STRUCTURAL CONDITION SURVEY

OLD HALL FARM, THE GREEN, BAGNALL
STAFFORDSHIRE MOORLANDS
ST9 9JR

REF: 1067

APRIL 2011

The Institution of Structural Engineers

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The Institution of Structural Engineers

1.0 Introduction

Mrs Brown of Old Hall Farm, Bagnall requested that a structural condition survey was carried out on two barn buildings at Old Hall Farm. The structural survey was carried out on Thursday 28 April 2011.

The survey and report were to consider the following:

- The structural condition of two buildings for suitability for development into habitable dwellings towards satisfying planning conditions.

Premises surveyed:	OLD HALL FARM, THE GREEN, BAGNALL, STAFFORDSHIRE MOORLANDS ST9 9JR
Client:	Mrs Brown Old Hall Farm The Green Bagnall Staffordshire Moorlands ST9 9JR

1.1 The inspection was of a limited nature and comprised a walk around the exterior of each building and the interior where access was safe.

1.2 It should be emphasised that a detailed inspection was not undertaken. No exploratory investigation was carried out and there was no removal of any fixtures or fittings.

1.3 It is not intended to comment upon elements such as window frames, external and internal timberwork, rainwater and drainage goods, fixtures and fittings, or any building services. Timber and damp aspects are beyond the scope of the Brief and the expertise of John Jordan Consulting Ltd, but have been considered in very general terms as part of the overall assessment.

1.4 Given the nature of the inspection, it is considered likely that further defects will exist in areas of the building which were not examined or which were concealed.

1.5 The Survey is not in relation to any particular scheme for development of the two existing buildings.

1.6 These notes have been prepared for the private and confidential use of the Client and their professional advisers, in accordance with the agreed Brief. The Report must not be reproduced in whole or in part, or relied upon by any other party for any purpose without the express written authority of John Jordan Consulting Ltd.

In particular, they should not be considered as an appraisal for purchase or investment purposes.

2.0 Description of Buildings

Barn 1 – Two Storey Barn to the North West of the Farm Yard

2.1 The building is independent of any other buildings, consisting of three sections. There is a larger main section of two storey construction, a smaller single storey middle section and a smaller again, single storey end section, all located consecutively with adjoining gable walls. The structure is predominantly of traditional natural stone masonry construction with timber 1st floor and traditional duo-pitch clay tiled roof of timber construction.

2.2 The ground floor of the main section is divided into three subdivisions with full height masonry walls across the full width of the main section. The smallest end subdivision against the gable of the main section adjoining the other sections of the building, is then subdivided into two with a masonry wall at right angles to the gable wall, up to 1st floor. The middle section is divided into three subdivisions with full height masonry walls across the width of this section. The footprint of the middle section is at an offset angle to the main section, in the region of 30-40 degrees. The smallest end section is a single area adjoining, and in line with, the middle section.

2.3 The ground floor constructions appear to be a mixture of insitu concrete and natural stone flags, with associated steps and falls. In some areas this is covering with clay tiles.

2.4 The 1st floor to the main section consists of timber joists and beams with boards spanning between the long walls and also between the gable wall and the internal cross walls.

2.5 There are a number of vertical timber ladders fixed to the walls internally that gain access to the 1st floor.

2.6 The 1st floor is open within each subdivision, not divided up by internal walls or partitions. There is access via high level central openings through the internal cross walls through to the adjacent subdivisions. There is no ceiling to the roof area where the roof construction is visible.

2.7 The roof generally consists of common rafters spanning between wallplate, timber purlins and to a ridge board. The purlins generally span between gable and cross walls, and in the large subdivision of the main section, onto two timber trusses divided the space generally into three equal sections. There were two more recent glazed roof lights in the south eastern pitch of the main roof.

2.8 The front elevation consists of a number of single doorways and one double doorway to the ground floor. There are window and vertical slit openings to both the ground and first floor. There is a mixture of natural stone, timber and steel external lintels over these openings. Doors are present with some windows in place.

2.9 There is a single doorway, with door, to the exposed portion of the gable of the middle section, adjacent to the smallest section of the building.

