



The Farmyard Proposals

6.7

Barn - Proposed Works:

SELECTED REFURBISHMENT WORKS TO BARN

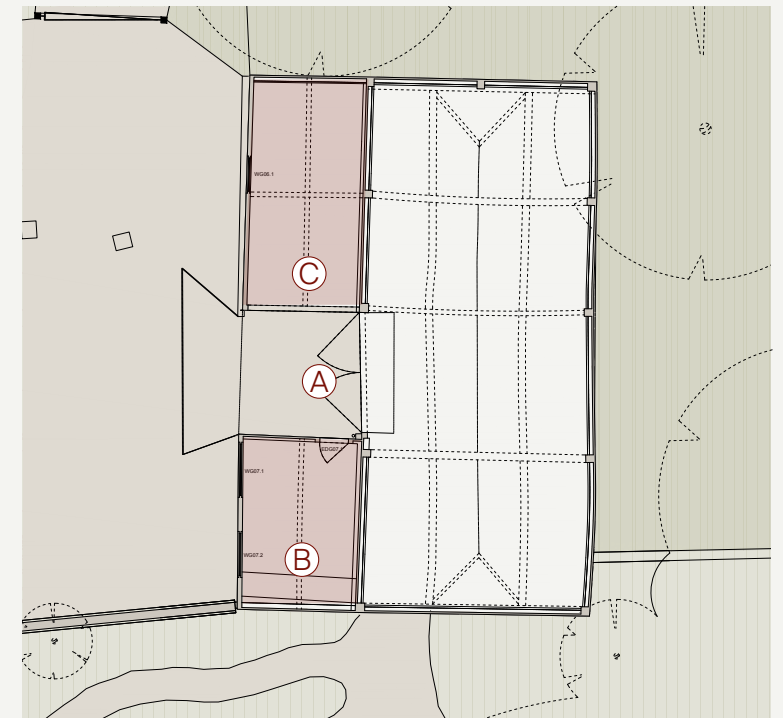


BARN G01 - VIEW A

Existing timber barn doors to be retained. New glazed entrance door to be set within a framed glazed infill, forming the new main entrance to the barn.

Existing barn walls to be insulated and re-clad with horizontal timber weatherboarding. Existing boards to be reclaimed where possible; new boards to match in profile and finish. New timber doors to replace existing, matching the original style and finish.

Uneven concrete slope to be demolished and replaced with new sloped paving. Surrounding areas to be made good and resurfaced.



EXISTING BARN GROUND FLOOR



BARN G07 - VIEW B

Existing barn roof to be re-tiled throughout with clay tiles to match existing, reusing original tiles where possible. Roof to be insulated above existing structural frame to maintain visibility of exposed timber frame internally.

Existing blockwork rooms beneath catslide roof to be internally insulated and externally re-clad with horizontal timber weatherboarding to match the barn's appearance and local vernacular detailing. Poor quality blockwork to be replaced with appropriate masonry construction.

Modern joinery to be removed in areas of proposed works.



BARN G03 - VIEW C

All existing modern concrete blockwork to be upgraded, insulated, and clad with horizontal timber weatherboarding to integrate with the existing material palette and conceal the unsympathetic modern elements on the western elevation.

Tractor storage relocated to byre as specified on proposed plans.

Existing concrete floor to be removed and ground excavated to form new insulated slab with underfloor heating and new floor finish



6.8

The Barn Proposals

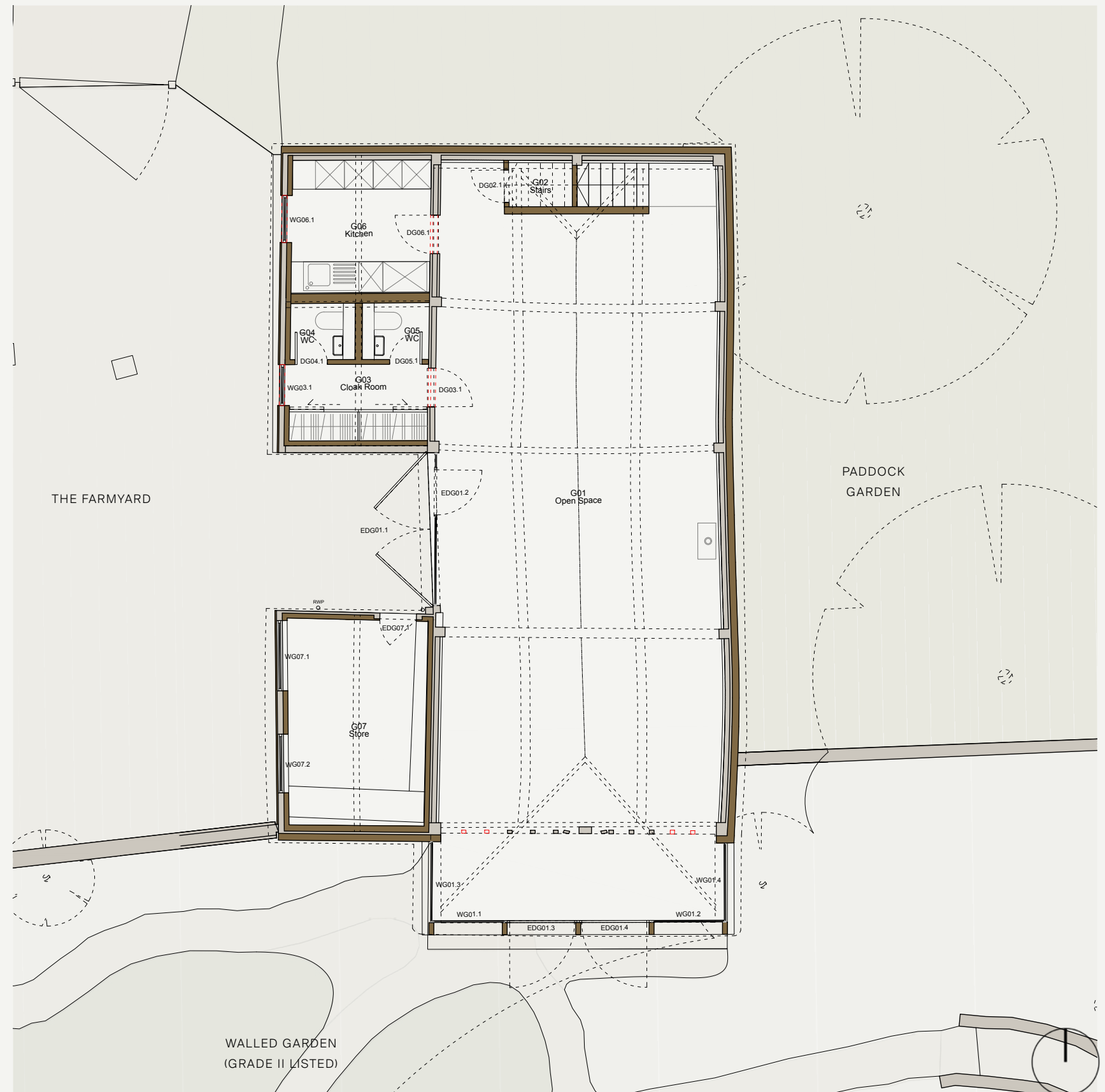
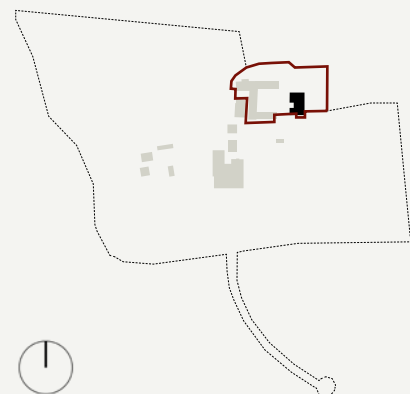
Ground Floor

The ground floor of the barn is retained as a flexible space for the residents use. Under the northern portion of the catslide roof, w/c and kitchenette facilities are introduced, with a new stair to the northern gable providing access to the mezzanine above.

