

Rachel & Megan Shelton
Manse Farm
Structural Inspection Report

Rev01 | 8 March 2024

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Project number: 24-220

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1 Introduction & Scope

This report was commissioned by Rachel and Megan Shelton to support their proposals for converting The Cottage and The Corn Chamber (including The Stable) buildings at Manse Farm into residential use.

The site consists of a number of buildings of varying condition. The purpose of this report was to inspect and comment on the structural condition of the The Cottage and The Corn Chamber structures only and highlight recommendations for any remedial works to the structure deemed necessary to enable them to be refurbished and converted into habitable dwellings.

A site inspection was undertaken on 29th January 2024.

The report shall be read in conjunction with the architectural proposals and any other documentation produced as part of the application.

The report provides an overview of the site and buildings under considerations before discussing the structural condition and any recommendations as part of the conversion to residential dwellings. The report has been produced to provide information in relation to the planning application only and does not form a detailed design or schedule of works and should not be relied upon for any other purpose.



Figure 1 Overview of Manse Farm (Source: Google Maps).

2 General Site Description

This section provides an overview of the Manse Farm site, followed by more detailed descriptions of the buildings under consideration.

2.1 Overall site

Manse Farm is bounded by Barnsley Road and Manse Farm Mews in Cudworth, Barnsley.

The site consists of a mix of existing residential dwellings and agricultural buildings. The agricultural buildings vary in age and condition. An overview of the site is provided on the next page and is summarised below.

Existing residential dwellings (green) are present to the west of the site and do not form part of this inspection.

The Cottage, The Corn Chamber (and The Stable) are indicated blue. It is proposed that these buildings will be converted to residential use and are the focus of this inspection and report. There is limited detailed archive map information to date the buildings, however, anecdotally it is suggested that The Cottage may be over 300 years old.

A number of other agricultural buildings (red) do not form part of this inspection.

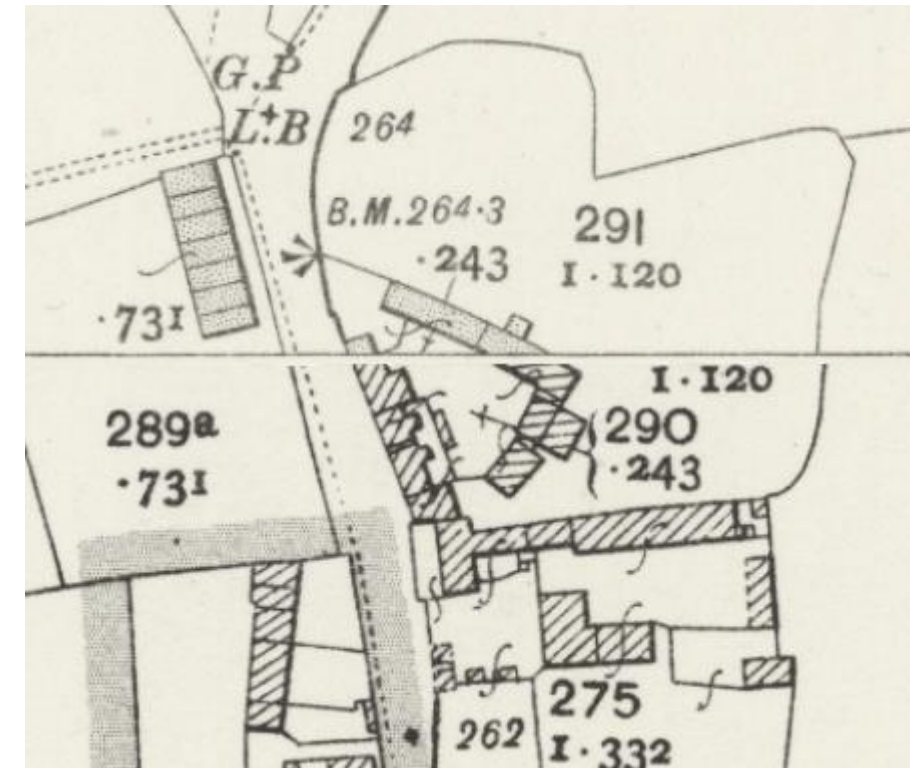


Figure 2 Archive map from National Library of Scotland: Yorkshire CCLXXV.1, Published: 1906.

