STRUCTURAL APPRAISAL REPORT
BARN CONVERSION

Wragg Hall Farm,
Biddulph Park Road,
Biddulph Moor,
ST8 7SJ

for

Mr Cotton

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1.0 INTRODUCTION

REPlan and Design Ltd were asked to visit Wragg Hall Farm, to assess the suitability of converting the barns to the rear of the property.

This report is to assess the current structure of the barn.

Inspection carried out on the 16th September 2022.

Included in Appendix A of the report are, REPlan and Design's Standard Scope and Limitations of Survey.

Included in Appendix B of the report are, annotated relevant photographs taken at the time of the inspection.

Image 1 – Google Maps (Location)

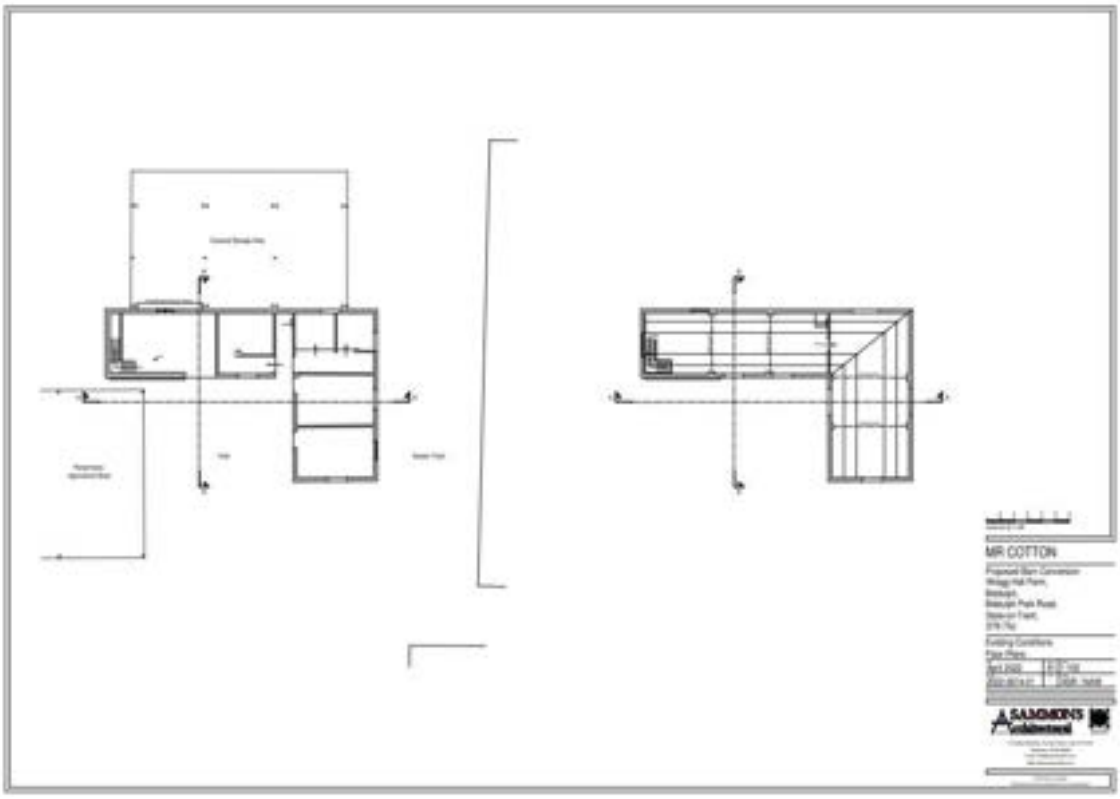

Image 2 : Existing Floor Plan (Sammons Architectural)

