



Jankes Barn
Jankes Green, Wakes Colne

Building Record (Planning Condition 7)

### Contents

- 1 Executive Summary
- Site History
- Topographic CAD plan survey
  JWC Survey Ltd, July 2006
- 4 **Hand Drawn Survey**Mark Perkins Partnership, April 2008
- 5 **Photographic Survey** Lynch Architects, 2018
- 6 **Hand Measured Survey** Lynch Architects, 2018

### 1 Executive Summary



#### BARN

#### List Entry Summary

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Name: BARN

List entry Number: 1224673

#### Location

BARN, JANKES GREEN

The building may lie within the boundary of more than one authority.

County: Essex

District: Colchester

District Type: District Authority

Parish: Mount Bures

National Park: Not applicable to this List entry.

Grade: II

Date first listed: 27-Jan-1982

Date of most recent amendment: Not applicable to this List entry.

#### Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

UID: 420803

#### Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

#### List entry Description

#### Summary of Building

Legacy Record - This information may be included in the List Entry Details.

#### Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

#### History

Legacy Record - This information may be included in the List Entry Details.

#### Details

MOUNT BURES JANKES GREEN 1. 5214 Barn TL 92 NW 7/1 II 2. Early Cl8 barn with red brick footings, black weatherboarded. Central hipped midstrey. Main roof gabled, and slated. Lean-to on front.

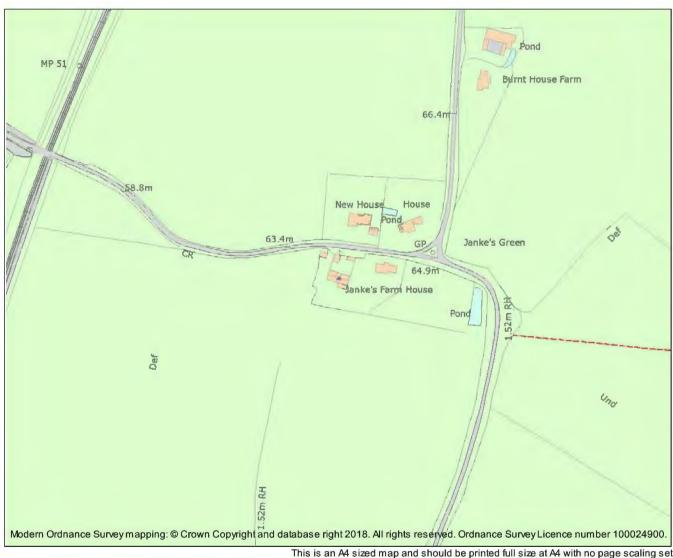
Listing NGR: TL9029329857

#### Selected Sources

Legacy Record - This information may be included in the List Entry Details

National Grid Reference: TL 90293 29857

1 Historic England Listing Information



Name: BARN

Heritage Category: Listing List Entry No: 1224673 Grade:

County: Essex

District: Colchester

Parish: Mount Bures

For all entries pre-dating 4 April 2011 maps and national grid references do not form part of the official record of a listed building. In such cases the map here and the national grid reference are generated from the list entry in the official record and added later to aid identification of the principal listed building or buildings.

For all list entries made on or after 4 April 2011 the map here and the national grid reference do form part of the official record. In such cases the map and the national grid reference are to aid identification of the principal listed building or buildings only and must be read in conjunction with other information in

Any object or structure fixed to the principal building or buildings and any object or structure within the curtilage of the building, which, although not fixed to the building, forms part of the land and has done so since before 1st July, 1948 is by law to be treated as part of the listed building.

This map was delivered electronically and when printed may not be to scale and may be subject to distortions.

List Entry NGR: TL 90293 29857 Map Scale: 1:2500 **Print Date:** 11 June 2018



1 Executive Summary

This document has been prepared by Lynch Architects on behalf of our client Joanne Bernstein, a garden designer based in London. It should be read in conjunction with our 'Planning & Listed Building Consent Conditions Submission to Colchester Borough Council, November 2018'.

Colchester Borough Council granted permission for Jankes Barn to be converted into a dwelling on 13th January 2017 (Planning Consent ref 170069 & Listed Building Consent ref 170070).

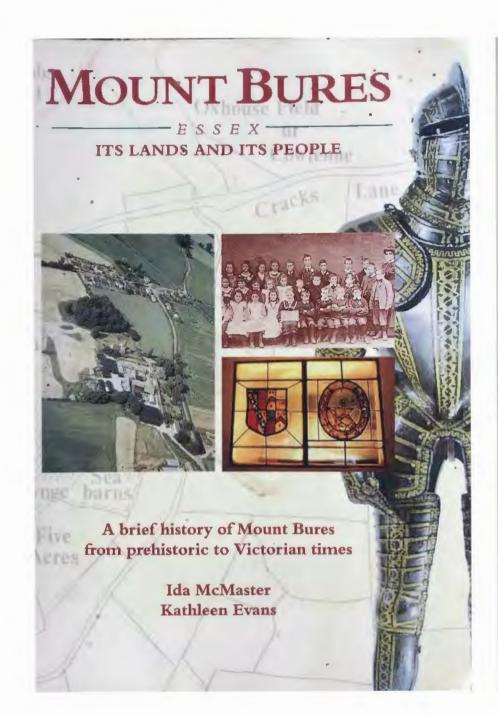
This document provides information in support of Planning Condition 7 which states:

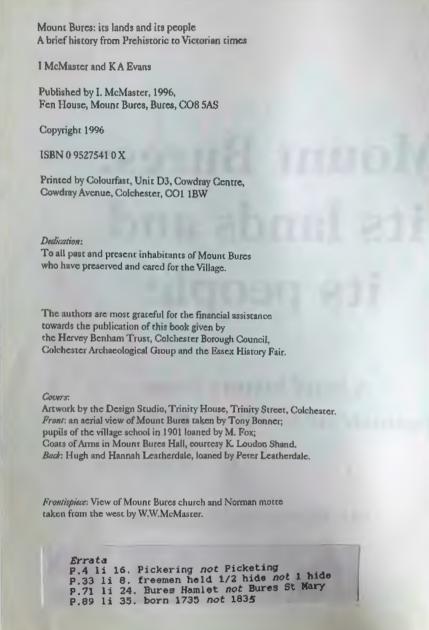
Prior to the commencement of any works, a programme of building recording and analysis shall have been undertaken and a detailed record of the building shall have been made by a person or body approved by the Local Planning Authority and in accordance with a written scheme which first shall have been submitted to and approved, in writing, by the Local Planning Authority.

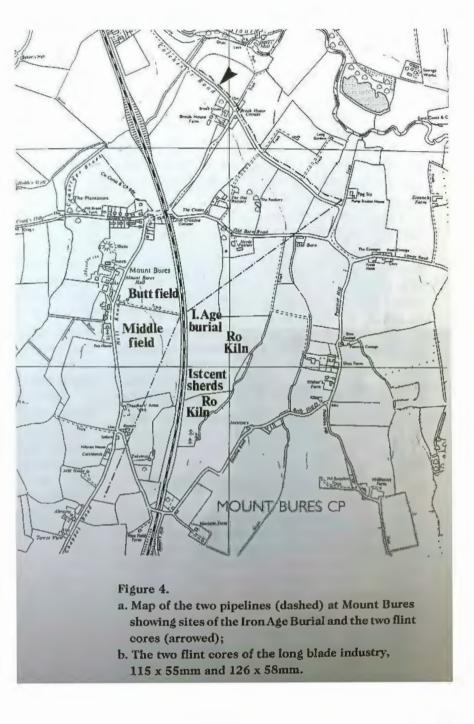
Reason: To secure provision for recording and analysis of matters of historical importance associated with the site, which may be lost in the course of works

1 Historic England Listing Plan

### 2 Site History







Extracts from the book 'Mount Bures, Essex - Its Lands and Its People: A brief history of Mount Bures deom prehistoric to Victorian times' by Ida McMaster and Kathleen Evans

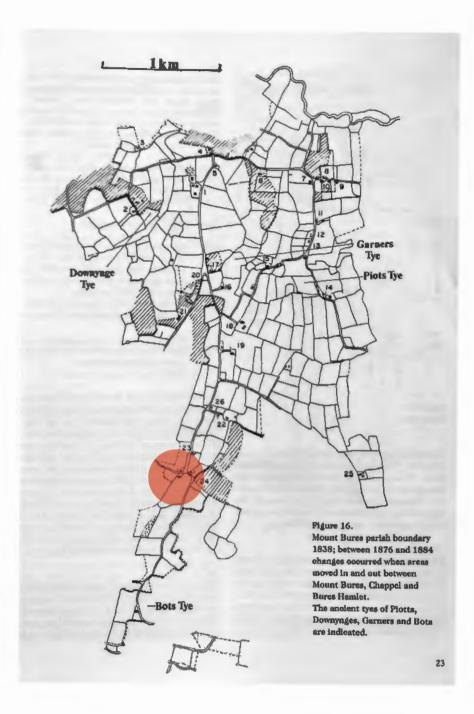
Today we have little remaining woodland; not even secondary woodland, so called where plough land or heath has been abandoned and has then reverted back to natural woodland. There is, however, still some woodland beyond our southern boundary near Janks Green where the small leaf lime tree is present, a sure sign of ancient woodland.

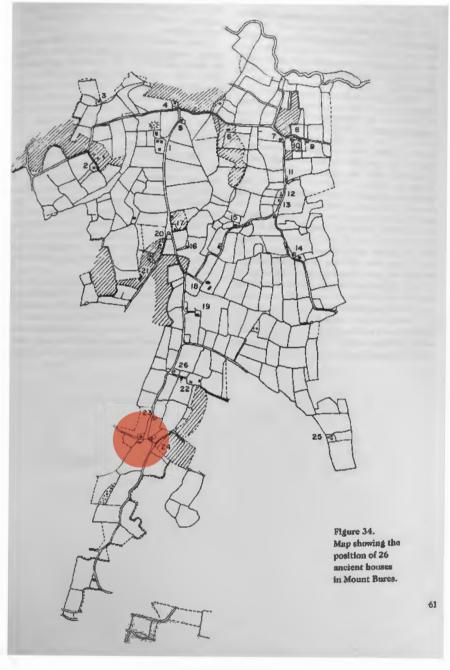
In 1552 fines were imposed on tenants whose tenements or barns were allowed to deteriorate. Alphes, present Burnthouse site, was ruinous and in decay.... fine 6s.8d; Jayes, old Janks farmhouse (Fig. 63) was likewise, lately collapsed to the ground ..fine 20s. Apparently a huge wind and storm had caused its final demise; Glasswrights was in a similar condition. All these tenants were ordered to repair such dilapidation and usually timber from the manor would be allowed.

### 2 Site History



Figure 10.
Bronze figure of the Roman god Mercury: height
11.5 cms, found at Mount Bures, now in the British
Museum. Drawn S. Walker.





Extracts from the book 'Mount Bures, Essex - Its Lands and Its People: A brief history of Mount Bures deom prehistoric to Victorian times' by Ida McMaster and Kathleen Evans

Location of Jankes Farm indicated with red dot

# 2 Site History

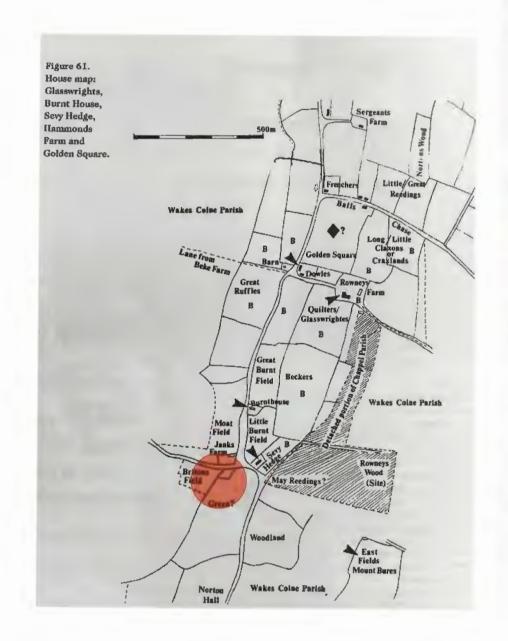




Plate 7. The old wheelwrights barn at Craxes (Old House) demolished early 1970's.

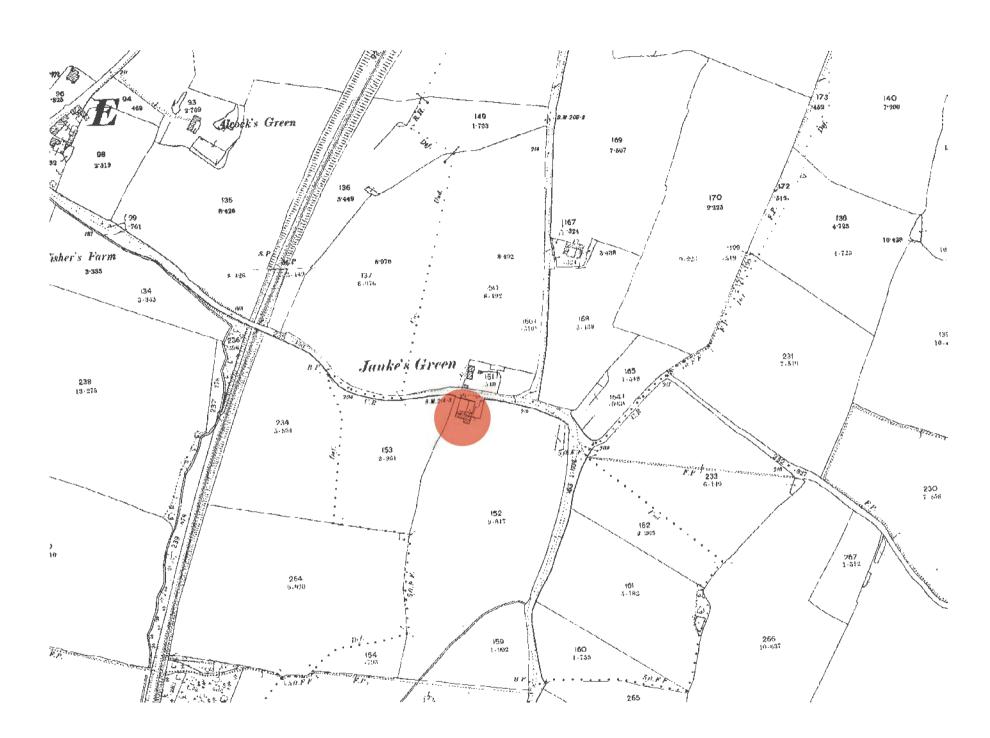
### 2 Site History



1 Aerial view photograph of Jankes Barn and Farm House in the 1960s



Historic Map 1870 Location of Jankes Farm indicated with red dot

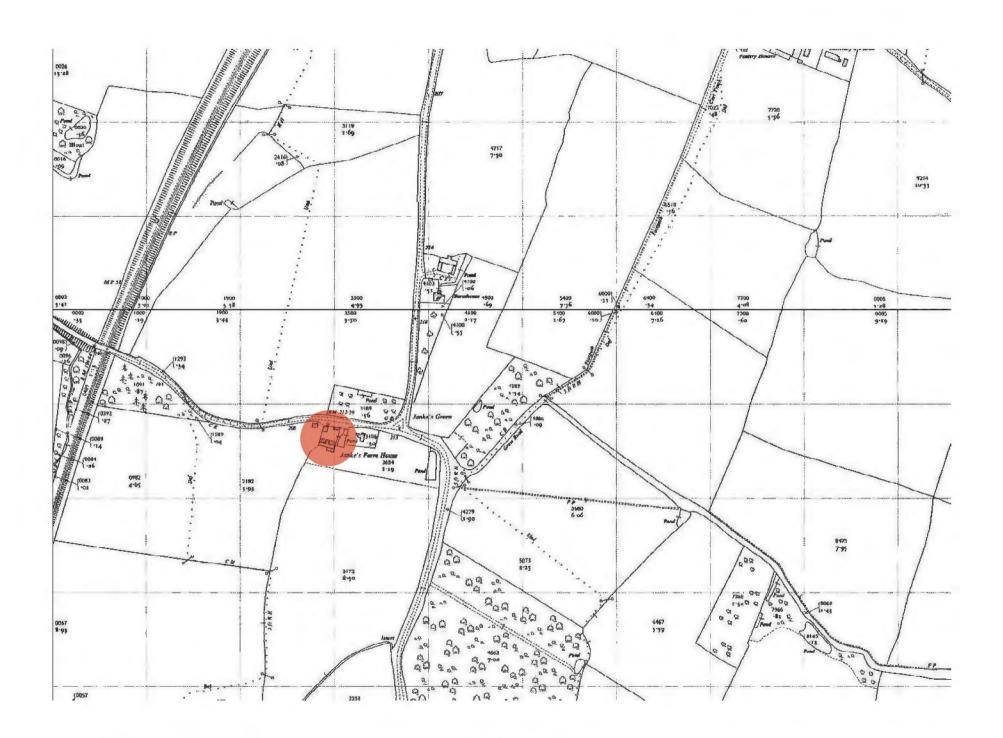


#### Historic Map 1890 Location of Jankes Farm indicated with red dot



Historic Map 1920 Location of Jankes Farm indicated with red dot

### 2 Site History



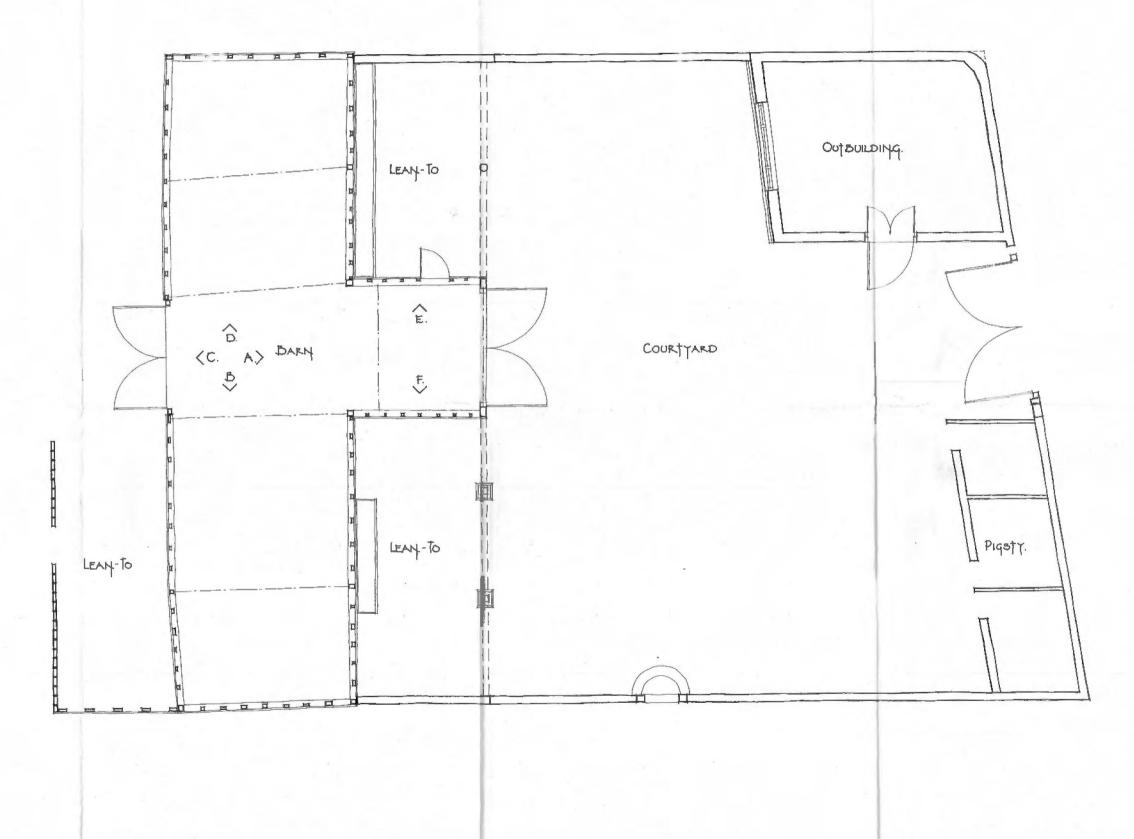
Historic Map 1950 Location of Jankes Farm indicated with red dot

# **3 Topographic CAD Plan Survey** JWC Survey Ltd July 2006

### 4 Hand Drawn Survey

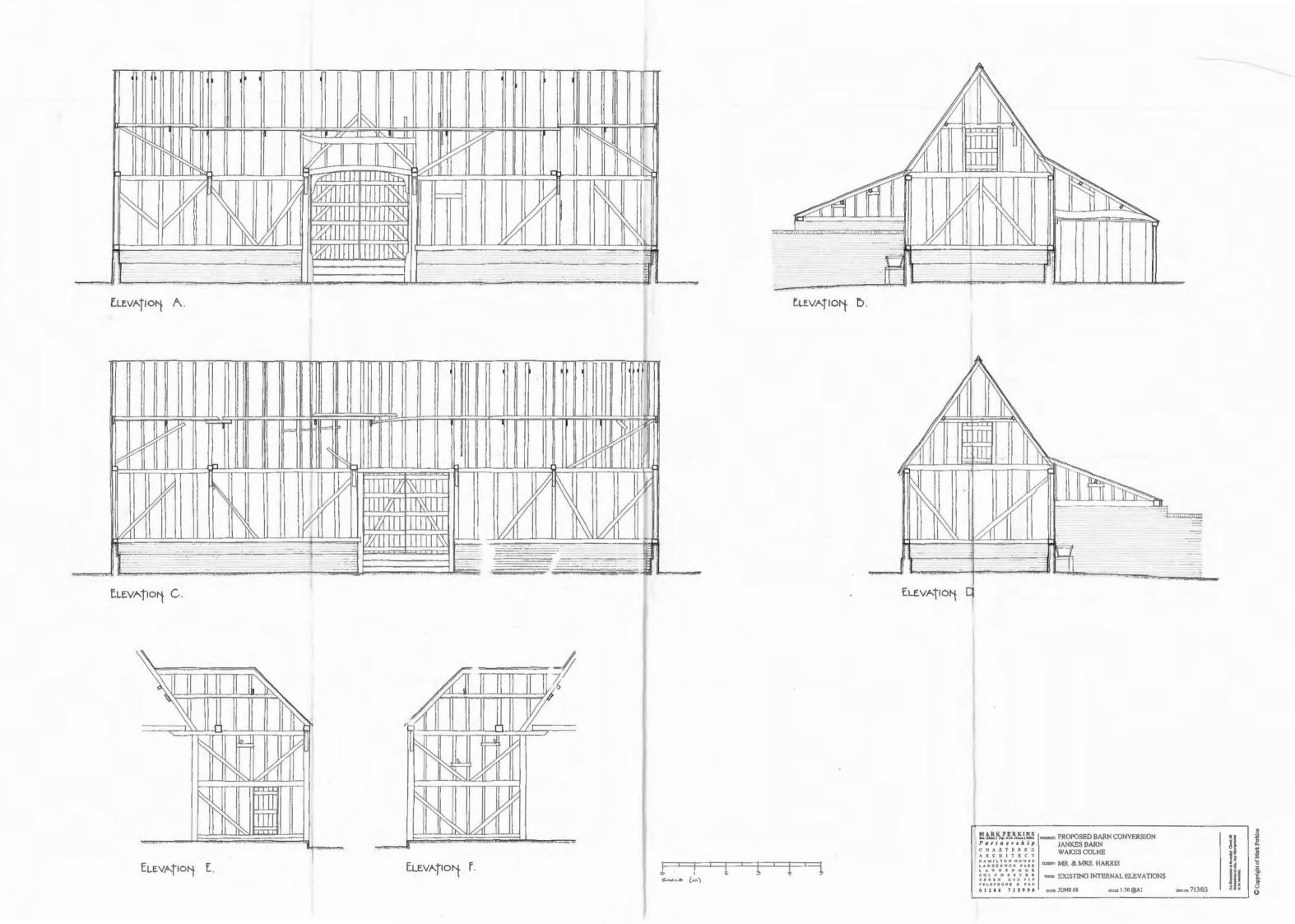
Mark Perkins Partnership April 2008

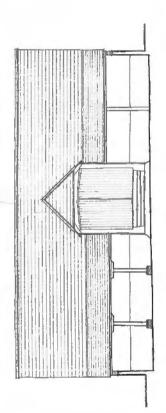
19



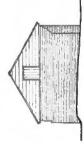
MARK PERKINS
MICHAEL TO AND MICHAEL TO THE MICHAEL TO THE MICHAEL TO THE MICHAEL TO THE MICHAEL THE MI

DRO.No 713/01

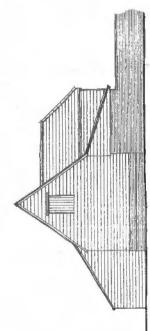




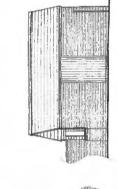
ELEVATION TO CONTYARD N.E.

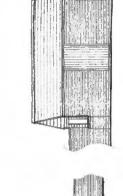


Outbollding Elevation to Road N.E.

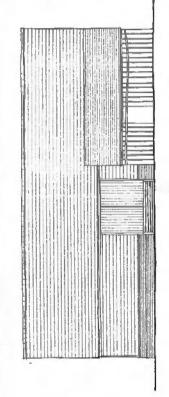


SIDE ELEVATION SE

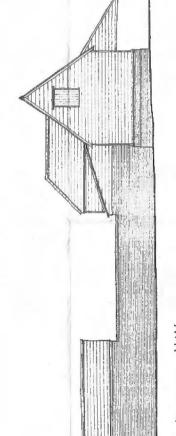




Outbulloing Elevation to Courtland S.W.



REAR ELEVATION 5.W.

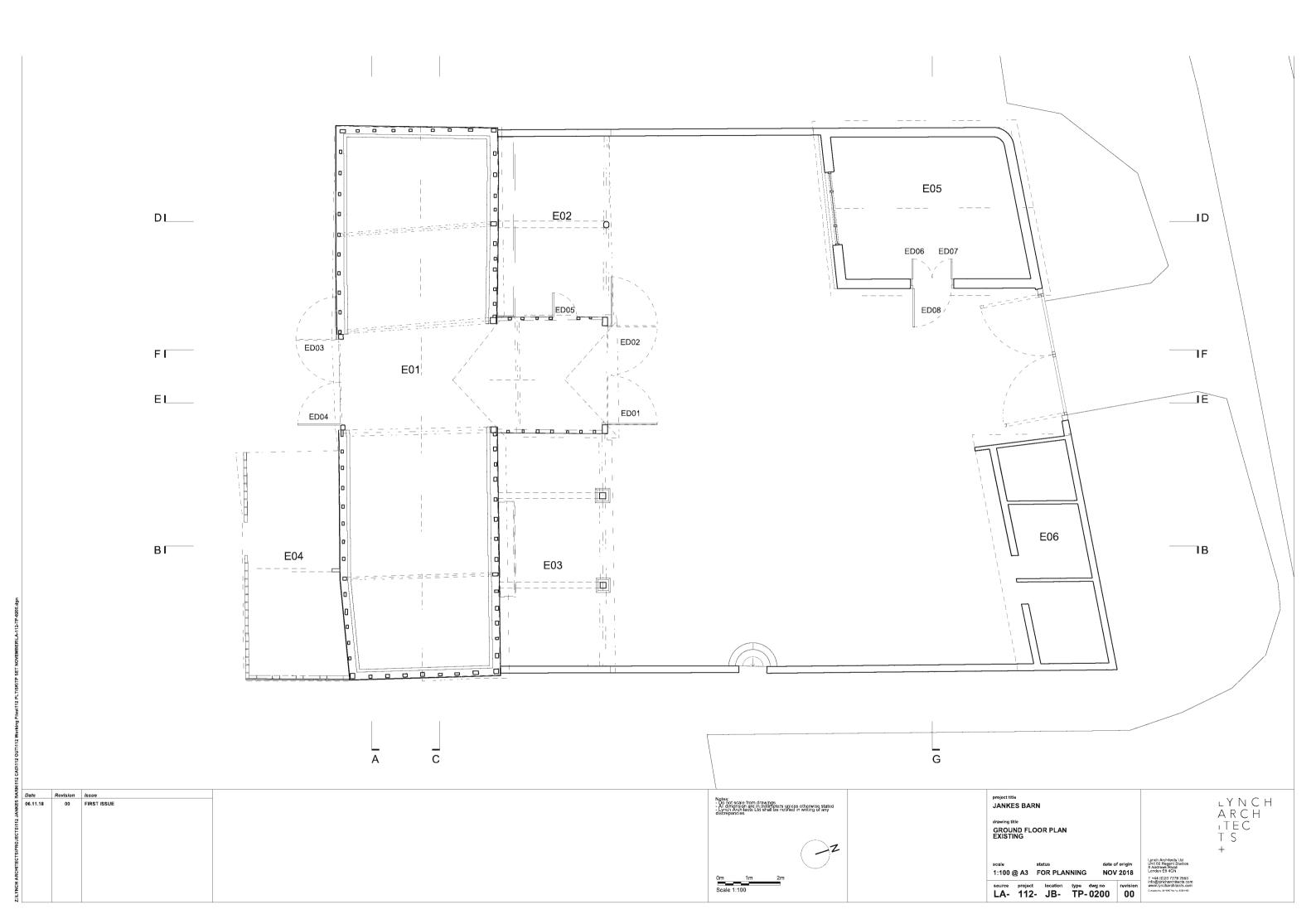


Side Elevation . N.W.