2.10 The rear elevation consists of a number of window and vertical slit openings to both the ground and first floor. There is a mixture of natural stone, timber and steel external lintels over these openings.

2.11 The end gable elevation to the main section consists of a number of window and vertical slit openings to both the ground and first floor. There is also a single doorway, with door, to the ground floor with timber external lintel over.

Barn 2 – Two Storey Barn to the South East of the Farm Yard

2.12 The building is independent of any other buildings, consisting of one main section with a number of lean-to sections around its perimeter. The main section is of two storey construction. There is a small single storey lean-to section to the south western gable and one to the south western end of the north western elevation, both constructed from more modern bare faced concrete blockwork with shallow pitched roofs. There is also a more original single storey lean-to section to the south western end of the south eastern elevation, which has a pitched roof with boarded loft. The walls and roof to this lean-to section is in a state of partial collapse. The main structure is predominantly of traditional natural stone masonry construction with timber 1st floor and traditional duo-pitch clay tiled roof of timber construction.

2.13 The ground floor of the main section is divided into three subdivisions with full height masonry walls across the full width of the main section. The largest of these subdivisions is to the south western end of the main section and accounts for the majority of the ground floor of the main section. There is a large internally rendered / concrete finished and painted pit in the middle of the floor to one half of the main section. The remainder of the main section consists of two subdivisions of approximately equal size across the full width of the main section, segregated from the other subdivisions via full height masonry walls across the width of the main section.

2.14 The ground floor constructions appear to be of insitu concrete, with associated steps and falls, along with the sub-floor pit to the main section. There appears to be a stone flag floor to the partially collapsed lean-to section.

2.15 The 1st floor to the main section consists of timber joists and beams with boards spanning between the long walls and also between the gable wall and the internal cross walls.

2.16 There is a vertical timber ladder fixed to the wall internally that gains access to the 1st floor of the larger and middle subdivisions of the main section. Access to the first floor of the smaller end subdivision of the main section is via external stone steps up to a doorway in the gable wall.

2.17 The 1st floor is open within each subdivision, not divided up by internal walls or partitions. There is access via a high level central opening through the internal cross wall between to the lager and middle adjacent subdivisions. There is no ceiling to the roof area where the roof construction is visible.

2.18 The roof generally consists of common rafters spanning between wallplate, timber purlins and to ridge boards. The purlins generally span between gable and cross walls, and in the large subdivision of the main section, onto five timber trusses divided the space generally into six equal sections.

2.19 The front elevation consists of a number of single doorways along with a large wall opening over the full height and width of the ground floor to the smaller end subdivision of the main section, with a central masonry pier. There are window and vertical slit openings to both the ground and first floor. There is a mixture of natural stone, timber and steel external lintels over these openings. Doors are present with some windows in place. There is a large cruciform metal pattress plate at floor level within the larger subdivision to the main section near to the internal dividing cross wall.

2.20 There is a single doorway, with door, in the south western gable of the main section, through to the more modern lean-to section. There is also a high level window opening in the south western gable of the main section, with stone external lintel over.

2.21 The rear elevation consists of a number of window and vertical slit openings to both the ground and first floor. There is a single and double door opening to the ground floor. There is a mixture of natural stone, timber and steel external lintels over these openings.

2.22 The end gable elevation to the smaller subdivision of the main section consists of stone steps up to a first floor door opening in the middle of the elevation with stone external lintel over.

3.0 Findings of Survey

3.1 The following general observations were made during the course of the visual inspection of each building. These observations are only indicative and they are not intended as a detailed schedule of condition.

Barn 1 – Two Storey Barn to the North West of the Farm Yard

3.2 There did not appear to be any obvious evidence of substantial subsidence, bulging, leaning or any other form of movement within the walls.

3.3 There were generally signs of damp and freeze thaw damage to the surface of the masonry at the base of the walls across the building.

3.4 There was rusting to various degrees on all metal lintels. The degree to wish this had affected the metal thickness varied and was not able to be absolutely determined.

