MARSHAL PETERS ASSOCIATES

CHARTERED SURVEYORS &
HISTORIC BUILDING CONSULTANTS

HERITAGE STATEMENT

and

DESIGN & ACCESS STATEMENT

TO INFORM PROPOSED REPAIRS

at

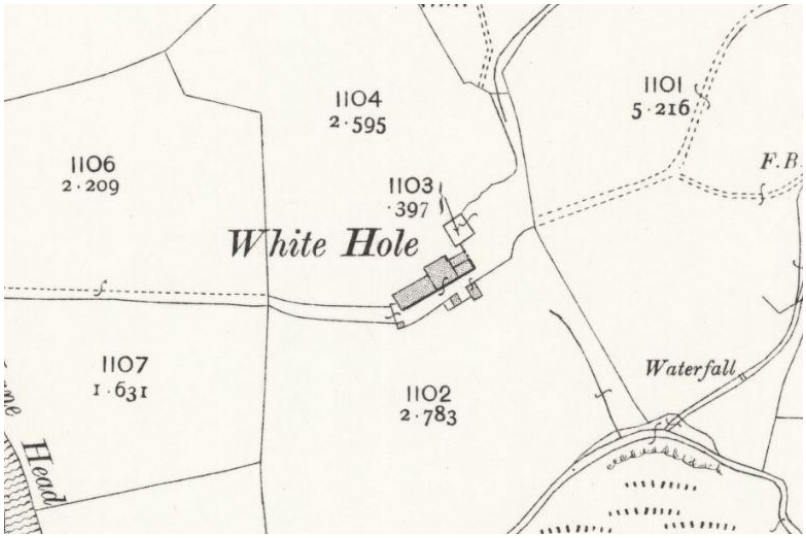
WHITE HOLE

PECKET WELL

HEBDEN BRIDGE

for

The Savile Trust 1965



July 2022

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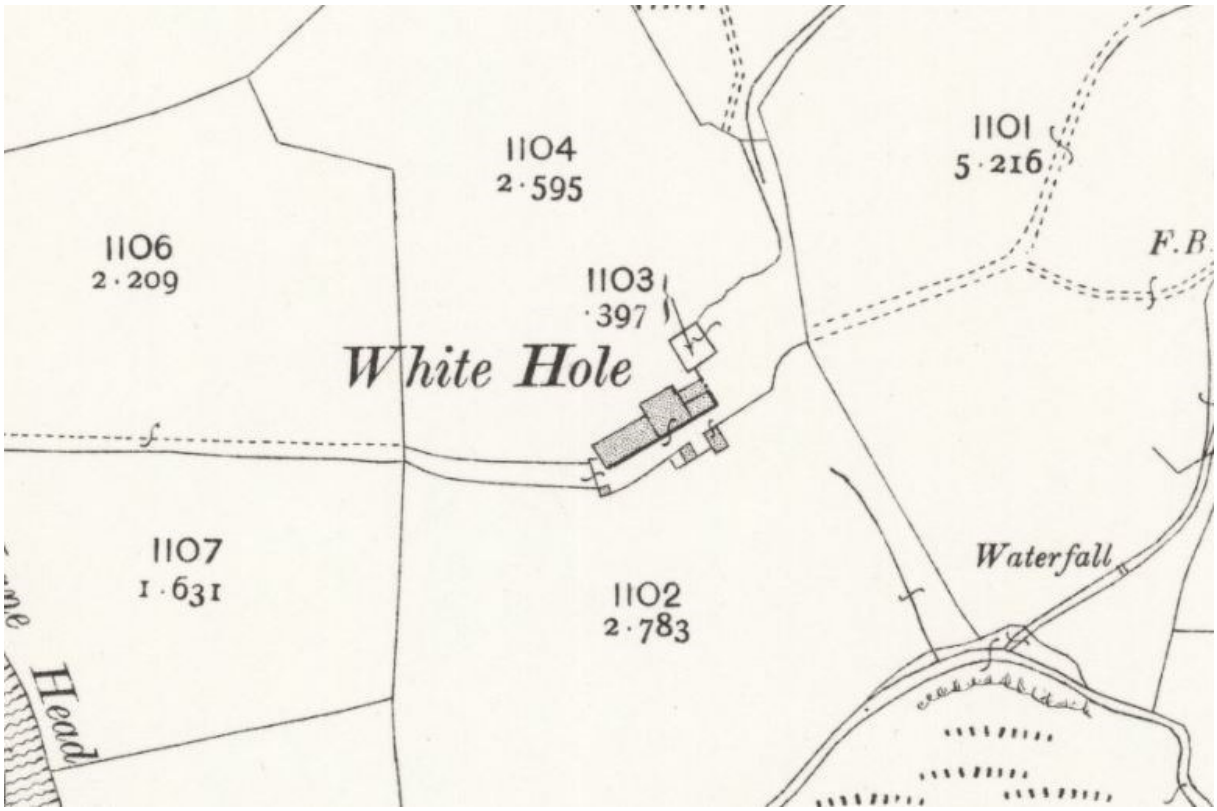
LISTING DESCRIPTION



