Strengthening works

Heritage statement

Hunter's Moon Cottage, 8 The Street, Shoreham by Sea BN43 5NJ

Schedule of works

Strengthen a central oak tie beam which is part of the historic timber framework of the cottage and which supports floor joists and a partition wall above.

1. Provide temporary support for the oak tie beam that supports the first floor.
2. Strengthen a weakened section of this beam by insertion of a new timber in the wall cavity above, connected to the beam by screwed galvanised steel rods
3. Install a metal repair plate directly beneath the weakened area to spread the load over the length of the weakened timber
4. Install an additional oak post to support the new timber and metal plate

Archaeology, history and character

(*This is a brief summary. More detail is provided in a previous heritage statement for Listed Building Consent to remove a partition wall AWDM/1878/19*)

Hunter's Moon Cottage is a flint-faced and timber framed semi-detached cottage which forms a mirrored pair with Holly Cottage on the west side of The Street in Old Shoreham, facing south east. It is one of the last remaining historic houses in Old Shoreham. It was originally set in open farmland but is now surrounded by suburban housing development resulting from the 20th century expansion of New Shoreham. [1]

The building was Grade II listed in 1971 and is in the Old Shoreham Conservation Area, established in 1993.

The house was built in the late 16th century as a five-bay box-framed building, with a central three-flued brick chimney[2]. The cottage was modified in the 18th century with the north and east facing walls completely replaced at ground floor level by field flint walls, with brick door and window surrounds.[3] At first floor level the flintwork is a façade over the remains of the timber frame. The original timber wall on the west side is still fully-framed, and is an internal wall protected from weathering by a single story outshot which is thought to be part of the original construction.

Internally, partition walls and ceilings are predominantly Victorian-era lath and plaster or plaster over brick. In places, the Victorian plasterwork has been replaced or overlaid with modern plasterboard and studwork. However. some original features were revealed during 20th century renovations including oak ceiling joists, the brick fireplace and some timber framing.

A modern porch was built on the west wall in 1974, and a linked single-storey extension added to the north of the cottage in 1975, both with planning permission[4].

Externally the cottage appears as an 18th century thatched cottage. Internally the 16th century framing and brickwork are visible in places. Modern extensions to the cottage are set back and subordinate, with the exception of the front porches.

Justification and principles for the proposed works

1. Listed Building Consent was granted in November 2019 for external and internal repairs and alterations to reinstate some historical features, remove recent works that are not sympathetic and improve the building. (See AWDM/0677/19). These works are currently underway.

2. Arising from the repairs, a separate application was approved in January 2020 for removal of a modern non-loadbearing partition between the existing reception rooms, in order to strengthen support for the timber frame of the property and reveal historic fabric that is currently hidden See (AWDM/1878/19)

3. This partition stood beneath the principal oak tie-beam which supports the upper floor, and which had been eroded in places by insect attack. This was encased during Victorian-era renovations with oak and pine timbers, concealing insect damage from view (see fig 1).



Figure 1 Insect damaged oak tie beam. Victorian-era encasing timbers (partially removed) and 20th century partition below

4. When the partition was removed and the support posts installed, we were able to fully assess the condition of the oak beam, particularly the lower face which had been obscured by the large timber that formed the bottom of the encasement (this timber is visible in figure 1, stained in black and running from centre left to bottom right)

   We found that the erosion caused by insect attack was more extensive than previously visible. There is a full-length crack on one side of the beam in the most heavily eroded area. The beam has not failed, nor is there any sign of further deflection beyond what had happened in the 19th century. Nonetheless the probable extent of the erosion is at the limits of the calculated strength of the remaining beam. (see figure 2 and also figure 5)

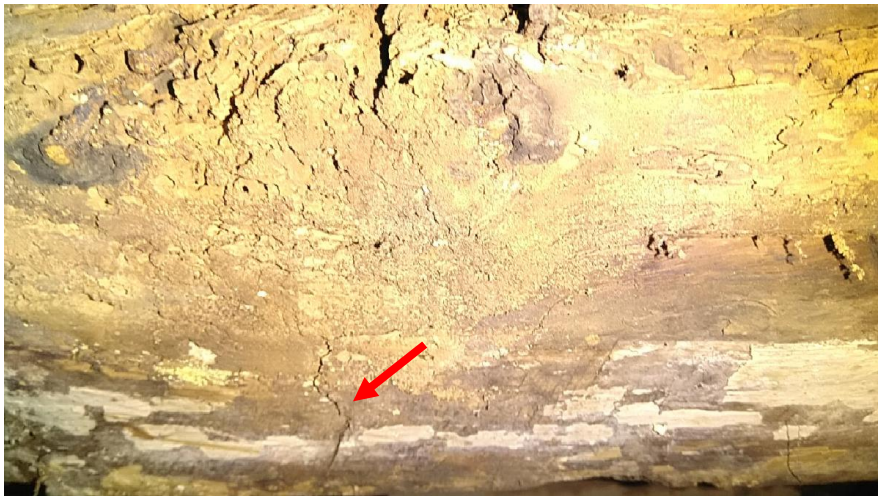

Figure 2 Detail of newly-exposed area with visible crack across the underside of the beam (arrowed)



