

86 London Street
Reading
Berkshire
RG1 4SJ

Structural Inspection & Recommendations
of Timber Ground Floor

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1. Introduction

1.1 Appointment and Brief

Clive Hudson Associates Ltd were commissioned by Kalpana Chhetri, the owner, to undertake a visual structural inspection of the ground-floor joists and beams accessible from within the basement at 86 London Street, Reading, Berkshire RG1 4SJ. This report records the observed structural condition of those elements and provides outline recommendations for remedial works and further investigations, where considered necessary (Fig. 1).



Figure 1.
Front Elevation of No. 86 London Street (extracted from
google street view – Dated August 2025)

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This report does not constitute a full structural survey of the property.

2. The Site

2.1 Location

No. 86, London Street is situated in Reading town centre, on London Street, Berkshire RG1 4SJ. National grid reference SU7180873024. (Figs. 2 and 3).

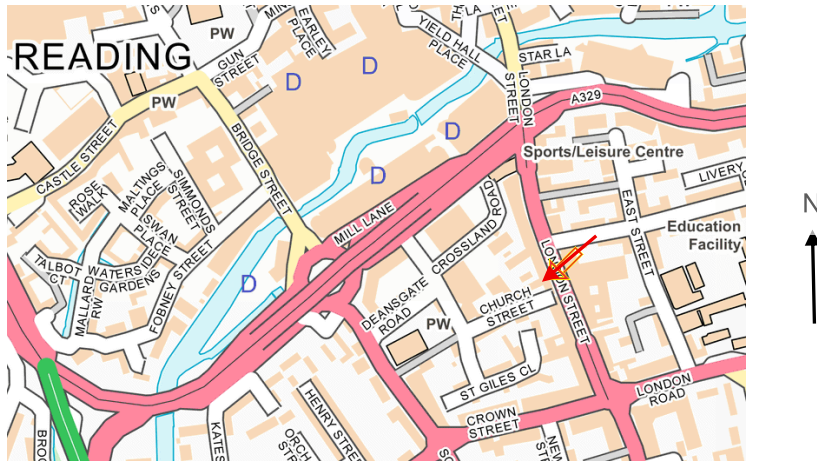


Figure 2.
Site location in relation to local
roads (Extracted from
www.streetmaps.co.uk)

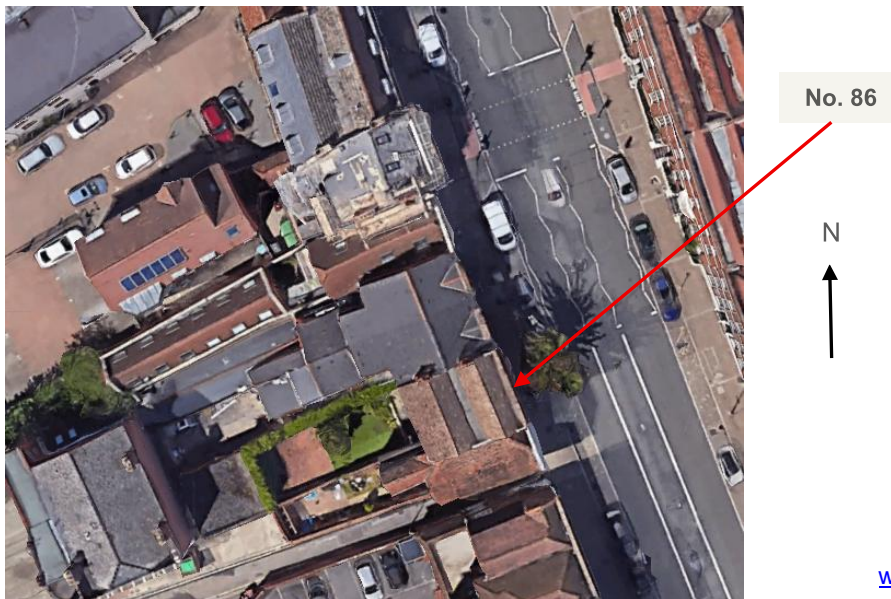


Figure 3.
Satellite View from
www.googlemaps.co.uk

2.2 Geology & Topography

A preliminary desk-based review of the British Geological Survey online Geology Viewer indicates that the site geology comprises Lambeth Group clay, silt and sand, with no superficial deposits recorded. Intrusive ground investigations would be required to confirm the actual ground conditions.

