

ENGINEERING REPORT 8874

**GREENGATE HILL FARM
ASHWORTH ROAD
ROCHDALE
OL11 5UN**

CLIENT: MR C CAMPBELL

11.04.2023 MP/CH



1.0 INTRODUCTION

The purpose of this report is comment on the existing structural condition of an existing barn attached to a domestic property and a separate detached two storey shippon, with regard to adequacy of structure for possible building modifications.

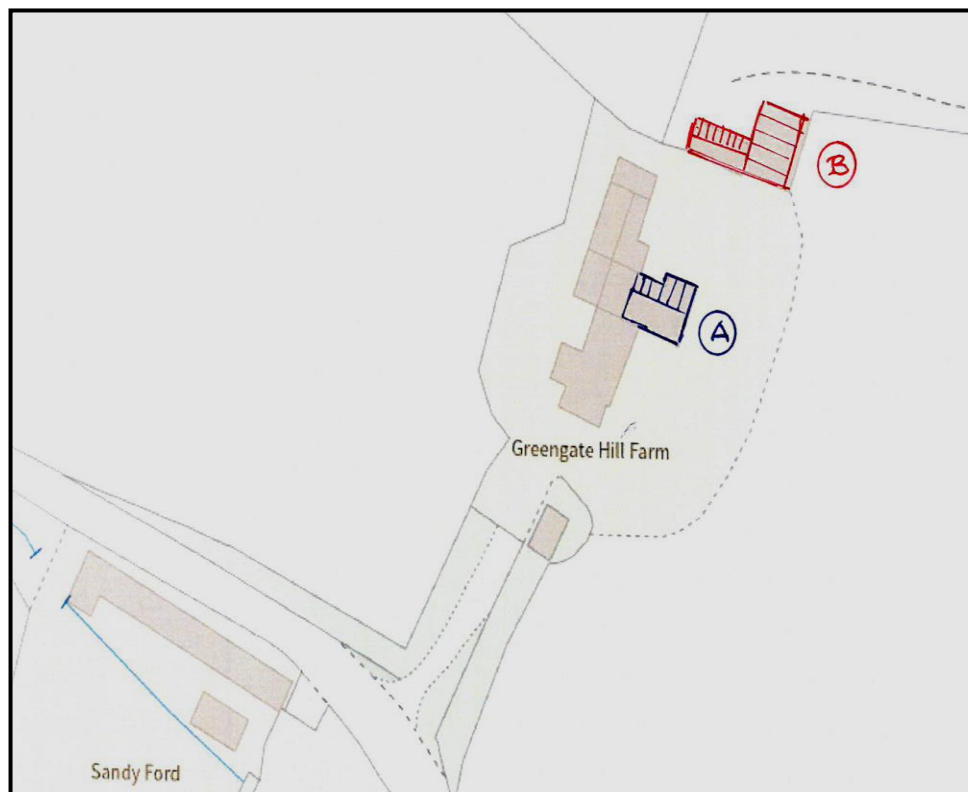
The report is based on a visual inspection only with no opening up of the fabric nor topographical information or site investigation.



2.0 PREAMBLE

The two buildings include extended probable original barn (Unit A) now linked to a two storey outshoot (Unit B) on the South East elevation of the main farmhouse, and a further detached timber barn/lean-to shippon constructed on the North Eastern end of the main site, both Units are constructed to a level plane against a slightly sloping South East elevation.

The farmhouse is constructed in predominantly natural stonework with an Accrington brickwork South East elevation and is probably in the order of 120 years old, whilst the detached timber frame structure may be in the order of 50 – 60 years old.



3.0 EXISTING BARN (UNIT A)

- 3.1 The original barn was possibly a detached unit and has subsequently been incorporated as an 'L' shaped outshoot to the main two storey farm building.
- 3.2 The main farm building extends for a length in the order of 8 metres from the adjoining farm outshoot. The barn is constructed in coursed natural stonework of probable solid wall construction, the wall thickness circa 500mm. The link section matching the existing width of the outshoot. (Photographs 002, 004).
- 3.3 The outshoot extends for a total length in the order of 8 metres with a width between 8.5 metres (Southern end) reducing to 4 metres linking to the outshoot of the farmhouse. (Photographs 001, 004).



Photograph 001 South East gable

- 3.4 The outshoot is aligned on a North West/South East orientation with the original stone gable extending for a width in the order of 8.5 metres. The original barn is in excess of 130 years old. (Photograph 001).

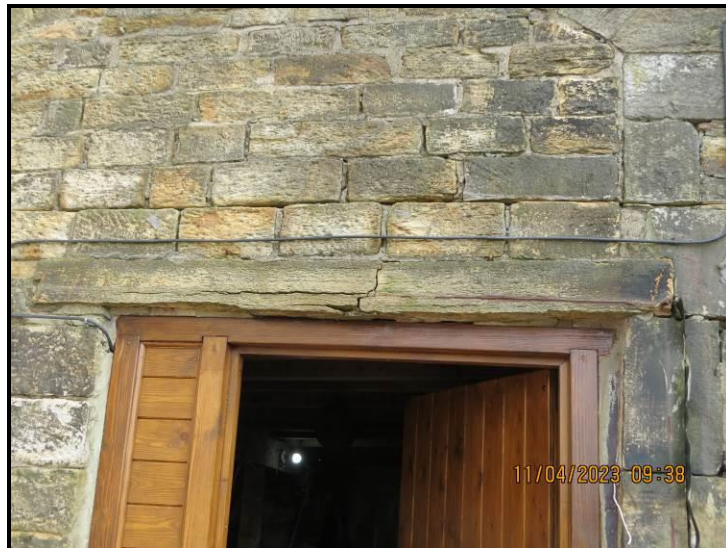
4.0 SOUTH WESTERN ELEVATION

- 4.1 The South Western elevation extends for a length in the order of 6.4 metres incorporating the original stone arch doorway (infilled) with a personnel door formed within the infilled former 'taking-in' door, whilst retaining the natural stone quoins on the right hand aspect. (Photographs 006, 010).



Photograph 006 South West flank wall

- 4.2 The 100mm deep stone lintel has failed in the centre, although there is minimal disturbance to the upper stone coursing. (Photograph 013).



Photograph 013 Failed lintel

- 4.3 The vertical alignment to both the left and right hand door jambs is good with irregularities less than 5mm per metre. (Photographs 014, 017, 028).



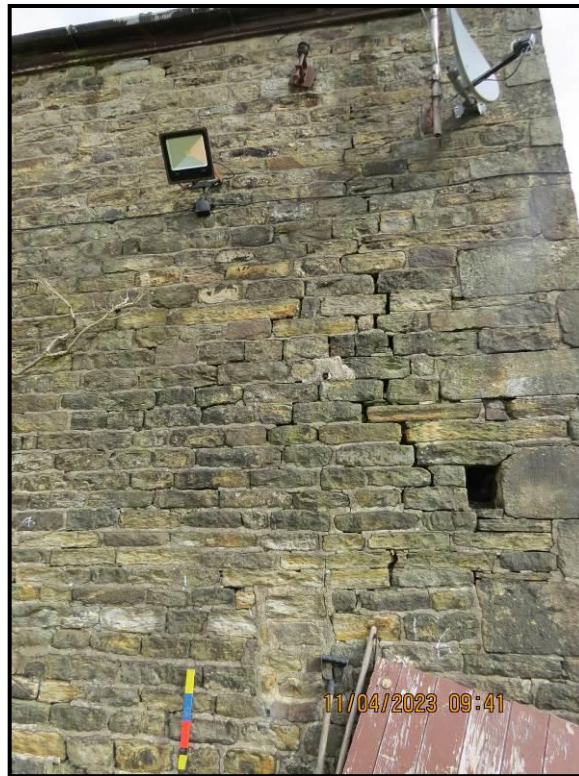
Photograph 014 Good vertical alignment, chainage 1 metre

- 4.4 The ground level slopes towards the South Eastern aspect with an increase in height from the paviour to the gable in the order of 700mm. (Photograph 011).
- 4.5 The elevation is constructed in watershot coursing, the pointing is poor and there is evidence of some minor lateral movement in the lower coursing around chainage 4.5. (Photograph 015).



