

**Paul Snape Consulting**

The Parkwood and Alston Groups

**Alston Old Hall Farm, Alston Lane,  
Preston, PR3 3BN – Agricultural Building**

**Structural Condition Survey for Conversion to  
Dwellings**



PSC- 541-001

January 2021

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The Parkwood and Alston Groups  
Structural Condition Survey  
Agricultural Building at Alston Old Hall

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# The Parkwood and Alston Groups Structural Condition Survey Agricultural Building at Alston Old Hall

## 1.0 Terms of reference

Paul Snape Consulting were appointed by The Parkwood and Alston Groups to carry out a visual structural inspection and produce a structural condition survey report for the existing agricultural building at Alston Old Hall Farm, Alston Lane, Preston, PR3 3BN.

## 2.0 Purpose of the survey

It is proposed to convert the barn to form 5 No. dwellings under a Class Q Planning Application. Proposed layouts have been prepared by Evolve Architectural Design and it is intended to keep the existing steel frame and provide living space on two floors. The existing and proposed layouts are detailed on drawings prepared by Evolve and these are included as Appendix A. The blockwork to the lower elevations would be retained, along with cladding to the upper elevations. The visual structural survey is required to confirm the current condition of the building and to assess the suitability for conversion. There are photographic records of the building in Appendix B and these are referenced throughout the report.

The drainage and electrical systems of the building have not been inspected. Therefore, we are unable to confirm that these are in a satisfactory condition.

We have not inspected parts of the structure that are covered, unexposed or inaccessible. Hence, we are unable to report if such parts of the property are free from defect.

Our inspection was undertaken on 19<sup>th</sup> January 2021 at which time the weather was dry and overcast.

The survey was undertaken by a Chartered Engineer, Paul Snape BEng (Hons) CEng MICE

## 3.0 Description of Building

The building is a steel framed construction, with a steel portal frame, supporting a cement profile sheeted, pitched timber purlin roof. The elevations consist of lower concrete block walls with timber cladding to the upper sections. The building has a concrete ground floor. The building has a large concrete yard to the west and north elevations, with grassed areas to the south and east.

## 4.0 External Survey

### West Elevation (Gable) (Photos 1 to 4)

This gable is a mainly open elevation with a cladded section to the south end (photo 2). The main portal columns are 305x127x37 UB sections (based on flange thickness) and the rafters appear to be the same section. The gable post at the south end is a 254x102x25 UB (based on flange thickness). Although some rust is evident, the steel is generally in good condition (photos 3 & 4). All six of the portal frames are constructed with the same section sizes. Given

# The Parkwood and Alston Groups Structural Condition Survey Agricultural Building at Alston Old Hall

the age of the building (constructed within the past 30 years) it is assumed that the frames are founded on adequate pad foundations. There is no evidence of movement in the frame with all sections plumb in both directions. The cladding at the south end of the gable is in good condition and this section has metal sheeting to the lower portion, which again is in good condition.

## **North Elevation (Photos 5 to 8)**

This elevation has a 215mm thick hollow concrete block wall to the lower section (7 courses), constructed between the portal frames. The upper section of the wall consists of timber cladding which is in good condition. The blockwork is well pointed, plumb and in good condition structurally. Photographs 6 and 7 show some minor damage to the blockwork over a short length where the upper course of block has presumably been struck by machinery. The elevation has guttering along its length with downspouts at each corner, which is in good condition and functioning satisfactorily.

## **South Elevation (photos 9 to 12)**

This elevation has 7 courses of 215mm blockwork to the lower section of the wall. The upper section of the wall consists of timber cladding. The blockwork is plumb and in good condition structurally. The portal frames have little sign of rust and are generally in good condition with no structural damage or loss of section. The timber cladding is in good condition. The elevation is served by guttering and downspouts and the downspout at the west end has lost a section with water spilling onto the cladding and blockwork (photo 10).

## **East Elevation (Gable) (Photos 12 to 14)**

This elevation has a 215mm thick hollow concrete block wall to the lower section (7 courses), constructed between the portal frame and gable posts. The upper section of the wall consists of timber cladding which is in good condition. The blockwork is well pointed, plumb and in good condition structurally.

## **Roof (Photos 17 & 18, 21 to 23, and 26 & 27)**

The existing roof is cement profiled sheeting, carried on timber purlins which run between the portal frames. The roof is in good condition with no evidence of rot or infestation to the timber and no excessive movement or deflection. Photo 26 indicates the haunch detail and photo 27 indicates the detail at the apex of the portal frame. The frames and roof are fully braced as can be seen on photos 21 to 23.

## **5.0 Internal Survey (Photos 8 to 13)**

Internal inspection shows that the floor is of a concrete construction (photo 24). There was no evidence of any structural movement or damage to the floor. Internal inspection of the frame and walls confirm the external findings noted above i.e. the building is in good condition structurally.

# The Parkwood and Alston Groups Structural Condition Survey Agricultural Building at Alston Old Hall

## 6.0 Suitability for Conversion and Method of Construction

It can be seen from the survey detailed above that this building is in a good condition in terms of structure. There is no sign of movement to the steel frame and the walls and floor slab appear solid with no movement.

Proposals for the conversion have been prepared by Evolve Architectural Design. The proposals are for five dwellings and it is expected that the steel frame and the blockwork to the lower elevations would be retained, along with cladding and glazed areas to the elevations. New internal walls would be provided to form party walls and the individual rooms/areas within the dwellings. The dwellings would be two storeys and the height of the existing building will easily accommodate this.

