Porlock ST DUBRICIUS

BRIEF REPORT ON CONDITION OF SPIRE

as at November 2022

---

1. INTRODUCTION

1.1. The need to renew the shingles and repair the spire was raised in the Quinquennial Inspection report of 2019, which said that 'the shingles are curling and worn very thin. Re-roofing the spire is recommended, ideally within five years. Estimate £80,000'

1.2. Parish records also show that earlier reports have raised issues with the shingles including

- In the 1980 Quinquennial a section headed "Eventual repairs and other recommendations." includes text "More extensive and expensive repairs to ..... and to the spire"
- The 2007 Quinquennial, which reported January 2008 "The Truncated section of the tower has recently been re-leaded and repairs to rotting shingles undertaken." Repairs referred to are believed to have been primarily to the East face. The report continues "This has extended the life of the spire coverings by say ten years but more extensive future works involving the re-shingling of the whole of the tower should be anticipated. Estimate £50,000 excl VAT and fees."
- The 2013 Quinquennial identified that future work on the re-shingling of the spire was required, and estimated at £50,000.

2. Historic Record

2.1. The original parts of the spire are thought to date from the thirteenth century are of very high historic significance. The top of the spire blew off in a storm in 1703.[1]

2.2. The last complete re-shingling of the spire was carried out in 1933 and reported to use 23,000 oak shingles. It is clear that an additional support structure was added at that time, set inside the rafters and hips but outside the original c13 support framing. The lunette windows also appear to date from this period. [2]

2.3. The lead cap to the truncated spire was renewed, with a new internal plastic downpipe, in 2007.

2.4. The four corner broaches were re-roofed with cedar shingles, undertaken in 1981.

---

[1] Historic England list entry (LVEN 1173524 GVI)

[2] Parish records and Somerset Record Office; further details available

2.5. The elm gutters were renewed in about 1950.

2.6. Further details of the records of past works have been researched by the Parish and can be made available.

3. Structure and Materials

3.1. The original thirteenth century structure consists of a central main post, and four large oak posts, each now in two lengths (the third length having fallen off in 1703). These are framed and cross-braced to form a central tower structure, which is supported on two massive beams which run east-west. Horizontal frame members which are braced with curved braces above and below, extend out from this to support the hips; forming an octagonal structure. Lunette windows are built into the N, E,S & W faces, framed across the intermediate rafters. Hips and rafters all sit on outer wall plates. There are sprockets at the eaves which line through with the slope of the broaches.

3.2. There are also inner wall plates which are extended across the walls to meet the outer plates, with lapped joints. From the four inner plates the 1930s cross-braced structure rises at an angle, again with horizontal members extending out to support the hips. One timber is dated 1933. These interlaced thirteenth and twentieth century structures mean there is a very complicated arrangement of timbers within the spire.

3.3. The whole structure is boarded with horizontal boarding across the outer face of the hips and rafters. This is 6" wide on the NW, W,SW, S and SE faces and 10" on the remaining sides .

3.4. Shingles are small, being on average only 3" wide and 12" long, set at approximately 4½"gauge. The timber used in 1933 for the oak shakes is known to have been from local woodland, where coppicing was common, which probably explains the use of small shingles.

3.5. A further diagonally braced support structure sits between the C13th main frame and the hips and rafters on the outside. This is dated 1933 and appears to be made of treated high quality softwood with steel strapping and bolts.

4. Report on condition

4.1. Initially a laser scan survey was undertaken 30th/31st March 2022, both internally with a fixed unit and externally by drone and ground mounted equipment, to provide dimensional information to assist the preparation of detailed drawings of the spire. However the difficult access and numbers of timbers meant that the internal sections were not able to be very successfully recorded; this can be improved upon but will need surveyors and equipment to be roped on with fall arrest equipment.

4.2. The spire was inspected by rope access on 4th and 5th July 2022. Further low-level inspection inside the spire was undertaken on 15th November 2022.

EXTERIOR CONDITION:

4.3. There is a hatch at the truncated top of the spire within a lead roof. The lead roof at the top of the spire is relatively new (2007) and has a drainage pipe snaking down through the spire structure. It was all in good condition.

4.4. The elm gutters are decayed at the lower edges of the boards in almost all cases. This is not causing a problem because there are plastic gutters set inside these timber gutters; however, the plastic itself will degrade fairly quickly and isn't a long-term solution. In addition, the fitting of the plastic gutters has probably worsened the decay of the elm, as the gap between the elm and plastic is now largely filled with wind blown debris and is constantly wet. The elm gutters do not appear to have been lined with lead or other similar material. These gutters are a feature of the tower and have very fine bronze supports so consideration needs to be given to their repair.

4.5. The oak shingles generally are worn thin and curling on all slopes. Numbers are worn so thin that they have either fallen away or no longer provide cover for the boarding below. As noted above, the broach slopes (which are less steep) were renewed in the 18os however they are already extensively decayed, having been repaired with Cedar which has a life expectancy of typically only 40 years. These areas will also need to be re-covered with new oak shingles.

4.6. The hips have narrow lead flashings at the foot of each slope where it meets the edges of the broach, but there are no hip flashings. This is not unusual for such a steep slope, but given that the shingles are in very poor condition and the overlap at the edge of the hip has eroded, decay in the ends of the boards in the lower part of the slopes and possibly to joints beneath, is to be expected.

4.7. Detailed exterior inspection could only be carried out on the southern slopes because the condition of the shingles meant that rope access down from the top would have caused too much damage. On this face the following defects were noted:

4.7.1. One louvre on the south lunette was split with the lower part very loose and this was taken out to avoid it falling.

4.7.2. The cill of the southern lunette has lost part of its section around the peg-hole on the west end .

4.7.3. The mullion of this window was loose.

4.7.4. Cover timbers to the jambs were both decayed.

4.7.5. Barge boards and the moulded cover strips to the lunette roof were in poor condition.

4.7.6. Some of the lead flashings at low level on the south face were loose. There was a hole worn through the lead in the change of slope at the eaves.

4.7.7. At the southwest corner (cedar) shingles were decayed and several missing completely.

-

4.8. The remaining lunettes are in better condition than that on the south but barges and mouldings are poor in all cases, and missing for part of the west lunette. There may be some decay in the joint between the post and head of the western lunette but this is not visible on the interior. The flashing at the eaves' sprocket is also dislodged along part of the west side.

4.9. On the north side four of the louvres appear to have split.

4.10. As noted above, the oak shingles generally have worn extremely thin and are curled as a result, areas of boarding are visible and some shingles are missing particularly at low level.

4.11. Stonework to the tower itself is in satisfactory condition. The faces of the tower were clearly rendered until relatively recently (as was the church) and significant patches of render survive. There is some degradation of pointing elsewhere and some repointing on a joint by joint basis should be undertaken. The lower off-set of the southern buttress west side has open joints and vegetation growth and some higher level buttress tops also have open joints.

INTERIOR CONDITION:

4.10. Survey by a structural engineer has not yet been carried out but the interior structure from 1933 appears to be doing much of the structural work. There is no apparent distortion or structural distress; defects are due to water penetration particularly at the hips, around the lunette windows and at the wall-plates and feet of the rafters.

4.11. Boarding appeared sound from the inside, however the ends of the boards sit over the hips and could not be inspected. As noted above, the condition of the shingles suggests that some renewal will be necessary.

4.12. The joint between the horizontal support member and the southwest hip was poor; this is a vulnerable position and was the source of problems on another project (not by this practice) which increased the cost of repairs. The exterior of the joint is covered with boarding in all cases and difficult to inspect unless rot is very extensive. An allowance for repairs at these joints needs to be made.

4.13. On the west slope one rafter is rotten and has been paired up with several phases of repair.

4.14. Rafter feet have been repaired with simple scarfs in the 1933 phase of work. On the west face the upright to the lunette window and three rafters have extensive rot for the lower 12-16"

4.15. Both hips on the north side have areas of rot and the scarf repair to the central rafter has itself rotted.

4.16. On the south face the two support timbers to the lunette window are in poor condition.

4.17. The outer wall plates have been renewed under the broaches in all cases and were in satisfactory condition. However between these, the lengths of plate were rotten in all four sides, with a visible hole on the south side. Daylight is also visible through the southwest corner where the shingles have been lost/rotted away.