Photograph 015 Minor lateral movement (historic)

- 4.6 A former slot window has been infilled at chainage 5.2 – 5.4 metres.
- 4.7 Marginal widening of the perpendicular joints is evident around chamber level although the visual aspect is exacerbated by the loss of pointing rather than significant lateral movement. The pointing in the upper wall section is satisfactory. (Photograph 016).



Photograph 016 Historic movement to South West corner

- 4.8 In the vertical plane the alignment is good with irregularities less than 5mm per metre on the South Western elevation and on the return South Eastern gable circa 25mm per metre. (Photograph 014).

5.0 GABLE ELEVATION (SOUTH EAST – ORIGINAL BARN)

- 5.1 The South Eastern gable of the original barn is completed in a randomly coursed local stonework with evidence of significant weathering particularly in the mid-section. (Photograph 001).
- 5.2 The elevation incorporates original personnel doors at the left and right hand corners, doorways supported on 300mm deep stone lintels infilled with Crowthers common brick, between chainage 0.5 – 1.5 and in seconds facing brick between chainage 7 – 8 metres. (Photographs 008, 020, 021).

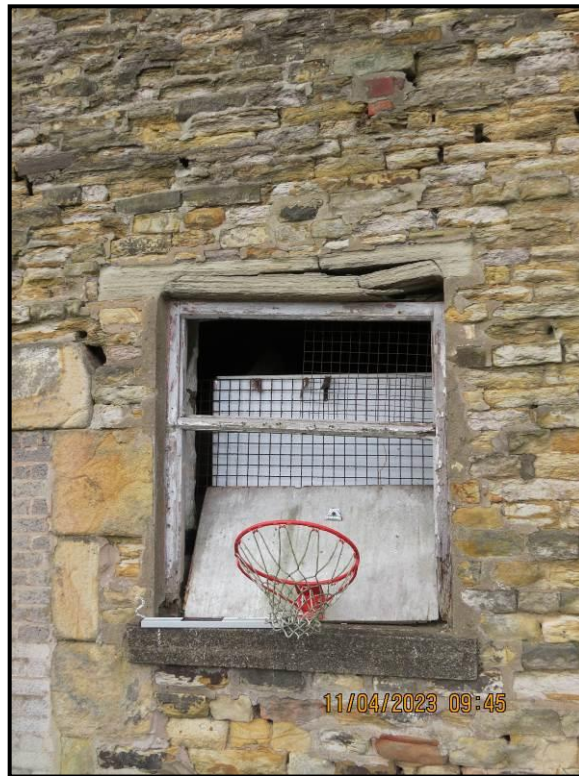


Photograph 008 South East gable



Photograph 021 Gable, ground floor, chainage 5 – 8.20 metres

- 5.3 The original lintel on the right hand corner (chainage 7 – 8.5 metres) has failed, a shear crack consistent with slight tilting and settlement towards the right hand North East flank wall. (Photograph 022).



Photograph 022 Failed lintel, chainage 2 – 3 metres

- 5.4 Two original windows (incorporating stone lintels and non-original pre cast stone cills) are evident between chainage 2 – 3 metres and chainage 5.5 – 6.5 metres. The left hand window lintel has failed, although there is only minor deviation to the bed coursing above.
- 5.5 Isolated losses of pointing are evident at mid-height, exacerbated by the weathering to the stonework. The alignment to the bed coursing shows minor variations. (Photograph 023).
- 5.6 The profile of the Northern window is reasonable. (Photograph 021).
- 5.7 In the upper pike construction, the weathering to the stonework is not as severe although some loss of pointing is evident in the upper left hand aspect. (Photographs 024, 025).

- 5.8 At chainage 4 – 4.6 metres a former window has been infilled in matching stonework, the vertical alignment of the wall is good with irregularities less than 5mm per metre.
- 5.9 The vertical profile of the gable is reasonable. (Photographs 026, 029).



Photograph 029 Vertical profile

6.0 NORTH EASTERN FLANK WALL

- 6.1 The North Eastern flank wall follows a stepped profile on plan extending for a length of 8.5 metres (approximately) to the narrower stone faced outshoot of the farm.
- 6.2 The full length of the stepped flank wall is completed in seconds Accrington facing brick with variable sized openings, windows etc. at ground and first floor level. (Photographs 030, 003, 004).



Photograph 030 North West flank, chainage 0 – 43 metres

- 6.3 The “taking-in” door above the opening incorporates a three deep brick cill course which has settled given the failure of the lintel. (Photograph 031).
- 6.4 The brickwork to the wall on either side of the “taking-in” door is satisfactory. (Photographs 032, 033).
- 6.5 The stone quoins to the original barn have been retained, exhibiting some historic settlement towards the Eastern aspect.
- 6.6 In the vertical plane on either side of the main doorway, the alignment is reasonable with irregularities circa 6mm - 11mm per metre. (Photographs 034, 035).

- 6.7 At chainage 4.6 metres, the width of the outshoot reduces to 1.9 metres, finished in seconds Accrington facing brick. (Photograph 037).
- 6.8 There are no signs of any separation where the return rear wall adjoins the original stone flank of the original barn construction. (Photographs 038, 042).
- 6.9 The Northern flank wall continues for a further 3.4 metres adjoining the newer outshoot construction to the farmhouse. (Photograph 039).



Photograph 039 North East flank, chainage 5 – 8 metres

- 6.10 A 1.5 metre wide opening at ground floor level has infilled in concrete blockwork, with a possible former window opening between chainage 7.2 – 8 metres has been infilled more recently. (Photograph 040).
- 6.11 At first floor level the elevation incorporates a three panelled window following a step profile beneath a rendered lintel construction. The brickwork and pointing are in fair condition. (Photograph 041).
- 6.12 The vertical alignment of the North flank wall exhibits irregularities circa $\pm 12\text{mm}$ per metre.
- 6.13 The deformation is of long term origin with no sign of any active movement

INTERNAL INSPECTION

7.0 GROUND FLOOR (SOUTH EAST)

- 7.1 The South Eastern section, a clear span (4.5 metres) with the first floor on two lateral timber beams circa 300mm x 75mm supporting 150mm x 75mm joists at approximately 450mm centres. (Photographs 043, 044, 045).



Photograph 043 Ground floor, South East

- 7.2 The external wall thickness to the gable is in the order of 500mm (?) there is no signs of any recent lateral movement affecting the seating of the beams onto the gable. (Photographs 046, 047, 048).
- 7.3 The internal cross wall incorporates a doorway with a probable two step difference in floor level (paint cans preclude detailed inspection). (Photographs 049, 050).
- 7.4 The profile of the brickwork wall is satisfactory. (Photograph 051).

8.0 BARN - GROUND FLOOR (NORTH WEST)

- 8.1 The room extends for a width in the order of 7 metres laterally by 4.5 metres long, a single beam spanning the full length supported on a 75mm x 50mm prop supporting the timber floor at first floor level. (Photograph 052, 053, 054).



Photograph 052 North West bay

- 8.2 The gable party wall of cottage has been rebuilt in concrete blockwork with the first floor joists from the adjoining property carried through the wall. (Photograph 056).
- 8.3 The timber stairs adjacent to the internal party wall gives access to the first floor.