3.5 The timber lintels were generally in a fair to poor condition with areas of rot and infestation, with some showing sagging causing the masonry above to have moved. This did not appear to present an immediate danger. However, it should be considered an important safety matter to ensure that the masonry is stabilised and not left to deteriorate to a point where the masonry becomes a dangerous hazard.

3.6 The stone lintels were generally in a fair to poor condition with areas of cracking, slipping and dropping causing the masonry above to have moved. This did not appear to present an immediate danger. However, it should be considered an important safety matter to ensure that the masonry is stabilised and not left to deteriorate to a point where the masonry becomes a dangerous hazard.

3.7 The line of the roof did not show any adverse warping, sagging, dropping or spreading. The roof timber structure appeared to be in a fair to poor condition with some visible signs of damp, rot and infestation. The slate tiling appeared to be generally in a fair condition. However, there were some areas where there were patches of missing and broken tiles.

3.8 The 1st floor appeared to be reasonably flat, level and even on the whole. However the condition of the structure was poor with some visible signs of damp, rot and infestation. Some sections of floor had collapsed and should be approached with extreme caution. Some timber joist ends were supported onto horizontally flat timber boards spanning over window openings. These did not appear to be adequate.

3.9 There did not appear to be a DPC to any of the walls.

3.10 There were a number of instances where horizontal timbers were observed in the walls. The condition of these was poor with some visible signs of damp, rot and infestation.

3.11 There were a number of vertical and diagonal cracks in the walls spread around the building of varying widths.

Barn 2 – Two Storey Barn to the South East of the Farm Yard

3.12 There did not appear to be any obvious evidence of substantial subsidence, bulging, leaning or any other form of movement within the walls. However, there wall a section of localised bulging to the front elevation to the 1st floor to the left of the far right hand 1st floor window opening of this elevation.

3.13 There were generally signs of damp and freeze thaw damage to the surface of the natural masonry sections of the structure, at the base of the walls across the building.

3.14 There was rusting to various degrees on all metal lintels. The degree to wish this had affected the metal thickness varied and was not able to be absolutely determined.

3.15 The timber lintels were generally in a fair to poor condition with areas of rot and infestation, with some showing sagging causing the masonry above to have moved. This did not appear to present an immediate danger. However, it should be considered an important safety matter to ensure that the masonry is stabilised and not left to deteriorate to a point where the masonry becomes a dangerous hazard.

3.16 The stone lintels were generally in a fair to poor condition with areas of cracking, slipping and dropping causing the masonry above to have moved. This did not appear to present an immediate danger. However, it should be considered an important safety matter to ensure that the masonry is stabilised and not left to deteriorate to a point where the masonry becomes a dangerous hazard.

3.17 The line of the main roof did not show any adverse warping, sagging, dropping or spreading. The roof timber structure appeared to be in a fair to poor condition with some visible signs of damp, rot and infestation, along with rusting to the bolted connections of the timber trusses. The slate tiling appeared to be generally in a fair condition. However, there were some areas where there were patches of missing and broken tiles.

3.18 The roof and loft floor to the rear lean-to section was in a very poor condition and in a state of partial collapse with signs of damp, rot and infestation and should be approached with extreme caution.

3.19 The roof to the later constructed lean-to sections was of corrugated sheeting, whose appearance suggested that it may be formed from asbestos. Specialist advice should be sought before planning any activities with this sheeting. The sheeting is supported on timber beams and purlins, with some visible signs of damp, rot and infestation. The overall quality of the construction of these sections, although in a fair condition, was difficult establish and further investigation would be required, along with careful consideration, prior any future use.

3.20 The 1st floor appeared to be reasonably flat, level and even on the whole. However the condition of the structure was poor with some visible signs of damp, rot and infestation. Some sections of floor had collapsed and there were signs of fire damage and scotching to the underside. The floor should therefore be approached with extreme caution.

3.21 There did not appear to be a DPC to any of the walls.

3.22 There were a number of instances where horizontal timbers were observed in the walls. The condition of these was poor with some visible signs of damp, rot and infestation.