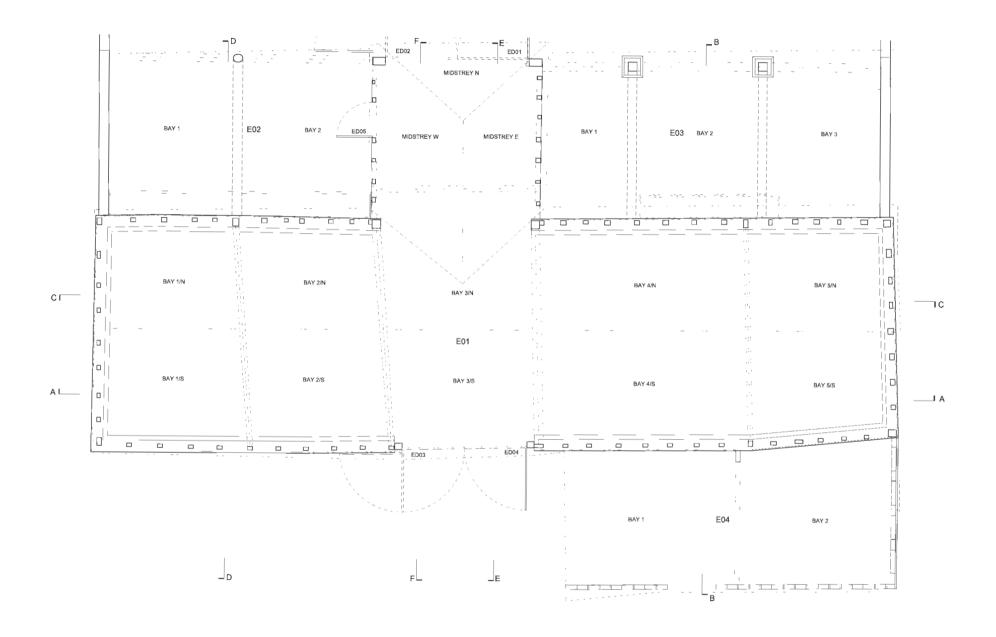
MARKATANAMA PARAMANAMANAMANAMANAMANAMANAMANAMANAMANAM	JANKES BARN JANKES BARN WAKES COLNE	PROPOSED BARN CONVERSION JANKES BARN WAKES COLNE	
3 4 O M	CHEST NEW TRANSPORTED THE EXISTING ELEVATIONS	ARRIS VATIONS	
~ ~ 0.	DATE APRIL OB	BCM 1:100 € AI	DRG No. 713/02

### 5 Photographic Survey

23



### **5 Photographic Survey** Lynch Architects 2018



### 5 Photographic Survey













E01 Bay 1 North E01 Bay 2 North

E01 Midstrey West

# 5 Photographic Survey













E01 Midstrey North

E01 Midstrey East 1

E01 Midstrey East 2

### 5 Photographic Survey













E01 Bay 4 North E01 Bay 4 North E01 Bay 5 North

### 5 Photographic Survey

Lynch Architects 2018







29







E01 Bay 1 East

E01 Bay 1 East

ED07 High Level

### 5 Photographic Survey

Lynch Architects 2018













E01 Bay 4 South

E01 Bay 5 South E01 Bay 4/5 South

### **5 Photographic Survey** Lynch Architects 2018













E01 Bay 2 South E01 Bay 1 South

E01 Bay 1 South

# 5 Photographic Survey













E01 Bay 1 West E01 Bay 1 West E01 Bay 1 West

### 5 Photographic Survey

33

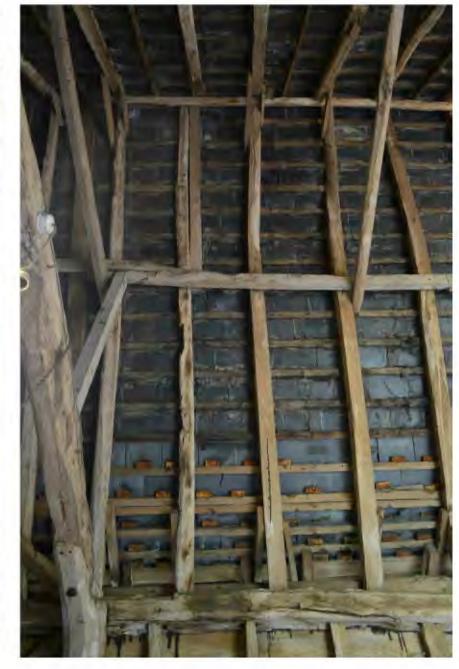


Roof composite looking North

### 5 Photographic Survey





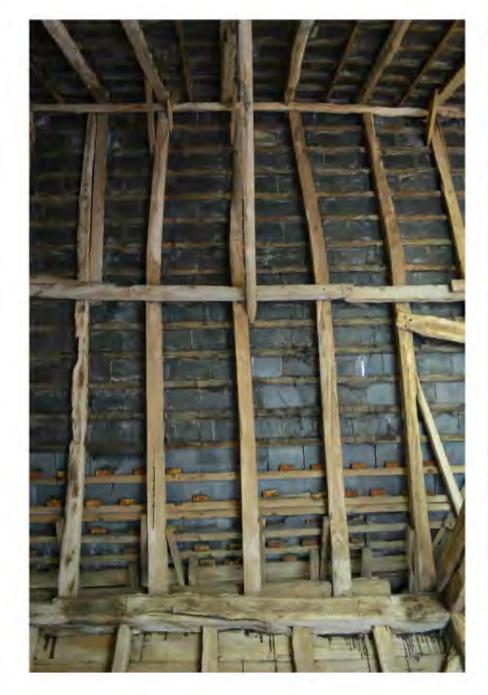


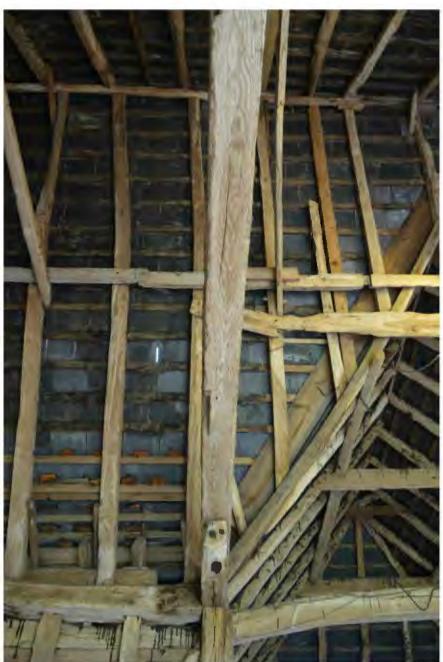
E01 Bay 1 North Roof E01 Bay 1 North Roof E01 Bay 2 North Roof

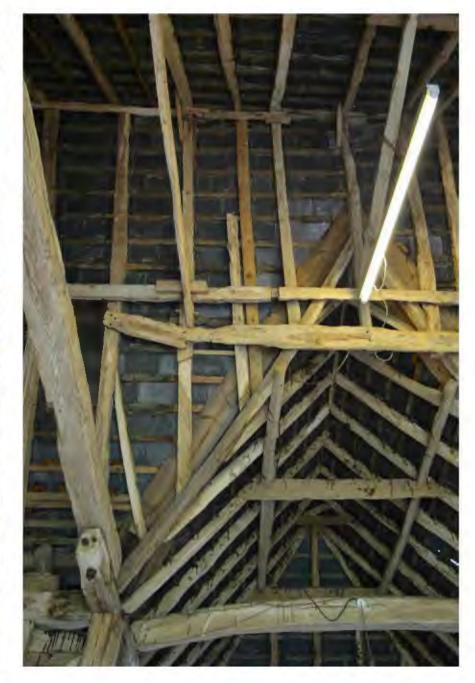
# 5 Photographic Survey

Lynch Architects 2018

E01 Bay 3 North Roof







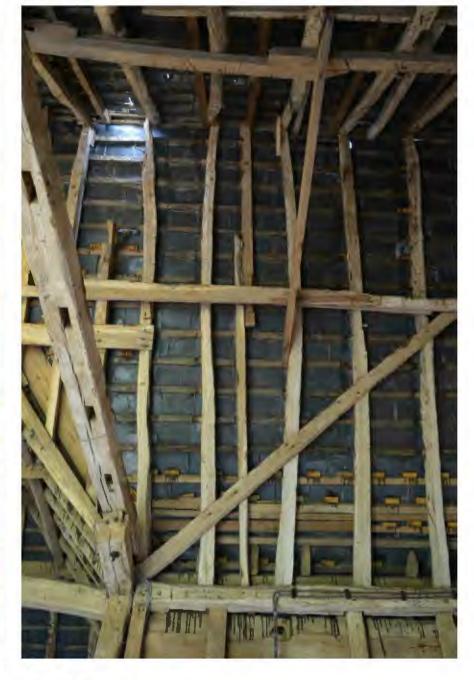
35

E01 Bay 2 North Roof E01 Bay 2/3 North Roof

### 5 Photographic Survey







E01 Bay 3 North Roof E01 Bay 3 North Roof

E01 Bay 4 North Roof

# 5 Photographic Survey





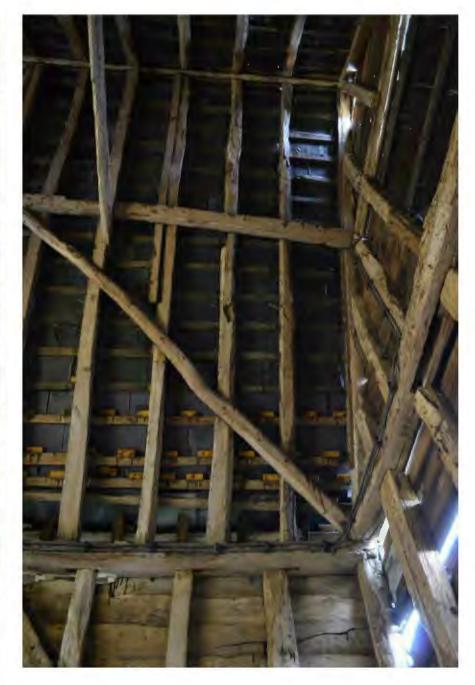


E01 Bay 4 North Roof E01 Bay 4 North Roof E01 Bay 4/5 North Roof

#### 5 Photographic Survey







E01 Bay 5 North Roof E01 Bay 5 North Roof E01 Bay 5 North Roof

#### **5 Photographic Survey** Lynch Architects 2018



Roof composite from below

#### 5 Photographic Survey







E01 Bay 5 South Roof
E01 Bay 5 South Roof

# 5 Photographic Survey







E01 Bay 4 South Roof

E01 Bay 4 South Roof

E01 Bay 4 South Roof

#### 5 Photographic Survey

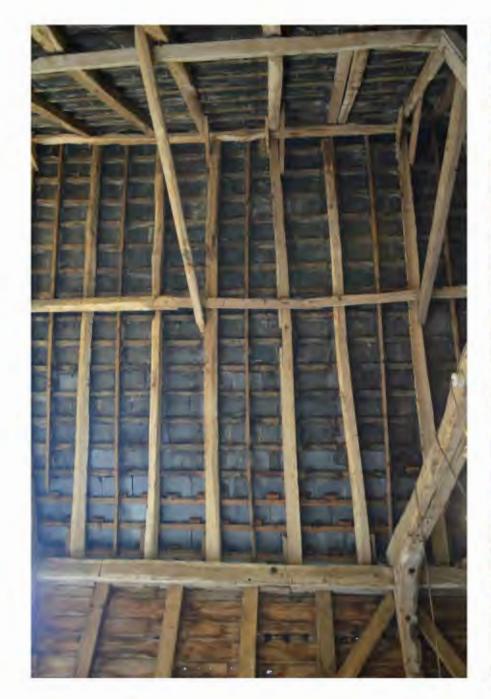






E01 Bay 3 South Roof E01 Bay 2 South Roof

#### 5 Photographic Survey







E01 Bay 2 South Roof E01 Bay 2/1 South Roof

E01 Bay 1 South Roof











E03 Bay 3 East E03 Bay 3 South

E03 Bay 2 South













E03 Bay 2/1 South E03 Bay 2 West

E03 Bay 1 West Close up

# 5 Photographic Survey













ED01 North Door Close Up

ED01 North Door Close Up







E02 Bay 1 Structural Post

E02 Bay 1 Structural Post

E02 Bay 1 Structural Post

# 5 Photographic Survey











E02 Bay 2 East ED05 Door Close Up

ED05 Door Close Up

#### 5 Photographic Survey













E02 Bay 1 South E02 Bay 2 South

E02 Bay 2 West

### 5 Photographic Survey



Courtyard Entrance and North Elevation of Barn

#### **5 Photographic Survey** Lynch Architects 2018

51



Courtyard Entrance and North Elevation of Stable & Piggery

#### 5 Photographic Survey



Barn North 01

#### **5 Photographic Survey** Lynch Architects 2018

53





Barn North 02 Barn North 03

#### 5 Photographic Survey



Courtyard and Barn from driveway looking West



Courtyard and Barn from driveway looking West

# 5 Photographic Survey



Barn East Elevation



Barn South Elevation

### 5 Photographic Survey



Barn West Elevation

# 5 Photographic Survey



Barn West Elevation showing Courtyard Wall and Stable

#### 5 Photographic Survey



Northwest Stable Corner



Stable North Elevation



Stable East Elevation

# 5 Photographic Survey



Stable South Elevation



Piggery South Elevation

#### 5 Photographic Survey



Piggery West Elevation



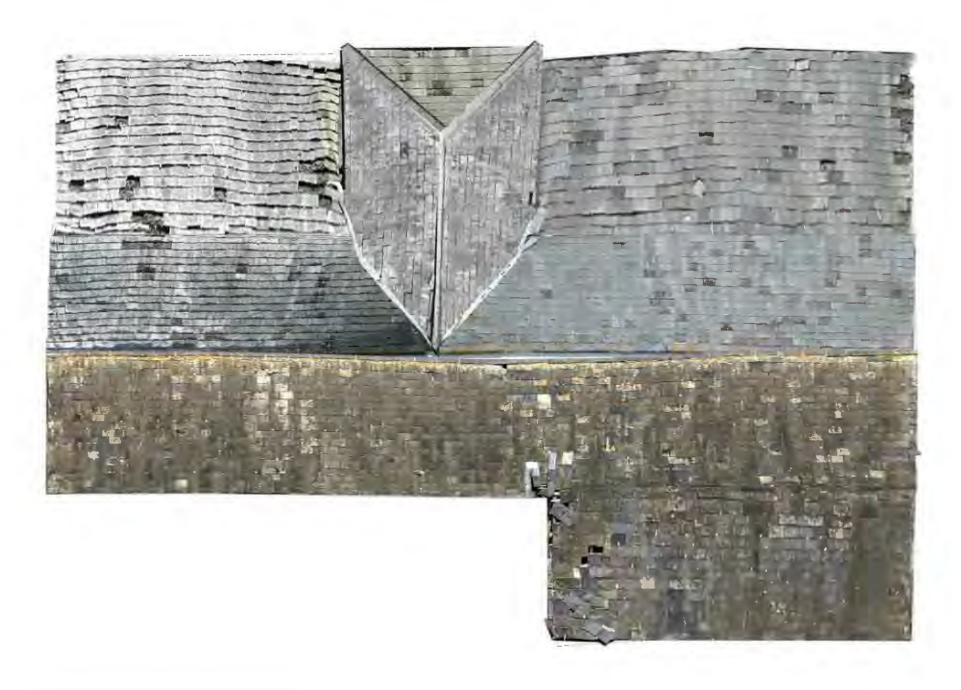
Courtyard Garden looking East

# 5 Photographic Survey



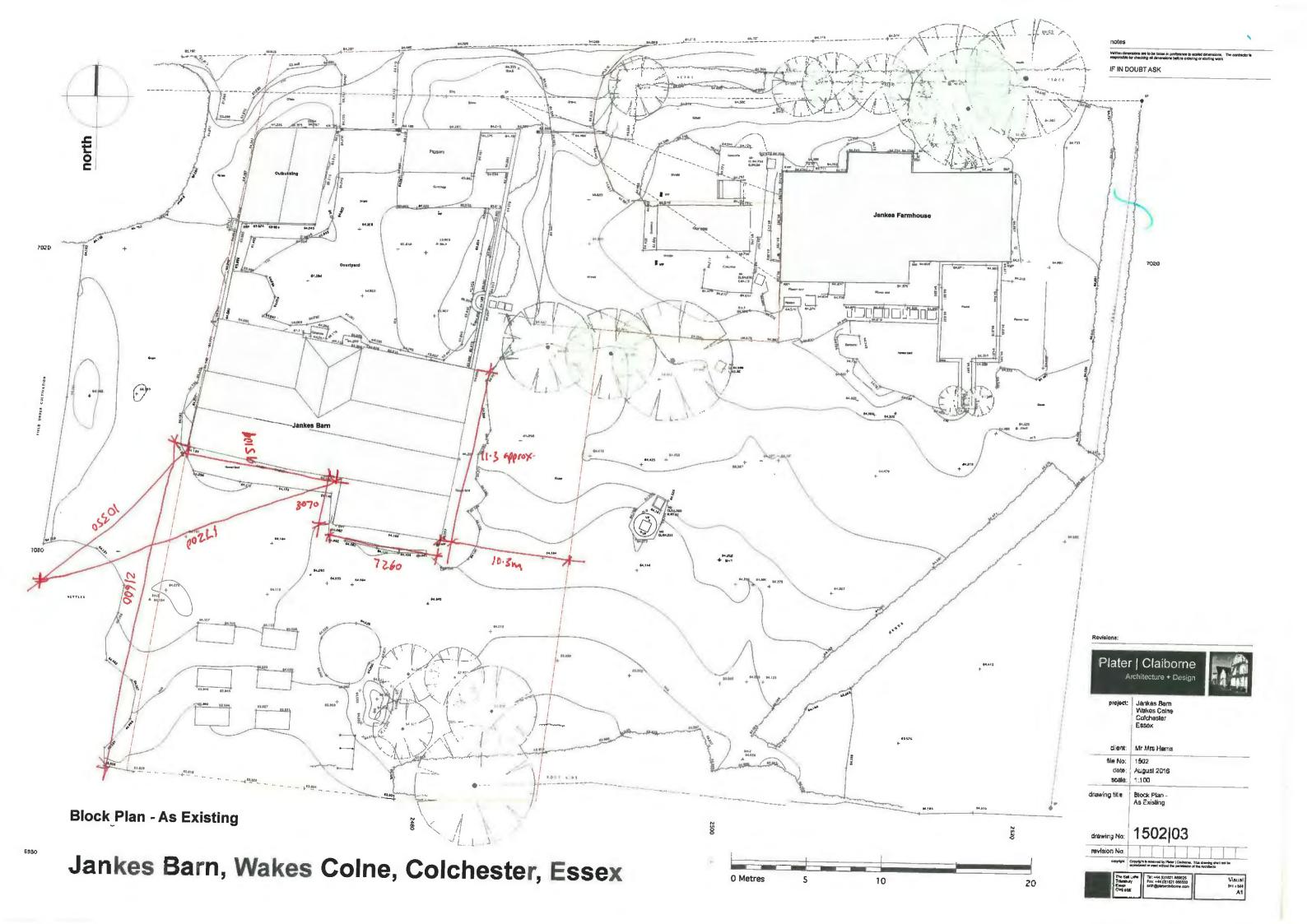
Courtyard Garden looking West

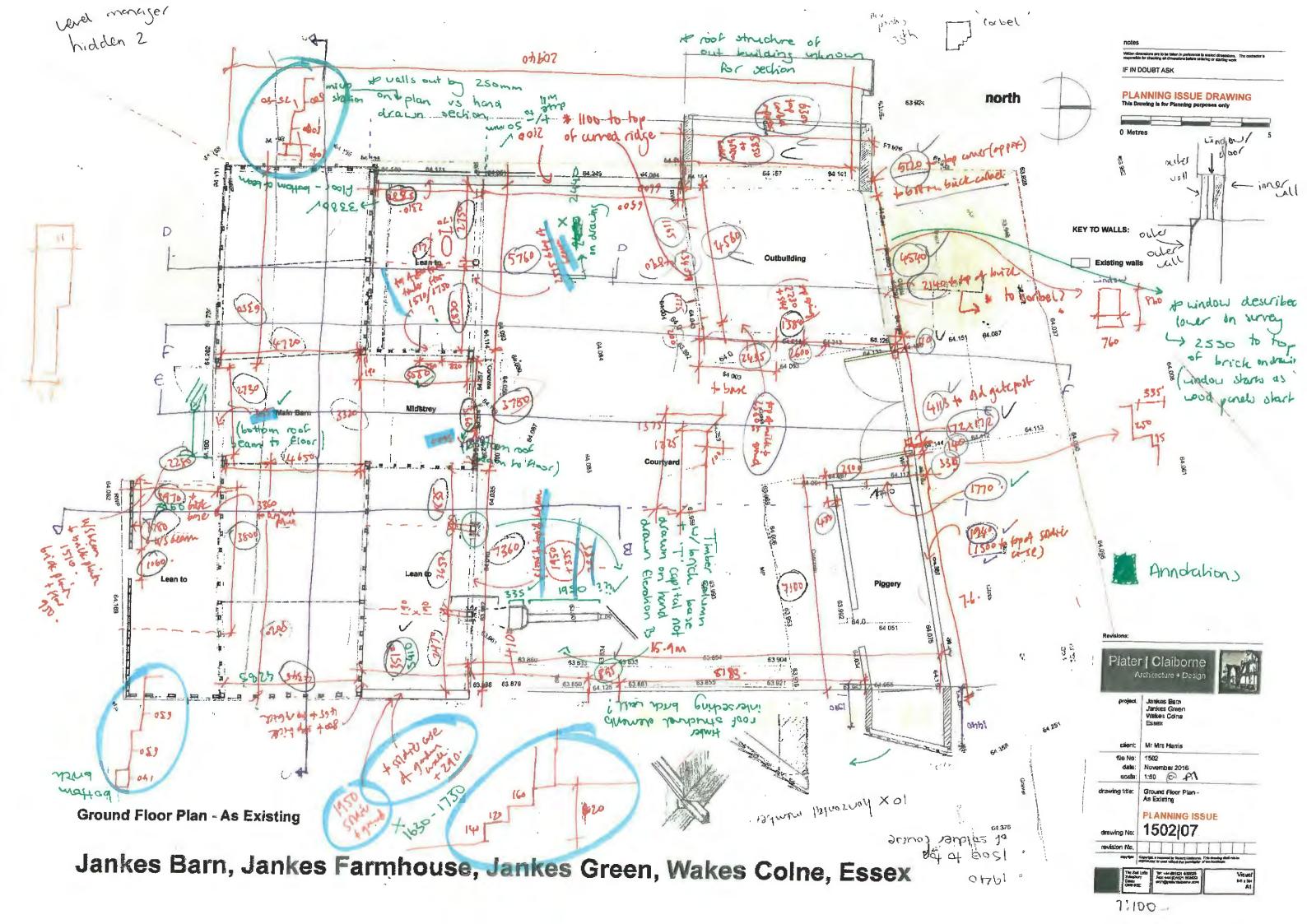
#### **5 Photographic Survey** Lynch Architects 2018