9.0 BARN – FIRST FLOOR

- 9.1 The roof is support on a single King post truss, the bottom tie in the order of 300mm x 75mm, the King post 200mm x 75mm and similar sized principal rafter.
- 9.2 The North Eastern flank wall on the main section (0 – 4.6 metres) is constructed in Crowthers common brick, completed with four number purlins spanning 6 metres, beneath 75mm x 50mm rafters. (Photograph 065).
- 9.3 On the inside face of the South Eastern gable vertical crazing is evident with joints widths circa 25mm – 50mm. (Photographs 062, 067).
- 9.4 There is no evidence of any lateral movement where the purlins seat into the gable wall, nor any inadequate bearing of the main truss and rafters. The horizontal profile of the purlins and rafters is good. (Photographs 058, 060, 061).



Photograph 061 King post truss

10.0 BARN – CONCLUSIONS (UNIT A)

- 10.1 The barn is an original predominantly stone solid wall construction with the South West (left) and South East gable in natural stone, the North Eastern flank wall (right hand of gable) follows a stepped footprint on plan, the elevation fully faced in Accrington seconds facing brick.
- 10.2 The effects of minor long term settlement are clearly evident to the original natural stone elevations (South West and South East) with minor losses of bed coursing and localised losses of vertical alignment.
- 10.3 Given the significant wall thickness of 500mm the localised losses of vertical alignment in the order of $\pm 12\text{mm}$ per metre is not structurally significant and the predominant vertical separation in the masonry on the flank walls (South East) and the gable is of considerable age, exacerbated by weathering to the local sandstone possibly as a result of cement pointing rather than the recommended Lime based mix.
- 10.4 The cracked brickwork above the poor lintel construction on the North East flank (right hand from gable) is caused by the inadequacy of the lintel and not by any recent movement associated with ground settlement.
- 10.5 The general arrangement of the traditional roof construction is good with no evidence of deflection or irregularities to the main timbers.
- 10.6 Notwithstanding the visual effects of the historic deformation and modification (minor cracking) there are no structural reasons to preclude satisfactory upgrading. The existing cracks could be repaired using 'Helibond' crack stitching details (copy attached).
- 10.7 Some weathering to the stonework is evident and may benefit from the use of an approved breathable water repellent. The repointing should be carried out in a Lime based mortar rather than cement based.
- 10.8 Notwithstanding the visual effects of the movement in general terms, whilst assessment of movement is impossible on a once only visit the mechanics of ground consolidation are such that given the age of the property the majority of movement will have by this time ceased.

11.0 BARN (UNIT B)

- 11.1 The two storey barn incorporates an open plan shippon or stalls beneath a timber suspended first floor with a pitched slated roof construction. (Photograph 071).



Photograph 071 Two storey shippon

- 11.2 The building extends for a length in the order of 9 metres by 4.5 metres wide incorporating timber columns (former telegraph poles) 250mm diameter at approximately 4.5 metre centres (two gable frames and a mid span centre frame).
- 11.3 The linked unit follows a 'L' shaped footprint, with the two storey barn aligned on a North West/South East orientation with the shippon aligned on a North East/South West orientation abutting the South Eastern gable of the barn.
- 11.4 The right hand (South East) gable abuts the lean-to shippon construction on the South Eastern aspect. (Photograph 071).

- 11.5 The vertical alignment of the timber columns both longitudinally and laterally is good, the mid frontage column is supplemented with an additional 250mm x 250mm timber column supporting the main central floor beam spanning between the front and rear elevations, with galvanised joist hanger restraints to the main columns and the lateral floor beam. (Photographs 091, 091E).



Photograph 091 Main stanchion and first floor support



Photograph 091E

- 11.6 The floor beams spanning between the front and rear walls is a 300mm x 150mm timber section supporting 150mm x 75mm floor joists at 400mm – 450mm centres.
- 11.7 The horizontal alignment of the main beam and floor joists is good.
- 11.8 The ground floor cladding retains the six course deep concrete plinth wall to the rear and both gables with a weathered vertical boarding on the North Western gable with damage and weathering to the timber on the North West rear elevation. (Photographs 103, 104).



Photograph 104 Two storey shippon – gable

- 11.9 The blockwork plinth has a satisfactory horizontal and vertical profile.
- 11.10 At first floor level, no adequate access was available and the roof construction is view from the head of the ground floor steps.
- 11.11 The King post truss supports an inclined 250mm x 75mm (purlins and eaves beam beneath a Big 6 Asbestos roof) truss incorporating principal rafters in the order of 300mm x 150mm, bottom tie 300mm x 125mm.

- 11.12 Externally the profile of the pitched roof is good. (Photographs 109, 110).



Photograph 110 Front elevation

- 11.13 The vertical cladding is in poor condition with deterioration although the vertical alignment of the main structural carcase of the building is satisfactory.

12.0 SHIPPON

- 12.1 The lean-to shippon adjoins the South East gable of the two storey barn, aligned on a North East/South West orientation, with the lean-to roof falling from left to right (North West – South East) extending for a length in the order of 13 metres by 8 metres wide, with RSJ stanchions at 3 metre centres supporting random section timber whaling sections between stanchions. (Photograph 072).



Photograph 072 Lean-to shippon

- 12.2 The stanchions are 300mm x 125mm supporting the main timber rafters. The main rafters (former telegraph poles) circa 300mm diameter, beneath the eight number purlins, spanning between two bays (6 metres). (Photographs 074, 075, 076).
- 12.3 The roof is a galvanised Big Sheet profiled roof, profiled sheet on sections sized in the order of 300mm x 75mm with no evidence of adverse deflection. (Photographs 080, 081, 082, 083).
- 12.4 The vertical profile of the stanchions is satisfactory along both axes.

- 12.5 The front bay project past the line of the adjoining two storey barn by a distance in the order of 1.5 metres (probable addition to original structure). (Photograph 084).



Photograph 084

- 12.6 Access to the external elevation was limited by storage and vegetation, on the North West corner adjoining the two storey barn, the two end bays incorporate ten deep whaling sections (former railway sleepers) and a profiled metal cladding. (Photograph 096).



Photograph 096 External rear elevation (East)

- 12.7 The South East flank (right hand from front) incorporates the whaling sections beneath the eaves opening, the typical stanchion detail is shown in photograph 087. (Photograph 086).



Photograph 087 Typical stanchion deformation

13.0 CONCLUSION – BARN AND SHIPPON (UNIT B)

- 3.1 The attached barn and shippon incorporate a timber framed structure with a mixture of 250mm diameter timber columns (former telegraph poles) with sawn timber beams, rafters and purlins beneath a slated roof.
- 3.2 The external cladding founded on a satisfactory level concrete slab supports a variable height concrete blockwork plinth wall, overlain in places with vertical timber boarding.
- 3.3 The vertical and horizontal alignment of the columns and floor are good and whilst some of the fixing details (modified joists hangers) are irregular there are no signs of any structural inadequacy or deterioration to the main framework or roof arrangement.
- 3.4 Any upgrading would incorporate approved modern timber connections between the various members (a simple structural exercise).
- 3.5 The external cladding is highly weathered and would benefit from general repair/renewal as required.
- 3.6 In conclusion there are no structural reason to prevent upgrading the structure and existing cladding format, subject to the approved detailing in accordance with current good practice.
- 3.7 The upgrading (visual amenity) should be carried out within a normal maintenance period in the next 5 years.
- 3.8 To summarise both units are capable of retention modifications incorporating standard good practice details, carried out during a general maintenance period and not as a pre requisite of any mortgage conditions.
- 3.9 Should you require clarification on the report please do not hesitate to contact the writer.