Figure 3 Newly exposed beam surface viewed from the opposite side to figure 2. (This picture taken after installation of additional reinforcement)

5. The condition of the beam in this section required immediate action and In consultation with the engineer, we have reinforced it with an oak timber which bridges the span where the beam is damaged. This timber is 230mm deep x 75mm wide, inserted within the lath and plaster wall above and secured to the original beam with 10mm screwed-and-washered rods.



Figure 4 New reinforcement beam (outlined in red) inserted in lath and plaster cavity above original beam. Plaster and a skirting board had to be removed to insert this beam and will be reinstated.



Figure 5 Steel tie rods inserted through the beam and reinforcing timber above. The tops of these rods are also visible in figure 4. Note the extensive insect damage to the beam (top left, adjacent to the joist)

6. The new reinforcement provides ample support to the damaged beam and is intended as a permanent repair, concealed in the wall of the bedroom above behind repaired plaster and the skirting board, which was removed in order to carry out the repair.

7. However, there could still be concealed damage within the original beam which is soft in places and prone to crumbling. Without removing historic fabric, it is difficult to assess the extent of the cracks and whether or how far the beetle damage extends within the wood

8. To guard against movement or even failure when the floor above is fully loaded and to avoid irreversible intervention we further propose to install a fabricated steel shoe-plate under the beam to spread the load between the new bolts, connected to the overhead reinforcement (see figure 6 below). In consultation with the engineer this is designed as a broad 'u' shaped channel in 5mm steel, extending to the bottom of the joists that meet this beam, and with 50mm lips under the joists to guard against failure of the joist-to-beam joints.

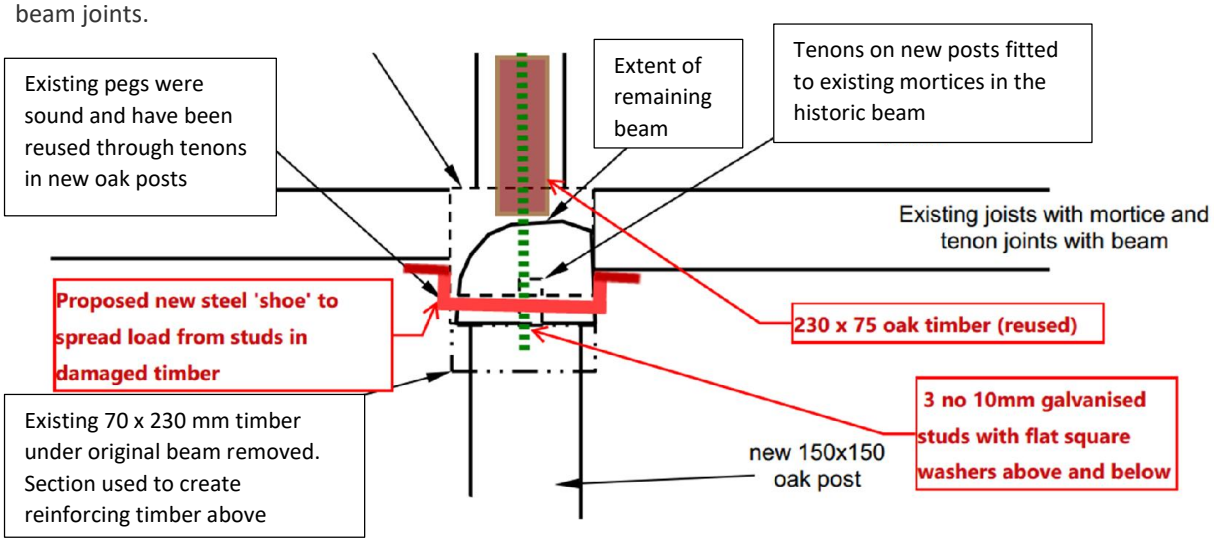

Figure 6 Cross section of the tie-beam and surrounding timbers, showing the new support posts. The proposed additional reinforcement measures are highlighted in colour

9. The problems are localised to one span rather than the whole tie-beam. The beam reinforcement and proposed steel plate are limited to this span

