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Chartered Civil & Structural Engineers

Anchor Farm, Silkstone, Barnsley, S75 4LD
Structural appraisal of agricultural building

MP CONSULTING ENGINEERS

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STRUCTURAL CONDITION REPORT
Date Issue 1

Name of Project	Anchor Farm, Silkstone
Name of Structure	Barn
Structure Ref No	S01

Document Control Sheet Issue Record

Issue No.	Description	Date
1	First Issue	26.07.25

Signature

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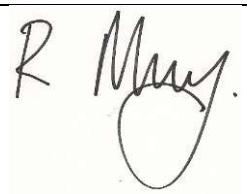
Approved	Name:	R.S.Murray	
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1.0 Introduction

Date of Review:	Friday 6th June 2025
Property Address:	Anchor Farm, Silkstone, Barnsley, S75 4LD
Weather Conditions:	Dry, sunny, 21 degrees
Reason for survey:	MP Consulting Engineers (UK) Ltd were requested to carry out a structural appraisal of the existing agricultural building to assess its potential for conversion to a residential dwelling.

Extent of structural survey:

A Chartered Structural Engineer has visited site and inspected the structure where safe access allowed, the report assess the structural condition of the existing buildings referenced Barn S001. No reference to drainage and other site services is made or can be inferred within this report.

Experience profile:

MP Consulting Engineers (UK) Ltd provide civil and structural engineering services to a wide range of clients in the construction and property industry.

Site evaluation, pre-planning feasibility, implementation of in house & specialist surveys

Site enabling works, Civils Infrastructure, ground modelling

Foundations, sub-structure & drainage design including attenuation & SUDS systems

Renovation, refurbishment of existing buildings and bespoke new build developments.

Commissions range in contract value from £100k to £1.5M, with resource allocated to projects to suit the individual program and technical constraints.

Stephen Parker is an Associate of the company and has worked on the renovation of historic buildings for more than 25 years. He has extensive experience of providing cost effective and pragmatic solutions to existing structures, both large and small.

Example of projects include:

High Street, Sheffield – The retention of upper floors of a listed building whilst providing modern retail space at ground and first floor.

Pot Bank Farm, Harrogate – Refurbishment of a collection of farm buildings to form residential development. Traditional rubble fill walls, stone tiled roof, brick sett floor.

Spear Fir Farm, Bardsey – Extension and rebuilding of agricultural barns to form residential properties. Pole Barn, brick milking shed, timber trussed roof with slate finish.

Rose Tree Farm and Barns, Chesterfield – Refurbishment of dilapidated structures to form new farmhouse and agricultural stores. Cobble walls with rubble fill, steel frames, concrete floors.

2.0 Description of existing structures

This report relates to the detached single storey agricultural building on the site known as Anchor Farm. The building was constructed in 2008-2009, built on the approximate footprint of a previous agricultural structure. For the purposed of the survey the front elevation is noted as facing south.

- Roof consists of single ply profiled corrugated fibre sheeting (symmetrical duo pitch) supported on timber battens spanning between prefabricated trusses. A breathable felt sits over the truss rafters.
- A mono pitch roof building abuts the front elevation of the main structure, constructed in the same manner.
- All walls of the building are constructed using natural sandstone, total thickness of 600mm. Inner and outer leaves of coursed masonry are linked via an insitu concrete infill. Through stones provide further tying between the masonry leaves.
- Timber or stone lintels provide support over openings.
- UPVC guttering falls to the rear corners of the building before diverting drainage away from the structure.
- Ground floor of the primary portal structure is formed using a concrete slab laid on closed cell insulations. It is understood this was overlaid onto the original concrete slab to lift levels.
- There are no internal structures within the main body of the building, trusses span clear left to right.
- Structural bracing is present in the plane of the roof, to provide lateral load resistance. The building relies on the shear resistance of the substantial external walls for stability.
- The building has been constructed on a relatively flat area of site. The east flank of the building forms the site boundary, there is no direct connection to a structure.
- A tarmac access road is laid to the south where the building is accessed via a roller shutter door opening.

3.0 Structural review – S01

The structure has been inspected both internally and externally where access allows.

Roof structure – Prefabricated timber trussed spanning 11m between wall plates. Trusses in good order, prefabricated from a local supplier. A measure of structural members and brief check of 2D analysis confirms the trusses are suitable for the span and loading applied. Indeed the trusses are likely to have additional capacity should roof covering be changed or PV panels added to the structure.

The masonry walls are substantial and in very good order. Concrete cavity infilled natural sandstone masonry walls are plumb, in line and free from defect. Structural capacity is way in excess of the load applied.

Ground floor slab consists of a 150mm reinforced concrete structure overlaying a depth of closed cell insulation. This is a relatively recent addition to the structure, the original concrete slab remains below the new build up, resulting in a highly robust floor construction.

Support over openings is provided by natural stone heads or timber beams. The timbers are substantial in size, brief checks confirm they would confirm to design checks as part of any structural checks as the building is repurposed.

Although foundations were not inspected during the non-intrusive survey, the footings are likely to be in the region of 900mm width to cater for the 600mm thickness of wall. As a single storey structure the loads applied will be in the region of 45kN/m unfactored, this would generate a bearing pressure of 50kN/m^2 below the strip foundations.

Underlying ground conditions likely to provide around 100kN/m^2.

4.0 Suitability of structure for conversion to residential accommodation

The existing agricultural building is currently in very good condition with no significant structural defects. There are no significant hazards to note as of the date of inspection (06.06.25).

Its conversion to a residential dwelling may be undertaken without the requirement to make structural changes or strengthening works to the existing structure. The existing slab has been subject to vehicle loading along with some material and equipment storage (feed, plant, machinery etc) and has a large amount of structural capacity. The superstructure is robust and free of significant defect and capable of reuse without the requirement for any strengthening works.

Its conversion to a residential dwelling clearly requires a scheme of modification within the allowed rules of class Q. These can be added without having to make any changes to the existing structure.

Clearly the approved works will be subject to Local Authority and Building Regulations approvals, during this process a scheme of refurbishment and repairs can be carried out to pick up any issues that arise as the building is exposed further.

The building can be converted to a residential development without the need for building operations over and above those reasonably necessary for the building to function as such.

Appendix A – survey photographs

Photo 1: View on external walling, coursed stone outer

Photo 2: View on prefabricated trussed roof structure

Photo 3: Large opening to front elevation, oak beams inner and outer leaf

Photo 4: Mono-pitch roof building adjoining main structure