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Method Statement and Schedule for Proposed Repair, Renovation and Alterations for;

The Residential Conversion of Existing Agricultural Barn Buildings at;

Rickyard Barn

Bradley Lane, Threapwood, Alton, Staffordshire



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Introduction:

This Method Statement and Schedule for Proposed Repair, Renovation and Alterations is in support of the previously approved Full Planning Application (Ref: SMD/2019/0509) & Listed Building Consent Approval (SMD/2019/0510) for the residential conversion of the existing barn buildings at Rickyard Barn, and should be read in conjunction with the previously approved 'Proposed' Drawings, Structural Report, Heritage Statement and Ecological Assessment.

The aim of this report is to discharge the requirements for Condition No. 3 associated with both Full Permission Notice Ref SMD/2019/0509 & Listed Building Consent Approval Ref SMD/2019/0510 as follows;

Prior to the commencement of development save for the matter of removal of roof sheets and tiles a full schedule giving details of all the repair, renovation and alteration works to be undertaken, including work to walls including a method statement for taking down and rebuilding, making good and repointing, work to floors, ceilings and roof structure and treatment of demolition scarring shall be submitted to the Local Planning Authority for approval in writing and the works shall thereafter be undertaken in accordance with the details in the schedule as approved in writing. The existing ventilation slits shall be retained to appear externally visible with any glazing set to the interior of the openings.

General Description:

The application site is located in Bradley in the Moors, a small village comprising just a handful of cottages and farms.

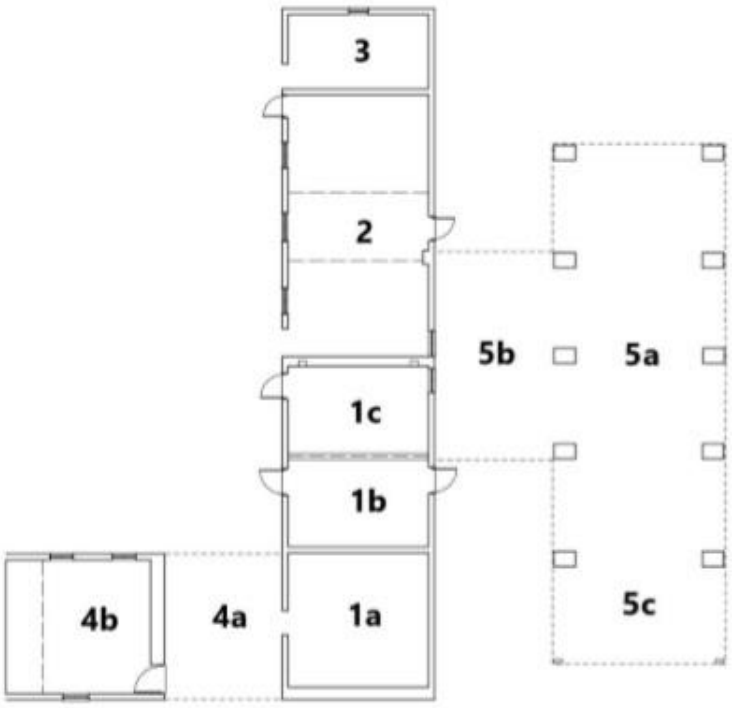
The village is due south west from Alton, approximately 1 mile as the crow flies, and is located within the jurisdiction of Staffordshire Moorlands District Council.

The application building, (herein referred to as Rickyard Barn), are an existing series of stone agricultural barns, since vacated, with the original association linked to the neighbouring Church Farm, a Grade II Listed Heritage Asset.

The site is bounded by a neighbouring building either side to the NE & SE, and also over the road to the SW. To the rear, (NE) are views over open agricultural land.

The Buildings:

For the purposes of this application and to correspond with the previously approved documentation, the differing parts of the buildings are referred to numerically in accord with the plan below.