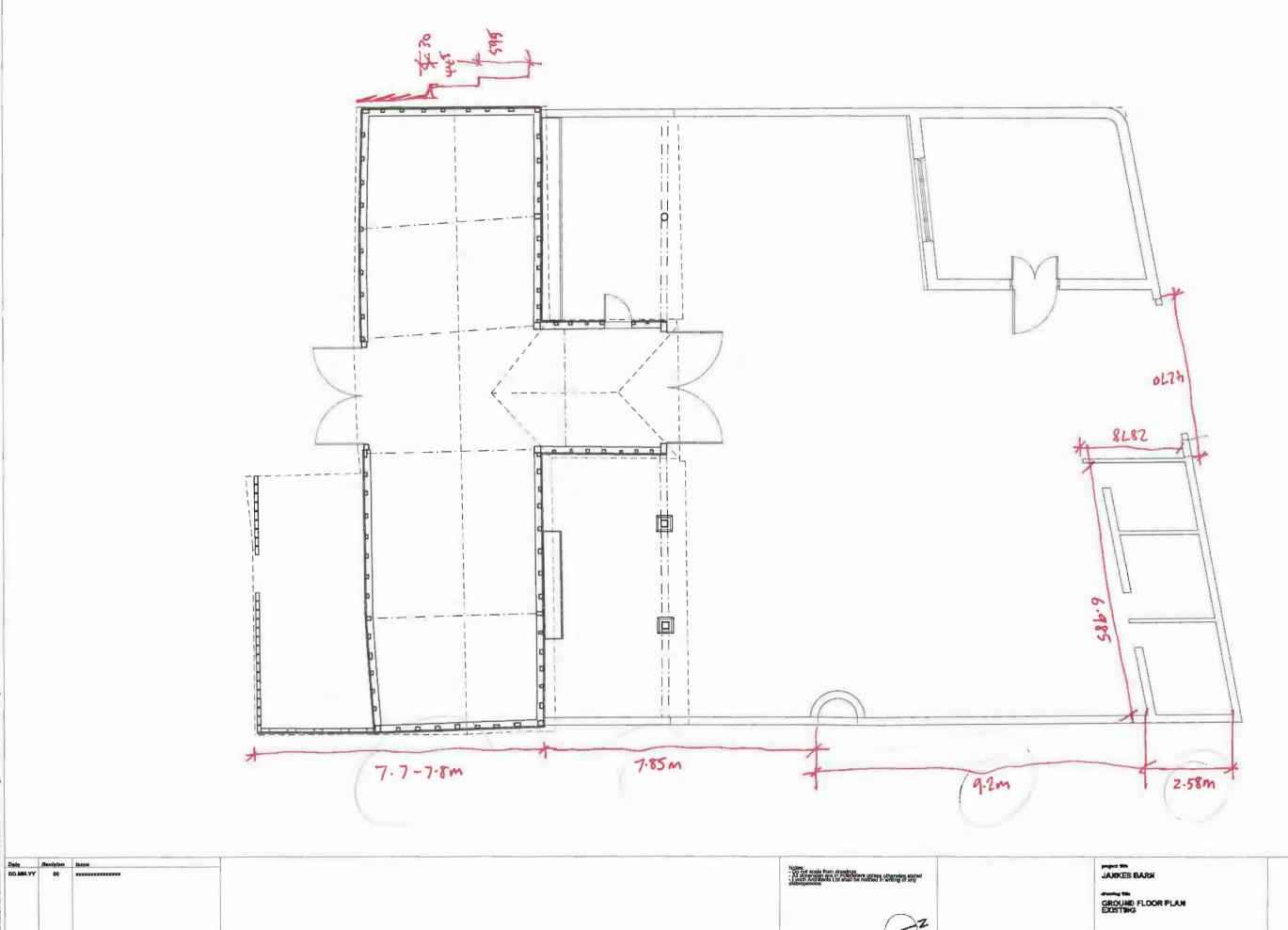


Roof composite showing condition of existing slates

#### 6 Hand Measured Survey



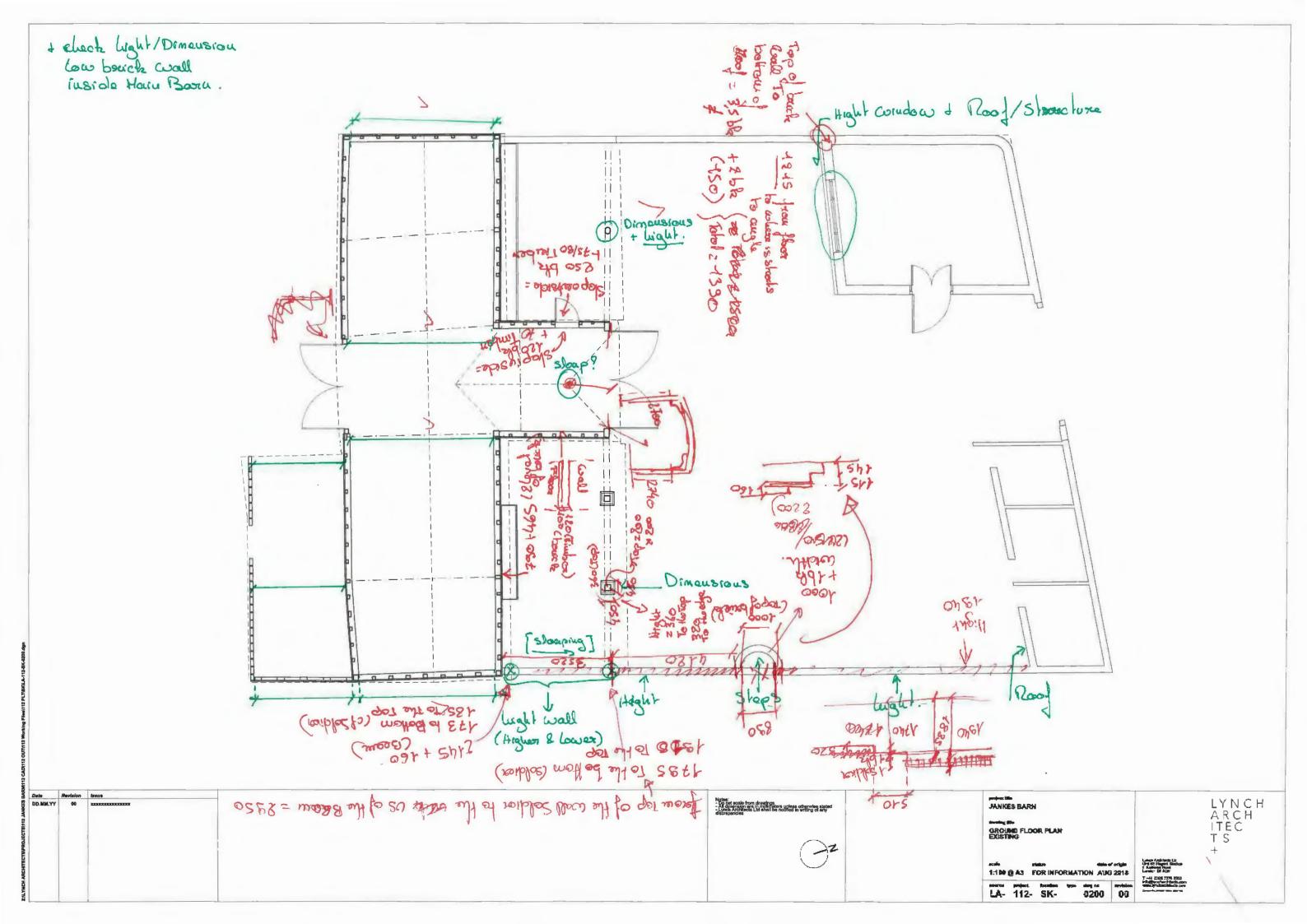


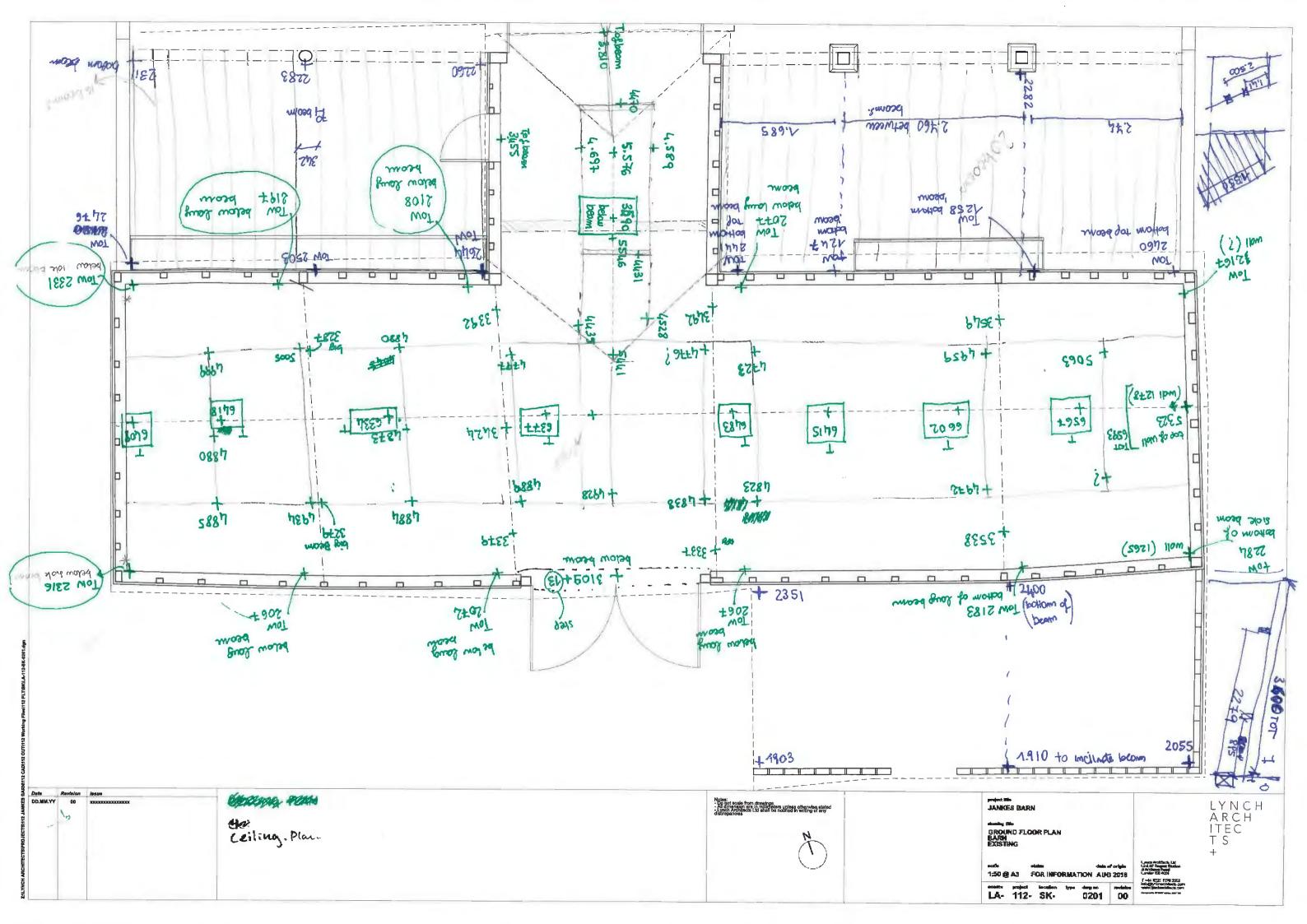


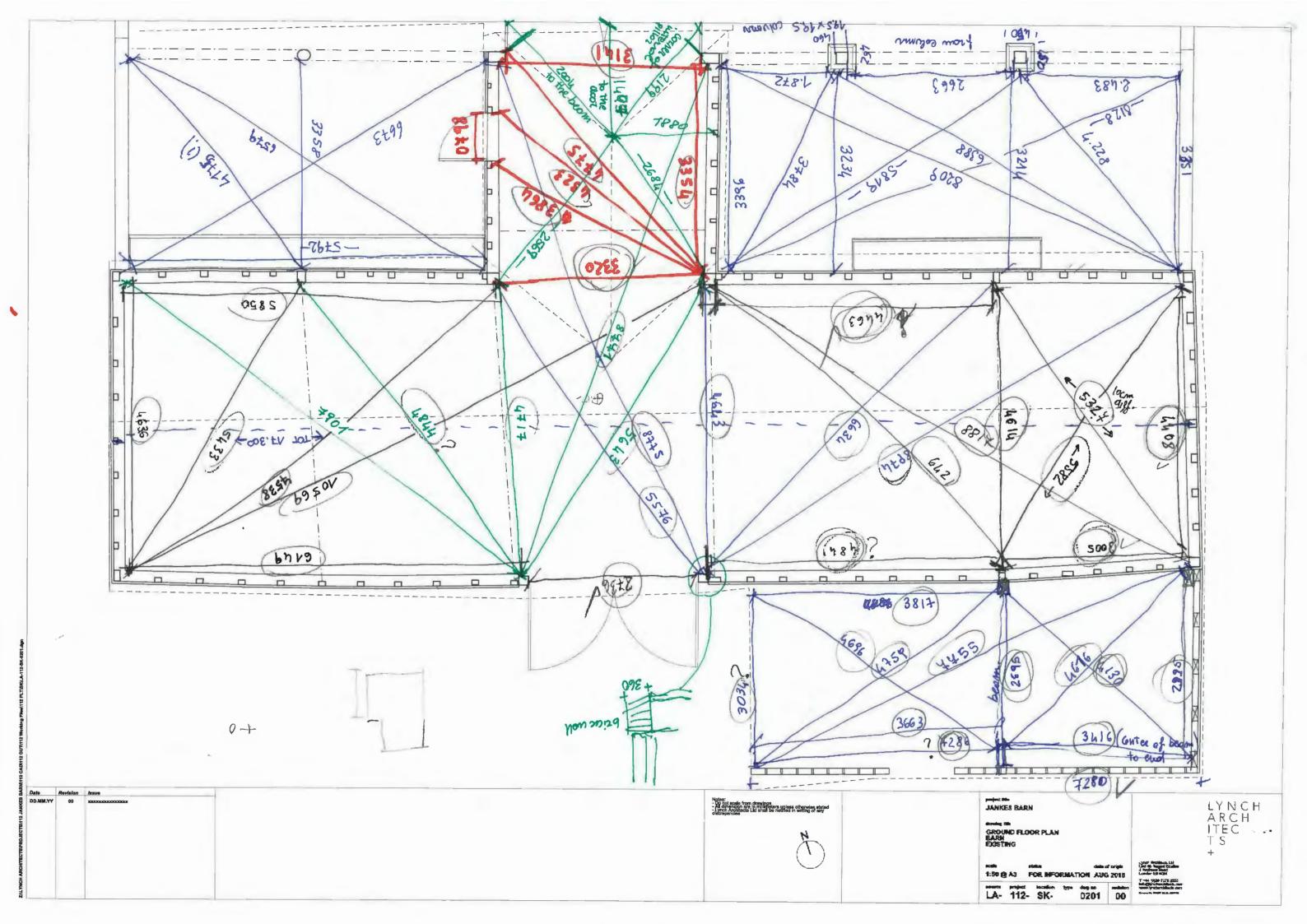
1:100 @ A3 FOR INFORMATION AUG 2018

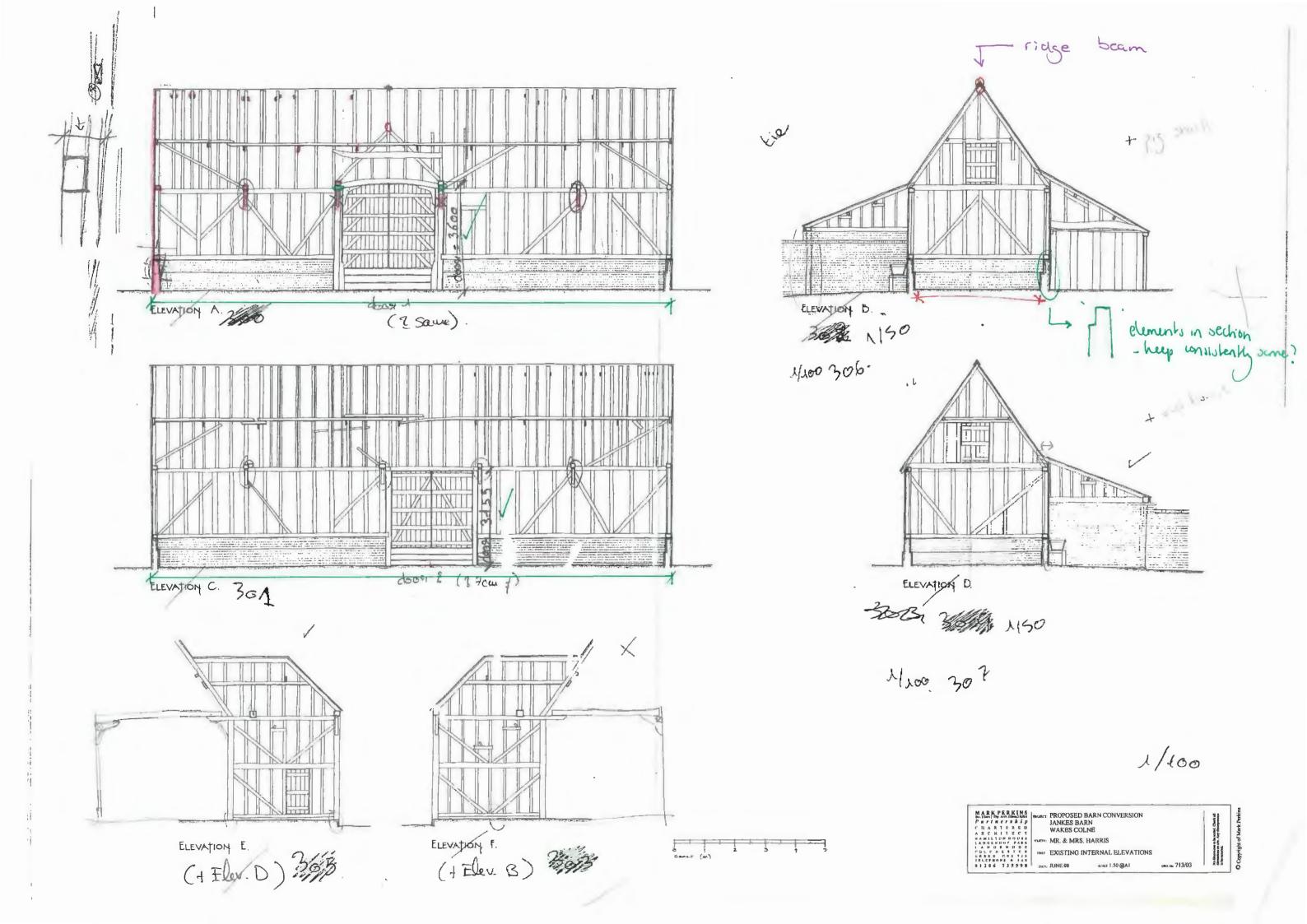
1:00 @ A3 FOR INFORMATION AUG 2018

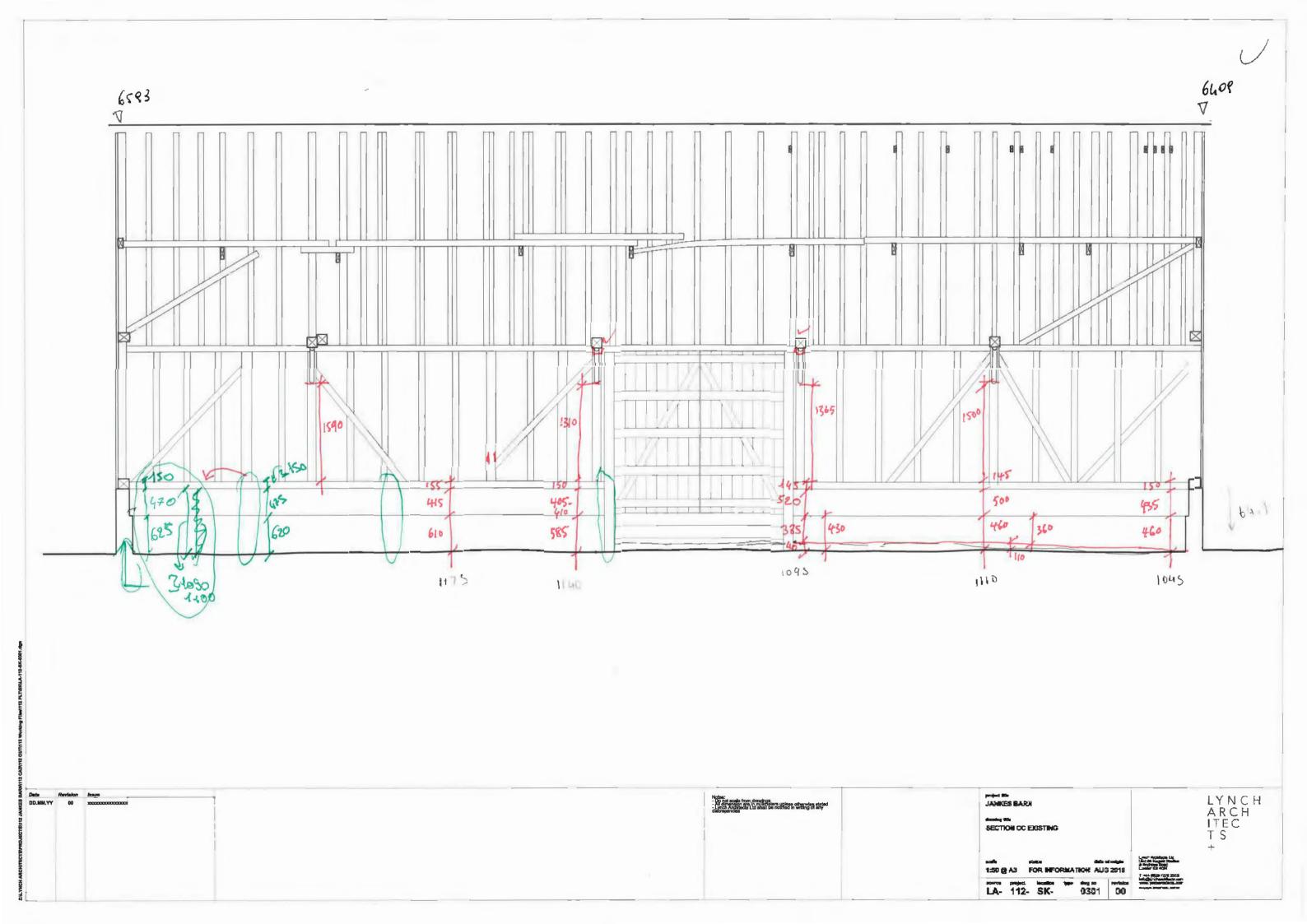
Lymph Mychight Lie Unit 64 Pagent States 1 Norman Page 2 August 1 Norman 2 August 1 August 1 1 1



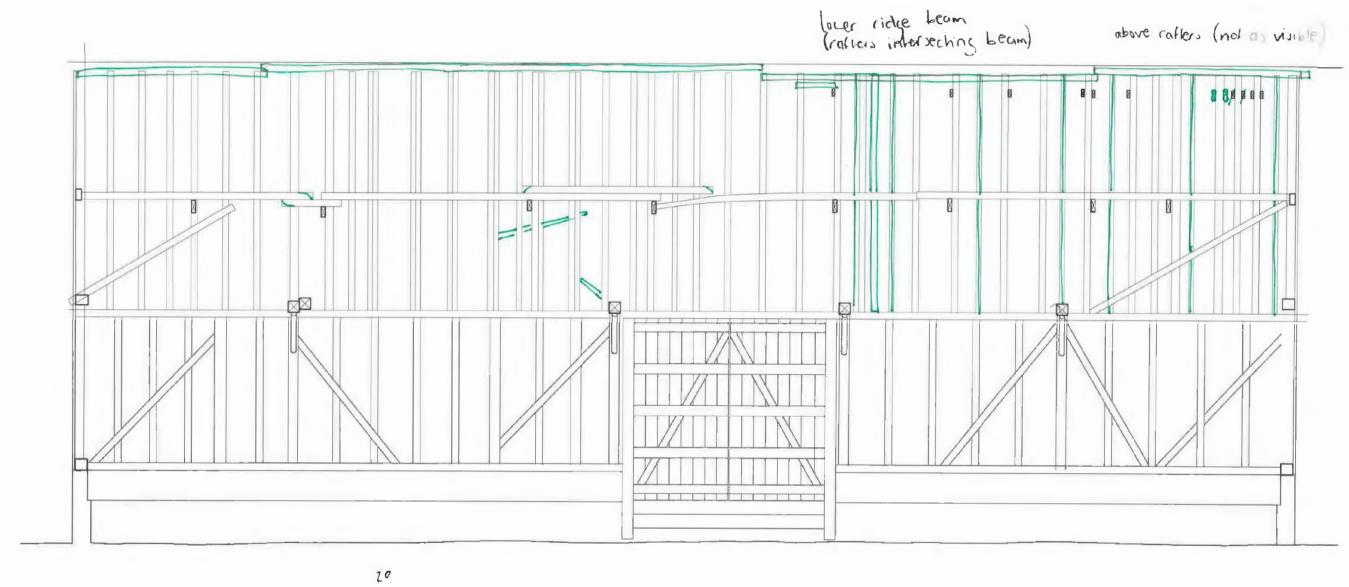


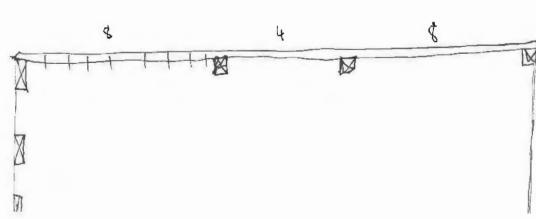




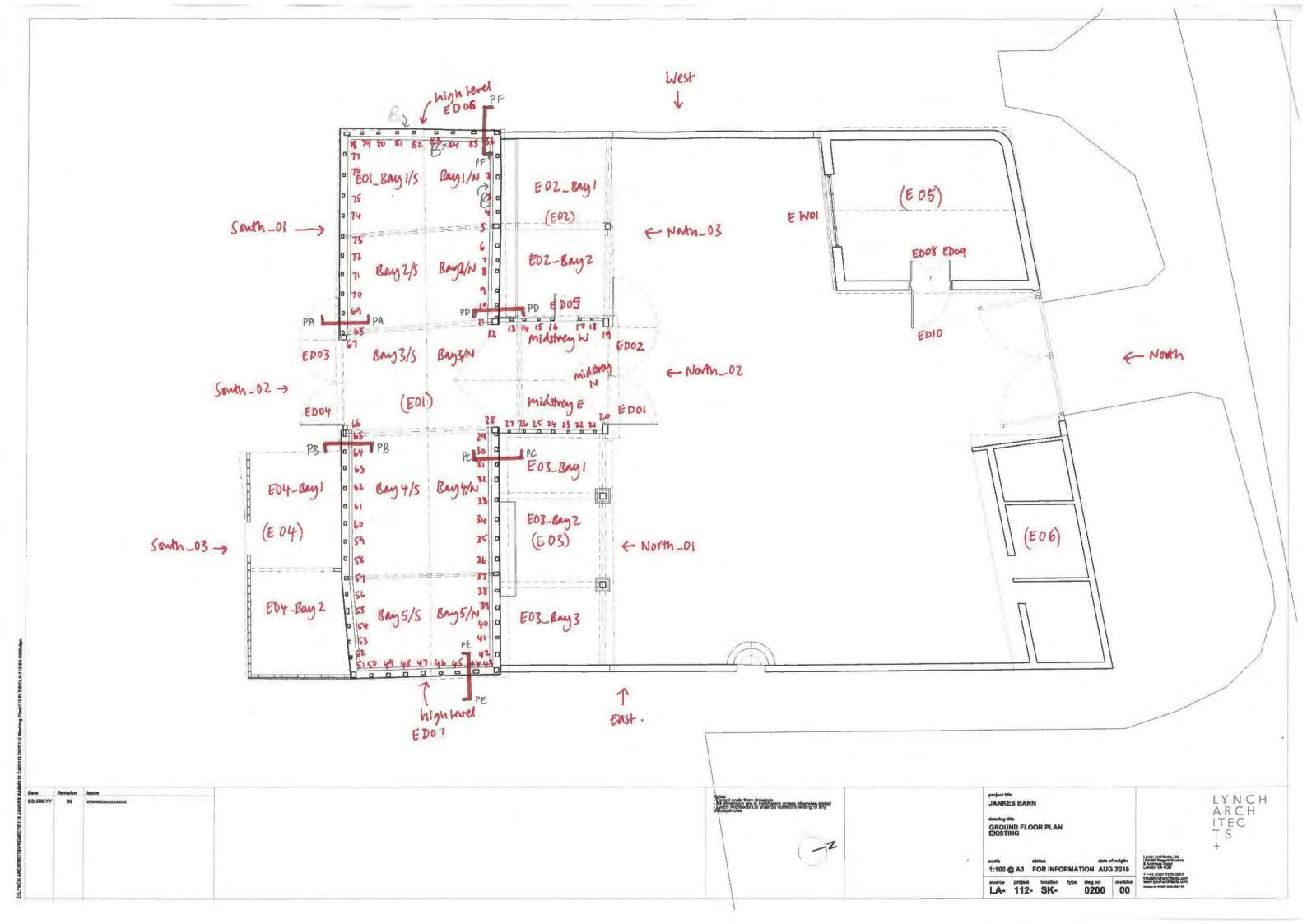


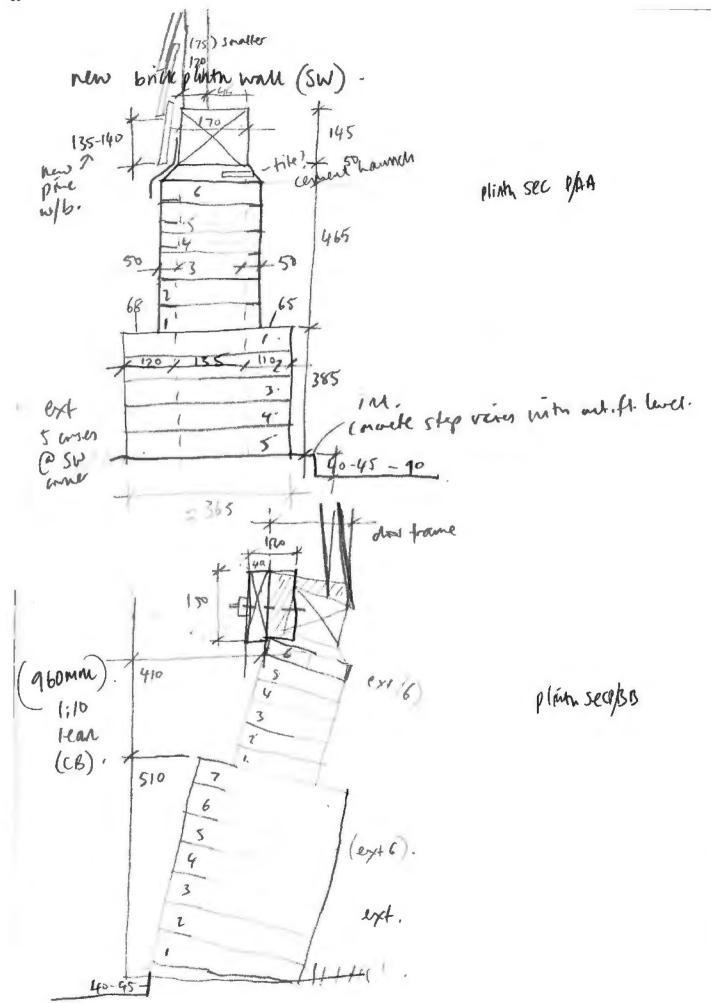
LYNCH ARCHITECTS +

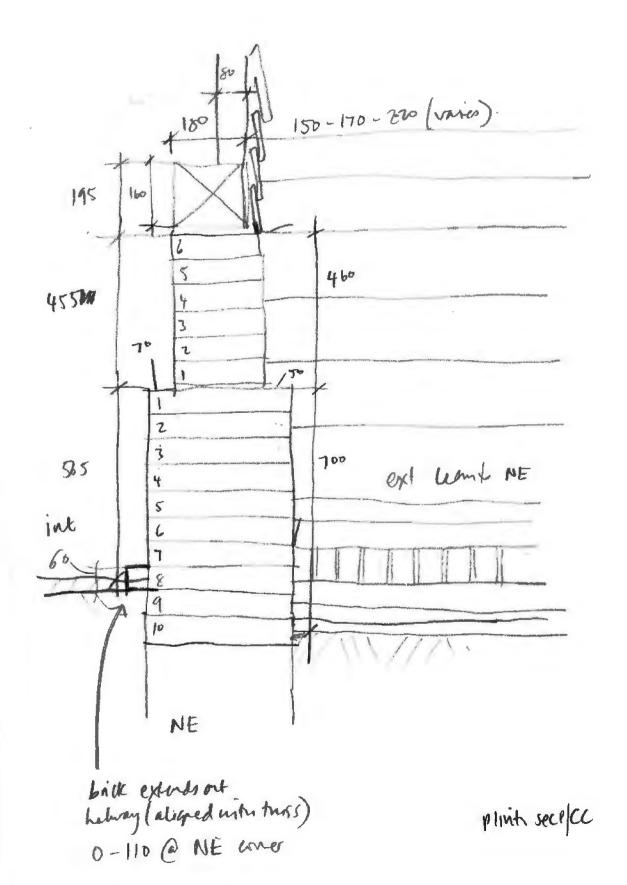


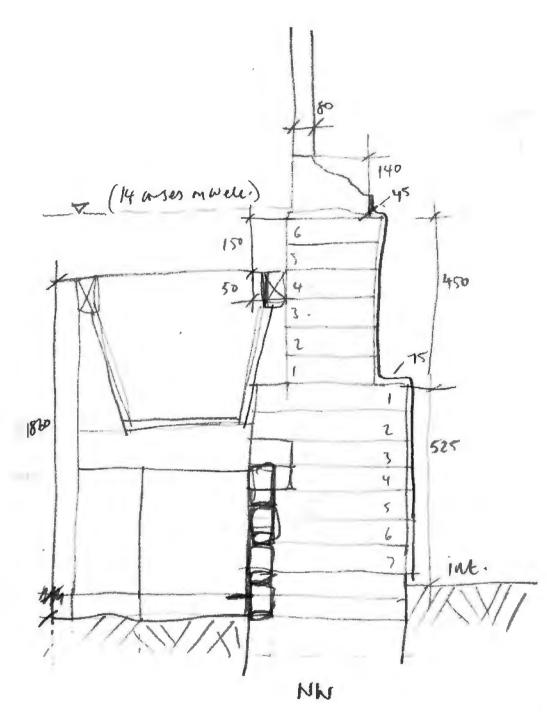




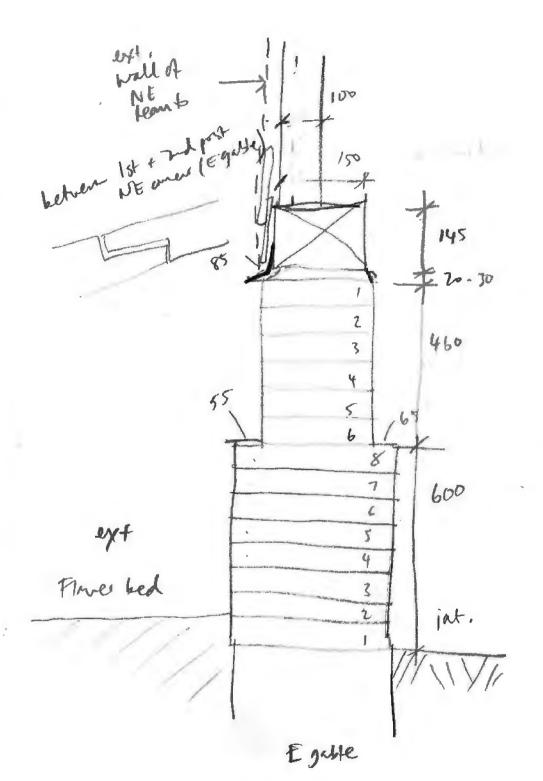








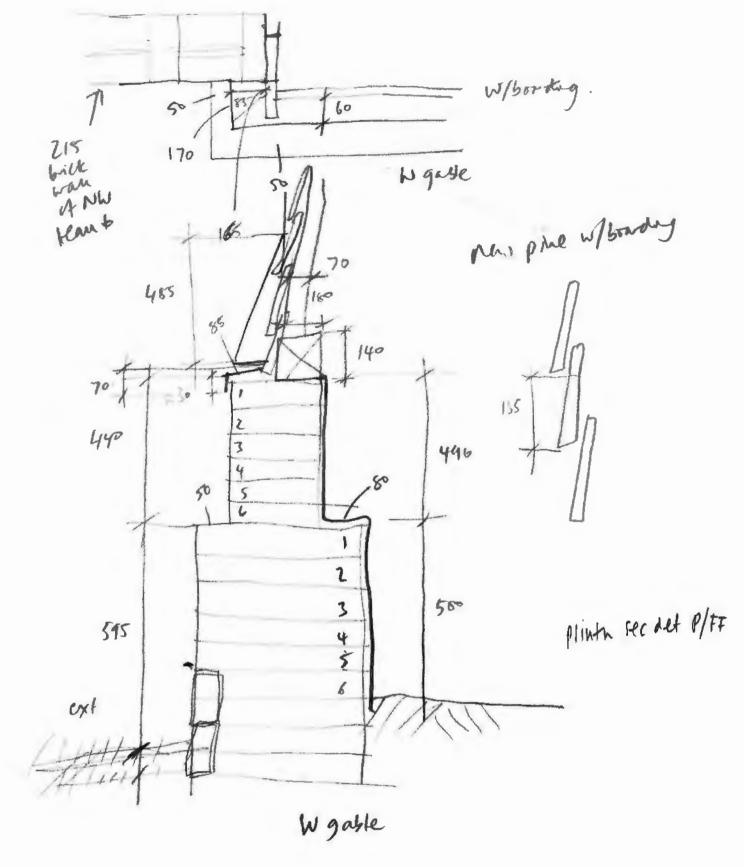
Plintasec PDD.



