



andrew hannett limited
civil | structural | architectural
Mobile **07761 346542** e-mail **ah.ltd@gmx.com**



Conversion of vacant outbuilding off Buck Road, Commonwood

Structural Appraisal Report

April 2023

CONTENTS

Ref.	Title	Page
1.0	Executive Summary	1
2.0	Clients Brief	3
3.0	Inspection	
3.1	General	4
3.2	External Inspection	5
3.3	Internal Inspection	7
4.0	Conclusions and Discussion	10
5.0	Recommendations	11
6.0	Limitations and Liability	12
	Appendix A – Photographs	
	Appendix B – Architect’s Drawings	
	Appendix C – Repair Drawings	

1.0 Executive Summary

The outbuilding is generally arranged over two storeys and comprises a pitched purlin and rafter roof supported off solid brick external and internal walls and intermediate timber trusses. First floor construction comprises timber boards and joists supported off external walls and intermediate steel beams. Ground floor comprises stepped concrete slabs and paving. The right-hand end of the outbuilding has been extended in the past and is constructed from different brickwork.

Three single storey outriggers are provided off the front, rear and left-hand side elevations. The outriggers typically comprise solid brick walls with mono-pitched roofs with slated finishes. The outrigger to the front elevation comprises a pitched roof supported off fabricated trusses spanning between cavity brick/block external walls.

Foundation type and depth were not proven, however given the age of the building, it is assumed that shallow brick spread foundations are present.

A steel framed canopy is located close to the rear elevation. The proposals involve the removal of this structure and as such it lies outside the scope of this report.

The inspection was carried out during the morning of Saturday 8th April 2023.

The overall condition of the outbuilding is considered to be fair.

The outbuilding shows evidence of deterioration that is consistent with its age, ongoing use and a lack of routine maintenance over recent years.

The elevations appeared to be generally straight and plumb except for the central section of the front elevation which shows a severe outwards bulge. The outwards lean appears to have resulted from roof spread. The fact that no movement is apparent between the elevation and the front outrigger would suggest that any repairs carried out at the time have been successful. No distortions were apparent that would be attributable to foundation movements or settlement. Although the foundations were not exposed, it is apparent that they are satisfactory and would not require modification in the proposed scheme. All of the elevations will require localised repair and repointing as part of the conversion scheme. Lintels to openings generally comprise timber sections which have degraded over time. It would be prudent to replace all of the lintels as part of the conversion scheme to ensure long term durability.

The condition of the rear and left-hand outriggers is such that repair is considered to be uneconomic. Demolition and reconstruction are the preferred option for these areas.

No dpc is apparent. The brickwork and mortar are generally soft and susceptible to erosion. Therefore, a new dpc should be installed as part of any conversion scheme. Any new dpc should carry an insurance backed guarantee.

The ground floors to the outbuilding generally comprise solid concrete ground bearing slabs incorporating feeding troughs. It is unlikely that the floors will have a suitable damp proof membrane or insulation and will also need to be adjusted to suit the proposed levels. Therefore, new floor incorporating a dpm and insulation to modern standards will be required as part of the conversion scheme.

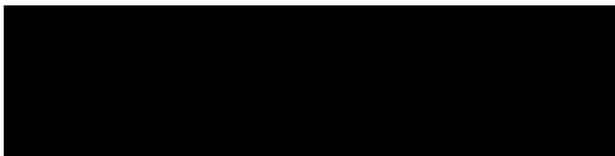
The condition of the roof over the outbuilding are generally fair with areas which are considered to be poor. The roof alignment shows several areas of significant sag which are considered to be historic. In several areas, weather penetration over an extended period has resulted in rot to timbers. The intermediate trusses appear to be a relatively recent addition and severely limit headroom at first floor level. Therefore, a new roof will be required supported off a new ridge beam spanning between new internal party walls.

Gutters and downpipes were generally missing at the time of inspection. New roof drainage will be required as part of the conversion scheme. Downpipes should discharge into a new drainage system linked to a soakaway remote from the building.

The Client, [REDACTED], is seeking planning permission to convert the outbuilding into a number of self-contained office units. The proposed works will include the erection of new party walls, new ground and first floors and a new roof.

The outbuilding is robustly constructed and is considered to be suitable for conversion into office accommodation following repairs and alterations as necessary.

Report Compiled by:



Andrew Hannett
BEng(Hons), CEng, MICE

2.0 Client's Brief

This report was commissioned by Blueprint Architectural Services acting on behalf of [REDACTED] in support of the proposed planning application to convert the outbuilding into a number of self-contained offices. The purpose of the report is to identify whether the building is suitable for conversion and to confirm the extent of repairs required to ensure viability in the long term.

3.0 Inspection

3.1 General

The inspection was carried out during the morning of Saturday 8th April 2023. The weather during the inspection was cool and dry. The inspection comprised a visual inspection of those elements of the outbuilding readily visible from ground level and from within the building. No excavations were undertaken to uncover buried elements and any notes on the condition of these elements are made based on the visible condition of the property. Testing requiring the use of specialist equipment or training, e.g. electrical systems, gas appliances, water systems, etc., has not been undertaken. Manhole covers were not lifted and drains were not tested.

The outbuilding is generally arranged over two storeys and comprises a pitched purlin and rafter roof supported off solid brick external and internal walls and intermediate timber trusses. First floor construction comprises timber boards and joists supported off external walls and intermediate steel beams. Ground floor comprises stepped concrete slabs and paving. The right-hand end of the outbuilding has been extended in the past and is constructed from different brickwork.

Three single storey outriggers are provided off the front, rear and left-hand side elevations. The outriggers typically comprise solid brick walls with mono-pitched roofs with slated finishes. The outrigger to the front elevation comprises a pitched roof supported off fabricated trusses spanning between cavity brick/block external walls.

Foundation type and depth were not proven, however given the age of the building, it is assumed that shallow brick spread foundations are present.

A steel framed canopy is located close to the rear elevation. The proposals involve the removal of this structure and as such it lies outside the scope of this report.

Elevations and rooms are referenced on Architect's Drawings – refer to Appendix B.