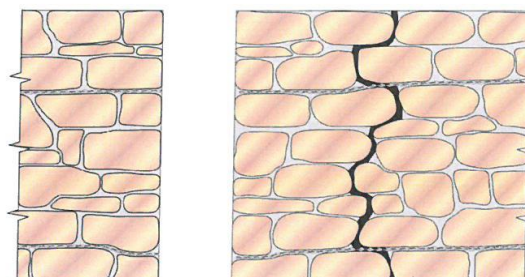
CS10

Repair of a Crack Near a Corner in a Stone Wall using HeliBars

METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser and vacuum attachment, cut slots into the horizontal mortar joints, to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed stone surfaces in order to provide a good masonry/grout bond. This operation may require the use of hand tools to remove the mortar due to the random nature of the stone.
2. Remove ALL dust and mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer WB. Ensure the slot is damp or primed prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. Inject a second bead of HeliBond grout over the exposed HeliBar and iron it into the slot using a finger trowel. Inject additional HeliBond grout as necessary, leaving 10-15mm for new pointing.
8. Point up the remaining slot with a suitable matching mortar and make good the crack using an appropriate Helifix bonding agent depending on the width of the crack.
9. Clean tools with clean, fresh water.

N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.



RECOMMENDED TOOLING

For cutting slots up to 40mm deep	Twin-bladed cutter with vacuum attachment
For mixing HeliBond	3-jaw-chuck drill with mixing paddle
For injection of HeliBond into slots	Helifix Pointing Gun CS with mortar nozzle
For smoothing pointing	Standard finger trowel

Specification Notes

The following criteria are to be used unless specified otherwise:

- A. Depth of slot into the masonry to be 35mm to 40mm.
- B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.
- C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.
- D. Normal vertical spacing is 450mm.
- E. Where a crack is less than 300mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall.
- F. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.
- G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme

HELIFIX MASONRY REPAIR DETAILS © January 2014

PHOTOGRAPH LIST

- 001 South East gable
- 002 North East flank wall
- 003 North East flank wall
- 004 Outshoot to farm
- 005 South West flank wall
- 006 South West flank wall
- 007 Gable wall depth
- 008 South East gable
- 009 Weathering to stonework
- 010 South West flank, chainage 0 – 3 metres
- 011 South West flank
- 013 Failed lintel
- 014 Good vertical alignment, chainage 1 metre
- 015 Minor lateral movement (historic)
- 016 Historic movement to South West corner
- 017 Weathering to upper wall
- 018 Good vertical alignment, South West corner
- 019 Not used
- 020 Gable, ground floor, chainage 0 – 3.5 metres
- 021 Gable, ground floor, chainage 5 – 8.20 metres
- 022 Failed lintel, chainage 2 – 3 metres
- 023 Weathering to stonework, chainage 3 – 4.5 metres
- 024 Upper gable, chainage 0 – 4 metres
- 025 Upper gable, chainage 3 – 8 metres
- 026 Not used
- 027 Loss of vertical alignment to gable, chainage 0
- 028 Loss of vertical alignment to gable, chainage 8.3 metres
- 029 Vertical profile
- 030 North West flank, chainage 0 – 4.3 metres
- 031 Lintel failure, cill collapse, chainage 0.5 – 3.3 metres
- 032 Satisfactory wall profile, chainage 0 – 2 metres
- 033 Satisfactory wall profile, chainage 3 – 4.3 metres
- 034 Satisfactory vertical alignment
- 035 Satisfactory vertical alignment
- 036 Satisfactory vertical alignment, chainage 4 metres
- 037 Return wall, chainage 4.5 metres
- 038 Satisfactory wall return
- 039 North East flank, chainage 5 – 8 metres
- 040 Ground floor, chainage 5 – 8 metres
- 041 First floor, chainage 5 – 8 metres
- 042 North West rear wall, chainage 0 – 2 metres
- 043 Ground floor, South East
- 044 Internal cross wall
- 045 North West flank and internal cross wall

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 - 048 Satisfactory beam seating
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 - 060 South West roof slope
 - 061 King post truss
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 - 063 South East gable (West)
 - 064 King post truss detail
 - 065 North East flank wall and South East gable
 - 066 Purlin/rafter detail (North East)
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 - 070 Not used
 - 071 Two storey shippon
 - 072 Lean-to shippon
 - 073 Satisfactory roof profile
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 - 075 South East flank, chainage 0 – 3 metres
 - 076 North East flank
 - 077 South East flank looking East
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 - 081 Main roof beam
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 - 099 Roof, general arrangement
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 - 104 Two storey shippon - gable
 - 105 Front elevation
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 - 107 Irregular alignment to corner stanchion
 - 108 South East corner – front elevation
 - 109 Front elevation
 - 110 Front elevation