4.18. The Inner wall-plate on the west side was also very soft from its northern end (where it laps the outer wall-plate on the north side to approximately 600mm beyond the northern inner plate. This could be rather more difficult to replace.

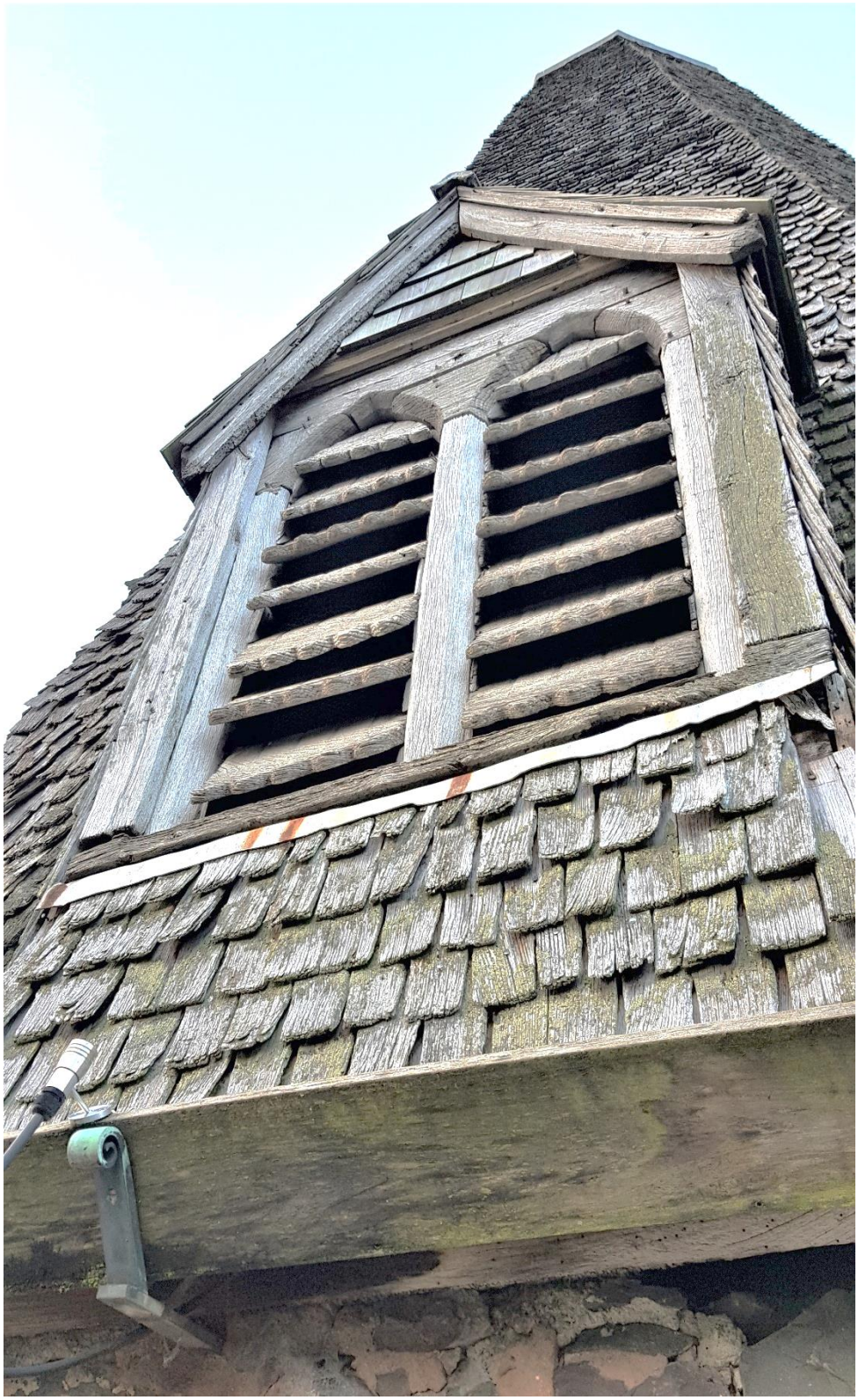
4.19. Bat droppings were also observed, particularly in the later visit which looked only at the wall plates and feet of rafters; however no bats were seen.

5. Recommendations

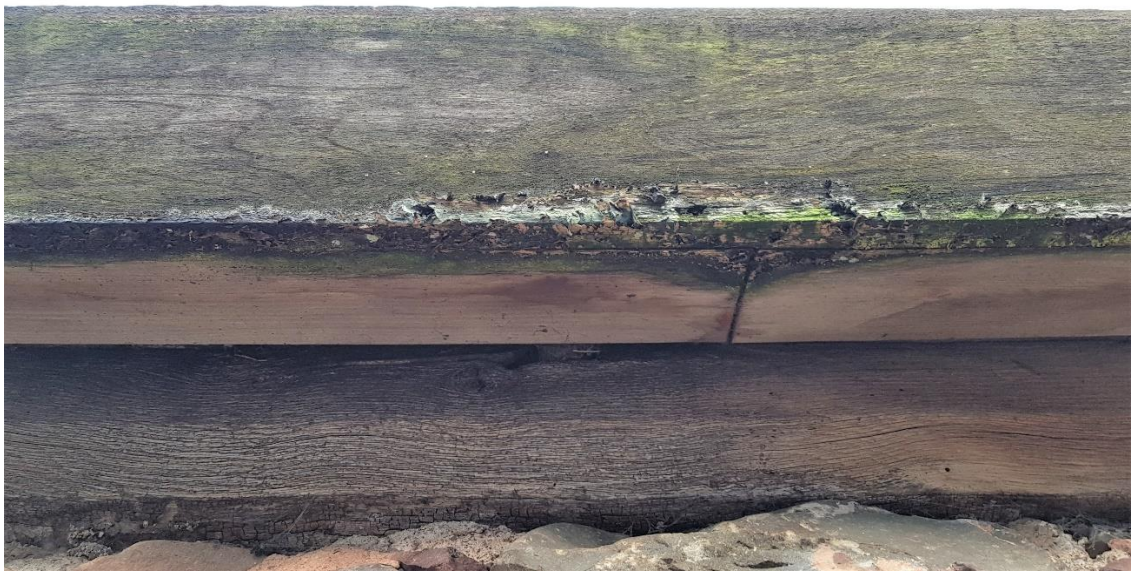
5.1. Renewal of the shingles using oak is recommended and repairs to rafters hips, lunette windows and extensive wall-plate repairs.

5.2. A quantity surveyors estimate has been commissioned and includes all the repair works so far identified and reported in this document.