3.2 EXTERNAL INSPECTION

3.2.1 Front Elevation

The elevation comprises brickwork to full height with timber, concrete and brick arch lintels to openings (see Photo 1). The right-hand end of the elevation would appear to be a relatively recent extension. The roof over the main part and the outrigger is finished with slate.

The overall condition of the elevation is considered to be fair.

No significant cracking was apparent at the time of inspection. Erosion was apparent to the faces of brick units throughout which is particularly prevalent at low level and to areas of previous vegetation growth (see Photo 2). Degradation to timber lintels was apparent. Severe rot and section losses were apparent to one of the lintels.

The pointing to the masonry on the main part of the building is lime based and appeared to be generally intact through soft when probed. Isolated areas of losses up to 30mm were apparent particularly at low level.

The roof over is in generally fair condition with no significant areas of missing or broken slate finishes apparent. The alignment of the ridge shows significant sagging between supports especially in the central section of the roof. The guttering is generally intact though all downpipes were missing.

The elevation appeared to be reasonably straight and plumb except for the central section where outwards leans of up to 6% were noted (see Photo 3). The lean would appear to have resulted from roof spread. The defect is considered historic due to there being no appreciable movement since construction of the outrigger.

No dpc was apparent.

3.2.2 Left Hand Side Elevation

The elevation comprises brickwork to full height with timber lintels to openings on the single storey outrigger. The roof over the outrigger is finished with slate (see Photo 4).

The overall condition of the elevation is considered to be fair with the condition of the outrigger roof considered to be poor.

Cracking was apparent to the right-hand side of the main gable above the outrigger roof. A pair of diagonal cracks extend from both ends of the opening in the wall below. The cracking was noted as up to 15mm wide (see Photo 5). The single crack up to 5mm wide then extends vertically up to roof level. The cracking has resulted from a failure of the lintel carrying the wall over the opening into the outrigger. Erosion to the faces of brick units is apparent throughout. Cracking and loose brickwork was noted to the right-hand side of the outrigger (see Photo 6). This would appear to have resulted from roof spread pushing the timber lintel out.

Deterioration is apparent to the timber lintel over outrigger opening with minor section losses apparent.

The mortar pointing is lime based and shows a general erosion throughout. The remaining mortar to joints was noted as soft when probed.

The roof over the outrigger roof is in poor condition with missing, slipped and broken slates prevalent throughout. No guttering or downpipes are provided. The verge to the rear part of the main roof is missing along with the slated finishes locally. Missing mortar pointing was apparent to the verge of the main roof adjacent to the front elevation.

The elevation appeared generally straight at first floor. At ground floor, the outrigger wall shows a slight outwards lean. The bed joints show a distinct downwards trend above the opening into the main part of the outbuilding.

No dpc was apparent.

3.2.3 Rear Elevation

The elevation comprises brickwork to full height with timber lintels to openings (see Photos 7 and 8). The left-hand end of the elevation would appear to be a relatively recent extension. The roof over is finished with slate. The outrigger roof is finished in asbestos cement sheets. A steel framed canopy abuts the right-hand side of the elevation – this is due to be demolished and is outside the scope of this report.

The overall condition of the elevation is considered to be fair.

No significant cracking was apparent at the time of inspection. Staining is apparent to significant areas of the elevation due to water cascading from the roof (see Photo 9). Erosion was apparent to the faces of brick units throughout which is particularly prevalent at low level and to areas of staining. Degradation to timber lintels was apparent, though no section losses were noted. Cracking and dislodged brickwork was apparent to the face of the outrigger (see Photo 10). This would appear to have resulted from a vehicle impact and will require localised reconstruction.

The pointing to the masonry is lime based and appeared to be generally intact through soft when probed. Isolated areas of losses up to 30mm were apparent particularly at low level and in areas where water cascades down the elevation.

The roof over is in generally fair condition with several areas of missing slate finishes apparent. This is particularly prevalent at the right-hand end, where a large hole extending to the ridge is apparent. The alignment of the ridge shows significant sagging between supports especially in the central section of the roof. Large sections of guttering are missing allowing water to cascade down the face of the wall. A single downpipe is apparent in the centre of the elevation discharging onto the ground next to the elevation.

The elevation appeared to be reasonably straight and plumb.

No dpc was apparent.

3.2.4 Right Hand Side Elevation

The elevation comprises brickwork to full height with a steel lintel over the door opening. The roof over is finished with slate (see Photo 11). It is apparent that this end of the outbuilding has been extended in the recent past.

The overall condition of the elevation is considered to be good.

No significant cracking was apparent to the elevation at the time of inspection.

The mortar pointing is cement based and was noted as hard and flush with the brickwork generally.

Missing mortar pointing was apparent to the verge of the roof particularly adjacent to the rear elevation.

The elevation appeared to be generally straight and plumb.

No dpc was apparent.

3.3 INTERNAL INSPECTION

3.3.1 Left Hand Store

The Left-Hand Store is located within an outrigger extending from the gable elevation. The room has washed finishes to the walls and a concrete slab floor.

The overall condition of the room is considered to be fair/poor.

Severe cracking was apparent to the main gable wall above the opening through to the barn. This has resulted from the removal of brickwork at the lintel supports (see Photo 12). Loose brickwork is apparent to the side of the external opening resulting from movement in the timber lintel.

The roof over the room appeared to be in poor condition with numerous slipped or missing slates. Staining is apparent to the rafters and purlins though all areas appeared dry at the time of inspection.

The ground floor comprises a concrete slab. No significant cracking or settlement was apparent in those areas of the floor that were visible.

The external walls show a slight outwards level with the side walls noted as generally plumb.

3.3.2 Barn

The Barn forms the main space at ground floor level. The room has part rendered and lime washed brick external and internal walls, timber deck and joists floor over and a concrete ground floor.

The overall condition of the room is considered to be fair.

No significant cracking was generally apparent walls at the time of inspection. However, severe cracking was apparent above the opening to the left-hand store (see Photo 13). This has been caused by the removal a brickwork supporting the timber lintel over. Open joints and eroded brickwork were apparent to several areas on the front and rear elevations. The lintels to openings all appeared to be in reasonably good condition. However minor section losses were noted to the lintel over the left-hand store opening.