Statutory address:	WHITE HOLE, THURRISH LANE
List Entry Number:	1227643
Date listed:	12th December 1984
District:	Calderdale (Metropolitan Authority)
Parish:	Wadsworth
National Grid Reference:	SE 00003 32706

SD 93SE WADSWORTH C.P. (off) THURRISH LANE SE 03SW Crimsworth Dean

4/260 White Hole 5/260 -

- II

House, initialled and dated "W I R ". Rubble brought to course, dressed quoins, 1 7 3 1 stone slate roof. 2 storeys. 2-cell plan originally with added cell mid C18. All are chamfered mullioned windows lacking some mullions. 4-light window with 3-light over; 6-light window with 4-light over. Original gabled porch with kneelers and coping protect inner doorway with composite jambs and stop chamfered surround. Date set within a tressure. Quoins mark division with added cell which has 6-light window with king mullion much altered. Inserted windows c.1980 over. One original stone stack to ridge. One brick stack to gable.

Contents

1.0 INTRODUCTION

1.1 Description

1.1.1 This statement has been prepared to provide justification for proposed repairs to the subject property namely White Hole, Haworth Old Road, Pecket Well, Hebden Bridge, HX7 8RG. It should be read in conjunction with the application for Listed Building Consent and accompanying drawings numbered 2523:08 to 13. White Hole is Grade II Listed and as such is granted statutory protection under the Planning (Listed Buildings and Conservation Areas) Act 1990.

1.1.2 Photographs are referred to in this statement with the reference number in bold red type within brackets thus **(1)**. The photographs are included in the Appendix.

1.1.3 White Hole **(1)** is a C18 two-storey dwelling with an original 2-cell plan and later cell addition evidenced by quoins. There is an original gabled porch on the principal southeast elevation with stone kneelers and coping **(2)**. The porch protects an inner doorway with composite jambs and a stop chamfered surround, above which is a date stone inscribed "W I R" and "1731" **(3)**.

1.1.4 In 1672 there was an enclosure agreement between the Earl of Halifax and William Redman, yeoman, and Thomas Lister of Manningham *'to take 4 acres from the common at White Hole'*.[1] It is therefore reasonable to conclude that the initials expressly referenced in the listing description inscribed on the date stone (W I R) most likely refer to a Redman family member.

1.1.5 Whilst the West Yorkshire Archaeology Service historic environment record (HER) has been consulted, archival research has established that historical information relating to the property is scant. White Hole was the subject of an archaeological assessment by the Calder Civic Trust and Hebden Bridge Local History Society in 1975 as part of the Joint Survey of Buildings for Proposed Listing. In addition to a brief building description, the record sheet describes the barn as attached and built in three stages, being un-mortared with a squared rubble extension. The house porch roof is also noted as having kneelers and copings.[2]

1.1.6 Map evidence demonstrates that the structure footprint is consistent with that first recorded in the Ordnance Survey map of 1852 **(4)**, albeit with a small annexe on the northwest elevation towards the southwest gable of which no evidence survives today. The larger scale Ordnance Survey map of 1894 **(5)** also includes the outline of said annexe which is absent from the Ordnance Survey map of 1908 **(6)**.

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1 History of Crimsworth Dean in the Nineteenth Century, Smith, J. D, 1972

2 https://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MWY9627&resourceID=105 retrieved 19/07/22

1.1.7 Adjoining the farmhouse to the northeast is a barn **(7)** of which there is no mention in the listing description. The Hebden Bridge Local History Society hold an undated note by J. A. Heginbottom in their files which states *there is a barn added, with an internal wall and stone piers separating the bays and supporting the roof. These are quite unusual but there are several in this area*.[3]

1.2 Limitations and assumptions

1.2.1 We have not had access to legal information relating to the subject property such as title deeds or covenants. The information provided in this statement is based upon visual evidence obtained during a survey inspection of the subject property and historical research.

1.3 Tenure

1.3.1 The subject property is owned by the applicant and is presently unoccupied.

[3] Email from Hebden Bridge Local History Society (16/07/22)

2.0 UNDERSTANDING, SIGNIFICANCE AND CHANGE

2.1 The UK government is clear on the importance it places on the protection of historic assets. Heritage is recognised as being educative for future generations, providing a tangible link with our past and retaining a 'sense of place'. The importance of historic assets has now been extended to the sustainability agenda as well as contributing to social cohesion, regeneration, providing housing and building wealth through tourism. (Great Britain, 2010)

2.2 Conservation philosophy has, for some time, accepted that to facilitate the survival of historic buildings an element of managed change is inevitable.