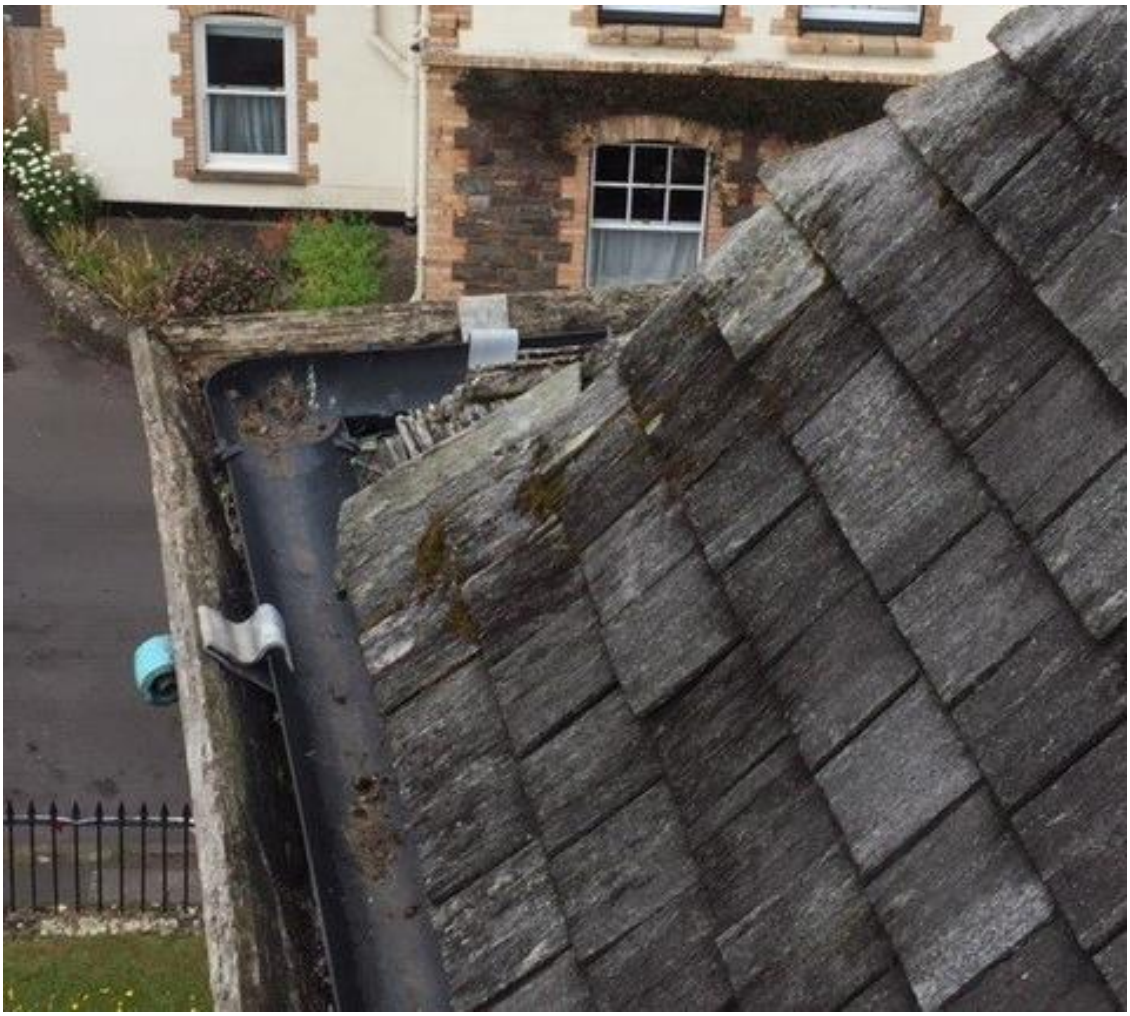
Photos



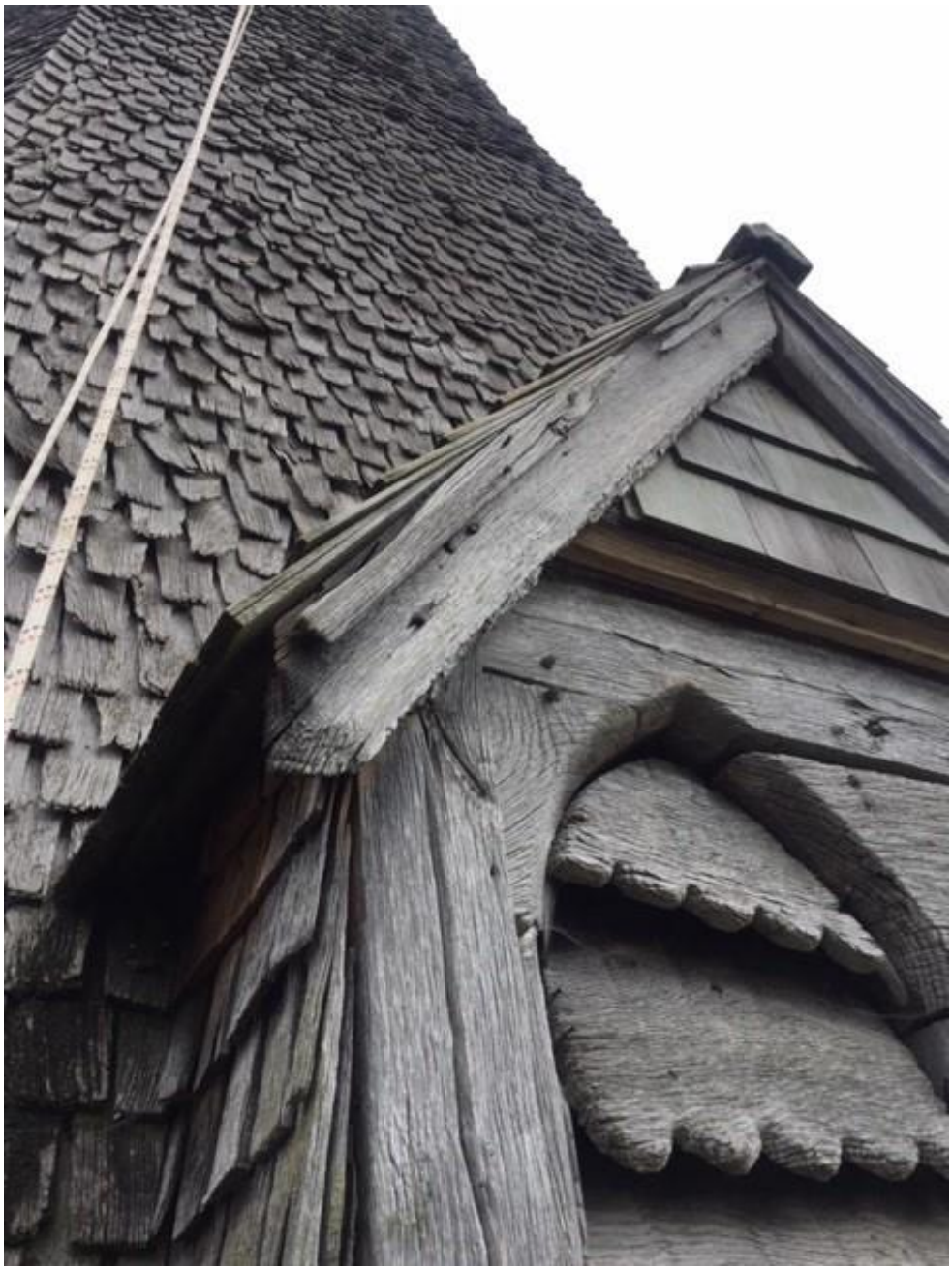
Lunette and gutter, west side note missing and curled shingles and rot in bottom of gutter