Internally the legibility of the double height volume is retained, in keeping with HE guidance and to maintain the character of the space. The extension provides improved daylight and views, whilst retaining exposed primary structure where the south gable is being exposed. Small windows are added and re-positioned to the w/c and kitchen to benefit light and ventilation.

KEY

DEMOLISHED



GROUND FLOOR PLAN @ 1:100





6.9

The Barn Proposals

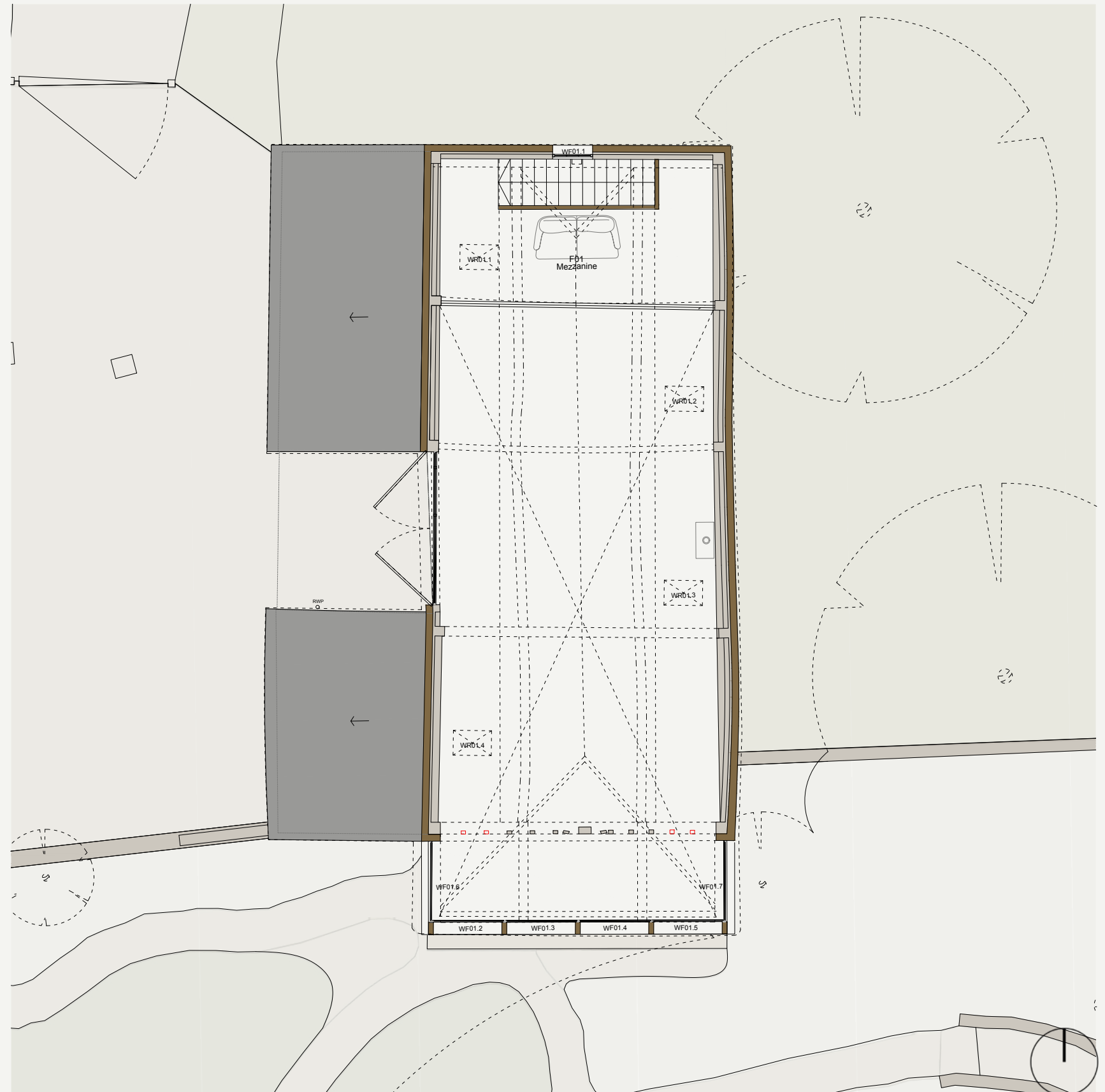
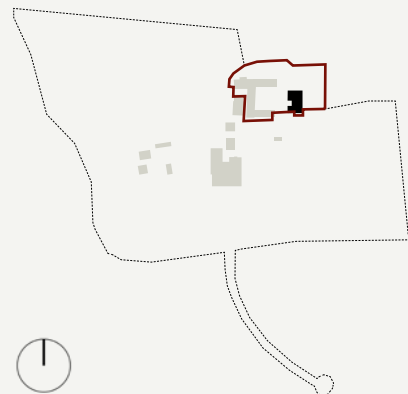
Mezzanine Floor

At mezzanine level, a small platform is introduced to the head of the stair. This is positioned within the primary timber grid to ensure no significant alteration to the trusses are required. The existing northern window is proposed for a double glazed crittall replacement but retained in its current aspect ratio and position.

Four number skylights have been added above to benefit daylight and ventilation. These have been positioned to alternate across both faces of the roof and considered from the wider views to mitigate impact.