In converting the building, it would be necessary to provide an inner skin to the existing external blockwork/cladding, forming an insulated cavity wall. Internal masonry loadbearing walls would also be provided as noted above. These walls would be structurally independent of the existing steel frame and would take the loading from new first floor and ceiling structures. The height of the building will allow the existing floor slab to be retained and a new insulated floor laid over it. Cores should be taken through the existing floor to ascertain the construction i.e. concrete depth, reinforcement details, hardcore depth and subgrade. This will provide the necessary detail to assess whether internal loadbearing walls can be built directly off the slab or whether new foundations will be necessary. If new foundations are necessary, these can be formed by cutting through the slab to the minimum width necessary. It will be essential that any new foundations do not affect the existing foundations to the columns and blockwork to be retained. Trial holes should be hand dug to ascertain the detail of the existing pad footings to the frame and any existing strip footings to the walls, prior to detailed design.

The existing portal frame structure is in good condition and the frame will need to be assessed for the proposed loading from the roof, cladding and glazing. The drawings indicate a slate roof which is heavier than the current cement sheet roofing. It is likely that the existing timber purlins would be replaced with new timber or steel purlins during any re-cladding of the roof. This again may add weight to the roof structure. The portal frame will therefore need a full assessment, including the haunch and apex connections, to take account of the increased loading. If the frame is not strong enough for the increased loading, then alternative roof cladding such as composite panels could be considered. The cladding and glazing to the elevations should be easily accommodated by the existing frame given the section sizes of the columns. The steelwork will need cleaning and given a protective coating as necessary. The nature of the structure means that the openings introduced for the glazed sections would have no effect on the structural frame and integrity of the building.

# The Parkwood and Alston Groups Structural Condition Survey Agricultural Building at Alston Old Hall

Given the proposed construction options briefly outlined above, it is considered that the building is suitable for conversion to dwellings. When converting agricultural buildings, it is essential that the construction techniques and sequence are carefully considered.

## **7.0 Conclusions**

The building is in a good structural condition and is considered suitable for conversion by the method or options outlined above. The new internal structure should be independent of the existing steel frame and be designed to have little or no effect on the existing structure. The existing portal frames and foundations should be assessed for the proposed roof structure and cladding to the elevations indicated.

## Appendix A Drawings

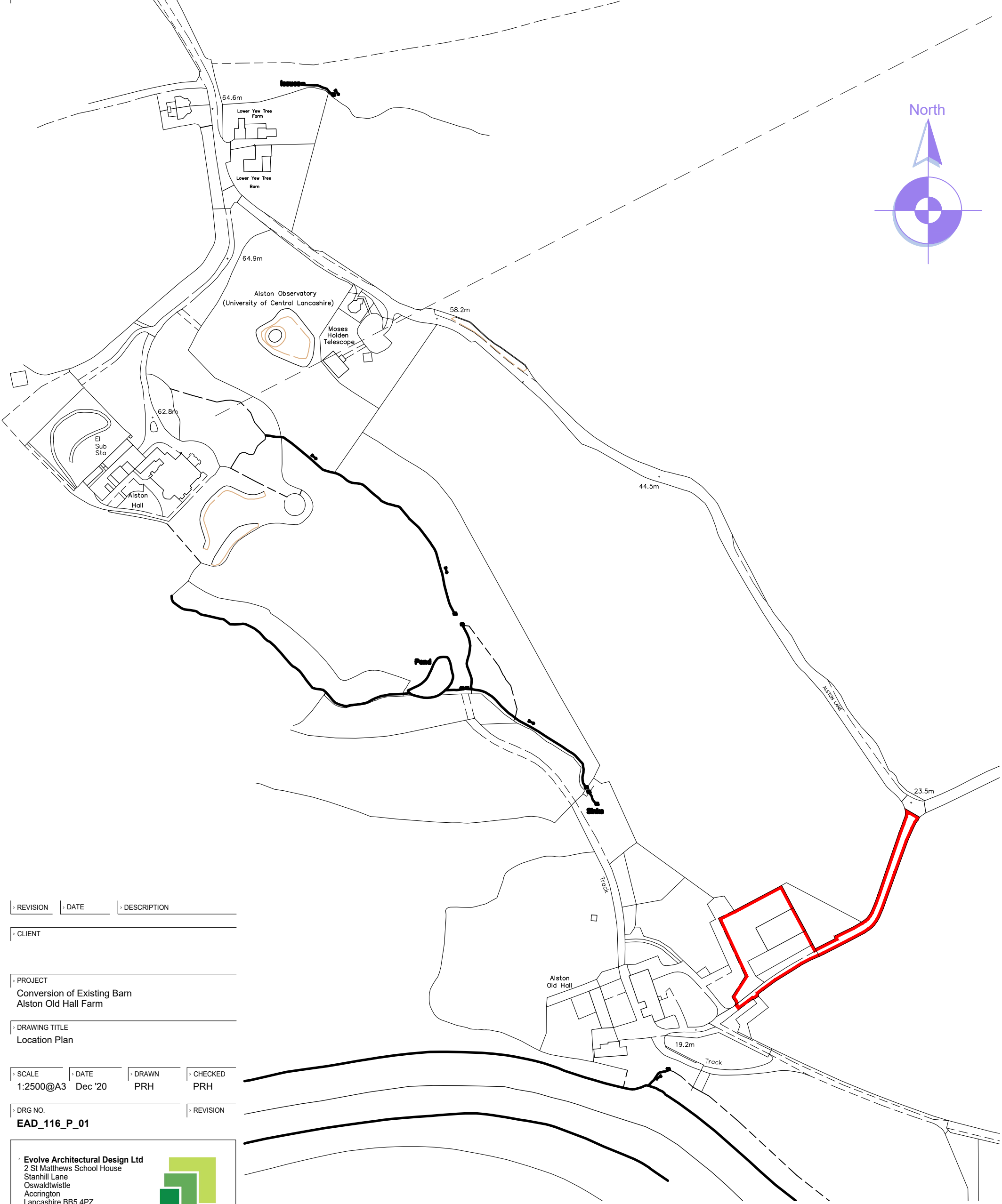
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**REVISION STATUS**

S Information issued for feasibility or scheme design.  
 T Information issued for tender purposes only.  
 C Information issued for Construction.  
 NB: Only those drawings containing a C revision to be used for construction.