The floor over the room appeared to be in generally fair condition. However, evidence of severe rot and section losses visible to several joists adjacent to the rear elevation (see Photo 14) where two of the joists have rotted through. Staining is also apparent to decking in isolated areas throughout indicative a failed slated finishes in the roof over. Surface corrosion is apparent to the pair of beams spanning the room and also to the beam and post supporting the floor adjacent to the right-hand store. No section losses are apparent.

The ground floor comprises a concrete slab incorporating feeding troughs. No significant cracking or settlement was apparent at the time of inspection.

The walls were noted as generally straight and plumb except for the central section of the front elevation which shows an outwards lean at up to 2%. The floor shows a run towards the front elevation where a drainage channel is provided.

3.3.3 WC

The WC is a relatively recent addition to the outbuilding with a timber trussed roof over, blockwork internal walls and a concrete floor slab.

The overall condition of the room is considered to be good.

The walls were noted as generally straight and plumb. The floor was noted as generally level.

3.3.4 Right Hand Store

The Right-Hand Store is located within a relatively recent extension from the right-hand side elevation. The room has part washed, rendered and blockwork walls and a concrete floor. The floor over comprises timber joists at regular centres.

The overall condition of the room is considered to be fair.

No significant cracking was apparent walls at the time of inspection. Open joints were apparent to an area of brickwork on the rear elevation. Staining is apparent to blockwork below rotted floor joists. The lintels to openings all appeared to be in good condition with no significant defects apparent.

The floor over the room appeared to be in generally fair condition. However, evidence of severe rot and section losses visible to several joists on the rear elevation (see Photo 15). Staining is also apparent to decking locally indicating weather penetration through the roof over. Surface corrosion is apparent to the pair of beams spanning the room, though no section losses are apparent.

The ground floor comprises a concrete slab incorporating feeding troughs. No significant cracking or settlement was apparent at the time of inspection.

The external walls were noted as generally plumb. The floor shows a run towards the front elevation where a drainage channel is provided.

3.3.5 Rear Store

The Rear Store is located within the outrigger on the rear elevation. The room has washed walls, a timber purlin and rafter roof over and a concrete slab floor.

The overall condition of the room is considered to be fair/poor.

Severe cracking and dislodged brickwork were apparent adjacent to the external opening. This would appear to have resulted from a vehicle impact. The lintel to opening appeared to be in good condition with no significant defects apparent.

The roof over the room appeared to be in generally fair condition with minor degradation to timbers apparent. Minor staining is apparent to timbers, though all areas were dry at the time of inspection.

The ground floor comprises a concrete slab. No significant cracking or settlement was apparent in those areas of the floor that were visible.

The external walls were noted as generally plumb and straight. The floor was noted as uneven though generally level.

3.3.6 First Floor Store

The First Floor Store occupies the whole of the upper storey. The roof over comprises traditional timber purlin and rafter construction supported off a series of fabricated timber trusses and brickwork internal and external walls (see Photos 16 and 17). The floor comprises timber decking off joists.

No safe access was afforded to the area due to the condition of the floor construction. Therefore, observations are made based on the views afforded from access doors.

The overall condition of the room is considered to be fair.

Cracking is apparent in the left-hand gable elevation adjacent to the front and rear elevations. On the front elevation, the cracking is at low level and has resulted from failure of the lintel below. The cracking close to the rear elevation extends full height from the intersection of the elevations. Staining and erosion of mortar and brick units is apparent below the openings in the slated finishes.

The roof over the room appeared to be in generally fair condition with evidence of several large holes through slated finishes. Severe degradation to timbers was noted below the holes with several of the rafters rotted through (see Photo 18). Staining to timber and isolated daylight was apparent suggesting that the slated finishes are life expired. It is apparent that the intermediate trusses are not original and may have been installed following a failure that caused the lean in the front elevation.

4.0 Conclusions and Discussion

The overall condition of the outbuilding is considered to be fair.

The outbuilding shows evidence of deterioration that is consistent with its age, ongoing use and a lack of routine maintenance over recent years.

The elevations appeared to be generally straight and plumb except for the central section of the front elevation which shows a severe outwards bulge. The outwards lean appears to have resulted from roof spread. The fact that no movement is apparent between the elevation and the front outrigger would suggest that any repairs carried out at the time have been successful. No distortions were apparent that would be attributable to foundation movements or settlement. Although the foundations were not exposed, it is apparent that they are satisfactory and would not require modification in the proposed scheme. All of the elevations will require localised repair and repointing as part of the conversion scheme. Lintels to openings generally comprise timber sections which have degraded over time. It would be prudent to replace all of the lintels as part of the conversion scheme to ensure long term durability.

The condition of the rear and left-hand outriggers is such that repair is considered to be uneconomic. Demolition and reconstruction are the preferred option for these areas.

No dpc is apparent. The brickwork and mortar are generally soft and susceptible to erosion. Therefore, a new dpc should be installed as part of any conversion scheme. Any new dpc should carry an insurance backed guarantee.

The ground floors to the outbuilding generally comprise solid concrete ground bearing slabs incorporating feeding troughs. It is unlikely that the floors will have a suitable damp proof membrane or insulation and will also need to be adjusted to suit the proposed levels. Therefore, new floor incorporating a dpm and insulation to modern standards will be required as part of the conversion scheme.

The condition of the roof over the outbuilding are generally fair with areas which are considered to be poor. The roof alignment shows several areas of significant sag which are considered to be historic. In several areas, weather penetration over an extended period has resulted in rot to timbers. The intermediate trusses appear to be a relatively recent addition and severely limit headroom at first floor level. Therefore, a new roof will be required supported off a new ridge beam spanning between new internal party walls.

Gutters and downpipes were generally missing at the time of inspection. New roof drainage will be required as part of the conversion scheme. Downpipes should discharge into a new drainage system linked to a soakaway remote from the building.

The Client, [REDACTED], is seeking planning permission to convert the outbuilding into a number of self-contained office units. The proposed works will include the erection of new party walls, new ground and first floors and a new roof.

The outbuilding is robustly constructed and is considered to be suitable for conversion into office accommodation following repairs and alterations as necessary.