3.23 There were a number of vertical and diagonal cracks in the walls spread around the building of varying widths.

3.24 The ground floor pier in the middle of the wall opening to the far left hand end of the front elevation was in a poor condition. The quality of the masonry construction appeared to be poor great care should be taken to ensure that this pier is protected from impact from vehicles that currently use this area for parking. The consequence of this pier failing would be great as it supports the floor and roof above that then spans directly back into the rear opposing wall.

4.0 Conclusions and Recommendations

4.1 On the basis of a visual inspection, it is intended to comment upon the general structural condition, in accordance with the terms of the Brief and the limitations of the inspection.

Barn 1 – Two Storey Barn to the North West of the Farm Yard

4.2 On the basis of a visual inspection, it is intended to comment upon the general structural condition, in accordance with the terms of the Brief and the limitations of the inspection.

4.3 The building appeared to be in a fair condition and did not appear to be outside of the potential for redevelopment in line with the proposed scheme.

4.4 There were areas of damp to the walls due to leaks from the roof at the eaves and from faulty rainwater goods. The roof and rainwater goods should be replaced / repaired.

4.5 There were also areas of damp near the base of the walls. These may well be due to the rising from the ground. A more detailed investigation should assess the presence of a DPC, and if there is or is not, what measure, if any, should be taken to address any damp from the ground.

4.6 Timbers within the walls should be replaced with sound masonry to maintain stability of the walls.

4.7 Sections of the 1st floor had failed and would need to be replaced. The whole of the remaining sections of the floor should be assessed by a timber and damp specialist and treated / replaced as required. Replacement of any sections of floor should be designed to be adequate for any proposed scheme if they are to be retained in any such scheme.

4.8 There were a number of vertical and diagonal cracks in the external and internal faces of the walls. These did not appear to represent any serious failures or ongoing progressive movement within the building. However, these should be monitored along with scheme of localised crack stitching and the possible introduction of movement joints.

4.9 Timber and damp aspects are beyond the scope of the Brief, but there was potential for timber decay, mould, fungal growth and infestation as not all timbers were open to view. The presence, extent and details of any asbestos items is not covered by this report and should be assessed by a specialist, also with regards to the management of these items at all stages of the proposed scheme.

4.10 In order to address the structural issues towards redevelopment, it is considered that some structural works may be required. Such works may include the following items.

This is not intended to be an exhaustive list, or a detailed schedule of work. It is only indicative of the basic main items, which may be required.

- Replacement of sarking felt.
- Replacement and repair of any damage / missing roof slates.
- Repair / replacement of damaged masonry.
- Replacement of limber lintels and repair of affected masonry where appropriate.
- Assessment and replacement, if required, of metal lintels.
- Damp-proofing and tanking works.

- Treatment of timber decay, dry rot, etc as determined by specialist.
- Any works required to manage the presence of any asbestos as determined by specialist.
- Replacement of damaged / missing floorboards.
- Replacement / repair of cracked / failed stone lintels.

4.11 There has been no assessment upon the adequacy of any items to support loads or assessment of the suitability of the foundations.

4.12 It should be emphasised that the above assessment has been based on a brief visual inspection and in order to more accurately identify the condition and assess the remedial work requirements, it would be necessary to carry out a very detailed survey.

4.13 It is also strongly recommended that separate advice be obtained from appropriate specialists in relation to timber and damp aspects, building services, asbestos etc.

Barn 2 – Two Storey Barn to the South East of the Farm Yard

4.14 On the basis of a visual inspection, it is intended to comment upon the general structural condition, in accordance with the terms of the Brief and the limitations of the inspection.

4.15 The building appeared to be in a fair condition and did not appear to be outside of the potential for redevelopment in line with the proposed scheme.

4.16 There were areas of damp to the walls due to leaks from the roof at the eaves and from faulty rainwater goods. The roof and rainwater goods should be replaced / repaired.

4.17 There were also areas of damp near the base of the walls. These may well be due to the rising from the ground. A more detailed investigation should assess the presence of a DPC, and if there is or is not, what measure, if any, should be taken to address any damp from the ground.