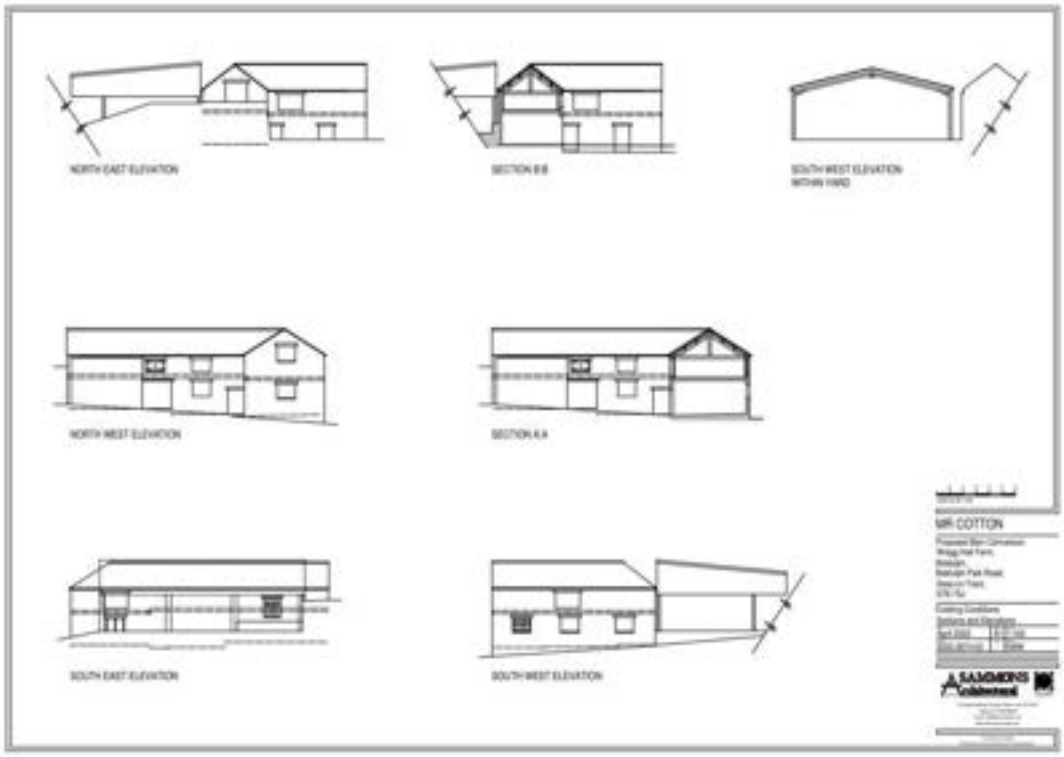

Image 3: Existing Elevations (Sammons Architectural)

2.0 BRIEF DESCRIPTION OF THE PROPERTY

The L-shaped barn is a 2 storey masonry constructed building, believed to be originally constructed in the mid-20th century. The building has a split-level ground floor to suit the sloping ground around the front of the barns.
The barns are built with a 4in inner leaf brickwork with pillars and a 4in solid concrete block outer leaf upto 1st floor level. The left side end bay is constructed with a ground floor level approx. 600mm higher than the middle and right -side section of the barns.
Internal solid concrete walls are present separating the barn into 5 areas at ground floor.
The 1st floor is all at one level accessed from a brick staircase along the left side gable wall.
The wall construction from 1st floor to wallplate level is constructed from 2 skins of brickwork with brick pillars at supporting truss and corner positions.
The roof is a pitched traditional truss roof with a tiled finish. Two number timber purlins span between end gable walls and king post trusses. The 1st floor is constructed from timber boards over timber joists spanning between external / internal masonry walls.
A stepped concrete ground floor is present throughout the different rooms of the barn.

The ground to the front of the barns slopes gently from left to right, the ground to the right of the barn slopes steeply from the rear to the front. A almost vertical wall / ground is present on the left side of the barn. To the rear of the barn is a covered storage area with a concrete slab. The slab abuts the barns and is set around 1.05m higher then the barn lower ground level. The ground to the left of the storage area is much higher with the ground level to the left side of the barn being approx. 2.5m above the ground level to the front of the barn.

3.0 OBSERVATIONS

External

Elevation : Front (Yard)

2 storey masonry construction with a pitched tiled roof.

Left side appears to be constructed from a solid 440mm brick wall at the base reducing to a 330mm thick wall at 1st floor level. The right side is constructed from a 100mm brick inner with a 100mm concrete block wall outer leaf. A 2.0m opening is present at ground floor between the different wall constructions, 2No steel lintels are present over. If required to remain these will need to be treated to remove the rust and repainted.

A opening is then present at the right side, which opens into a corridor towards the rear elevation. A door is located to the front of the corridor accessing the middle and corner rooms. Concrete lintels are present over these openings, which all appear to be in a good condition.