The front of the property leads directly to a paved public footpath and has a gentle downward slope from south to north (Fig. 4). At the rear, the ground is broadly level with a low-level terrace and a short flight of steps rising from the rear garden into the ground floor (Fig. 5). Both side walls are flanked by buildings.



Figure 4. General view of front elevation ground level (public pavement)



Figure 5. General view of rear ground level (elevated terrace)

2.3 Trees

A 15- to 20-year-old Hornbeam (*Carpinus betulus*) tree stands at the front of the property, positioned on the public pavement and within approximately 4m of the building (Fig. 6). At the rear, the Client indicated a tree had been removed recently (species unknown) and was approximately 8m away from the building.

Hornbeam trees are classified by the National House Building Council (NHBC) as having a Medium Water Demand.



Figure 6. View of Hornbeam tree to the front of the property – Extracted from google street view (August 2025)

2.4 Brief Description & Background

No. 86 London Street, Reading, is a Grade II listed terraced house, constructed in the early to mid-18th century, with later alterations. The structure comprises tuck-pointed red brick laid in Flemish bond, with timber and stucco dressings and a clay tile roof.

The building comprises a basement, ground floor, first floor and second floor, with timber floor joists and timber beams forming the principal floor structures. The property is oriented on an approximate north-south alignment, with the principal elevation facing east towards London Street.

Clive Hudson Associates Ltd were instructed following the identification of a decayed timber beam at ground-floor level within the basement during stripping-out and renovation works by others. Following an initial visit, it was identified that additional ground-floor timbers required attention and that remedial strengthening works should be undertaken.

3. Existing Structural Condition & Recommendations

3.1 Introduction

The visual inspections were carried out by Brett Davis on Wednesday 20th and 27th May 2026, in dry and sunny conditions, accompanied by the Client.

The inspection focused primarily on the timber ground-floor structure visible from within the basement.

Indicative testing was limited to moisture content readings taken using a penetrating moisture meter. No further detailed testing or analysis was undertaken on the construction materials, and no other investigations were carried out to determine the cause of the saturation to the basement walls.

Digital photographs were taken to record areas of interest and are included in the report for reference.

Please note: any references to the “left” and “right” are taken when facing the elevation / structural element being described.

The following is an opinion based on our experience of buildings of a similar age, construction and condition, and with similar defects.