4.18 Timbers within the walls should be replaced with sound masonry to maintain stability of the walls.

4.19 Sections of the 1st floor had failed and would need to be replaced. The whole of the remaining sections of the floor should be assessed by a timber and damp specialist and treated / replaced as required. Replacement of any sections of floor should be designed to be adequate for any proposed scheme if they are to be retained in any such scheme.

4.20 The roof trusses to the main section showed rusting to the exposed sections of the connection bolts. It was not possible to assess the extent of the rusting during this survey. If thses trusses are to be utilised in any way in any proposed scheme then a detailed survey and assessment of this these trusses should be carried out to verify their suitability.

4.21 The later lean-to sections of the building were of unclear construction, as a result the quality and suitability of the construction is in question. If these sections or any parts of them are to be utilised in any way in any proposed scheme then a detailed survey and assessment of them should be carried out to verify their suitability.

4.22 There were a number of vertical and diagonal cracks in the external and internal faces of the walls. These did not appear to represent any serious failures or ongoing progressive movement within the building. However, these should be monitored along with scheme of localised crack stitching and the possible introduction of movement joints.

4.23 The older rear lean-to section of the building was in a very poor condition and partially collapsed. This should be approached with extreme caution. Great care should be taken in the consideration of any sections of this area for future use in any proposed scheme.

4.24 The masonry pier to the left hand end of the front elevation should be removed and rebuilt or replaced due to its poor condition and quality of construction for, in its current structural use.

4.25 Timber and damp aspects are beyond the scope of the Brief, but there was potential for timber decay, mould, fungal growth and infestation as not all timbers were open to view. The presence, extent and details of any asbestos items is not covered by this report and should be assessed by a specialist, also with regards to the management of these items at all stages of the proposed scheme.

4.26 In order to address the structural issues towards redevelopment, it is considered that some structural works may be required. Such works may include the following items.

This is not intended to be an exhaustive list, or a detailed schedule of work. It is only indicative of the basic main items, which may be required.

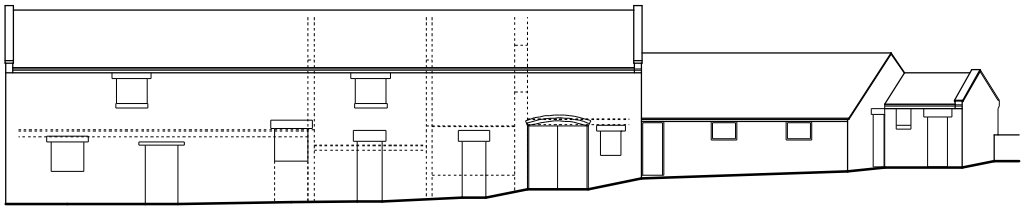
- Replacement of sarking felt.
- Replacement and repair of any damage / missing roof slates.
- Repair / replacement of damaged masonry.
- Replacement of limber lintels and repair of affected masonry where appropriate.
- Assessment and replacement, if required, of metal lintels.
- Damp-proofing and tanking works.
- Treatment of timber decay, dry rot, etc as determined by specialist.
- Any works required to manage the presence of any asbestos as determined by specialist.
- Replacement of damaged / missing floorboards.
- Replacement / repair of cracked / failed stone lintels.

4.27 There has been no assessment upon the adequacy of any items to support loads or assessment of the suitability of the foundations.

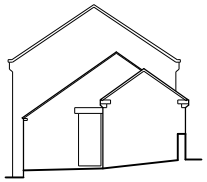
4.28 It should be emphasised that the above assessment has been based on a brief visual inspection and in order to more accurately identify the condition and assess the remedial work requirements, it would be necessary to carry out a very detailed survey.

4.29 It is also strongly recommended that separate advice be obtained from appropriate specialists in relation to timber and damp aspects, building services, asbestos etc.