001 South East gable



002 North East flank wall



003 North East flank wall



004 Outshoot to farm



005 South West flank wall



006 South West flank wall



007 Gable wall depth



008 South East gable



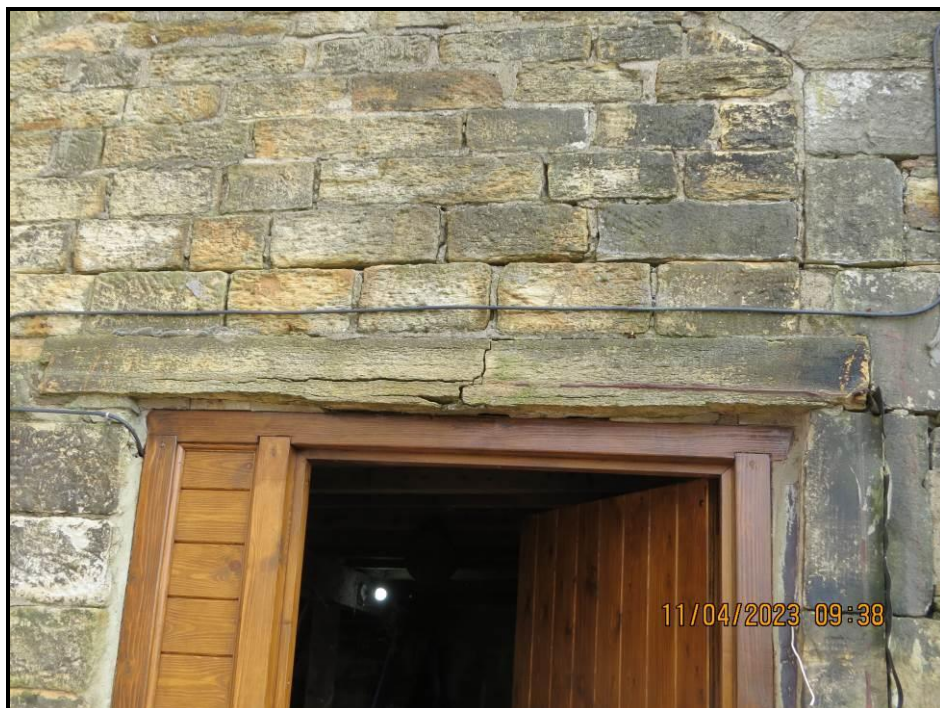
009 Weathering to stonework



010 South West flank, chainage 0 – 3 metres



011 South West flank



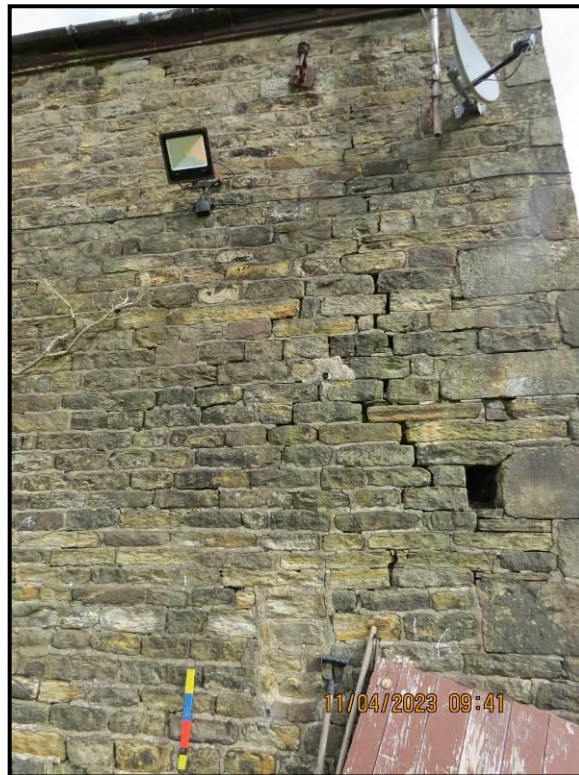
013 Failed lintel



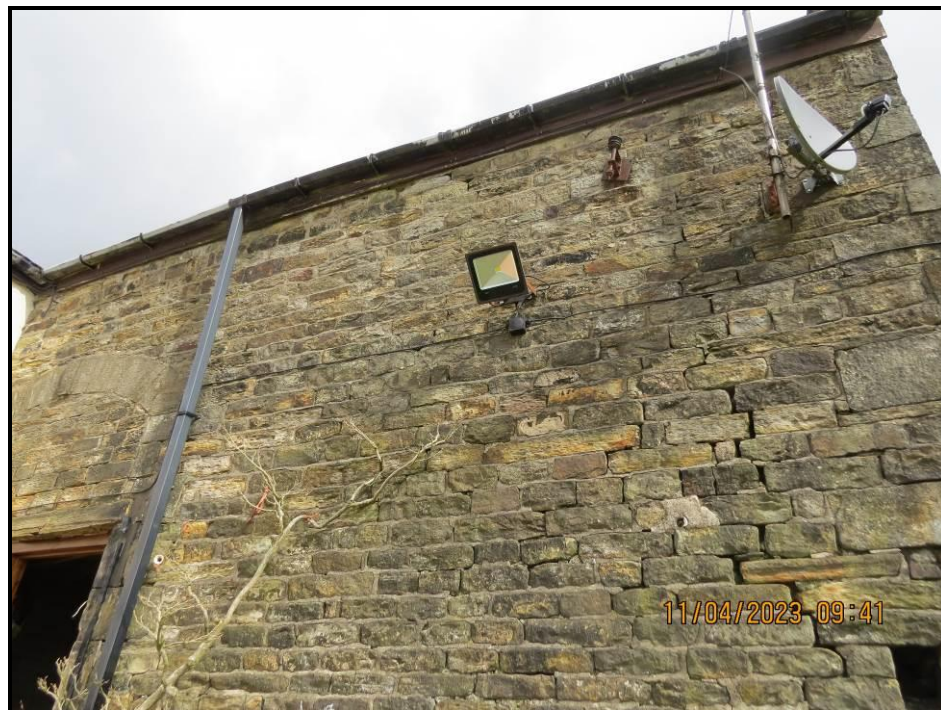
014 Good vertical alignment, chainage 1 metre



015 Minor lateral movement (historic)



016 Historic movement to South West corner



017 Weathering to upper wall



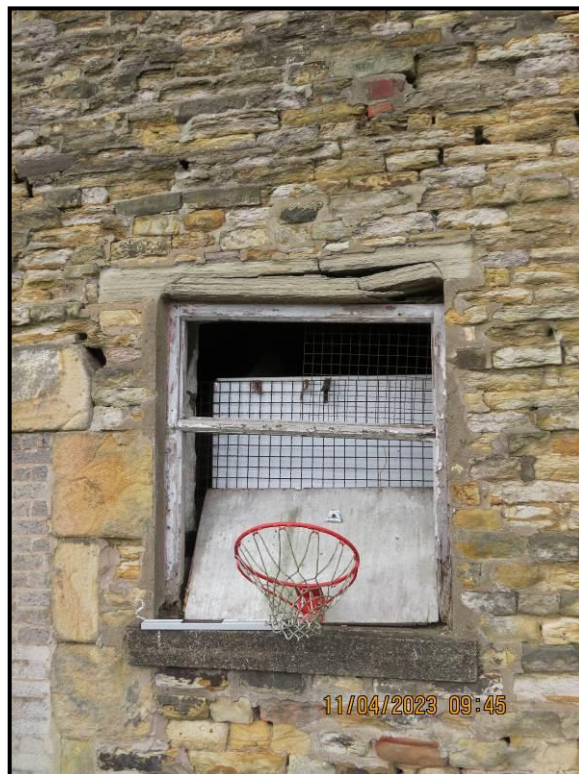
018 Good vertical alignment, South West corner



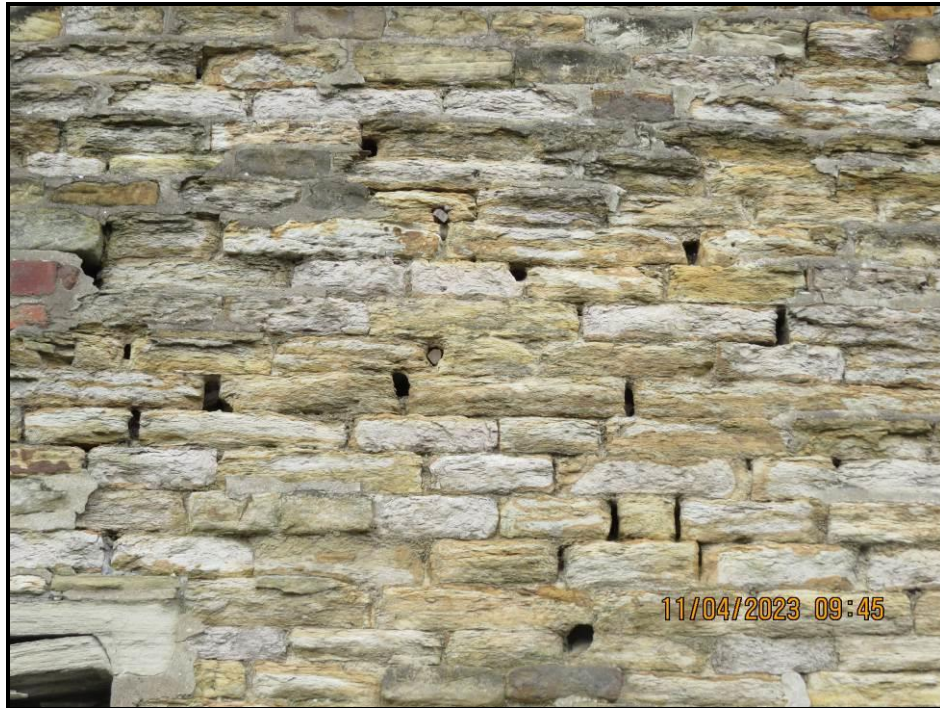
020 Gable, ground floor, chainage 0 – 3.5 metres