**S** 

Plym sec Let P/EE

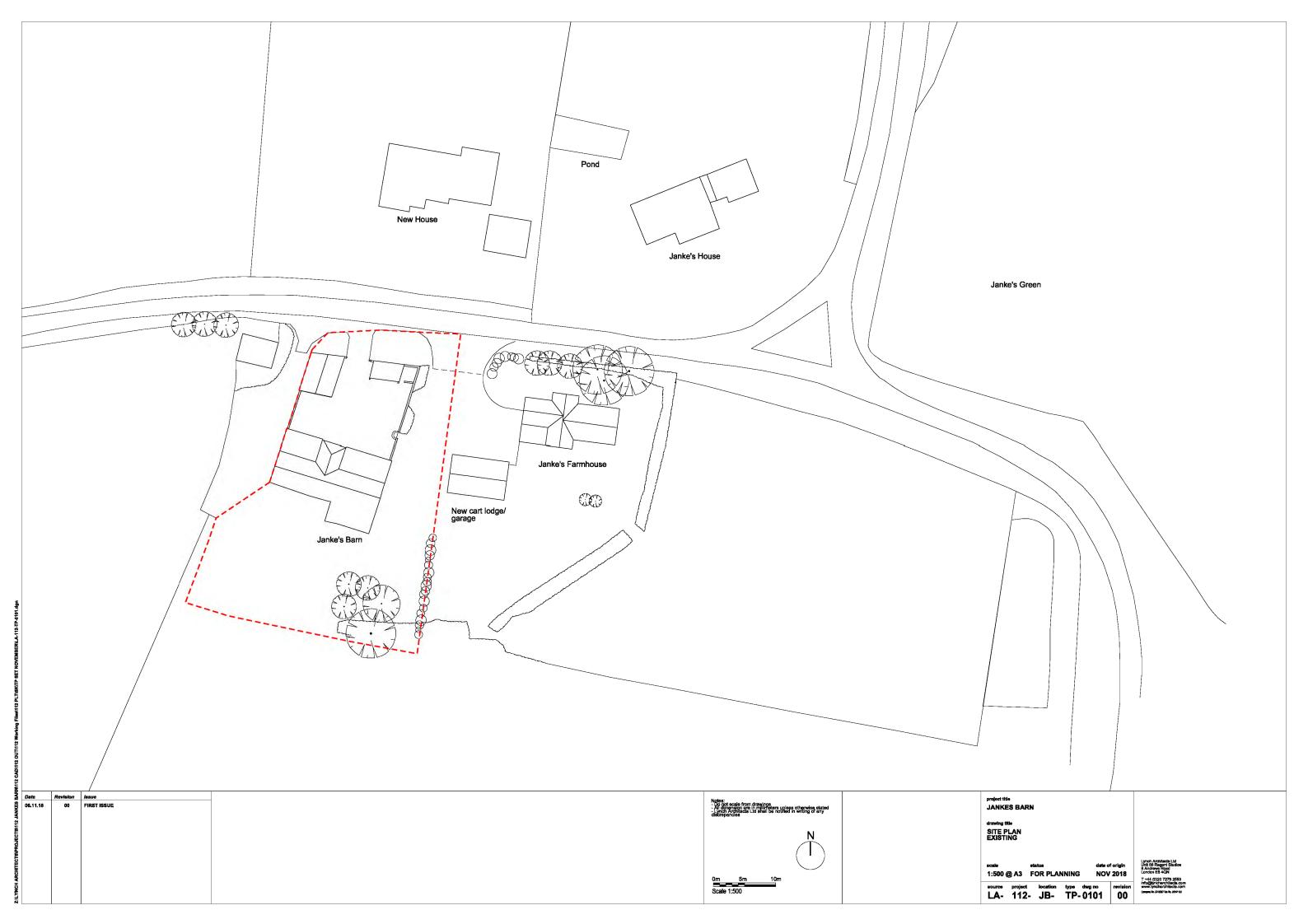
LYNCH ARCHITECTS +

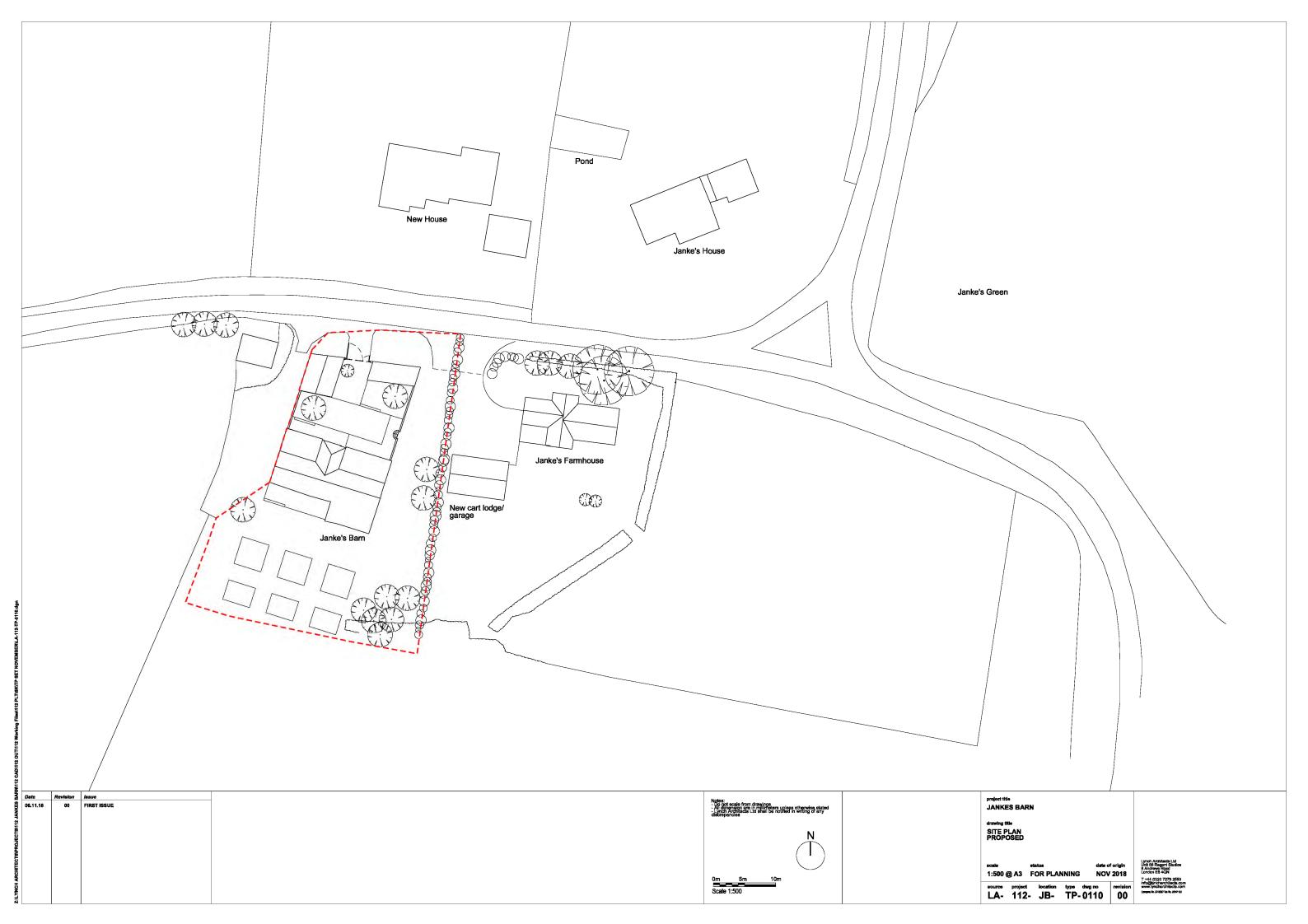


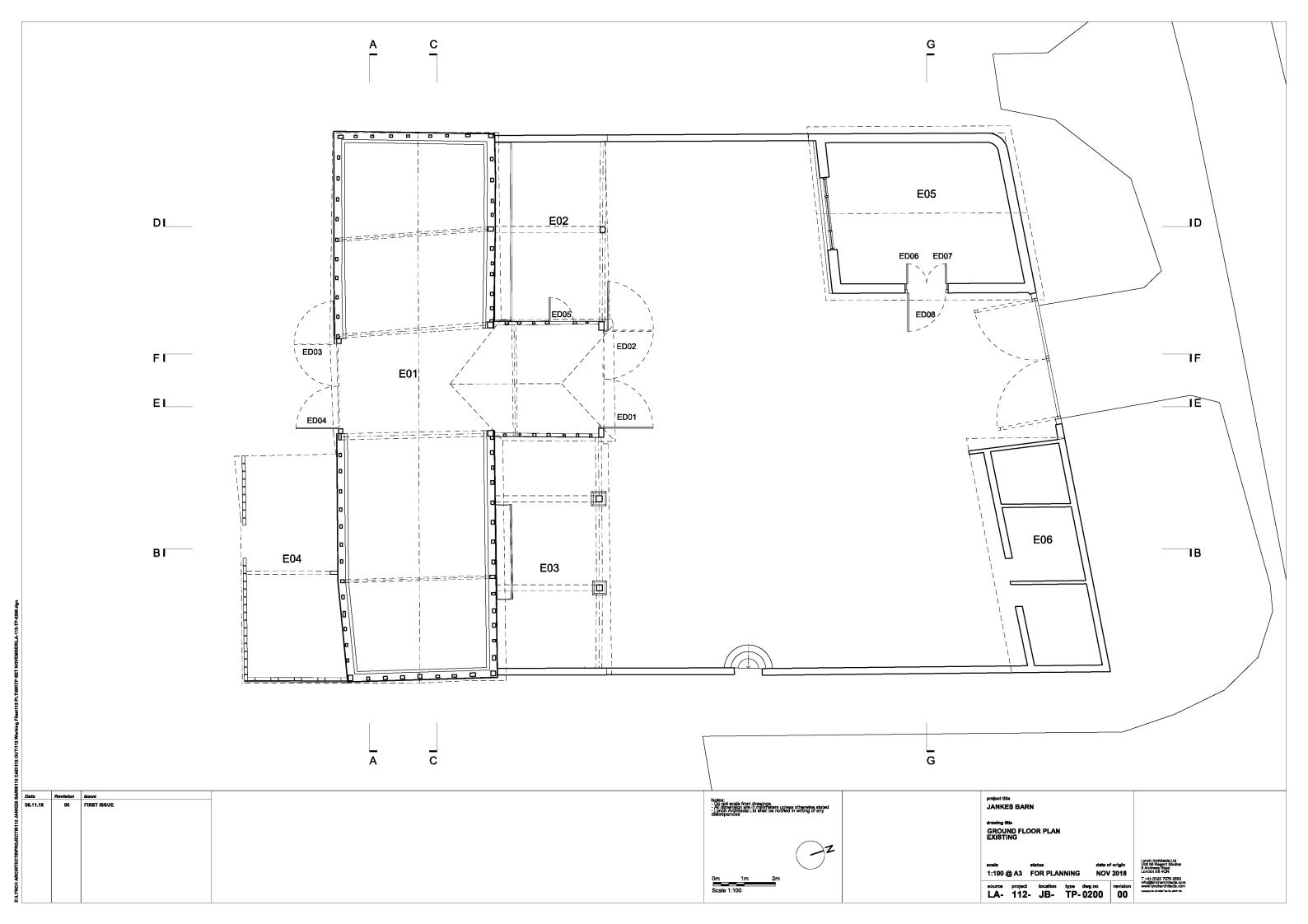
LYNCH ARCHITECTS +

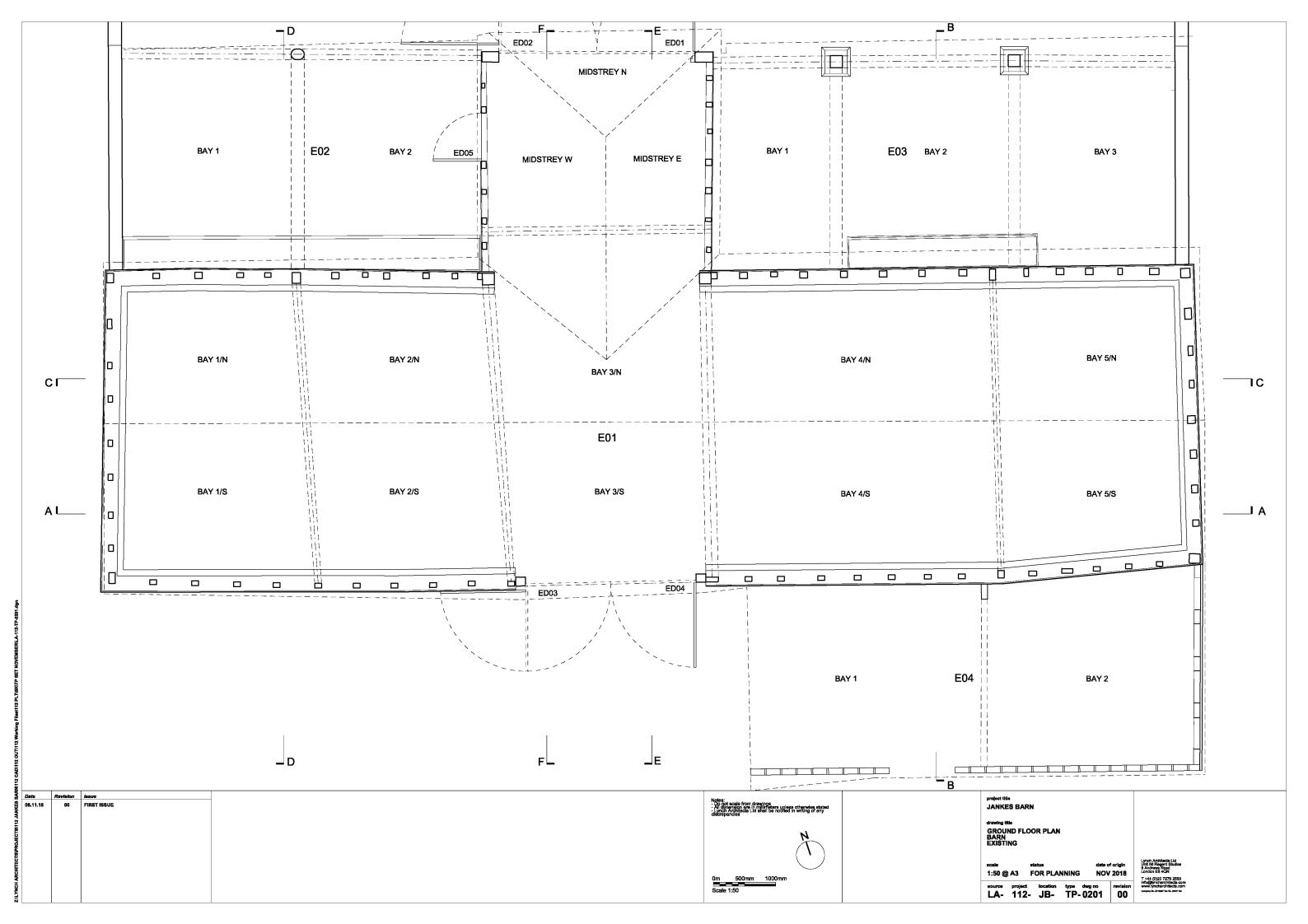
## **Appendices**

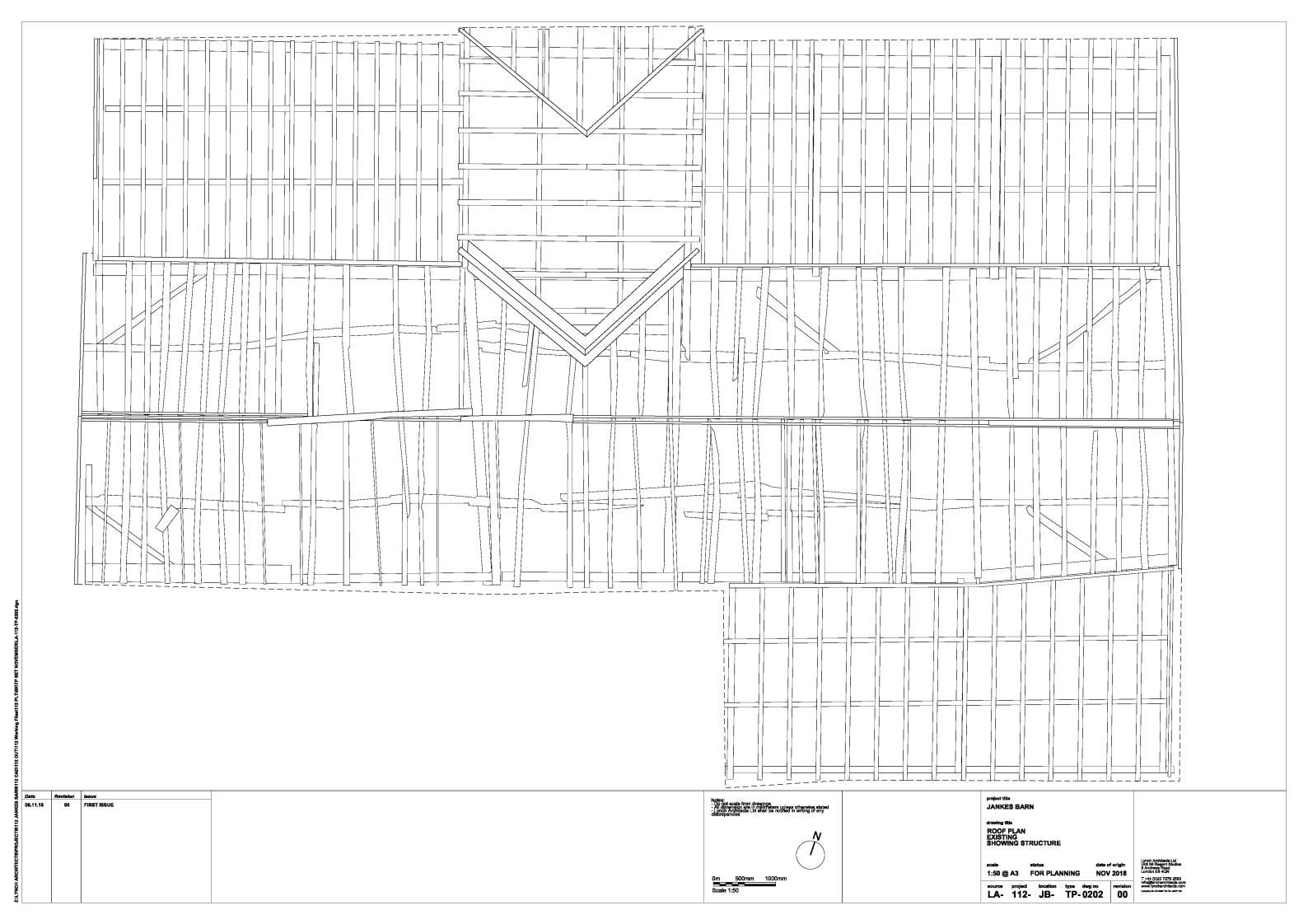
Lynch Architects Drawings

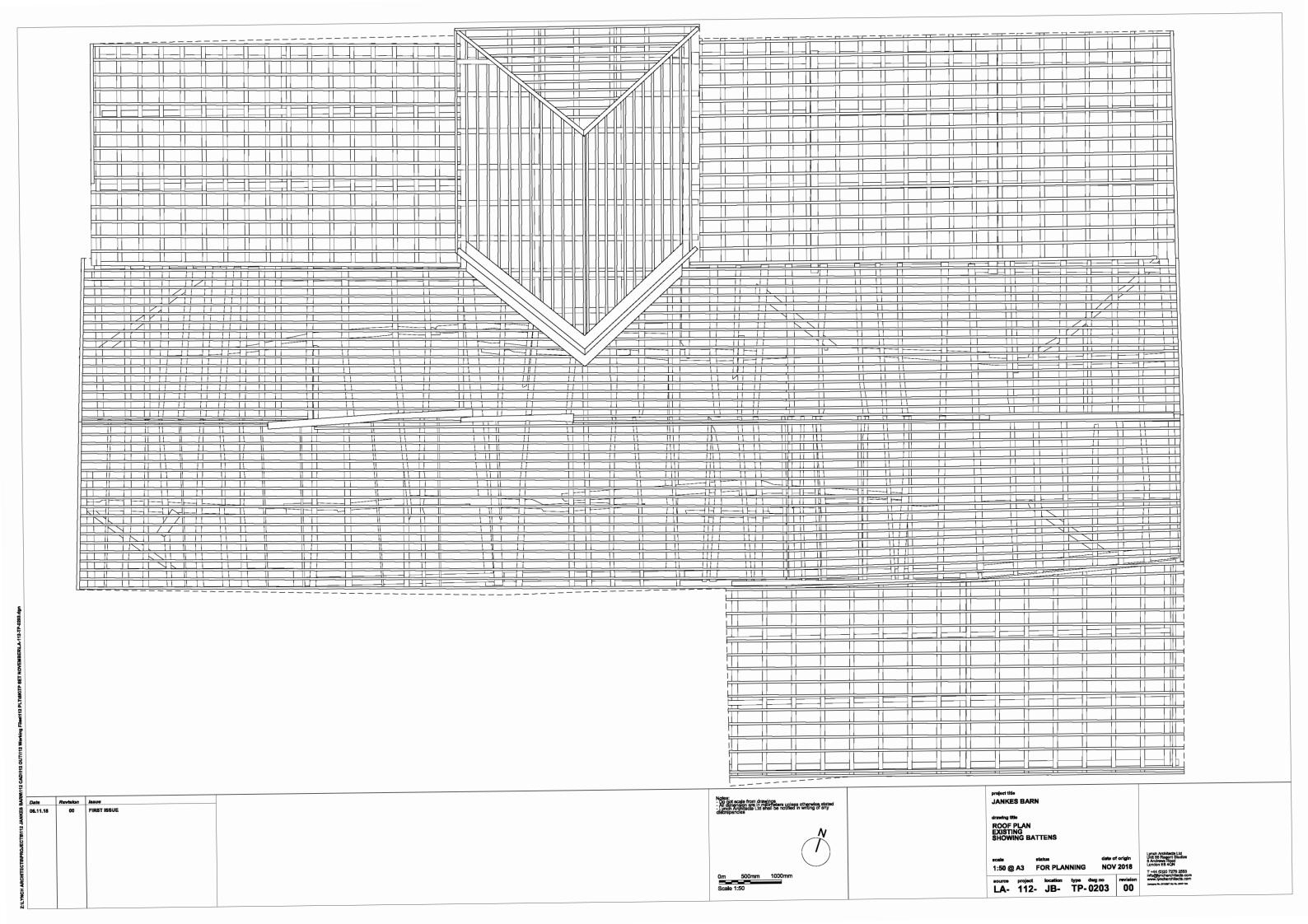


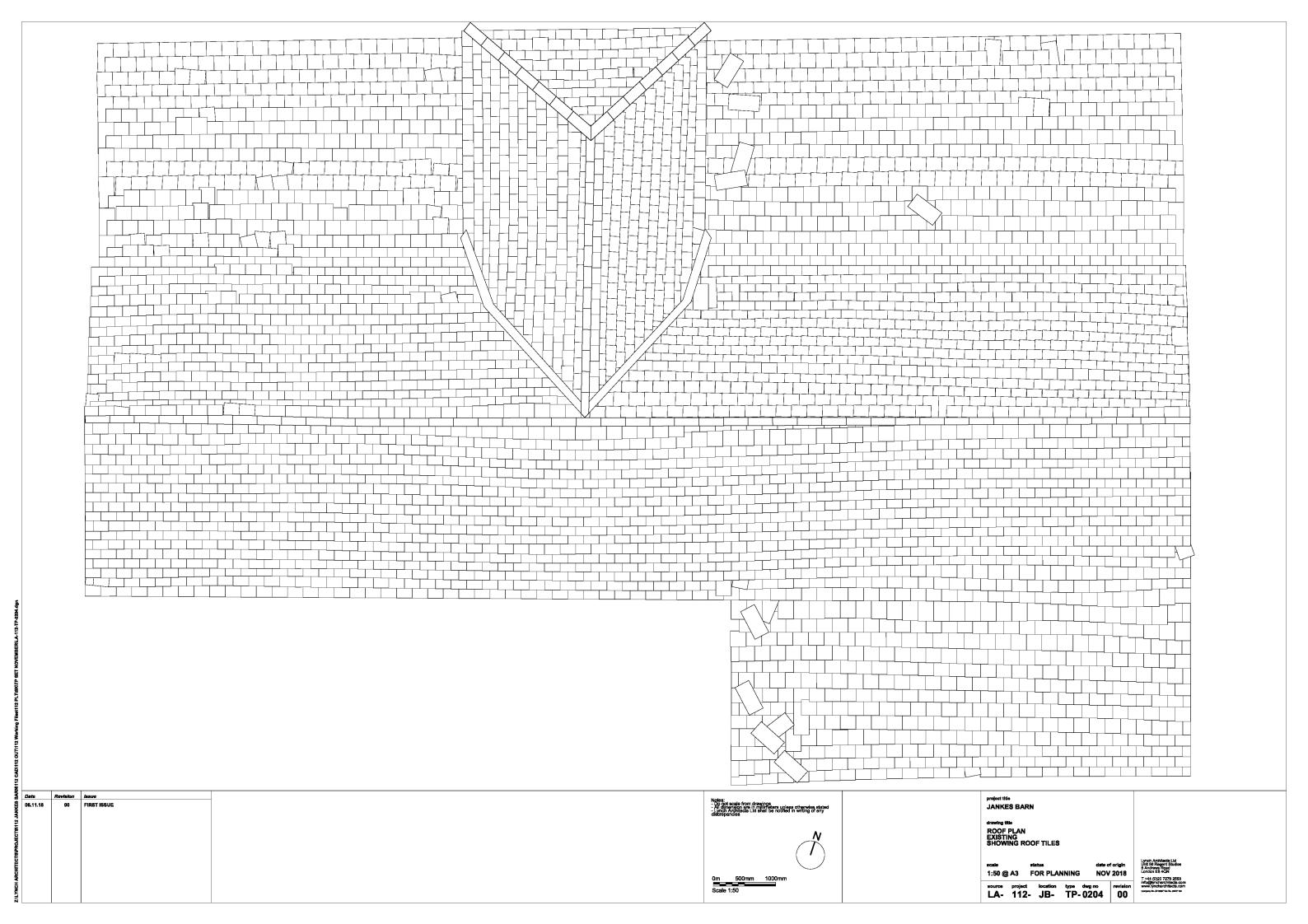


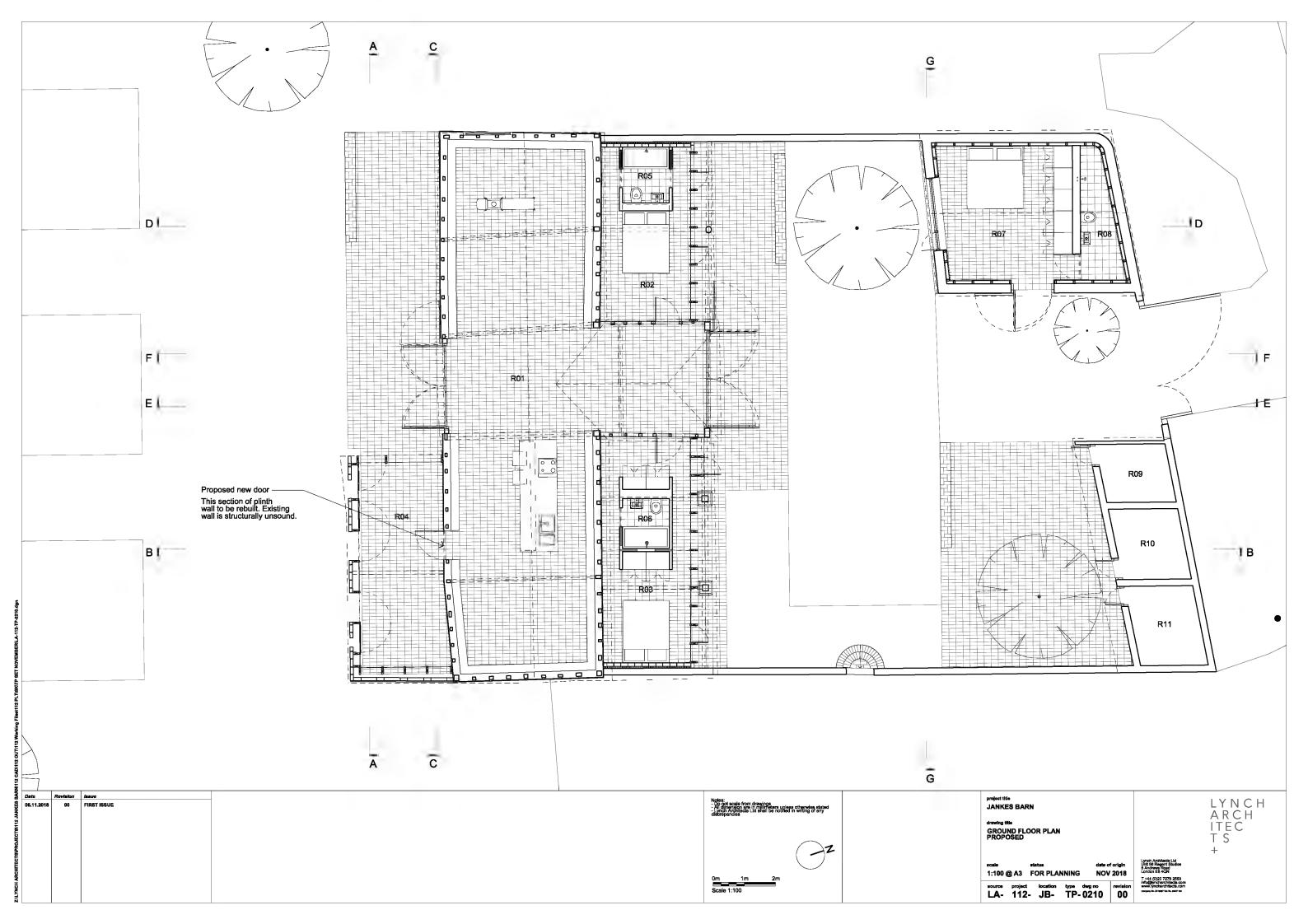


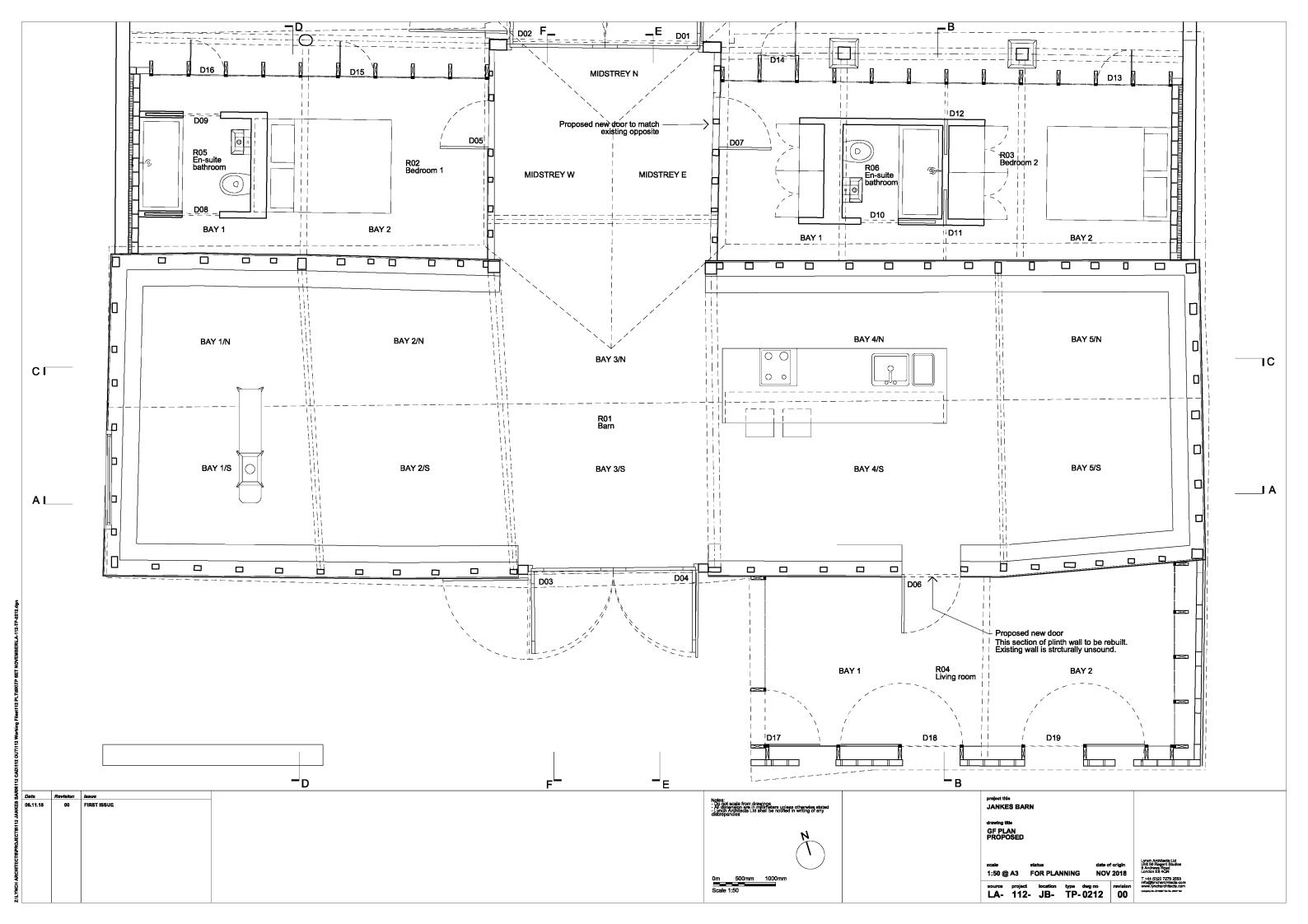


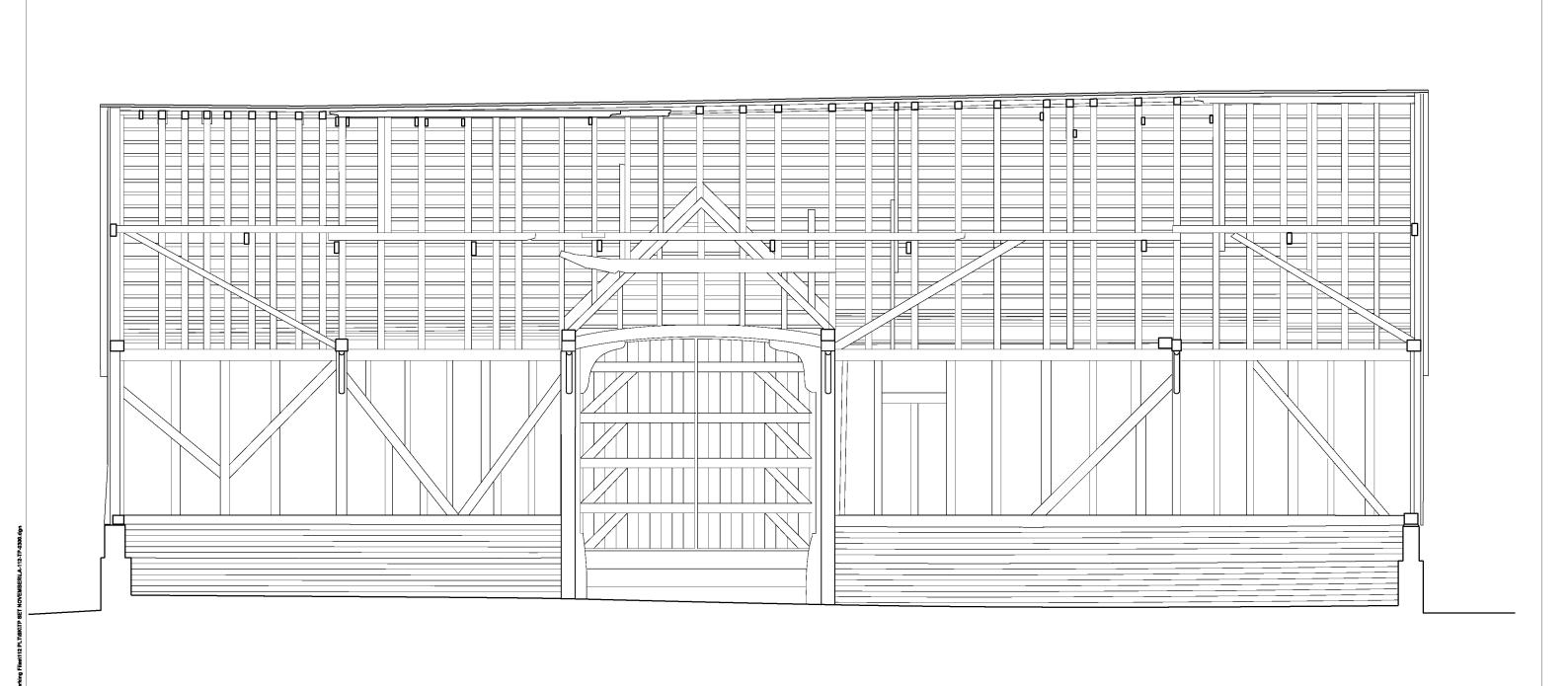


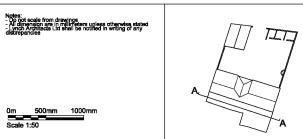








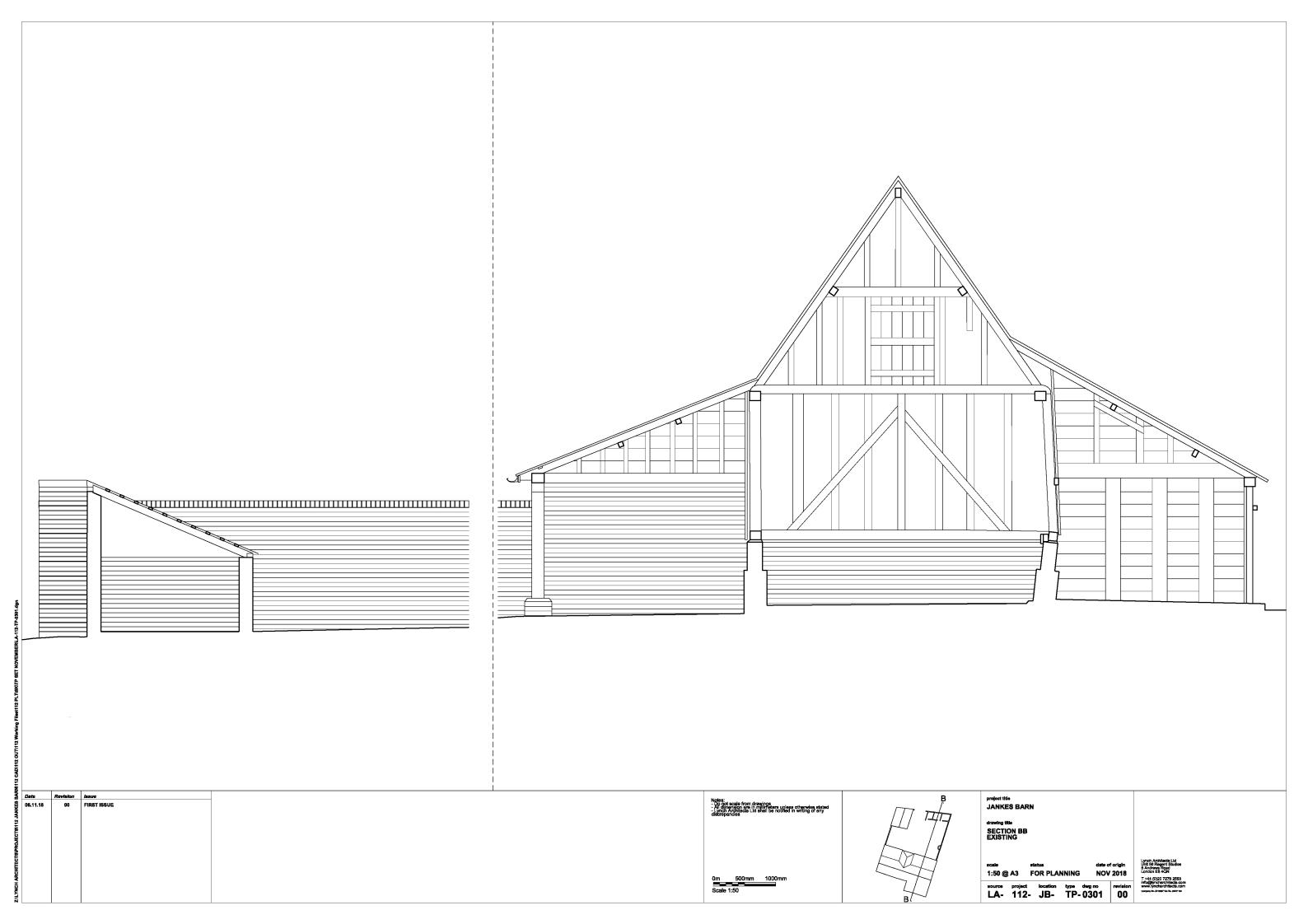


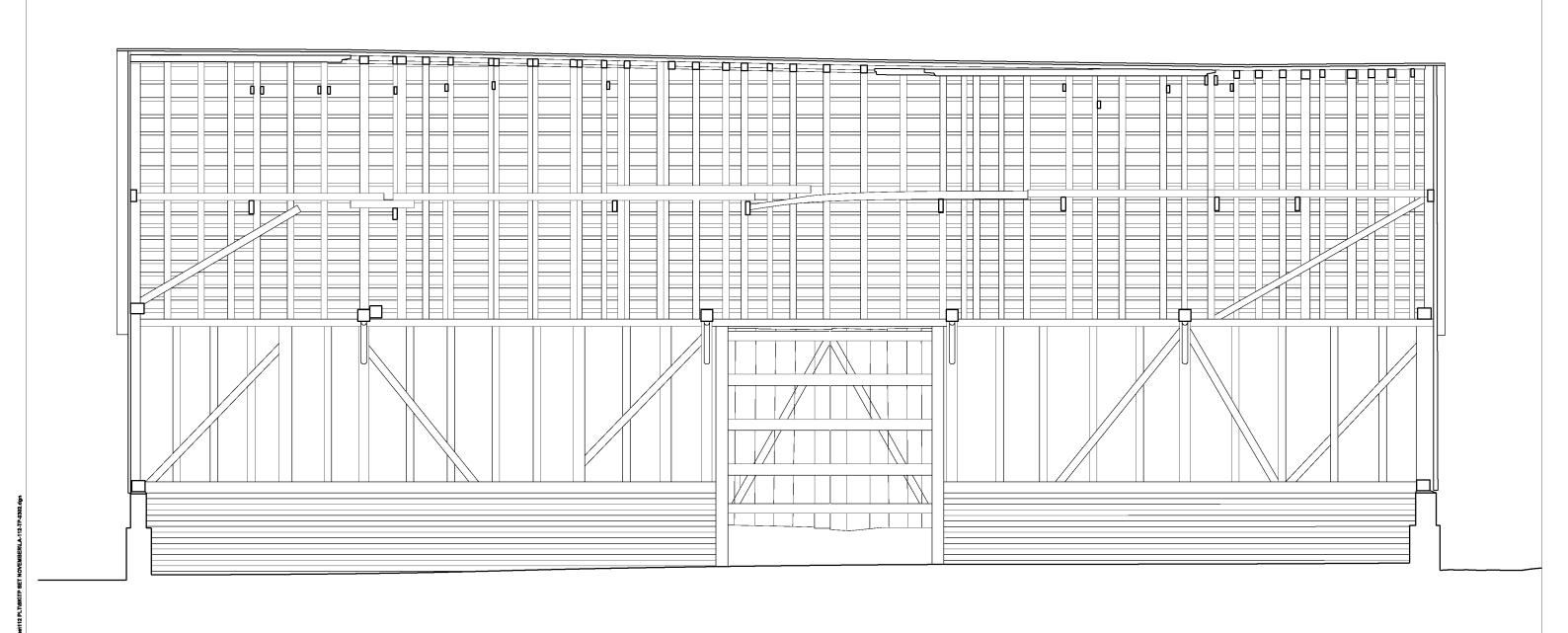


project title
JANKES BARN
drawing title
SECTION AA
EXISTING

| State | Stat

Lynch Architects Ltd
Unit 86 Regent Studies
8 Andrews Road
London E8 4QN
T +44 (0)20 7278 2553
info@lyncherchitects.com
www.hyncharchitects.com
company No. 641690 Vm No. 4004112

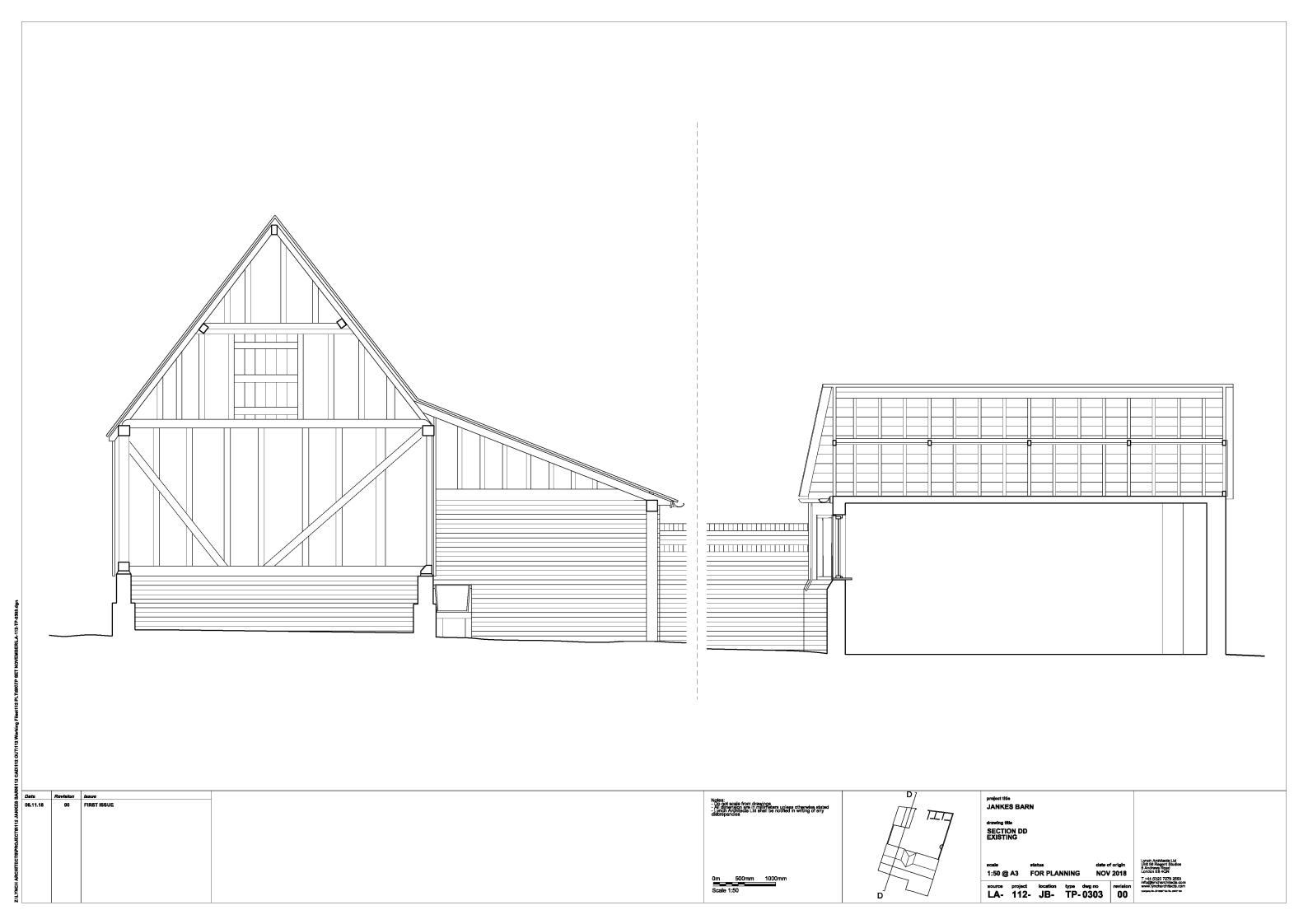




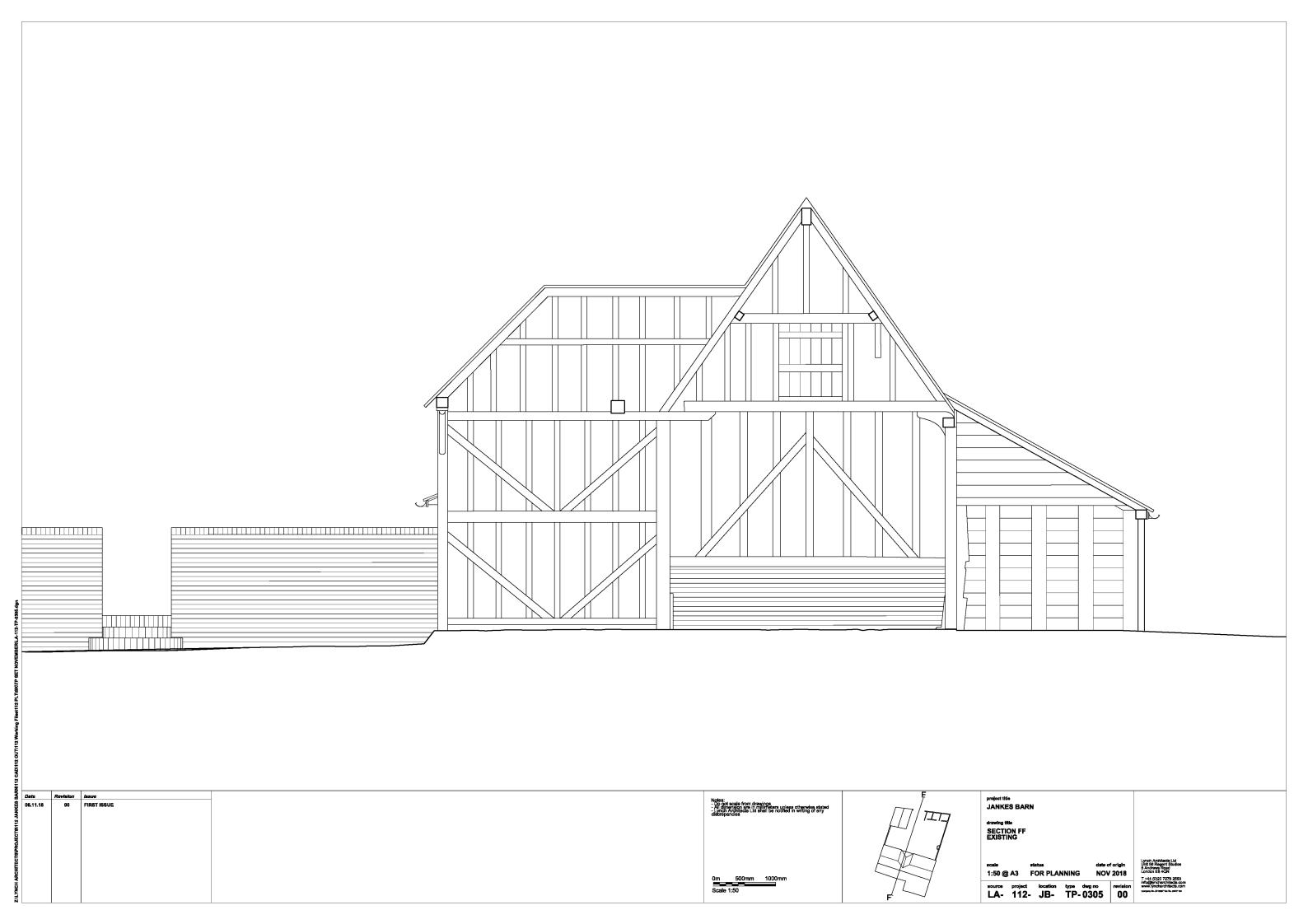
Date Revision 1 Assure

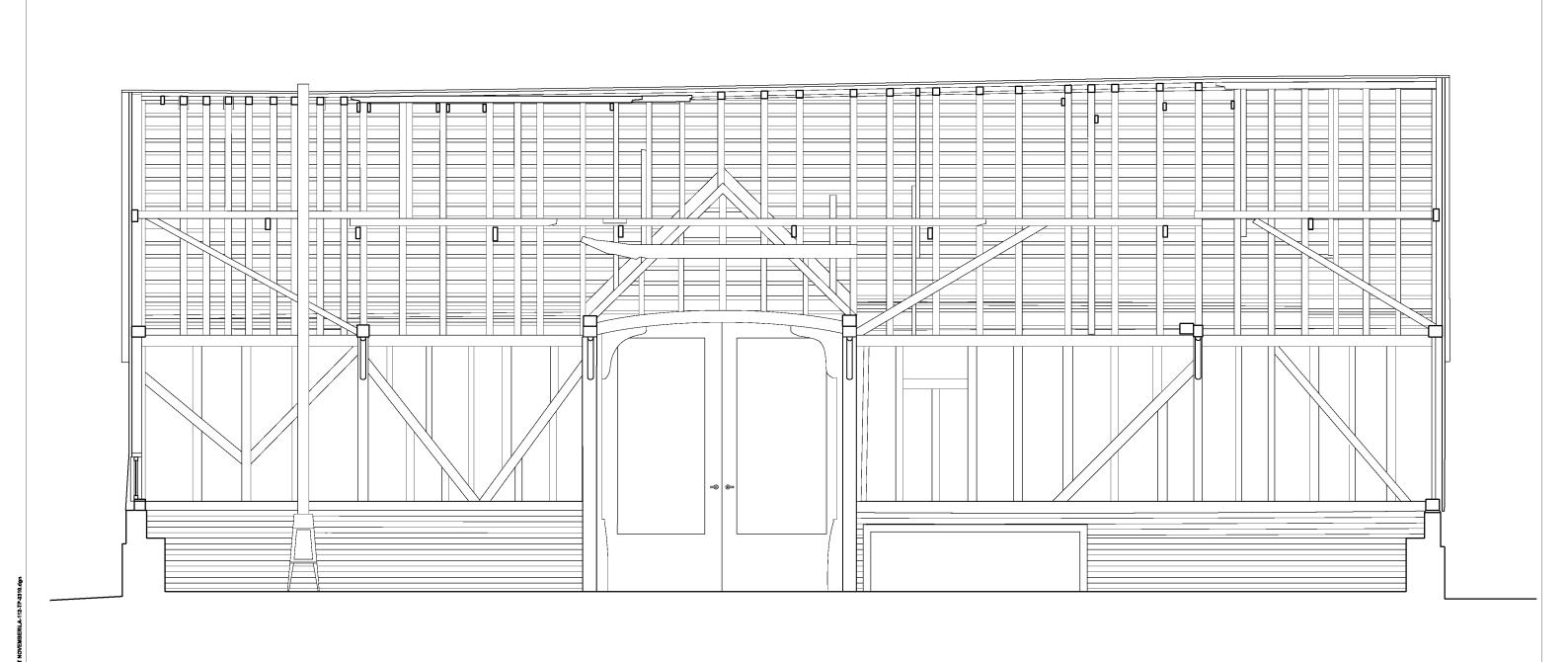
06.11.18 00 FIRST ISSUE

