

GKT 2431

26th April, 2024

Mr R Beaman,
Beaman Estates Ltd.,
46 High Street,
Bridgnorth,
Shropshire.
WV16 4DX

**RE: FIRE DAMAGE AND STRUCTURAL REMEDIAL WORKS CARRIED OUT
AT 'KINGS HEAD', 3 WHITBURN STREET, BRIDGNORTH. WV16 4QN**

BRIEF AND BACKGROUND

Further to your recent instructions, we confirm our engineer's attendance at the above premises carried out on Tuesday 16th April, 2024. Also in attendance was Mr Steven Dunn (clients Architectural and Planning Consultant) who provided the following documentation to assist our engineer in conducting a visual inspection and assessment of the structural remedial works carried out at the property.

1. Floor layout survey plans ref - B117-SK1 & SK2
2. A letter dated 9th January 2024 (ref: 23/04730LBC) prepared by Shropshire Council (Planning and Development Services Manager) granting conditional Listed Building Consent in respect of a proposed extension, alterations and remedial works being carried out to the building.

The purpose of our engineer's attendance at the property was to conduct an inspection of the exposed elements of structural remedial works carried out to restore the structural integrity of the building, and provide a calculated assessment of the primary steelwork and structural elements installed.

This particular report covers an appraisal of the elements of structural remedial works undertaken following extensive damage caused to the rear section of the building during a significant fire incident that we understand occurred in December 2019.

We are informed by the client, Beaman Estates Ltd, that following the fire incident, early in 2020 safety clearance and propping works were carried out to establish the extent of damage caused to the rear of the property, by a combination of the Fire, Smoke Damage and the Fire Brigade's operations on site.

Following a brief review of photographs taken by the client and Planning Consultant, the seat of the fire was located within the ground floor kitchen area and spread into the adjacent rear lobby and utility areas and up through the rear first floor office and second floor bedroom over.

Part of the rear oak framed gabled elevation (overlooking the rear courtyard) and the side return wall (above the kitchen) were severely damaged by the heat from the fire, resulting in significant cracking and instability.

The front section of the oak framed building (dining/lounge and snug areas) and the substantial masonry chimney structures which are understood to date back to the 16th/17th century have not been damaged by the fire.

There is clearly evidence of historic deflections and distortions to the original structure that are considered to be longstanding. The retrospective installation of structural steel frameworks has assisted in maintaining the stability of the main front section of the building. Consequently, the structure over this section of the building is considered to be currently functional and its stability has not been compromised by the fire.

We make the following observations in respect of the remedial works carried out since 2020 to restore the integrity of the sections of structure that were damaged by the fire.

For ease of reference these observations should be read in conjunction with three marked up A3 sized floor plans (appended to this report) in order to identify the primary elements of structural remedial works undertaken.

OBSERVATIONS: - (refer to marked up structure key plans ref GKT 2431-01 to 03 inclusive and structural calculations – sheets S01-S09 inclusive).

The original three storey building fronting Whitburn Steet is approximately 400 years old and constructed with substantial oak framing and rendered masonry infilled panels. The upper floors are formed with substantial primary oak beams which in turn provide support to secondary oak floor joists. The pitched roof structure is constructed traditionally in timber and supports a plain clay tiled roof covering. The building is understood to have Grade 2 Listed Status.

Attached to the rear, which is accessible via a ginnel beneath the attached building to the right of the Kings Head, is a two-storey wing forming a rear lobby/ staircase along with a utility room and disabled w.c. at ground floor. The rear stairs provide access to additional W.C facilities at first floor.

This two storey attachment and the rear section of the main three-storey building is where the following principal elements of structural remedial and reinstatement works have been carried out.

1. Part reconstruction of the rear gabled elevation (facing the courtyard) with new oak framing and glazing to the manager's office installed at second floor. This construction appears to be stable and has been re-built to replicate the original elevation.
N.B. The roof structure over the manager's office is currently supported by temporary propping. It will require remedial strengthening with the introduction of 2 x twin 150mm wide x 220 deep timber purlins in order to restore its integrity.
2. The left-hand side wall (rear second floor bedroom) and flat roof over have been replaced and are structurally acceptable.
3. The left-hand side external wall at first floor level (adjacent to w.c. block, and rear first floor office area) have been reconstructed with oak framing and masonry infilled panels. We understand this wall is to be rendered to its exterior and insulated internally to replicate the original wall.
4. A replacement timber floor structure has been installed above the first-floor rear office with adequately sized timber joists supported by doubled trimmer joists acting as intermediate beams. These beams are overstressed and should be upgraded to tripled (3 ply joists) or strengthened with a 152 x 152 x 23kg/m UC Steel beam.
5. The flat roof and support beams have been re-constructed with adequately sized timber joists and support beams.
6. A replacement timber first floor structure has been installed above the kitchen and utility rooms with adequately sized timbers. A primary 275mm x 275mm deep exposed oak beam has been installed spanning across the kitchen and supporting multi-ply intermediate timber joist supports. The oak beam is adequately sized and installed to replicate the original construction.
7. The reconstructed oak framed/masonry infilled side wall above the kitchen, utility and disabled w.c. is supported upon twin 152 x 152 x 30kg/m UC steels bolted together. These steels are in turn supported upon new solid masonry pier supports and two primary 254 x 146 x 37kg/m UB steel cross beams. The assessment by structural calculation confirms these steel supports are adequate with values for bending stresses and superimposed deflection values within permissible limits.

CONCLUSIONS AND RECOMMENDATIONS

Following our engineer's visual inspection and subsequent assessment of the structural elements by calculation, we are satisfied that the remedial works carried out to rectify damaged sections of the structure caused by the fire are acceptable from a structural point of view.

We understand that your Architect and Planning Consultant will revert back to Shropshire Council's Planning Department with our observations and recommendations, and seek to discharge the item No.3 listed upon the Conditional Approval Notice dated 9th January 2024.

It will also be necessary for Steven Dunn to meet with the Building Control Officer on site to confirm the extent of works associated with insulation, finishes and other matters associated with achieving Building Regulations Compliance.

The main roof structure above the Manager's office at 2nd floor will also require remedial strengthening as recommended and outlined in the marked-up structure plan (3 of 3) in order to restore its structural integrity.

The double joisted intermediate trimmer beams above the 1st floor office should be upgraded to triple 50 x 200 deep timbers or strengthened with a 152 x 152 x 23kg/m UC Steel beam.

It would be prudent to engage the services of a reputable fully qualified timber and damp-proof specialist to conduct an inspection of all original primary structural timbers that are to be retained and incorporate any recommendations for remedial treatment of timbers within the overall renovation and reinstatement works being carried out to the property.

We trust these observations and recommendations for repairs/remedial works can be put in hand to resume operations on site.

Yours faithfully



GKT Consulting
Glenn K Taylor I.Eng, I.M.I.StructE

cc. Steven Dunn - via email 

Encs. Structural calculations and marked-up structural works key plans.