5.0 Recommendations

The following items should be addressed as part of any works to the barn to ensure structural viability in the long term:

- Remove existing slated finishes to the roof and set aside for re-use. Demolish all existing rafters, purlins, trusses and brick walls supporting the roof. Provide new rafters and timber/steel supporting beams as required to suit new layout.
- Replace existing lintels with new precast concrete units as required.
- Carry out repairs to severely eroded brickwork by replacing individual units. Repoint elevations by raking out existing pointing to a minimum depth of 30mm. New pointing shall comprise a 1:1:6 lime:cement:sand mortar packed tight into joints and finished flush with the face of the wall.
- Install injected chemical or sheet dpc at least 150mm above ground level to external and internal walls of the original part of the building. A ten-year insurance backed guarantee should be provided for all materials and installation. As an alternative, provide vertical damp proofing to internal walls lapped and sealed with floor dpm.
- Provide new concrete ground floors throughout incorporating insulation to modern standards. A dpm should also be provided which shall be lapped or tucked into the new dpc or damp proofing.
- Demolish and rebuild rear and left-hand outriggers.

6.0 Limitations and Liability

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Andrew Hannett Limited, no other party may use, make use of or rely on the contents of the report. No liability is accepted by Andrew Hannett Limited for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Andrew Hannett Limited using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Andrew Hannett Limited has been made.

The timber or other parts of the building which are covered, unexposed or inaccessible to the Structural Engineer without the assistance of a ladder in excess of 3m have not been inspected. The report does not cover the condition of the dpc, possible damp penetration or condensation unless specifically highlighted as part of the inspection. Where the property was furnished at the time of inspection those elements of the structure covered over have not been fully inspected. Therefore, it is not possible to confirm that those elements are free from defect.

No excavations were undertaken to uncover buried elements or foundations and any notes on the condition of such elements are made based on the visible condition of the property. No intrusive testing was carried out. Manhole covers were not lifted and drains were not tested. Testing requiring the use of specialist equipment or training, e.g., electrical systems, gas appliances, water systems, etc., has not been undertaken.

This report is not intended to be an exhaustive list of all defects and only significant structural faults which could lead to instability of the structure in the present or future have been reported. Further defects may become apparent during more extensive investigation or during future refurbishment works.

Detailed calculations to determine the adequacy of structural members are outside the scope of this report and have not been undertaken. However, evidence of distress as a result of overloading or deterioration will be identified so that provision for additional works can be made during any future refurbishment scheme.

The report shall be solely used by the Client to determine the extent of works to the property and liability in this respect will be limited to the instructing Client.

Nothing in the Contract confers nor purports to confer on any third party any benefit nor any right to enforce any terms of this Contract pursuant to the Contracts (Rights of Third Parties) Act 1999.

No part of this report may be copied or reproduced by any means without prior written permission from Andrew Hannett Limited. If you have received this report in error, please destroy all copies in your possession or control and notify Andrew Hannett Limited.

Appendix A – Photographs



Photo 1 – Front Elevation.



Photo 2 – Eroded brickwork and pointing.



Photo 3 – Outwards bulge to front elevation.



Photo 4 – Left Hand Side Elevation.

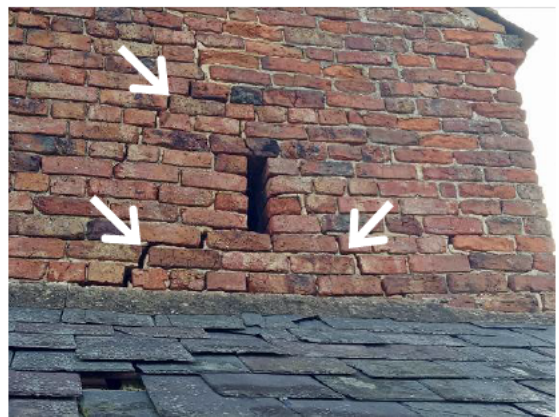


Photo 5 – Cracking above outrigger roof.

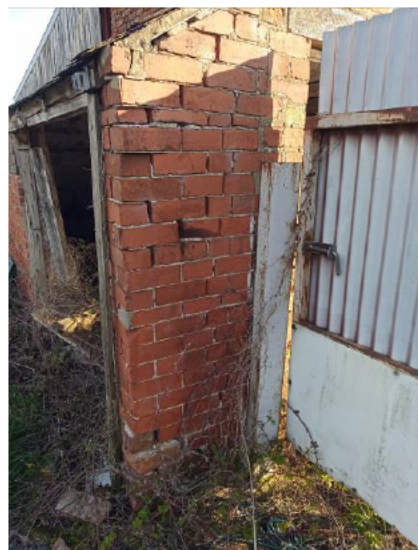


Photo 6 – Cracking and loose brickwork adjacent to opening.



Photos 7 and 8 – Rear Elevation.



Photo 9 – Staining to elevation.



Photo 10 – Cracked and dislodged
brickwork adjacent to opening.



Photo 11 – Right Hand Side Elevation.



Photo 12 – Cracking to brickwork due
to support removal from lintel.



Photo 13 – Cracking to brickwork due to support removal from lintel.



Photos 16 and 17 – General views of first floor store.



Photo 14 – Severe rot to floor joists.

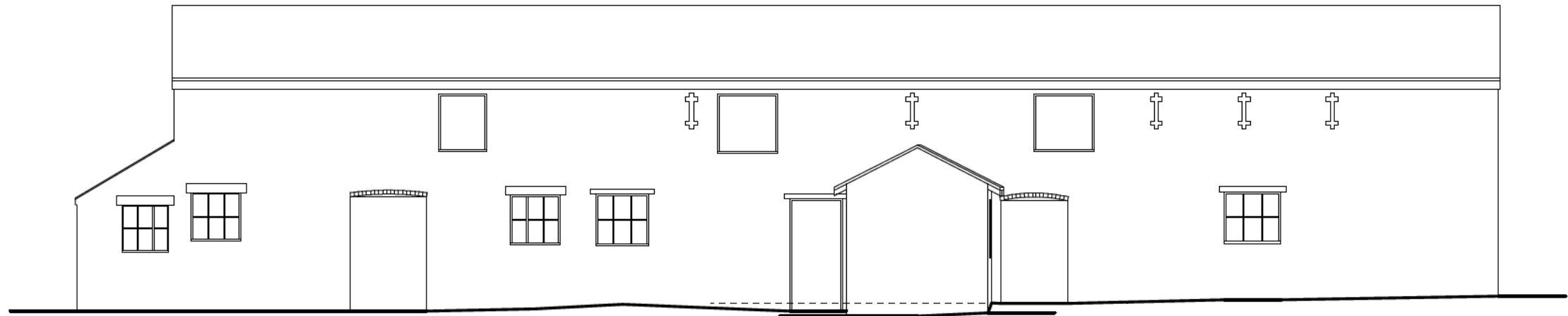


Photo 15 – Severe rot to floor joists.