KEY

DEMOLISHED



FIRST FLOOR PLAN @ 1:100





6.10

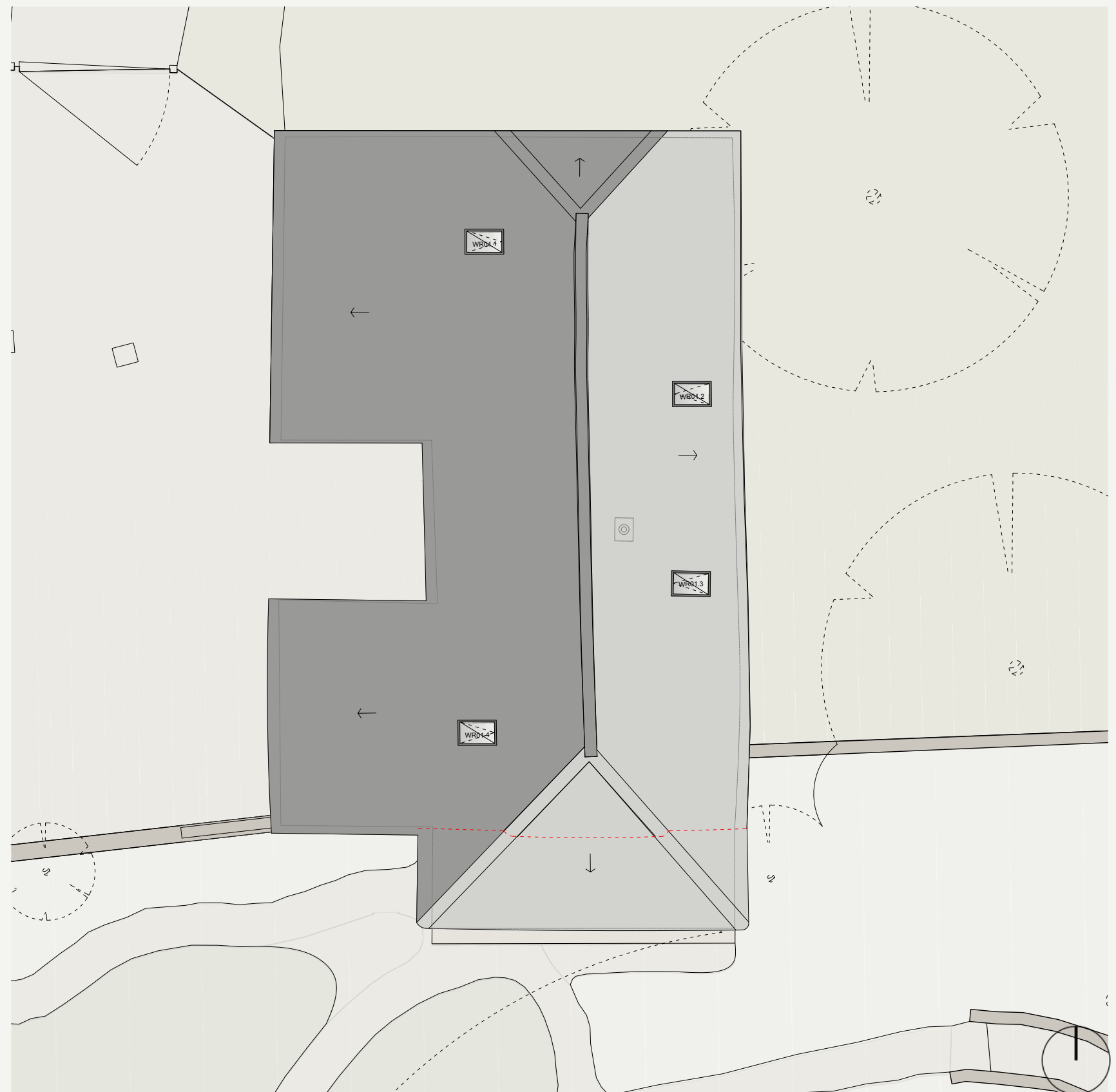
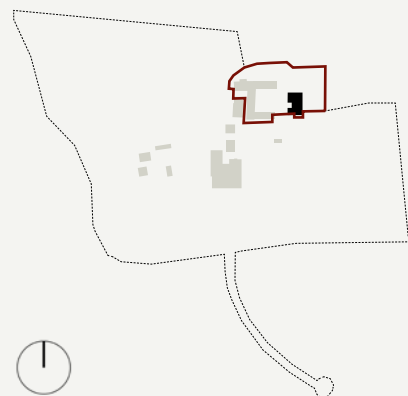
The Barn Proposals

Roof Plan

The hipped, catslide form is maintained, with the extension to the South respectfully continuing the falls and profile of the existing roof. Reclaimed tiles will be carefully chosen to knit in with the existing. Rooflights will be low profile, set to the face of the roof finishes and with framing profiles minimised to mitigate impact from wider views.

KEY

DEMOLISHED



ROOF PLAN © 1:100





6.11

The Barn Proposals

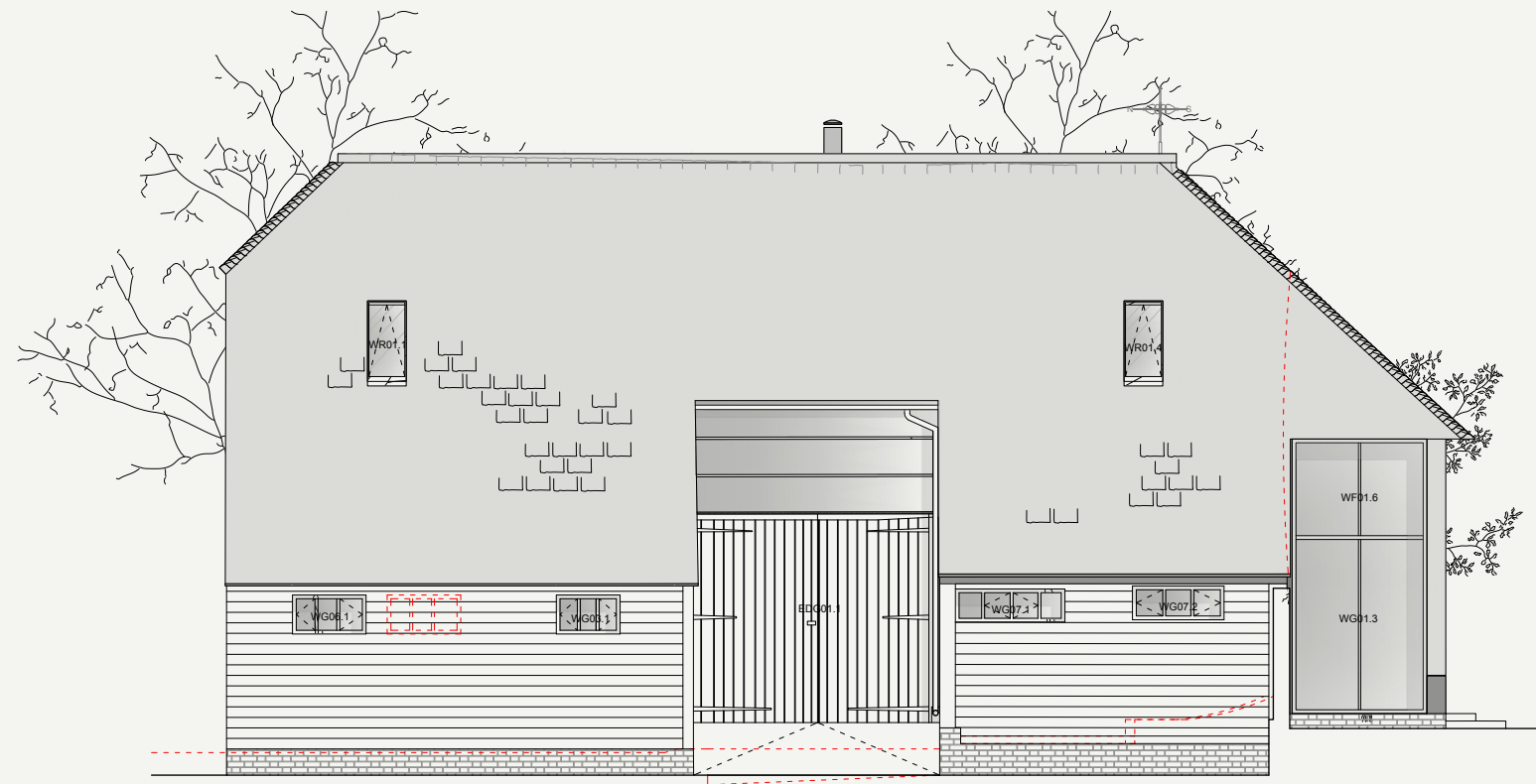
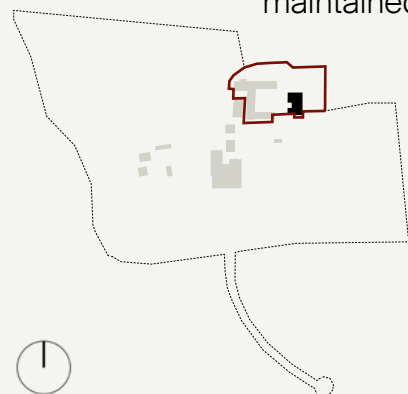
Elevations

