work commences, serious consideration must be made to demolishing the whole building and reconstructing.

5.0 Appendix

Photographs



Photograph 1 – Front of the Red Lion



Photograph 2 - Rear & Right hang Gable



Photograph 3 – Rear and Left hang Gable



Photograph 4 – Single storey rear extension



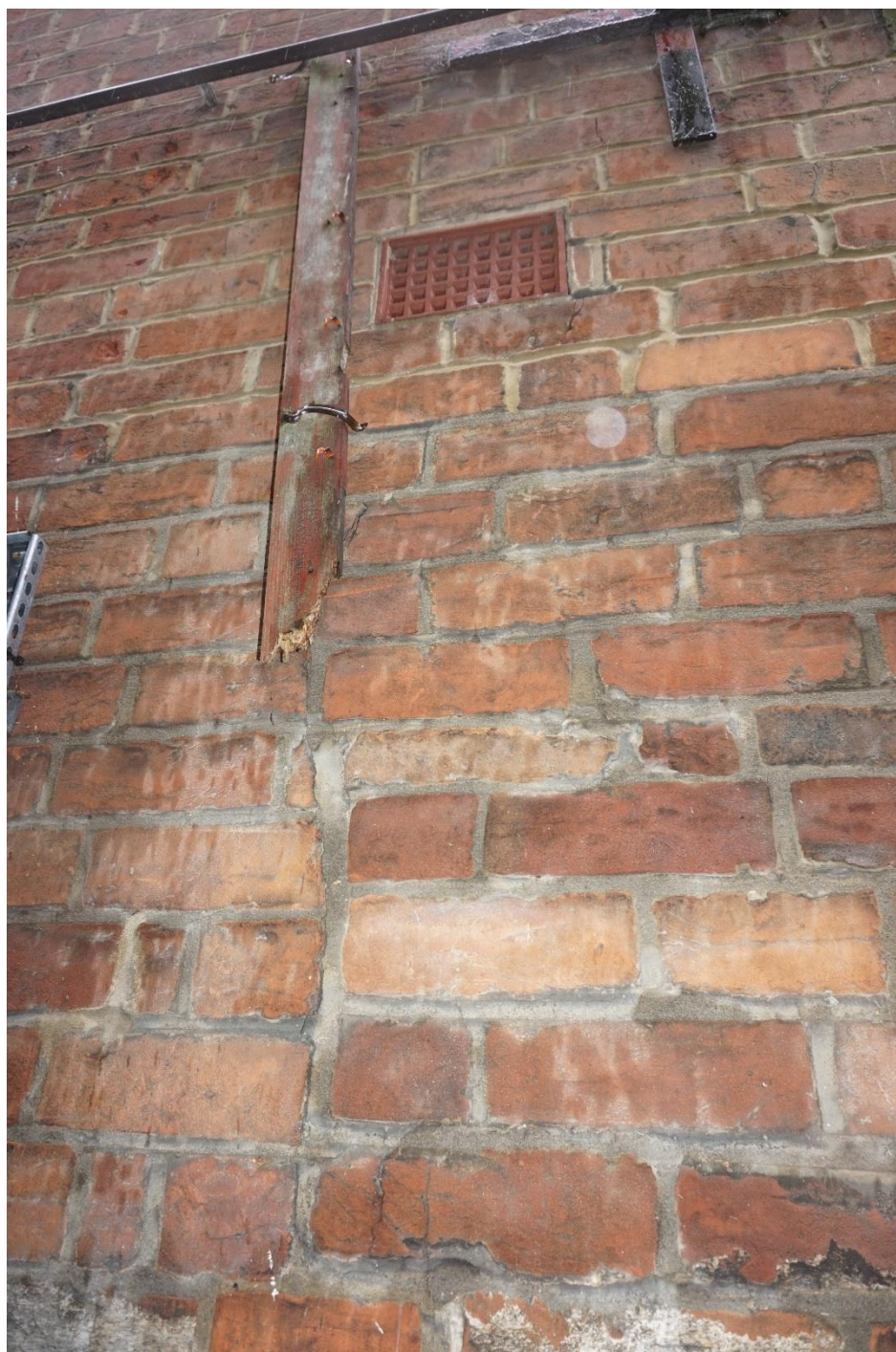
Photograph 5 – Main bar area



Photograph 6 – Full height crack to gable wall



Photograph 7 – Displacement of wall at crack position



Photograph 8 – Cracking to Gable wall



Photograph 9 – Cracking to left hand Gable



Photograph 10 – Change in level to the rear of the property



Photograph 11 – Chimney in poor condition



Photograph 12 – Split to floor joist at midspan



Photograph 13 – Decay to ground floor joists over basement



Photograph 14 – Decay to ground floor main beam at bearing



Photograph 15 – Steel goalposts



Photograph 16 – Corroded baseplate to goal posts



Photograph 17 – Water build up in basement



Photograph 18 – Displacement to wall at ceiling junction



Photograph 19 – Damp to walls



Photograph 20 – Deflection to beam supporting second floor



Photograph 21 – Bulging/cracking to stair wall



Photograph 22 – Diagonal cracking to wall, note displacement to door frame



Photograph 23 – Diagonal cracking to wall, note displacement to door frame

