

TOTFORD FARM, TOTFORD HILL, NORTHINGTON, HAMPSHIRE, SO24 9TJ.

**OUTLINE SCHEDULE OF WORK FOR THE CONVERSION, REPAIR AND REFURBISHMENT OF
THE EXISTING ANIMAL BARN.**

REVISION 2 (14/11/23)

This outline schedule of work is to be read in conjunction with Radley House Partnership drawings 7482/W001, W102 – W103, W105, W113 – W114, W120 – W122, W130 – W131, W135 – W139, W150 – W151, W160 – W167 and W170 – W177, the structural engineer's site investigation report (No. 21612) and the structural engineer's outline method statement and structural specification (No.21612/101). The information provided was developed for planning purposes and is based on the approved planning drawings following a detailed condition survey of the timber frame, plinth and floors of the animal barn.

1.0 INTRODUCTION

It is proposed to convert the existing animal barn to provide ancillary guest accommodation to serve the main house as described in applications 22/02104/HOU and 22/02105/LIS, received by Winchester City Council on 20th September 2022.

Confirmation of use is set out in our letter dated 14 April 2023.

This statement focuses on the work and procedures required to facilitate our proposals for the animal barn and forms part of the documentation required to satisfy planning requirements.*

**Further to gaining planning and Listed Building Consent, this document has been updated for Discharge of Conditions following the survey work mentioned above and development of a thorough package of working drawings sufficient for building regulations approval.*

2.0 CURRENT CONDITION

Further to our initial assessment of the building (please refer to the Design, Access and Heritage Statement submitted with the planning and listed building applications), and in response to the requests of the Historic Environment Officer, a separate condition survey of the animal barn was commissioned by structural engineers Hockley & Dawson, who specialise in building conservation. Please refer to their accompanying report.

To summarise:

The timber structure is generally in good condition with some localised decay to the backs of principal posts and elements associated with the external wall sill beam.

The lack of a continuous wall sill beam, and secure connections between the barn framing and the plate, is a significant structural concern with regards to overall stability of the building and its long-term structural capability. It would therefore be prudent to consider the removal of the concrete slab and repair of the masonry plinth, to prevent future moisture ingress.

The current roof construction is lightweight and not structurally competent, with the rafters not opposing each other at the ridge. The pole rafters are thin and will not adequately

support any additional load. Similarly, the purlins are thin and of limited structural capacity. It would be beneficial to relocate the pole rafters such that they oppose each other where they do not, and to not rely on the underslung ridge for support. Additional roof structure in line with the pole rafters will be required, with new rafters and purlins paired to the existing (which are to be retained) to properly support a permanent roof finish and the required insulation.

The proposed insertion of windows can be achieved without significant intervention to the structure and its arrangement of studs and braces.

There are several other areas of general decay and loss of structural integrity, with loose joints and similar defects as one would expect in a structure of this nature, that can be rectified with traditional carpentry techniques using a minimum intervention approach.

Joist to beam and joist to plate connections are to be overhauled to ensure the structure is fully framed and has adequate lateral restraint.

3.0 PROPOSED WORKS

In order to carry out the repairs to the existing fabric and enable the conversion and refurbishment of the animal barn, the following works and procedures will be followed.

All works described below will be carried out in-situ using care and a sensitive approach to prevent any unnecessary loss of historic fabric.

3.1 Preliminary Work

- 3.1.1 Carefully remove all agricultural materials and chattels within the barn and set aside for inspection by Employer. Such items may be retained by the Employer or disposed of by the Contractor in accordance with the site waste management plan (to be provided by the Principal Contractor prior to commencement of the works).*

**A limited soft strip of the animal barn (excluding any cladding, plywood deck, windows, doors and M&E) was carried out in June 2023 to enable survey. This included removal of the bottom weather boards to expose the plinth and sill beam.*

- 3.1.2 Allow for digging trial holes to establish the depth and condition of the foundations and substructure in locations to be suggested by the structural engineer.

It is required that the existing plinth walls be retained and repaired in-situ. Should the investigations uncover anything untoward, further advice from the architect and structural engineer should be sought before proceeding.*

** 5 No. trial holes were dug by hand against the perimeter of the plinth walls in locations recommended by the structural engineer during July 2023. These revealed a shallow formation layer of compacted earth and flint rubble at varying depths as noted on the drawings. The repairs and structural design has been developed accordingly with as much of the original fabric retained as possible.*

3.2 Site Work

Note: The timber frame is to be temporarily supported in accordance with the structural engineers' details at all times during the dismantling and repair works. Allow for all necessary props, straps and braces required.