Conservation may, according to circumstance, include the process of: retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these. (ICOMOS, 1999)

2.3 Before any conservation, maintenance, alteration or other interventions take place it is vital that decisions be informed by an understanding of the significance of the asset. This is now enshrined in policy, philosophy and legislation. (Great Britain, 2010b), (English Heritage, 2008)

2.4 It is therefore the aim of this statement to provide an understanding of the historical development of the subject property as well as providing an assessment of the significance of specific areas relating to the proposed works, in order to aid conservation decisions made by statutory authorities and the building owners.

3.0 BACKGROUND

3.1 At an altitude of 346m (1,135 feet) the subject property is sited in an exposed upland location without appreciable cover afforded either by buildings or landscape features. Site specific calculations have established that the property is located within a SEVERE Exposure Zone and almost within a VERY SEVERE Exposure Zone.[4]

3.2 There have been longstanding problems of water ingress through the roof and southwest elevations of the farmhouse and barn, the latter being at a higher level than the farmhouse roof.

3.3 Prior to our instructions the applicant had removed slates from the farmhouse roof to effect essential repairs. The slates had been 'turnerised' **(8)** and were consequently in a dilapidated state as were the timber battens, rafters, purlins and trusses **(9)**.

A common method of dealing with widespread deterioration of fixings, developed in the 1930s, was to 'turnerise' a roof by spreading a mesh and bitumen mix over the top of all the slates to prevent them slipping. This has also been marketed as an economical way of reducing heat loss. The effect of turnerising is to seal the roof and reduce the natural ventilation of the space, leaving all timbers, rafters, purlins, plates and battens at an increased risk of decay. Turnerising proved to be very disfiguring to the appearance of the roof and difficult to remove, which prevented the slates being re-used and made it difficult to deal with subsequent localised failures of a small number of slates.[5]

Treatments such as externally-applied coatings – often based on resin or bitumen – intended to increase insulation or to secure loose or slipping slates, can have severe unintended consequences, by impeding ventilation or trapping moisture in the battens, purlins and rafters. These coatings will also prevent salvage of the roof covering for re-use.[5]

3.4 Prior to our instructions the applicant had removed C20 vertical asbestos slates from the southwest gable and dismantled an incongruous C20 brick chimney stack atop the gable to effect essential repairs **(1)**. A photograph of the southwest gable pre-dating this work is held within the Historic England Archive and reproduced at **(10)**.

3.5 Upon removal of the vertical asbestos slates from the southwest gable it became apparent that there has been significant structural movement of the gable wall, specifically at its junction with the principal southeast elevation, evidenced by displacement of the quoins full height from ground to eaves level **(11)**.

3.6 The applicant subsequently instructed us to undertake a Preliminary Survey of the subject property to diagnose the cause of the defects. A Preliminary Survey is carried out as part of a feasibility study to establish and review options for repair, conservation, adaptation and alteration (English Heritage, 2013).

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4 Code of Practice for assessing exposure of walls to wind-driven rain, British Standard 8104 : 1992

5 Roofing, Practical Building Conservation, English Heritage, 2018

3.7 To assist with our interpretation and understanding of the defects the applicant commissioned a laser survey of the subject property and adjacent barn which accompany the application for Listed Building Consent. Namely:

Drawing 2522: 08	Existing Ground Floor Plan
Drawing 2522: 09	Existing First Floor Plan
Drawing 2522: 10	Existing Elevations and Cross Sections

3.8 Our Preliminary Survey identified the following significant defects, the cumulative impact of which is compromising historic fabric and as such requires urgent attention. In summary:

a) Failed slates to farmhouse roof due to application and failure of C20 'turnerised' coating **(9)** which precludes re-use of the slates.

b) Decayed roof timbers to farmhouse roof resultant from application and failure of a C20 'turnerised' coating including beetle infestation **(12)**.

c) Substantial misalignment of barn gable walls and trusses which are leaning towards the southwest. The resultant load has transferred laterally to the farmhouse roof with consequential misalignment of walls and trusses **(13)**.

d) Structural movement of barn southwest gable **(14)** has resulted in a failure at the junction between the farmhouse roof and barn wall **(15)**, with consequential longstanding water ingress into structural timbers and the room below **(16)**.

e) Fractured inappropriate cementitious render across northwest elevation resulting in entrapped moisture therein **(17)**.

f) An absence of adequate weather protection to the farmhouse **(1)** and barn **(15)** southwest gables which are on the cusp of SEVERE and VERY SEVERE Exposure Zones.[6]

g) Suspect lateral restraint between first floor and principal southeast elevation to left of entrance porch **(26)**.