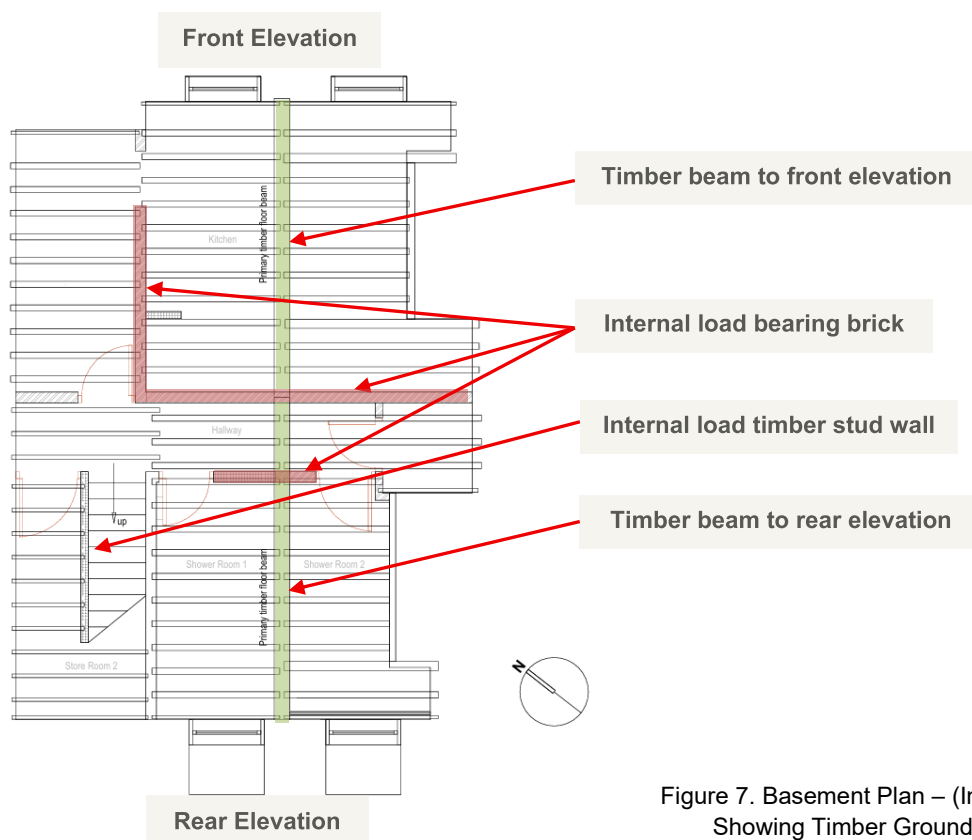


Figure 7. Basement Plan – (Indicative Only) – Showing Timber Ground Floor Over

3.2 Observations

3.2.1 Timber Ground Floor

- i. The ground floor to the property appears to be mostly original and is formed by a combination of relatively new and original timber floorboards, supported by original timber floor joists measuring 100 to 120 mm deep by 100 mm wide at approximately 400 mm centres. The joists are supported by internal and external walls and by two original 260 mm square timber beams. The timber floor joists are built into the external walls and supported via embedded timber wall plates. The beams are built directly into the external masonry walls externally and via embedded timber wall plates internally.
- ii. A two-pronged moisture meter was used to establish the moisture levels of the basement walls and the timber elements of the ground floor, with the following results recorded:
 - a) The rear elevation basement wall recorded a very high level (maximum reading) of moisture.
 - b) The front elevation basement wall recorded a moderate to high level of moisture.
 - c) The side elevation basement walls recorded low to moderate levels of moisture.
 - d) The timber joists running adjacent & parallel to the front elevation recorded moderate levels of moisture due to the proximity of the moderately saturated basement wall.
 - e) The timber joists running adjacent and parallel to the rear elevation recorded high levels of moisture due to the proximity of the saturated basement wall.
 - f) The timber beam built into the front elevation recorded low to moderate levels of moisture, with no signs of timber decay recorded.
 - g) The timber beam built into the rear has extensive timber wet rot (see iii below), with a very high moisture level recorded.
 - h) Timber joists built into the basement walls typically recorded low to moderate degrees of moisture, with the worst cases being those near the front and rear basement walls due to the degree of moisture recorded for those elements.
- iii. The timber beam built into the rear elevation, as previously mentioned, has a history of timber wet rot, as evidenced by the remedial works undertaken to the bearing, that have been carried out at some stage in the property's history (Fig. 8). The remedial works consist of the insertion of a new clay brick corbel into the original wall, with a tapered bearing timber installed over, between the new brick corbel and the original beam. The gap appears to have been packed out with a cementitious mortar / dry pack. The voids within the beam due to wet rot had been infilled with a cementitious mortar, which was extracted during the investigation (Fig. 9).