- 3.2.1 Strip out and remove all redundant pipework and cabling no longer required. Cap off and make safe all services to be retained making any allowances for reconnection/extension of existing to incorporate the new works.

- 3.2.2 Carefully remove the corrugated sheet coverings from all roof pitches of the barn along

with any associated softwood battens and purlin supports. Although not expected, should any bats be found, cease work immediately and contact Natural England.

- 3.2.3 Carefully remove the temporary plywood floor deck at first floor level and the internal dividing walls as noted on the drawings. Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.
- 3.2.4 Carefully remove the existing windows, doors and internal and external weatherboarding. The weatherboards are to be set aside and prepared for re-use. Refer to the drawings for further details.
- 3.2.5 Allow for carefully removing any studs and braces which are no longer connected to the timber frame and safely set aside on site for reinstatement/repair. Ensure all timbers are carefully numbered prior to removal to ensure correct positioning during reinstatement.
- 3.2.6 Carefully break out the existing internal concrete floor slabs. To reduce dust and vibration only a mini excavator and/or hand tools will be allowed for the task. Once removed, carry out excavations to reduce the ground levels to a sufficient depth to allow installation of the new limecrete floor. Care is to be taken to ensure the existing footings are not undermined or the existing fabric damaged during this process. Should the works uncover any extant original finishes or hidden structures below the slab level stop work and seek further advice from the architect.

Photographs are to be taken throughout the removal process for an accurate record.

- 3.2.7 Carefully break out and remove the existing external concrete floor slabs. Care is to be taken to ensure the existing footings are not undermined or the existing fabric damaged during this process. Should the works uncover any extant original finishes or hidden structures below the slab level stop work and seek further advice from the architect.
- 3.2.8 Excavate all trenches in preparation for the installation of the new surface water drainage system, including new soakaways, which are to be positioned a minimum 5m from any building. A trench is to be excavated around the perimeter of the barn to the bottom of the existing foundations to allow for the installation of a French drain and air drain as noted below. Excavated material is to be taken away as necessary.
- 3.2.9 Excavate all trenches in preparation for the new concrete footings of the external air source heat pump's air handling unit. Excavated material is to be taken away as necessary.
- 3.2.10 Excavate all trenches in preparation for the installation of the new foul water drainage system, including a packaged sewage treatment plant. Excavated material is to be taken away as necessary.

3.3 Substructure and Drainage

- 3.3.1 Lay drain runs for the new foul water drainage system. All drains are to be taken below the level of the existing foundations and surrounded in concrete to structural engineers details. No holes or chases are to be cut through existing fabric. Away from the building pipes are to be bedded and surrounded by granular material and backfilled in accordance with the building regulations.
- 3.3.2 Provide a new packaged sewage treatment plant with associated outfall to the nearest watercourse and install in accordance with the manufacturer's details. Obtain the necessary permissions from the Environment Agency before proceeding with the works.
- 3.3.3 Lay drain runs for the new surface water drainage system and install all necessary rainwater gullies, traps, rest bends and new soakaways in accordance with the building regulations.

- 3.3.4 Install a French drain around the perimeter of the barn, as noted on the drawings. The drain trench is to be lined with a non-woven geotextile layer, and a 150mm diameter perforated pipe is to be located at its base. The trench is then to be backfilled with GLAPOR or similar recycled foamed glass gravel.

Where abutting grass allow for the trench is to be finished with a minimum 50mm depth of pea gravel contained with treated softwood edging boards and stakes as necessary. Where abutting hard (paved) surfaces allow for installing a suitable site formed drained cavity, to tie in with the perimeter drainage for the glazed link. In both cases the finished level of the drain is to be a minimum 150mm below the internal finished floor level of the barn.

Allow to connect into new soakaways.

- 3.3.5 Following strip-out, repair the solid plinth walls to provide a stable base for the sill beam.

Further to an extensive survey and the results of trial hole information, it is anticipated that all extant sections of the original brick plinth, which are located on the southeast wall and the southern half of the northeast wall will be re-used and repaired in-situ.

To this end, all loose, spalled, or defective bricks are to be carefully removed and replaced as noted below, maintaining the existing bonding and joint widths.