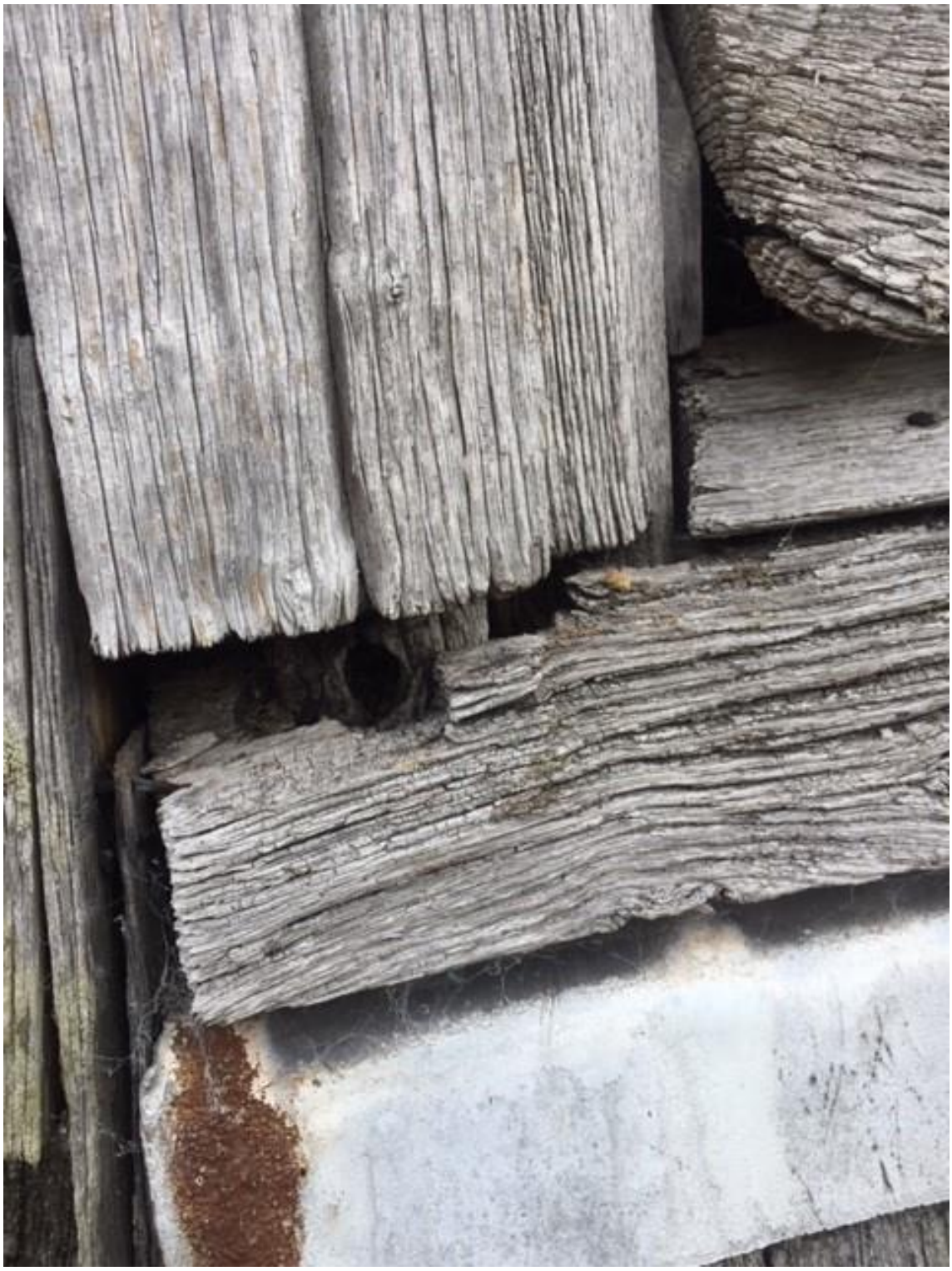
Gutter, west side



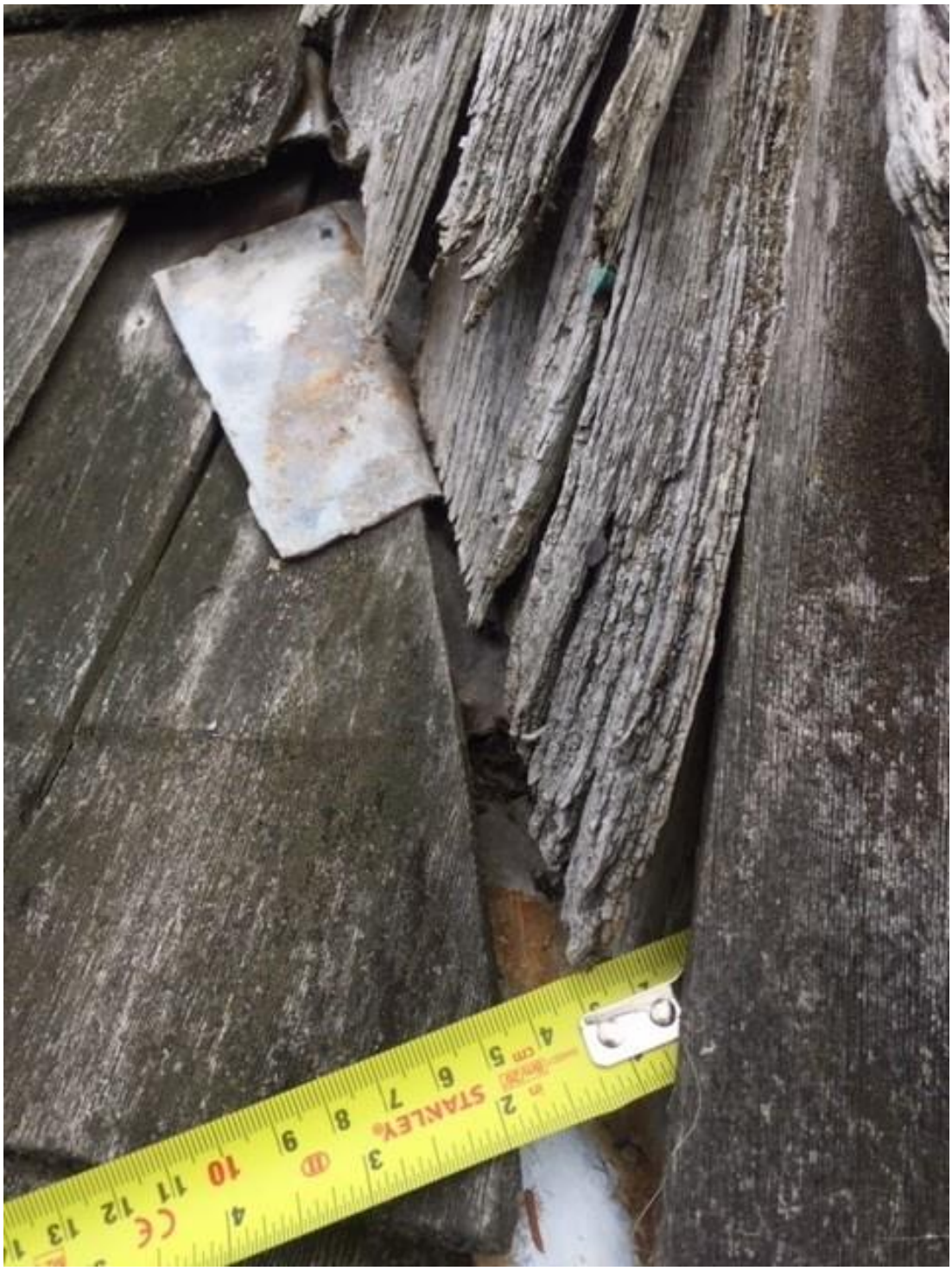
Southwest corner, missing shingles and rotten boarding