021 Gable, ground floor, chainage 5 – 8.20 metres



022 Failed lintel, chainage 2 – 3 metres



023 Weathering to stonework, chainage 3 – 4.5 metres



024 Upper gable, chainage 0 – 4 metres



025 Upper gable, chainage 3 – 8 metres



027 Loss of vertical alignment to gable, chainage 0



028 Loss of vertical alignment to gable, chainage 8.3 metres



029 Vertical profile



030 North West flank, chainage 0 – 4.3 metres



031 Lintel failure, cill collapse, chainage 0.5 – 3.3 metres



032 Satisfactory wall profile, chainage 0 – 2 metres



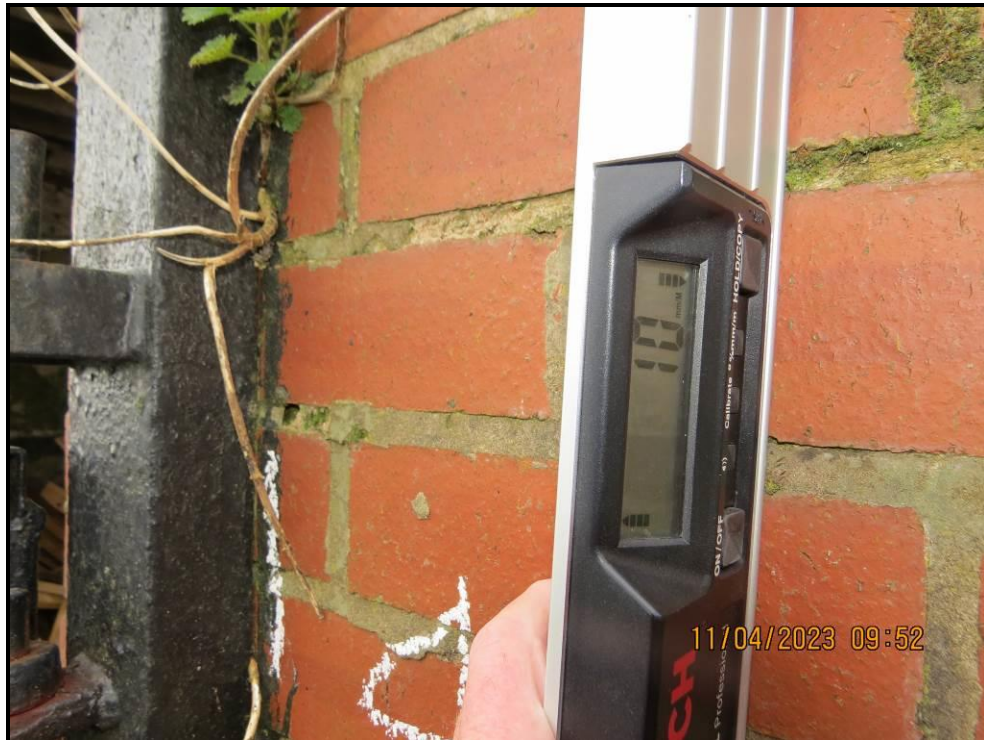
033 Satisfactory wall profile, chainage 3 – 4.3 metres



