



Hughes Consulting Ltd

**REPORT ON THE
CONDITION OF STRUCTURE
OF**

**REDUNDANT AGRICULTURAL BUILDINGS AT
BROAD OAK FARM
LLYNDIR LANE
ROSSETT
LL12 0AU**

FOR

**MR G MANSFIELD
c/o JIG ARCHITECTS
UNIT 17 MOLD BUSINESS PARK
WREXHAM ROAD
MOLD
FLINTSHIRE**

GMS377/GPH/APRIL 2024



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1.0 BRIEF

- 1.1 This report was commissioned by Mr G Mansfield, on the recommendation of JIG Architects, to assist with a Planning Application for conversion of existing barn buildings to habitable usage.
- 1.2 The brief for this report was to carry out a visual examination of 3 barn buildings at Broad Oak Farm, Llyndir Lane, Rossett, these entitled Barn A, Barn B and Barn M on the site plan provided to us prior to our inspection of the buildings, drawing number C3873.L02.P1. This was to assess the condition of the structures, comparing to condition reported by Adams Consulting Engineers and Huxtable Hodgson Consulting Engineers, in 2008 and 2018 respectively, noting any alteration of condition, or otherwise, and report findings and opinion on condition and the feasibility of conversion of each barn to habitable usage.
- 1.3 This report is for the use of Mr G Manfield and his advisors in this matter. This report can of course be released to those parties with a direct interest or involvement with the matter of the planning approval application, but shall not be released to any other party, for any other use, without the express permission of Hughes Consulting. No other party may rely on this report, which does not confer nor purport to confer any third-party rights or benefits.



2.0 SURVEY

2.1 General

A survey of the barns was made on 19th April 2024, when the weather was fair. The survey comprised a visual examination, without removing any finishes or excavating any trial holes for examination of foundations or bearing strata, i.e. no attempt was made to uncover any otherwise hidden or buried elements.

It is judged that sufficient information has been gathered for us to report with confidence. It is assumed that detailed structural matters will be attended to as part of a Building Regulations submission.

Record photographs of condition were taken.

- 2.2 Reference should be made to Architect's drawings, which depict the existing buildings and the nature and extent of the proposed works.



2.3 Limitations and Liability

The timber or other parts of the building which are covered, unexposed or were inaccessible have not been inspected other than as required for judgment of general condition.

No excavations were undertaken to uncover buried elements or foundations and any notes on the condition of such elements are made based on the visible condition of the buildings. No intrusive testing was carried out. Manhole covers were not lifted, and drains were not tested.

This report should not be used as part of any agreement for change of ownership. The report shall be solely used by the Client to determine the extent of works to the property and liability in this respect will be limited to the instructing Client.



3.0 **LAYOUT**

3.1 **Barns**

There are three barns under consideration. Barns A and B which enclose the farmyard at Broad Oak Farm, directly accessed from Cobblers Lane, and Barn M to the rear (north) of Barn A which is accessed through a second road gateway.

We believe that the farm buildings originally date from the late 19th century, with some more modern additions.

There have been some modifications of layout for altered usage of buildings during their history – which is the norm for agricultural buildings.

The proposals involve the conversion of each of the buildings to habitable usage.

The layout of the barns and the proposed works are shown by the Architects drawings.

The BGS records show that the prevailing soils for the site are sand and gravel sedimentary deposits over the Kinnerton Sandstone Formation bedrock. This is close to a demarcation between sand and gravel, and river terrace deposits, to Devensian till, which is mainly clay soils.



4.0 CONSTRUCTION

4.1 Barn A

4.1.1 Existing.

Barn A is a two-storey building which is U shaped on plan, one leg of the U, the eastern leg, being shortened where the building abuts Barn B. The two buildings, A and B, enclosing the farmyard.

The building is mainly 330mm thick loadbearing brickwork supporting a slate covered double pitched roof of timber framing, rafters and purlins, supported by cross walls and regularly spaced timber trusses. The upper floors are comprised of boarded timber joists and cross beams in steel and timber. The ground floors are solid, mainly concrete ground bearing construction.

The ground floor of the building is mainly subdivided by low height solid walling into animal pens (Stys), and the upper floor was for materials storage.

Wall openings are formed beneath various lintel types being arched brickwork, timber, steel and concrete.

The space between the two wings of the building, east and west, has been infilled during the buildings more recent history with a steel framed structure forming animal pens, and covered storage space. That section is to be removed.



4.1.2 Proposed

The proposed conversion works will maintain two storey construction involving the removal of existing cross walls and replacement with new, fully bonded to existing external walls, to suit dimensional needs for domestic accommodation. The roof will need to be modified to provide the required headroom, whilst matching the existing building vernacular. The later, steel framed single storey section at the front will be removed. General proposals, which are the norm for redundant and aged former agricultural buildings, are described later in this report.



4.2 Barn B

4.2.1 Existing

Barn B has the same constructional form as Barn A, being two storey 330mm thick brickwork construction with a simple rectangular form – with a reduction in width for a short length at the southern end. It has a double pitched slate covered roof, formed by timber rafters and purlins supported by brickwork cross walls compartmentalising the building. The upper floor is boarded timber joists and cross beams, and the ground floor is ground bearing concrete.

Wall openings are formed beneath various lintel types being arched brickwork, timber, steel, and concrete.

There is a virtually full height opening in the front wall to the second compartment from the north end, historically used for loading and unloading during agricultural usage. There is a timber lintel across the opening. This will be adapted for a drive through which is required to comply with traffic management requirements.