| Notice and scale from drawing date and scale from drawing dated of control of the writing of any of the scale from drawing dated of the writing of any of the scale from drawing dated of the writing of any of the scale from drawing dated of the writing of any of the scale s

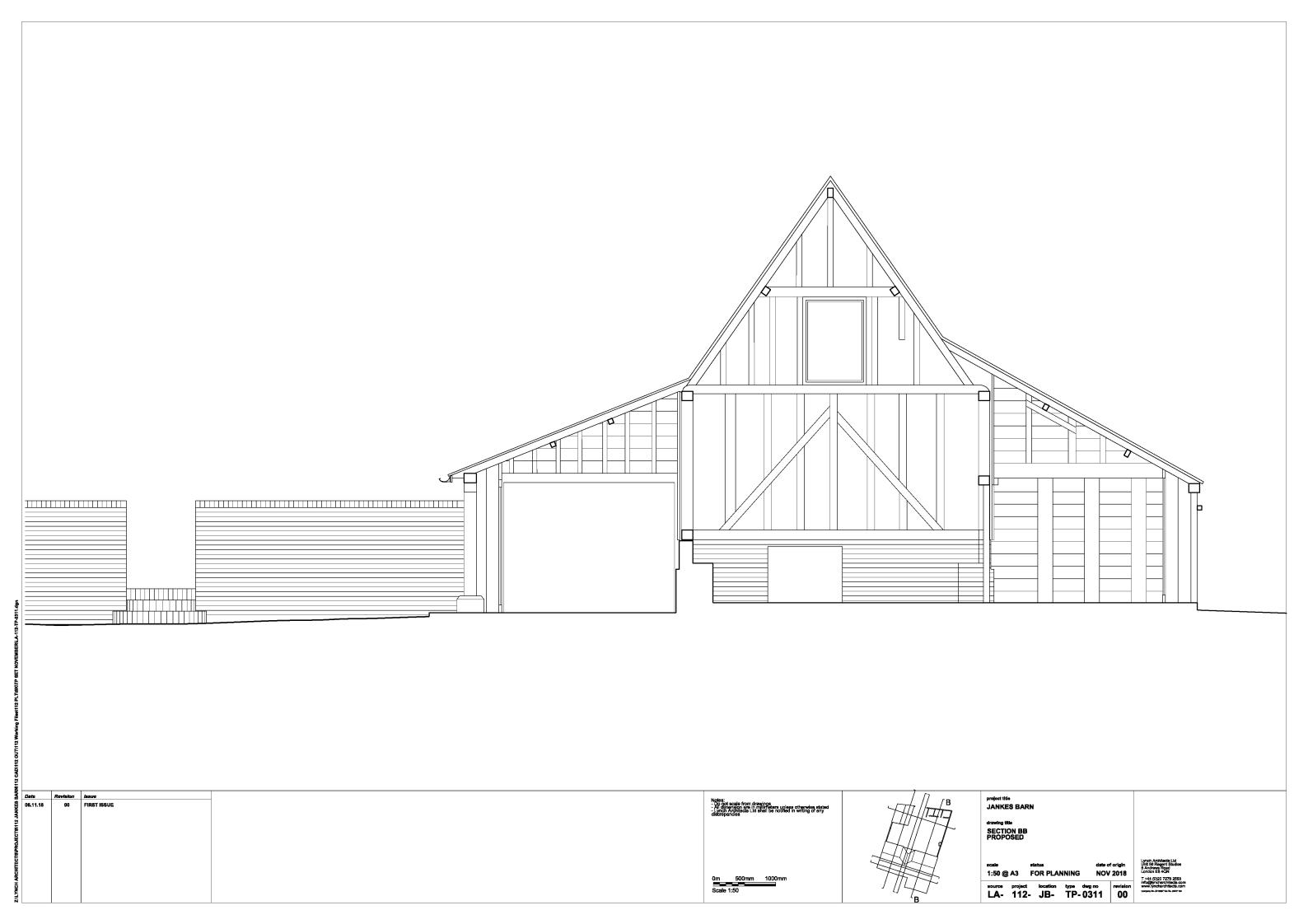


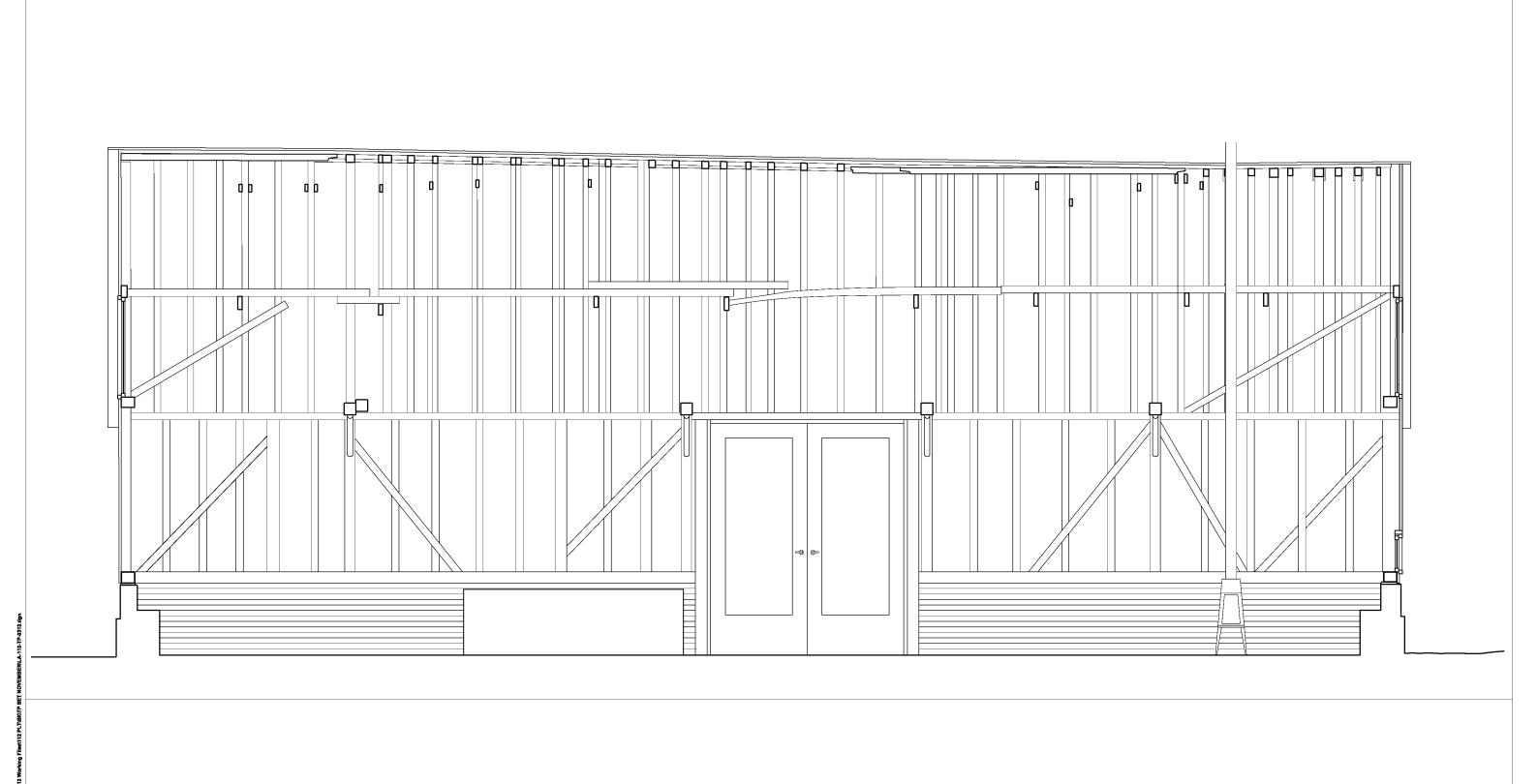




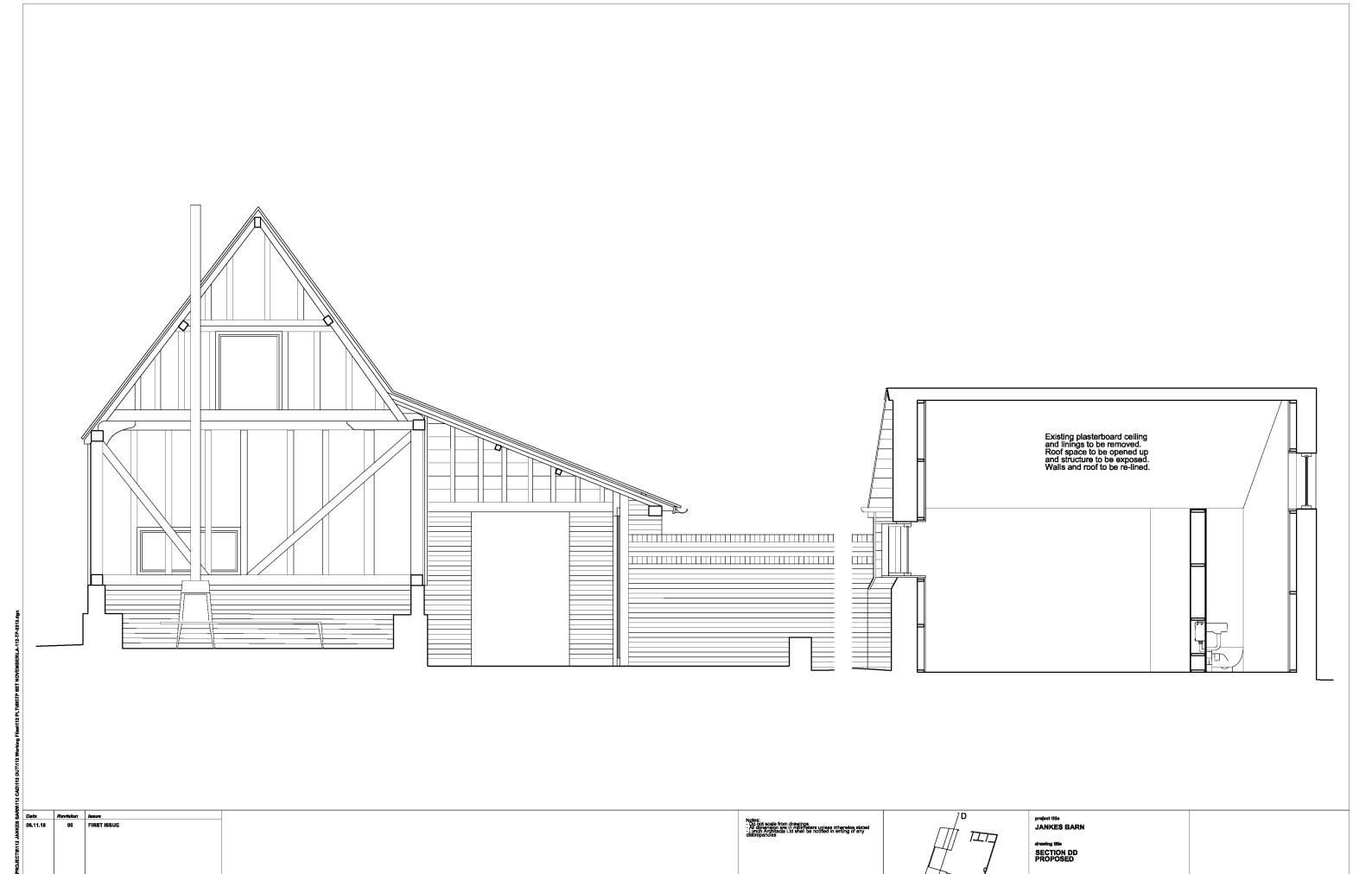


Revision	issue	Notes: project title	
18 00	FIRST ISSUE	* Do not scale from drawings	
		- Cycle Applied In the blad Extraordinate in writing of any discourse in the control of any di	
		drawing title	
		SECTION AA PROPOSED	
		J PROPUSED	
		$\mathbf{A}$	Lynch Architects Ltd
		scale status date of origin	Lynch Architects Ltd Unit 66 Regent Studios 8 Andrews Road London E8 4QN
		0m 500mm 1000mm 1000mm 11:50 @ A3 FOR PLANNING NOV 2018	T +44 (0)20 7278 2558
		A source project location type dwg no revision	T +44 (0)20 7278 2558 info@lyncherchilects.com www.lyncherchitects.com corpus No. 611887 Ver No. 62841 (sz.
		Scale 1:50 LA- 112- JB- TP-0310 00	Company No. 6411007 Van No. (0044110)