1a, 1b and 1c	Two Cow-sheds with lofts over
2	Cow-shed
3.	Calf shed
4a	Gangway
4b	(Part of) cow-shed with loft over
5a and 5b	Four-bay, brick-pillared, iron-roof hay barn, with loading bay
5c	Additional bay of hay barn, added since 1918

The buildings are chiefly built of single-skin stone blocks, with some thicker walling to gable ends. Smaller sections of brick infill walling are present on Buildings 2 & 3. Masonry over openings is supported by stone lintels of the same form and general proportions of the main stone walling blocks.

The main roof to Building 4 fronting the road is pitched with the ridge parallel to the frontage. Building 1 runs perpendicular to this with the ridge line following suit. Both have a Staffordshire blue clay tiled covering.

Bay 1a has a first floor of machined softwood joists and boards, and is separated from Bay 1b by a full-height wall which has blocked openings in the ground storey and a single central doorway at upper storey level, currently only accessible by ladder.

Bays 1b and 1c are separated at ground storey level by a low wall and a break in the floor level, Bay 1c having a lower ground floor level than Bay 1b. At roof level, Bays 1b and 1c are separated by a king post truss, the kingpost being bolted to the tiebeam. The purlins, two to each side of the roof, are bolted onto the principal rafters.

Building 2 is a single-storey cowhouse, the original tiled covering since replaced with fibre cement / asbestos sheeting. Building 3 is dilapidated building of a single bay. The roofing is a Staffordshire blue clay tiled covering

Building 4 comprises the range fronting the road, including the gangway or covered way 4a. It is clear from the roof structure of Building 1, that Building 4 postdates Building 1, although it may well have been a rebuilding of an older structure on the same spot. Building 1 has a plain eaves cornice made redundant by the later roof of the covered way, and the purlins of the covered way are supported off the roof structure of Building 1.

Building 4b appears to be part of the cowshed; the remainder of this building is separated off with makeshift timber partitioning, and is in different ownership. The roof structure includes a single queenpost truss.

Building 5 is a haybarn. Section 5a was the four-bay barn, and 5b was the loading bay, with an abutment against the differing roof heights of Buildings 1 and 2. 5c is an added bay at the roadside end.

Method Statement and Schedule for Proposed Repair, Renovation and Alterations:

Report Methodology: As the building works comprise refurbishment and conversion, there is no particular building contraction format to follow as far as describing the need to carry out one particular set of works before another. However the order of work will undoubtedly follow the logical progression, but this will ultimately be determined as best practice by the specialist contractor.

In order to present this information in a clear and concise format for the purpose of informing the reader, this report is broken down into areas of work that are attributed to individual parts of the building fabric (i.e walls, floor, roof etc). As such, this report is not to be taken as the 'programme of works' for the conversion to take place.

This report is presented as follows;

- A) Walls 1: Taking down & rebuilding
- B) Walls 2: Repointing & Treatment of demolition scarring
- C) Walls 3: Proposed alterations, thermal improvements and damp proofing measures
- D) Proposed works to Ground Floors:
- E) Proposed installation of New First Floor & Ceilings:
- F) Roof Structure: Proposed repairs, alterations and thermal improvements
- G) General description of other works.
- H) Proposed treatment of existing ventilation slits.

A) Walls 1: Taking Down & Rebuilding

Please refer to SKCW01 appended to HW Consulting document "1065 – Rickard Barn Structural survey addendum" Also Appended to this document

Taking down – Designated areas shown on the above document have been agreed for taking down and rebuild. In areas where stonework is to be removed at the top of the wall, the roof should be appropriately, temporarily supported. This will be in accordance with a specialist scaffolders design to ensure the roof structure remains in-situ for the duration of the works.

Wall plates to be removed from the top course and, if suitable, set aside for reuse. Each stone to be taken down should be located onto a marking plan and documented accordingly. Stone to be taken down course by course from the top down, removing individual stone units using a hammer and bolster chisel. Blows must be placed in the mortar joints to ensure there is minimal damage to the stone units as they are removed. Encompassing mortar should be carefully removed leaving the clean edge of adjacent stonework visible. Stone to removed and stored in a dry place not in direct contact with the ground.

Dry stone only to be used to rebuild the elevations. Coursing pattern to match the existing pattern. The proposed mortar designation should also match the existing mortar.