The 1st floor wall construction corresponds with the wall below, 330mm brick to the left and 100mm brick + 100mm concrete block to the middle and right. 2 windows are present in the elevation with concrete lintels over, again in a good condition.

The roof is pitched with a tiled finish and is generally in a good condition. Some areas require tiles to be replaced or installed but the general line of the roof appears good. The guttering and downpipes will need replacing.

The ground level slopes from right to left, with the slab level to the room on the right being approx. 550mm higher than the middle and right rooms.

Elevation : Front / side (Yard)

2 storey masonry construction with a pitched tiled roof.

The full elevation is constructed from a 100mm brick inner with a 100mm concrete block wall outer leaf. 2No standard door openings are present at ground floor giving access into the middle and end rooms. A concrete lintel is present over both openings which are in a good condition. A single window is present in the elevation at 1st floor with a concrete lintel over, again in a good condition.

The roof is pitched with a tiled finish and is generally in a good condition. Some areas require tiles to be replaced or installed but the general line of the roof appears good. The guttering and downpipes will need replacing.

Elevation : Gable (Yard)

2 storey masonry constructed gable wall,

The full elevation is constructed from a 100mm brick inner with a 100mm concrete block wall outer leaf. A single window is present at both ground and first floor. A concrete lintel is present over both openings which are in a good condition.

There is a 450mm difference in ground level over the length of the gable wall.

Elevation Side (Access Track, right)

2 storey masonry construction with a pitched tiled roof.

The full elevation is believed to be constructed from a 100mm brick inner with a 100mm concrete block wall outer leaf. 2No window openings are present at ground floor one in the middle and one in the end room. A concrete lintel is present over both openings which are in a good condition. A single window is present in the elevation at 1st floor but has been fully blocked up, a concrete lintel over, again in a good condition.

The roof is pitched with a tiled finish and is generally in a good condition. Some areas require tiles to be replaced or installed but the general line of the roof appears good. The guttering and downpipes will need replacing.

There is an estimated 2.0m difference in ground level between the front and rear of the elevation.

The wall construction will require further investigation to determine its suitability as a retaining wall.

Elevation Rear (Covered Storage Area)

A concrete slab with steel columns and cover is present off the rear elevation.

The level of the slab is approx. 2.0m higher than the lower ground floor level of the barn.

The full elevation appears to be constructed from a 100mm brick inner with a 100mm concrete block wall outer leaf. A window opening is present at ground and first floor to the left side room. A concrete lintel is present over both openings which are in a good condition.

The roof is pitched with a tiled finish and is generally in a good condition. Some areas require tiles to be replaced or installed but the general line of the roof appears good. The guttering and downpipes will need replacing.

The wall construction will require further investigation to determine its suitability as a retaining wall.

Side (left)

Access to the left side is restricted.

Around 2.5m of the wall is below ground level and is therefore retaining, above this is vegetation but appears to be a concrete block outer gable ended wall.

The corner of the building is in a very poor condition, and it appears the adjoining retaining wall has collapsed.

A window opening is present at first floor with a concrete lintel over, in good condition.

Internal

Ground Floor

The external walls of the barn are constructed with a brickwork inner leaf.

This masonry is generally in a good condition with only one area of cranked masonry to note, this is situated on the rear wall right side below the window. This wall will require further investigation / strengthening to ensure its suitability as a retaining wall structure for a habitable room. Some additional areas will require re-pointing.

All the dividing internal walls are constructed from concrete block and are generally in a good condition.

The ground floor is a stepped concrete block, that will need upgrading / replacing to incorporate insulation and damp proofing.

A brickwork internal wall is present where the stairs are located along the retaining gable wall, this wall appears in a good condition.

First Floor / Roof

A timber floor is present throughout which is all at the same level. The floor consists of timber boards over timber joists. A number of the boards are broken, missing or rotten and should be replaced. The joists ate typical 60x220mm at 600mm ctrs, some areas of joists are showing early signs of rot and should be treated if to remain.

The roof is formed with timber rafters onto timber purlins, which are then supported on load bearing walls or timber king post trusses.

The rafters are in a good condition.

2No purlins are present each side of the roof, all the purlins are in a good condition.

4 No king post trusses are present in the barn, again these are in a good condition.

The roof is to be repaired where holes are present and a new lining insulation will be required.