The Western elevation has strived to minimise the sense of domesticity by utilising existing openings and only adding select new locations of fenestration. The scale and character of the existing double barn door entry is retained, with a glazed envelope behind for weather tightness. The slot windows under the catslide are slightly extended and repositioned, yet in keeping with the current proportions. All of the existing modern concrete block will be upgraded, insulated and clad in horizontal timber weather boarding to tie into the existing material palette and conceal the unsympathetic modern envelope that is present on the Western elevation. In unison, these moves strive to help not only maintain, but improve the existing character and fabric when viewed from the Farmyard court.

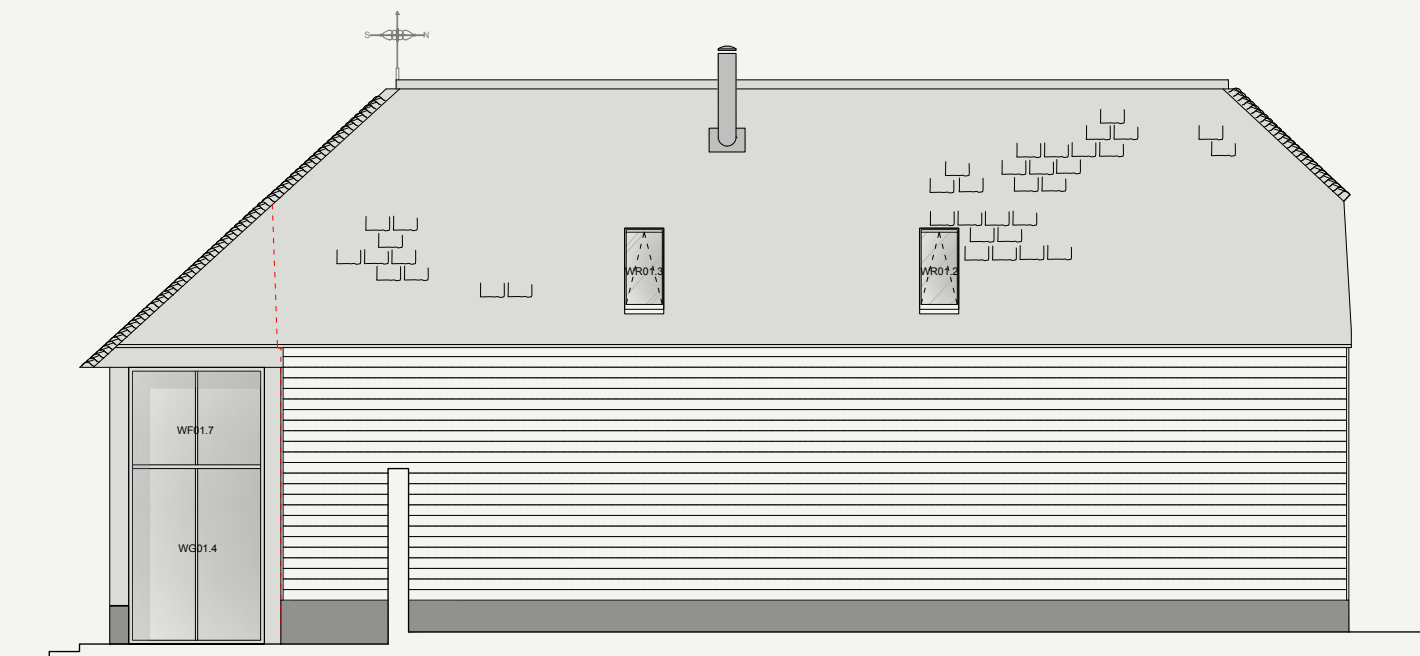
The side elevation of the extension is read predominantly in isolation to the remainder of the barn, given the separation by the garden wall. This is glazed to provide a contrast to the wall and primary barn fabric, with a low-level brick plinth to knit the levels internally to the garden. This language is repeated on the Eastern elevation of the extension, with the existing length of the barn maintained in timber weatherboard cladding.

KEY

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WEST ELEVATION @ 1:100



EAST ELEVATION @ 1:100



6.12

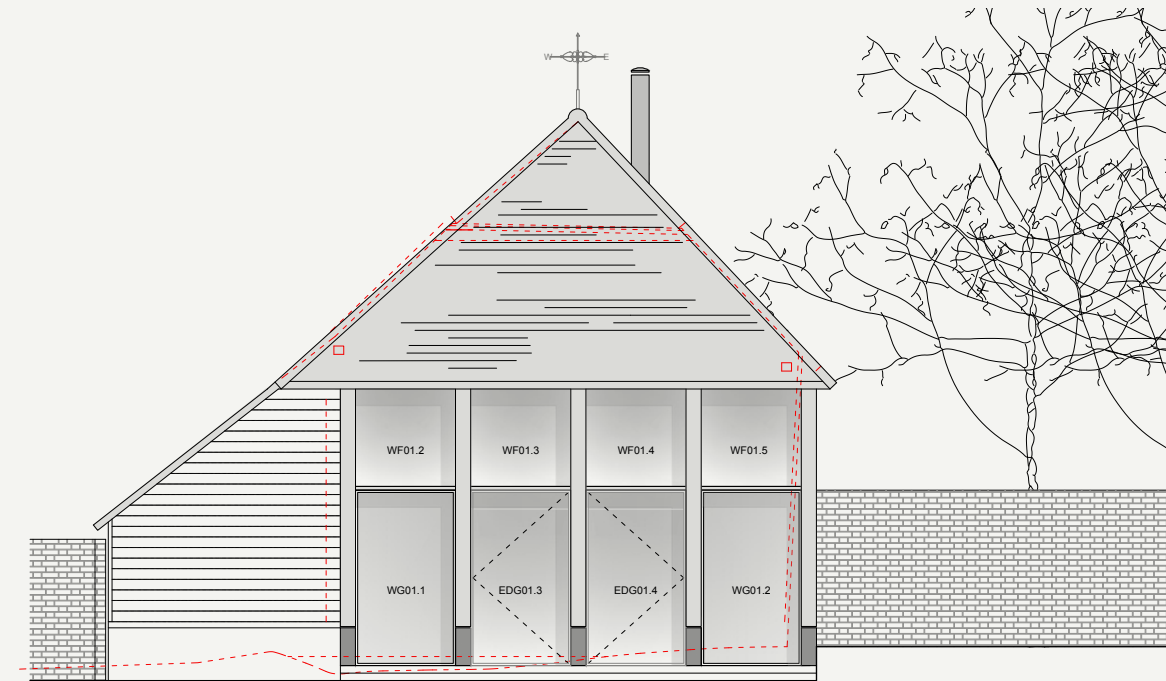
The Barn Proposals

Elevations

The extended, southern gable respects the current form of the barn by continuing the catslide and hipped roof profiles. Primary timber columns are used to form a 4 bay gable, supporting the roof above and reciprocating the structural elements from within, whilst introducing complementary glazing to differentiate between old and new. Glazing is set behind the primary columns to benefit depth in the façade.