3.9 Intervention is now necessary to prevent irreversible damage to and loss of historic fabric. The repairs for which Listed Building Consent is now sought are in response to a technical need to ensure structural stability and weathertightness. It is a response which both conserves the historic fabric and restores its essential/innate permeable qualities, while ensuring the building's significance and special interest are retained. (The SPAB, 2021)

[6] Code of Practice for assessing exposure of walls to wind-driven rain, British Standard 8104 : 1992

3.10 Calderdale Council expressly encourages pre-application consultation with regard to works to a Listed Building:

The full implications of an application for alteration, extension or change of use of a Listed Building can only be assessed with full details. Applications for works to a Listed Building must be accompanied by fully detailed drawings of the existing buildings and all proposed alterations. Developers are encouraged to enter into early negotiations with the Council to ensure that any development proposal is in keeping with the Listed Building and its setting.[7]

On the 11th February 2022 the applicant's agent wrote to the Conservation Team at Calderdale Council requesting a pre-application meeting to review the proposed repairs.[8] As a response to this letter was not received a telephone message was left for the Conservation Team on 9th March 2022 to which a reply was also not received.

It is the applicant's intention to work with the Conservation Team at Calderdale Council in a positive and proactive manner so that the application to which this statement relates may be determined in accordance with local and national policy.

7 Calderdale Council Unitary Development Plan adopted 25/08/06, as amended 03/08/09, para. 8.55

8 Royal Mail reference 11-072 59C B5D

4.0 PROPOSALS

4.1 Farmhouse southwest gable

4.1.1 The primary issues which require addressing include (i) structural stability, (ii) adequate weather protection, and (iii) retention of historic fabric.

4.1.2 The gable elevation under consideration **(1)** faces southwest and is located at an altitude of 346m above sea level. There is no appreciable cover adjacent to the gable elevation afforded either by buildings or landscape features.

4.1.3 When considering appropriate forms of construction, particularly in exposed upland locations, reference may be made to British Standard 8104: 1992 Code of Practice for Assessing Exposure of Walls to Wind-Driven Rain. Paying due regard to the location and aspect of the southwest gable elevation we have undertaken calculations adopting the methodology in British Standard 8104 and confirm that the wall under consideration has a Wall Spell Index (D_{WS}) of **96**.

4.1.4 The Wall Spell Index (D_{WS}) equates to the quantity of rain in litres per square meter which will fall on the wall during a 'spell' of wind-driven rain. This therefore equates to 96 litres per square meter of wind-driven rain falling on the southwest gable per spell. A spell is defined as a period or sequence of periods of wind-driven rain on a vertical surface of given orientation. A spell is of variable length and can include several periods of wind-driven rain interspersed with periods of up to 96 hours without appreciable wind-driven rain (Great Britain, 1992).

4.1.5 The data derived from calculations using British Standard 8104 forms the basis of four Exposure Zones relative to altitude, orientation and topography – i.e. Zone 1 (sheltered), Zone 2 (moderate), Zone 3 (severe) and Zone 4 (very severe). The Exposure Zones are expressly referenced in The Building Regulations 2010 and associated reports published by the Building Research Establishment to determine the suitability of different forms of wall construction. A Wall Spell Index (D_{WS}) of 96 places the southwest gable elevation in Exposure Zone 3 – i.e. **severe**. A Wall Spell Index (D_{WS}) of **≥100** equates to Exposure Zone 4 – i.e. **very severe**.

4.1.6 A solid external wall in Exposure Zone 3 (severe) should be rendered in two coats with a total thickness of at least 20mm with a scraped or textured finish if it is to hold moisture arising from rain and snow until it can be released in a dry period without penetrating to the inside of the building or causing damage to the building. A solid external wall in Exposure Zone 4 (very severe) should be protected by external impervious cladding (Great Britain, 2010).

4.1.7 It is therefore reasonable to conclude that there is a high likelihood of water penetration through an unprotected solid stone wall in this location, hence the presence of C20 asbestos slates affixed to the southwest gable elevation when photographed in 2002 **(10)**. To further exacerbate matters more intense and frequent precipitation events are very likely in the United Kingdom **(18)**. Slate hanging has been used to protect walls in areas of high driving-rain exposure since at least medieval times. It is often used only on the more exposed elevations (English Heritage, 2018).