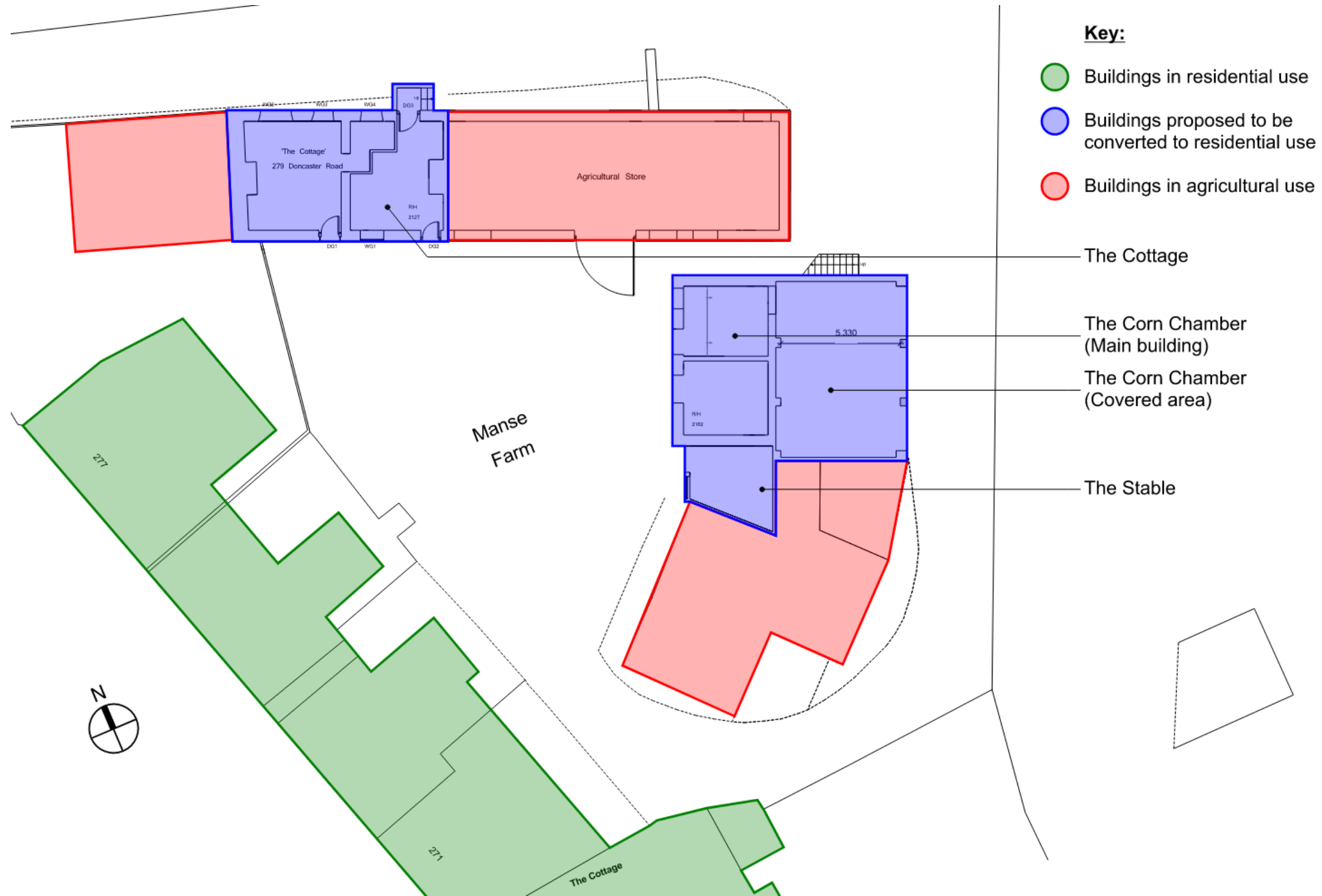


Figure 3 Schematic overview of the Manse Farm site (background: Andrew Bailey Architects drawing P02 Existing Ground Floor Plan).