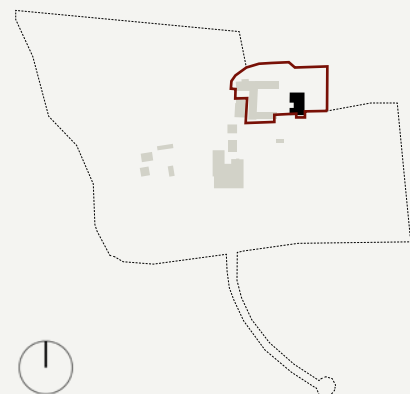
The northern gable remains unaltered from its current form, materiality and composition. As previously mentioned, the high level window shall be replaced.

SOUTH ELEVATION @ 1:100



KEY

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ABOVE: HISTORIC IMAGE

NORTH ELEVATION @ 1:100



0 4 6 8 10 M



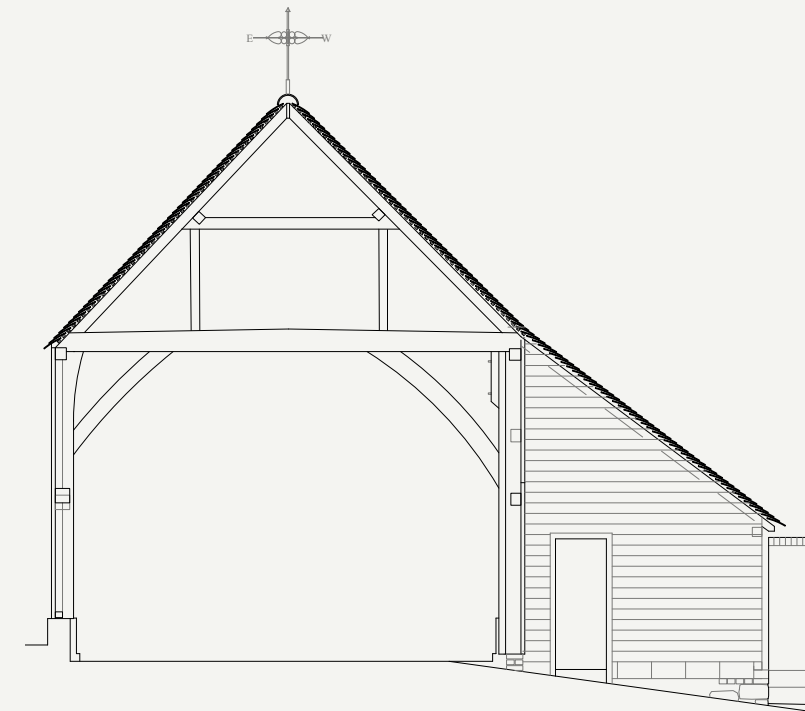
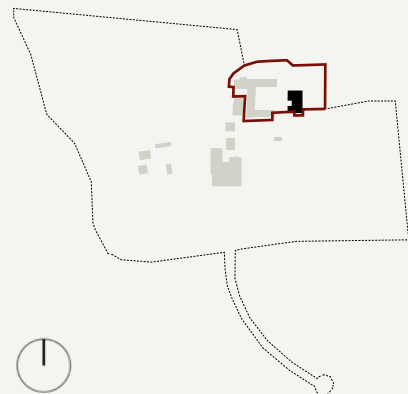
The Barn Proposals

6.13 Section

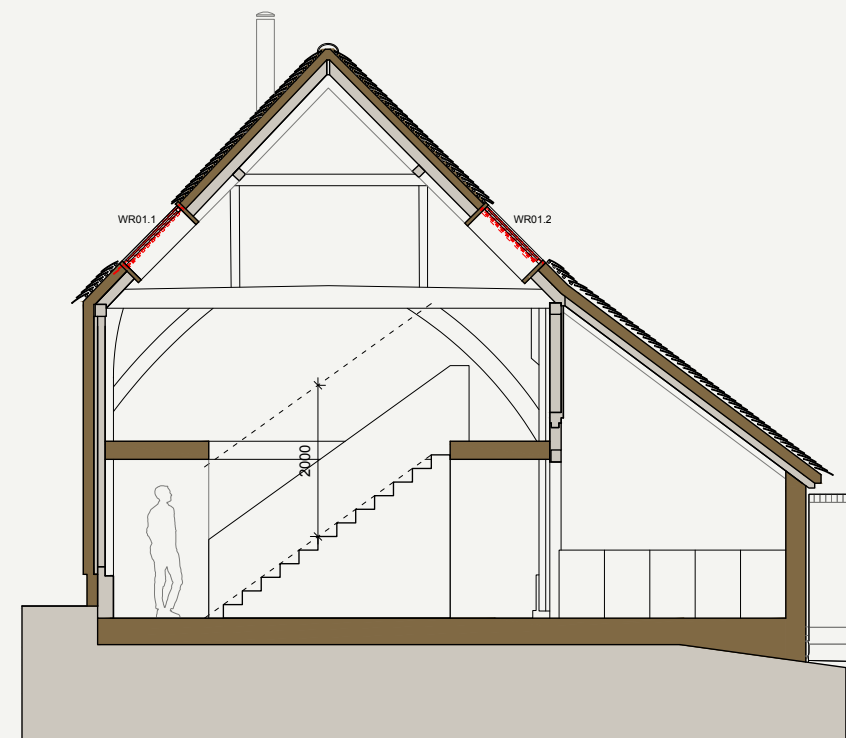
Internally, the principal timbers roof structure will be retained and visually legible within the maintained, double height volume. To improve fabric performance, a new insulated slab is proposed that will be formed at the same finish level as existing. The current slab is modern, concrete pour and its removal not determined to cause harm. This helps to retain suitable clear head height under the truss lines and catslide eaves. The structural solution has been developed to ensure no compromise to the existing footings and fabric. To the walls a layer of insulation is proposed to wrap the external face of structure to benefit benefit weather tightness and material preservation for the future. The strategy ensures all the internal exposed timber will remain as readily visible, with the weatherboard cladding removed externally, insulation installed and weatherboard returned.