B) Walls 2: Repointing, Stone Repairs & Treatment of demolition scarring

Pointing - The existing stonework is coursed in a fairly regular pattern with a neat dressed finish. Re-built and existing Stonework shall require repointing as part of the overall conversion works. Most if not all areas of existing stonework will require attention.

A sample panel of the pointing style / pattern and mortar composition is available on-site for inspection.

Existing joints should be carefully prepared by raking out to a depth not less than twice the height of the joint. Hand tools should be used to avoid any accidental damage to the stone that might occur through the use of power tools.

Brush and wash all loose material out of the joints. Mortar composition is to be a mixture of red sand and 3.5 NHL lime at a ratio of 3 parts sand to 1 part lime.

Utilise a suitable pointing tool to pack the joint without smearing. Ensure the pointing has a finish of a downward slope, curved indent or flat face so as to deflect water away from the stonework.

Treatment of Demolition Scarring - Any demolition scarring as a consequence of removing the attached covered way from the adjacent haybarn (5b) shall be inspected and assessed before any remedial repair works are undertaken.

On the eastern side, this roof overhang is above the cornice level, so there should be no issues given the existing stonework remains unaffected and the roof covering is already proposed to be overhauled. The North facing gable has been partially built-up in brickwork to support this structure. Consequently, the stonework and coping stone will require localised repair and replacement respectively. Any brickwork projecting from the existing North Facing gable is to be carefully removed, exposing the original stone finish.

The beds of the stone are to be cleared of mortar, utilising hand tools. Where replacement stonework is required to 'infill' the apex of the gable, stone of matching proportions is to be carefully cut to the appropriate size ensuring that sawn arrises are fettled in with traditional hand tools.

Replacement stonework has been sourced locally (available on-site for inspection) and closely matches the existing in terms of size, colour age and dressed finish.

Replacement stonework to be laid with coursing and joints to match the existing precisely. Mortar and pointing shall be as previously described above. Sections of coping stone shall be replaced where missing utilising a reclaimed stone to closely match the existing. Elsewhere coping stones generally lifted and re-bedded on lime based mortar as part of general refurbishment works.

Repair / replacement of perished or damaged stonework - Where identified as unfit for its intended structural purpose (significant cracking or severely perished), stonework should be carefully removed so as not to destroy the units. Hand tools only should be used. On inspection this sandstone is stable and intact and it is not envisaged that damage will occur during its removal. It is also noted that generally the condition of the existing stone is fairly good and therefore replacements are only envisaged on a small scale. Replacement stonework (to closely match the existing) to be prepared accordingly and inserted on mortar beds as described above.

C) Walls 3: Proposed alterations, thermal improvements and damp proofing measures

Repairs and re-building of stonework is excluded from this section having been covered in under items A & B.

The design philosophy is to retain the external appearance and historic character of the agricultural buildings whilst creating a modern and sustainable dwelling that ensures the integrity of the building for generations to come. It is important that repairs and alterations are undertaken in a manner that is sensitive to the existing historic fabric of the building, and this has to be done with consideration to the upgrades that are required to make the spaces 'habitable' and compliant with current Building Regulations. A careful balance needs to be proposed in order to ensure both objectives are satisfied.

The main 'alterations' of note are the formation of new openings within the existing stone walling. This process should be undertaken in a careful and methodical manner, ensuring any materials are set aside for re-use where necessary (to replace badly perished stonework for instance).

Props should be inserted through the highest level stone joints where possible to support the loading above and mitigate any further effects of structural movement. Stone blocks should be carefully extracted, using hand tools only wherever possible (a hacksaw blade might be sufficient to cut through the mortar). Existing stonework at the reveals of the opening should be clearly marked & identified so as to ensure they are re-inserted in the original coursing pattern.

In order to 'square-up' newly formed reveals, the existing stone is to be carefully cut to size. Sawn arrises are to be fettled in with hand tools and the cut edge is to be bedded in on the mortar side with original dressed stone faces being expressed on the reveals.