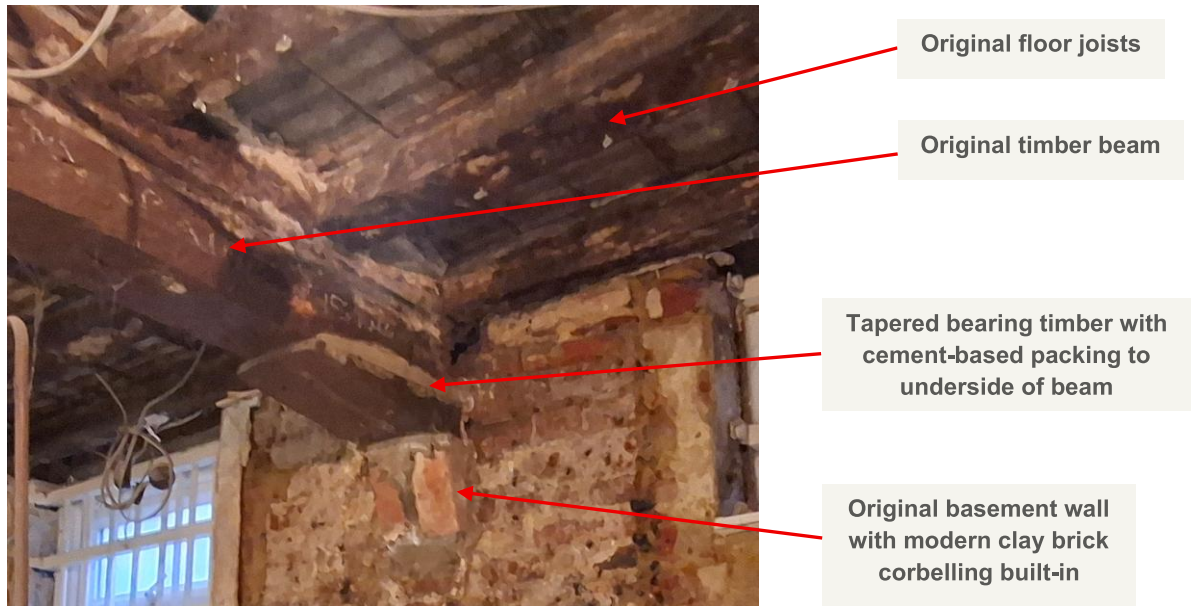


Figure 8. Remedial works to the enhance rotten end bearing

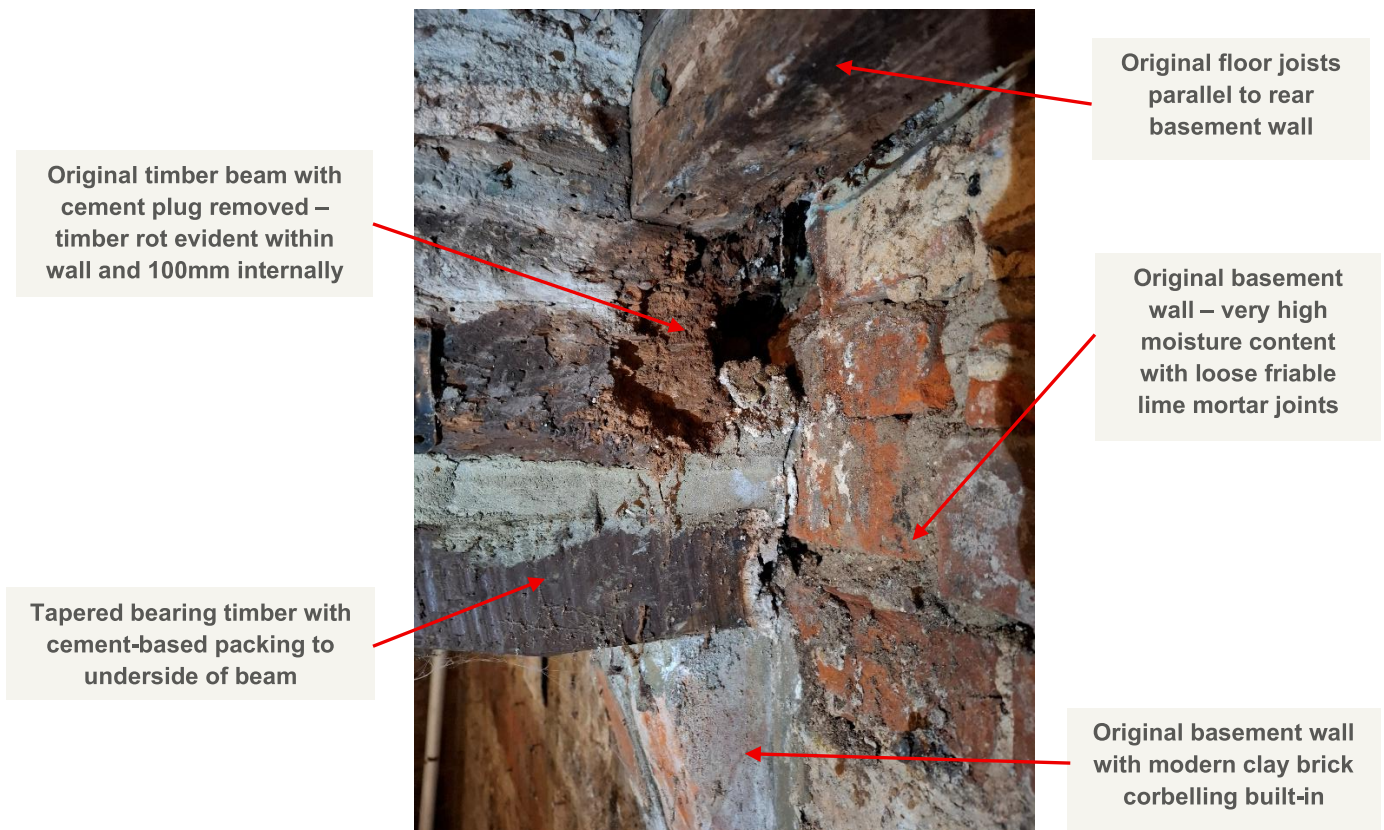


Figure 9. Close-up of remedial bearing

- iv. The timber floor beam built into the front elevation shows no signs of decay and the timber offered sufficient resistance when probed with a small flat-headed screwdriver. It was noted that the front elevation basement wall has been remodelled historically, with new brick / block inserts evident, all with extensive repointing (Fig. 10). No remedial works are deemed necessary at this location.



Figure 10. Timber beam supported by remodelled basement wall to the front elevation

- v. The timber beam from the front elevation is supported by an original internal load-bearing wall via an embedded timber wall plate. The timber beam exhibited