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Quemerford Gate Cottage

Roof Inspection

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Status: S2 For Information

Issue: P1

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Suitability Codes as stated within QA data describe documents intended use and are in accordance with BS EN ISO 19650-2-2018.

Code	Description
Shared (Non-Contractual – Not For Construction)	
S1	For Coordination
S2	For Information
S3	For Review & Comment
S4	For Review & Authorization
S5	For Review & Acceptance
Published (Contractual)	
A1	Stage 1 Authorized (Not For Construction)
A2	Stage 2 Authorized (Not For Construction)
A3	Stage 3 Authorized (Not For Construction)
A4	Stage 4 Authorized (For Construction)
A5	Stage 5 Authorized (Final Design Record)

Quality Assurance

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1.0 Introduction

- 1.1.1 Mann Williams were instructed by Peter Hitchins to carry out an inspection of the roof structure to Quemerford Gate Cottage following concerns over the condition/robustness of certain elements of the structure.
- 1.1.2 Mann Williams carried out the inspection in June 2026. The survey comprised a visual walkover inspection no opening up works, coring of the walls, timber testing, boreholes or trial pits were undertaken as part of this survey. It was a dry day at the time of the inspection.
- 1.1.3 Quemerford Cottage is a Grade II listed property comprising a two storey rendered chalk rubble walled house with thatched roof and 2no. red brick chimney stacks. Internally the upper floor comprises timber beams supporting timber floor joists. Similarly over the first floor the ceiling comprises timber beams supporting timber ceiling joists.



Northwest Elevation



Northeast Elevation

2.0 Inspection

- 2.1.1 The roof space is divided into two areas either side of the central chimney. Each cell has a central timber frame supporting double lines of purlins in the east cell and east portion of the west cell, and a single line of purlins in the far side of the west cell. These purlins in turn support common rafters which have close centred timber battens set horizontally above that support the roofing thatch.
- 2.1.2 A significant number of secondary props have then been installed in both roof cells to help support overloaded and decayed purlins. These are indicated on the roof structure plan included in the appendix to this report. This plan also shows the proposed additional strengthening works required following our inspection.
- 2.1.3 In the east cell there is a central ceiling support beam that runs from the east gable through to the central chimney wall. At each end angled props have been inserted off this beam to give support to the purlins either side.
- 2.1.4 The lower purlin on the north roof slope has some decay in the length of the timber which would benefit from some additional support [Item 01]. The bearing end of this same purlin also appears to have decayed and it would be prudent to insert a prop off the masonry in this location [Item 02].

- 2.1.5 A long purlin extends past the central chimney wall on the south elevation which would benefit from some intermediate support [Item 03].



East Cell - Looking East



Truss TR1 – Looking West



East Cell – Floor Beam



Central Chimney - Looking West

- 2.1.6 In the middle of the east cell there is a timber frame that supports the roof (TR01). This comprises a pair of large section rafters with 2no. high level tie members. There is however no tie present at ceiling level. The rafter to the north roof slope has failed at the purlin mortice hole and an angled prop is in place, propped off the central ceiling beam. The central ceiling beam is not designed to carry roof load but the structural configuration appears to be working at present. We would recommend some enhancements though.

- 2.1.7 Our recommendation would be to introduce a couple of timbers at low level to both provide a sound horizontal tie to the foot of the rafters and also to allow an additional prop to be installed to secure the fractured principal rafter on the north side [Items 04 & 05].



West Cell – Ceiling Structure



West Cell – Support Frame to Purlins



West Cell – Truss TR2



West Cell - Failed Purlin

- 2.1.8 There is a truss (TR02) located in the middle of the west cell which appears to have formed a space divider as, what appears to be a doorway, has been created in the timber truss framing. On the east side of the truss there are 2no. lines of purlins and on the west side just a single run of purlins. There are however high level ties between the rafters in the area to the west of the truss.
- 2.1.9 The tie beam to the truss is set at ceiling level and carries 2no. slightly offset ceiling beams down the centre of the area (refer roof plan). The tie beam appears to sit on a masonry wall beneath but is significantly decayed in areas. The debris around the beam needs cleaning out to give a better visual inspection of this beam but we would recommend a new tie is installed as suggested on truss TR01 to secure the base of the rafters to the truss against lateral outwards movement [Item 06].
- 2.1.10 On the south roof elevation the original lower purlin in the east section of this part of the roof has failed and a new very thin timber has been put in its place. This timber is not securely fixed each end and we would recommend a new purlin is installed on hangers to introduce an adequate support to the rafters in this location [Item 07].

- 2.1.11 A rafter and ceiling beam give support to the roof purlins on the south roof slope where they run past the central chimney wall. It is not clear how these timbers are secured into the chimney wall and we feel it would be prudent to install a metal tie between the ceiling beam and the masonry to ensure any lateral thrust from the rafter is resisted by a good connection with the central masonry wall [Item 08].
- 2.1.12 Generally the common rafters appear to be providing adequate support to the roof finishes. The rafters have been partnered up in areas and there is a rafter at the east end in the southern roof slope that needs partnering.
- 2.1.13 There is also a lack of support to the thatch on the southern roof slope around the central chimney wall. Additional rafters should be added in here [Item 09].
- 2.1.14 If any rafters are found during the strengthening works to be failing or inadequate, they should be partnered with new timbers spanning between eaves wallplate, purlins and ridge as required.

3.0 Conclusions & Recommendations

3.1 Conclusion

- 3.1.1 The roof structure to Quemerford Gate Cottage has been extensively repaired and enhanced in the past. Largely the roof structure is performing well but in certain areas some structural enhancements are required where structural defects exist and where the timber sections are decayed and the loss of section could lead to future instability.
- 3.1.2 The main areas of concern centre around the trusses and the purlins. Truss TR01 has a fractured principal rafter and no formal tie beam at ceiling level. The introduction of a tie structure will both provide lateral restraint to the base of the principal rafters but also provide a medium to introduce an additional prop to the principal rafter where it is fractured.
- 3.1.3 Similarly on truss TR02 the existing tie beam is suffering from decay and a new tying structure is required to retain the truss principal rafters in position.
- 3.1.4 A number of purlins need additional support either due to; their excessive length compared to the section size, an inadequacy of section size, or due to timber decay.
- 3.1.5 Similarly a number of common rafters need partnering where failing. There is also an area on the southern roof slope that needs rafters reinstating to maintain support to the roof thatch.
- 3.1.6 The roof space was dry at the time of the survey and the ventilation should be maintained to retain a healthy environment within the roof space.
- 3.1.7 None of the above repairs results in a significant loss of historic fabric and is all intended to retain historic fabric in place with the addition of new structure.

Appendix 1 – Key Plan

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WEST

EAST

Prop to decayed
purlin bearing

Strengthening: provide new — 63x225 C24 tie members bolted to each side of principal rafter using 2no. M16 bolts

Strengthening: provide new 125x200 C24 purlin on proprietary truss hangers bolted to rafters

Strengthening: add in
80x80 prop to lower purlin

- Provide additional rafters to support failing battens over this area

Floor
beam

- Floor beam

PLATE 3 - Truss TR2

PLATE 4 - Purlin

PLATE 1 - Truss TR1

NOTES

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PROJECT

QUEMERFORD GATE
COTTAGE
CALNE

TITLE

KEY ROOF PLAN



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