Concrete / steel lintels utilised to provide support for new openings. In areas where walling is to be expressed as exposed stone, it is proposed to cut stone 'slips' from the salvaged stone and resin bond to the modern lintels. The larger opening between Buildings 2 & 3 to be formed in steel beams which are to be painted and expressed on the surface.

Elsewhere; elements of partial infill brickwork are to be replaced with imported reclaimed stone to closely match the existing. The process for this replacement will generally be as described above save for the retention of original materials. Mortar and pointing shall be as previously described in Item A).

In order to ensure the building is habitable and satisfies current building regulations, it is proposed to introduce retrofit thermal upgrades and damp proofing measures – the criteria to be achieved is dictated in Approved Documents L & C respectively.
A great deal of consideration needs to be taken into account in order to specify this detail correctly and a number of factors need to be taken into account. Primarily, the fabric being of natural stone needs to be able to breathe and the detail needs to ensure both that moisture cannot freely pass into the habitable envelope nor is trapped in the stone walling. The internal footprint is limited so the measures must have a reasonable thin build-up and finally the solution must serve to pick-up the loadings of new first floor joists in order to protect the existing envelope from potential overloading.

The solution devised aims to fulfil the requirements of the above criteria in an effective and considered approach. A timber stud frame is proposed to be erected independent of the stone walling. This shall be sheathed with a ply lining for rigidity and covered with a VCL internally and breather membrane externally to negate the passage of moisture in both directions. The stud frame will bear on the thickened edge of the new ground floor slab and will subsequently provide the load bearing support for the first floor joists. The space between the studs shall be infilled with breathable mineral wool insulation prior to the fixing of the independent VCL sheet. The internal face of the studs shall be lined with insulated board and plastered to satisfy thermal requirements.

The open cavity between stone walling and the stud frame shall maintain a free flow of air from the existing vent slits and occasional gaps in the perp end jointing. Similarly this cavity is to remain open at the eaves, thus effectively creating a ventilated void as a means to evaporate any condensation or moisture build-up.

Where external ground levels are close to or above internal floor level, it is recommended that a cavity membrane is applied to the walling at a minimum height of 1m above highest point of the ground level. This should be linked to a proprietary drainage channel, recessed within the floor build-up and linked to a drainage point at the lowest point

Please refer to Appendix Drawing PC001 for further annotated details of the proposed wall build-up.

We note the authority's preference for stone walling to remain expressed internally and we have ensured that some elements of the existing fabric will remain uncovered. Whilst this may be less than desired, we feel quite strongly that the exposure of internal stone walling should not compromise the suitability of the building to be heated via a renewable source.

Omitting the retrofit thermal upgrades would make this unviable and result in the building using an oil boiler or electric storage heaters, both of which would be massively inefficient in a poorly insulated space.

Walls proposed to be left as 'exposed stone' are identified on the plan in Appendix Drawing PC002

Internally there are a number of areas where the stonework has been whitewashed or rendered. With regards to the render, it is proposed to 'test' whether it is practically achievable to remove this without damaging the existing stone in an innocuous area, utilising hand tools only. Should this prove to be damaging the existing stone, it is proposed that render should instead be repaired / skimmed in a lime based plaster or render.

Again, removing the whitewash / paint from the stonework has the potential to be a damaging process and the remedial works should be a considered approach that starts with the least abrasive method first.

Initially, water washing should be attempted. The process would involve gentle sponging or scrubbing with a soft bristle brush and may be effective for emulsions, limewash, and other very old, friable paints.

If the above is proven unsuccessful; then either a process of steam stripping or application of non-caustic solvent can be attempted. In both instances, these processes should be tested in a small sample area to determine the condition of the stone post treatment. It is not advisable to attempt anything more abrasive than these suggested processes for risk of damaging the stone.

D) Proposed works to Ground Floors:

The existing ground floors are a modern concrete slab. The existing ground floor is unsuitable for use in a habitable space and therefore it is proposed to replace this with a new build-up that incorporates a structural ground slab, thermal insulation and damp proofing membranes.