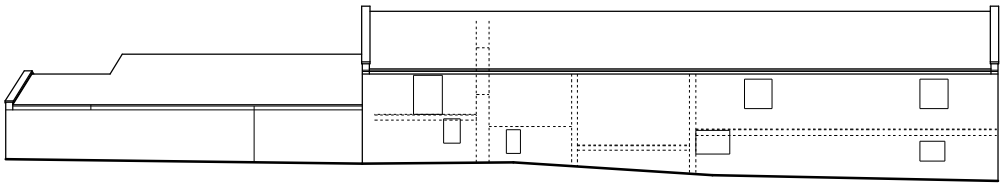
5.0 Architect's Drawings



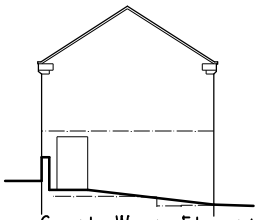
South East Elevation



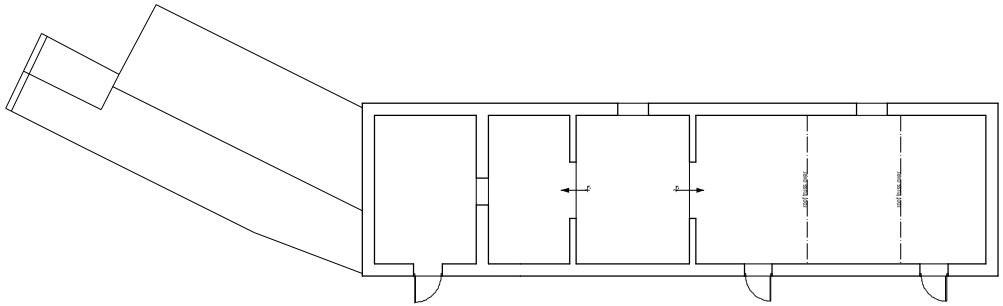
North East Elevation



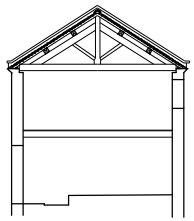
North West Elevation



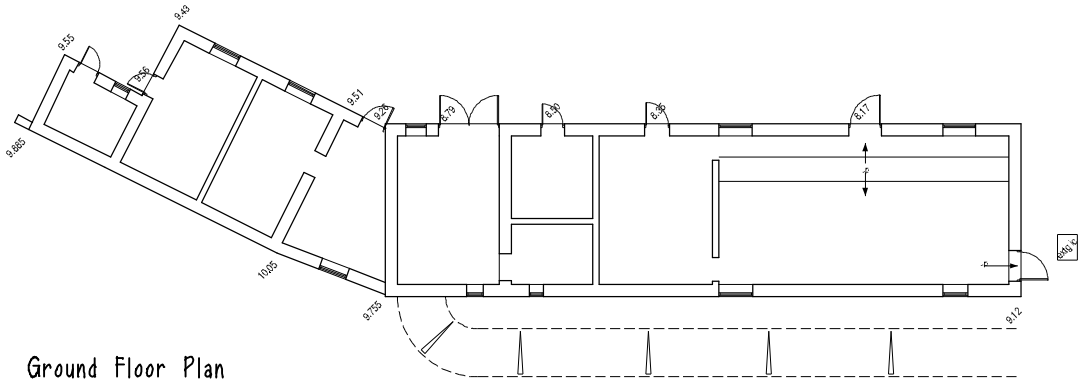
South West Elevation



First Floor Plan



Section



Ground Floor Plan



scale bar @ 1:100

Mrs Brown

PROPOSED CONVERSION OF BARNS
INTO 2 No. DWELLINGS AT
OLD HALL FARM, THE GREEN, BAGNALL
STAFFORDSHIRE MOORLANDS, ST9 9JR
EXISTING CONDITIONS
BARN 1

Date	Sheet	Scale
APRIL 2011	A1	1:100
Dwg No.	Rev.	Drawn
2011-1762-01	-	RG

SAMMONS Architectural LIMITED
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10 Cawdry Buildings, Fountain Street, Leek, ST13 6JP
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Web: www.sammonsltd.co.uk