All weathered joints, cracks and any loose or friable mortar is to be carefully raked out by hand to a depth of 20-35mm and re-pointed with lime mortar as noted below.

Specific repairs are noted on the drawings (see references below).

Where sections of wall along the northern half of the northeast wall and the northwest wall are missing above ground level and where the southwest wall has been poorly reconstructed, these are to be carefully reduced to the first stable course above the formation level and re-constructed to the levels shown on the drawings.

Any sound bricks removed during this process are to be carefully cleaned and re-used in the new work.

Where additional bricks are required, these are to be handmade in imperial sizes to match the existing (e.g. HG Mathews or similar). The mortar to be used is to be a 1:3 mix using an NHL 3.5 Hydraulic lime and well graded local sharp sand. All pointing is to be flush, slightly recessed.

Samples of the specified mortar and brick are to be provided for approval before commencing the works.

Refer to RHP drawings 7482/W700 – W714 for further details.

- 3.3.6 Cast the new concrete footings for the external air source heat pump's air handling unit, as per the structural engineer's details.

- 3.3.7 Further to the trial hole investigations and analysis of ground conditions by the structural engineer, provide a new insulated limecrete flooring system within the barn at ground floor level. Allow for the supply and fix of underfloor heating* within a 100-120mm Tÿ-Mawr or similar** lime slab with 40mm of cork board edge insulation. The slab is to be laid on 120-350mm of compacted GLAPOR or similar recycled foamed glass gravel, wrapped in a thermally bonded non-woven geotextile layer, on level and compacted subsoil. The contractor is to ensure that all geotextile layers are well lapped. A breathable floor finish is to be laid once the slab is fully cured and dry.

* *The heating system is to be designed and installed by the Principal Contractor and*

suitable for use with the limecrete system proposed.

*** The thickness of the slab and its bearing capability is to be confirmed with the Struct. E.*

3.4 Superstructure

Note: All new timber used for replacement framing members and/or timber repairs is to be sustainably sourced English Oak (hardwood) or Douglas Fir (softwood), as noted below – refer to the details and guidance notes on RHP drawings 7482/W700 – W714 for further details.

- 3.4.1 All decayed, missing and modern (C21) piecemeal sections of the sill beam are to be replaced in oak to match the existing timber sizes (approx.. 100x150mm). Original (C19) extant sections are to be cut back to sound timber and new sections are to be connected with pegged edged-halved or splayed bridled joints in traditional fashion, as identified.

New sections of sill beam are to be half joined at the corners with pegged blind mortise and tenon joints and interrupted sections are to receive pegged tenon joints into the abutting upright, all as indicated.

The completed sill beam is to be fully supported on the repaired brick plinth in accordance with the repair drawings and structural engineers' recommendations.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

- 3.4.2 Where indicated, any secondary studs and braces that were found to be missing, decayed beyond reasonable repair or unsuitable for retention are to be replaced entirely in Douglas Fir to match the original timber sizes in the same location, re-using existing housings.

Allow for the ends of all studs and braces to connect to the plates via new stub tenons.

- 3.4.3 Where indicated, allow for the decayed ends and/or faces of all secondary studs, braces and primary posts members to be cut back to sound timber. New timber is to be pieced and/or scarfed to the existing via scissor scarf, stop splayed scarf or half lap scarfs with squinted butts, traditionally pegged, as indicated. All new timber sizes and species are to match the existing.

Allow for pieced-in timber to be fixed with stainless steel coach screws, plugged and pelleted.

Allow for the ends of all studs and posts to connect to the sill beam via new stub tenons. Posts with new material scarfed to their base are to receive pegged tenon connections. Posts without new material are to receive pegged slip tenons.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

- 3.4.4 Allow for the replacement of modern (C21) sections of wall plate in Douglas Fir to match the original timber sizes (approx. 100x150mm). The ends of original (C19) extant sections are to be adjusted accordingly, re-using existing joints where possible, and new sections are to be connected with pegged edged-halved or splayed bridled joints in traditional fashion, all as identified.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

- 3.4.5 Allow for forming all new or enlarged window and door openings as noted on the drawings. These are to be inserted between new and existing framing members, which are to be trimmed with new Douglas Fir to match the existing timber sizes (approx..75x100mm). All connections between horizontal and vertical members are to receive pegged mortice and

tenon joints.