**NOTES**



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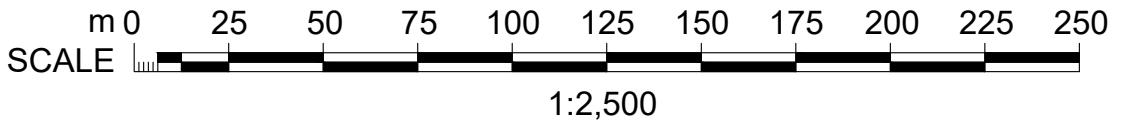
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 Conversion of Existing Barn  
 Alston Old Hall Farm

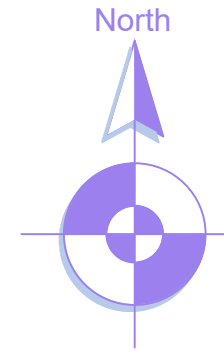
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 Location Plan

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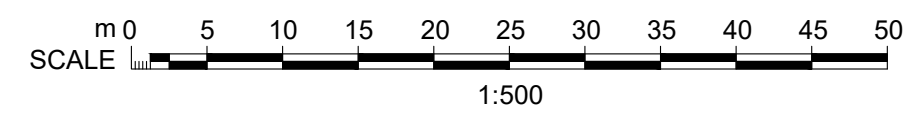
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Alston Old Hall Farm

