

Manor House Barns, Rodbourne, Malmesbury SN16 0EX

Mr S Grafftey-Smith
Job No. 7000259

Visual Structural Inspection Report

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1.0 INTRODUCTION

This report is for the private and confidential use of Mr Simon Grafftey-Smith, owner of the property for whom the report is undertaken and may not be used in whole or part by any third parties for any use without the express authority of Ingleton Wood LLP.

Ingleton Wood LLP were appointed to carry out a visual structural inspection, assessment and report on the suitability of the existing buildings to convert to residential use in support of the Planning Application.

Our inspection was undertaken on 4th December 2024. At the time of inspection, the weather was overcast/grey and cold with light drizzle.

No intrusive opening-up was carried out. The inspections were carried out from ground level. The old buildings were derelict, some parts of the buildings were covered in, areas of the floor were used for storage and obstructed for inspection. Refer to appendix A for notes on limitations of structural inspections.

2.0 EXECUTIVE SUMMARY

The old stone buildings can be salvaged and are considered to have the required structural integrity to be capable of forming a sound basis for the proposed conversion to residential use. The existing buildings will be linked by new build construction.

The modern agricultural farm buildings are to be demolished and removed as part of the conversion.

The anticipated ground conditions of Kellaway Sand Member as described by the British Geological Survey (BGS) mapping will provide a suitable bearing stratum for the foundations.

The existing buildings exhibit different degrees of dilapidation and will require a comprehensive renovation process, involving replacement of defective timber elements, repair/local rebuilding of damaged masonry and stone walls and incorporating new structural elements e.g. ground floors, mezzanine floors, to suit the Architect's proposals.

3.0 THE SITE AND GROUND CONDITIONS

Manor House, Rodbourne is located to the south of Malmesbury. The property identified as "The Orchards" including the surrounding buildings are shown on historical OS maps dated 1885 (Wiltshire XIII.7 1:2500). There is a datestone (1848) embedded into the front gable wall of the main barn.

The British Geological Survey (BGS) mapping for the site of Manor House and the area of the surrounding buildings suggests there are no superficial deposits, and the bedrock geology described as Kellaways Sand Member ("Sandstone and Siltstone with interbedded pale grey calcareous

cemented sandy and silty mudstone”) will outcrop at the surface below any made up ground and topsoil.

4.0 EXISTING STRUCTURE

The buildings proposed for conversion are those built in brick and stone with fired clay or slate tiled pitched roofs. The modern steel and precast concrete framed agricultural buildings are to be demolished.

A topographical survey has been carried out on the existing buildings and is illustrated on Matthew Read – Land and Building Surveys drawing no. P4371 – 001 dwg dated November 2024.

The construction of the farm buildings is essentially the same comprising relatively thick stone and brick walls with traditional timber roofs. The buildings have been altered to include concrete floors, modern brick and block walls as part of historic adaption and alterations carried out as a function of the buildings’ use as part of the farm over the past say 170 years.

For the purposes of this report the existing buildings to be converted are identified as follows: -

North building – set back from road
Middle barn (with datestone)
South building – adjacent to garden

5.0 PROPOSED WORKS

The architectural concept is illustrated on Mathewson Waters Architects preliminary drawing nos. 23041. SK001, SK002, SK003 and SK004, dated December 2024. The drawings show conversion of the old original stone walled farm buildings to a single dwelling with new build link structures/buildings.

6.0 OBSERVATIONS

Observations from the inspections of the buildings are listed as follows (refer to Appendix B for photographs).

North Building:

1. Single storey building with pitched clay tiled roof.
2. Significant vegetation (ivy including moss) growth to roof and walls (photo 2).
3. Simple cut roof construction comprising rounded rafters, midspan purlins and tie beams.
4. Lack of surface water disposal from roof. Water staining (discolouration) and washout of joint material to stonework. Some eroded joints appear like staggered and vertical cracks to wall (photo 1). Erosion of mortar joints to brickwork.
5. Face of some stone and brick has blown (spalled).

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6. Rotten purlin bearing at gable wall (photo 3).
7. Localised areas of tiles slipped and missing, and collapse of roof.
8. Open front of building infilled with single leaf brick and block walls between feature circular brick columns.
9. Stepped and horizontally displaced cracking and movement to infill wall panels.
10. Rotten battens, rafters (photo 5), and purlins (photo 7). Ad hoc timber plates to raise eaves beam off masonry columns. General sagging to parts of roof and eaves beams (photo 4).
11. Eastern end of building has boarded ceiling and sloping rafters (photo 6).
12. Stone/brick and concrete floor covering.

