Supplementary Structural Assessment

for
Existing barn at Broadgate,
Weston Hills

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1.0 Introduction

1.1 Halgarth Farms instructed Studio 11 Architecture, in response to concerns raised by the case officer during the determination of application H22-0218-26 regarding the qualifications of the surveyor and the general capability of the barn to be converted without works exceeding Class Q, to have the existing Structural Condition Survey (February 2026) reviewed internally by another engineer, and to address any potential gaps in the information available.

This assessment was prepared by Kristopher Baxter, MCIAT, C.Build E FCABE, and reviewed by Zeeshan Qureshi, BEng, MSc, CEng, MIStructE, who also reviewed the February 2026 Structural Condition Survey.

1.2 **Property Address:** Barn off Broadgate, Weston Hills

1.3 Date of Assessment: April 2026

1.4 **Limitations:** This report is based on a non-intrusive desktop and visual inspection only.

2.0 Review of Previous Structural Condition Survey

2.1 The February 2026 Structural Condition Survey, prepared by Kristopher Baxter, MCIAT, C.Build E FCABE, has been reviewed as part of this assessment. The survey comprised a non-intrusive visual inspection of the building fabric and finishes, and identified the barn as being in generally good condition, with only minor defects considered common in similar age structures of this usage. The principal defect identified was a crack to the north-east corner of the building, attributed to invasive ivy having worked into the mortar joints over time, together with minor localised damage around door openings considered to be accidental physical damage, likely caused by machinery. The survey recorded the roof structure as being in generally good condition, the external brickwork as generally in very good condition, the concrete ground floor as being in good condition with limited cracking, and no internal walls, ceilings, or original windows and doors. The survey concluded that the barn is suitable for conversion into a dwelling, subject to modest remedial works, replacement of the damaged wallplate and repair of rafter feet, provision of new rainwater goods, removal and re-pointing or overcladding of external render, and mechanical tying of the cracked corner.

2.2 The methodology adopted, a non-intrusive visual inspection appropriate to a survey of this nature and purpose, is considered proportionate and appropriate to the assessment of the building's suitability for conversion. The findings recorded are consistent with the condition of a building of this age and agricultural use, and the recommended remedial works are modest, proportionate, and readily achievable without amounting to reconstruction of the building. On this basis, the conclusions of the February 2026 Structural Condition Survey are endorsed.

3.0 Foundation Adequacy

3.1 **Existing foundations:** Given the age and modest scale of the building, the existing foundations are likely to comprise shallow, stepped brickwork footings, typical of agricultural buildings of this type and period, and designed to accommodate a degree of ground movement through flexibility in the brickwork rather than through rigid, engineered foundation design.

3.2 **Assessment:** The proposed conversion works do not introduce additional loading to the existing foundations. The replacement of the existing roof covering, as addressed in the February 2026 Structural Condition Survey, is likely to result in a reduction in imposed roof loading rather than an increase, consistent with the survey's observation that the original slate or pantile roof was replaced with lighter corrugated sheet roofing during the life of the building, substantially reducing the loadings carried by the roof structure. On this basis, and in the absence of any additional loading arising from the proposed works, the existing shallow stepped brickwork foundations are considered likely to remain suitable to support the converted building.

4.0 Ground Bearing Capacity

4.1 **Ground Conditions:** The underlying bedrock geology at the site comprises the Oxford Clay Formation (Mudstone), a Jurassic sedimentary formation of shallow-marine origin (approximately 157.3 to 166.1 million years old), described by the British Geological Survey as detrital, ranging from coarse- to fine-grained, locally with some carbonate content, forming interbedded sequences. Superficial deposits at the site comprise tidal flat deposits of clay and silt, also of shallow-marine origin. (Source: British Geological Survey, BGS Maps Portal, Spalding.)

4.2 **Borehole Data:** Borehole information for the Weston Hills area indicates the following ground profile:

- 0 to 0.3m below ground level: Topsoil
- 0.3m to 1.0m below ground level: Brown silty fine sand
- 1.0m to 2.3m below ground level: Firm brown/grey sandy silty clay
- 2.3m to 7.0m below ground level: Dark grey silty sand

4.3 **Assessment:** The ground conditions identified by the borehole data are consistent with the published bedrock and superficial geology for the site. The presence of firm sandy silty clay between 1.0m and 2.3m below ground level, underlain by silty sand, indicates ground conditions capable of supporting shallow foundations of the type likely to be present at the existing barn. No evidence of made ground, peat, or other weak or compressible deposits is indicated at the depths relevant to shallow foundations of this nature. Combined with the absence of additional loading arising from the proposed works, as addressed at paragraph 2.2, the ground conditions are considered adequate to support the converted building.

