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Our Ref : JC/13/09/1490-L1

Date : 11th November 2015

Mr K Crick
93 All Saints Road,
Peterborough
PE1 2QT

Dear Karl,

**RE:- STRUCTURAL ENGINEERING SERVICES;-
BARN AT RAVENS BANK, WHAPLODE ST CATHERINES, SPALDING
APPENDIX TO STRUCTURAL REPORT REFERENCE JC/13/09/1490**

This appendix should be read in conjunction with our original structural survey report Further to your recent request; we confirm that we have now had the opportunity to re-visit the barn to inspect the condition of the right flank elevation wall of the main barn.

We confirm as follows;-

OBSERVATIONS

- Following on from our survey in 2013, the ivy has now been partially cleared from this elevation. It is apparent that this wall has continued to accommodate a degree of movement over the last 2 years. The cracking at its returns with the gable elevation has opened up considerably and the outward lean accommodated by the wall has increased.
- The movement and subsequent stresses have been sufficient enough to pull on the masonry tie bars, as pattress plates have dished in their housing, and have partially pulled out of their sockets.
- In addition, the wall appears to have rotated slightly on its foundation as gaps are now present at its junction with the existing ground floor of the barn.
- The wall panel of this elevation is now in a poor condition. Much of the panel around the large door opening has been, in the past, rebuilt. 'Common' style brick units have been used and a high degree of the resultant movement can be seen around this in-filled panel in the form of cracking.

Contd...

Directors

J L Hicks BEng(Hons) MSc.

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CONCLUSIONS AND DISCUSSION

- The wall is accommodating on going movement. We inspected the other remaining walls of the two storey element, and there has been very little change in their appearance or condition when compared to the 2013 survey. With this in mind it appears that the movement is localised to only the right hand side elevation flank wall.
- We have always been aware that this wall is likely to have been susceptible to movement in the past as the large raking buttresses have been added at some point in the buildings history, presumably after an episode of previous movement. It is only now, after a period of ownership and low key monitoring, can it be seen that the movement appears to be ongoing, active and somewhat progressive.
- The likely catalyst of the ongoing movement is almost certainly contributed by continued softening of the ground around the base of the wall whilst the building has been in its state of neglect. With no efficient means of discharging rainwater being installed on the barn, it means that there has been continued wetting and softening of the ground adjacent the base of the walls. Our latest visit was during a time of inclement weather and the ground adjacent this elevation could be described as saturated. The ground levels dip in this area when compared to the opposite elevation, so there is the possibility that after high levels of rainfall, water collects in this area.
- In addition, the current performance of the large buttresses needs to be considered. Whilst they would have presumably originally been installed following an episode of movement, their assistance at present appears to be lacking. The buttresses are reasonably large. As such their own self weight and subsequent settlement may be contributing to the lateral movement of the wall.
- Our concerns are two-fold.

Firstly, in its current arrangement, i.e prior to conversion, the stability of the wall cannot be guaranteed. We are concerned that its movement is exerting stresses on the other walls within the barn, i.e by tension through the masonry units and tie bars. Whilst the other walls are principally sound, they will be vulnerable to the excessive forces produced by a wall that is progressively moving. Attempting to stabilise the wall by adding more ties will only compound the vulnerability of the other walls.

Secondly, following conversion, it was our original intention to stabilise the wall via the installation of the steel frame. Now that the wall is leaning more considerably, and we are aware that the movement is progressive, we are concerned that the transfer of loadings through the frame will again impact the other walls and potentially the finishes to within the completed barn.

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RECOMMENDATIONS

Taking into consideration our observations and conclusions we strongly recommend that the wall is carefully taken down and reconstructed off the proposed raft foundation that is being installed as part of the proposed remedial works. This will help to relieve any stress from the remaining walls and should avoid potential movement in those walls in the future.

The original brick units can be reused within the re-build; however you may want to find replacement units as opposed to using the 'common' type bricks that have been previously replaced in parts of the existing wall.

As discussed the buttresses do not appear to be performing adequately and therefore we recommend that they are also carefully taken down as part of the proposals. If desired for aesthetical purposes, the buttresses could be reinstated. However, if you do decide to re-construct the buttresses, they should be built off a suitable foundation of which we can advise you on prior to commencing the works.

For clarity we have updated the proposed demolition and construction layout drawing under 'Revision A' so that you are aware of our recommendations.

These documents should be submitted to your architect to enable submission to the Local Authority for their comments and approval.

We trust this is satisfactory for your requirements, however if you do have any queries, please do not hesitate to contact us;

Yours faithfully

For JC Consultancy Limited



Jamie Hicks.
Director

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