2.2 The Cottage

The building is constructed from timber cruck frames typically with natural stonework and a pitched roof.



Figure 4 The Cottage south elevation.

The roof is of traditional timber purlin and rafter construction covered with stone slates, with timber cruck frames supporting the purlins.

The external walls are typically of stone construction (possibly rubble filled) in the order of 500-550mm thk.

The eastern gable appears to have been rebuilt in brickwork above the roof level of the adjacent agricultural store. It is understood that the agricultural store was originally a continuation of the cruck frame forming the cottage. The cruck frames to the store have since been removed when the eaves level was reduced, and a new roof was installed. Evidence of a cruck frame to the store is visible externally against the gable of The Cottage.



Figure 5 The Cottage eastern gable. Cruck frame from the agricultural store visible projecting through the roof against eastern gable of The Cottage.

To the north is a set of external steps leading up onto Manse Farm Mews. It is understood that the external ground levels on Manse Farm Mews have been built up over time; this is supported by the evidence of an infilled opening to the north elevation adjacent to the steps.

The ground floor construction appears to be stone flags overlain with loose sheets of plywood. The first floor is constructed from timber joists spanning between timber beams, supporting timber floor boarding.

There is no internal staircase between the ground and first floor; the first floor is currently accessed via ladder through a hatch in the first floor.

Internally, The Cottage is divided centrally at both the ground and first floor level by a cruck frame which is built into a masonry wall. A more modern non-load bearing blockwork partition wall is also present at ground floor.



Figure 6 The Cottage north elevation.

2.3 The Corn Chamber

The building is constructed in a mix of coursed natural stonework and brickwork, with pitched roofs.

Including The Stable, The Corn Chamber is split into three distinct spaces: the main building to north-west which is a three-storeys; a single storey covered area to the east, and The Stable to the south.



Figure 7 The main building of the Corn Chamber (west elevation), with The Stable visible to the right of the image. The covered area is hidden behind the main building.

Main building

The roof is of traditional timber purlin and rafter construction covered with stone slates, with a single central truss supporting the purlins.

The external walls are of stone construction (possibly rubble filled) in the order of 500mm thk. There is evidence of an arch having been infilled and a new door opening formed in the west elevation with only around a third of the voussoirs remaining in-situ.

The ground floor construction appears to be a concrete ground bearing slab (note: this may be a concrete screed over stone flags however it wasn't possible to inspect further). The first floor is constructed from timber joists spanning between timber beams, supporting timber floor boarding. The second floor is constructed from timber joists spanning between timber beams, supporting timber floor boarding and stone slabs.

There are no internal staircases between the ground, first, and second floors: the first floor is currently accessed via an external stair to the north; the second floor is currently accessed via ladder through and external opening to the northern gable and was formerly used as a pigeon loft.



Figure 8 Second floor of main building of The Corn Chamber with stone flags visible.

Internally, the ground floor is divided by a central masonry wall which supports the first-floor timber beams. An opening between the ground floor and the covered area of The Corn Exchange has been infilled with blockwork.

The first floor is an open space with no partitions. Second floor has a brick partition wall, which is not believe to be load-bearing, dividing the pigeon loft from an entrance lobby.

Covered area

The roof is of traditional timber purlin and rafter construction covered with stone slates, with king post trusses supporting the purlins. The trusses are supported off a mix of brick piers and stone columns. The roof forms a valley gutter against the main building of The Corn Chamber at approximately first floor level.