KEY

DEMOLISHED



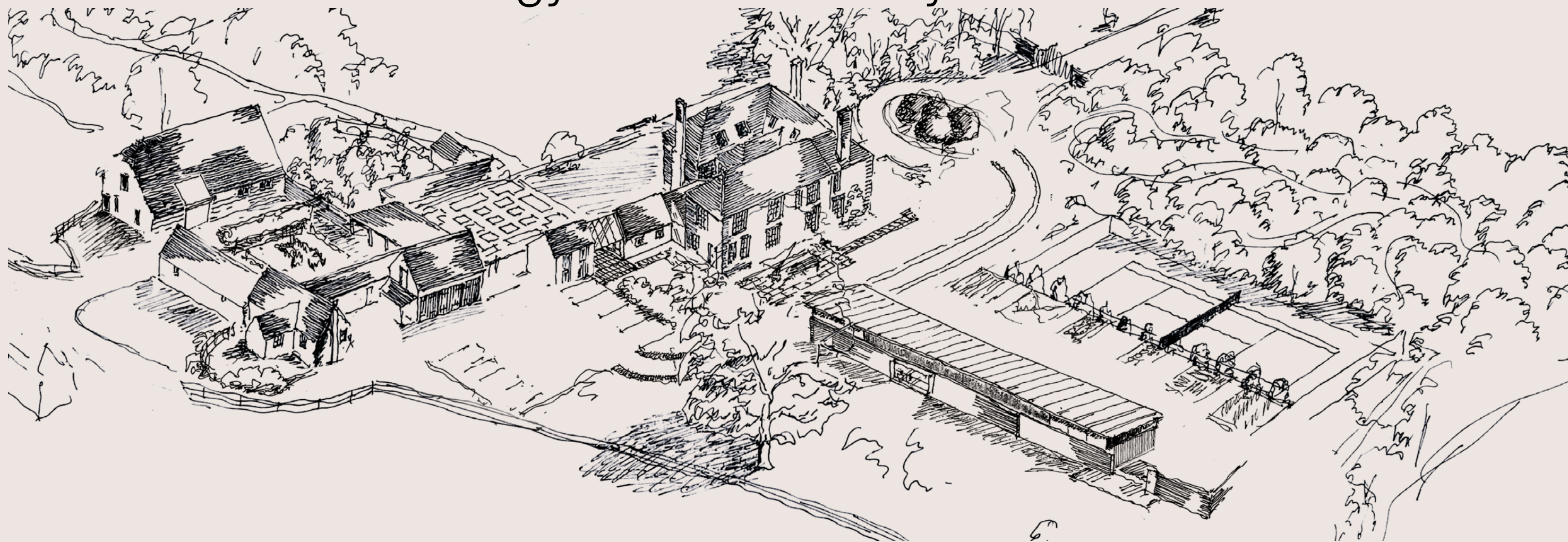
EXISTING CROSS SECTION



CROSS SECTION LOOKING SOUTH



7.0 Energy & Sustainability

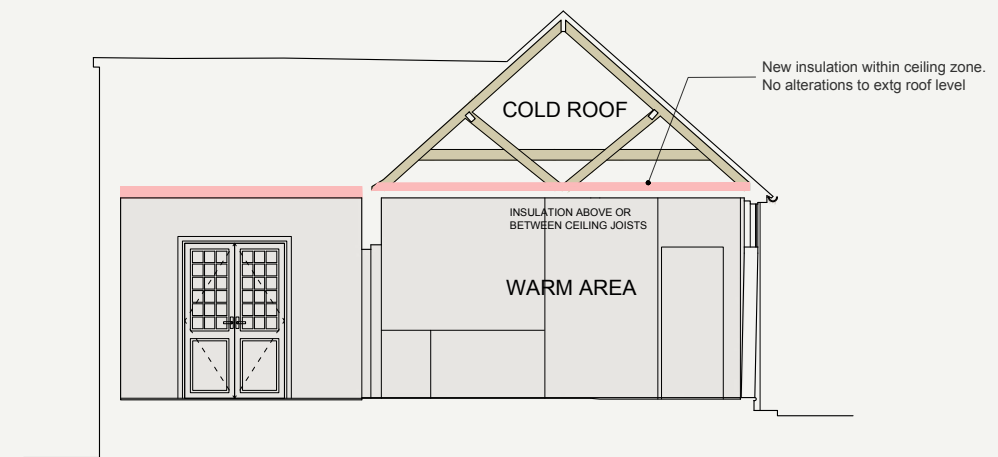




7.1

Roof Insulation Strategy

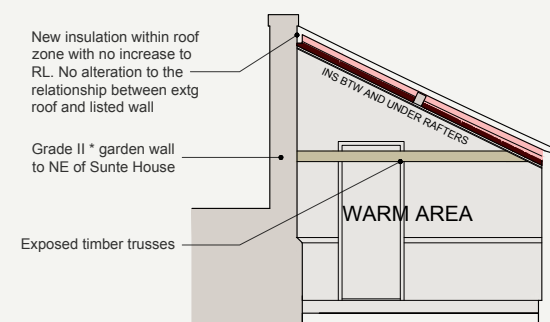
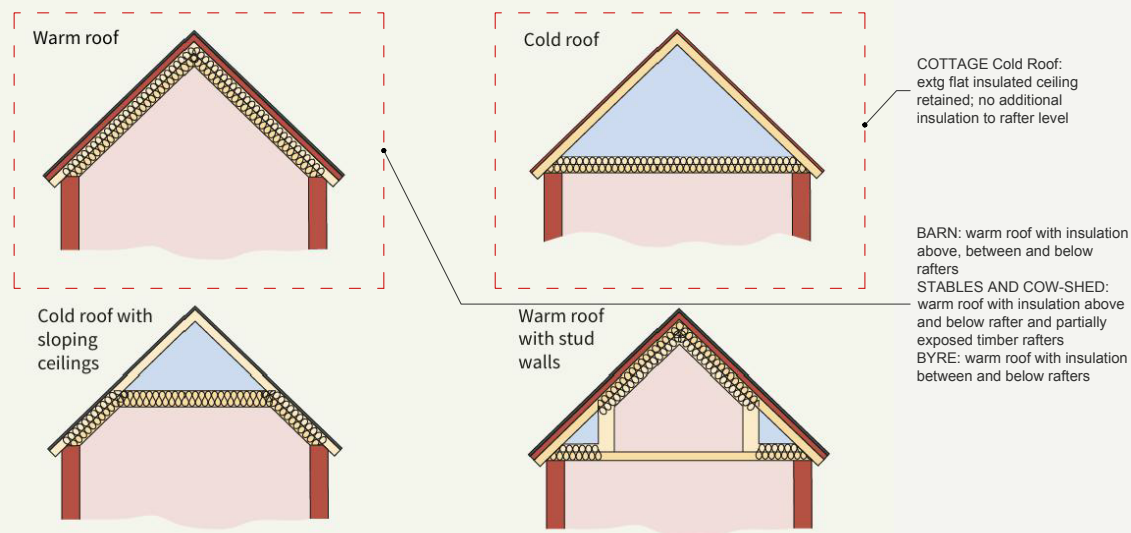
A careful and conservation-minded approach has been adopted for enhancing the thermal performance of the Barn, Cottage, Stables, Cowshed, and Byre roofs. While these buildings are not listed in their own right, they form part of the historic curtilage of Sunte House and contain retained elements of traditional timber structures, including trusses and rafters.