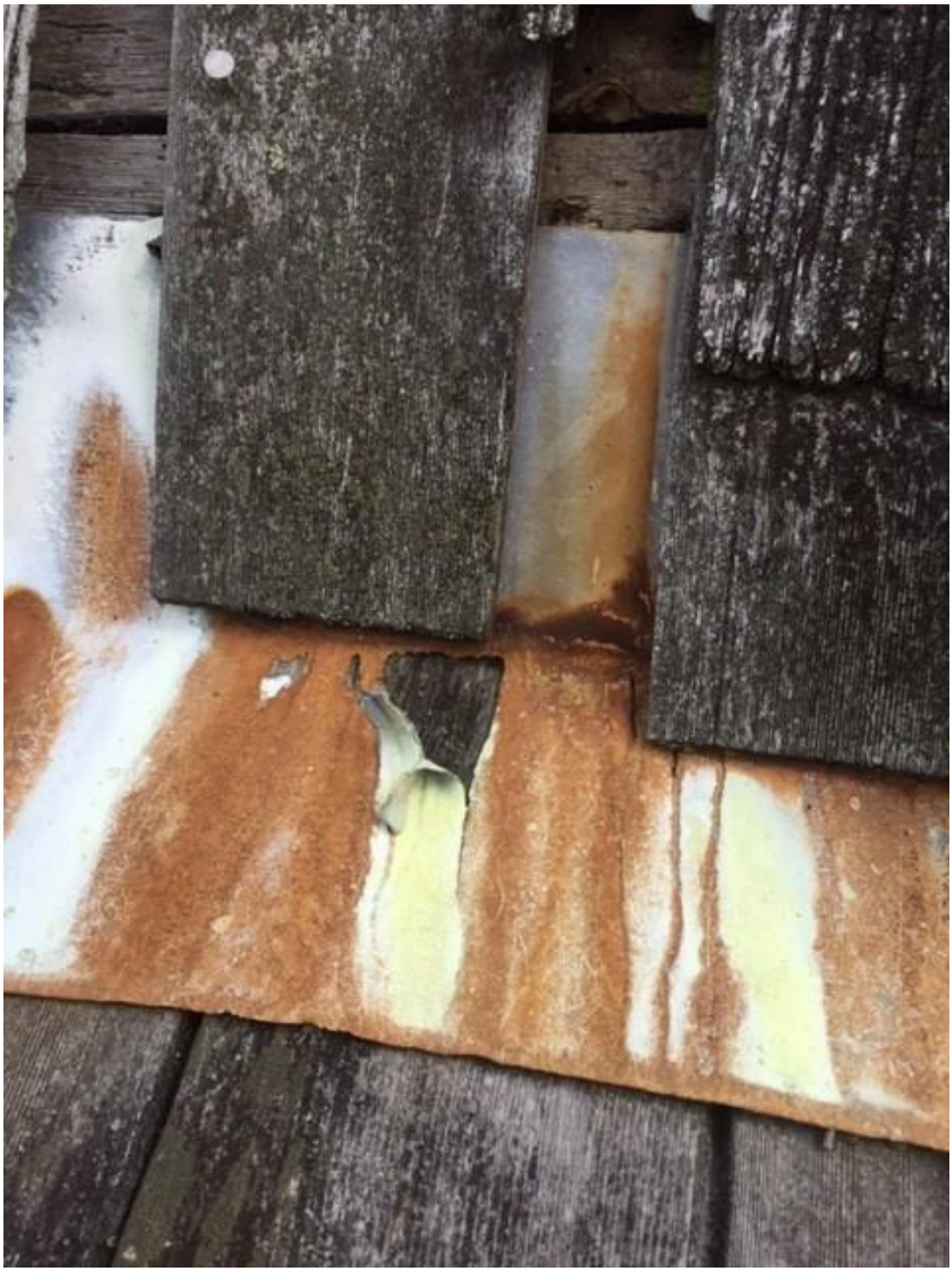
South lunette showing condition of barge and moulding and jamb



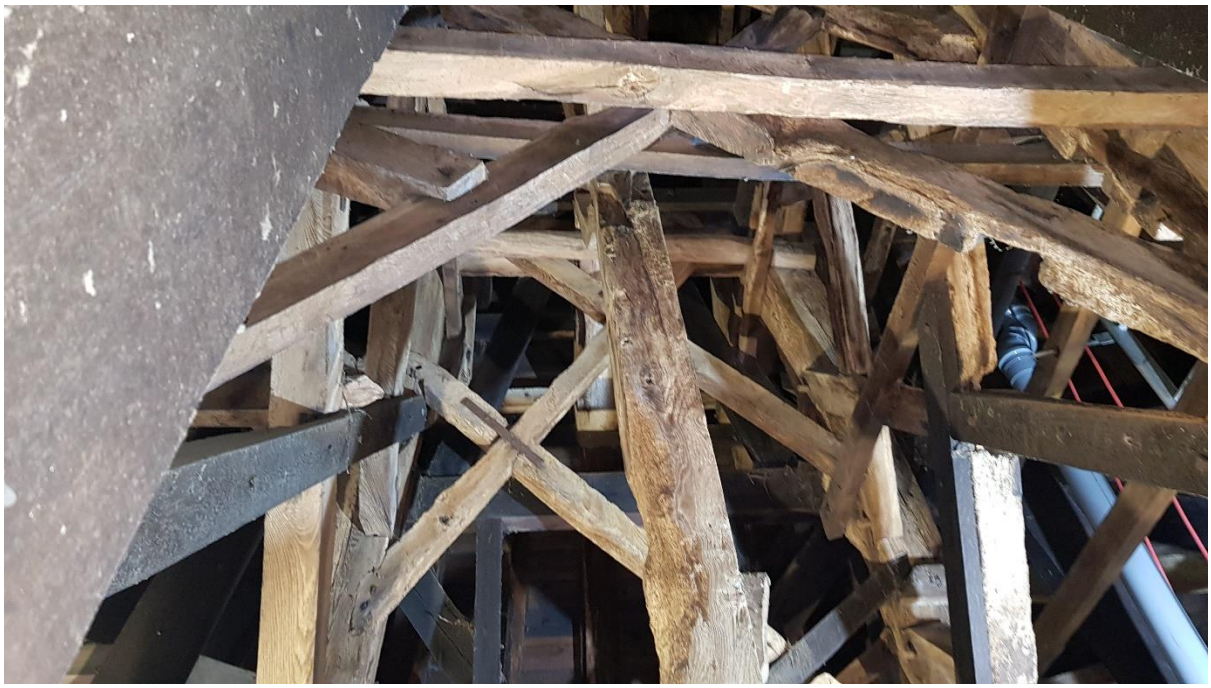
South lunette window joint at cill



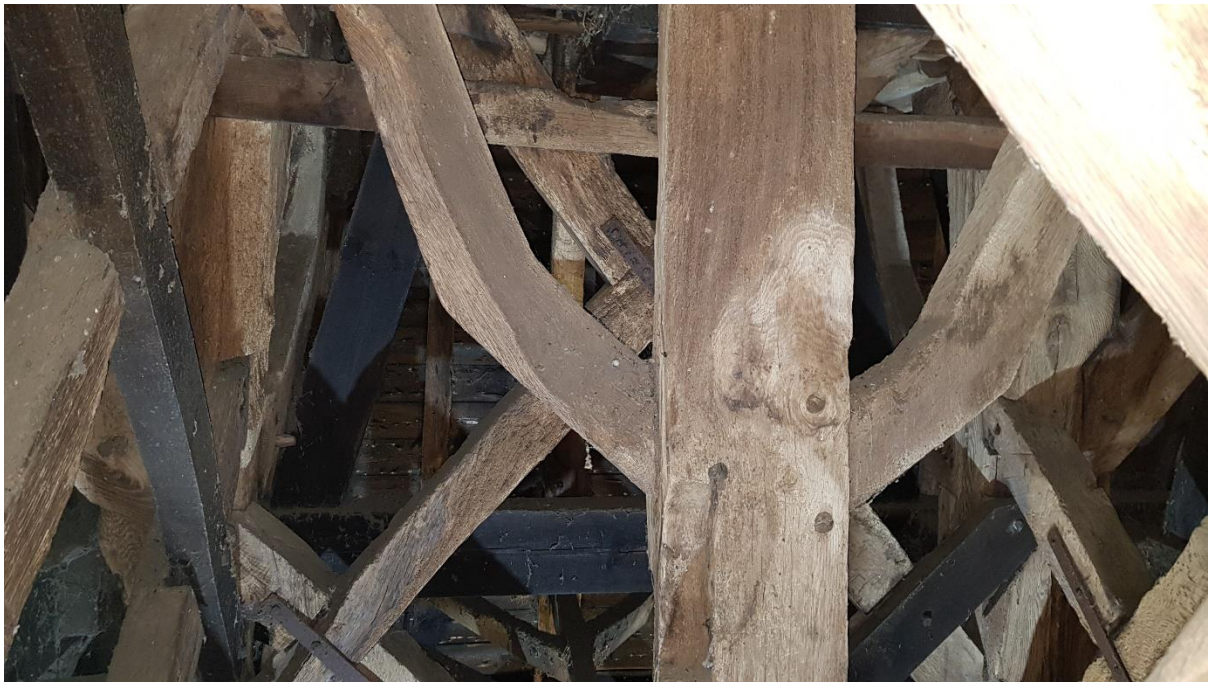
South valley very narrow flashings and note condition of shingles