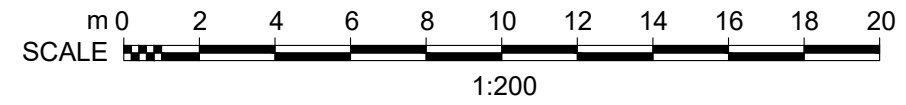
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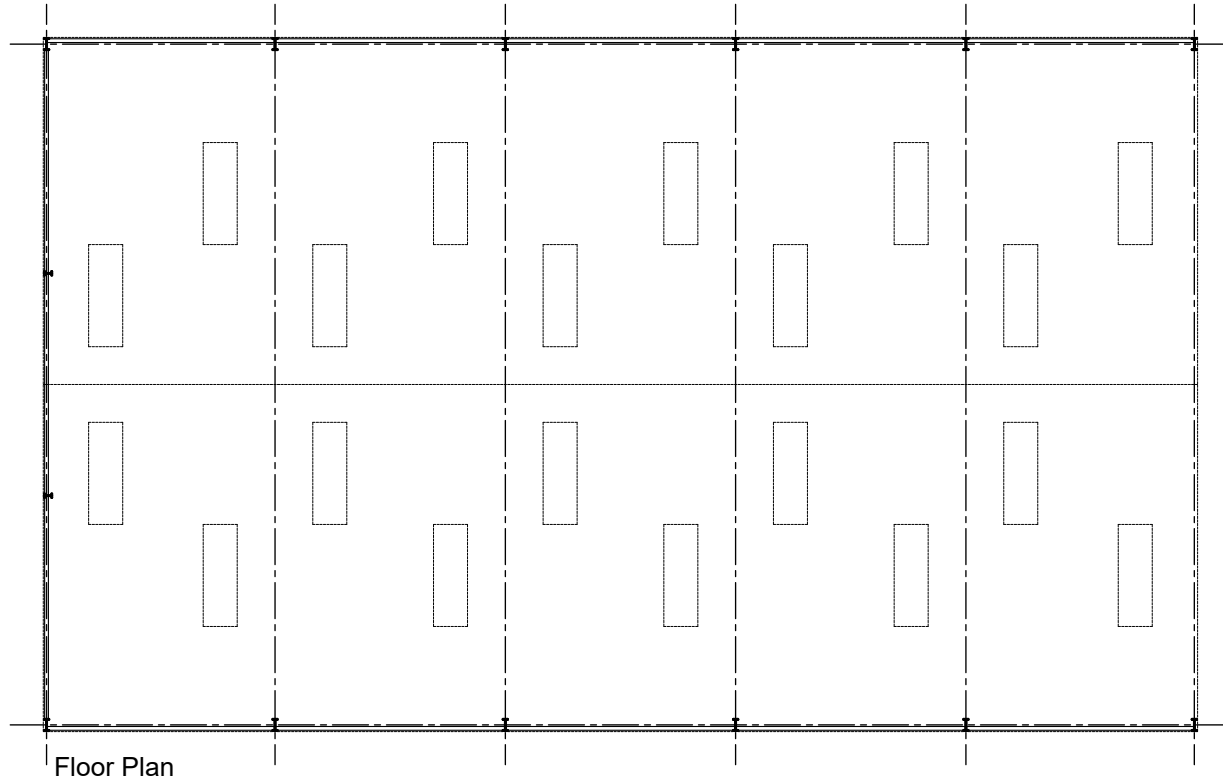
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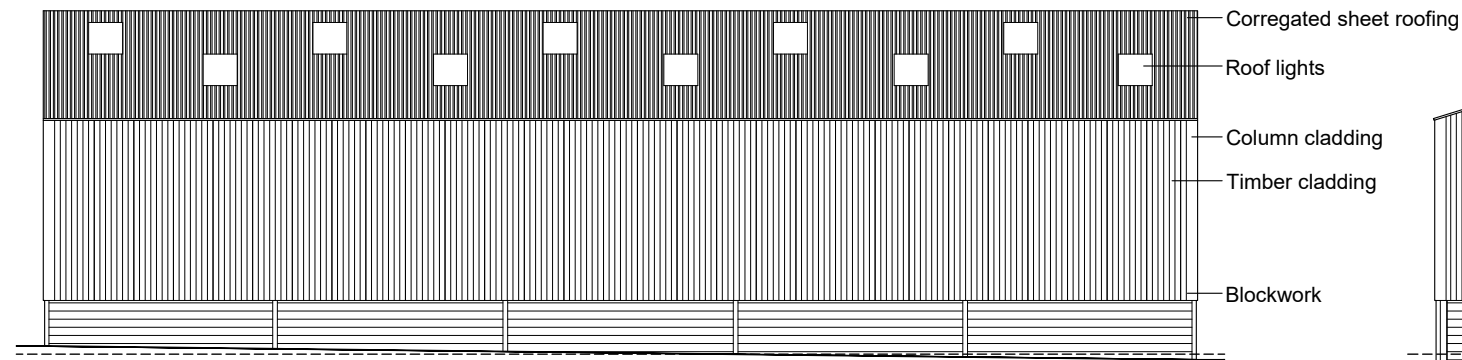
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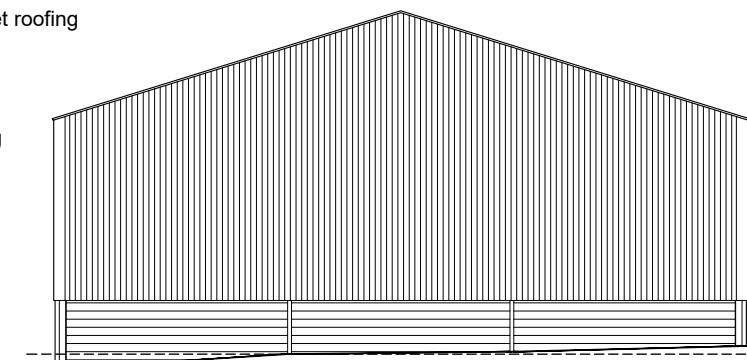
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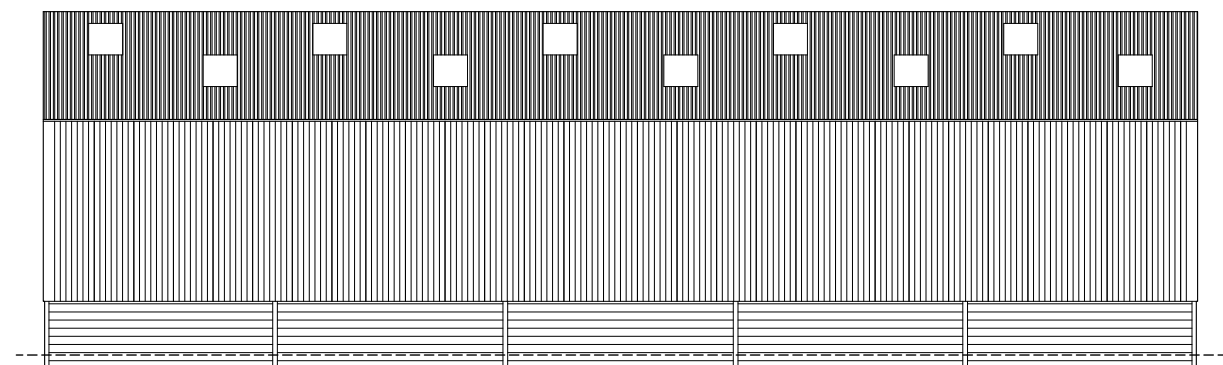
Floor Plan



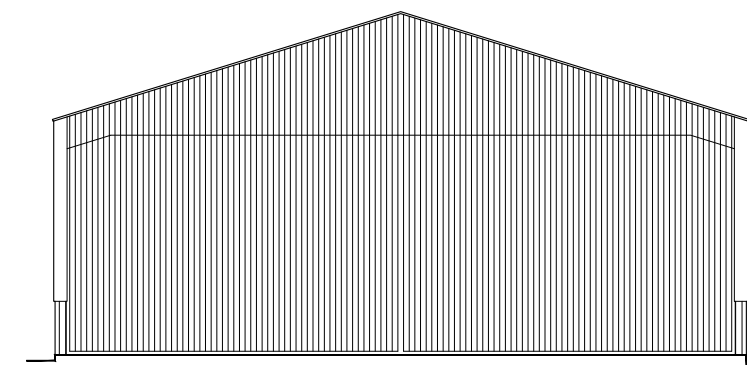
North Elevation



East Elevation



South Elevation



West Elevation

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PROJECT  
Conversion of Existing Barn  
Alston Old Hall Farm

DRAWING TITLE  
Existing Plan & Elevations

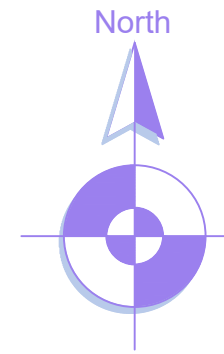
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Schedule of Accommodation				
Unit	GIA	Building footprint	Garden/curtilage	Parking spaces
Unit 1	465 sq m	336 sq m	336 sq m	3
Unit 2	90 sq m	56 sq m	56 sq m	2
Unit 3	88 sq m	56 sq m	56 sq m	2
Unit 4	88 sq m	56 sq m	56 sq m	2
Unit 5	90 sq m	56 sq m	56 sq m	2