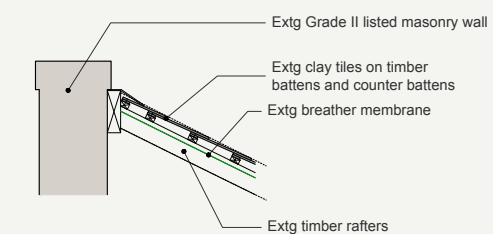
Cottage Insulation Strategy
1:50@A1

Warm Roofs and Cold Roofs

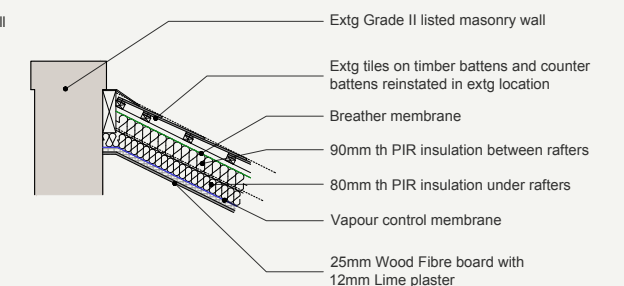
In this guidance the term 'cold roof space' or 'cold roof' is used to describe a pitched roof with insulation at the level of the horizontal ceiling of the uppermost floor, leaving an unheated roof space (attic or loft) above the insulation. In contrast a 'warm roof space' or 'warm roof' has insulation between or just under or over the sloping rafters, so that the whole of the volume under the roof can be heated and used. Some buildings have combinations of these two arrangements.



Byre Insulation Strategy
1:50@A1

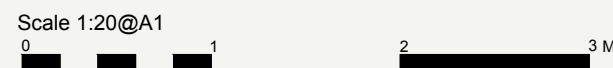


EXTG ROOF DETAIL
Clay tiles on battens above exposed timber rafters.



PROPOSED ROOF DETAIL
U-Value: approx 0.15 W/m²K
Tiles on battens reinstated above vented area with insulation between and below rafters and lime plaster finish to underside of roof.
Roof height to be retained as existing to avoid alterations to the relationship between the existing roof and the listed wall

HE Pitched Roof Insulation Strategies
from "Energy Efficiency and Historic Buildings: Insulating pitched roofs at rafter level" (Historic England)



GENERAL NOTE
Insulation and finishes selected to illustrate indicatively RPA's design intent and may be subject to variation

LEGEND

- Exposed timber structure
- Insulation layers above, between and below rafters

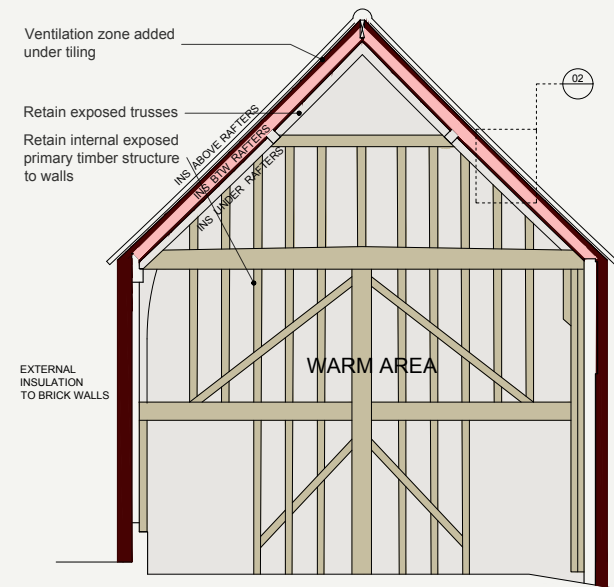


7.2 Thermal Performance and Breathability

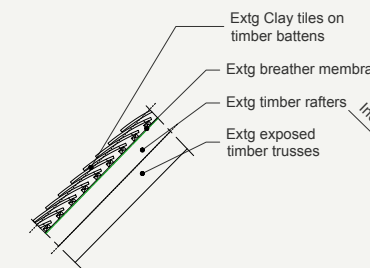
The proposed insulation upgrades are tailored to respect the retained historic fabric, aiming to significantly improve thermal performance while maintaining the visibility of primary internal timber elements. Warm roof strategies have been developed for each structure, combining insulation above, between, and/or below rafters, using breathable and moisture-regulating materials where appropriate.

Roof ventilation zones are introduced beneath reinstated clay tile coverings to mitigate condensation risks and maintain breathability. To achieve this fabric upgrade, whilst maintaining the visible character of the structure internally, a minor increase of roof height is required. However, this has been minimised to ensure no perceptible change will be evident, nor effect the reading of architectural elements. Crucially, the fabric will be improved & preserved for the future.

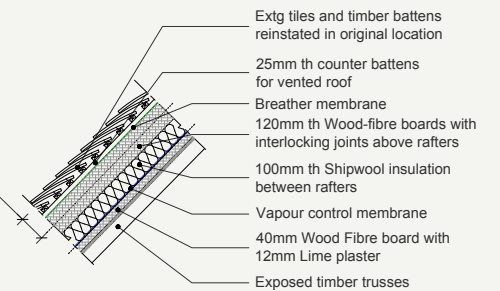
In the case of the Stables roof, solar PV panels are proposed, with a preference for low-profile integrated solar tiles that align with the appearance of traditional slate coverings, helping to deliver renewable energy with minimal aesthetic impact.



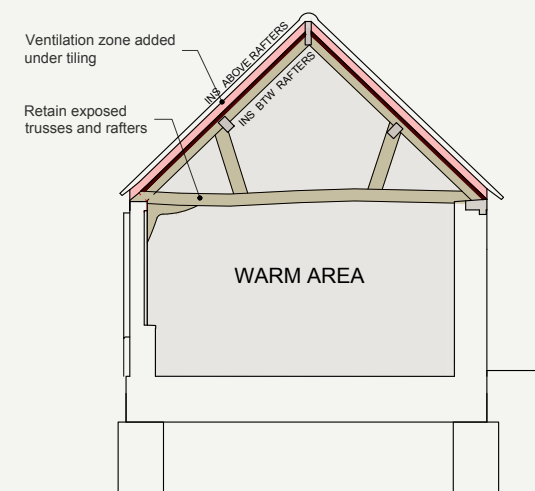
Barn Insulation Strategy
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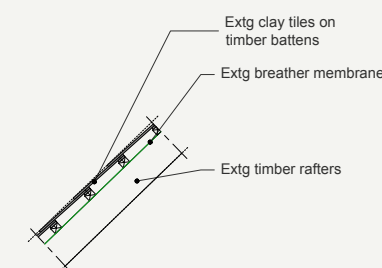
EXTG ROOF DETAIL
Clay tiles on battens above exposed timber rafters with modern alterations; Exposed timber primary structure with no insulation



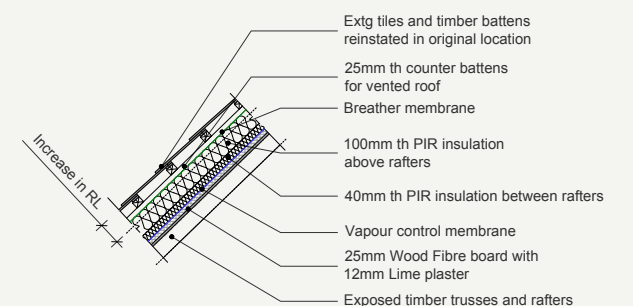
PROPOSED ROOF DETAIL
U-Value: approx 0.16 W/m²K
Tiles on battens reinstated above new vented area with insulation above, between and below rafters and lime plaster finish to underside of roof. Roof height to be increased to allow under roof ventilation and new insulation



