AB Design Solutions Ltd
Consulting Structural & Building Engineers

REPORT ON CONDITION OF AGRICULTURAL BUILDING AT CROCKWELL FARM, GT BOURTON

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The Institution of Structural Engineers

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1.0 BRIEF

AB Design Solutions Ltd were asked to inspect and comment on the condition of structural elements and the suitability of a dutch barn style agricultural buildings to form part of an application of change of use to residential dwelling.

This report is limited to elements of the structure described above only. However, when assessing the defect provided to us in the brief, services, timber decay, damp penetration, contamination and further defects may be referred to, but these are items that require further investigation by others.

This report is solely for the purposes of the client only and is to form part of a planning application to Cherwell District Council

There has been no opening up works involved in this investigation. No drains have been inspected. Hence, parts of the structure that were hidden, covered or otherwise inaccessible have not been inspected. We therefore cannot guarantee that any such parts are free from defect.

A visual inspection has been carried out only.

2.0 GENERAL DESCRIPTION

2.01 Crockwell Farm is a listed property to which there is a main farmhouse, and there is an arrangement of buildings which form several farmyards. Building 2 is situated in a farmyard, which could have probably been referred to as a rickyard. This is farm building probably of 1980's construction, comprising of a steel frame. Adjoining building 2 is a timber framed shed, which could be described as a "pole barn". This is proposed to be demolished.

Crockwell Farm, is situated in the centre of the village, and was listed in 1955, with the Historical England listing Entry Number of 1215873. The Listing is worded as follows:

GV II Farmhouse. Late C17. Ironstone ashlar. Steeply pitched slate roof. Stone-coped gables with moulded kneelers, Brick ridge and end stacks. 3-unit plan, 2 storeys plus attic. 3-window range. Entrance off-centre to left has doorway with a moulded stone basket arched head and C20 door. Hood mould with diamond shaped label stops. Entrance is flanked by 3- and 4-light stone mullions. An 4-light similar window to right. Between the floors on the right is a 2-liqht stone mullioned stair window. First floor has three 3-light stone mullioned windows. Staircase light in attic floor said to have once been gabled. Right gable has 2-, 3- and 4-light stone mullioned windows with hood mould and label stop. Sundial. Interior said to have stop-chamfered beams, inglenoooks and original staircase. Interior not inspected. (VCH: Oxfordshire: Vol X. p176)

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This notes down the important features of Crockwell Farmhouse. Clearly a significant building forming part of the local history of Great Bourton. It lists only the farmhouse, and none of the farm yard buildings. Thus not to say the outbuildings are of no significance, the main features of Crockwell Farm are in the wording above outlining the most important architectural features.

Sadly the farmyard has been under utilised in recent years and had become overgrown parts, but is still in use, if a little under valued, and maintenance has been left to drift, leaving the farmyard to become partially derelict.

As well as the building that is included in this report there are other buildings in the farm yard, including a dairy/parlour, circa 1950's and several stone walled buildings.

Much of the yard area, is hard standing beneath, it has become overgrown with grass and other plants.

3.0 Building 2

3.1

Building 2 is steel framed building which is located in the “Rickyard” of Crockwell farm house, and has been used for the storage of forage, and livestock. There is a timber structure which adjoins the building constructed from telegraph poles and corrugated steel sheeting. ABDS have recommended that this building is demolished as part of this proposal.

Building 2 takes the form of a 4 bay central duo pitched portal frame with a “lean to” to either side.

It was constructed as follows:

Roof: Double six roof covering supported by cold formed galvanised zed purlins, spanning between hot rolled Univeral beam portal frame/ lean to rafter & columns.

Walls: The lower portion of walls are concrete blockwork with the upper portion being similar cladding material to the roof, supported upon steel cladding rails.

Floor: The building has a flat concrete oversite floor.

3.2 OBSERVATIONS

3.2.1 Roof

The roof covering was free from obvious defect. The rainwater goods were intact but appeared to require some minor repairs, especially at down pipes.

The purlins were galvanised steel and were in good condition. There were no defects noted. There wre no large deflections noted.

3.2.2 Walls

There was one panel of blockwork which appeared to be missing to the eastern gable.

There were some loose corrugated sheet near to the Eastern end of the Northern elevation of the building.

All sides had cladding, there were some panels missing to the Eastern end of the Southern Elevation.

3.2.3 Floors

The floors appeared in good condition, and had been constructed with the appropriate movement joints, There was some minor cracking to the edge of the floor slab where machinery had routinely trafficked the edge of the slab. This appeared to be the main bay that had been used for access.