4.1.8 To retain, protect and stabilise the historic fabric it is proposed that:

a) The inner and outer leaves of stonework be stitched with resin-bonded non-ferrous ties.

b) Voids within the rubble wall core be infilled with lime grout.

c) The gable wall be restrained to the front and rear flanking walls with resin-bonded non-ferrous ties which will extend around the south and west corners.

d) Slate hanging be reinstated across the complete gable elevation, full height, affixed to timber battens using natural Welsh Blue slates. To provide a consistent plane across the gable prior to slating, lime render will be applied to correct alignment irregularities.

e) A stone chimney stack be constructed atop the southwest gable to serve the sitting room fireplace. The footprint, height and details of which will replicate the stone stack which serves the kitchen stove **(19)**.

4.2 Farmhouse northwest elevation

4.2.1 The primary issue which requires addressing is the application of a dense, entirely inappropriate, cementitious render across the complete façade **(20)**.

4.2.2 The cement render has an inappropriate smooth finish with localised fractures through the render much in evidence. Immediately following spells of inclement weather, as air movement and/or sunlight promotes drying, there is clear evidence of entrapped moisture behind the cement render which is manifesting in the vicinity of fractures **(17)**.

4.2.3 It is recognised by organisations such as The Society for the Protection of Ancient Buildings (SPAB) that traditional solid masonry buildings need to 'breath'. Hard cement renders tend to be impervious as opposed to the traditional philosophy of a lime based 'breathable' render. It was traditionally accepted that a building would take in moisture from the environment through precipitation and internal water vapour and be allowed to redistribute that moisture through natural evaporation, therefore reaching an equilibrium.

4.2.4 Once a hard impervious cement render is applied to an old solid masonry wall the reverse occurs. Moisture is trapped within the core of the wall and cannot escape. Cement render cracks more readily as it is rigid and therefore allows more moisture in. The core of the wall will be excessively damp and is not allowed to dry (Hughes, 1987), causing additional problems such as condensation, mould growth and rot to embedded timber thereby resulting in future degradation and ultimately loss of the historic fabric.

4.2.5 These issues are recognised in planning guidance relating to historic buildings:

"Traditional lime-based render is generally preferable to cement-rich render. Cement render forms a waterproof barrier that prevents any moisture trapped within the wall from evaporating and tends to drive damp both higher up and further in. This can lead to the breakdown of the wall surface which will, in time, fall away with the render. Cement render also gives distinctive hard sharp edges to quoins and wall openings. Traditional render based on lime has a softer appearance and allows natural evaporation." (Great Britain, 2010)

4.2.6 Subject to the granting of Listed Building Consent it is therefore proposed to carefully remove the existing cement render and replace it with a natural lime-based roughcast render to the northwest elevation as is typical of the vernacular tradition **(20)**. The open texture of roughcast allows it to act in a beneficial way during and after wet weather. In absorbing rain as it falls and runs down the surface, the roughcast plays an important role in helping to protect the more vulnerable parts of the building such as window openings and foundations. After rain, the wall dries out quickly because of the relatively large surface area of roughcast compared to the flat surface of smooth render (SPAB).

4.2.7 The existing render will be removed as carefully as is practicable to limit the likelihood of damage to historic fabric. Removal of the render will be managed by the removal of small sample panels to assess the viability of removal. Any potential damage will be assessed on an ongoing basis during the works. The use of hand tools to remove the existing render is the preferred option. Percussion tools will only be used where hand removal of the render is not possible. Particular care will be exercised when mechanical percussion tools are used to ensure that the masonry beneath is not dislodged. Should any timber or ferrous metal sections be encountered beneath the existing render these will be carefully removed and infilled with matching masonry or dubbed-out with a lime mortar.

4.2.8 The removal of render is sometimes deemed undesirable due to the potential harm it can cause if the render has bonded well to the substrate. A balance should be drawn between the potential for damage during removal against the damage currently being caused to the historic fabric (English Heritage, 2011). It is our considered opinion that the adverse impact the cement render is having on historic fabric warrants its removal.

4.2.9 In a planning case, not local to Calderdale but involving similar principles, a planning report stated *"English Heritage state that the removal of the cement render would have been welcomed as it would inevitably have caused damage to the structure."* (Davies, 2011). Retrospective Listed Building Consent for the removal of render to a listed property was also granted in March 2011 due to a previous unsympathetic cement render being applied which, *"prevented the timber and brickwork from 'breathing' damage had occurred including rot and (once the render was removed) some bricks showed signs of decay."* (Davies, 2011).

4.2.10 Whilst the composition and mix proportions of lime render will be dictated by the type and condition of the masonry and exposure (English Heritage, 2011) for the purpose of this application the proposed roughcast render mix will be as follows:

1st and 2nd undercoat:
1 part NHL 3.5
1.5 parts grit sand
1 part Leyton Buzzard sand

Thrown finish:
1 part NHL 3.5
1 part Leyton Buzzard sand
1 part grit sand
1 part limestone aggregate
(to consist of 0.5 part 3mm limestone down and 0.5 part 10mm limestone)

4.2.11 The lime roughcast will be applied to an even thickness and texture to follow the non-uniform historic façade, thus enhancing subtle deviations of the 'as built' walls. No attempt will be made to form a truly flat and symmetrical surface as typically found on 'new build' rendered elevations which would be entirely inappropriate.