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**NOTES**

- Shared access road
- Landscape outside individual curtilages
- Paths and parking (counted in curtilage)
- Gardens (counted in curtilage)



REVISION	DATE	DESCRIPTION

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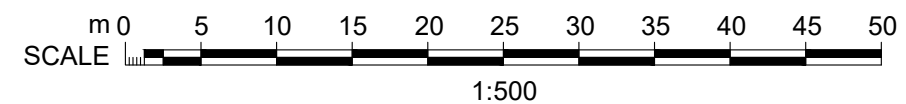
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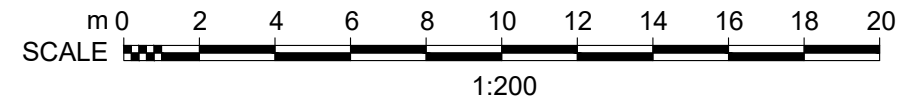
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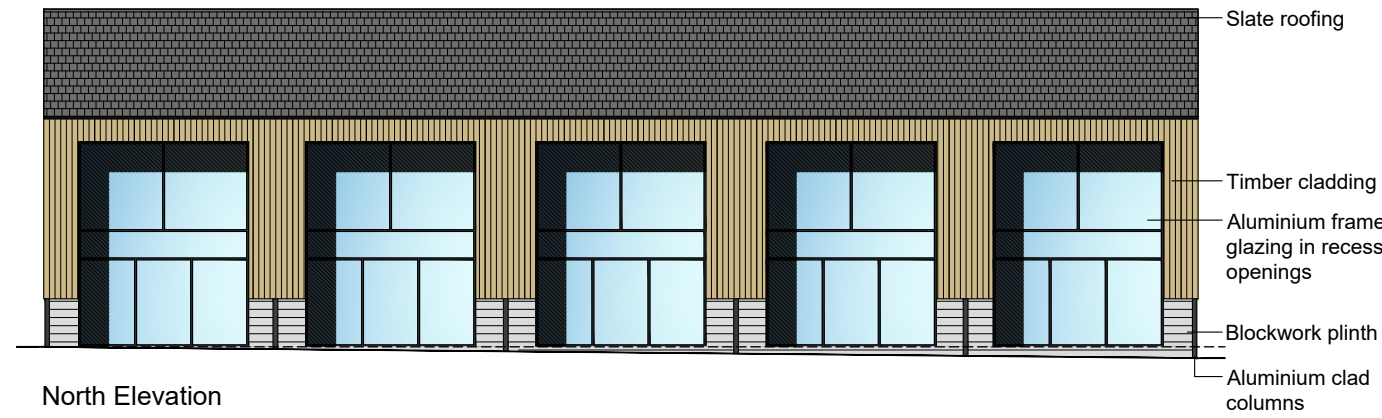
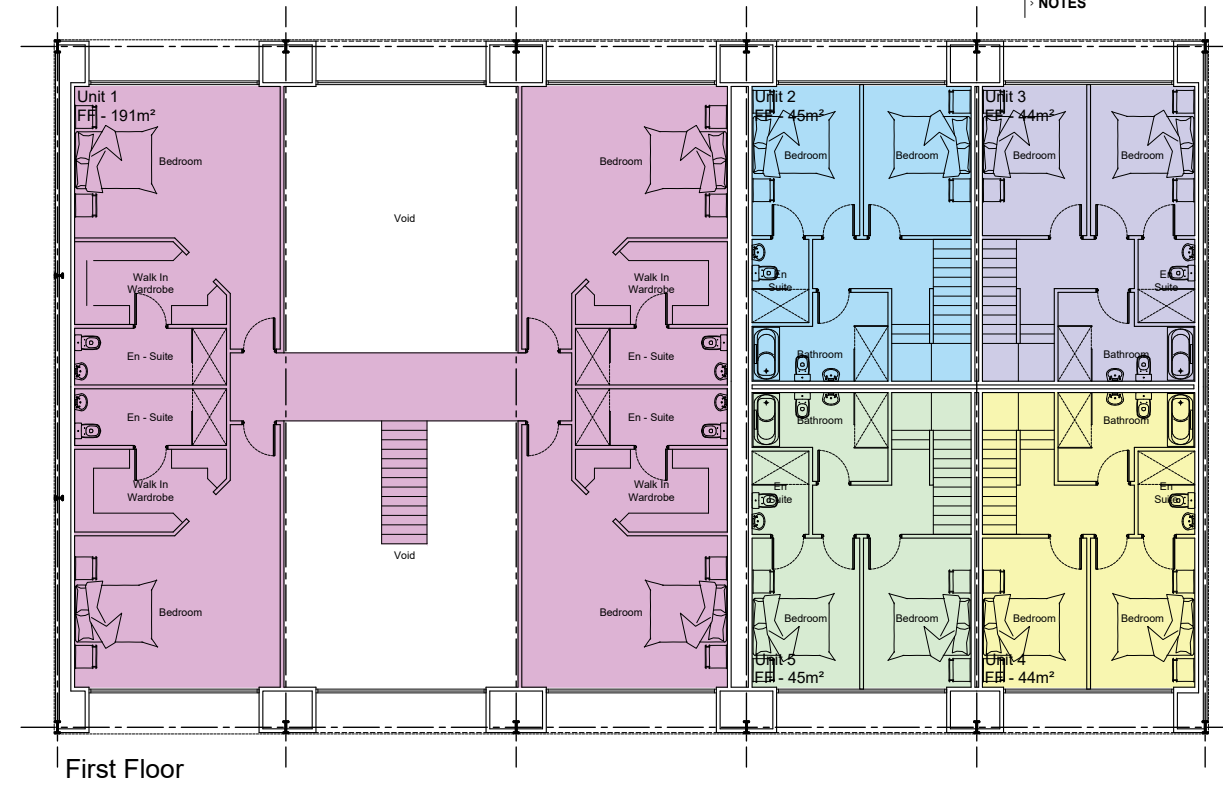
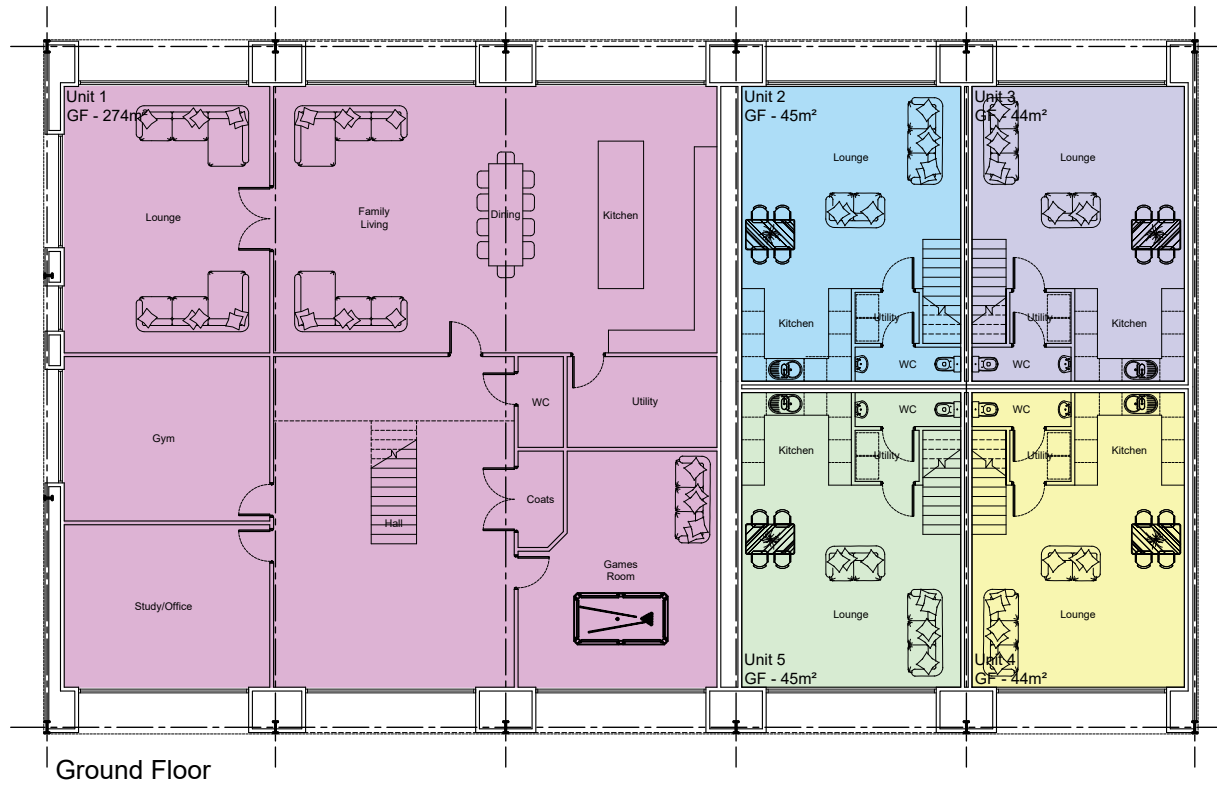
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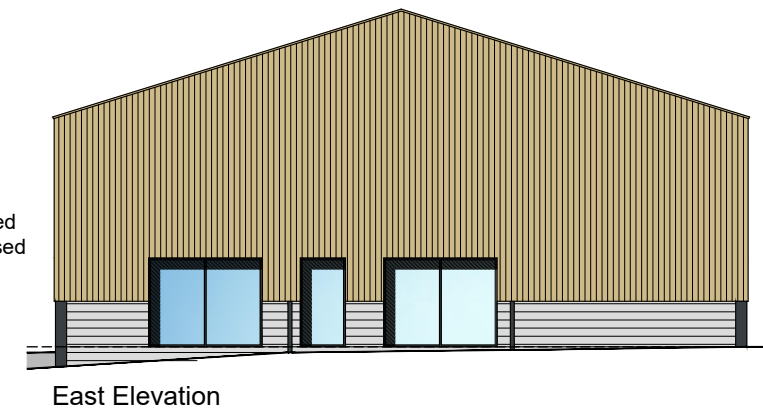
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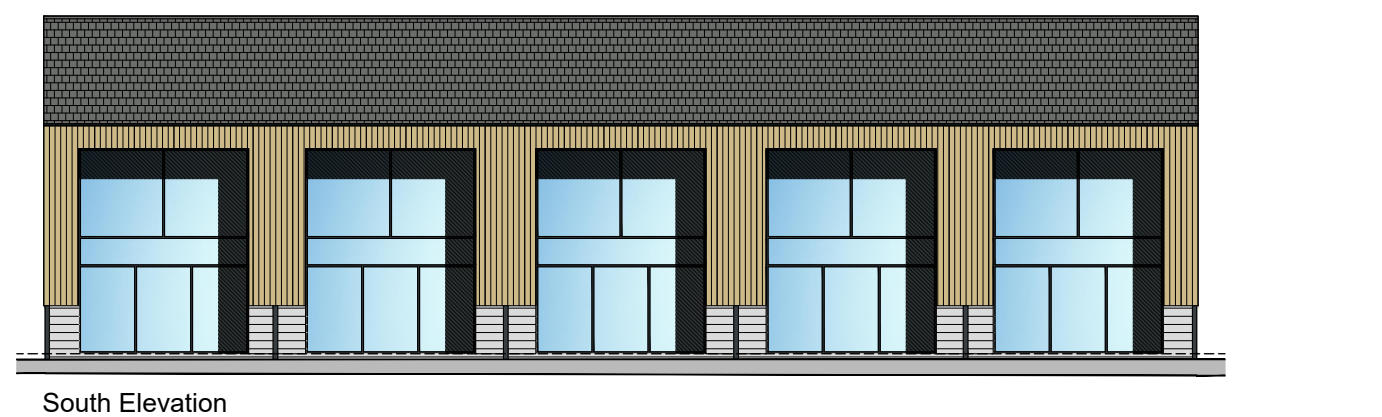
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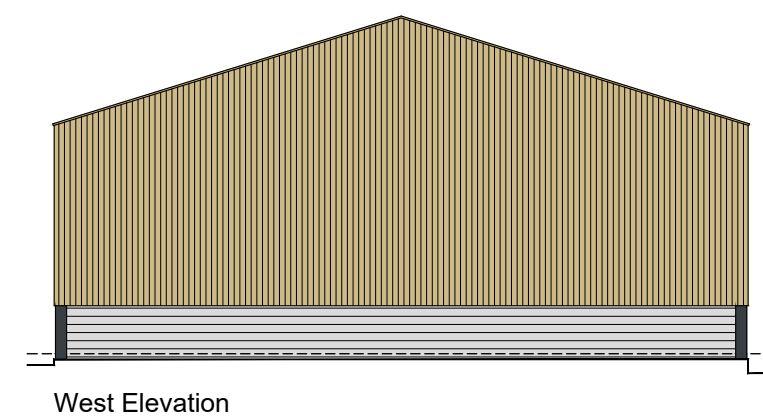
North Elevation