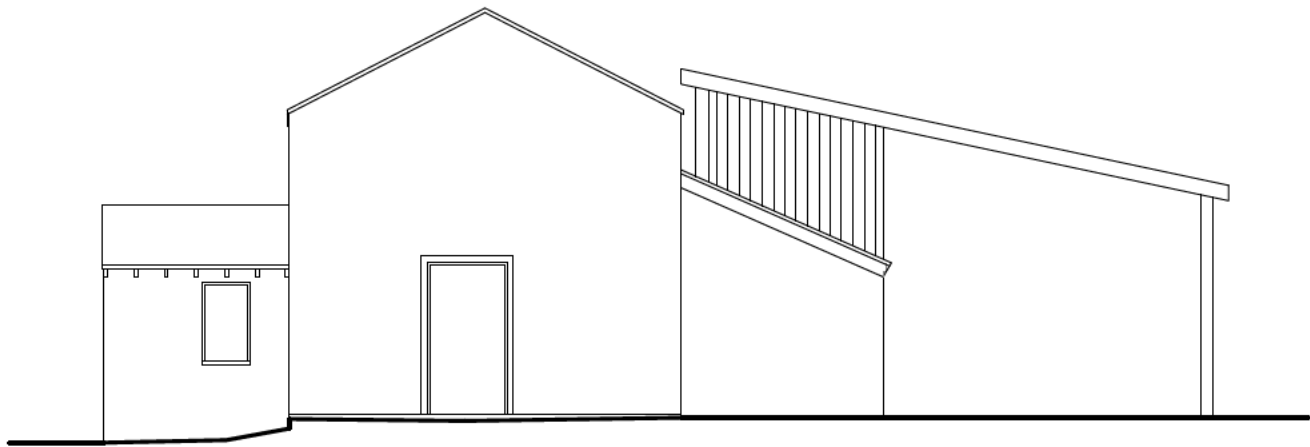


Photo 18 – Severe rot to roof timbers and staining wall walls..