- 3.4.6 All existing pole rafters are to be retained. Allow for them to be re-set to oppose each other where they do not on a new Douglas Fir ridge board inserted between the principal rafters, in accordance with the structural engineer's recommendations, and pair with new 150x50mm cut rafters in Douglas Fir to support the new roof finish in the same plane, all in accordance with the structural engineer's details. New rafters are to birds mouth over the wall plate as the existing. The top surface of new rafters are to be flush with the top surface of the pole rafters.

Allow for trimming around the new roof light openings, as noted on the drawings, and in accordance with the structural engineer's details.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

Note: To prevent unnecessary roof build-up, an insulated breather membrane is specified - see below. This will be compressed to a nominal thickness above the rafters. 25x50mm tiling battens above replaces the 70x70mm horizontal purlins that support the corrugated roofing sheets. Therefore, the ridge will be no higher than the existing.

- 3.4.7 Provide new purlins in Douglas Fir to strengthen the existing using the existing truss rebates in accordance with the structural engineer's details. Fixing details and timber sizes to be confirmed by the structural engineer following opening up.

- 3.4.8 Overhaul all existing truss to ties, joist to truss and joist to plate connections in accordance with the structural engineer's details.

Existing joists from new stair area are to be carefully removed and re-used in existing joist mortises for the master bedroom and bathroom floors.

Provide and install all new joists required to complete the first-floor structure as per the drawings, which are to be in Douglas Fir to match the existing timber sizes and housed within the existing joist mortises.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

- 3.4.9 Scarf a new end to the tie-beam T1 of truss 5 in Douglas Fir of matching size using a stopped splayed and tabled scarf joint with key. The end of the beam is to receive a new pegged tenon connection to post P11.

Provide mild steel flitch plates to either side of the repaired tie-beam joint and fix in accordance with the structural engineer's details. All exposed metalwork is to receive a suitable painted finish.

Provide all necessary temporary supports to the structure during this process, in accordance with the structural engineer's details, as noted above.

- 3.4.10 Remake the failed pegged tenon connections for the braces to trusses 1, 2 and 5 as noted on the drawings. Where indicated new timber (Douglas Fir) is to be pieced-in sufficient to provide a new mortise and stable joint.

- 3.4.11 Provide new painted forged ms strap to strengthen the connection between tie beam T1 and post P10 of truss 4 as indicated on the drawings.

- 3.4.12 Provide a new 18mm floor-grade plywood tongue and groove floor deck on battens at first floor level, as per the drawings. Allow for the supply and fix of a contractor designed underfloor heating system between the battens, above the joists.

3.4.13 Construct all new internal stud partitions, including 50mm of mineral sound insulation, as indicated on the drawings. Generally vertical studs to non-loadbearing walls are to be 75x38mm, spaced at 400mm centres with noggins at mid-point. Solid noggins are also required between joists under partitions as per the structural engineer's details. Plywood pattresses/linings to the face of studs are to be installed where services are required.

3.4.14 Provide a new internal timber staircase and landing as per the drawings and the structural engineer's details.

The staircase is to be designed by others to be self-supporting. The landing joists and trimmer beam are to be specified and connected to the existing tie beams in accordance with the structural engineers' details, making use of existing joists mortices.

3.4.15 Install all cables, pipework, and associated equipment required for the electrical, water, heating and ventilation distribution (first fix), including any pumps, fans, manifolds, ducts and tanks, etc*.

Services are to run between timbers for circulation through new voids created within the internal drylinings to avoid cutting original frame members.

Refer to RHP drawings 7482/W130 and W131 for further details.

** All M&E systems are to be designed and installed by the Principal Contractor.*

3.4.16 Install a 50mm layer of flexible wood fibre insulation (STEICOflex or similar) between the new rafters, a second continuous 50mm layer of flexible wood fibre insulation (STEICOflex or similar) below the rafters and between horizontal battens at 600mm centres, and a third continuous 50mm layer of flexible wood fibre insulation (STEICOflex or similar) below the rafters and between vertical cross-battens at 600mm centres. Install a vapour control membrane below the insulation (STEICOMulti renova or similar), lapped and taped in accordance with the manufacturer's details.

3.4.17 Install 100mm of mineral wool sound insulation between the floor joists at first floor level.

3.4.18 Fully fill the void between the external wall studs with a 100mm layer of flexible wood fibre insulation (STEICOflex or similar), add a second continuous 50mm layer of flexible wood fibre insulation (STEICOflex or similar) to the inside face of the wall studs and between the primary timber frame posts, and a third continuous 50mm layer of flexible wood fibre insulation (STEICOflex or similar) to the inside face of the primary posts between vertical cross battens at 600mm centres. Install 15mm OSB sheathing and a vapour control membrane over the insulation (STEICOMulti renova or similar), lapped and taped in accordance with the manufacturer's details.