East Elevation



South Elevation



West Elevation

REVISION	DATE	DESCRIPTION

CLIENT

PROJECT  
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Alston Old Hall Farm

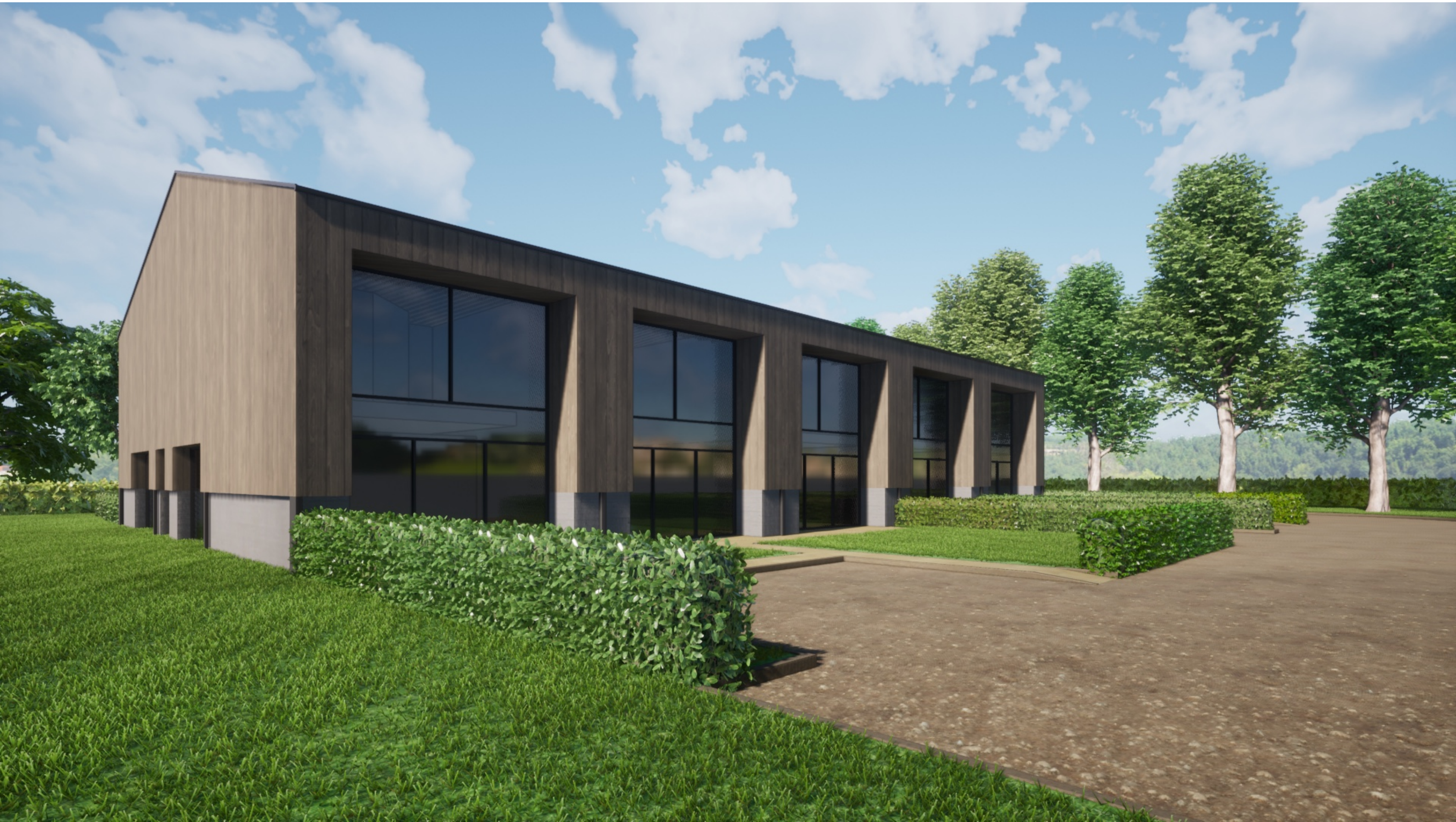
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Appendix B  
Photographs



