



Mr & Mrs Martin
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Our Ref: 170146

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Dear Mr & Mrs Martin

STRUCTURAL INSPECTION

Barn, Upper Belle Clive Farm, Hartcliff Road, Penistone, Sheffield, S36 9FE

I refer to my recent visit to your property when I carried out a structural inspection of the remains of the building at the site. I am pleased to let you have my assessment of the structural condition of the building. I understand that you are considering reinstating the building and redeveloping it and that you require my views on its condition as part of the overall planning process. I am pleased to report back to you.

In summary, I conclude that whilst almost half of the building has previously come down, the sections that remain are in themselves in reasonable structural condition and I see no technical reason why they could not be re-incorporated in the proposed reinstatement scheme.

The building was formerly a two-storey detached residential property which was approximately square on plan consisting of rubble-filled stone walls with a pyramid shaped pitched roof. I had the opportunity to inspect some old photographs that you showed me of the building in the 1800s. What remains of the building today is essentially the front and left-hand side walls as well as the remaining lower sections of the rear and right side walls forming the foundation of the building on the other two open sides. There is a considerable amount of stone on the ground next to the building and it seems that much of the original stone from the rear and right-hand side walls remains on site. Neither the roof nor any of the original internal floor structure remain.

I carried out my inspection of the remaining parts of the building on Monday 6th February 2017.

s t r u c t u r a l e n g i n e e r i n g

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The remaining walls are approximately 450mm thick altogether consisting of rubble filled stone loosely cemented together. This form of construction is typical of the style used in the 1800s and provides a strong wall that is very stable under the action of lateral loads. The remaining sections of wall are in effect free-standing to the full two-storey height without any additional propping. Both the front and the side walls exhibit signs of severe but localised weathering of a small number of the individual stone blocks but this does not impair the overall stability. The pointing between the stones is generally weathered, but in an overall sense the walls remain in reasonable condition. It is common for sections of stone wall of this type to delaminate gradually as the separate leaves of the wall move independently but there is little sign of this type of behaviour here. Spirit level measurements taken on the walls indicated that they are essentially vertical and there is no significant out of plane distortion, with the exception of the short section of rear wall that attaches to the side wall at the rear left-hand corner of the building. Neither is there any distortion of the walls in a horizontal sense indicating that the foundations of the building have performed satisfactorily throughout the life of the building. The right side and rear walls of the building are missing from a level just above the original ground floor but the lower sections of the wall below this remain in place.

My overall assessment is that the remaining sections of the building are generally in reasonable structural condition overall and they would lend themselves to being renovated and incorporated into the reconstructed building. It would be necessary to remove the extreme right hand end of the front wall and reform the front right hand corner. The short remaining section of the rear wall that attaches to the rear left corner of the building is displaced to the extent that it would need to be taken down and rebuilt. This leaves about half of the original building to be retained and the remainder to be rebuilt.

The walls will have to be repointed generally and the small number of more severely weathered stone blocks would need to be replaced where they have been affected by long term weathering effects. The internal timber lintels over openings within the left side wall will need to be replaced as these are undersized. The long external stone lintel over the door opening towards the front of the left-hand side wall is displaced and out of plane and needs to be re-set.

The rebuilt right-hand side and rear parts of the building could probably make use of the original foundation, depending on what form of construction is being adopted. I would suggest that consideration is given to rebuilding the outer skin stone on a matching like for like basis, but building a new inner skin using 225mm thick solid blockwork which would enable the overall thickness of the wall to be matched but which would leave enough room for a small cavity. It is likely that the whole of the building will have to be insulated internally to comply with the requirements of Building Regulations.

The replacement floor and roof should be relatively easy to form in traditional cut timber construction, given the relatively small overall dimensions of the original building. To assist with detailing consideration could also be given to the installation of an internal load-carrying timber lining to the remaining walls to the front and the left hand side although the original walls would certainly be capable of carrying a considerable amount of load. Once the square "box-shape" of the original building is reinstated it will have considerable overall structural stability.

I understand that part of the redevelopment scheme would be for a small extension to be added to the rear of the original building. I have not given any detailed consideration to the construction of the new extension but I do envisage that it would be straightforward in structural engineering terms.

I hope you find my comments to be of assistance. Should you have any queries or require any further information please do not hesitate to come back to us.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Evans', followed by a long horizontal line.

MARTIN EVANS