3.2.4 Steel frame

The steel frame appeared to be in good condition with light corrosion only. This took the form of some surface rust and most of the original paint was intact.

3.2.5 Foundations

It is assumed that the building steel frame has pad foundations with strip footings between to support blockwork walls. Ground conditions are considered favourable With clays likely as a bearing stratum. Clays are suitable bearing stratum for buildings with adequate bearing capacity, this is typical of much of Oxfordshire.

3.2.5 Vegetation

There were some saplings and shrubs groing close to both gable ends of the building. We would recommend the removal of these and replacing them with appropriate planting, perhaps not as tall.

3.3 DISCUSSIONS

The building was found to be in a serviceable condition with only some minor repairs required. Including refixing of some local areas of sheeting.

The building is currently being used for agriculture, storing lievstock equipment, and appeared to be in part a farm workshop and appears to have been since construction in 1980's.

The building roof is defect free, and member sizes appear to be of an adequate size to support the roof and wall cladding. There were no large deflections or distorsions or settlements noted.

The building is purpose built for agriculture and would have been delivered to site as a kit of parts and erected and clad relatively speedily. Typical of a building of this type. There is some blockwork masonry infill at low level and a concrete oversite floor.

The floor and steel frame were free from structural defect. The only notable defects were surface rust to the steel portal frames, and some local cracking to the entrance bay to the concrete floor.

Non structural defects included some cladding which required refixing, and some missing cladding. It is likely that the missing cladding had been allowed to deteriorate and had been removed locally.

This building, although a modern building, is part of Crockwell Farm's agricultural history. It is positioned in what could have been described as the Rickyard to the farmstead, and was a natural place to erect a building for storage of animal fodder/bedding.

However, with machinery becoming larger, it has become under utilised, and has been used for storage of livestock in the summer, and perhaps winter housing of livestock.

It is clearly being used for agriculture at present, even if a little under utilised, and it clearly would have been prior to 2013, as it appears to be 1970's/1980's type construction. This is typical of many buildings errected at this period when there was a focus on improving food production in farming, and farmers were encouraged to erect such buildings to asist with that movement.

Thus it is a purpose fabricated building to be a permanent and substantial structure for the production of food. Unlike the building adjacent which appears to have been a temporary solution to a shortage of storage or livestock housing.

This building is enclosed on all sides with the exception of where it abuts the pole barn. The steel frame is clearly capable of supporting an “enclusre” as it already is a largley “clad” building.

The matierls used are common in agricultural buildings. The cement fibre roofing may be asbestos, this would need to be tested by a specialist to confirm. If this was confirmed to be asbestos, there are several methods to deal with it. These include, leave it in place as it is, as it is in good condition, encapsulate it using spray on coatings, or removal. For a domestic setting we would recommend its removal, this would eliminate any risk to human health from a CDM perspective but is not essential.

The removal of asbestos big six sheeting is categorised “non licesned , non notifiable work”. However, it does need to be disposed of safely. We recommend that this is offsite to the appropiate landfill site, and we also recommend that this is carried out by demolition contractors used to dealing with big 6 sheeting, following HSE guidelines.

We recommend that the steel framework is redecorated to prevent any further corrosion. At present the corrosion is minor and slight, with no structral repairs required. We recommend that the exisitng rust is removed by abrasive means, and the steelwork is decorated with appriopriate paint system.

In conclusion we therefore recommend that this build is suitable for conversion and meets the criteria for class Q conversions. It is currently being used for agriculture, it is clearly older than 2013, and is sufficently enclosed. It is in need of some repairs but none are structural. The building is capable of supporting modern finishes.

We wouldn’t recommend traditional roofing materials such as slate or plain tiles as the pitch of the roof is not suitable, plus these are heavy. However, lighter sheeting type materials can be supprted on the steel frame and purlins adequately as these are lighter than the big six sheeting currently on the buiding.

Whilst it is a relatively modern building, it still represents as phase in our post WWII agricultural history where there was a drive to improve food production.

Continued.

The building is capable of being a fully enclosed building with no need of any strengthening, and the load path from roof to ground can be kept the same, as in its current form. All of the structural fabric can be retained, and thus making this permanent and substantial agricultural stucture suitable for conversion to an alternative use.

4.0 PHOTOGRAPHS

ELEVATION FACING FARMYARD – Pole barn to left.

Southern Gable Obscurred by trees and shrubs

North and Eastern Elevations

Southern Gable internally

View from Pole barn

Eastern lean to.

Main portal looing North to pole barn and Eastern lean to