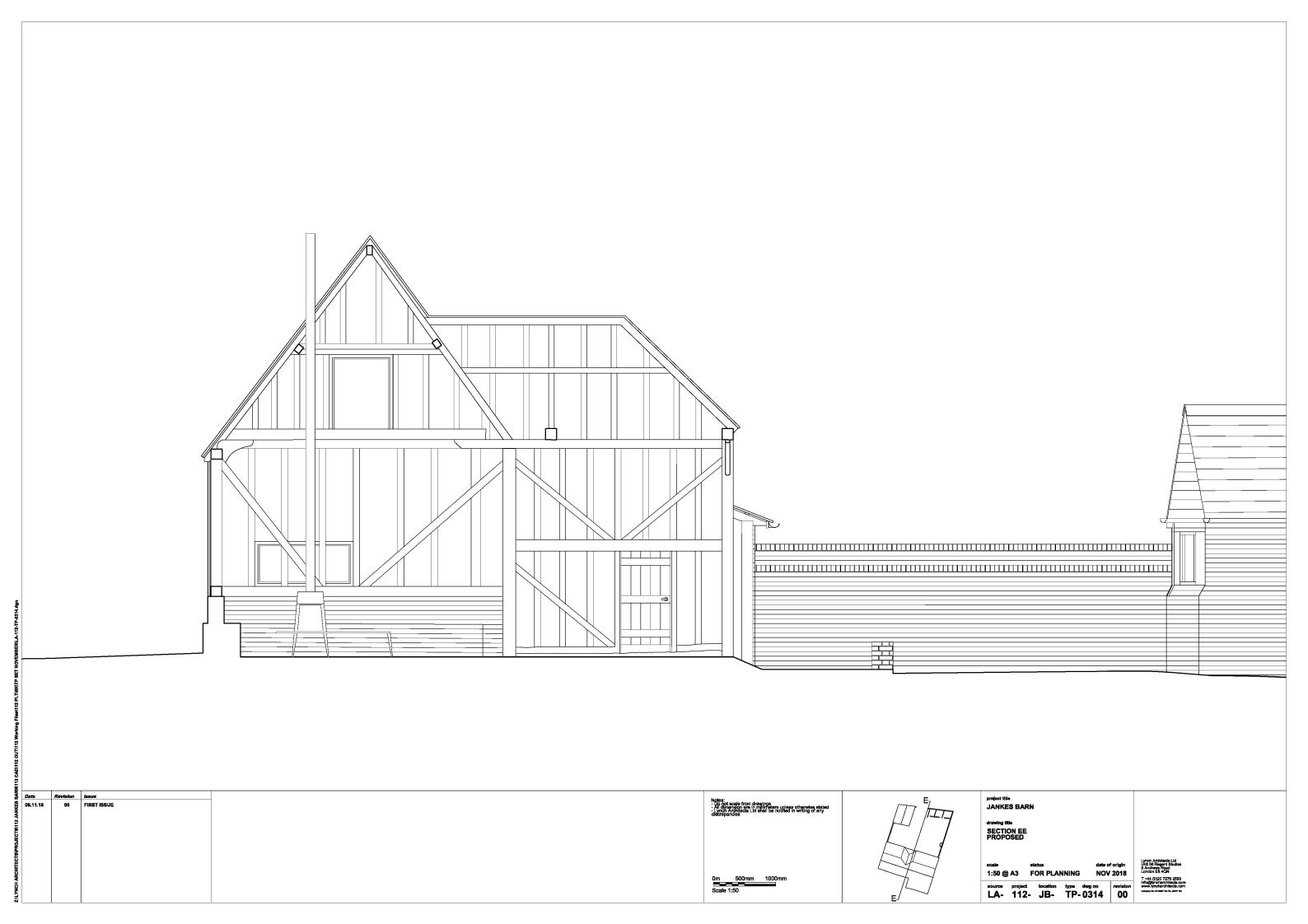


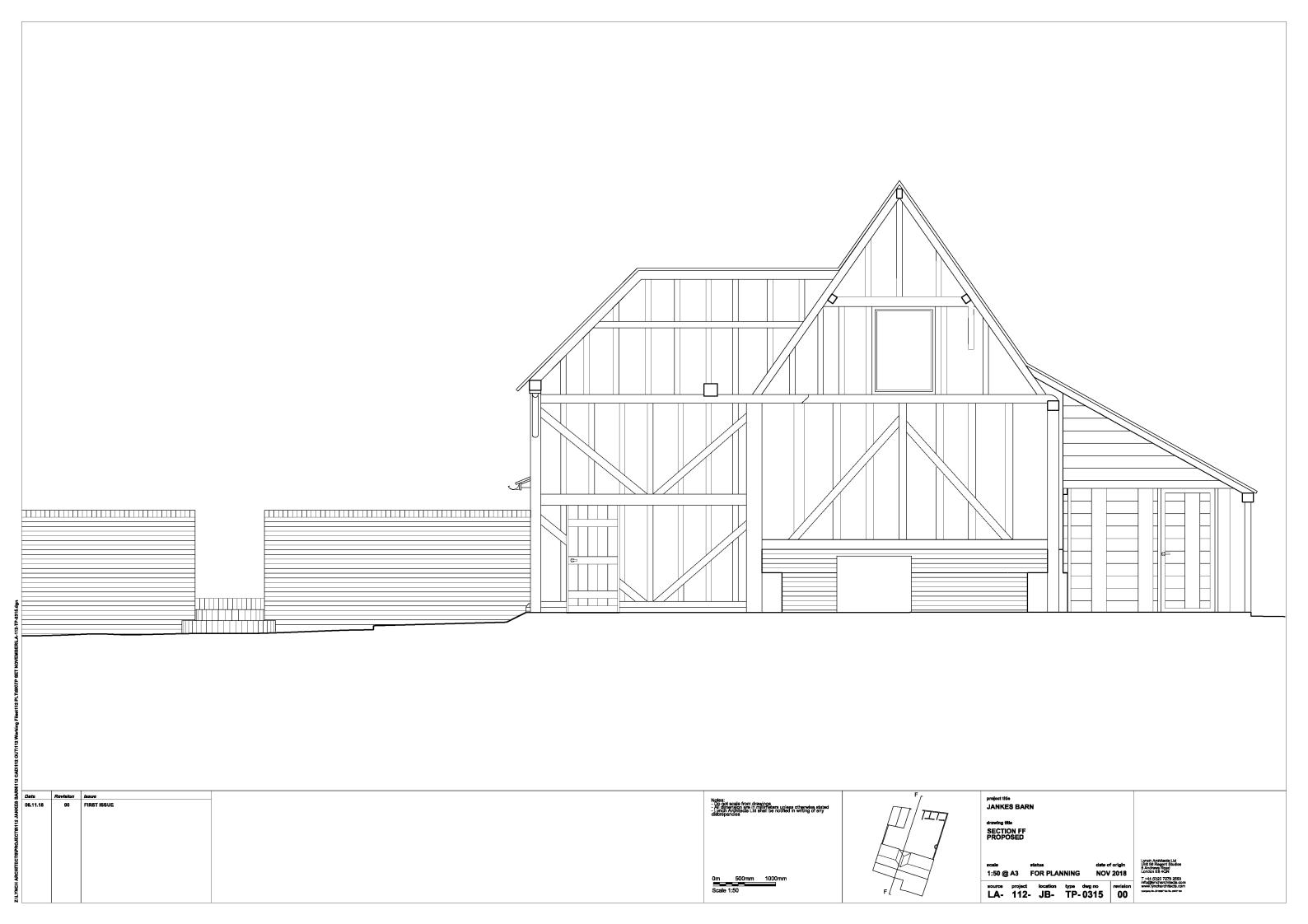


Date	Revision	issue
06.11.18	00	FIRST ISSUE
5		
Ĕ		
ARC		
₹ Z		
3		



| State | Stat



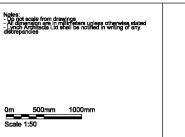


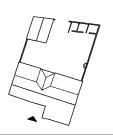


Date			Notes: project title	
ij 06.1 ¥	1.18 00	FIRST ISSUE	Notes:  Notes: Ogot scale from drawijings - Vinch Arching at United and United in writing of any of the property of the Common o	
MPROJECT8112 JA			discrepancies  drawing title NORTH ELEVATION EXISTING	
ARCHITECTS			Om 500mm 1000mm / /	Lynch Architecte Lid Unit to 8 Regent Studios 9 Androws Reged London E8 40.3h 7-44_0020 7278 2553
Z:\LYNCH			source project location type dwg no revision	T -14 (1)20 7278-2555 infrid@printerprinteds.com www.lyncharctritects.com www.lyncharctritects.com covere to drate to be set on



Revision	issue
00	FIRST ISSUE





project title
JANKES BARN

drawing title
SOUTH ELEVATION
EXISTING

scale status date of origin
1:50 @ A3 FOR PLANNING NOV 2018

source project location type dwg no LA- 112- JB- TP- 0401 00

Lynch Architects Ltd
Unit 86 Regent Studios
8 Andrews Road
London E6 4QN
T+44 (0)20 7278 2553
info@yncherchitects.com
www.lyncherchitects.com







scale status 1:50 @ A3 FOR PLANNING

LA- 112- JB- TP-0410 00



Notes:

- Do not scale from drawings

- All dimension are in millimeters upless otherwise stated

- ynch Architeda Ltd shall be notified in writing of any
discrepancies

project title JANKES BARN

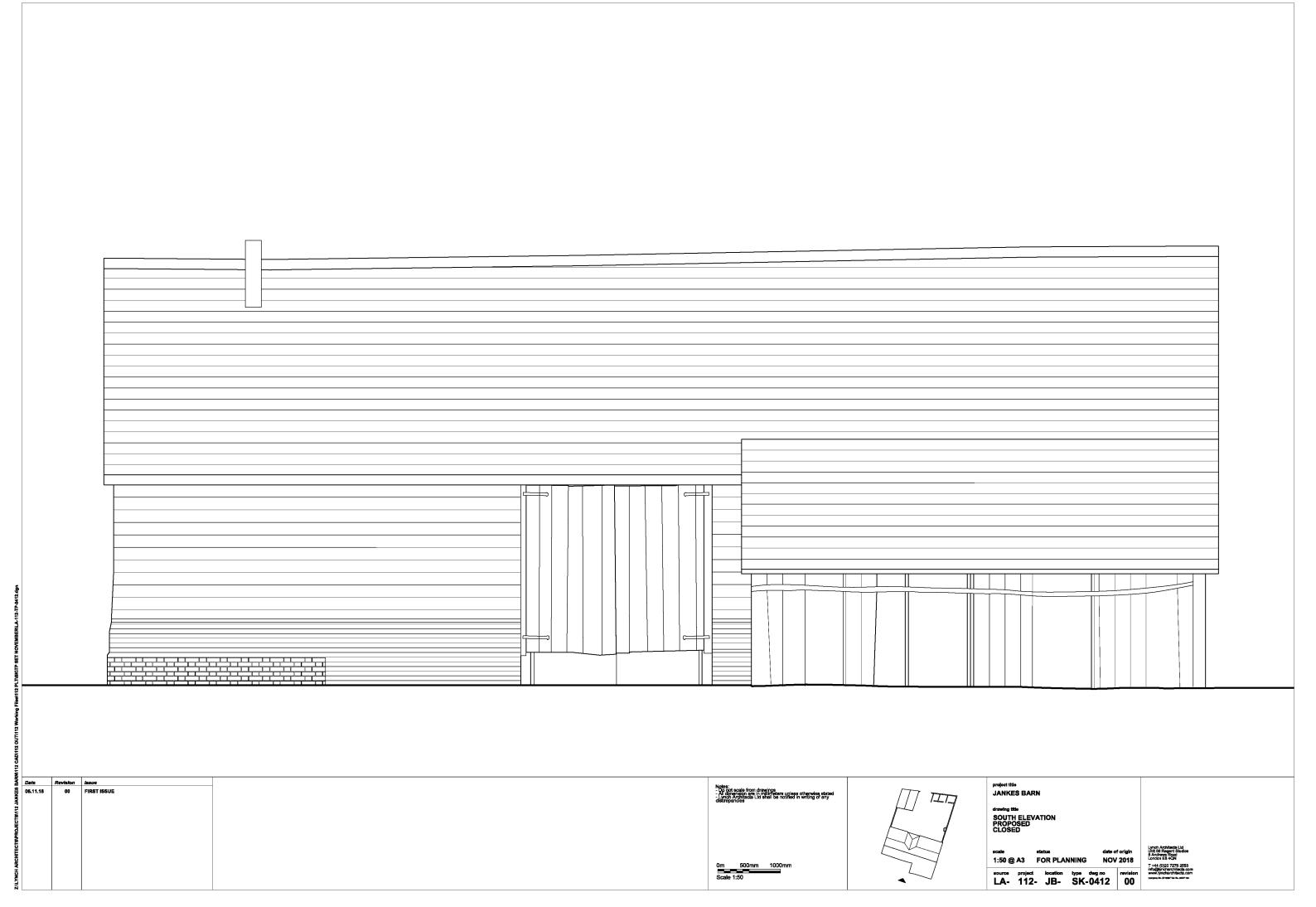
drawing title
NORTH ELEVATION
PROPOSED
OPEN

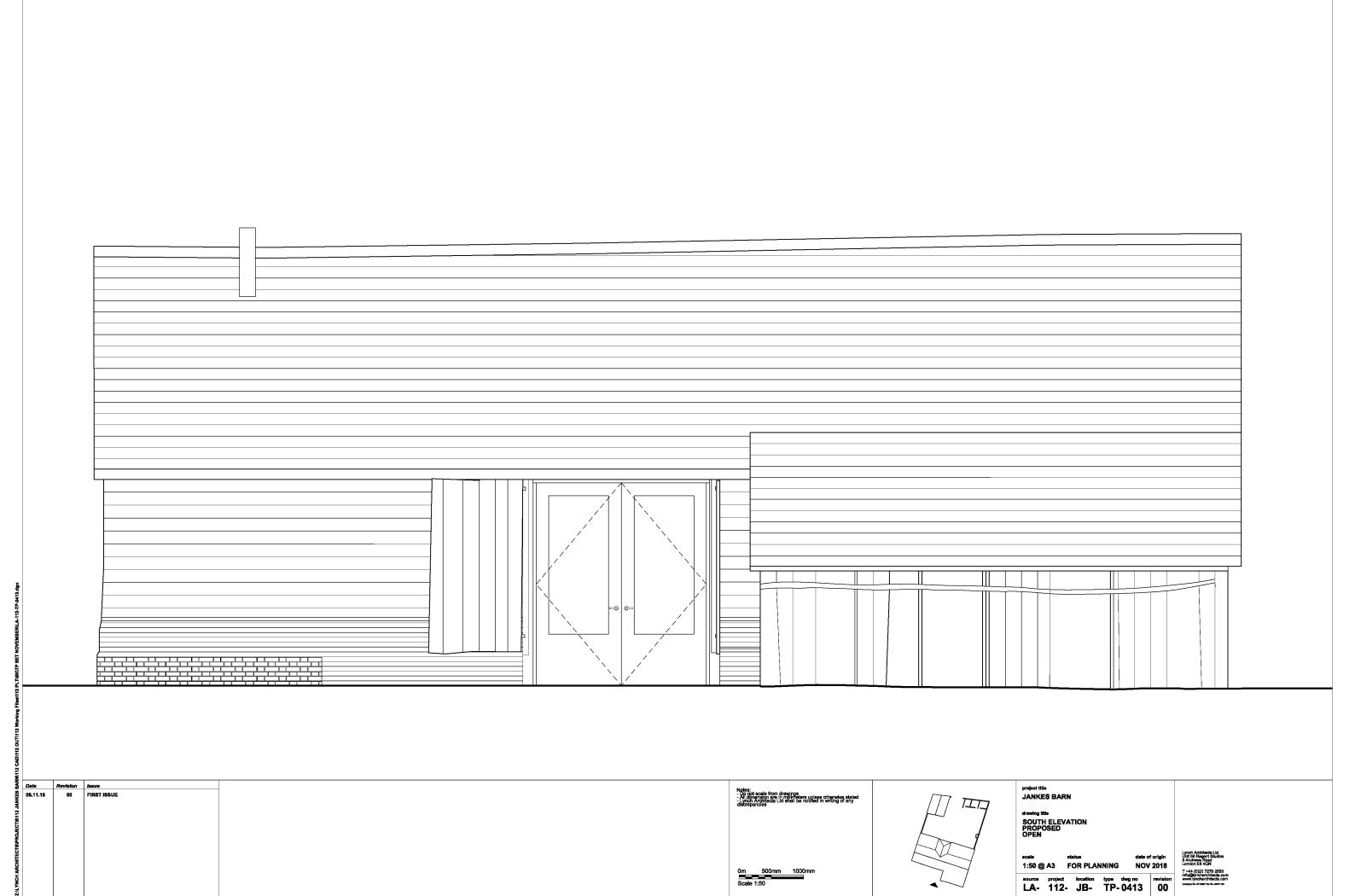
scale status 1:50 @ A3 FOR PLANNING

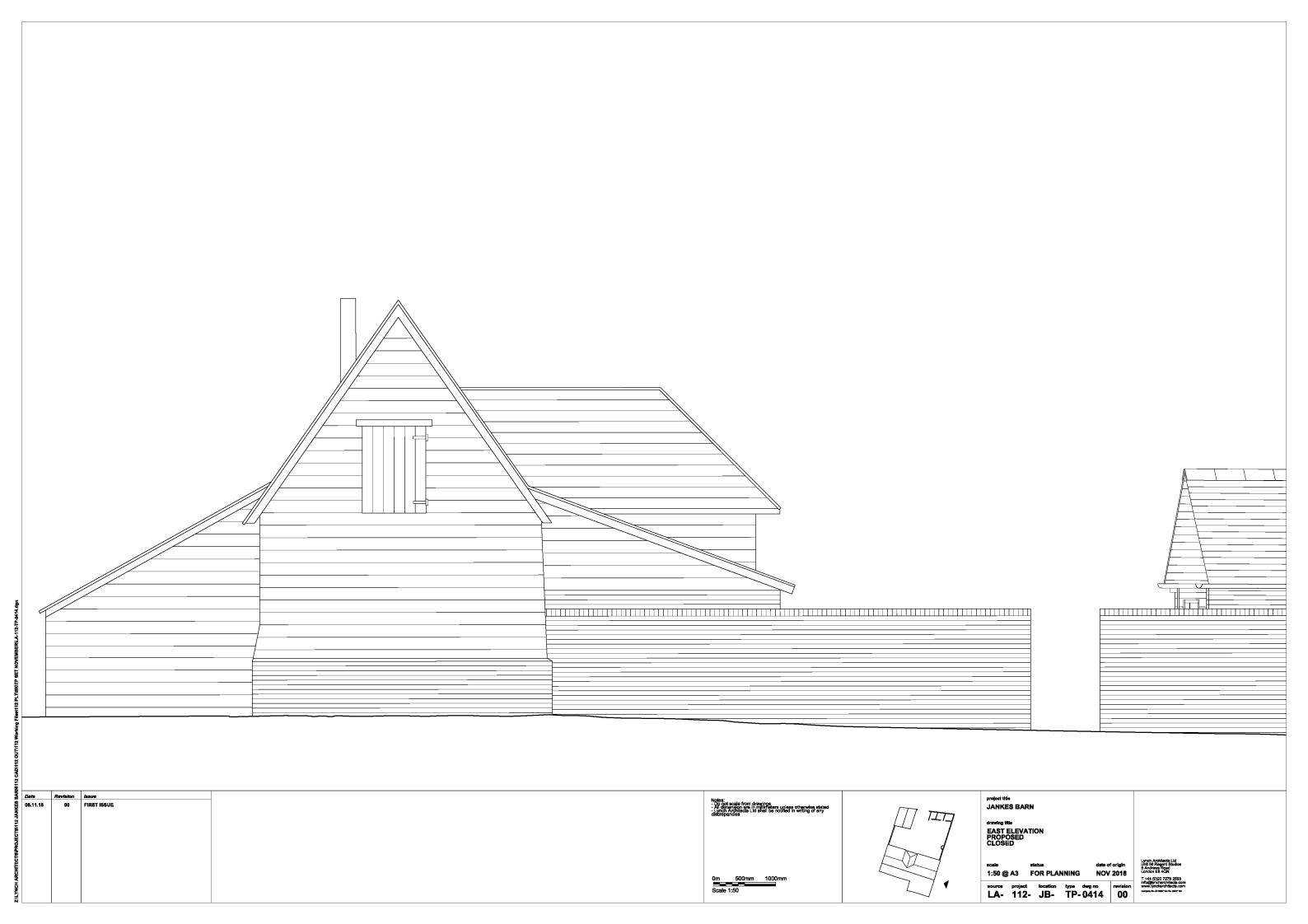
source project location type dwg no revision LA- 112- JB- TP-0411 00

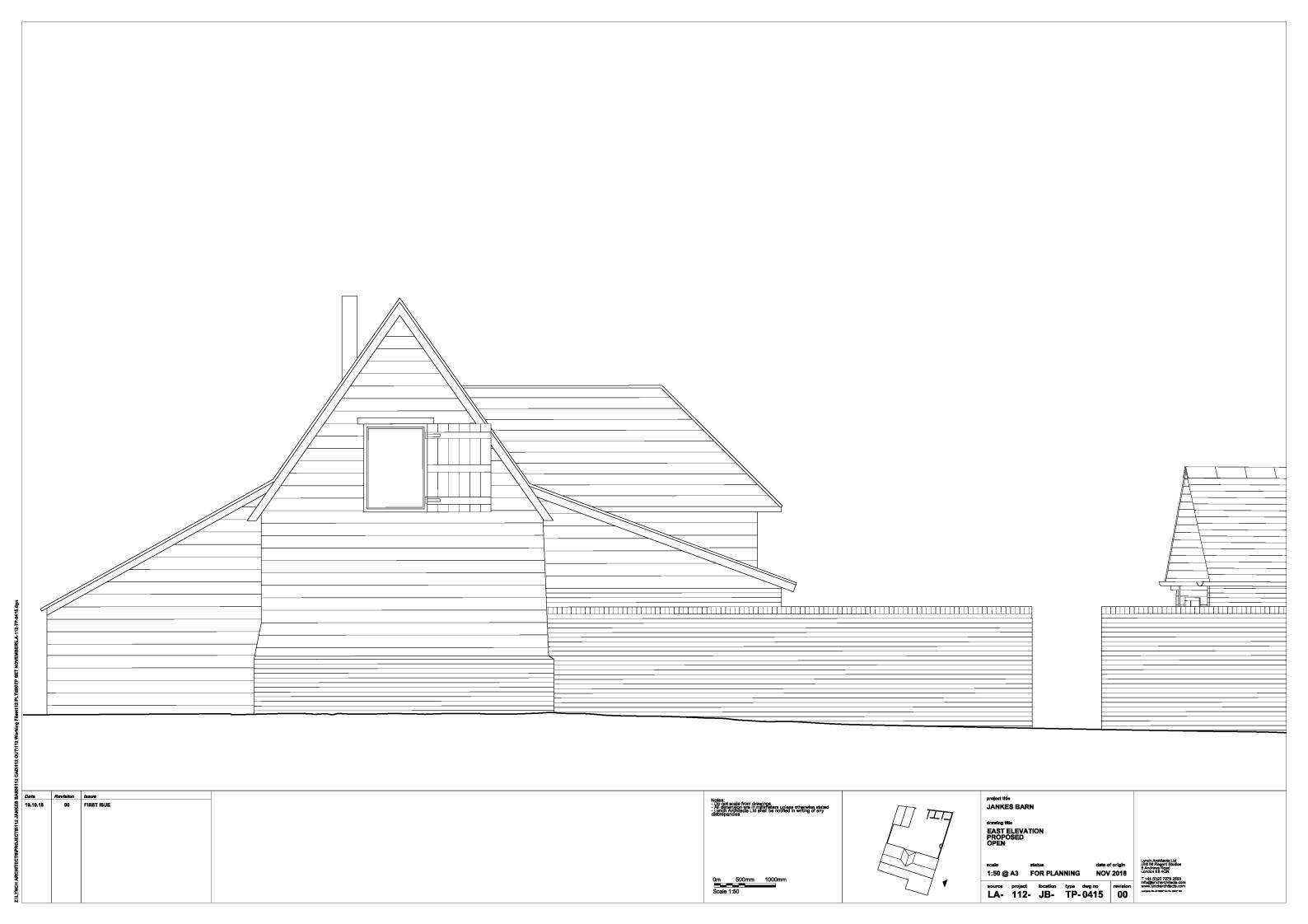
date of origin NOV 2018 LYNCH ARCH ITEC TS +

9 06.11.18



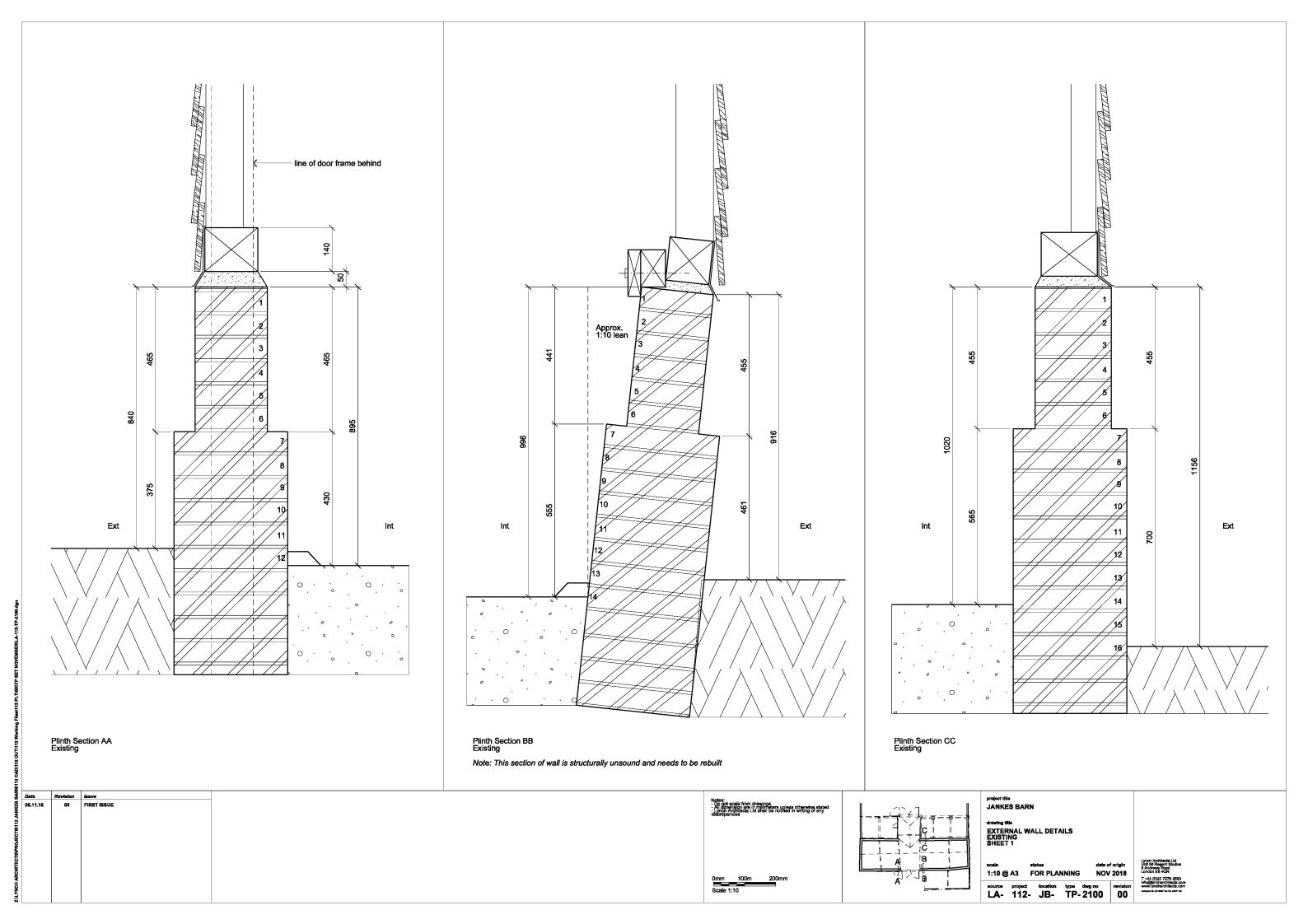


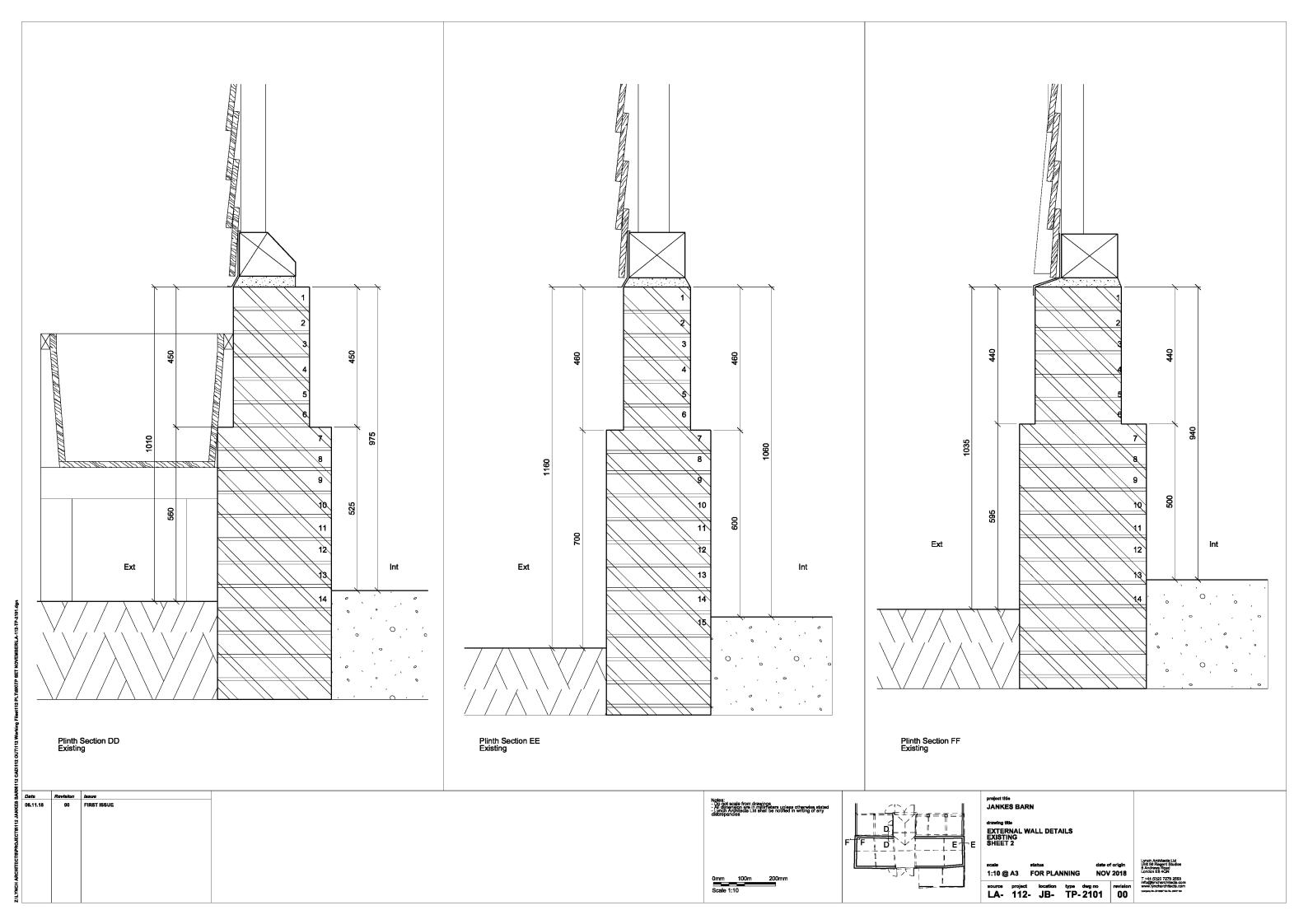


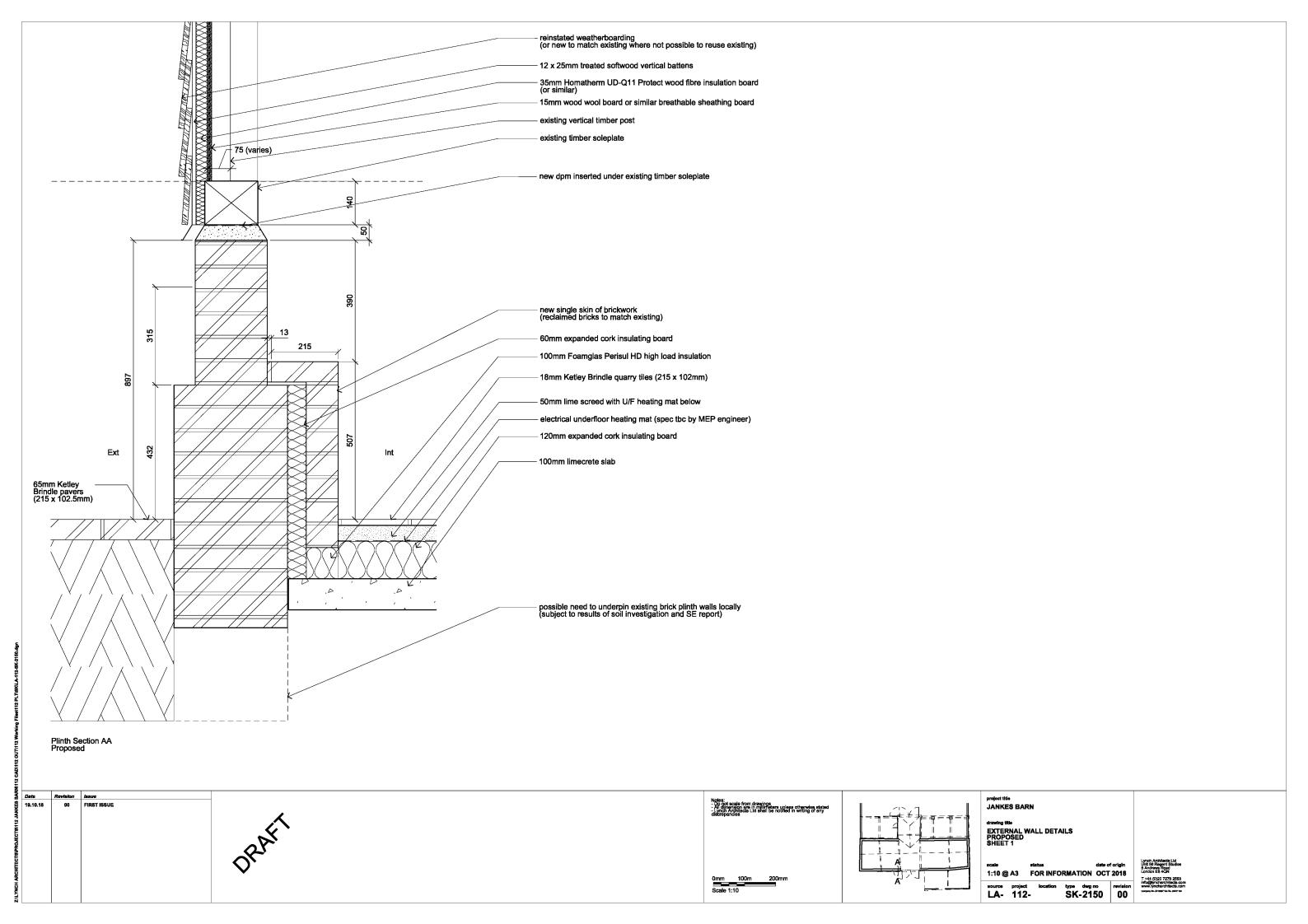












LYNCH ARCHITECTS +

## **Appendices**

Schedule of Planning & Listed Building Conditions

Page 1

Lynch Architects Ltd Unit 66, Regent Studios 8 Andrews Road, London E8 4QN T +44 (0)20 7278 2553 info@lyncharchitects.com www.lyncharchitects.com



