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REF: PB.904

Emma Nowill
Middle Cottage
Watery Lane
Scropton
Derbyshire
DE65 5PL

Dear Emma,

RE: East View, 62 Brookfields Road, Ipstones, Staffordshire Moorlands.
- **Proposed refurbishment and conversion of attic space**

Further to the site visit on the 14th July 2016, I provide below summary recommendations that address the various structural issues raised by the building inspector during discussions held with Mel Morris.

The interventions are the minimum I consider necessary to maintain structural integrity and performance in service of the historic internal timber building frame and roof.

ROOF FRAME

1. The existing cut- timber roof frame appears to be for the most part to be structurally sound, albeit having clearly suffered from some beetle infestation in the past.
   - i) To refurbish with new insulation and ceiling boarding, it will be necessary to introduce similar breadth timbers and battens set beneath the existing common rafters and screwed nailed through from below to form composite members. A suitable air gap should be maintained to allow cross airflow above the new insulation layer.
   - ii) A raised collar piece should be introduced between the upper rafters, set below the ridge, to provide a better cross- tie against long-term roof spread deflection in the frame. The cross-tie may be fixed to each rafter using skew nailing or a M12 coach bolt.
   - iii) The timber prop to the ridge purlin member in the RH bay can remain in the existing arrangement but should be provided with a sturdy fixing between the post and crosspiece member using a flat plate or cleat. [Photograph 3]
   - iv) Alternatively, the existing crosspiece could be replaced with a smaller section lightweight steel to slightly increase the available headroom on the landing at the top of the proposed attic stairs.

v) The existing small local split on the ridge purlin above the prop location should be additionally spliced using a steel angle plate, nominally 100 x 100 x 8 fixed into the existing timber using a minimum of 2No. 12mm diameter coach screws on each side of the split. [Photograph 4]

vi) A similar crosspiece and post prop should be introduced between the upper purlins at the opposing LH gable end wall where the ridge purlin has been reduced at its support set into the chimneybreast brickwork due to past rot and decay. [Photographs 5 & 6]

vii) The attic floor in the RH bay may be upgraded with the instruction of new joists placed between the existing small section joists at regular centres. This will allow a new 19mm thick T&G replacement chipboard floor to be provided on the Landing and proposed Bathroom. The existing Oak joists may remain to carry the first floor ceiling only. This arrangement should provide the necessary 30minute fire protection.

viii) The proposed inserted conservation roof lights between purlins on the back roof pitch should not cut through more than one rafter member.

FIRST FLOOR AND UPPER STAIRS (See attached sketch plan)

2. The existing first floor is to be retained except for at the RH end where the new attic Stairs and Study Room are to be provided.

ix) A new trimmer beam (T3) is needed at first floor level set along the line of the partition walling between the Bathroom and Study. The beam will carry the inner load reaction from the high level trimmer (T2) that acts as the cross trimmer for the upper attic stair flight. A cripple stud post (P2) is to be provided fixed between the two trimmers.

x) The proposed door opening (D1) into the Study Room at first floor should have a goalpost frame set off the spine wall below. The new hardwood posts (P1), nominally 85 x 100mm section. The inner post needs to be positively connected to the existing spine beam which carries the attic floor above with a face cleat, mortice and tennon joint or half splice connection at the base where the existing mid-level soleplate needs also to be cut to remove the step over. [Photograph 2]

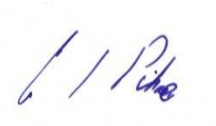
xi) The new RH post offset the gable wall may then support the attic stair stringer (T1) and mid-level trimmer to the stair corner winder.

xii) The existing attic floor joists will need to be cut back (or removed entirely) above the proposed Study Room where these conflict with the stair winder and cross stair landing trimmer (T2).

I hope the proposed recommendations for adaptation meet with your needs and aspirations for the attic conversion and refurbishment, as well as satisfy the concerns raised by the building inspector.

I am able to provide structural calculations to size and grade the new proposed timber elements, as may be needed for building regulation approval. Please let me know as and when the scheme and layout is agreed so that I can proceed with this final stage of the work.