Appendix B – Architect's Drawings



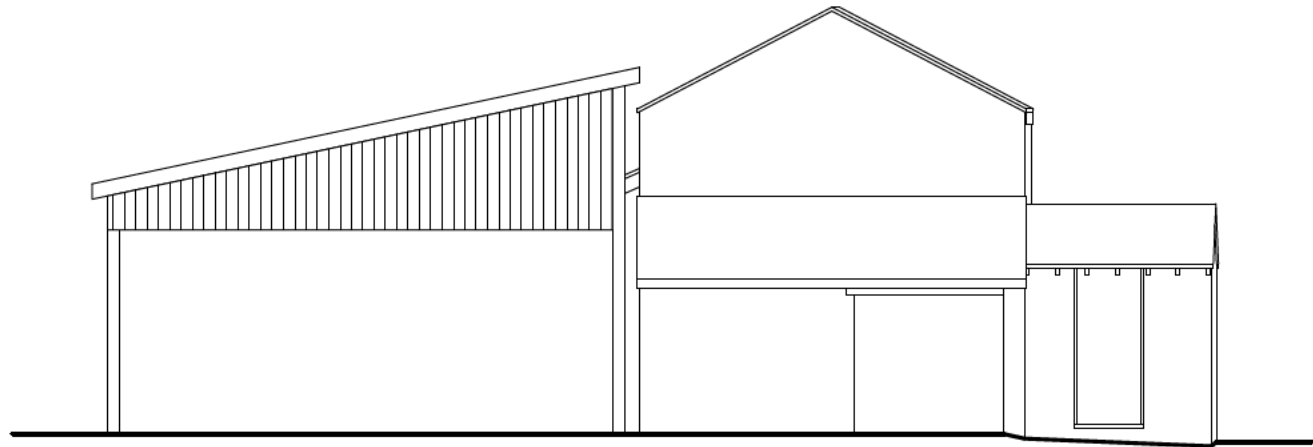
Front Elevation 1:100



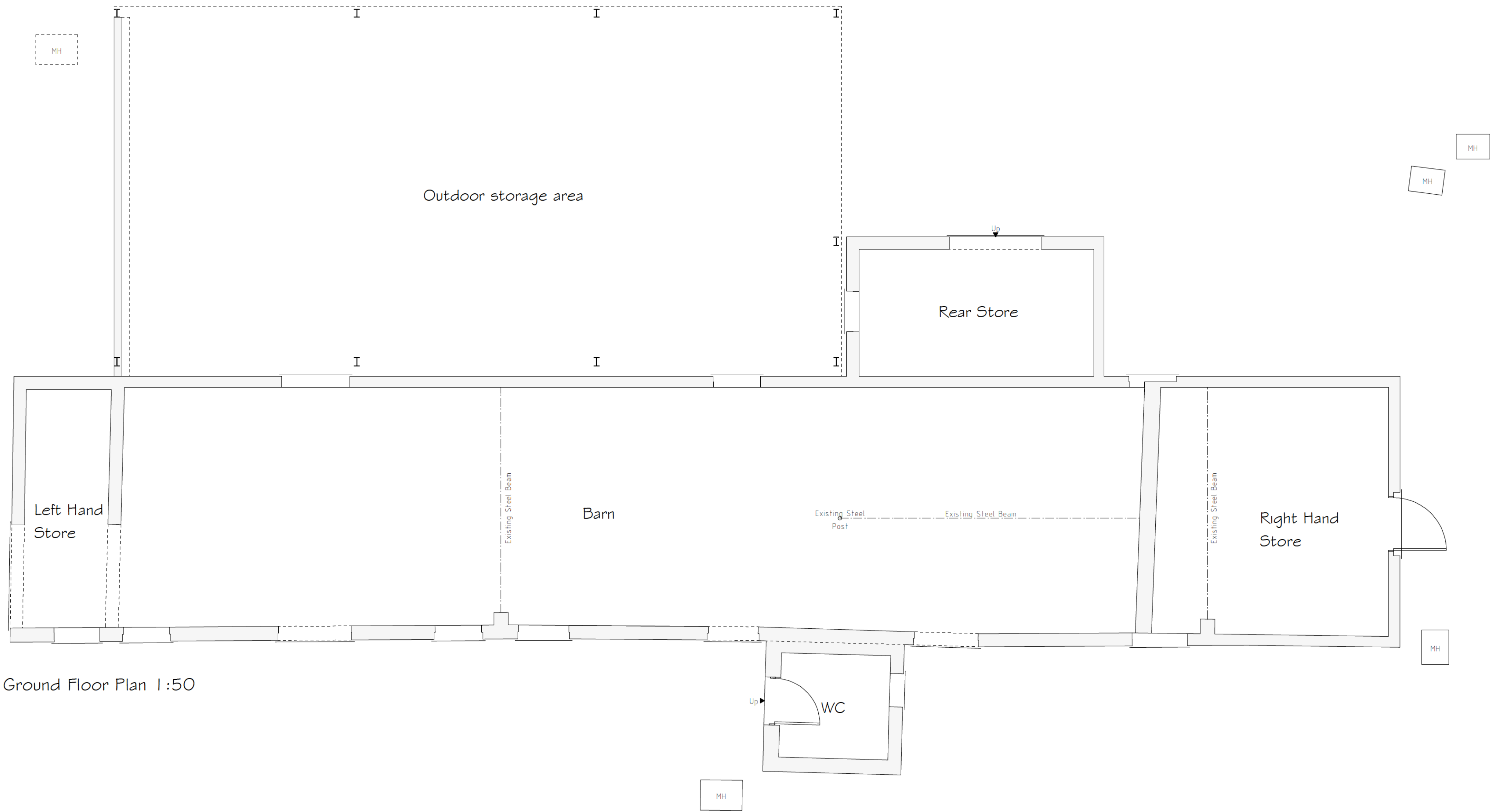
Side Elevation 1:100



Rear Elevation 1:100



Side Elevation 1:100



Ground Floor Plan 1:50

Services Key

MH Existing Man Hole Position

Rev	Date	Detail	Initial

Project:
Proposed Alterations to Barn at, Buck Road, Holt, Wrexham, LL13 9TF.

Title: Existing: Barn	Scale: (A1) 1:50 & 1:100
------------------------------------	---------------------------------------

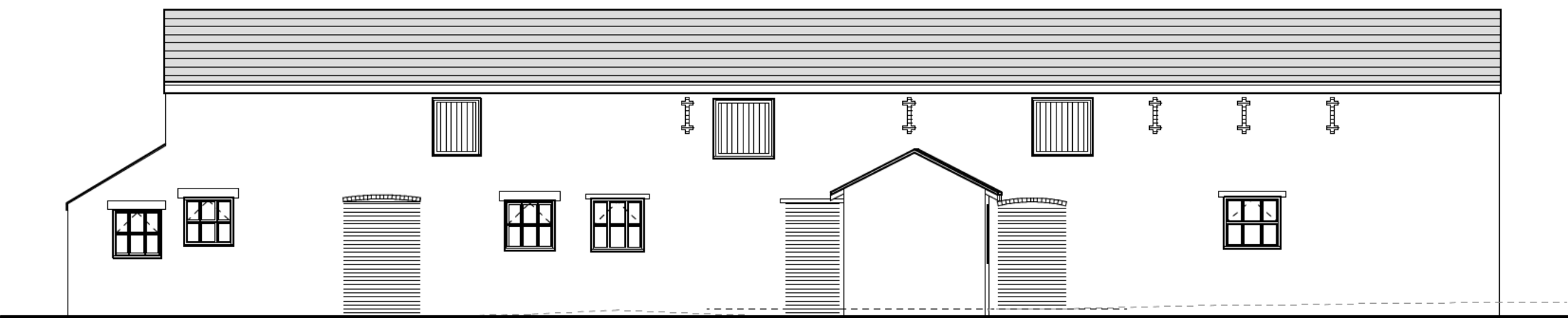
Drawn By: E.M.Jackson	Date: Nov 2022
---------------------------------	--------------------------

Drawing No: B164/001	Sheet: 1 of 1
--------------------------------	-------------------------

blueprint
architectural services

LABC **partner**

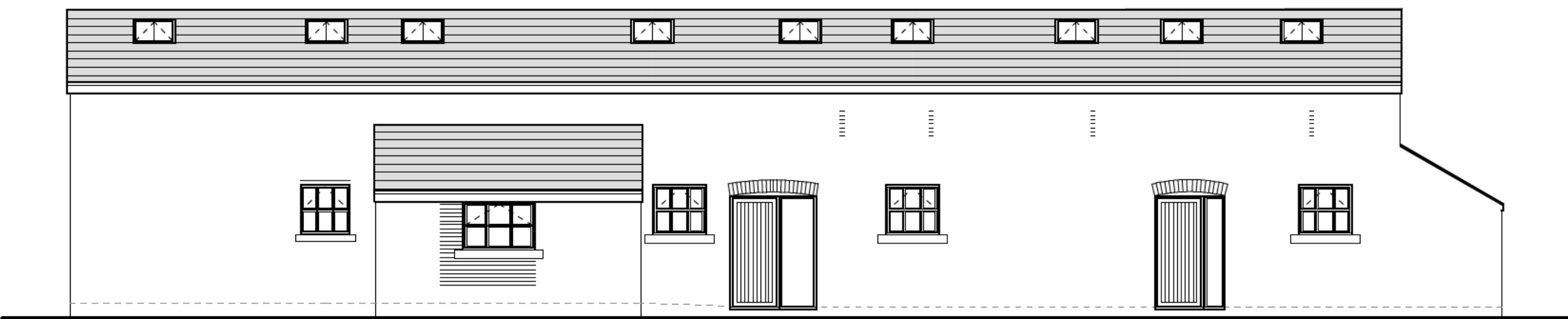
Office 3K4,
Redwither Business Tower,
Wrexham. LL13 9XT
Tel: 01978 356500
www.blueprintarchitectural.com
© copyright all rights reserved