The process would require the following works;

Breaking out of existing concrete slab and dig out for service intake and drainage positions. Excavate to required formation levels for the new reinforced slab and constructional build-up over. Note: further trial holes to be excavated along each wall to determine achievable depth without compromising the integrity of the existing structure. Additionally, where applicable – excavations to be undertaken in 'strips'.

Allow for thickened edges around the perimeter of the building, adjacent to existing load-bearing internal walls and under proposed new internal walls (to be masonry for additional lateral buttressing).

Allow for approx. 100mm of clean and inert well compacted hardcore, blinded with a layer of sharp sand. Slab to comprise a minimum 100mm reinforced concrete slab with a layer of 2000 gauge DPM inserted on top.

Insert approximately 75mm rigid non-compressible insulation (or more as formation levels allow – we have determined that based on the actual P/A ratio, 60mm of Xtratherm PIR Insulation will be sufficient to satisfy the required U-value of 0.22W/m2k).

Polythene separation layer installed over insulation and screed installed on top. Where polished concrete finishes are required, it is recommended that the screed depth should be a minimum of 100mm.

E) Proposed installation of New First Floor & Ceilings:

Bay 1a has a first floor of machined softwood joists and boards, clearly a modern installation. Elsewhere, whilst there is scarring to demonstrate a first floor existed in Building 1, nothing of significance remains. It is proposed to insert a new first floor structure to provide the layout and accommodation as per the approved plans. No existing ceilings remain. Ceilings to vaulted / sloping roofs are covered in Item F).

The process for installation of new first floor structure and ceilings is proposed as follows;

Take out existing floor structure and cart away. Install new solid timber joists approximately 200mm deep. Size and grade to be determined by structural engineer.

Floor joists to bear onto structural stud frame lining and strutted at necessary points with identical sized noggins. Joists to be tied back to stone walling with 30mmx5mm stainless steel restraint straps at max centres as denoted by Structural Engineer.

First floor finishes to be a combination of T&G floor boarding or T&G particle board decking (to suit floor finishes schedule) fixed directly to joists.

The ceiling finish is to be installed at mid-point between joists; therefore joists are to be partially exposed to the underside. Timber battens to be installed perpendicular to the joists, and void infilled with mineral wool insulation to minimise airbourne and impact sound transmission.

Ceiling finish to be a combination of birch faced ply (or similar timber sheeting) an plasterboard, which are to be fixed directly to timber noggins.

F) Roof Structure: Proposed repairs, alterations and thermal improvements

The existing timber forming the roof structure, whilst generally requiring repairs, appears in reasonable condition and is proposed to remain as part of the original building fabric. Likewise, it is envisaged that the existing Staff Blue clay tiles are salvageable and can be re-used as part of the conversion.

Whilst the main trusses and purlins remain within Building 2, the rafters have been removed, presumably at the time the fibre cement sheeting was installed. Consequently, new timber rafters shall be required.

Whilst the roofing materials are fairly decent, the condition of the roof is dilapidated and will require a complete overhaul. It is also required to undertake a scheme of thermal upgrades and minor alterations which are proposed as follows;

Existing tiles should be carefully removed. All sound materials to be set aside and stored on pallets (or similar that will prevent direct contact with the ground) and covered with polythene to prevent saturation and ensure they will be ready to be re-laid when required. Strip off all battens and de-nail rafters.

The existing timber structure is to remain in-situ, propped up with scaffolding supports to specialists design. Inspect timber roof structure and treat retained structural timbers affected by insect attack and/or rot decay.

Where required due to dilapidation or to upgrade strength for additional loadings, straddle rafters with new timbers in accordance with the structural engineer's recommendations. Renew sections of dilapidated wall plates as required.

Where roof truss supports are rotten/perished beyond repair, they should be propped to relive the structural load. Propping to be designed by a temporary works engineer. Once secure, a fabricated steel shoe should be fitted to the end of the truss, effectively extending and reinstating the bearing onto the brickwork. Fabricated steel shoe to be designed by the structural engineer. Once completed, all timber trusses bearing to bear onto the masonry within the thermal line of the building. Where this is not achievable, the timber should be treated with an appropriate waterproof sealant to ensure the ingress and penetration of moisture is negated.