4.3 Barn gable elevations and trusses

4.3.1 The primary issue which requires addressing is the substantial, significant and potentially dangerous loss of alignment to the northeast **(21)** and southwest **(14)** gable elevations and timber trusses **(13)** – all of which are leaning towards the southwest. The resultant load has transferred laterally to the farmhouse roof with consequential misalignment of walls and trusses.

4.3.2 The laser survey commissioned by the applicant has ascertained the extent of structural misalignment which is illustrated in the drawing which accompanies the application for Listed Building Consent (ref. 2522:10). In summary:

Southwest gable	338mm out of plumb (1 in 22)
Northeast gable	204mm out of plumb (1 in 37)
Southwest truss	109mm out of plumb (1 in 17)
Northwest truss	118mm out of plumb (1 in 16)

4.3.3 Structural concern at the lack of verticality should begin when the wall is more than one-sixth of its thickness out of plumb (Richardson, 1988). Masonry walls of one third of their thickness out of plumb are likely to require rebuilding (Cook & Hinks, 1992). To be safe, the net force in a wall must stay within the middle third (Robson, 2005) **(22)**.

4.3.4 The barn walls are circa 500mm thick. The loss of vertical alignment to both the southwest **(14)** and northeast **(21)** gable walls exceeds the middle third. In summary:

Southwest gable	68% of wall thickness out of plumb
Northeast gable	41% of wall thickness out of plumb

Furthermore, the 'ultimate limit' of tilt is considered to be 1 in 50, beyond which the building may be regarded as in a dangerous condition, and remedial action will be urgently required (Building Research Establishment, 2003) **(23)**.

4.3.5 Urgent repairs are therefore now required to stabilise the barn structure. Whilst there is no mention of the barn in the listing description the applicant is mindful that it may be listed 'by association'. The law provides that buildings and other structures which pre-date July 1948 and are within the curtilage of a listed building should be treated as part of the listed building (Historic England, 2018).

4.3.6 Accordingly it is proposed that repairs be undertaken to stabilise the barn structure without compromising either the character and or setting of the listed building. The repairs will adopt the conservation principle of minimum intervention by dismantling and reconstructing the uppermost areas – only - of the southwest and northeast gables as illustrated in drawing 2522:13. The dismantled areas of walling will be reconstructed plumb to the existing line using the original materials in a traditional lime mortar. The existing southwest and northeast trusses will be re-set to a vertical line with joints to the timber purlins fully secured to provide lateral restraint.

4.3.7 To provide adequate weather protection at the junction of the farmhouse roof with the southwest gable **(15)** a lead tray will be built into the barn wall prior to reconstruction, thus preventing water ingress into historic fabric below including structural timbers.

4.3.8 As the southwest barn gable is exposed and within a Severe Exposure Zone (para. 4.1.5) it is proposed that the wall be faced with a traditional lime roughcast to afford adequate weather protection – i.e. as per the farmhouse northwest elevation adjacent discussed in section 4.2.

4.3.9 The loss of vertical alignment to the barn gables can most likely be attributed to substandard lateral restraint as each gable is both tall (7.5m) and long (10.8m) **(24)**. It is therefore proposed that pillars be constructed *internally* within the barn adjacent each gable wall, thus improving lateral restraint without compromising either the building's character or significance. The ends of every wall should be bonded throughout their full height to a buttressing wall, pier or chimney. Long walls should be provided with intermediate buttressing walls, piers or chimneys dividing the wall into distinct lengths. The intermediate buttressing walls, piers or chimneys should provide lateral restraint to the full height of the supported wall (Great Britain, 2010).

4.4 <u>Farmhouse roof</u>

4.4.1 The primary issue which requires addressing is the reinstatement of a stone slate roof to the farmhouse as the original slates **(9)** could not be re-used (para. 3.3).

4.4.2 Replacement stone slates should match the existing ones as closely as possible in terms of geological type, colour, texture, size, thickness and edge dressing. It is important to recognise the slates particular to an area and know that even within the same region that a variety of slates was sometimes used. If difficulties are encountered in achieving a good match locally, it may be acceptable to source slates from outside the region provided that they are geologically and visually similar. However, it is important to ensure that they have suitable weathering and durability characteristics, and are finished in the local tradition (English Heritage, 2005).

4.4.3 As the stone slates to the barn require removing to facilitate the structural repairs discussed in section 4.3, the farmhouse roof may be dealt with in one of three ways, i.e.