The kingpost trusses sit onto 440mm wide brickwork pillars, these pillars are in a relatively good condition but do require some attention to the top 2 courses.
Along the external elevations the rafters are sat onto a timber wallplate along the outer leaf.
The external walls of the barn are constructed with a brickwork inner leaf, again in a good condition.
A dividing internal wall constructed from concrete block is present where the 2 wings of the barn meet, this wall is in a good condition.
The gable end that is retaining has a vertical crack present below the 1st floor window. This wall needs to be further investigated and probably strengthening to ensure its suitability as a retaining structure with a habitable space. Damp proofing will also be required.

General Comments –

The building is in a good condition and could be suitable to convert into a habitable dwelling. The main area that would need to be investigated further, and will likely require upgrading, is the side and rear walls that will be retaining ground of 2.5m and 1.05m respectively. This area of wall will also need to be tanked to ensure no water penetration into the internal of the property.

Foundations were not exposed, so could not be inspected. As the proposed load being applied to the structure, is not additional to the existing loads it is unlikely additional strengthening would be required apart from where retaining walls are required.

4.0 CONCLUSIONS

The existing barn is in a relatively good condition with the main members of the roof, floor and wall in a good condition.

The main members of the roof: rafters, purlins and trusses are in a condition where minimal repair work would be required upon altering the barn to a domestic property. New felting, insulation and to ensure any holes are infilled and sealed would be required but the main structure to the roof including the tiles could remain. The guttering and downpipes will need replacing and connecting into a suitable drainage system.

The existing 1st floor would require all the boards to be replaced but a large number of the floor joists could remain (subject to calculations been undertaken to check the loadings). Some areas of floor joists would need to be replaced or undertake wood treatment.

The existing concrete ground floor would need to either be replaced or a new insulated timber / concrete floor constructed over to provide a level surface. (The height to the right and middle rooms would allow a build-up.

The masonry (brick / block) internal walls and piers are in a good condition with only a couple of areas requiring strengthening or some sections of piers rebuilding near the top.

Where steel beam lintels are present, these need to be treated to remove the surface rust and repainted or replace with a new steel or concrete lintel.

External walls to the front, side (track side), and rear (above storage area slab level) are in a good condition with only repointing works required.

The main area of work to ensure the barn can be converted into a habitable space is the side wall (left) and rear wall below storage slab level, which will require further investigation and calculations undertaken to assess the suitability of a retaining wall. It is likely additional work will be required, which would consist of building a reinforced concrete or reinforced block wall with concrete behind the existing walls. These areas will also require tanking to current standards with drainage to enable the space to be deemed habitable.

APPENDIX A

REPlanAndDesign STANDARD SCOPE AND LIMITATIONS OF SURVEY

SCOPE AND LIMITATIONS OF SURVEY

This report has been prepared to provide guidance on the structural elements to the property only.

The report is based on a visual inspection of those areas of the property that were readily accessible at the time of the inspection. As such, comments cannot be made on those parts of the building that were inaccessible or hidden from view.

The report does not provide a checklist of all repairs and improvements that might be desirable or necessary.

We have not inspected parts of the structure which were unexposed or inaccessible. We are therefore unable to report that such parts of the property are free from defect.

This report is for the private and confidential use of the client for whom it is prepared.

Project Title	Wagg Hall Farm	**Project Ref.**	2012
Report Prepared by			
	Shaun Rigby BSc(Hons) MIET		

APPENDIX B

PHOTOGRAPHS

Photo 1 – Looking at the Roof structure

Photo 2 – Looking at the Roof structure

Photo 3 – Showing area of broken floor boards

Photo 4 – Showing truss onto brick pillar

Photo 5 – Gable (retaining side) steel lintel to be treated

Photo 6 & 7 – Gable (retaining side) showing vertical crack below window

Photo 8&9 – 550mm brick external wall & internal stairs

Photo 10 & 11 – Gable (Retaining wall) & internal stairs

Photo 12 – Ground Floor room (by stairs looking to rear wall)

Photo 13 – Ground Floor room (looking to rear wall)

Photo 14 – Part front elevation (masonry wall /looking towards retaining side)

Photo 15 – Front elevation / gable (retaining side)

Photo 16 – Front elevation / side wall

Photo 17 – Gable wall / track side elevation

Photo 18 – looking from top of track towards the rear /side elevation (Showing covered slab)