

Our Ref: 3676/ACW

Your Ref:

19 August 2021

Mr G Redgrave-Rust
The Old Rectory
Somerton
Bury St Edmunds
Suffolk
IP29 4ND

Dear Mr Redgrave-Rust

Structural inspection of outbuildings at The Old Rectory, Somerton

We refer to your instructions to undertake a structural inspection of two outbuildings at the above property and provide a summative report of our findings. We understand you are proposing to convert the buildings to habitable use, together with construction of a 'new build' connecting link. The purpose of this report is to confirm that the buildings for conversion are structurally adequate to sustain the proposed change in use.

It is important to note that this report does not constitute a comprehensive Building Survey, neither does it constitute a full Structural Survey. This is a report generated from a cursory visual inspection of the premises in response to a specific matter for consideration and no invasive investigations or opening up have been undertaken at this stage, nor are considered necessary.

We have not inspected woodwork or any other areas of the buildings that are covered, unexposed or otherwise inaccessible. We are therefore unable to confirm that any such areas of the premises are free from defect.

The outbuildings are currently in use as art studios and, as such, were furnished and contained a large amount of artist's materials and equipment. This precluded a full inspection to some degree, especially in the case of Building 1, although did not prevent us forming a representative view on the condition of the structures.

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Directors: Andrew Westby BEng(Hons) CEng MICE MStructE Kay Elvy BSc(Hons) IEng MICE

The weather was generally fair and mild. Any quoted dimensions and sections sizes are approximate and should not be relied upon.

The outbuildings occupy a level site separated by an area of lawn and to the east side of the (un-referenced) village street and to the north of St Margaret's Church, which is located on the opposite side of the street. Building 1 lies to the west, adjoining the street, to which it is aligned parallel whilst Building 2 is located to the east and is oriented perpendicular to the street. Each building will be thus described and discussed separately:

Building 1

This building is of historic origin and is believed to date from the late 1930's or early 1940's and we understand was initially used to house prisoners of war. It is located alongside and parallel to the village street and the front elevation is considered that to face east, away from the highway. All references will henceforth be by means of handings relative to this elevation.

The building is approximately 6.1m wide and 18.0m long and comprises precast concrete portal frames set at 1.8m centres (i.e. ten bays). The roof is duo-pitched with the ridge aligned parallel to the front and rear elevations, rising to a ridge height of 3.6m from an eaves height of 2.3m, therefore providing for a pitch of around 22.5 degrees.

The roof covering comprises replacement raised seam zinc sheeting and glazed panels supported, we presume, by timber purlins spanning between the frames with a boarded ceiling beneath. Walls are infilled with brickwork between the frames and clad externally with timber shiplap boards. Floors comprise ground bearing concrete slabs and we believe the perimeter walls and portal frames are independently founded on mass concrete strip and pad foundations respectively. Given the age of the building we would anticipate a founding depth of around 450mm below ground level.

The portal frames comprise cranked stanchions 150x100mm wide in section which lap the underside of the rafter section by around 900mm and include a 250x250mm triangular haunch. Connection to the rafter is via two bolts passing through the lapped section. The rafter section is similarly 150x100mm wide with, presumably, a simple bolted connection at the ridge between opposing pairs.

No evidence of distress or significant deterioration was noted in any of the concrete sections inspected, neither any evidence to suggest significant sway or foundation related movement. The infill walling also appears generally robustly formed and remains free from significant damage. One area of cracking was noted, however, to an internal partition wall towards the right-hand end of the building at the rear. We suspect this wall was built off the floor slab to form a sub-division of the internal space and has cracked as a consequence of slight localised

settlement of the floor slab. Further partition walls towards the left-hand end of the building were free from significant damage.

Where examined, the floor slab otherwise appears in good order with no significant cracking evident or hollow sounding where tested, which might otherwise suggest sub-floor voiding.

The roof sheeting is in good condition but there is some evidence of past water leakage through the previous covering material, which doubtless prompted its replacement.

The building is bounded by some significant vegetation, both along the site boundary and to the opposite side of the village street. Despite this presence, no evidence of significant consequential detriment was noted. Reference to the online mapping of the British Geological Survey (BGS) indicates the prevailing underlying soils comprise superficial deposits of Lowestoft Formation Diamicton (Boulder Clay) overlying solid deposits of Crag (Sand).