034 Satisfactory vertical alignment



035 Satisfactory vertical alignment



036 Satisfactory vertical alignment, chainage 4 metres



037 Return wall, chainage 4.5 metres



038 Satisfactory wall return



039 North East flank, chainage 5 – 8 metres



040 Ground floor, chainage 5 – 8 metres



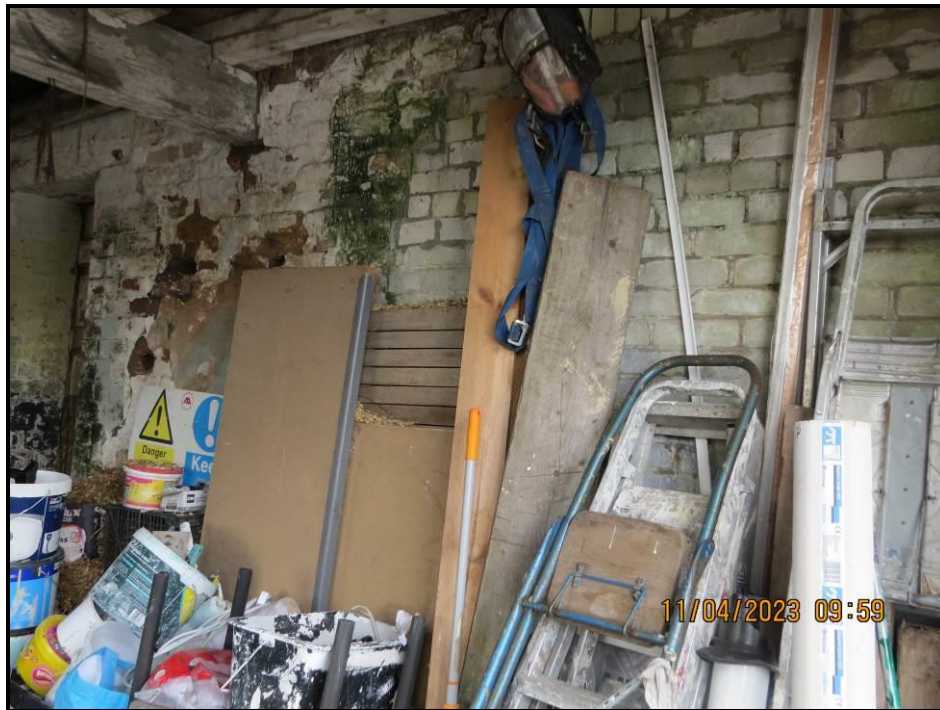
041 First floor, chainage 5 – 8 metres



042 North West rear wall, chainage 0 – 2 metres



043 Ground floor, South East



044 Internal cross wall



045 North West flank and internal cross wall



046 Gable wall



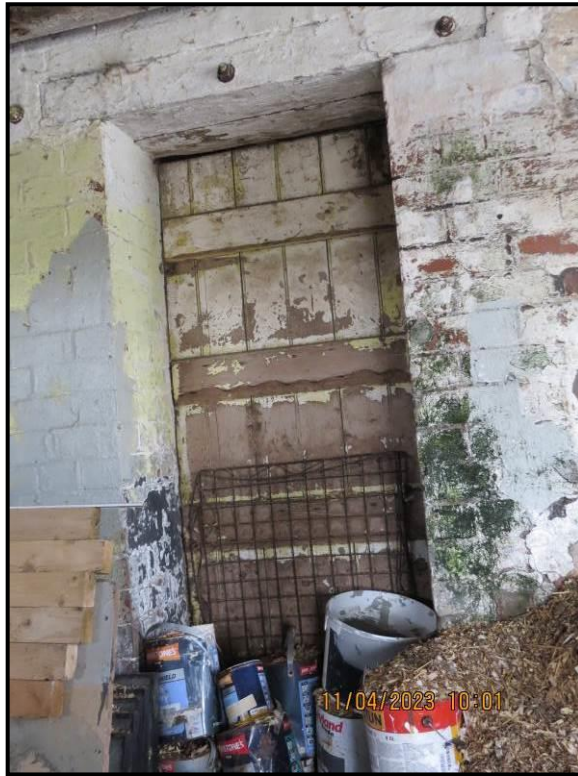
047 Satisfactory beam seating



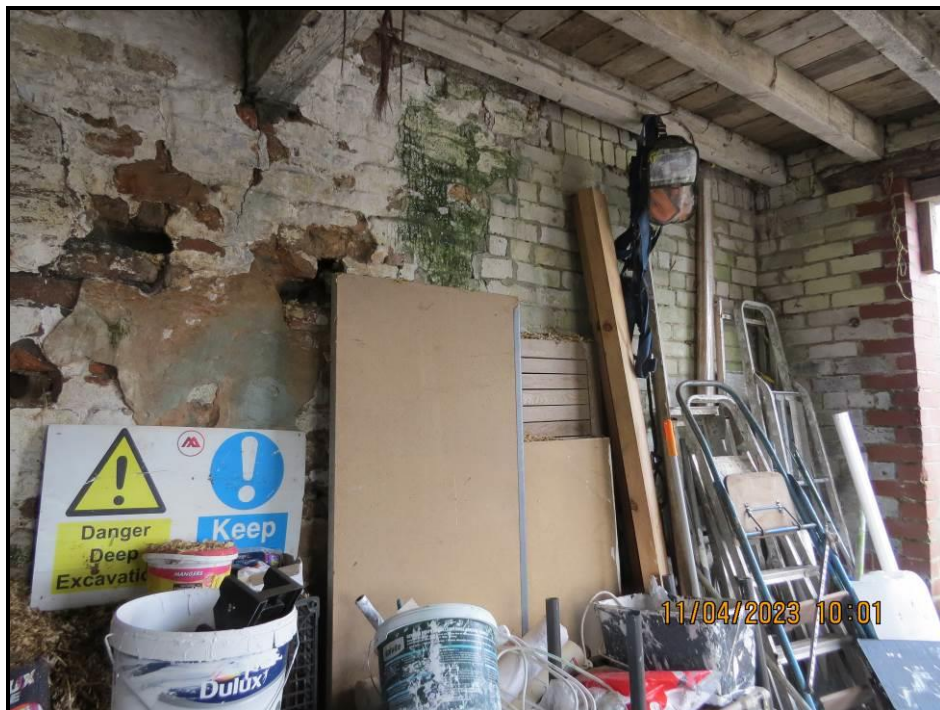
048 Satisfactory beam seating



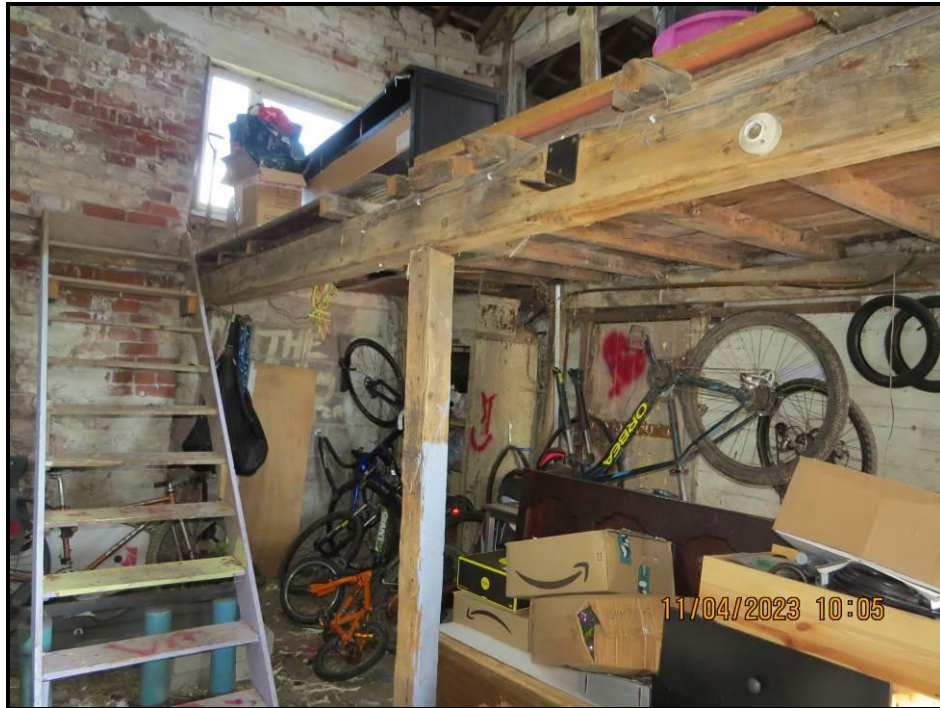
049 Cross wall



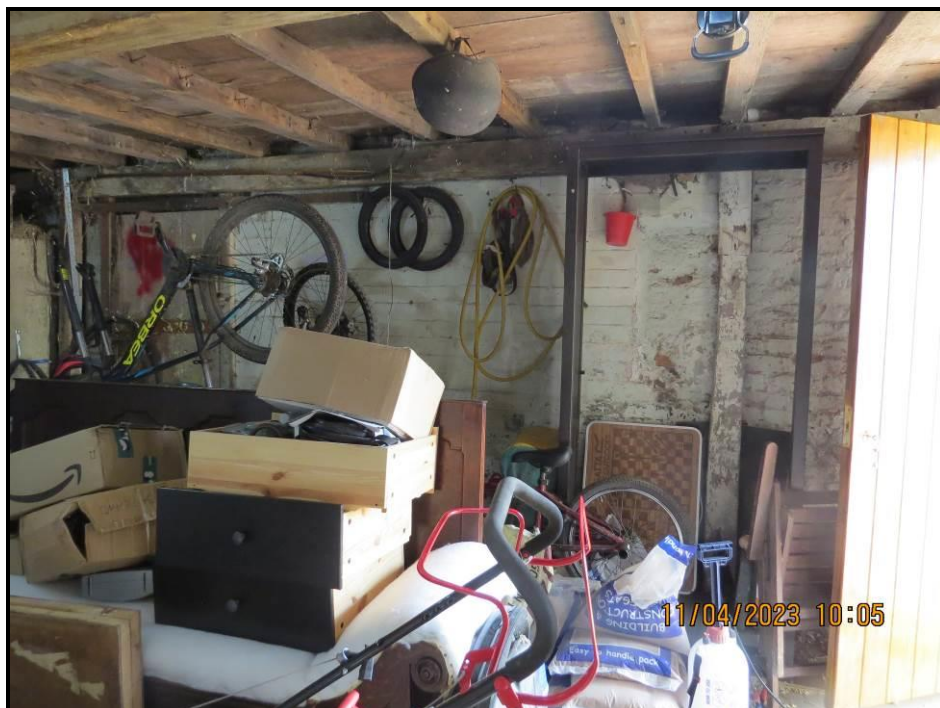
050 Doorway to North West section



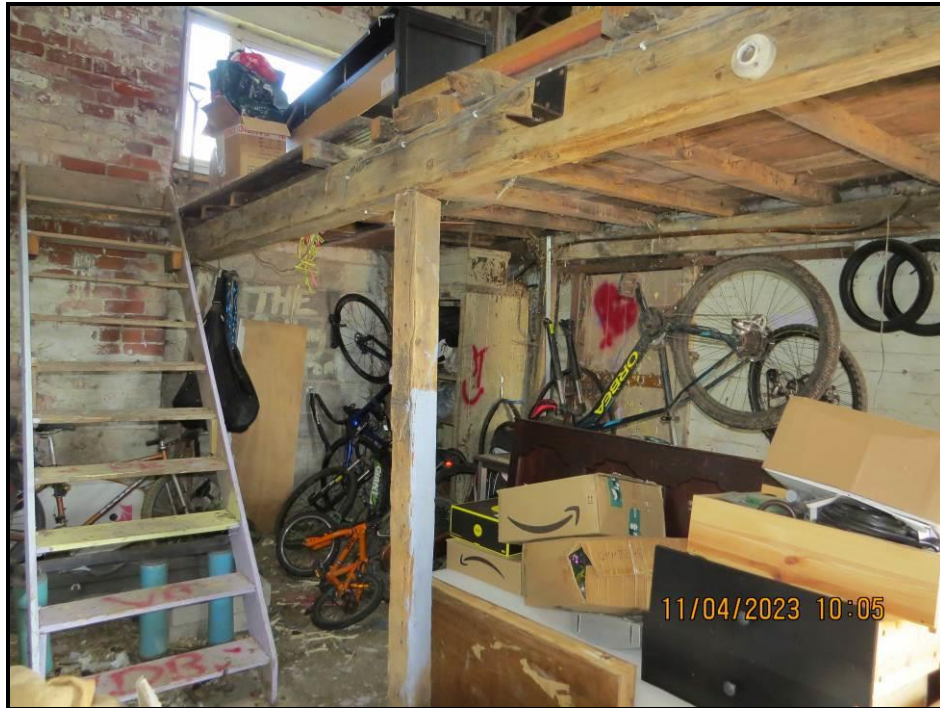
051 Cross wall, chainage 4 – 8 metres



052 North West bay



053 North West bay, internal cross wall, chainage 0 – 4 metres



054 Prop support



055 Roof general arrangement



056 Party wall – Cottage



057 First floor, South West flank wall



058 King post truss looking West – East



060 South West roof slope



061 King post truss



062 South East gable (East)



063 South East gable (West)



064 King post truss detail



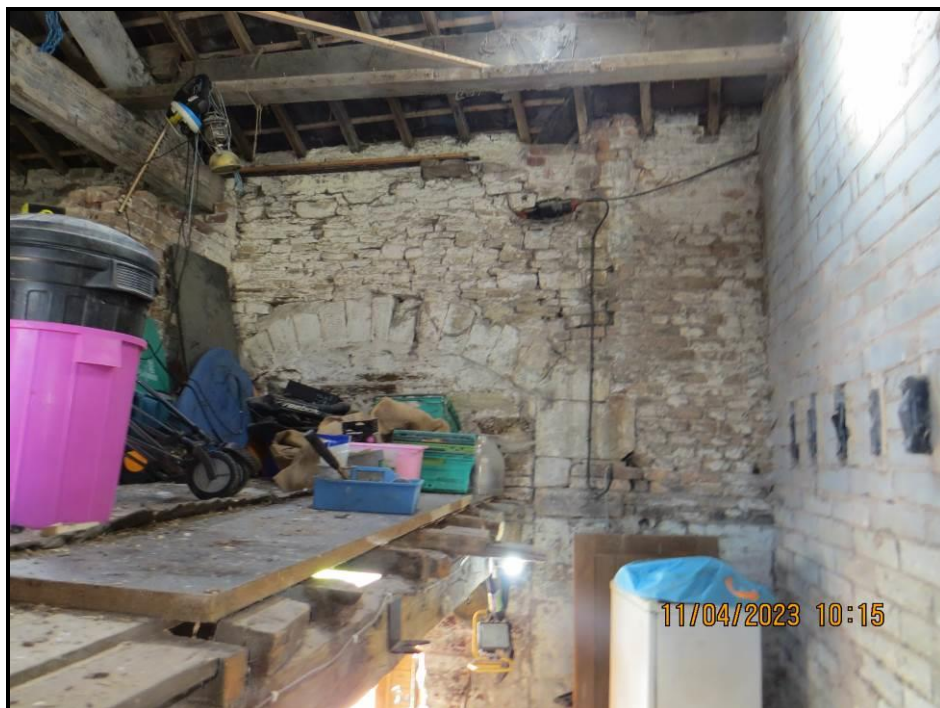
065 North East flank wall and South East gable



066 Purlin/rafter detail (North East)



067 South East gable, historic crazing to gable



068 Internal face to South West flank, chainage 0 – 3 metres



071 Two storey shippon



072 Lean-to shippon



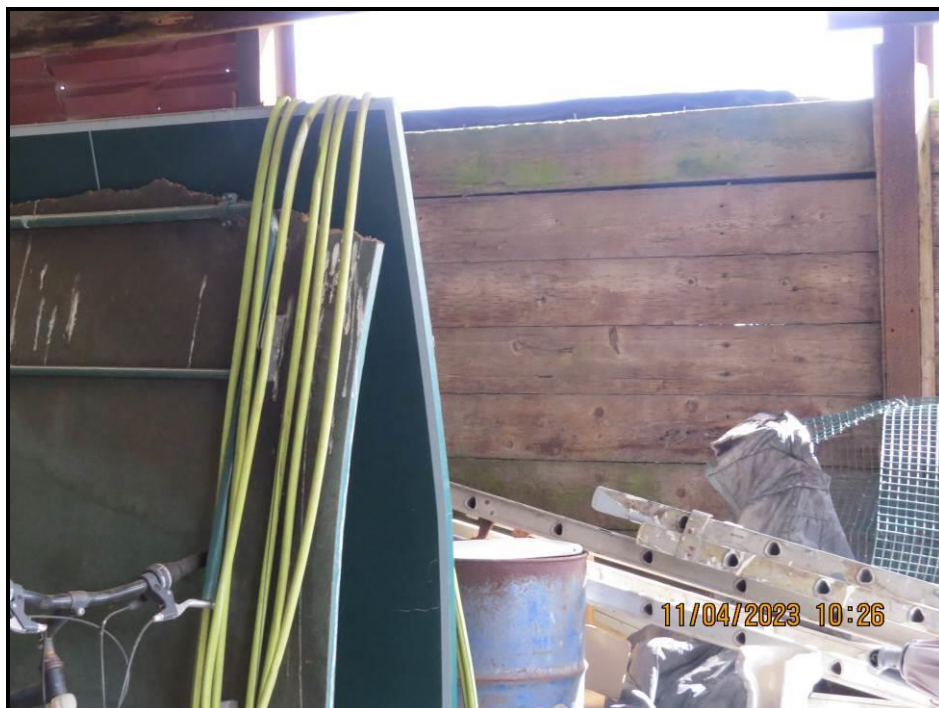