3.4.19 Provide an insulating breather membrane (TLX Gold or similar BBA Certified) over the existing rafters, draped into the rafter void in accordance with the manufacturer's details.

3.4.20 Lay a new natural slate tile roof (slates to be SSQ Domiz, First Grade, A1, T1, S1 rated) over 25x50mm treated softwood tiling battens, including all Staffordshire Blue clay plain angle ridge and hip tiles as necessary, to match the main threshing barn opposite.

Associated flashings, weathering and soakers are to be in Code 4 lead. All leadwork is to be strictly in accordance with the recommendations of the Lead Sheet Association.

Provide samples of the suggested slates and clay ridge tiles for approval prior to order.

3.4.21 Install in-line tile ventilators to the bathroom SVPs and extractor fans, in accordance with the manufacturer's details. Include all associated pipes and ductwork.

Refer to RHP drawings 7482/W130 and W131 for details and locations.

- 3.4.22 Install a breather membrane (Solitex Fronta WA or similar) over the outer face of the wall studs and insulation. Re-fit the retained oak weatherboards on vertical treated softwood battens, with new oak boards to match where required. Any new boards required are to be left untreated.
- 3.4.23 Provide new 100mm half round deep flow cast iron gutters and 75mm diameter cast iron down pipes to the barn, to match the main house and threshing barn (J & JW Longbottoms or similar). All rainwater goods are to be prepared, primed and finished with an appropriate metal paint system in accordance with the manufacturer's details. Allow for all brackets, spigots, stop ends, offsets, bends, unions and shoes required. Connect to the new surface water drainage system.
- 3.4.24 Provide new 100mm diameter cast iron SVP's, (J & JW Longbottoms or similar). All external SVP's are to be prepared, primed and finished with an appropriate metal paint system in accordance with the manufacturer's details. Allow for all brackets, spigots, stop ends, offsets, bends, unions and shoes required. Connect to the new surface water drainage system.
- Refer to RHP drawings 7482/W130 and W131 for details and location.
- 3.4.25 Install a cowed lead wall vent for the kitchen extractor fan in accordance with the manufacturer's details. Include all associated pipes and ductwork.
- Refer to RHP drawings 7482/W130 and W131 for details and location.
- 3.4.26 Provide a new multi-fuel stove including twin walled stainless-steel flue with black enamel finish to suit the requirements of the chosen appliance and location. Allow for all stays and flashings as required. Install in accordance with the manufacturer's instructions.
- Refer to RHP drawings 7482/W130 and W131 for details and location.
- 3.4.27 Provide and install all new double glazed timber windows and external doors, as indicated on the drawings, which are to be fully weather stripped into the new openings.
- Refer to RHP drawings 7482/W135 to W139 and W150 to W151 for further details.
- 3.4.28 Provide and install all new conservation rooflights, as indicated on the drawings, to be installed in accordance with the manufacturer's details.
- Refer to RHP drawings 7482/W135 and W151 for further details.
- 3.4.29 Provide a 12.5mm plasterboard layer to all new internal walls and ceilings, leaving the tie posts, tie beams (including stub ties and dragon ties), collars, and braces of the barn frame exposed.
- The wall between the pool entertaining space and plant room is to receive 2 layers of 12.5mm Gyproc SoundBloc acoustic plasterboard in place of standard plasterboard to ensure 30 minutes fire protection and reduced sound transmittance.

3.5 Finishing Work

- 3.5.1 Complete all internal wall and ceiling decorations as required.
- 3.5.2 Install floor and wall finishes to all rooms as necessary. Only breathable flooring materials are to be used on the ground floor.
- 3.5.3 Install all internal doors, architraves, skirtings, and cill boards.
- 3.5.4 Provide and install all outstanding fittings and fixtures, including electrical fixtures, light fittings, kitchen furniture, sanitaryware, appliances, and ironmongery. Carry out any

commissioning and testing required*.

** All M&E systems are to be designed and installed by the Principal Contractor.*

- 3.5.5 Complete groundworks and provide new external stone paving around the barn as indicated on the drawings.
- 3.5.6 Clear site ready for occupation.