Middle Barn:

1. Double storey height pitched slate tiled roof with substantial stone walls, brick plinths, quoining and south gable.
2. Traditional timber roof comprising rafters, purlins at third span with principal rafter and tie beam A-frames (photo 8).
3. Roof structure generally in good condition. Visible water damage at roof intersection to south gable affecting valley boards, timber purlins and rafters (photo 8).
4. Slipped and missing slate tiles. Lack of positive rainwater drainage from roof.
5. Water staining and damage externally to walls (photo 9). Localised weathering and erosion of joint material between stonework and brickwork mortar. Evidence of repointing to stone and brick joints. Visible cracking, frost action and deterioration of pointing. Localised spalling of brickwork. Surface of walls damp where vegetation present
6. Stone walls formed with rubble core infill. Localised services penetrations through walls. Timber lintels to inner section with arched stone to outer section of openings.
7. Localised failure of arched stonework with bulging of wall. Tie bar and pattress plate in area of wall damage (photos 10 and 11).
8. Evidence of water ingress and damage. Vegetation growing on or immediately adjacent to walls (photo 12).
9. Northern link building to main barn: -
 - a. Roof missing.
 - b. Block wall construction, concrete slab with concrete plinths. Sand/cement render finish to half storey height of walls internally (photo 13 and 14).
 - c. Large significant vertical slightly tapered crack between link block wall and barn stone gable wall, indicative of differential foundation movement/rotation of block wall (photo 13).
10. Southern open-ended adjoining building to main barn: -
 - a. Traditional timber roof comprising rafters, purlins at third span with principal rafter and tie beam A-frames (photo 17).
 - b. Roof structure generally in good condition
 - c. Cracking to stone walls.
 - d. Missing tiles to roof. Water ingress and rotten roof timbers at head of wall and localised rafters. Water staining and erosion of stone jointing material (photo 18).
 - e. Earth floor.

- f. Significant vegetation (Ivy) growth to roof and internally (photo 15). Rotten and missing timbers to gable.

South Building:

1. Two-storey building, first floor within roof space with pitched clay tiled roof. Timber door “dormer” for access to front/west elevation. Stone walls (photos 16 and 20). Polythene/tarpaulin sheeting fixed to underside of first floor, sagging underweight of trapped water (photo 23).
2. Roof tiles missing to rear/eastern elevation (photo 19).
3. Significant vegetation (Ivy including moss) growth to roof, penetrating internally and walls.
4. Cut roof construction comprising rafters, purlins and tie beams and floor joists. Numerous decayed, weathered and rotten timbers.
5. Lack of surface water disposal from roof.
6. Water staining and erosion of joint material to stonework (photo 21). Staggered vertical crack to wall adjacent to junction with rear elevation (photo 22), laterally displaced cracking at location of tie/floor beam (photo 21).
7. Weathering of masonry internally- stone fragments/debris on floor adjacent to wall.
8. Significant erosion of joint material to stonework externally, to some areas visible holes into wall core (photos 22 and 20). Cracking to stone. Visible repointing in areas. Localised collapse of stonework.
9. Concrete floor.
10. Sand/cement render finish to half storey height of walls internally.

7.0 DISCUSSION & RECOMMENDATIONS

1. Given the age, type of building and use, it is inevitable that there has been some weathering and damage to the building fabric and structure.
2. However, the prolonged ingress of water combined with a lack of maintenance and repair has resulted in some significant deterioration and decay. This typically occurs where the roof tiles are missing and lack of rainwater gutters and drainage causing damage to the timbers and allowing rainwater to run down the walls, both internally and externally resulting in washout of the joint material and localised bulging/failure of the rubble filled stone walls.
3. Generally, the pattern of cracking to the walls is not indicative of foundation movement. Where foundation movement has taken place cracking is present at the junction of the stonework and concrete block walls. The block walls having rotated away.
4. The significant cracking to the South Building, gable and rear walls is due to a lack of restraint and effect of movement of the failed roof structure.
5. Where the buildings remain inherently protected these appear to be performing adequately structurally and there is no indication of undue structural decay, damage or excessive movement.
6. Where the buildings have been used to house livestock, chemicals and machinery there is a risk of contamination. Corrosive constituents in the urine and soiled bedding of livestock (e.g.

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urea, uric acid, naturally excreted chemicals) are highly acidic and together with fertiliser and fuel can damage the building fabric and corrode steel.