Option 1

As the barn roof area is circa 30m^2 (26%) greater than the farmhouse roof, use the barn slates to clad the farmhouse roof. This will 'guarantee' that a correct and appropriate slate is used on the structure described in the listing description.

The barn roof would be clad with natural stone slates as close a match as possible to the existing, of which the surplus 30m^2 would form part. There is a degree of risk with this approach as the likelihood of sourcing matching diminishing course slates – which would be immediately adjacent to the original – is unlikely, thus potentially compromising the character and setting of the listed building.

Option 2

Re-slate the barn with the original slates as per the existing.

The farmhouse roof would be wholly clad with natural stone slates as close a match as possible to the existing. As with Option 1, there is a degree of risk with this approach as the likelihood of sourcing matching diminishing course slates – which would be installed immediately adjacent to the original – is unlikely, thus potentially compromising the character and setting of the listed building.

Option 3

Use the barn slates to clad the farmhouse roof which will 'guarantee' that a correct and appropriate slate is used on the structure described in the listing description.

The barn roof could then be clad with, for example, a dark-coloured unobtrusive corrugated metal sheet with a traditional profile. Such an approach would eliminate the risk of a visually jarring pastiche adjacent to the original slates whilst reducing load onto historic fabric.

Corrugated iron sheeting has been widely used on roofs of farm buildings since the middle of the 19th century. It has saved many farm buildings from dereliction and its continued use can be justified for ancillary buildings on the farmstead (Historic England, 2017).

Painting metal roof cladding is the best way of prolonging its life. Some regions have a long-standing practice of using a particular colour, generally red raddle or black. Traditionally, the chosen colour related to that of the local soil; in general a matt black finish is particularly good at helping the building sit into the landscape (Historic England, 2017) **(25)**.

4.4.4 The farmhouse roof options discussed in para. 4.4.3 warrant further dialogue between the applicant's agent and the Local Planning Authority. As per para. 3.10, it is the applicant's intention to work with the Conservation Team at Calderdale Council in a positive and proactive manner so that the application to which this statement relates may be determined in accordance with local and national policy.

4.5 Roof timbers

4.5.1 The primary issues which require addressing are localised timber defects exacerbated by the 'turnerised' slate coating discussed in para. 3.3 **(9)**, beetle infestation **(12)** and water ingress – particularly at the substandard junction between the farmhouse roof and barn gable **(15)**.

4.5.2 All roof timbers will be inspected and assessed to determine whether they require remedial repairs – particularly those of historic significance. Before roof coverings are replaced, the roof timbers must be inspected and assessed for decay so that all damaged areas can be repaired. The aim should be to replace the minimum amount of historic timber necessary by splicing in new timber rather than replacing entire members. New timbers always should match the existing – for example oak heartwood for oak. Sourcing suitable sections of elm can now present problems, particularly for large members. If home-grown or imported elm cannot be found, then oak will be the best option (Historic England, 2017).

4.6 Lateral restraint to southeast elevation

4.6.1 The primary issue which requires addressing is the lack of lateral restraint to the principal southeast elevation of the farmhouse, to the left of the entrance porch **(26)**.

4.6.2 The laser survey commissioned by the applicant has established the southeast elevation is leaning outwards, mid height, by circa 95mm. The loss of vertical alignment may be attributed to a lack of lateral restraint at the junction of the first floor with the external wall which should ordinarily be provided.

4.6.3 To address this it is proposed that a timber bearer be introduced beneath the ends of the floor joists, thus facilitating the formation of a solid 'tie' between the floor and wall **(27)**. The opposite ends of the joists will be secured with steel straps above the substantial timber floor beam (parallel with the external wall) to provide restraint continuity **(28)**.

4.7 Internal plasterwork

4.7.1 The primary issue which requires addressing is damp and failed internal finishes, areas of which are missing from historic fabric in addition to poor levels of thermal insulation.

4.7.2 To address this it is proposed that all damp and failed areas of plasterwork be carefully removed and replaced with a traditional haired-lime plaster with bare areas of historic fabric similarly finished.

4.7.3 As the applicant wishes to ensure the subject property is suited to C21 living the introduction of traditional lime plaster presents an opportunity to improve thermal insulation without compromising the building's character, significance or historic fabric. Improving energy efficiency forms a part of the wider objective to achieve a sustainable environment. The energy and carbon performance of most historic buildings can be improved, which will help them remain viable and useful, now and in the future (Historic England, 2018).