a longitudinal split near the bearing (Fig. 11). However, this is considered an inherent defect of the timber section and not related to loading or moisture defects. Both the timber beam and internal wall had low moisture readings when tested. The supporting wall appears to be fully repointed in a cementitious mortar. No remedial works are deemed necessary at this location.



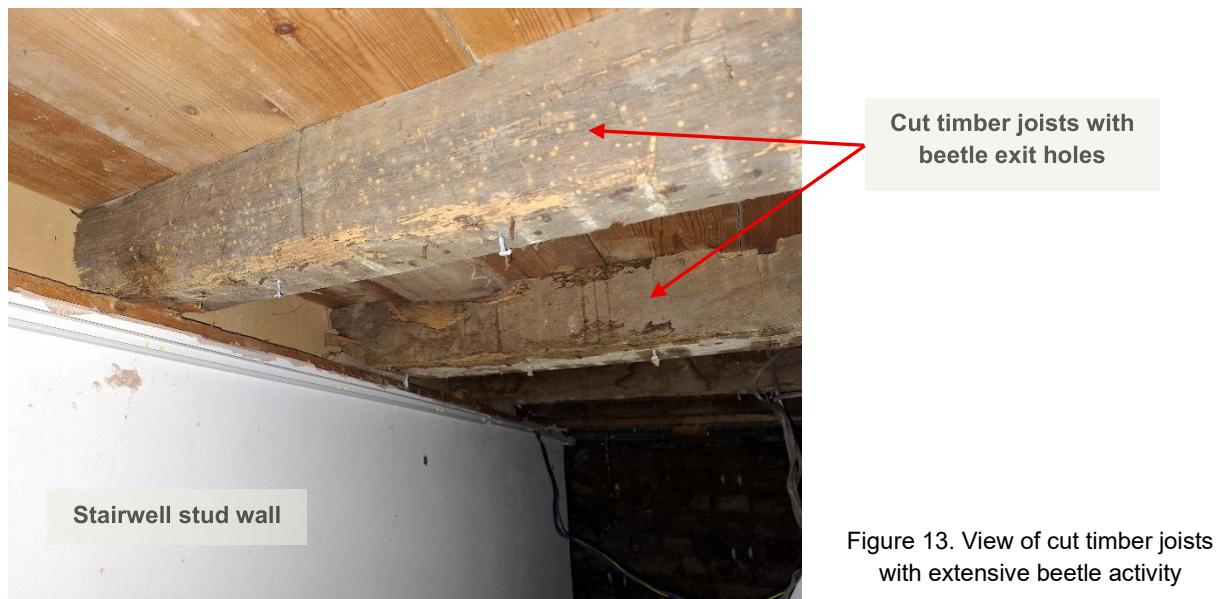
Figure 11. Timber beam supported by internal brick wall via embedded timber wall plate

- vi. As previously noted, the timber joists that run adjacent and parallel to the front and rear basement walls recorded high levels of moisture due to the proximity of the timber to the saturated walls. Several of these joists presented little resistance when probed with a small flat-headed screwdriver (Fig. 12).