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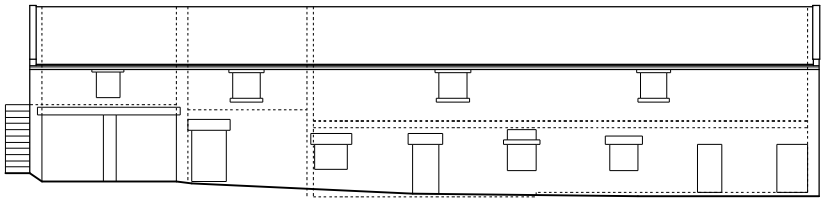
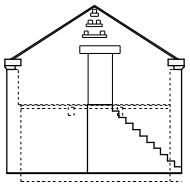
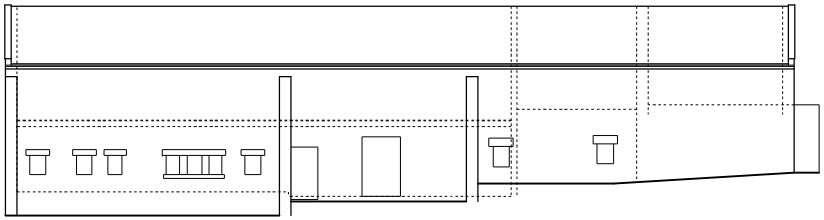


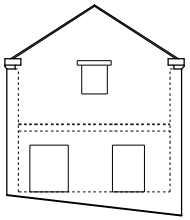
North West Elevation



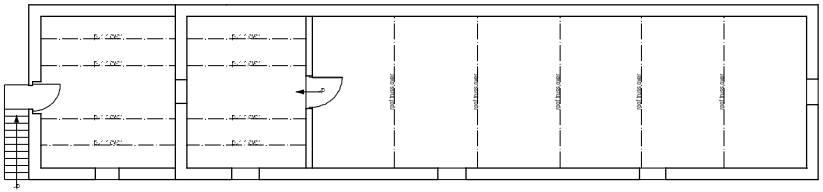
North East Elevation



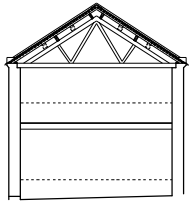
South East Elevation



South West Elevation



First Floor Plan



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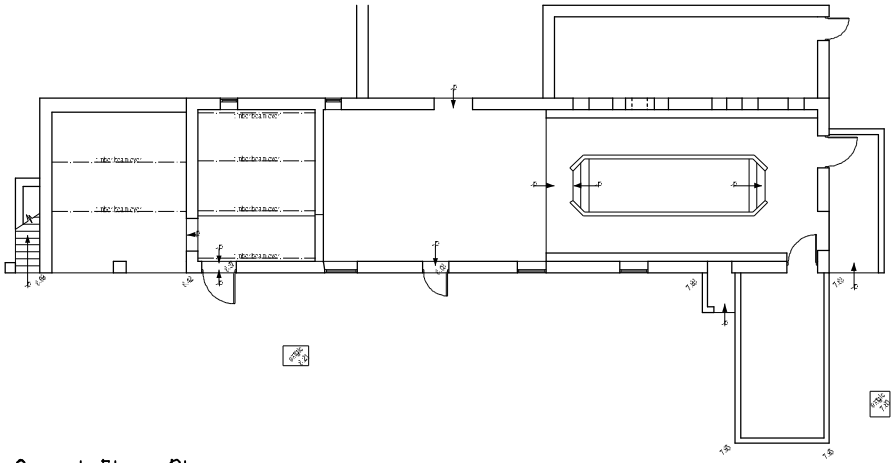

Ground Floor Plan

scale bar @ 1:100

Mrs Brown

PROPOSED CONVERSION OF BARNS
INTO 2 No. DWELLINGS AT
OLD HALL FARM, THE GREEN, BAGNALL
STAFFORDSHIRE MOORLANDS, ST9 9JR
EXISTING CONDITIONS
BARN 2

Date	Sheet	Scale
APRIL 2011	A1	1:100
Dwg No.	Rev.	Drawn
2011-1762-02	-	RG

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