REVISION	ISSUE PURPOSE
V00_06/11/18	First Issue, for inclusion in Conditions Submission Document to Colchester Borough Council Planning Department; NB. Supporting information relating to conditions highlighted in yellow is included in this submission

#### PLANNING CONSENT (Application No: 170069) Date: 13 January 2017

REF NO.	CONDITION	COMMENTS	ACTION
PC1	The development hereby permitted shall be begun before the expiration of three years from the date of this permission.  Reason: To comply with the requirements of Section 91 of the Town and Country Planning Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.	See LBC1	
PC2	The development hereby permitted shall be carried out in accordance with the details shown on the submitted Drawing Numbers 1502/loc 01, 1502/loc 02, 1502/09 Rev C, 1502/09 Rev C, 1502/10 Rev C, 1502/11 Rev B, 1502/12 Rev B and 1502/13 Rev A.  Reason: For the avoidance of doubt as to the scope of this permission and in the interests of proper planning.	See LBC2; See Lynch Architects drawings	
PC3	The external facing and roofing materials to be used shall be those specified on the submitted application form and drawings. Reason: To ensure that materials are of an acceptable quality appropriate to the area.	Noted	
PC4	The new facing brickwork shall match the existing brickwork adjacent in respect of material, colour, texture, face bond and pointing. Reason: In order to preserve the historic character of the listed building.	See LBC3; Noted	
PC5	The brick walls (inlcuding the plinth) to the building hereby approved, shall be constructed in Flemish Bond.  Reason: To ensure that the approved works are carried out without detriment to the character and appearance of the building where there is insufficient information within the submitted application.	See LBC4; Noted	
PC6	All existing doors are to be retained, except where indicated on the drawings hereby approved. Any new doors shall be of timber construction with recessed panels and be of a specified size and design as agreed, in writing, by the Local Planning Authority prior to commencement of work. Any fireproofing to doors should be an integral part of the door construction, and self closing mechanisms, if required, shall be of the concealed mortice type.  Reason: In the interests of preserving the character and appearance of the listed building and its setting.	See LBC5; See Lynch Architects drawings	
PC7	Prior to the commencement of any works, a programme of building recording and analysis shall have been undertaken and a detailed record of the building shall have been made by a person or body approved by the Local Planning Authority and in accordance with a written scheme which first shall have been submitted to and approved, in writing, by the Local Planning Authority.  Reason: To secure provision for recording and analysis of matters of historical importance associated with the site, which may be lost in the course of works	See separate 'Building Record' document including: Topographic survey commissioned by Mr and Mrs Harris as the basis for the Plater Claiborne scheme; Hand drawn survey by Mark Perkins Architect; Lynch Architects Photographic Survey; Lynch Architects Measured Drawing Survey	

### 112\_Planning and Listed Building Conditions Schedule.xls

REF NO.	CONDITION	COMMENTS	ACTION
PC8	Prior to the occupation of the proposed development, the applicant shall submit a scheme of off road parking and turning for motor cars for the application dwelling and the host dwelling 'Jankes Farmhouse' in accord with current Parking Standards which shall be approved in writing by the Local Planning Authority. The car parking area and turning area shall then be provide and thereafter retained in this form in perpetuity and shall not be used for any purpose other than the parking of vehicles related to the use of the development.  Reason: To ensure that on-street parking of vehicles in the adjoining streets does not occur and to enable cars to join the highway in a forward gear in the interests of highway safety.	See Momentum Swept Path Analysis diagram	
PC9	The works in relation to the development hereby approved shall be carried out in accordance with the recommendations and mitigation measures as outlined in the report by Essex Ecology Services Ltd and dated 12th July 2016.  Reason: In the interests of preserving the nature conservation value of the site.	See EECOS supporting material	
PC10	No works shall take place until full details of all landscape works have been submitted to and agreed, in writing, by the Local Planning Authority and the works shall be carried out prior to the occupation of any part of the development unless an alternative implementation programme is subsequently agreed, in writing, by the Local Planning Authority. The submitted landscape details shall include: • MEANS OF ENCLOSURE; • CAR PARKING LAYOUTS; • OTHER VEHICLE AND PEDESTRIAN ACCESS AND CIRCULATION AREAS; • HARD SURFACING MATERIALS; • PLANTING PLANS; • WRITTEN SPECIFICATIONS (INCLUDING CULTIVATION AND OTHER OPERATIONS ASSOCIATED WITH PLANT AND GRASS ESTABLISHMENT); • SCHEDULES OF PLANTS, NOTING SPECIES, PLANT SIZES AND PROPOSED NUMBERS/DENSITIES WHERE APPROPRIATE; AND • IMPLEMENTATION TIMETABLES AND MONITORING PROGRAMS.  Reason: To ensure that there is a suitable landscape proposal to be implemented at the site for the enjoyment of future users and also to satisfactorily integrate the development within its surrounding context in the interest of visual amenity.	See Joanne Bernstein Garden Design proposals	
PC11	Notwithstanding the provisions of Classes A, B, C, D, E and F of Part 1 Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015 (or the equivalent provisions of any order revoking and re-enacting that Order), no extensions, additions, alterations, ancillary buildings, structures or hard surfacing shall be erected or installed unless otherwise subsequently approved, in writing, by the Local Planning Authority. Reason: In the interest of visual amenity and to ensure the development avoids an overdeveloped or cluttered appearance that has the potential to impact upon the setting of the listed building.	Noted	
PC12	Notwithstanding the provisions of Class A of Part 2 Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015 (or the equivalent provisions of any order revoking and re-enacting that Order), no fences, walls, gates or other means of enclosure shall be erected anywhere on the site unless otherwise subsequently approved, in writing, by the Local Planning Authority.  Reason: In the interest of visual amenity and to ensure the development avoids an overdeveloped or cluttered appearance that has the potential to impact upon the setting of the listed building.	Noted	

REF NO.	CONDITION	COMMENTS	ACTION
---------	-----------	----------	--------

### LISTED BUILDING CONSENT (Application No: 170070) Date: 13 January 2017

REF NO.	CONDITION	COMMENTS	ACTION
LBC1	The works hereby permitted shall begin before the expiration of 3 years from the date of this consent.  Reason: To comply with the requirements of Section 18(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990, as amended by the Planning and Compulsory Purchase Act 2004.	See PC1; Noted	
LBC2	The development hereby permitted shall be carried out in accordance with the details shown on the submitted Drawing Numbers 1502/loc 01, 1502/loc 02, 1502/08, 1502/09 Rev C, 1502/09 Rev C, 1502/10 Rev C, 1502/11 Rev B, 1502/12 Rev B and 1502/13 Rev A.  Reason: For the avoidance of doubt as to the scope of this permission and in the interests of proper planning.	See PC2; See Lynch Architects drawings	
LBC3	The new facing brickwork shall match the existing brickwork adjacent in respect of material, colour, texture, face bond and pointing. Reason: In order to preserve the historic character of the listed building.	See PC4; Noted	
LBC4	The brick walls to the building hereby approved, shall be constructed in Flemish Bond. Reason: To ensure that the approved works are carried out without detriment to the character and appearance of the building where there is insufficient information within the submitted application.	See PC5; Noted	
LBC5	All existing doors are to be retained, except where indicated on the drawings hereby approved. Any new doors shall be of timber construction with recessed panels and be of a specified size and design as agreed, in writing, by the Local Planning Authority prior to commencement of work. Any fireproofing to doors should be an integral part of the door construction, and self closing mechanisms, if required, shall be of the concealed mortice type.  Reason: In the interests of preserving the character and appearance of the listed building and its setting.	See PC6; See Lynch Architects drawings	
LBC6	Prior to the commencement of the development, a report providing justification for the replacement of the brick plinth including condition survey and structural proposals shall be provided and approved by the Local Planning Authority. The structural works shall then be carried out in accordance with the approved details.  Reason: In the interests of preserving the character and appearance of the listed building.	See PC7; See Lynch Architects drawings; Rodrigues Associates report and structural proposal; Soil Investigation Eastern proposed scope of services for trial pits and soil investigation; Hutton + Rostron proposed scope of services for Timber Condition Survey	
LBC7	Prior to the commencement of any works, additional drawings that show details of the proposed staircase (including materials and fixings), at a scale 1:5, shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved additional drawings.  Reason: There is insufficient detail with regard to this to protect the special character and architectural interest and integrity of the building in accordance with the requirements of Section 16 of the Planning (Listed Buildings and Conservation Areas) Act 1990	See LBC8; Mezzanine floor and staircase serving it to be omitted	
LBC8	Prior to the commencement of any works, additional drawings that show details of the mezannine, by section and elevation, at scales between 1:20 and 1:1, as appropriate, shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved additional drawings.  Reason: There is insufficient detail with regard to this to protect the special character and architectural interest and integrity of the building in accordance with the requirements of Section 16 of the Planning (Listed Buildings and Conservation Areas) Act 1990.	See LBC7; Mezzanine floor and staircase serving it to be omitted	

112 - Jankes Barn 06/11/18 3 of 4

### 112\_Planning and Listed Building Conditions Schedule.xls

Page 4	4
--------	---

REF NO.	CONDITION	COMMENTS	ACTION
1.000	Prior to the commencement of any works, additional drawings that show details of the floor construction to all new floors, shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved additional drawings.  Reason: There is insufficient detail with regard to this to protect the special character and architectural interest and integrity of the building in accordance with the requirements of Section 16 of the Planning (Listed Buildings and Conservation Areas) Act 1990.	See Lynch Architects drawings	
LBC10	Prior to the commencement of any works, additional drawings that show details of how the glazing will be fixed to studs, at scales between 1:20 and 1:1, as appropriate, shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved additional drawings.  Reason: There is insufficient detail with regard to this to protect the special character and architectural interest and integrity of the building in accordance with the requirements of Section 16 of the Planning (Listed Buildings and Conservation Areas) Act 1990.	See Lynch Architects drawings	
LBC11	The external FLUE(S) shall be finished in a matt black colour and maintained as such thereafter. Reason: In the interests of preserving the character and appearance of the listed building and its setting.	Noted	

112 - Jankes Barn 06/11/18 4 of 4



Planning Consent 170069 Condition 2

# Planning Condition 2 (Also Listed Building Consent 170070 Condition 2)

The development hereby permitted shall be carried out in accordance with the details shown on the submitted Drawing Numbers 1502/loc 01, 1502/loc 02, 1502/08, 1502/09 Rev C, 1502/09 Rev C, 1502/10 Rev C, 1502/11 Rev B, 1502/12 Rev B and 1502/13 Rev A.

Reason: For the avoidance of doubt as to the scope of this permission and in the interests of proper planning.

Refer instead to proposed Lynch Architects drawings in this Appendix.



Planning Consent 170069 Condition 7

#### Planning Condition 7

Prior to the commencement of any works, a programme of building recording and analysis shall have been undertaken and a detailed record of the building shall have been made by a person or body approved by the Local Planning Authority and in accordance with a written scheme which first shall have been submitted to and approved, in writing, by the Local Planning Authority.

Reason: To secure provision for recording and analysis of matters of historical importance associated with the site, which may be lost in the course of works

Refer to separate 'Building Record' document, to be read in conjunction with this document.



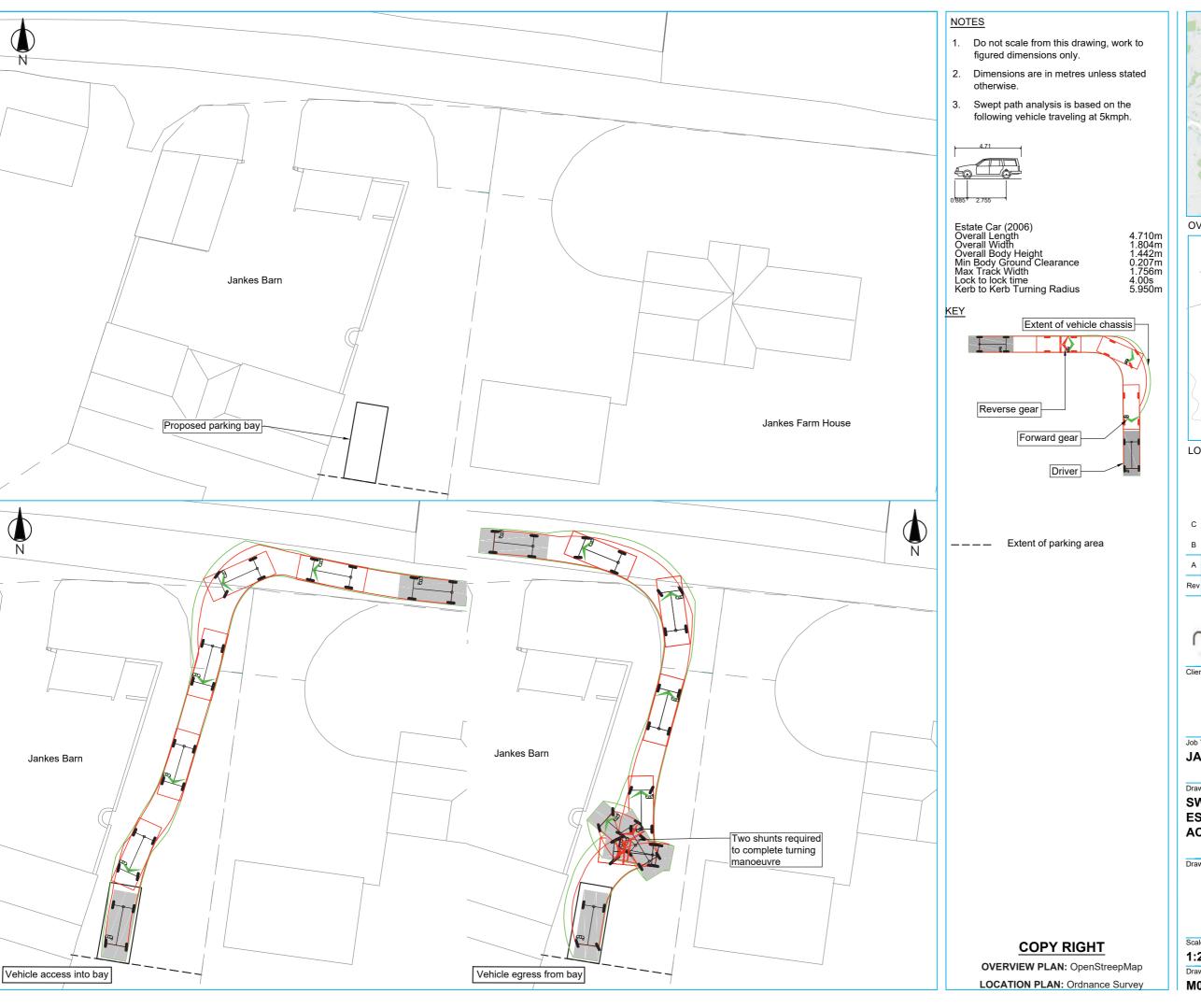
Planning Consent 170069 Condition 8

#### **Planning Condition 8**

Prior to the occupation of the proposed development, the applicant shall submit a scheme of off road parking and turning for motor cars for the application dwelling and the host dwelling 'Jankes Farmhouse' in accord with current Parking Standards which shall be approved in writing by the Local Planning Authority. The car parking area and turning area shall then be provide and thereafter retained in this form in perpetuity and shall not be used for any purpose other than the parking of vehicles related to the use of the development.

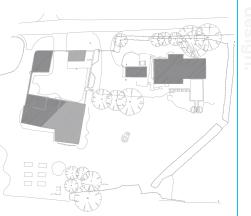
Reason: To ensure that on-street parking of vehicles in the adjoining streets does not occur and to enable cars to join the highway in a forward gear in the interests of highway safety.

Refer to Momentum Transport Consultancy Swept Path Analysis





OVERVIEW PLAN



LOCATION PLAN

С	19/10/18	00	Planting removed	YS	DHG
В	18/10/18	00	Updated Layout	YS	DHG
Α	17/10/18	00	First Issue	TE	DHG
Rev	Date	Ву	Remarks	Chkd	Appd



JOANNE BERNSTEIN Garden Design

**JANKES BARN** 

Drawing Title

**SWEPT PATH ANALYSIS ESTATE CAR ACCESS AND EGRESS** 

Drawing Status



Scale at A3 1:250

Drawing No M000480-1-1-TR-002

С



Planning Consent 170069 Condition 9

### Planning Condition 9

The works in relation to the development hereby approved shall be carried out in accordance with the recommendations and mitigation measures as outlined in the report by Essex Ecology Services Ltd and dated 12th July 2016.

Reason: In the interests of preserving the nature conservation value of the site.

Refer to Essex Ecology Services letter

Joanne Bernstein 30 Mercers Road London N19 4PJ

18<sup>th</sup> October 2018



Abbotts Hall Farm Great Wigborough Colchester Essex CO5 7RZ Tel: 01621 862986 Fax: 01621 862990

eecos@essexwt.org.uk www.eecos.co.uk

Dear Joanne

#### Jankes Barn, Jankes Green: Bat Mitigation in Relation to Barn Conversion

I am writing to confirm that we are currently preparing an application to Natural England for a licence to allow work affecting bat roosts at Jankes Barn, Jankes Green, on your behalf as requested.

Under the terms of the licence, the work will be carried out in accordance with the recommendations and mitigation measures outlined in our report dated 12th July 2016, as required by the relevant planning condition.

The mitigation measures that will be carried out or supervised by Essex Ecology Services will include the following:

- Provision of alternative bat roosts for construction phase of development;
- Exclusion of bats from roosts prior to barn conversion;
- Provision of replacement bat roosts within the fabric of the barn;
- Post-construction monitoring of use of replacement bat roosts.

I can also confirm that bat survey carried out this summer confirmed that the status of bats at the barn remains unchanged since the 2016 report was produced.

Yours sincerely

Patrick Hatch MCIEEM

EECOS is a wholly-owned subsidiary company of Essex Wildlife Trust Limited Registered Office: Abbotts Hall Farm, Great Wigborough, Colchester, Essex CO5 7RZ Company Registered in England and Wales No. 2853947 VAT Registered No. 945 7459 77

Professional ecological services applying local knowledge and experience



### Planning Consent 170069 Condition 10

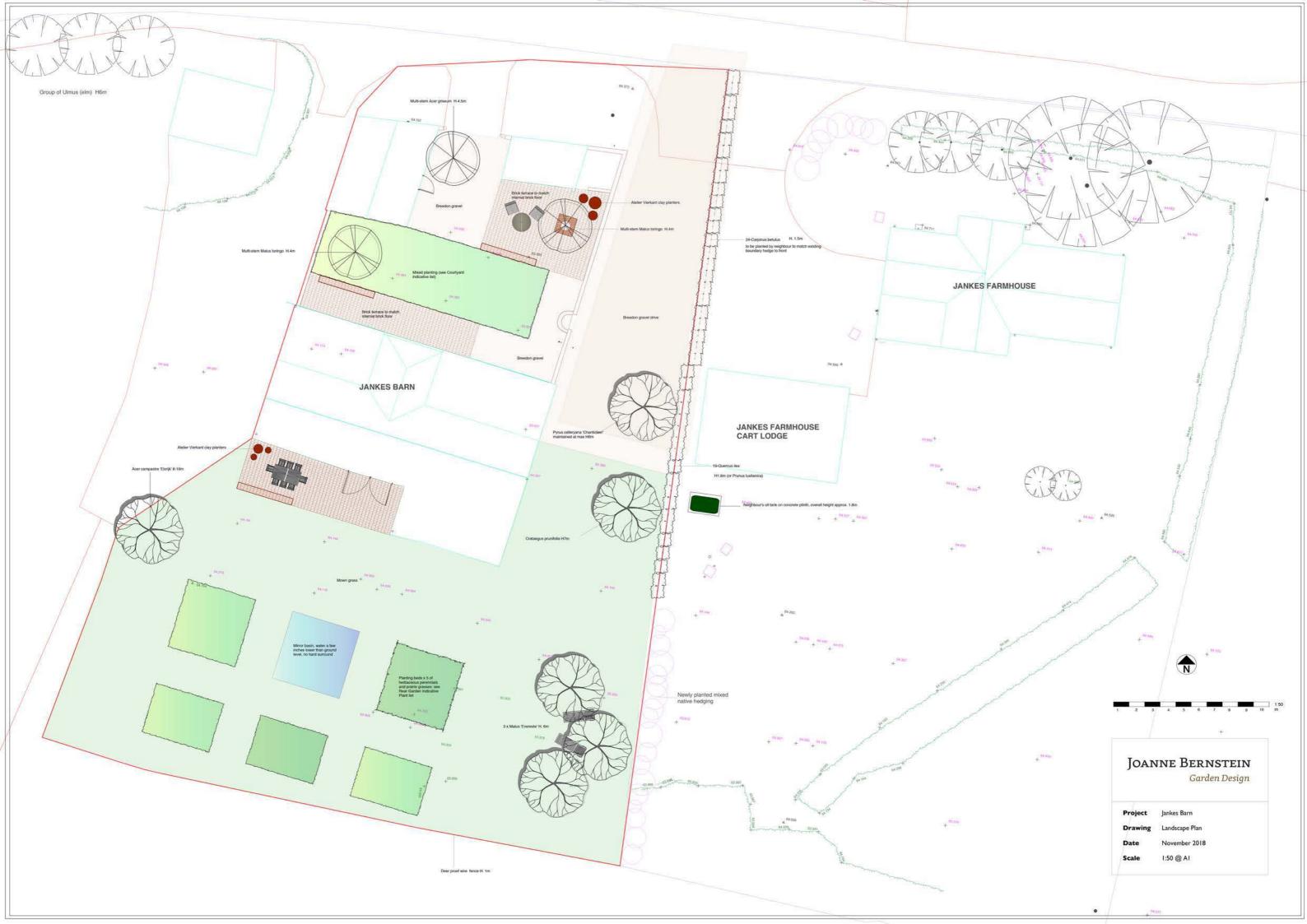
### Planning Condition 10

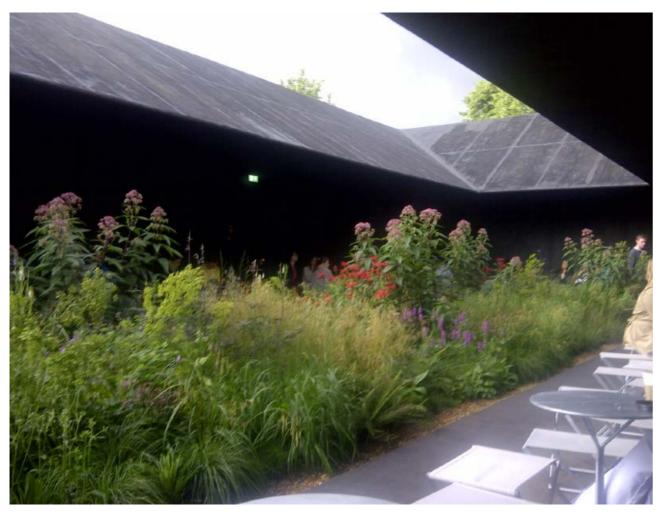
No works shall take place until full details of all landscape works have been submitted to and agreed, in writing, by the Local Planning Authority and the works shall be carried out prior to the occupation of any part of the development unless an alternative implementation programme is subsequently agreed, in writing, by the Local Planning Authority. The submitted landscape details shall include:

- MEANS OF ENCLOSURE;
- CAR PARKING LAYOUTS;
- OTHER VEHICLE AND PEDESTRIAN ACCESS AND CIRCULATION AREAS;
- HARD SURFACING MATERIALS;
- PLANTING PLANS;
- WRITTEN SPECIFICATIONS (INCLUDING CULTIVATION AND OTHER OPERATIONS ASSOCIATED WITH PLANT AND GRASS ESTABLISHMENT);
- SCHEDULES OF PLANTS, NOTING SPECIES, PLANT SIZES AND PROPOSED NUMBERS/DENSITIES WHERE APPROPRIATE; AND
- IMPLEMENTATION TIMETABLES AND MONITORING PROGRAMS.

Reason: To ensure that there is a suitable landscape proposal to be implemented at the site for the enjoyment of future users and also to satisfactorily integrate the development within its surrounding context in the interest of visual amenity.

Refer to Joanne Bernstein Garden Design plan and planting palette





### COURTYARD INSPIRATION

Clockwise from top left: Piet Oudolf Serpentine Gallery Pavillion, London 2011; Espalliered fruit tree; Barn leanto at Jardin Plume, Normandy; Beth Chatto Gravel Garden, Elmstead Market, Colchester









INSPIRATION FOR REAR GARDEN
Left: Jardin Plume, Normandy (Sylvie and Patrick Quebel)
Piet Oudolf (Olympic Park, RHS Wisley, Pensthorpe Norfolk,
High Line New York and many more)
James hitchmough and Nigel Dunnett, Olympic Park















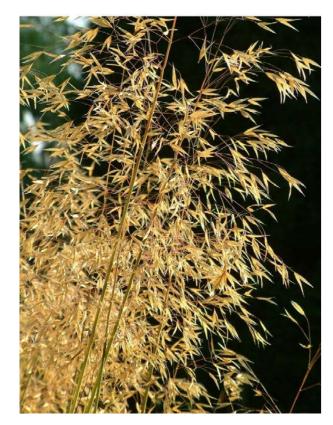














Evergreens top row:
Euonymus japonicus microphyllus;
Bergenia cordifolia; Libertia
grandiflora; Pittosporum tobira;

Lavandula x intermedia 'Grosso' Deciduous perennials:

Middle row: Sedum telephium ruprechtii; Euphorbia 'Fireglow'; Salvia 'Caradonna'; Achillea 'Gold Plate'.

**Bottom row**: Stipa gigantea; Gillenia trifoliata; Geranium 'Blue Cloud'













### REAR GARDEN

Prairie-style perennial planting within a matrix of grasses such as Panicum virgatum 'Helliger Hain' and Eragrostis trichodes.

### Clockwise from top left:

Amsonia hubrechtii; Sanguisorba officinalis 'Burgundy'; Solidago 'Ledsham' with Agastache 'Blue Fortune'; Panicum virgatum 'Helliger Hain'; Kniphofia 'Tawny King'.

Liatris scariosa 'Alba'; Rudbeckia trilobata; Symphyotrichun (previously Aster) laevis; Height approx. 1m with some plants projecting above (to 1.5m)













TREES Rear Garden

Top: Crataegus prunifolia (spring blossom, summer foliage and autumn with fruits

Left Acer campestre 'Elsrijk' summer and below autumn
Right: Malus 'Evereste', autumn fruits, summer foliage and spring blossom





















Top left, middle and centre: Pyrus calleryana 'Chanticleer' spring, summer and autumn, visible from Courtyard screening the neighbour's cart-lodge.

Left: middle, bottom and centre: Malus toringo, summer, spring and autumn

Right top, centre and bottom: Acer griseum autumn and summer foliage, year-round bark













### **Appendices**

Listed Building Consent 170070 Condition 6

### Listed Building Condition 6

Prior to the commencement of the development, a report providing justification for the replacement of the brick plinth including condition survey and structural proposals shall be provided and approved by the Local Planning Authority. The structural works shall then be carried out in accordance with the approved details.

Reason: In the interests of preserving the character and appearance of the listed building.

Refer to Rodrigues Associates report, Soil Investigation quote (RSA Geotechnics Ltd) and Timber Survey quote (Hutton & Rostron).

Note: Soil investigation and timber survey carried out October 2018 - awaiting reports.

Structural Report

for

Janke's Barn

for

Lynch Architects
Unit 66 Regent Studios
8 Andrews Road
London
E8 4QN

Job No 1733

Structural Report

for

Janke's Barn

Wakes Colne

Essex

Rev	Date	Notes
-	16.10.18	Client Issue

1 Amwell Street London EC1R 1UL

#### Site visit to Janke's Barn

#### 1.0 Introduction

- 1.1 Rodrigues Associates Limited was asked to make an initial visit to site to look at the historic grade II listed barn to make another assessment of the structural implications of converting it into a residential property. The visit took place on 10<sup>th</sup> October 2018 and consisted of a visual inspection of the existing structure. The visual inspection was limited to an un-intrusive survey of the property and we have therefore not looked at areas of the structure not readily available for inspection, i.e. foundations, and floor construction.
- 1.2 The property is located near the village of Wakes Colne in Essex.
- 1.3 The complex of buildings includes the main barn, an outbuilding and a piggery within a yard enclosed by the buildings and a brick wall.
- 1.4 The barn is a traditional five bay timber threshing barn measuring 18x5m on plan with a mid strey with full height doors and another set of full height doors in the facing bay. There are also opening panels in the gables. There are lean to structures either side of the mid strey on the north side and to the east side of the south elevation opening.

### 2.0 Previous investigations and information

- 2.1 A previous structural appraisal for the same purpose was carried out by C.G.Robertson & Associates in January 2008. That report includes the results of two trial holes to discover foundations and is accompanied by drawings of the structure.
- 2.2 Lynch Architects have carried out a dimensional and photographic survey of the structure in 2018. There is also an external topographic survey of the site.
- 2.3 Documentation is available from previous timber preservation carried out indicating that the timber was treated in September 2003.

### 3.0 Description of barn structure

- There is a good deal of original timber remaining in the barn although areas of timber have been replaced or double up with new timber. Original connections would have been traditional timber connections, but repairs have been made with steel straps, bolts and nails. Some of the original timber has been reused in different locations or been salvaged from other timber barns as there is evidence of disused notches, recesses etc.
- 3.2 The main roof is a steep pitched roof with a slope of 55 degrees clad in welsh slate tiles. Several tiles have been replaced, particularly near the eaves and slipping of the tiles has clearly been an ongoing issue. Many of the lower tiles have had a holder batten glued to them which has in turn been glued to the tiling battens.
- 3.3 The lean-to roofs on the north side have a pitch of 21.5 degrees and the lean to on the south side has a pitch of 29 degrees. They are all clad in Welsh slates on tiling battens.
- 3.4 The main roof consists of hardwood rafters of varying section. On the north slope and on the mid strey most of the rafters appear to be original. On the south slope many of the original rafters are very bowed. This is likely to be due to a failed purlin. In these areas new oak rafters have been introduced in between the original rafters and are spaced off the original rafters with timber packing. The rafters are in some cases pegged together with the opposing rafter at the ridge or fixed to a ridge board in other cases. For some rafter pairs a newer high-level collar has been introduced just below the ridge board, presumably as a later repair where ridge pegs and fixings have failed. The lower half of the roof has a diagonal brace under the rafters at each end and on each slope to provide longitudinal stability to the roof.
- 3.5 At mid height there are purlins supporting the rafters. Some of these appear to be original and others have been replaced. The purlins are supported from mid-level collars which don't align with the principal frames and have varying spacings. At the eaves there are four principal tie beams defining the five bays. These

are framed into the vertical studs with timber knee braces with a single bolt through each leg. The bolts may well have been introduced later with the original braces tenoned into the posts and tie beams. One of the tie beams has been paired with a new tie beam. Some of the tie beams have recesses in them suggesting they might have had timber studs up to them to partition the barn. The ties going across at the mid strey locations are lapped onto the mid strey wall plates and connected with bolts.