Yours sincerely



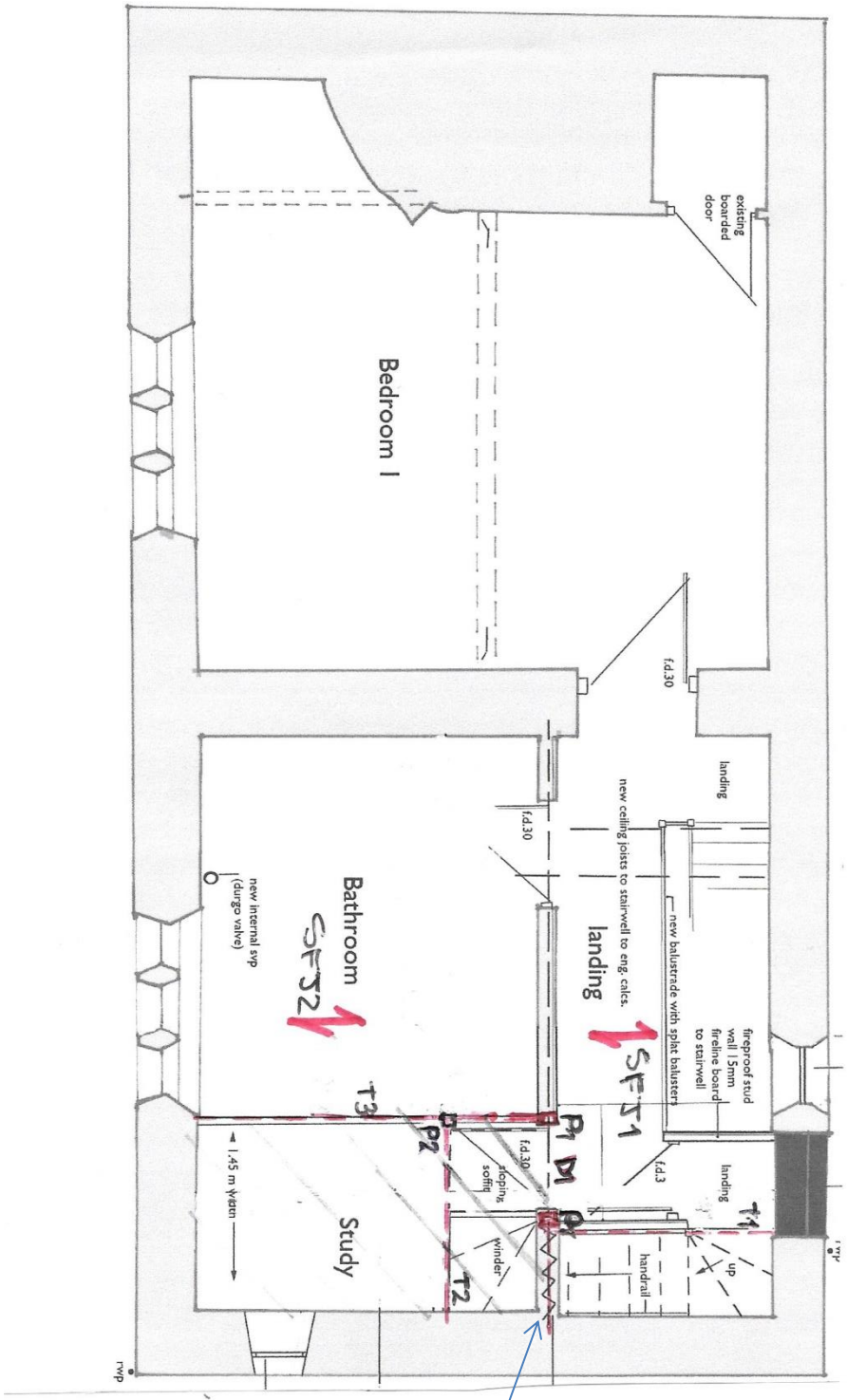
Eur Ing Christopher **Pike** MA BSc (Hons) CEng. MIStructE
Conservation Accredited Engineer
Chartered Structural Engineer

cc. Mel Morris

PROPOSED FIRST FLOOR SKETCH PLAN

Existing SFJ1 = 55(w) x 80(d) Oak joists @ 455mm c/c (approx.)

Existing SFJ2 = 115 x 115 Oak joists @ 730mm c/c (approx.) Notched over spine beam by 15mm



Offset Spine Beam = 130(w) x 85(d) at attic floor level

PHOTOGRAPHS

1.

2.

3.

4.

5.

6.