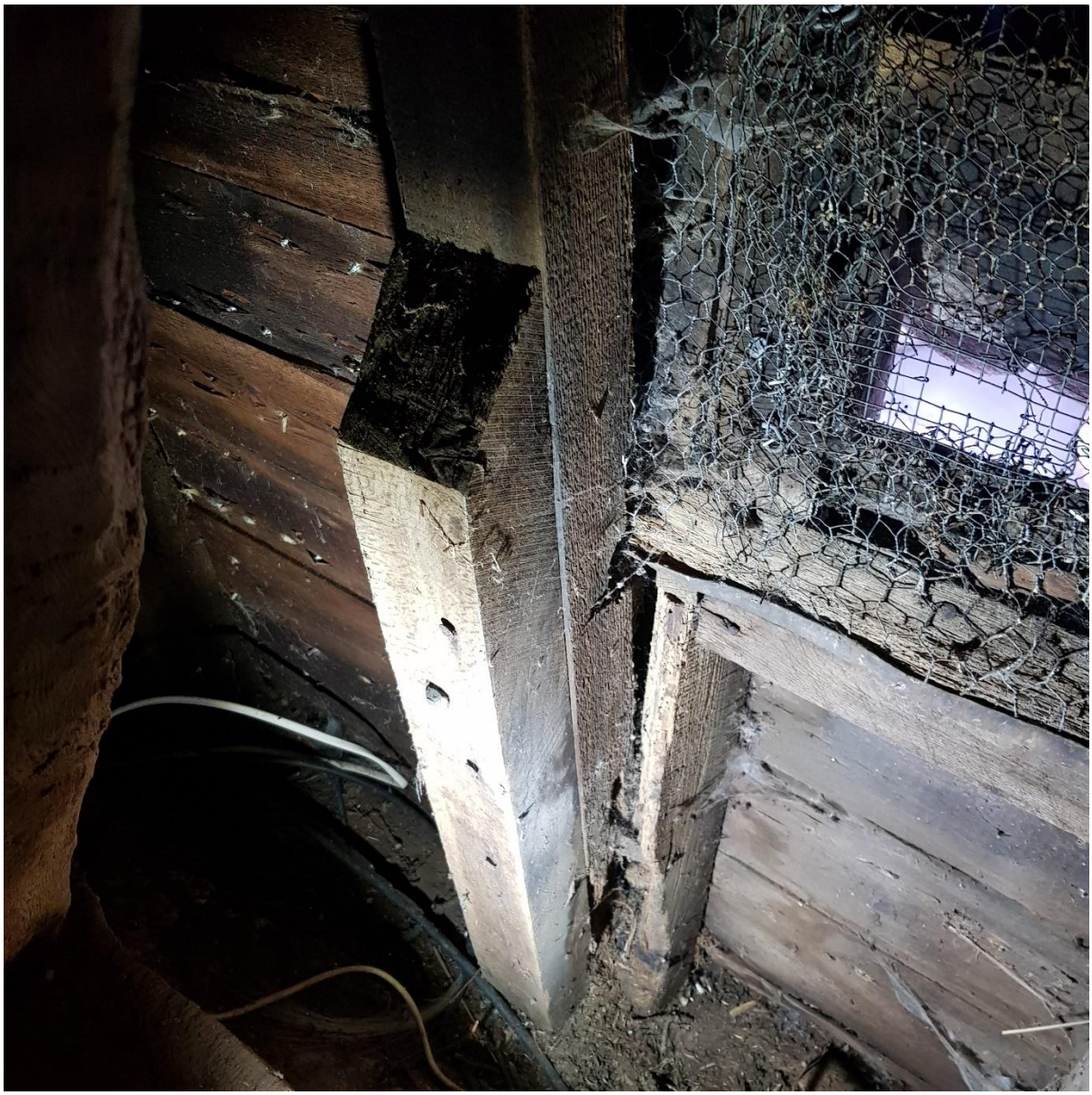
South side over sprocketted eaves, hole in lead (worn by acid run-off from shingles) and note condition of shingles with boarding below visible



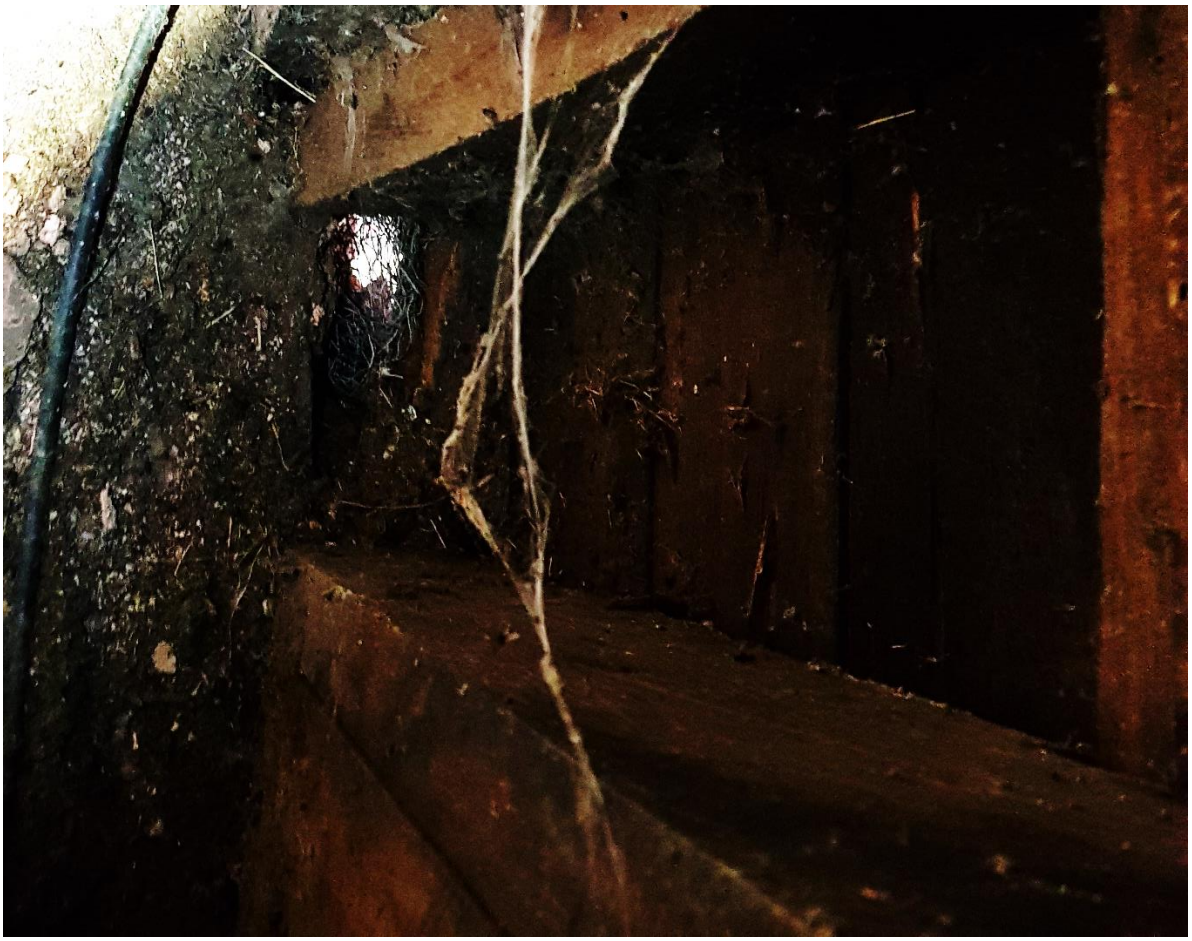
Interior framing (general)