Form openings for new rooflights – move existing rafters rather than cutting, and insert new timbers as noggins etc. Double / triple rafters around rooflight openings to structural engineer's details. Fit 'Clement' Rooflights in accordance with the manufacturer's details.

Install Proctor Roofshield Breather Membrane over rafters, ensuring the membrane is draped into remaining rafter space. Fix new treated battens to BS5534 of appropriate size and set out at correct gauge. Battens fixed using correct fixing nails to BS 1202.

Re-roof using all original sound tiles with any reclaimed replacement tiles to closely match existing. Tiles fixed with appropriate nails to BS5534. Install Code 4 Lead soakers and flashings to replace all existing. Relay ridge tiles and bed in a suitable mortar mix. Tiles at verges without parapet to be bedded on lime mortar with a slate/tile undercloak.

Fit timber battens to underside of rafters to increase depth. Friction fit 70mm insulation between the rafters. Ensure a minimum 10mm gap is maintained between the top of the insulation and the top of the rafters to 'drape' the roofing membrane - use a nail or batten 'stop' to ensure this gap is maintained throughout. Fit Vapour Control Layer and insulated plasterboard to the underside of rafters.

Roofing to Building 2 & 3 to generally follow an identical process to that explained above, with the exception of installation of new timber rafters and wallplate. Size, grade and spacing to be in accordance with the structural engineers recommendations.

Reinstate replacement metal rainwater goods and downpipes throughout buildings. Gutters to be laid on traditional rise and fall brackets to Building 1 – elsewhere where rafter feet are exposed, gutters supported on rafter brackets. All ancillary fixings, stop ends etc to be matching metal products.

G) General description of other works.

Cleary a number of other works are required in the conversion and refurbishment of an agricultural building, some of which are less pertinent in regards to the consideration of impact on a Heritage Asset. These 'works' are identified below. Similarly, some elements described below are covered in further detail in separate statements to discharge the relevant planning conditions.

Remnants of existing joinery to be stripped out, namely existing doors, windows, existing first floor structure etc. Sliding shutters to be carefully set aside and refurbished for re-fitting.

Existing stone heads to be retained and repaired in situ if required. New timber & metal window / door frames to be installed with plane glass infill's to existing & newly formed external openings. Joinery type and glazing to be agreed with the planning authority - Please refer to Condition 8 for further details including joinery sections. External paint protection system applied to exposed metalwork for sliding door mechanisms.

Construct ground floor internal walls in blockwork masonry with a plaster finish.

First fix joinery installed, generally comprising formation of stud partition walls where denoted on approved plans. Bespoke freestanding metal staircase to be installed in position indicated on plans. Link 'bridge' formed in steel beams with timber joists spanning perpendicular and fixed within web of steels.

First fix mechanical, plumbing and electrical feeds installed in conjunction with the above works including installation of Heat Pump Plant and unit.

Drainage runs laid as required and new service runs integrated into the building.

Second fix joinery and M & E installed, including installation of kitchens and bathrooms. Any internally exposed stonework to have electric wiring feeds installed in galvanized or black metal conduit.

Installation of drainage runs (connected to new Klargester Biodisk and proprietary soakaway). Installation of hard and soft landscaped areas to be completed further to approval of updated landscaping plans to be completed by others.

Tiling, floor finishes, decorations and completion.

H) Proposed treatment of existing ventilation slits.

Original ventilation slits are present at various points around the building's façade, although some of the openings appear more akin to missing sections of stone walling. It is proposed to maintain the ventilation slits so as to ensure the original character is maintained.

Retention of existing character aside, the openings will also provide somewhat of a functional role in providing an air flow to the ventilated cavity formed within the internal envelope. Where overboarded internally, the ventilation slits should receive an insect mesh covering to the inner face, mechanically fixed to the existing stonework. Should any vent slits be determined to be glazed, a simple clear glazed screen should be fitted internally with no joinery projecting into the reveal. Where neither maintained open or glazed, the slits can be blocked internally with a section of WBP Ply, wrapped tightly in a UV resistant breather membrane such as 'Tyvek UV Façade' or lead sheet.

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