The covered area is open to the east elevation, shares a stone wall with the main building on the west, has a brick wall to the north and is partitioned with corrugated sheeting and timber panels to the south.

The ground floor construction appears to be a concrete ground bearing slab.



Figure 9 Internal view of covered area of The Corn Chamber. Brick piers visible supporting king post trusses, with corrugated sheeting and timber panel partition to background.

The Stable

The Stable appears to be a more recent addition relative to the main building, infilling between the main building of The Corn Chamber to the north and the agricultural building to the south.

The roof is of traditional timber purlin and rafter construction. Half of the roof is covered in slate while the other half has corrugated sheeting. The corrugated sheeting may possibly contain **asbestos** and therefore it is recommended that an asbestos survey is arranged by the client.

The external walls are of brick construction (1 brick thick) to the east and west elevations. The Stable shares a stone wall with the main building to the north and a stone wall with the agricultural building to the south.

The ground floor construction appears to be a concrete ground bearing slab.



Figure 10 View of west elevation of The Stable, with slate half of the roof visible.

3 Structural Condition & Recommendations

This section provides an overview of the structural condition of the buildings observed during the structural inspection and highlights recommendations for remedial works to the structure deemed necessary to enable them to be refurbished and converted into habitable dwellings.

The inspection was undertaken from ground level or floor level where accessible; no access at height was provided. No inspection of the foundations has been carried out.

3.1 The Cottage

3.1.1 External walls

In general, the stonework appears to be in relatively good condition given the age of the building. For some of the more heavily weathered stone, it may be necessary to replace individual stone blocks. It was observed that previous masonry repairs have been undertaken in brick which appear to be in a relatively good condition. Areas of the stonework has been repointed with a cement-based mortar; the stonework would benefit from the removal of any cement-based mortar, and the building as a whole requires repointing with a lime-based mortar.

It was not possible to closely inspect the eastern brick gable however it should be assumed that some localised areas of making good of the masonry will be required, including repointing. Work should also be undertaken to bond the brickwork into the originally stonework, either through coursing the brickwork into the stonework or using helical steel bars in the mortar joints.

As part of good repair and maintenance, it is recommended that where there are existing timber lintels, these are replaced with stone lintels with steel 'L-Strip' lintels beneath to provide additional support to the external face with precast concrete lintels elsewhere.



Figure 11 Cement-based mortar, brickwork repairs, and brick gable all visible to south elevation of The Cottage.

3.1.2 Roof structure

From ground level the existing roof structure appears to be in relatively poor condition. The roof appears to have been leaking for some time which has led to the failure of one of the purlins and there is likely to be significant defects to other roof elements. It is anticipated that a full roof replacement will be required.

We understand that as part of Building Regulations, it will be necessary to re-roof the structure to incorporate the appropriate membrane, ventilation, and thermal insulation and therefore a renewal of the roof structure at this time would be appropriate.

The roof will require strapping to the walls in accordance with Building Regulations at eaves/wall plate level and along the verges.



Figure 12 Failure of purlin visible to rear of image.

3.1.3 Internal structure

The central timber cruck frame is built into the internal wall. The base of the cruck is visible where plaster has broken away. It appears that the timber is damp and in a poor condition, this is likely to be partly due to the raised external ground levels to the north elevation bringing moisture into the building through the external wall. It is anticipated that the cruck will need to be removed as part of the conversion or treated and retained as a non-structural feature, however given that the roof requires a full replacement this should not cause any issues structurally.

Given that the cruck frame is likely to have provided lateral stability in the original construction, it is recommended that any partition walls introduced as part of the conversion are designed as structural partitions to provide lateral support/buttressing of the external walls. This can be achieved using blockwork partitions with steel restraint straps at close vertical centres to tie the partition to the external stonework.