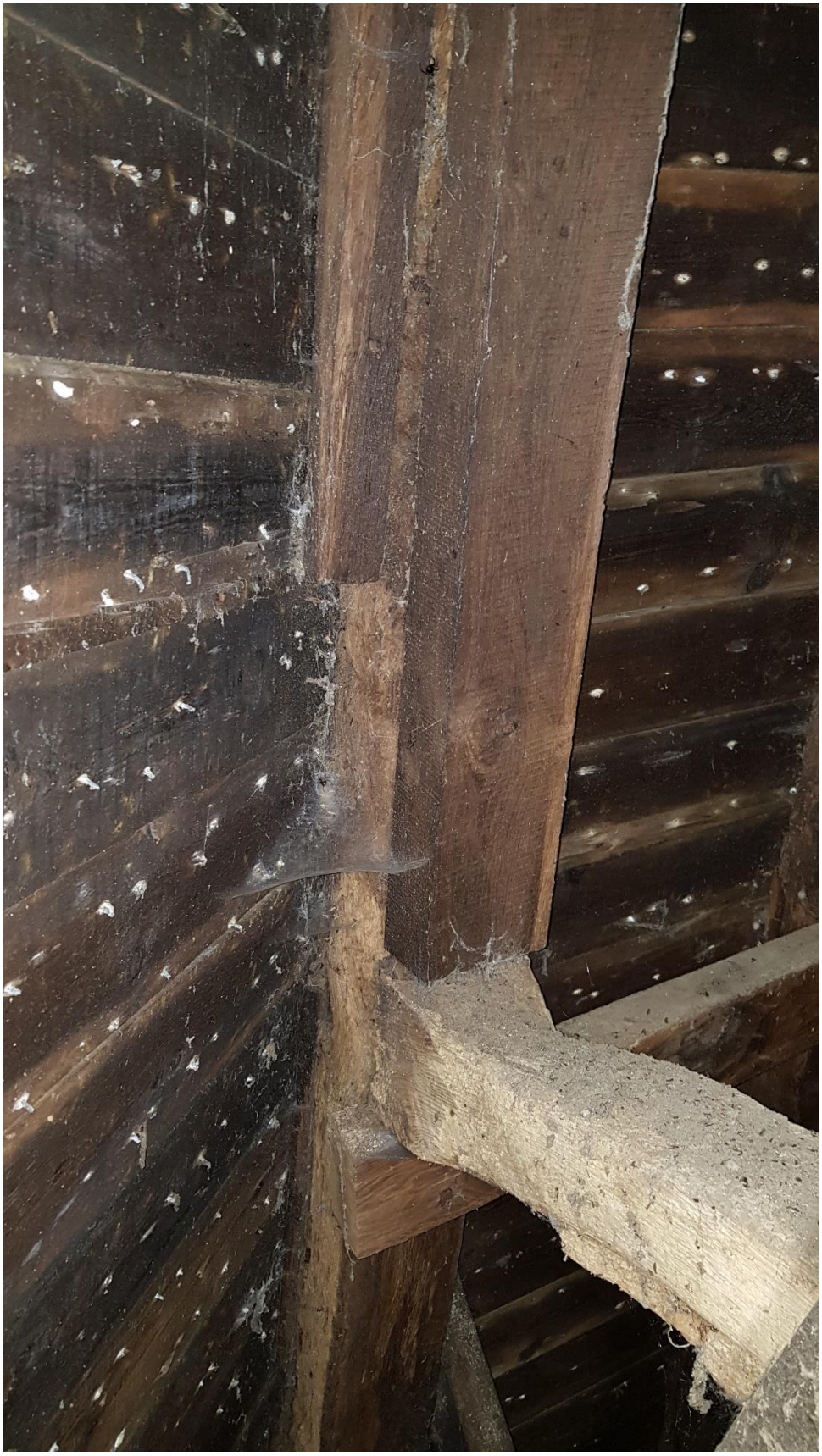
Interior framing (showing C13post structure with curved braces)