7. Foul and Surface Water drainage will be required. If a positive system via the Water Authority infrastructure is not available then a private domestic sewage treatment plant for the foul drainage and Suds (Sustainable Drainage System) e.g. soakaways, swales or attenuated discharge to existing watercourses, for the surface (rain) water will be needed.
8. The following are recommended: -
 - a. Timber treatment and damp specialists to carry out detailed surveys and provide recommendations associated with the proposed conversion.
 - b. Site investigation to include trial holes, soakaway testing and subject to a phase 1 desk study appropriate contamination testing and remediation strategy. The trial holes will need to confirm details of the existing foundations and characteristic of the underlying ground conditions to assess the foundation requirements.

8.0 DESIGN CRITERIA

- CODES & STANDARDS

The following codes and standards will be used in the assessment of the existing building structures and also in the designs associated with the conversion and new builds:

BS 5268 – Structural use of timber.

BS 5628 – Structural use of masonry.

BS 5950 – Structural use of steelwork in building.

BS 8110 – Structural use of concrete

BS6399 – Loading for Buildings (Parts 1, 2 and 3).

Building Regulations and where appropriate NHBC Standards.

9.0 APPENDIX A: LIMITATIONS

Most structural problems, by the time they are serious enough to cause concern, are leading to visible damage, and will be spotted during a visual structural inspection. However, some faults lie hidden in the early stages; also, low levels of structural movement are not detectable by surface inspection or spirit level checks. We are therefore obliged to state the following:

- No opening up works,
- or intrusive investigation of the building fabric was undertaken.
- As we have not inspected parts of the structure which are covered, unexposed or inaccessible we are unable to say that any such part of the property is free from defect.

Suspected progressive structural movement is often confirmed by a period of monitoring the building, this is outside the scope of this initial visual inspection, but we often undertake this additional service and would be glad to advise where appropriate.

We have not undertaken any testing or investigations to determine the presence of deleterious materials. These materials may include (but not exhaustively) High Alumina Cement (HAC), chloride content of concrete, woodwool slabs or honeycombing etc of concrete caused by their use, asbestos or similar. Invariably it is not possible to identify deleterious materials by visual inspection, particularly if the structure is concealed. If a defect is observed during our inspection that we consider may arise from a deleterious material, we will discuss this in our report.

We do not confirm the presence of Japanese Knotweed during our inspection. This plant has been known to cause structural damage but can be difficult to identify. Early stages of growth are not always visible and therefore it is not always possible to identify its presence at certain times of the year. For this reason, Ingleton Wood cannot confirm that Japanese Knotweed rhizomes do not exist, and it is recommended that if it is suspected that this species, or other similarly invasive plants are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

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**10.0 APPENDIX B: PHOTOGRAPHS**