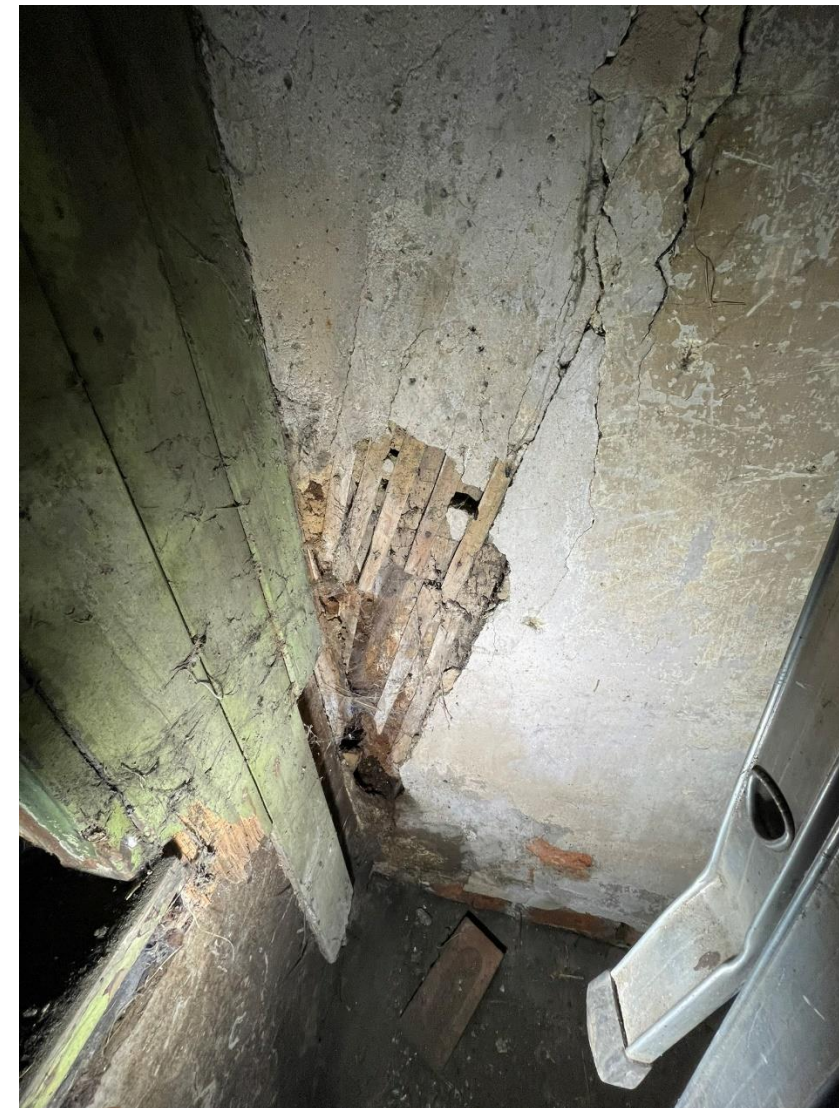


Figure 13 Base of internal timber cruck frame visible through plaster.

The timber first floor appears to be in relatively good condition, although given the water ingress due to the poor condition of the roof, a specialist damp and timber survey should be undertaken, and any rotten timbers replaced. To form the access hatch to first floor, one of the joists has been cut back and is unsupported; a trimming timber should be installed to re-support the joist, or, in the event of infilling the hatch as part of the conversion, the joist should be replaced.

In accordance with the Building Regulations, strapping will need to be installed around the perimeter of the first floor to tie the first floor to the external elevations.



Figure 14 View of the underside of the first floor.

3.2 The Corn Chamber

3.2.1 External walls

Main building

In general, the stonework appears to be in relatively good condition given the age of the building. Some areas of the stonework have been repointed with a cement-based mortar; the stonework would benefit from the removal of any cement-based mortar, and the building as a whole requires repointing with a lime-based mortar.