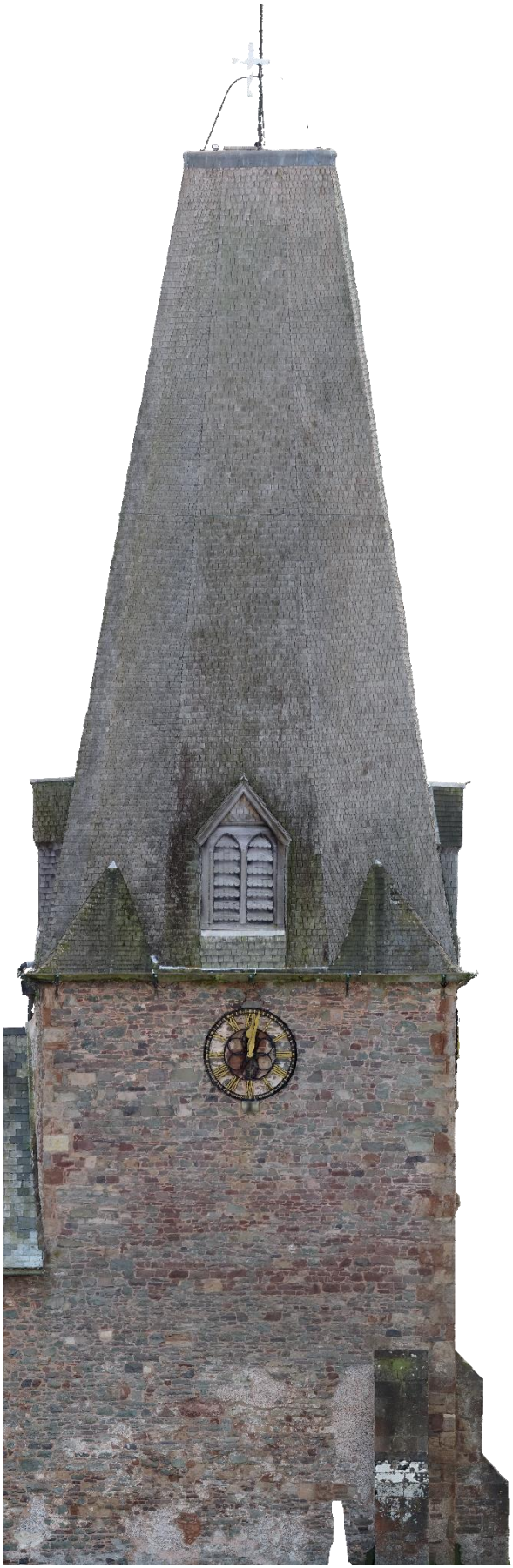
Lunette upright west side



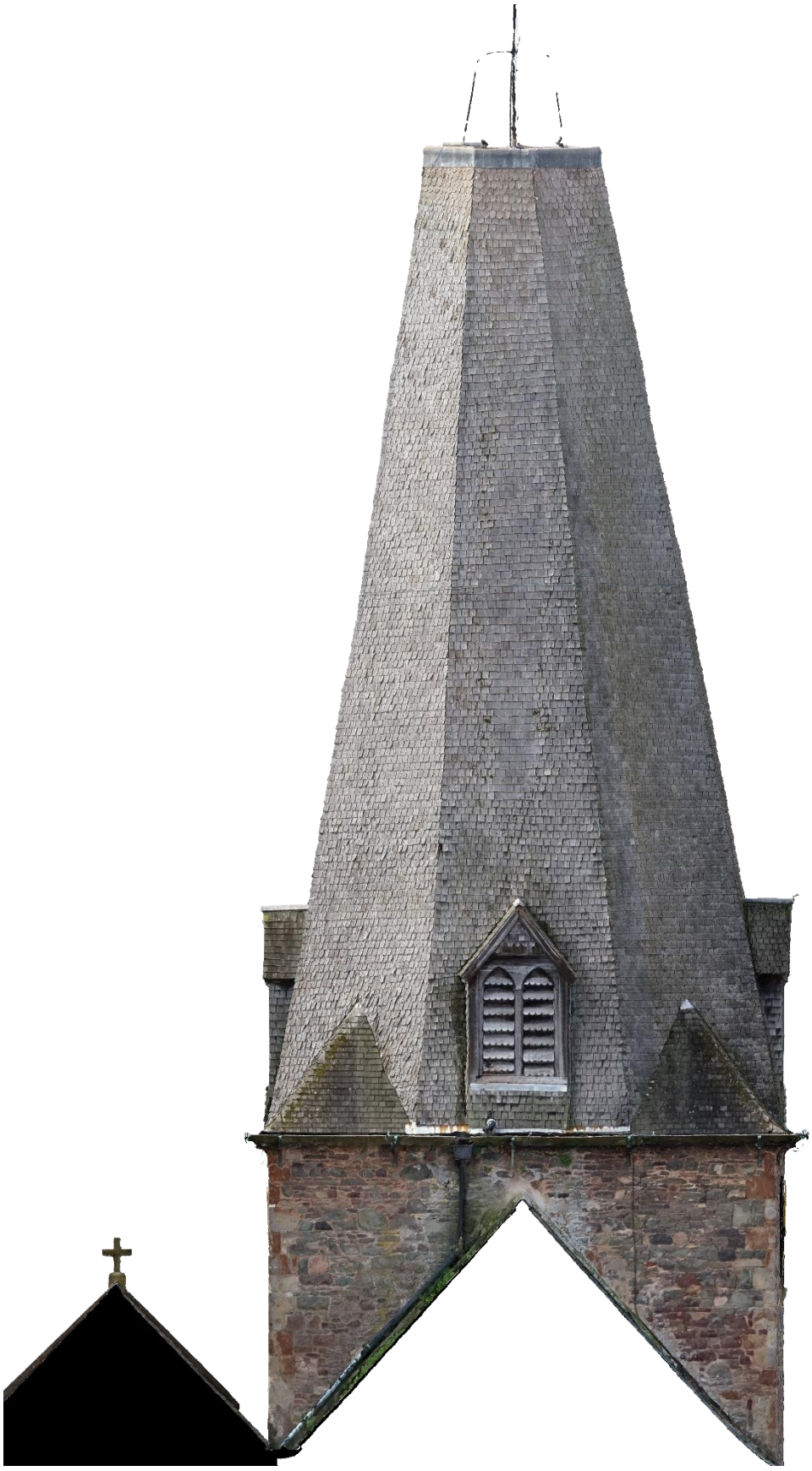
South side hole through wall-plate



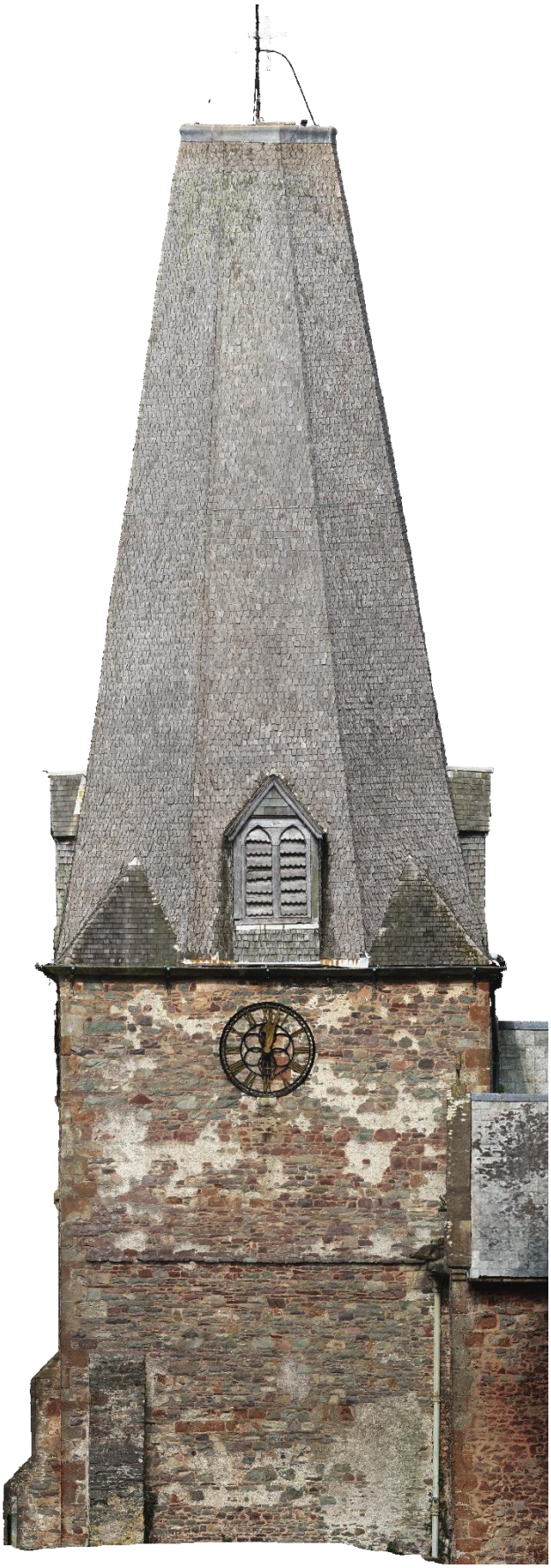
Joint between southwest hip and support member – multiple additional timbers and continued rot to hip



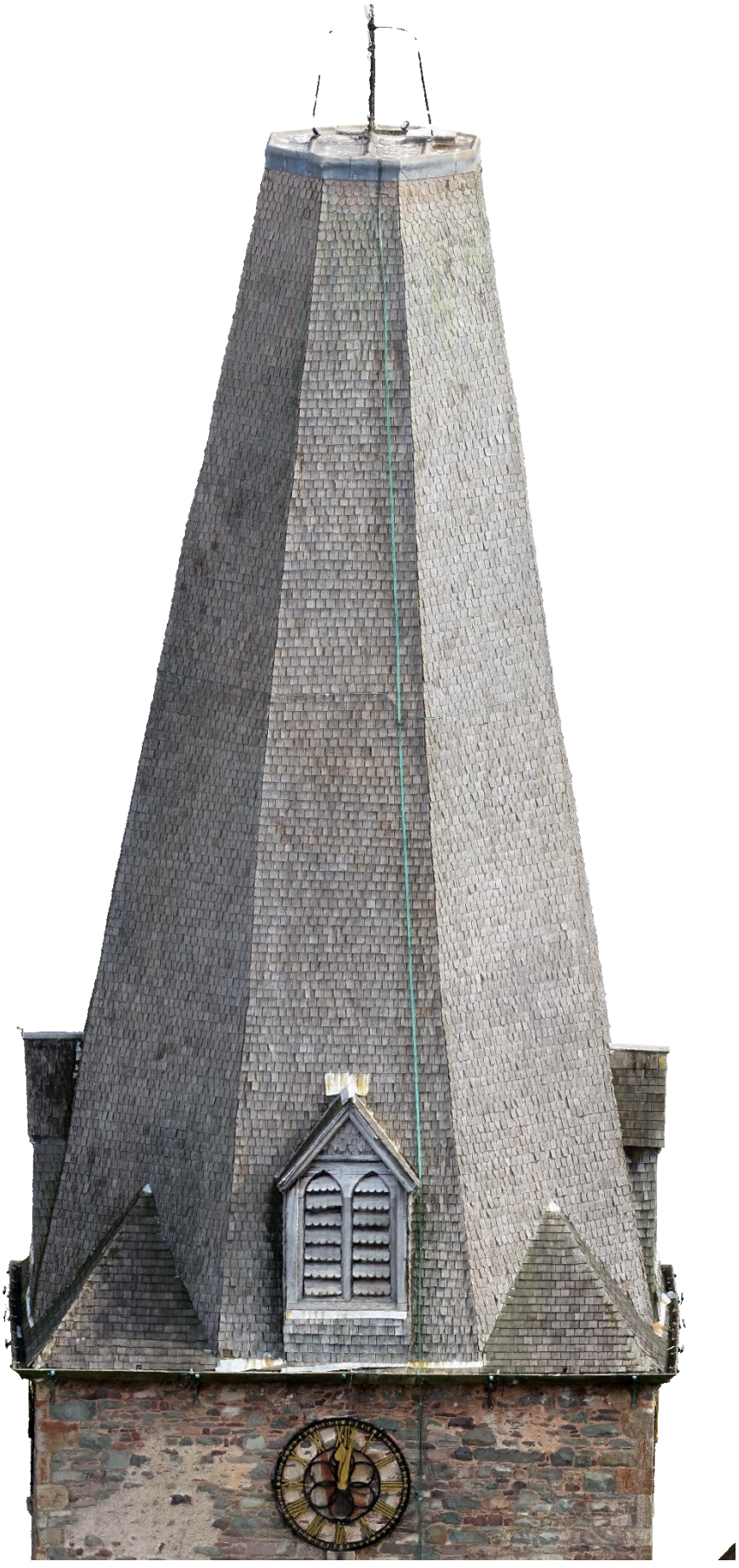
North Face



East face



South face



West face