073 Satisfactory roof profile



074 North East flank, stanchion – whaling detail



075 South East flank, chainage 0 – 3 metres



076 North East flank



077 South East flank looking East



078 Rear wall (North West)



079 Rear wall (North West)



080 Main roof beam



081 Main roof beam



082 Ground floor gable to barn (East)



083 Ground floor gable to barn (West)



084 Ground floor gable to barn, chainage 0 – 3 metres



085 Lean-to shippon, South West – North East



086 South East external face to shippon



087 Typical stanchion deformation



088 Shippon, ground floor looking South East – North West



089 Shippon, ground floor looking South East – North West



090 First floor support cross beam



091 Main stanchion and first floor support



092 Cross beam support, rear wall



093 Rear wall, North East



094 Blockwork plinth wall, rear elevation



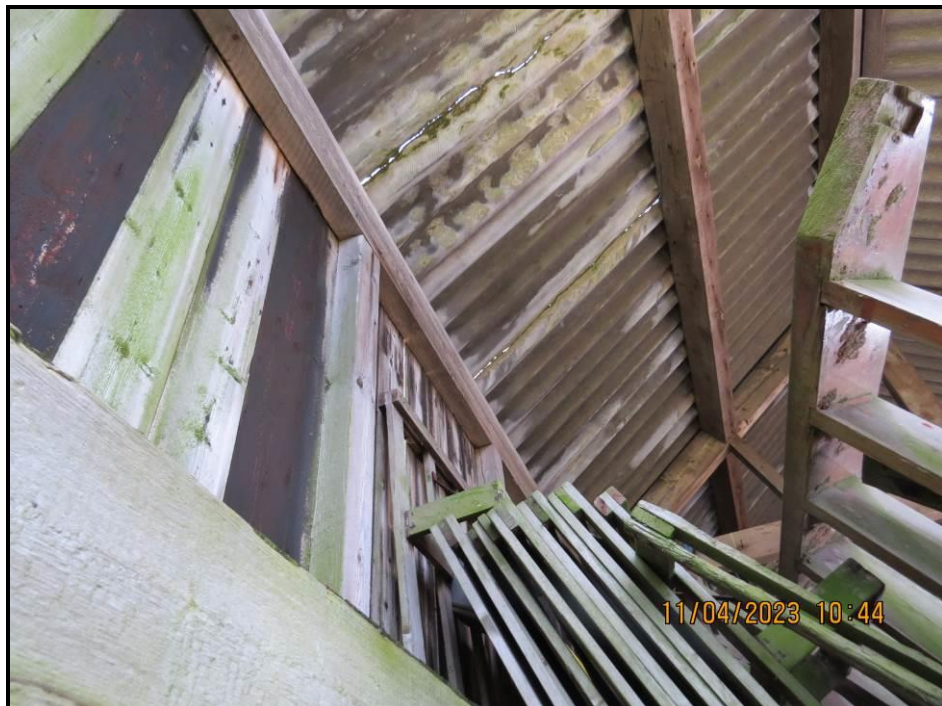
095 Floor beam and first floor looking North West – South East



096 External rear elevation (East)



098 Roof, general arrangement



099 Roof, general arrangement



100 First floor, main joists



101 Internal layout to rear wall



102 Two storey shippon



103 First floor



104 Two storey shippon



105 Front elevation



106 Shippon looking to front South East flank



107 Irregular alignment to corner stanchion



108 South East corner – front elevation



109 Front elevation



110 Front elevation

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DATE OF INSPECTION: 11th April 2023

REPORT NUMBER: 8874

ENGINEERING REPORT: Greengate Hill Farm
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