At first floor a crack is visible through the plaster where a window has been partially infilled. It is possible this is due to the infill masonry not being sufficiently bonded in and the load from the timber beam supporting the brick partition at second floor. The brick partition at second floor should be removed to reduce the load on the beam and therefore the infill masonry. The plaster should be removed internally to allow further inspection of the infill masonry; it is likely that the masonry will need to be coursed together or helical steel bars installed across the crack to bond the masonry together to prevent further movement.



Figure 15 West elevation of main building. Partially infilled first floor window visible.



Figure 16 Crack in plaster at first floor level adjacent to window on west elevation corresponding with partial infill of window.

As part of good repair and maintenance, it is recommended that where there are existing timber lintels, these are replaced with stone lintels with steel 'L-Strip' lintels beneath to provide additional support to the external face with precast concrete lintels elsewhere.

Covered area

In general, the brick wall to the north and the brick piers to the other elevations appear to be in relatively good condition. The brickwork requires repointing throughout.



Figure 17 Brick wall to north elevation of covered area.

The two stone columns to the east elevation are heavily weathered and one is fractured at approximately third height from ground. The columns will require replacing in some form.

In order to convert the covered area into part of a habitable dwelling, lateral stability will need to be considered. This may be achieved by the introduction of masonry shear walls to the open elevations.



Figure 18 Stone columns to east elevation of covered area.

The Stable

In general, the brickwork appears to be in relatively good condition. As a whole the brickwork requires repointing throughout and there are some localised areas of making good required, such as where brickwork is missing.



Figure 19 East elevation of The Stable with brickwork missing from external wall.

3.2.2 Roof structure

Main building

From floor level the existing roof structure appears to be in relatively good condition given the age of the building although it is noted that a close inspection has not been undertaken at this stage.

It was noted that some water ingress was occurring to the roof. As such a specialist damp and timber survey should be undertaken, and any rotten timbers replaced as required.

We understand that as part of Building Regulations, it will be necessary to re-roof the structure to incorporate the appropriate membrane, ventilation, and thermal insulation. In terms of loading, the under drawing of the roof timbers with plasterboard and insulation will add some weight to the roof. Providing the load increase is less than around 10% the roof structure should be capable of adequately supporting this load increase. However, it may be beneficial to renew the roof structure at this time.

The roof will require strapping to the walls in accordance with Building Regulations at eaves/wall plate level and along the verges.

Covered area

From ground level the existing roof trusses appear to be in relatively good condition although it is noted that a close inspection has not been undertaken at this stage.

Where the roof abuts the main building to form a valley, the gutter has failed, water ingress has occurred, and the rafters appear damp. As such a specialist damp and timber survey should be undertaken, and any rotten timbers replaced as required.

As the stone columns to the east elevation will need to be replaced (refer to 3.2.1), the roof structure will need to be propped in the temporary condition or temporarily removed and reinstated once the new permanent support structure have been installed.

We understand that as part of Building Regulations, it will be necessary to re-roof the structure to incorporate the appropriate membrane, ventilation, and thermal insulation, and repair the valley gutter. In terms of loading, the under drawing of the roof timbers with plasterboard and insulation will add some weight to the roof. Providing the load increase is less than around 10% the roof structure should be capable of adequately supporting this load increase. However, it may be beneficial to renew some or all of the roof structure at this time.

The roof will require strapping to the walls in accordance with Building Regulations at eaves/wall plate level and along the verges.