Figure 12. View of timber joist parallel to front elevation basement wall with screwdriver probe

- vii. The floor timbers adjacent to the stair appear to be newer, repurposed timbers that have been modified / cut to form a new opening for basement access at some time during the history of the property. The timbers are in poor condition, with extensive beetle holes and loss of structural integrity due to beetle activity. In addition, the bearing for the cut timbers is very poor, with minimal / limited bearing, likely attributable to the poor timber quality (Fig. 13 & Fig. 14).



3.3 Structural Opinion & Recommendations

3.3.1 Original Timber Ground Floor

The historic ground floor timbers are generally in good condition for the age and history of the property, with only limited decay due to the prolonged damp associated with high moisture levels within the basement walls, specifically affecting the timbers embedded within or near the basement walls.

3.3.2 Decayed Timber Beam Bearing to the Rear Elevation

The worst affected historic timber is the primary timber beam built into the rear elevation, which has suffered significant wet rot / decay leading to loss of structural integrity and material. Interventions have been made to enhance the bearing via brick corbelling and tapered bearing timbers, with cement-based packing and void filling. The remedial works have proven to be successful to date, however, due to continued dampness and decay we consider the remedial detail to no longer be fit for purpose. We recommend that the existing brick corbel bearing is replaced with a new stainless steel fabricated angle, connected to a new concrete padstone replacing the brick corbel. Alternative solutions considered include:

- a) A new brick pier built to the underside of the existing timber such as to provide a minimum 150mm bearing. However, this would clash with the existing soil vent pipe to the WC, requiring redirection of the pipe with a new hole being formed, a new foundation to support the brick pier, requiring breaking out the existing floor slab and possible underpinning of the existing footings if they are found to be shallow.
- b) Additional timber or steel beams running parallel to the affected timber and built into the existing wall either side of the existing bearing. This would require removal of original brickwork to form an appropriate bearing and through-bolting of the existing timber with 12mm diameter bolts at approximately 300mm centres.
- c) A steel plate (fitch) being placed into a slot cut into the original timber beam, with extended bearing onto a new concrete padstone. This is not considered suitable due to being technically challenging and would require further loss of original timber material.

Based on the above, we recommend the stainless-steel shelf angle solution, as this has the least impact on the existing historic structural elements.

3.3.3 Existing Joists / Embedded Timbers

Existing joists adjacent and parallel to the damp front and rear basement walls recorded high moisture levels, with signs of wet rot and loss of integrity as identified by probing with a small flat-headed screwdriver. We recommend that the existing timbers are retained and supplemental joists are installed adjacent to them to support the floorboarding to the ground floor.

Similarly, the joists embedded into the basement walls recorded low to moderate moisture content readings. However, only two or three joists showed signs of decay or loss of integrity when probed with a small flat-headed screwdriver. As the timbers are embedded, the degree of decay may not have fully presented itself. Therefore, we recommend that the existing joists are retained and that the embedded timber bearings are enhanced by the inclusion of new timber wall plates affixed to the face of the existing brickwork via 12 mm diameter stainless steel bolts at brick centres, i.e. 225 mm centres. This will achieve minimal loss of existing brick material, compared to installing supplemental joists that would require brickwork to be removed to form pockets for the new timber joists.

3.3.4 Newer / Repurposed Joists Around Stairwell

Newer or repurposed timbers used to form the stairwell to the basement have been significantly affected by beetle activity, such that their structural integrity has been compromised. These timbers should either be replaced or supplemented with new floor joists if the existing timbers need to be retained for conservation purposes.

4. Conclusion

As part of the renovation works to the basement at 86 London Street, Reading, we recommend that structural intervention works are carried out to the timber ground floor as follows:

- 1) The cause of the dampness is addressed, and the proposed stud wall cavity is appropriately ventilated to mitigate further deterioration of the embedded timbers due to damp.
- 2) The timber beam built into the rear wall is supported by a new stainless-steel angle, affixed to a new concrete padstone, replacing the existing brick corbel. This will have the least impact on the original structure and only replace the newer brick corbel elements that have previously been installed.
- 3) New supplemental joists are installed parallel to the outer joists adjacent to the damp walls.
- 4) New timber wall plates are to be installed to provide additional bearing to the embedded floor joists that show signs of damp and whose integrity has been compromised in several locations.
- 5) Provide supplemental floor joists adjacent to the stairwell joists due to the structural integrity being compromised by beetle activity.

If you have any questions, please get in touch.

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