Ref	Photograph
1	
2	







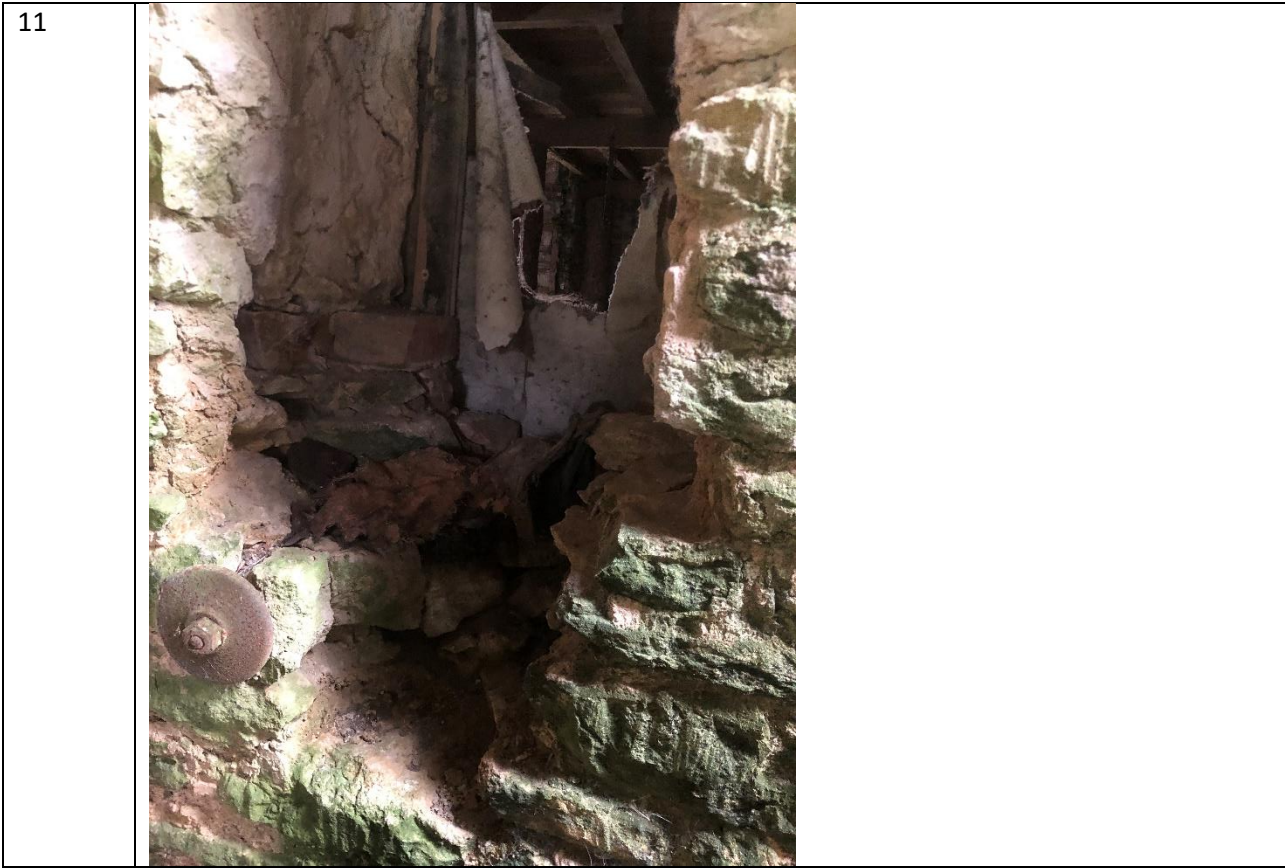
8



9	 A photograph of a stone wall, likely part of a barn, showing a small, dark, rectangular opening or niche. The wall is constructed from rough-hewn stones in various shades of grey, brown, and tan, with visible mortar joints. The opening is located in the lower-middle section of the wall. The top of the wall shows some structural elements, possibly a roofline or a break in the wall. The overall appearance is aged and weathered.
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18	 A photograph showing the interior of a building. In the foreground, there is a rough, uneven stone wall made of light-colored stones. Above the wall, several large, dark wooden beams are visible, some of which appear to be part of the roof structure. A bright light source, possibly a flashlight, is visible in the upper right, casting a beam of light onto the wooden beams and the wall.
19	 A photograph of the exterior of a stone building. The building has a steep, gabled roof covered in reddish-brown tiles. The walls are made of stone and are partially covered in green ivy. The building is surrounded by tall, dry grass and some bare trees. The sky is overcast and grey.



21	 A photograph showing the interior of a building. On the left is a rough, light-colored stone wall. To the right, there are several dark, weathered wooden beams and planks. A blue tarp is draped over some of the lower wooden structures. The lighting is somewhat dim, with a brighter area at the top.	
22	 A photograph of an exterior stone wall. The wall is constructed from irregular, light-colored stones. To the right of the wall is a wooden fence made of horizontal slats. In the foreground, there are some green plants and bare, thin branches.	



11.0 APPENDIX C: EXTRACT FROM BRE DIGEST NO. 251 TABLE 1

TABLE 1 (BRE Digest 251)

Classification of visible damage to walls with particular reference to ease of repair of plaster and brickwork or masonry

Category of Damage	Description of Typical Damage Ease of repair in italic type	Approximate crack width mm
0	Hairline cracks of less than about 0.1mm width are classed as negligible.	Up to 0.1 ⁽¹⁾
1	<i>Fine cracks which can easily be treated during normal decoration.</i> Perhaps isolated slight fracturing in building. Cracks rarely visible in external brickwork.	Up to 1 ⁽¹⁾
2	<i>Cracks easily filled. Re-decoration probably required. Recurrent cracks can be masked by suitable linings.</i> Cracks not necessarily visible externally; <i>some external repointing may be required to ensure weathertightness.</i> Doors and windows may stick slightly.	Up to 5 ⁽¹⁾
3	<i>The cracks require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.</i> Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5 to 15 ⁽¹⁾ (or several cracks, each up to 3)
4	<i>Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.</i> Windows and door frames distorted, floor sloping noticeably ⁽²⁾ . Walls leaning ⁽²⁾ or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15 to 25 ⁽¹⁾ but also depends on number of cracks.
5	<i>This requires a major repair job involving partial or complete re-building.</i> Beams lose bearing, walls lean badly and require shoring. Windows broken with distortion. Danger of instability.	Usually greater than 25 ⁽¹⁾ but depends on number of cracks.

- NOTES:
1. Crack width is one factor in assessing category of damage and should not be used on its own as direct measure of it.
 2. Local deviation of slope, from the horizontal or vertical, of more than 1/100 will normally be clearly visible. Overall deviations more than 1/150 are undesirable.