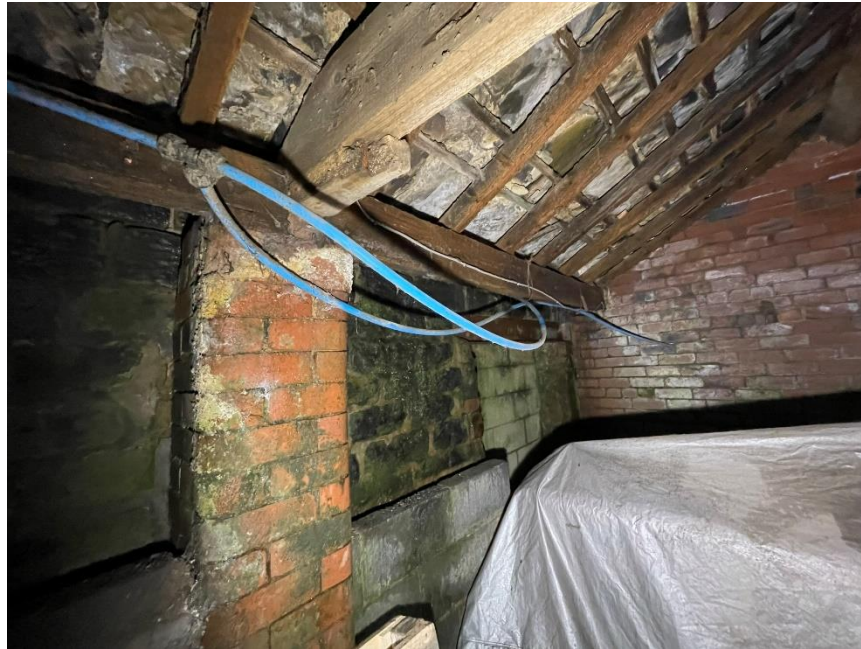


Figure 20 Water ingress from valley gutter between covered area and main building.



Figure 21 Valley gutter of covered area against main building.

The Stable

From ground level the existing roof structure appears to be in relatively good condition however it was noted that there is a hole in the slated section of roof and there is water ingress at the eaves of the corrugated sheeting section of roof. As such a specialist damp and timber survey should be undertaken, and any rotten timbers replaced as required.

We understand that as part of Building Regulations, it will be necessary to re-roof the structure to incorporate the appropriate membrane, ventilation, and thermal insulation. In terms of loading, the under drawing of the roof timbers with plasterboard and insulation will add some weight to the roof. Providing the load increase is less than around 10% the roof structure should be capable of adequately supporting this load increase. However, it may be beneficial to renew the roof structure at this time.

The roof will require strapping to the walls in accordance with Building Regulations at eaves/wall plate level and along the verges.



Figure 22 View of roof structure in The Stable.

3.2.3 Internal structure

Main building

The timber first floor appears to be in relatively good condition although it is noted that a detailed assessment has not been undertaken at this stage.



Figure 23 View of underside of first floor in main building.

The timber second floor appears to be in relatively good condition although it is noted that a detailed assessment has not been undertaken at this stage. As a minimum, it is recommended that the stone flags at second floor are removed to reduce the load on the floor.

As noted in Section 3.2.1, it is recommended that the brickwork partition wall at second floor is removed.



Figure 24 View of underside of second floor in main building.

In accordance with the Building Regulations, strapping will need to be installed around the perimeter of the first floor to tie the first floor to the external elevations.

Covered area

There is no internal structure to consider to the covered area.

The Stable

There is no internal structure to consider to The Stables.

4 Conclusion

This report finds that, in general, the buildings are in relatively good condition given their age, and with generally minor repairs (such as repointing, replacement lintels, masonry reinforcement with helical steel bars, and making good) of the masonry accompanied with good design to ensure sufficient lateral stability of the covered area of The Corn Chamber, the buildings are capable of conversion and adaptation to become dwellings.

The Cottage requires a full renewal of the roof structure, and it may be beneficial or necessary to renew the roofs of The Corn Chamber as well. Considering the age of the buildings it is not considered excessive to take the opportunity to replace the roof structures at this time and, given the our responsibility to support a more sustainable construction sector, the reuse of a high proportion of the existing external fabric minimises the embodied carbon in the provision of dwellings on the site.