5.0 First Floor Construction

5.1 **Existing Structure:** The barn is likely to have originally featured a hayloft-type arrangement, meaning the existing walls will have previously carried first floor loads of this nature as part of the building's original agricultural use. The external walls are solid brick construction, recorded in the February 2026 Structural Condition Survey as generally in very good condition.

5.2 **Proposed Works:** New timber joists are proposed to form the first floor structure, bolted to the existing walls as required through the use of a timber pole plate.

5.3 **Assessment:** Solid brick masonry walls of this type have a load-bearing capacity significantly in excess of that required to support domestic first floor loading. Given that the walls will previously have carried comparable, and likely greater, loading from the original hayloft arrangement, and are recorded as being in very good condition, the existing walls are considered more than adequate to support the proposed new timber joists and associated first floor loading, without the need for additional structural strengthening.

6.0 Roof Structure

6.1 **Condition:** The February 2026 Structural Condition Survey records the roof as timber cut-roof construction, generally in good condition. Minor deflection was noted across the jack rafters, attributed to their being undersized for the historic slate or pantile roof covering originally installed, which has since been replaced with lighter corrugated sheet roofing. This replacement has substantially reduced the loading carried by the roof structure, such that the existing rafters were found to be acceptable for the reduced imposed loads now applied. Localised damage was identified at the north-east corner of the building, where the roof is open to the elements and damage has occurred to the wallplate and rafter feet, consistent with the external wall cracking addressed in that survey.

6.2 **Assessment:** The reduction in imposed roof loading arising from the replacement of the original heavier roof covering is directly relevant to the assessment of foundation adequacy at Section 3 above, and confirms that no additional loading is introduced to the roof structure, walls, or foundations as a result of the roof's current form. The remedial works recommended in the February 2026 Structural Condition Survey, replacement of the damaged wallplate and repair of the rafter feet at the north-east corner, are considered adequate to address the localised defect identified, and are modest works consistent with the tolerance of works permitted under Class Q. Subject to these remedial works being carried out, the roof structure is considered suitable for continued use as part of the converted dwelling, without the need for reconstruction or replacement.

7.0 Conclusions

7.1 The barn has been found, on review of the February 2026 Structural Condition Survey and the further assessment undertaken above, to be in good overall condition. The findings and methodology of the February 2026 survey are endorsed. No additional loading is introduced to the foundations by the proposed works, and the reduction in roof loading arising from the earlier replacement of the original roof covering further supports the continued adequacy of the existing foundations. The underlying ground conditions, evidenced by published geology and local borehole data, are considered suitable to support the building on its existing shallow foundations. The existing solid brick walls, previously having carried comparable loading from the barn's original hayloft arrangement, are considered to have ample capacity to support the proposed new first floor structure. The roof structure, subject to the modest remedial works identified in the February 2026 survey, is considered suitable for continued use.

7.2 On the basis of the matters set out in this assessment, the barn is considered structurally capable of conversion to residential use without the need for works exceeding the tolerance permitted under Class Q of the General Permitted Development Order. The remedial works identified, replacement of the damaged wallplate, repair of rafter feet, re-pointing or overcladding of external render, and mechanical tying of the cracked corner, together with the formation of a new first floor using timber joists bolted to the existing walls, are modest and proportionate works consistent with conversion rather than reconstruction.

8.0 Certification

8.1 **Reviewing Engineer Details**

The technical content of this assessment was reviewed by:

Zeeshan Qureshi BEng, MSc, CEng, MIStructE
Chartered Structural Engineer

Structural Engineer - Studio 11 Architecture Date: 24th April 2026

8.2 **Author Details**
This assessment was prepared by:

Kristopher Baxter MCIAT, C.Build E FCABE
Chartered Architectural technologist & Chartered Building Engineer

Director - Studio 11 Architecture Date: 24th April 2026