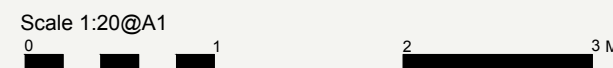
Stables / Cow-Shed Ins. Strategy
1:50@A1



EXTG ROOF DETAIL
Clay tiles on battens above exposed timber rafters



PROPOSED ROOF DETAIL
U-Value: approx 0.15 W/m²K
Tiles on battens reinstated above new vented area with insulation above and between rafters and lime plaster finish to underside of roof. Roof height to be increased to allow under roof ventilation and new insulation



GENERAL NOTE
Insulation and finishes selected to illustrate indicatively RPA's design intent and may be subject to variation

LEGEND

- Exposed timber structure
- Insulation layers above, between and below rafters



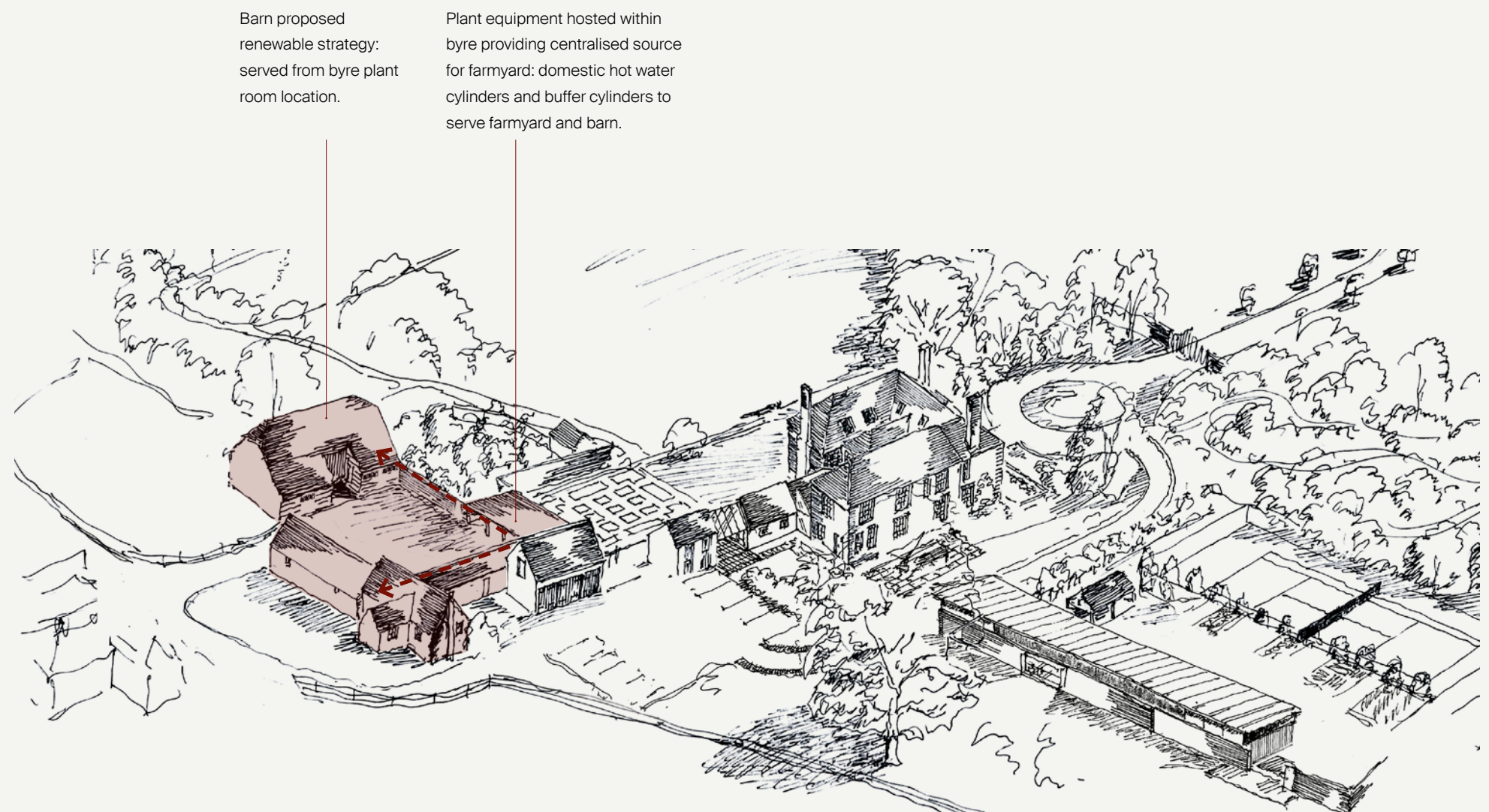
7.3 Site Wide Power Strategy

A fabric-first approach has been adopted across the Farmyard buildings (Cottage, Cowshed, Stables, Byre) and the Barn to enhance passive energy performance and reduce operational carbon emissions. High-performing insulation, upgraded glazing, and improved airtightness have been specified to optimise thermal efficiency.

Air Source Heat Pumps (ASHPs) are proposed as the primary renewable heating solution for each building, delivering space heating and domestic hot water. The plant room location has been selected to minimise visual impact and maintain functional layout within each building.

Units will be located within one of the byre bays, concealed behind hit and miss timber louvres/cladding, as a form of screening. Trenching is used to connect internal cylinders and associated equipment to each building within the farmyard.

Low-temperature underfloor heating will be installed throughout, with towel rails specified in wet areas, ensuring compatibility with the ASHP systems.





7.4 Solar Strategy

Solar photovoltaic (PV) panels are proposed on the roof of the Stables only, as it provides suitable orientation and minimal visual impact. Where appropriate, integrated solar tiles will be specified to match the appearance of slate roof coverings, helping to ensure a discreet and sympathetic design in keeping with the heritage setting.

This coordinated energy and sustainability strategy enables a transition from fossil fuels, significantly reducing carbon emissions and aligning with the environmental objectives set out in local and national planning policy.



INTEGRATED SOLAR PANELS



PV-SLATE TILES



The stables' roof is most suitable location for PV panels/ tiles given ideal levels of solar exposure

ROOF SOLAR EXPOSURE ANALYSIS

The Farmyard	Gas	ASHP	GSHP
Capital cost, £	1,000	16,500	36,500
Annual running cost, £	5,450	4,500	4,500
20-year total, £	110,000	98,800	118,000
Annual carbon emissions saving, Kg	16,400	2,300	2,300
The Barn	Electric	ASHP	GSHP
Capital cost, £	1,100	14,500	35,000
Annual running cost, £	10,10	2,900	2,400
20-year total, £	202,000	72,000	82,000
Annual carbon emissions saving, Kg	5,100	1,500	1,200

CARBON EMISSIONS WOULD REDUCE BY 86% FOR THE FARMYARD AND 76% FOR THE BARN

RICHARD PARR
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Thank You

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