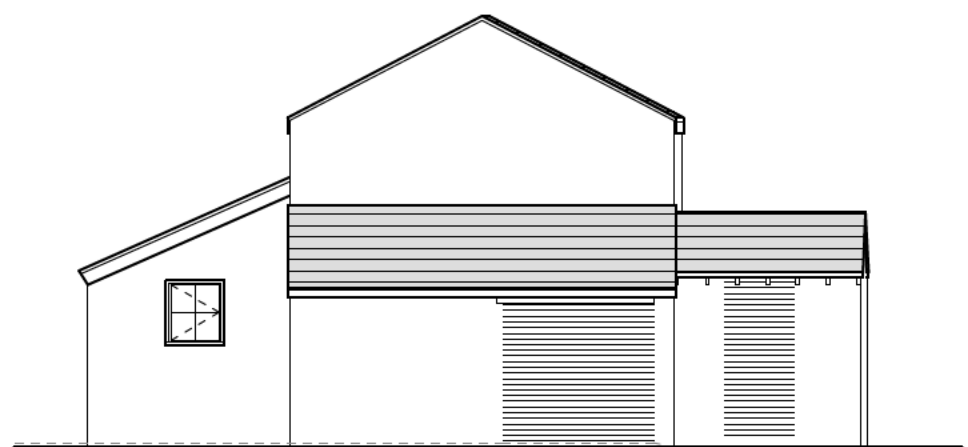
Front Elevation 1:100



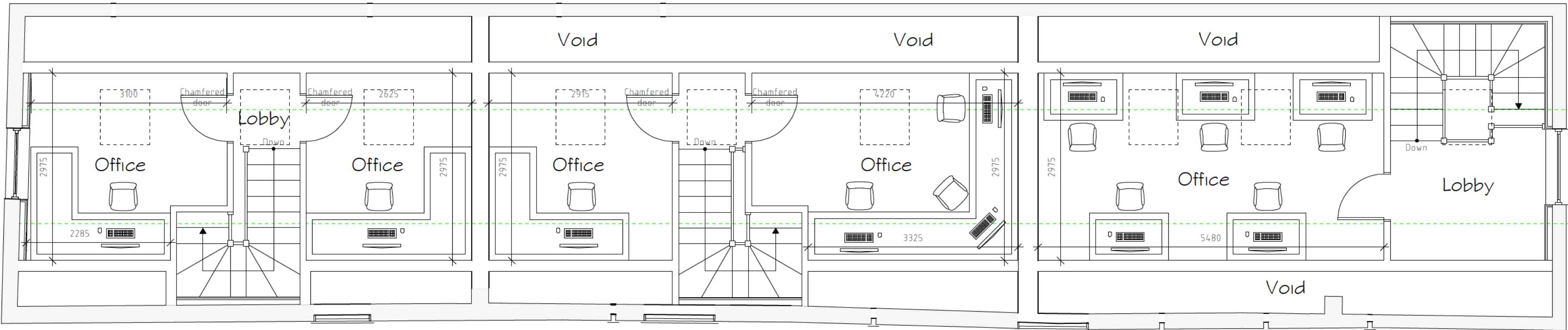
Side Elevation 1:100



Rear Elevation 1:100



Side Elevation 1:100



First Floor Plan 1:50

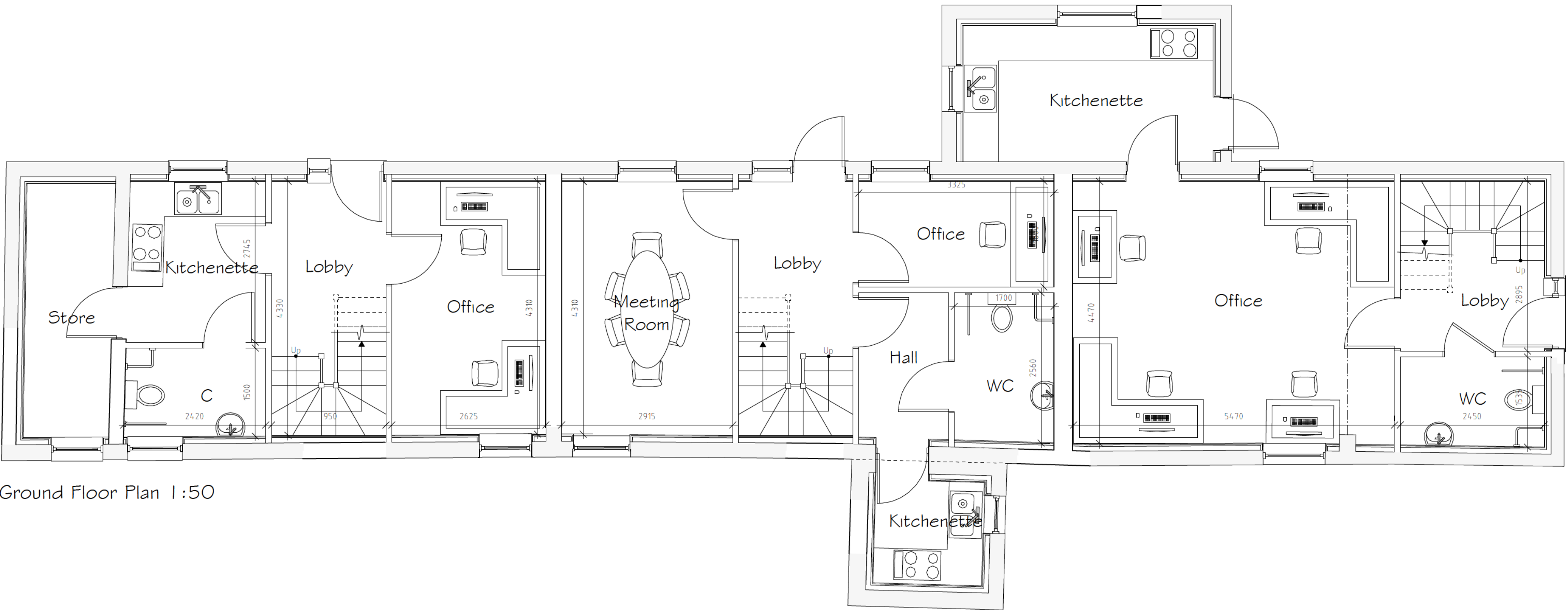
External Facing Materials
External walls are to comprise facing brick to match existing to Local Authority approval