The composition of Boulder Clay can vary significantly and given the underlying granular deposits we suspect the superficial deposits have a high granular content and as such the shrinkage potential appears very low. This is borne out by the apparent lack of foundation related movement in the building, despite its likely shallow founding depth.

Given the above findings, we consider that Building 1 is in principle structurally strong enough to sustain the loadings from the building operations reasonably necessary to facilitate its conversion to residential use.

Building 2

This building is of timber construction and is of relatively recent origin, being built we understand in 2014. The front elevation is considered that facing west and closest to Building 1 and the street and all references will henceforth be by means of handings relative to this elevation.

The building essentially comprises a single room surmounted by a mono-pitch roof which slopes down to the left. There is a further small room is appended to the rear left corner which contains a kitchenette and WC facilities and lies under an extension of the main roof. To the right (south) side is an open sided lean-to veranda and storage area.

We are advised the main structure is framed in 50x150mm timber studwork set at 600mm centres, supporting 50x225mm timber rafters set at similar centres. The roof is clad with clay pantiles and lined with plasterboard. The walls are clad externally with timber feather-edged boards, sheathed with OSB for bracing and lined with a fibre-based board. The building is founded upon a reinforced concrete raft foundation with edge thickenings located beneath the perimeter walls.

The open-sided lean-to comprises four 140x140mm timber posts set at 2.7m centres along the right flank, supporting an eaves beam comprising twin 50x225mm timbers, which in turn supports 50x150mm timber rafters set at 600mm centres. The upper end of the rafters bear onto a 50x150mm vertical wallplate fixed to the flank wall of the main building. The roof is again clad with clay pantiles and the floor is of ground bearing concrete. It is not clear whether it comprises a continuation of the raft foundation, but we suspect not. Longitudinal bracing is provided for with knee braces between the posts and eaves beam.

The main enclosed building is around 8.1m long and 4.8m wide with the WC addition being 2.4m long and 1.5m wide extending from the rear of the left flank wall. The eaves height is around 4.0m to the left and 2.5m to the right side of the WC extension, providing for a roof pitch of approximately 15 degrees. The lean-to section is also around 8.1m long, comprising three bays of 2.7m each, with left and right eaves heights of 3.05 and 2.4m respectively, providing for a similar roof pitch to that of the main building.

The building and associated open-sided lean-to present in good condition with no obvious evidence of significant structural defect or deterioration. The building appears robustly formed and constructed to a good standard.

The internal floor is finished with tiling and no cracking or movement was noted in this, which might otherwise suggest movement in or failure of the raft foundation. Minor and superficial cracking in the wall lining material typically occurs at board joints and is indicative of the effects of thermal related movement, noting the presence of three large roof light windows which will doubtless contribute to an increased internal thermal range.

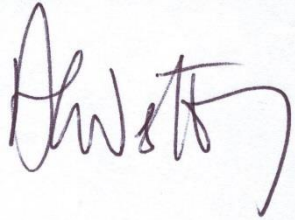
Externally, no evidence of significant distortion or deterioration was noted and all structural elements appear to remain well aligned. Our only observation would be on the use of pantiles on a shallow pitched roof, which can lead to rainwater being blown under the tiles and consequent water ingress. There is, however, no evidence of water leakage in the ceiling and therefore we must assume that the roof covering is in fact performing satisfactorily.

Given the above findings, we also consider that Building 2 as described herein is in principle structurally strong enough to sustain the loadings from the building operations reasonably necessary to facilitate its conversion to residential use.

Salient photographs of both buildings are appended to this report for reference.

We trust the aforementioned points are self-explanatory and in line with your immediate requirements. Should you have any queries in this regard, or if we may be of any further assistance in this matter, please do not hesitate to contact the undersigned.

Yours faithfully
For and on behalf of BHA Consulting Ltd.

A handwritten signature in black ink, appearing to read 'A Westby', is written over a light grey rectangular background.

**Andrew Westby BEng (Hons) CEng MICE MStructE
Director**

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Building 1 – front elevation



Building 1 – front elevation from left hand end



Building 1 – internal view showing location of cracking to partition wall



Building 2 – front elevation



Building 2 – rear elevation



Building 2 – right side showing lean-to addition



Building 2 – internal view