4.7.4 Subject to the granting of Listed Building Consent it is proposed that the lime plaster to external walls will incorporate hemp as an insulant material. The proposed method is to apply approximately 50mm of natural hydraulic lime plaster with hemp insulation. It is submitted that such an approach to upgrading thermal performance is sympathetic to the historic asset both technically and philosophically for the following reasons:

a) The product is sustainable. Hemp plants absorb CO_2 as they grow and although CO_2 is released as part of the lime burning process, the CO_2 is absorbed back naturally as part of the carbonation process when the lime cures.

b) An increased level of insulation will be provided to the existing walls. A 500mm thick stone wall has a thermal conductivity (U-value) of 2.58 W/m^2K which will be reduced to 1.26 W/m^2K with the application of 50mm hemp lime plaster internally.

c) Excellent air tightness can be achieved with the system.

d) The plaster, if finished with a lime or clay based paint finish, will be permeable and will allow the free passage of moisture allowing the walls to 'breath'.

e) The plaster can be applied to respect and subtly show the original masonry forms. The finished plaster will have texture and a more organic finish.

f) Traditional lime plastering skills are used. There is currently a traditional skills shortage.

4.7.5 Whilst development of hemp:lime products in England is largely led by the demand for sustainable products for new construction, the material is also used in conservation for making insulated floor slabs, as panel infill in timber frame buildings, and for insulated interior plasters (English Heritage, 2011).

4.7.6 Most modern buildings depend on impermeable barriers to control the movement of moisture and air through the building fabric. In contrast, traditional forms of building construction take up moisture from their surroundings and release it according to environmental conditions. Buildings of traditional construction also tend to have greater thermal inertia than their modern counterparts – they heat up and cool down more slowly. This ability to 'buffer' moisture and heat helps to even out fluctuations in humidity (Historic England, 2018).

4.7.7 Most traditional buildings are made of permeable materials. The permeable fabric in historic structures tends to absorb moisture, which is then released by internal and external evaporation. When traditional buildings are working as they were designed to, the evaporation will keep dampness levels in the building fabric below the levels at which decay can start to develop. This is often referred to as a 'breathing' building. Permeable materials such as lime and/or earth based mortars, renders, plasters and limewash act as a buffer for environmental moisture, absorbing it from the air when humidity is high, and releasing it when the air is dry (Historic England, 2016).

4.8 First floor partitions

4.8.1 The primary issue which requires addressing is the lack of absence partitions at first floor level to subdivide the living accommodation.

4.8.2 Subject to the granting of Listed Building Consent it is proposed that the space be subdivided with partitions which will be a wholly reversible intervention. Each partition will be constructed from materials which will allow the insertion to be read as a contemporary intervention. The proposed layout of the partitions is illustrated in drawing 2522:12 which is provisional at this stage.

4.8.3 Doors into each room will be simple softwood ledged, braced and battened doors as are typical of the vernacular tradition.

4.9 Repointing

4.9.1 Areas of loose, friable and missing mortar pointing across all elevations are to be repointed with a traditional lime mortar which will consist of 1 part soft sand, 1 part grit sand, ½ part grit aggregate and 1 part moderately hydraulic lime NHL 3.5. The mortar will be 'brushed-up' with a kit brush (or similar) to expose the coarse aggregate prior to the final set.

4.10 General

4.10.1 Whilst it is accepted that there is currently a traditional skills shortage it is the applicant's intention to engage suitably experienced local contractors to undertake all of the repairs to which this statement relates.

5.0 CONCLUSION

5.1 Repairs to the subject property are now necessary to prevent irreversible damage to historic fabric. There are common and generally accepted principles that must be considered before proceeding with interventions to historic buildings as listed below:

a) Interventions must be the minimum necessary to stabilise and conserve buildings and monuments.

b) An understanding of the building including historical development.

c) Interventions must be reversible where possible.

d) An analysis of the cause of defects must be undertaken.

e) Repairs should match existing materials (unless failure is due to an inherent defect).

f) Repairs should be honest (with no attempt to artificially age).

Derived from (Fielden, 2003) & (Brereton, 2004)

It is submitted that the repairs as now proposed respect all of the foregoing principles. The interventions can be balanced against the long-term survival of and prevention of further degradation to the historic building.

5.2 (Great Britain, 2010b, p. para. 79) list six potential benefits that could weigh in favour of a proposal which are reproduced below. It is submitted that the proposed repairs achieve these criteria to varying degrees and will contribute to the long-term sustainability of the building.

a) It sustains or enhances the significance of a heritage asset and the contribution of its setting.

b) It reduces or removes risks to a heritage asset.

c) It secures the optimum viable use of a heritage asset in support of its long term conservation.

d) It makes a positive contribution to economic vitality and sustainable communities.

e) It is an appropriate design for its context and makes a positive contribution to the appearance, character, quality and local distinctiveness of the historic environment.

f) It better reveals the significance of a heritage asset.

Derived from (Great Britain, 2010b)

6.0 LIMITATIONS REGARDING THE USE OF THIS STATEMENT

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Appendix