Roofing Materials
Roof coverings are to be Natural Slate to match existing and to Local Authority approval

All windows are to comprise sealed double glazed units set in good quality softwood frames. Bathroom & En-suite window to be fitted with obscured glass

All fascias and soffits are to comprise of softwood to match existing

Rainwater to be collected in cast iron guttering and cast iron downpipes to match existing, to discharge to soakaways located in garden



Ground Floor Plan 1:50



Services Key			
MH	Existing Man Hole Position		

Rev	Date	Detail	Initial

Project: Proposed Alterations to Barn at, Buck Road, Holt, Wrexham, LL13 9TF.	
Title: Planning	Scale: (A1) 1:50 & 1:100

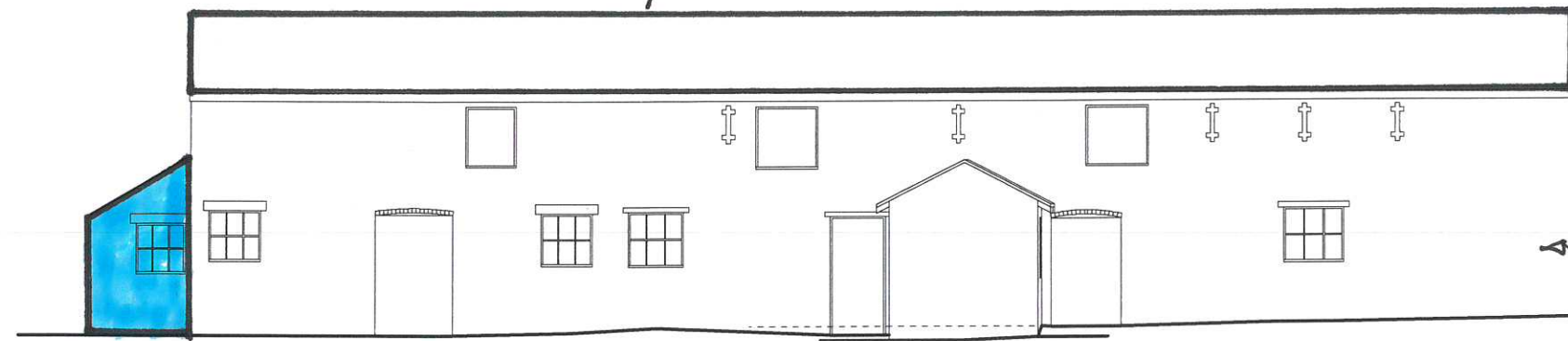
Drawn By: D.J.Edwards	Date: March 2023
Drawing No: B164/003	Sheet: 1 of 1



Office 3K4,
Redwither Business Tower,
Wrexham. LL13 9XT
Tel: 01978 356500
www.blueprintarchitectural.com
© copyright all rights reserved

Appendix C – Repair Drawings

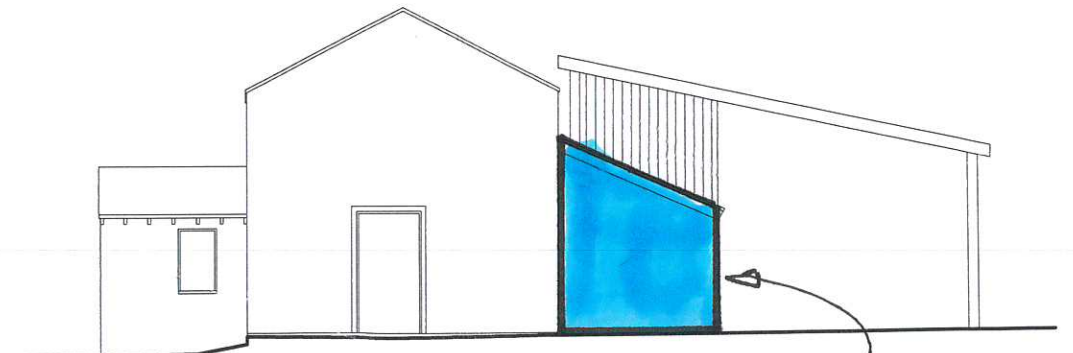
Rebate look



Front Elevation 1:100

DEMOLISH / REBUILD
OUTLINED.

Rebate ELEVATIONS.



Side Elevation 1:100

DEMOLISH / REBUILD
OUTLINED

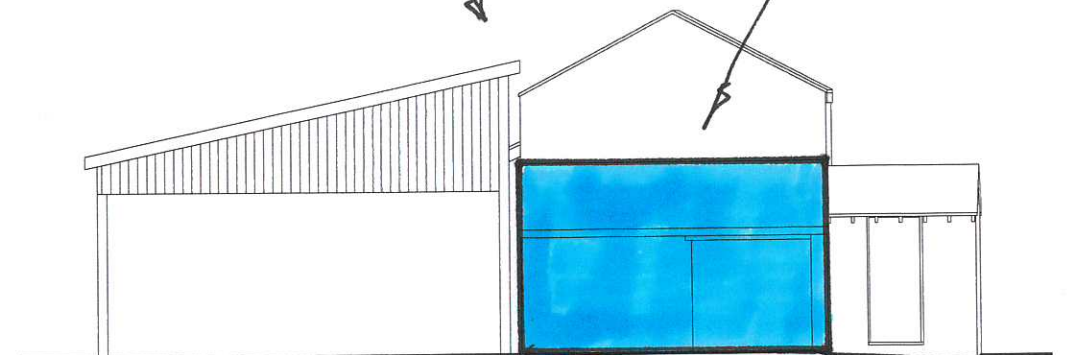
Rebate look



Rear Elevation 1:100

DEMOLISH / REBUILD
OUTLINED

DEMOLISH / REBUILD
OUTLINED



Side Elevation 1:100

DEMOLITION / REBUILD ALTERN.