

Structural Report: Barn Conversion (WDC Policy DM45) Works at Orchard Cottage Ref: 22032.RCOC.RP01

Client: Matt & Kate Roskill

Site Address: Orchard Cottage, Radnage Common Road, Radnage, HP14 4DH

Date of Inspection: 21 March 2022

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1.0 Introduction

- 1.1 Structural review of existing multi-purpose barn / out building, for proposed conversion to residential use under WDC Planning Policy DM45.
 - 1.2 Assessment that the existing building is of sound and permanent construction suitable for the proposed residential conversion works.
 - 1.3 Assessment of existing structural elements – roof, walls, floor slab, foundations etc. to determine their general configuration and structural condition.
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2.0 Description of Building

- 2.1 The existing barn style structure is rectangular in shape, circa 12.25m x 7.45m in area on a slightly sloping site from front to rear, the lowest surrounding ground level at the rear right corner, approximately 300mm below floor slab level.
 - 2.2 The roof is duo pitched with slate tile covering, with a pitch of around 20 degrees.
 - 2.3 The external walls are 140mm blockwork to 1.8m height from slab level, with horizontal timber cladding finish externally.
 - 2.4 The front elevation has a timber clad bay to each side at the building edge, with 2No. bays in the centre, set back approx. 500mm. The 4 bays are separated by timber framed partition walls.
 - 2.5 The building is approximately 12-15 years old.
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3.0 Structural Condition

- 3.1 The roof structural arrangement consists of 100x50mm timber rafters at approximately 450mm centres, doubled up at many locations, particularly the rear roof slope which has a slightly longer span, due to the lower eaves level.
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- 3.2** The rafters are supported mid-span by longitudinal purlins (approximately 200x50mm) running from gable end to gable end walls. The purlins are in turn supported at intermediate locations by the stud wall partitions and by double timber trusses mid-way between each 'bay'. There is also a roofing felt layer between the rafters and tiles which appears in good condition.
- 3.3** The side and rear walls have a 1.8m high x 140mm thick concrete block construction, which appears in very good condition and of robust construction. In addition to this there are brickwork piers 330x225mm at the corners of the front elevation.
- 3.4** The timber frame partition walls between bays generally consist of 100x50mm timber studs at approximately 450mm centres, with a substantial (150x100mm) timber head plate. There is also timber boarding to both sides of the walls to form a rigid frame, giving good lateral stability and load-bearing properties to the internal walls.
- 3.5** The floor slab consists of a poured insitu concrete slab, circa 100-125mm thick, which appears in good condition throughout.
- 3.6** From Trial Pit investigations, the existing foundations consist of a 250mm thick concrete strip footing, approximately 400-450mm wide, set 1 block course below ground floor slab level.
- 3.7** From geological maps, the ground conditions are defined as 'Upper Chalk' which is not generally susceptible to volume change (heave/shrinkage) and a very good load bearing material. There are no signs of any significant movement or settlement of the structure as a whole.
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4.0 Proposed Works

- 4.1** The proposed conversion works to residential accommodation, will not require any major structural works, as the existing building is in very good condition and ideal for the proposed usage.
- 4.2** A small trench foundation may be required to the front elevation and the walls & roof will require insulation to Building Regulations level (to Architect's details).
- 4.3** A new self-contained domestic sewage treatment chamber (Klargester or similar) will be required for the foul water drainage and a new cellular plastic crate soakaway can be installed for the surface water drainage, which currently runs into the nearby pond.
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5.0 Summary & Conclusion

- 5.1** Overall, the existing barn building is considered of very substantial and permanent construction, with no significant structural works required to achieve the proposed conversion to residential use, in line with the planning requirements in WDC Policy DM45.
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Signed:



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