Photo 1 - West Elevation



Photo 2 – West Elevation (South Corner)



Photo 3 – Column at South West Corner



Photo 4 – Column at North West Corner



Photo 5 – North Elevation



Photo 6 – North Elevation Blockwork showing minor damage



Photo 7 – North Elevation Blockwork showing minor damage



Photo 8 – Cladding and downspout to North Elevation at East end



Photo 9 – South Elevation



Photo 10 – West elevation at west end showing cladding, guttering and downspout



Photo 11 – South Elevation looking east



Photo 12 – South and East Elevations



Photo 13 – South East Corner



Photo 14 - East Elevation looking North



Photo 15 - Internal South Elevation at West end



Photo 16 – Internal South Elevation



Photo 17 – Internal looking East

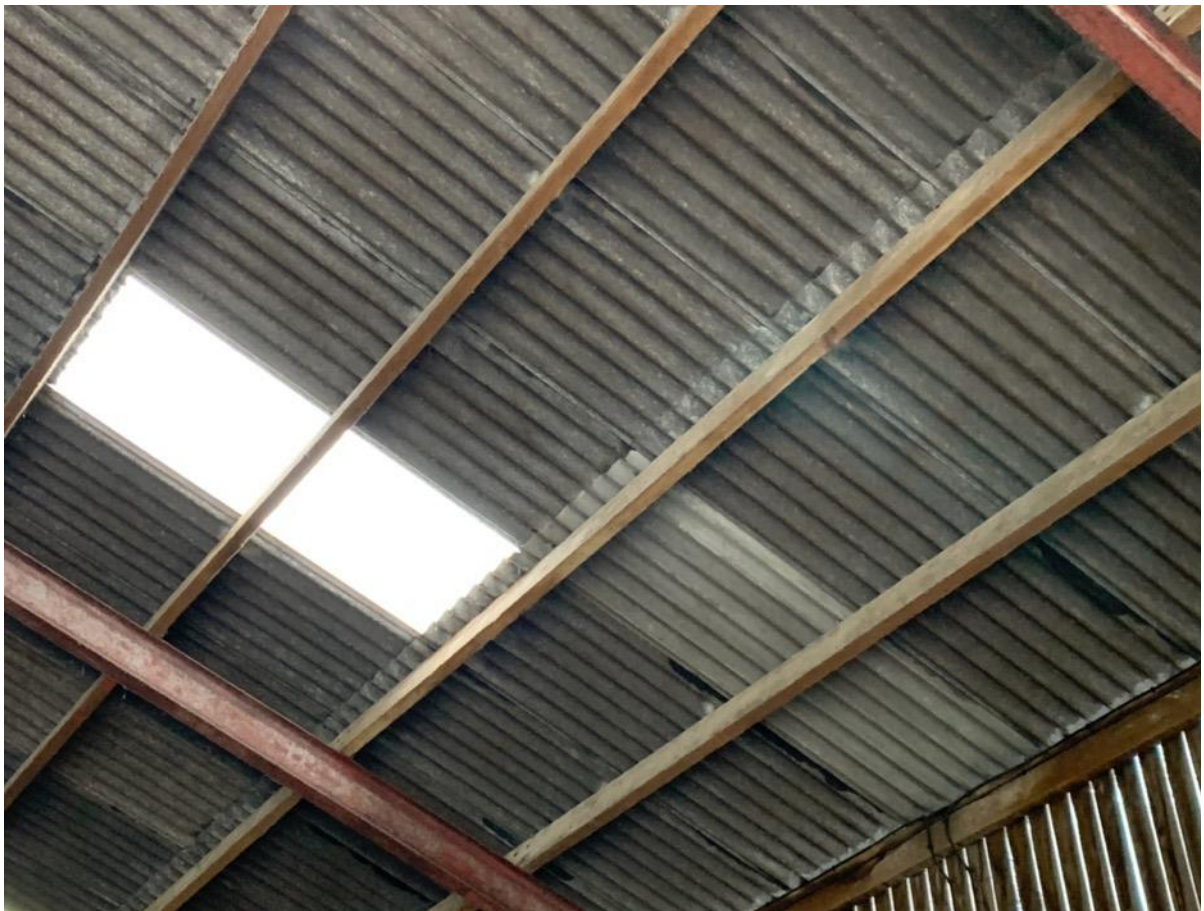


Photo 18 – Internal showing timber purlins and roof sheets



Photo 19 – Internal - North East corner



Photo 20 – Internal South East corner



Photo 21 – Internal – North East Corner



Photo 22 – Internal at North East Corner showing roof bracing



Photo 23 - Internal at North West Corner showing roof bracing



Photo 24 – Internal – Floor Slab



Photo 25 – Internal looking West



Photo 26 – Internal – Frame Haunch Detail



Photo 27 – Internal – Frame Apex