4.2.2 Proposed

The proposed conversion works will largely maintain the existing two storey layout, with building upgrade to comply with current regulations for habitable usage. A storage building at the rear will be taken down. General proposals which are the norm for redundant and aged former agricultural buildings are described later in this report.



4.3 Barn M

4.3.1 Existing

Barn M is a later construction in brickwork, comprised of a single storey front section, with shallow angle mono-pitch roof sloping from rear to front, incorporating a two-storey brick tower section, also with a flat mono-pitch roof, sloping from front to rear.

The single storey building is attached at its northeastern corner to an older two storey brick building which would have been part of the earliest outbuilding construction on the farm and is constructed in the traditional manner for barn/storage buildings, with a slate covered timber framed roof of rafters and purlins and boarded timber joist upper floor, both supported by brick enclosure and cross walls.

Wall openings are formed beneath various lintel types being arched brickwork, timber, steel, and concrete.

Behind the single storey, more modern building with the tower and the older two storey building is a tall, unroofed brick enclosure which completes a rectangular shape between the buildings and houses large cylindrical steel storage tanks supported on short height brick walls running north – south.

The newer building has a corrugated sheet roof on large timber purlins. The tower has a steel plate platform floor at high level, supported on steel beams.



4.3.2 Proposed

The proposals for remodelling for conversion of this building requires that the tower extension to the single storey building be taken down and the enclosure behind be reduced and incorporated into a rectangular single storey western section with a double pitched roof. Brickwork enclosure and cross walls are otherwise maintained with some minor remodelling. General proposals for upgrading to ensure compliance with current building regulations will be carried out, as described in general terms later in this report.



5.0 OBSERVATIONS ON CONDITION

The principal points of note on condition, comparing to that described in earlier reports on the condition of structure are as follows: -

5.1 Barn A

- (i) **Earlier reports** describe some minor distortion of walling, with ties to restrain. This is quite common in buildings of this age and type under unbalanced roof trussing, where timber purlins are canted in the angle of the roof, and some weathering of brickwork, which would be expected, and some deflection of roof purlins. Roof coverings are in good condition and roof lines are generally good.
- (ii) **Present condition.** There is no change in condition of any note or consequence from that which was reported on in 2008 and 2018 and recorded by photographs taken at those times. The building is generally in sound structural condition and suitable for the proposed conversion works.



5.2 Barn B

- (i) **Earlier reports** again describe some minor distortion of walling, some weathering of brickwork, and localised purlin deflection. These defects are not critical to the structural integrity of the building.

- (ii) **Present Condition.** There is no noticeable change in condition. Roof coverings are in good condition and roof and wall lines are generally good. The building is generally in sound structural condition and suitable for the proposed conversion works.



5.3 Barn M

- (i) **Earlier reports** describe some minor brickwork defects by shrinkage cracking in one location on the western elevation and the overgrowth of ivy on the front wall of the two storey older building. No structural issues are noted.
- (ii) **Present condition.** There is no notable change in condition. The buildings are structurally sound and capable of the proposed remodelling works required to suit habitable usage.



5.4 General Observations

These observations apply to each of the three buildings, **Barn A, B and M.**

5.4.1 Rainwater goods and drainage

It is assumed that rainwater goods and drainage will be renewed as far as necessary.

5.4.2 Lintels

Lintels appear to be satisfactory. It is assumed that timber lintels will be replaced, if necessary, for longevity or as may be needed to stiffen the lintel during refurbishment works with pressed metal, or concrete lintels.

5.4.3 Masonry

Masonry is generally in good condition. There are few minor distortions and cracks which can be readily addressed as part of the proposed works, as they require simple remedy.

5.4.4 Timber

It is assumed that timber will be subject to detailed specialist survey and all necessary remediation carried out, which may involve chemical treatment, or replacement or strengthening of some timbers. Timbers can of course be retained if of suitable condition and strength. The timbers will be assessed for additional loading from insulation and plasterboard ceilings and strengthened where and if necessary.



5.4.5 Roof

The line and condition of the roofs is generally good. It is taken that the roof will be insulated and weatherproofed as a part of the upgrading works required and details for that dealt with at building regulations approval stage. This usually involves removal of the roof cover and reinstatement to allow insulation and waterproof lining and ventilation.

6.0 General requirements for conversion

6.1 BARNS A, B and M

These barn buildings are in generally sound condition. There are a few minor defects, but nothing that is critically debilitating.

The buildings show no sign of any critical distortions or differential foundation settlement. It is clear the barns are sufficiently robust for the proposed works to be carried out without creating any undue jeopardy.

We advise our opinion that the following measures will need to be addressed as part of the conversion works.

1. Upgrading of the roof, to satisfy current standards of weatherproofing and insulation.
2. Sympathetic repair of any localised cracked and weathered masonry. This only affecting a very small proportion of the buildings.



3. Treatment or replacement of any degraded timber – following the advice given in a specialist report on timber condition obtained prior to the execution of any works.
4. Installation of strapping between walls and roof and floors.
5. Construction of new ground floors or modification of existing to include insulation, as part of insulating the whole of the building envelope. Foundations to be examined during the progress of that work, to ensure adequacy.
6. The installation of adequate drainage systems.
7. Replacement or repair of any distressed or unsuitable lintels.
8. Introduction of adequate d.p.c's.



7.0 CONCLUSION

- 7.1 It is considered that it is entirely feasible from a structural viewpoint to convert each of the three barns to habitable use. The buildings are generally in good and robust condition and can accommodate the proposed works.
- 7.2 Alterations can be carried out without jeopardising the structural stability of the building. It is assumed that the works recommended in the foregoing section will be undertaken. The Contractor carrying out the works must plan and phase operations and install temporary propping to ensure that stability is not compromised.

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