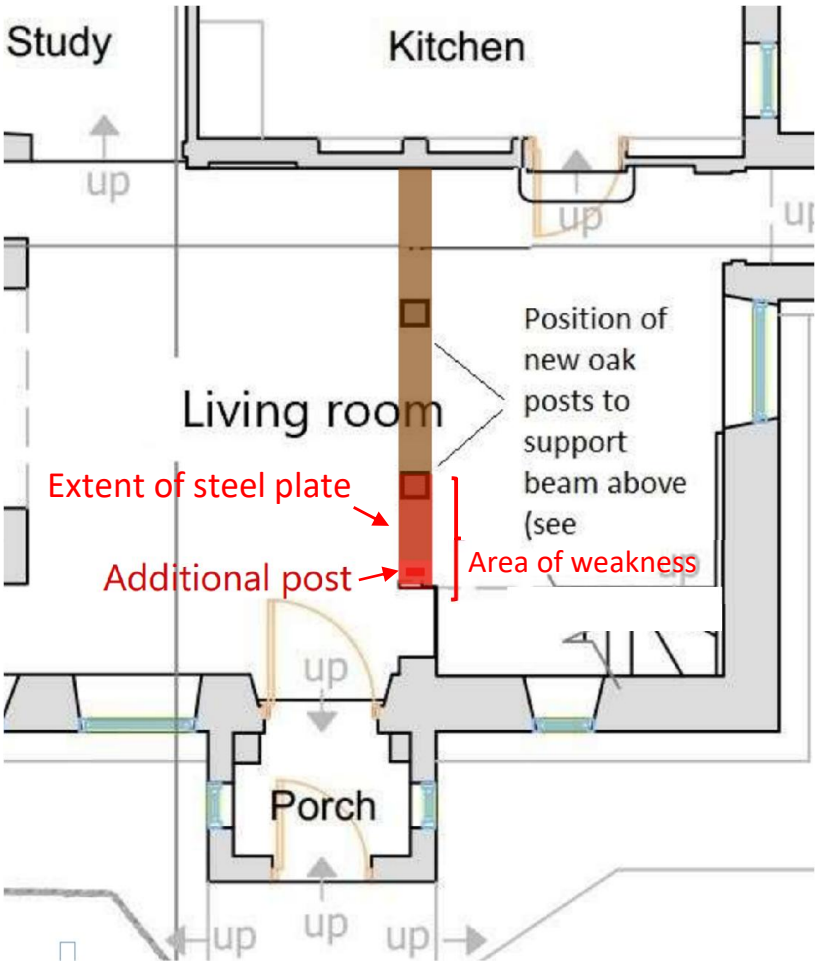

Figure 7 Area of reinforcement with steel plate (marked in red). Proposed position of additional oak post

At one end these reinforcements are supported by a newly inserted oak post. At the other end, they are currently supported by what appears to be the remnant of an internal porch which also supports the staircase. This recess is constructed of tongued and grooved pine planks which are partially sharing the weight of seven oak joists and the staircase.

We propose to add a further oak post to provide additional support to this end of the beam, of the same dimensions as the two that have already been inserted. Historically there would have been a post in this position as evidenced by existing peg holes and by comparison with the corresponding wall in the Holly Cottage, the adjacent property which retains the original timber frame and is understood to mirror the original layout of Hunter's Moon.

Conclusion

These actions address pre-existing issues in a principal frame member, which have been revealed by removal of a 20th century partition and Victorian-era modifications. The beam has deflected partly as a result of removal of the original support posts, probably in the 19th century and partly because of sustained insect attack. The newly inserted posts have stabilised the beam. The proposed shoe-plate, and the reinforcing beam already inserted, will safeguard he weakest part of the beam, are not intrusive, do not involve the removal of historic fabric and are reversible.

[1] The building is shown with fields to the north, west and south in a Buckingham Estate map of 1801, the Tithe Records of 1816 and the Ordnance Survey map of 1912 . A small farmyard faced the cottage on the east side of The Street, which has now been replaced by the entrance to Adur Avenue.

[2] This construction date is the opinion of the Wealden Building Study Group who made a site visit to Hunter's Moon Cottage and Holly Cottage in July 2019. Their opinion is based on brick sizes and the use of heavy mid-rails in the timber framing. It corroborates anecdotal information from previous owners that the cottage dates back to 1560.

[3] A keystone on the north ground floor window carries the date 1716 and the initials TA and EA, which may refer to Thomas and Elisabeth Austen who are named in the Court Records for Old Shoreham as owners of the cottage in 1734.

[4] SU/277/73/LB – Front porch revised plans Permitted 1973; SU/20/75/LB – Extension with bedroom and bathroom Permitted 1975