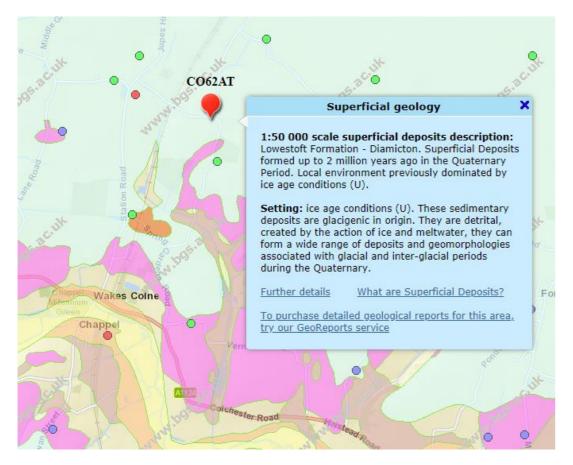
- The lean-to roofs consist of horizontal beams supported on the studs of the main barn. These in turn support purlins via props which support the rafters. The tie beams appear to be original timber but the rest of the roof has been rebuilt with newer timber.
- 3.7 The walls are clad in boarding. Most of the boarding is softwood which has replaced the original hardwood boarding.
- 3.8 The upper part of the barn walls is made up of hardwood studs and diagonal braces built off hardwood wall plates on brick walls with a top plate at the eaves. The south elevation timber on the west side has been replaced with new oak studs and braces up to the eaves wall plate. Some of the studs on the east side of the south elevation are significantly bowed as the top of the brick wall below has leaned out. A secondary wall plate has been added which is bolted to the inside of the original wall plate where the wall has leaned out. Diagonal braces in the walls provide racking resistance to the barn in both directions.
- 3.9 The lower part of the walls are brick plinth walls. These are approximately 250mm wide at the wall plate and step out both internally and externally by half a brick. The south elevation wall on the west side has been completely rebuilt with newer brick. The previous owner reported that the original wall collapsed due to animals pushing the wall out more than 20 years ago. The wall on the east side of the south elevation is leaning outward at up to 1 in 10 off vertical taking the wall plate with it. The previous owner reported that in his 20 year tenure at the property the wall has been like this and not moved further. The plinth walls are cracked in several places where there has been movement of the walls.
- 3.10 The mid strey does not have brick plinth walls and as a result the wall plate and bottom of the timber studs here have suffered much more damp related damage.
- 3.11 The north side lean to structures has a timber beam supported from timber posts which sit on brick plinths. On the south side the lean to has a wall of heavy timber sections with several missing or not providing support to the wall plate.
- 3.12 A previous trial pit against the west brick plinth wall found shallow brick foundations 350mm below ground level onto clay.
- 3.13 The floor in the main barn is a mixture of cracked concrete, cobbles and asphalt.

### 4.0 Description of other structures

- 4.1 The outbuilding has solid brick walls with a timber stud infill panel on the south side above window sill level. The roof was not accessed but is described in the previous report as a cut timber roof. There are high level access doors to the roof in the gables.
- 4.2 A previous trial pit against the west brick wall of the outbuilding found brick foundations 650mm below ground level onto clay.
- 4.3 The piggery is a partially collapsed lean to structure against the north boundary brick wall.
- The brickwork generally consists of historic locally made bricks with a soft lime mortar. In some places the lime mortar has been eroded from the brick joints. In other places the brickwork has been repointed with cement mortar. This has in places resulted in blown faces to the clay bricks where moisture has been trapped.

### 5.0 Geology

The geology of the area as identified by the British Geological Survey indicates superficial deposits of Lowestoft Formation Diamicton overlying London Clay. Nearby boreholes indicate this as boulder clays with gravels and flints before reaching the London Clay at some depth (See appendix A). Only the near surface boulder clays will be significant to the foundations of the buildings.



**BGS Viewer** 

### 6.0 Conclusions and recommendations.

- 6.1 The timber in the existing barn is in variable condition. It will need to be methodically assessed by historic timber specialists to maximise the amount of original structure that can be preserved. This will also provide visual strength grading information to ensure that structural interventions can be kept to a minimum.
- When this survey is complete, repair details in line with the English Heritage Practical Building Conservation series can be developed.
- 6.3 The barn currently has several makeshift and historically insensitive repairs. As part of the redevelopment we would seek to improve these areas. E.g. where new rafters have been placed between original bowed rafters and propped off them with additional timbers, we would seek to plant new timber onto the original timber to provide the capacity required in a single member and remove the additional timber.
- The new roof for the barn will require an assessment of the additional loads and the capacity of the existing roof structure.
- The foundations to the barn are very shallow. The capacity of foundations on the near surface soils will be assessed by samples taken from trial pits and hand augered boreholes. A proposed Site Investigation specification has been prepared for this.
- 6.6 This will determine whether underpinning is required and if so what it's extent should be.

- The leaning plinth wall to the south elevation east of the doors will need to be demolished and rebuilt. It may be possible to reuse the existing bricks with a lime mortar to do this. The foundations required will be dependent on the results of the Site Investigation.
- Brickwork will need repointing in some places. Where newer cement mortar is loose anyway it can be removed and replaced with lime mortar pointing to match the existing lime mortar.

Carl Bauer CEng MICE MIStructE.

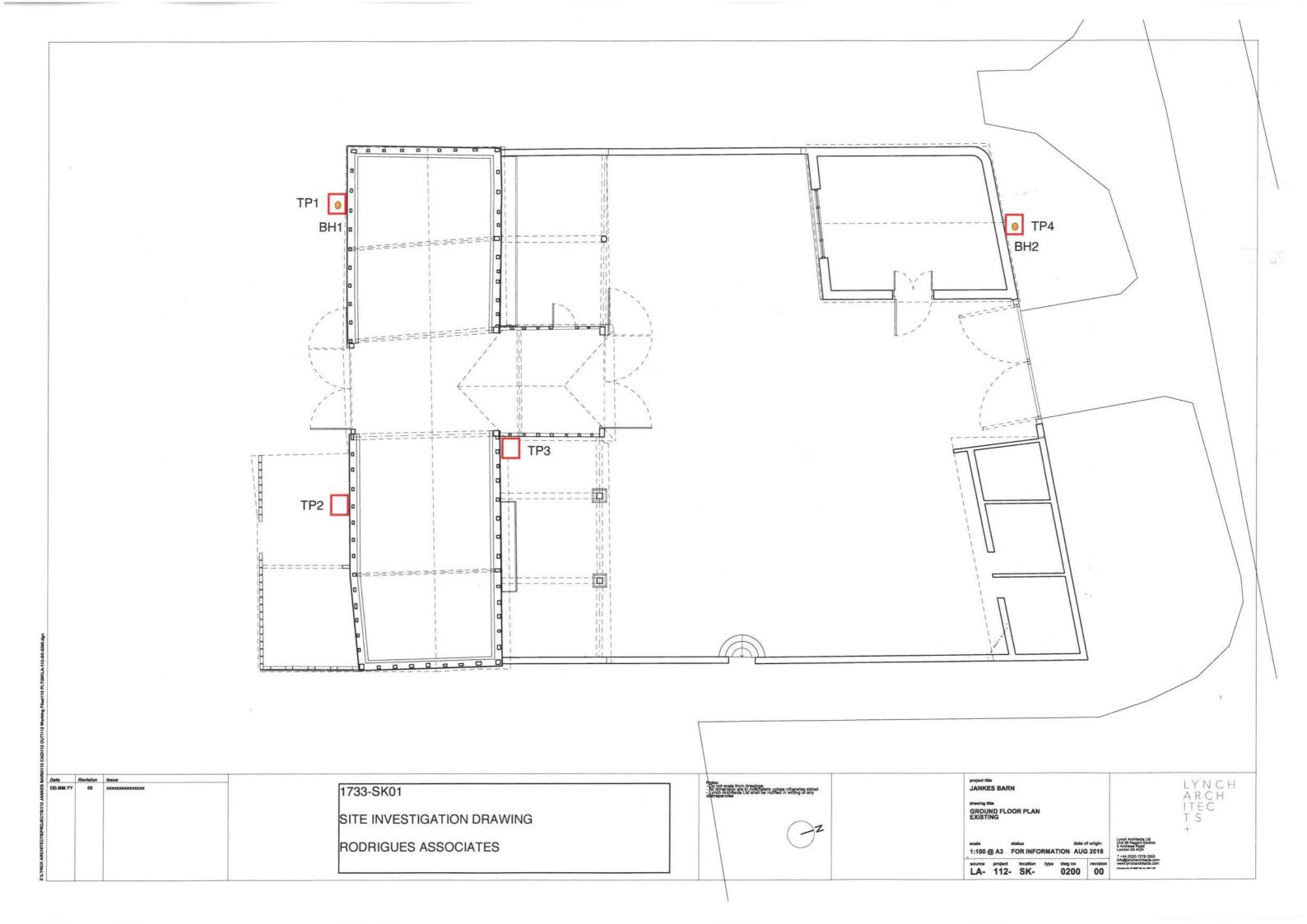
for

**RODRIGUES ASSOCIATES** 

### Appendix A

Mount Bures borehole log from British Geological Survey.

British Geolog	TL 93 8W 21 9074 3047 Surface level +70.8 m Water struck at +63.8 m and +59.3 January 1977	Golden Square, Mount Bures  British Geological Survey  British Geological Survey	Block G Ovewrburden 11.3 m Mineral 12,0 m Bedrock 0.7 m+		
	LOG Geological classification	Lithology	Thickness m	Depth m	
		Topsoil	0.3	0.3	
	British Geological Survey  Boulder Clay	British Geological Survey  Clay, chalky, pebbly, light brown	0.6	0.9	
	,	Clay, silty, with pebbles of chalk, flint and quartz, brown mottled grey, becomes light brown	3.3	4.2	
		Clay, silty, with pebbles of chalk, flint and fossil debris chalk pellets become coarse sand size with depth, light brown	3.8	8.0	
British Geolog	gical Survey	Clay, silty, with some thin sand seams and pebbles of chair and flint, dark grey		10.9	
		Clay, silty, chalky, flinty grey-brown	0.4	11.3	
	Glacial Sand and Gravel	a Sandy gravel, with discrete clay seams Gravel: coarse and fine, angular to subrounded finit, with well rounded flint and rounded to well rounded quartz; with some rounded quartzite and subrounded sandstone; with a trace of ironstone, igneous and metemorphics. Sand: meddum with coarse and fine, predominantly rounded quartz with some coarse angular		17.3	
		flint, brown			
		Gravel: fine, well rounded and angular to subrounded flint; with rounded to well rounded quartz; with some tabular ironstone, with a trace of sandstone Sand; medium with fine and some coarse, predominantly quartz, light brown becoming red-brown.	6.0	23.3	
British Geolog	London Clay	Clay, silty, micaceous, brown becoming grey	0.7+ gical Survey	24.0	
	British Geological Survey	Brilish Geological Survey	British Ge	ological Survey	
British Geolog	pical Survey	British Geological Survey British Geolo	gical Survey		



### SITE INVESTIGATION SPECIFICATION

### **JANKES BARN**

### SEE SITE INVESTIGATION DRAWING 1733-SK01

- All fossils, coins, articles of value or antiquity and structures or other remains or things of geological or archaeological interest discovered on the site shall be deemed to be the absolute property of the Employer.
- 2. The Contractor shall remove any surplus material after backfilling of the trial pits and boreholes and leave the site in a clean and tidy state to the satisfaction of the Employer.
- 3. All work shall be carried out in accordance with BS EN 1997-1:2004 "Geotechnical design. General rules" and BS EN 1997-1:2007 "Geotechnical design. Ground investigation", unless otherwise stated in the contract.
- 4. Trial pits with a plan area of not less than 1m² throughout their depth shall be carefully excavated as necessary, to expose existing foundations where indicated and to extend the depth of investigation with a hand auger to a depth of four metres. Cable detectors and other similar equipment shall be used before and during the excavation to locate any services.
- 5. All details including position, size and depth, of any services or foundations encountered shall be recorded.
- 6. At each change in soil type or change in consistency and at intervals not exceeding 1m a small disturbed sample shall be taken. Immediately following this an "undisturbed" sample shall be taken in cohesive soils, or a "bulk disturbed" sample in granular soils.
- 7. Before taking an "undisturbed" sample the bottom of the trial pit shall be carefully cleared of loose material.
- 8. Depths at which samples are taken shall be recorded. For "undisturbed" samples the levels of the top and bottom of the sample, and for "bulk disturbed" samples the limits of the sampled zone shall be recorded.
- 9. All samples shall be packed by the Contractor in airtight containers, labelled and transported to the laboratory.
- 10. If it has been requested that a trial pit be left open by the Engineer, the Contractor shall ensure that the hole is adequately protected against collapse and the entry of rainwater.
- 11. When ground water is present in a trial pit, the level at which the water was first encountered shall be recorded and again 24 hours completion of the pit or as directed by the Engineer. Samples of ground water shall be taken as agreed with the Engineer. The Contractor shall accurately record the position and relative levels of each trial pit.
- 12. Topsoil over the area to be excavated shall be removed and stockpiled separately before any subsoil is excavated. This topsoil shall be re-spread over the area after backfilling of the trial pit.
- 13. Trial pits shall be backfilled and the filling compacted in such a manner that no subsequent settlement occurs reinstating the surface to its original condition. All surplus material shall be cleared away and the site left tidy.

- 14. A full schedule of rates for all testing which may need to be performed must be submitted with the tender.
- 15. Where tree roots are encountered in trial pits or boreholes an assessment is to be made of the degree and extent of desiccation by in-situ and laboratory tests, and the trial pits or boreholes are to be extended to a depth where there are no traces of tree roots and where the soil is no longer desiccated.
- 16. The Site Investigation report shall include the following:-
  - A site plan showing the exact location of each borehole and trial pit as completed.
  - (ii) A geological report of the site.
  - (iii) A log for each borehole and trial pit which shall contain information relating to ground levels, ground water levels, strata, services or other items, either natural or man-made, encountered.
  - (iv) Full details of all in-situ and laboratory tests and results.
  - (ii) The Contractor's interpretation of the results.
  - (iii) Recommendations for foundation bearing capacity of existing foundations as built and improvements in bearing capacity for underpinning at a greater depth

Our ref: AJS/QUO/6189

19 October 2018

ASHBURNHAM HOUSE

1 MAITLAND ROAD
LION BARN ESTATE
NEEDHAM MARKET
SUFFOLK
IP6 8NZ

Telephone (01449) 723 723 Fax (01449) 723 907

www.rsa-geotechnics.co.uk

Rodrigues Associates 1 Amwell Street London EC1R 1UL

For the attention of Carl Bauer

By email

Dear Carl,

### GEOTECHNICAL INVESTIGATION: JANKES BARN, WAKES COLNE, COLCHESTER CO6 2AT

### 1 Introduction

Thank you for the opportunity to provide a quotation for the exploratory ground investigation at the above site.

The published geological records for the area indicate the site is likely to be underlain by Lowestoft Formation overlying London Clay.

The aim of the investigation is to determine the ground conditions and derive parameters for use in geotechnical design. A desk study and contamination assessment did not form part of the brief.

### 2 Scope of services

The quotation is based on your specification and allows for the following scope of work:

- Reconnaissance survey to assess the layout of the site and any access restrictions.
- Manually excavate four trial pits to depths of up to 1.2m to expose the existing foundations.
- Form two hand-held window sample boreholes or hand augered boreholes through the base of two of the trial pits to recover samples for laboratory analysis.
- Geotechnical testing to determine soil properties for use in design of foundations and ground floor slab.
- Provision of an interpretive report including initial geotechnical recommendations and advice in relation to the proposed development.

We have not carried out a site visit prior to the issue of this quotation. The scope of services may need to be reviewed depending on any access and working area constraints.

We have assumed you only require a geotechnical investigation to provide foundation design parameters and recommendations. We have made no allowance for an environmental desk study or an assessment of potential ground related contamination issues.

Directors: P A GAWNE BSc MSc DIC FGS A M PHILLIPS FGS A J SYMIS Eng Tech TMICE FGS
Directors & Consultants: G J T SOUTHGATE BSc CEng MICE G L DAVIS BSc CEng MIMMM CGeol FGS
Registered Office: Ashburnham House 1 Maitland Road Needham Market Suffolk IP6 8NZ
Registered No 1494361 VAT No 344 4442 66

RSA GEOTECHNIC

### 3 Laboratory analysis

The geotechnical testing will include soil classification (water content, liquid and plastic limits or particle size distribution); and chemical properties for buried concrete design (pH value and soluble sulphate content).

### 4 Programme and reporting

Based on our current schedule we should be able to commence the site work within seven working days of receipt of your written instruction to proceed (subject to progress on other projects and subcontractor availability). The site work should be completed within a single day, assuming good access, no unforeseen delays and favourable ground conditions.

The laboratory testing is typically completed within ten working days and our report should be issued within four weeks following completion of the site work.

The principal technical objectives of the report are to establish the geological conditions and their engineering properties and provide initial recommendations with respect to the design of structural foundations; floor slab; pavement parameters; and excavation stability.

### 5 Assumptions and exclusions

We assume all correspondence and arrangements for site access will be obtained by others, at no cost to ourselves. We also assume that access will be clear, and the site work can be carried out continuously and without interruption. We reserve the right to charge for any time and delays in obtaining access and for interrupted work.

The locations of any underground and overhead services and structures must be indicated to us prior to any intrusive works. If details are unavailable we will take reasonable precautions to identify services including scanning with a cable avoidance tool. However, we will not be held liable for damage to unknown utilities or other features not drawn to our attention.

The quotation allows for surface break-out and for the provision of temporary reinstatement materials (concrete or cold-applied flexible surfacing).

### 6 Contract and payment

This quotation is valid for a period of ninety days and is subject to our terms and conditions. We reserve the right to charge additional fees for comment on any variation to these terms, including the review of alternative forms of appointment or collateral warranty.

All quantities are provisional, and the costs will be calculated by re-measurement of the work valued at the rates quoted. All rates are exclusive of value added tax. Payment will become due thirty days after the invoice date. Overdue accounts will be subject to a monthly interest charge equal to 5% above the base rate of the Bank of England.

Ground investigation is designated as 'surveying' and does not fall within the scope of the Construction Industry Scheme (CIS) with HM Revenue and Customs. As such no tax deduction, withholding or set-off should be made from our account.

The fees assume no reductions will be made on a retention basis and no liquidated damages or main contractor's discounts or deductions will be applied.

Should the investigations identify any concerns, then further assessment may be necessary. Any additional sampling; testing; consultation; report amendment; liaison; correspondence or attendance at meetings will be charged at our standard rates.

A GEOTIGENNICS LITD

### 7 Insurance and liability

Unless otherwise agreed our professional indemnity insurance and the limitations of liability will be capped to £1,000,000. The insurance will be subject to aggregate limits for claims relating to asbestos, pollution or contamination and will become applicable once payment of our fees has been received. The liability period will be effective for six-years from completion of our services, if insurance is available at commercially reasonable rates and terms.

Our employers' liability and public/product liability insurances are limited to £10,000,000 any one occurrence and in the aggregate in respect to product liability.

### 8 Reliance

The report will be prepared for the private and confidential use of the client. The report will be specific to the planned development and any advice given will need to be reviewed if the development proposals are amended. The report shall not be relied on or transferred to other parties without our written consent.

If requested by the client, we would consider the provision of a collateral warranty or 'letter of reliance' assuming appropriate terms including sensible limitations of liability can be sought. For property transaction this provision will be limited to the first funder, the first purchaser or the first tenant; and will be provided on no more than two occasions. An administration fee may be charged for the provision of this service.

I hope our offer is of interest and look forward to hearing from you. If you have any queries or need more information, please contact me.

Yours sincerely,

**Andy Symis** 

Director, RSA Geotechnics Ltd

Encs. Quotation, Terms and Conditions, and Order Form

SA GEOTECHNICS LTD

### QUOTATION

RSA GEOTECHNICS LTD

Project	Geotechnical Investigation: Jankes Barn, Wakes Colne, Colchester CO6 2AT	Quote No	AJS/QUO/6189
Client	Rodrigues Associates	Contact	Carl Bauer
Olicin	1 Amwell Street London	Reference	
	EC1R 1UL	Date	18 October 2018
		Account No	

Item	Description	No	Unit	Rate	Value
	PROFESSIONAL SERVICES AND REPORT FEES				
A 01	Engineer fees for organisation, liaison and contract administration	1	Hr	72.00	72.00
A 03	Engineer fees for site reconnaissance visit, including travelling	2.5	Hr	72.00	180.00
A 23	Engineer fees for geotechnical assessment and reporting	7	Hr	72.00	504.00
A 25	Director/principal engineer fees for management and technical review	1	Hr	90.00	90.00
A 30	Provide interpretative report [submitted by email in PDF format]	1	Sum	60.00	60.00
A 31	Provide additional paper copy of report [£30 each for initial issue, £45 each after initial issue]	0	No	30.00	0.00
	HAND EXCAVATION AND WINDOW SAMPLING				
E 09	Provide hand excavation and window sampling equipment and crew, including travelling	2	Day	710.00	1420.00
	SAMPLING AND IN-SITU TESTING				
G 01	Recover small disturbed soil sample (0.5kg) from borehole, trial pit or trench	10	No	3.00	30.00
G 37	Carry out hand shear vane strength test within borehole, trial pit or trench	6	No	5.00	30.00
	PLANT HIRE AND MATERIALS				
H 02	Provide hydraulic breaker, light-weight power pack, tools and fuel	1	Day	145.00	145.00
H 22	Provisional sum for supply of temporary reinstatement materials [based on cost plus 10%]	1	Sum	60.00	60.00
	GEOTECHNICAL TESTING				
K 08	Determination of moisture content	10	No	5.00	50.00
K 11	Determination of liquid and plastic limits - cone penetrometer method	4	No	25.00	100.00

RSA GEOTECHNICS LTD ASHBURNHAM HOUSE 1 MAITLAND ROAD NEEDHAM MARKET IP6 8NZ TELEPHONE (01449) 723 723 FAX (01449) 723 907 e 1 of 2 Registered: 1494361 VAT: 344 4442 66

**QUOTATION** 

Project	Geotechnical Investigation: Jankes Barn, Wakes Colne, Colchester CO6 2AT	Quote No	AJS/QUO/6189
Client	Rodrigues Associates	Contact	Carl Bauer
	1 Amwell Street London	Reference	
	EC1R 1UL	Date	18 October 2018
		Account No	

Item	Description	No	Unit	Rate	Value
K 12	Extra over liquid and plastic limits for wet sieve preparation if soils contain some gravel	4	No	10.00	40.00
K 46	BRE SD1 suite - pH value, water-soluble sulphate, nitrate, magnesium and chloride	2	No	25.00	50.00
		Nett :	Sum	£	2831.00

Conditions: Unless otherwise agreed, the quotation is valid for ninety days and subject to our terms and conditions.

All quantities are subject to re-measurement on completion. All rates exclude value added tax.

Items where the quantities and amounts are quoted as zero are unit rates.

070-00

#### Dear Rachel

#### Re: Jankes Barn

Thank you for your enquiry email subsequent to our telephone conversation. I am pleased that you were recommended to contact H+R

We undertake detailed barn surveys at a rate of two a month all around the UK and I don't foresee any difficulties in providing the same service for you. I understand that there is some urgency due to planning condition expiry and our usual lead time is about a week. You requested a full list of current H+R services and I include these in Section 5 below

As background information on H+R:

- H+R's focus is on provision of investigative consultancy covering risk management and pragmatic, cost-effective remediation strategies
- H+R are building material and building material performance specialists and employ
  material scientists and building pathologists. We have a great deal of experience of liaising
  with Architects and Structural Engineers on condition related issues. We also employ staff
  with an architectural background and a Conservation Accredited RICS surveyor
- H+R retain all relevant specialist skills in-house. You can be sure that by appointing H+R, you have a 'one stop' advantage
- H+R have undertaken project work similar to Jankes Barn all over the country for 30 years
- H+R specialise in development and provision of minimally invasive and non-destructive survey techniques such as fibre-optics and H+R uniquely deploy trained dry rot sniffer dogs
- H+R involvement in a project and following our consultancy advice avoids any need for subsequent chemical remedial treatments for damp and decay
- H+R can enter into collateral warranties and issue certificates of guarantee if required

H+R are specialist independent building material defect surveyors with a focus on timber condition of built-in elements such as joist bearing ends, lintels and plate and also issues relating to damp penetration. We do not advocate chemical treatments or cementitious tanking systems as they are invariably destructive of original material, expensive, over specified and prone to failure in the longer term. We prefer to identify root causes of problems rather than just treat the symptoms as remedial contractors do and we avoid emphasising product led solutions. H+R have found on occasion that apparently independent consultants have needlessly specified remedial action in an attempt to off-set their own risk to others. H+R involvement in a project generates significant savings in provisional sums set aside for remedial action and also in project programme. We are very pragmatic in our approach and are highly regarded by insurers such as NHBC and Premier as well as loss adjustors. All of whom draw comfort from H+R involvement with a project in risk management terms

H+R have long standing experience in providing specialist building material condition investigations in historic structures all over the country having initiated the service in 1980. We continue to innovate and pride ourselves on working at the 'sharp end'; providing value added support to the design team. H+R have developed minimally invasive and non-destructive surveying techniques especially suitable for historic buildings or those under occupation. H+R uniquely have dry rot sniffer dogs which are very cost-effective. We have greater staff resources and technical ability (e.g. CAD) than other consultants in our field and this allows us to deploy swiftly and efficiently with strength in depth performing to programme and budget. Having professionally qualified individuals from a range of disciplines as surveying staff means that the

level of support to the design team is a valuable added benefit. In other words, you get a greater return for your investment in our service

H+R list many of the major developers, contractors and commercial property managers as clients as well as private owners and we enjoy an excellent reputation amongst fellow industry professionals such as Architects and Structural Engineers as well as Historic England and conservation officers

H+R can enter into collateral warranties (BPF/CIC) and can issue their own 30 year Certificate of Guarantee on receipt of written notification from the client that H+R recommendations have been followed. It is very important to note that no other consultant provides this

H+R can also provide specialist material condition and building performance investigations covering roof finishes, leadwork, masonry, brickwork, pointing, renders, internal plaster, U values, glazing, window frames and panelling

H+R has long-standing experience of working on listed buildings and ancient monuments, including assessments of materials and forms of construction, defect diagnosis, conservation management, planning, specification of appropriate remedial action and, where necessary, additional pre- and post-contract professional services. H+R staff are members of the Institute of Historic Building Conservation (IHBC) and one of my colleagues is a RICS conservation accredited building surveyor

In relation to Jankes Barn, I'd like to propose the following options for discussion

#### 1 Service options

### 1.1 Timber condition

Identification of decayed, partially decayed and at-risk timber elements in the structure by visual inspection, fibre-optics, specialist decay detection drilling and deep moisture probing. The results of the investigation are produced in report format with marked up digital photographs and CAD drawings showing damp and decay; together with recommended remedial works, and a schedule of current and latent defects with recommendations for remedial works. These investigations can be carried out at any time using non-destructive techniques, but would best be carried out when the maximum possible access and exposure has been achieved during enabling works. H+R investigations avoid any need for subsequent chemical treatments and our advice is accepted by building warranty providers

Partially decayed and damaged timbers of structural significance are investigated in detail by specialist mini-bore drilling. The results of these investigations can enable the Structural Engineer to design the most suitable repair. These investigations are best carried out, as necessary, in support of the Structural Engineer after the identification of affected structures described above

Roof structures £2900.00 Frame £2600.00

#### 1.2 Timber strength grading and species identification

The species and visual strength grade of timbers can be determined to allow existing timber elements to be given a probable strength classification. The number and proportion of timbers investigated depends on a statistical assessment of the risk inherent in the likely residual strength of timbers. The results are produced in tabular form and on CAD overlays, as necessary. These

investigations may be required if design loadings are to be changed on an original structure, if salvaged timbers are to be used, or in support of calculations to determine fire resistance

£1800.00

### 1.3 Remedial specification and design detailing

Remedial specifications and design details produced by the Structural Engineer and Architect can be reviewed and 'marked-up' in cooperation with the design team so as to build out any latent defects resulting in the risks of damp and decay. H+R can provide sample remedial details and specifications for 'working-up' as necessary. These works are best initiated as soon as possible during the design phase and usually include at-risk structures in areas of remedial works and at the interface between new and original construction

Provisional sum dependant on demand

£600.00

### 2 Timescale

H+R's performance benchmark is to undertake survey work five working days after authorisation and to submit fully illustrated reports ten working days after completion of investigations

#### 3 Access

H+R provide their own ladders and surveyors are fully conversant with site safety protocol. H+R surveyors are CSCS registered to supervisory and management level

### 4 Budgets

The budgets in 1 above are plus VAT but inclusive of expenses

Please let me know if you have any questions and I look forward to working with you

With kind regards

Yours sincerely

James Hutton

### **Hutton+Rostron Environmental Investigations Ltd**

Netley House, Gomshall, Guildford, Surrey GU5 9QA

Tel: 01483 203 221 Fax: 01483 202 911

Email: ei@handr.co.uk Website: http://www.handr.co.uk/ Twitter: @HuttonRostron

Linkedin: https://www.linkedin.com/company/hutton-rostron

Please see our website for our Data Protection Policy <a href="https://handr.co.uk/privacy-policy/">https://handr.co.uk/privacy-policy/</a>





### **Appendices**

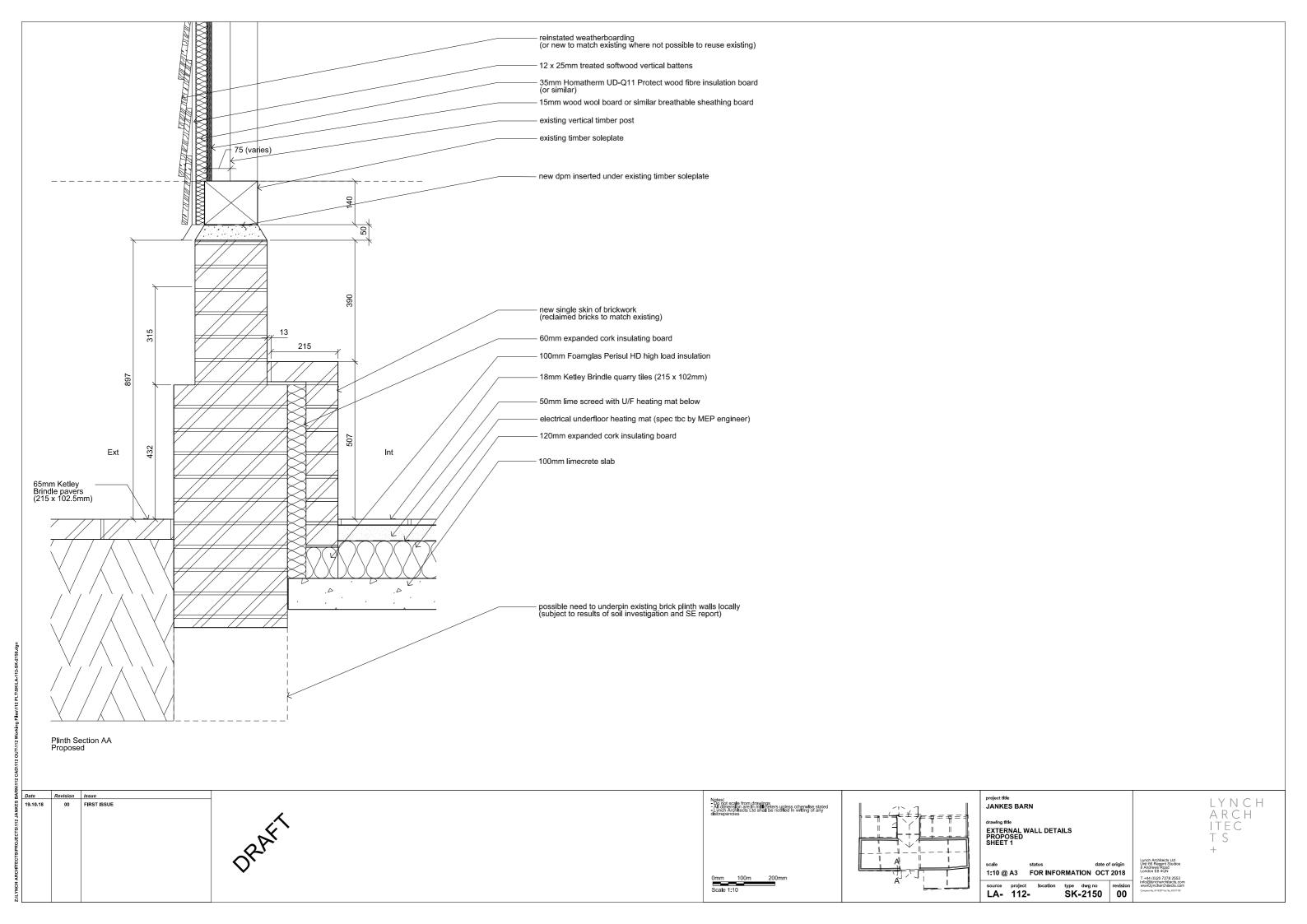
Listed Building Consent 170070 Condition 9

### **Listed Building Condition 9**

Prior to the commencement of any works, additional drawings that show details of the floor construction to all new floors, shall be submitted to and approved, in writing, by the Local Planning Authority. The development shall thereafter be implemented in accordance with the approved additional drawings.

Reason: There is insufficient detail with regard to this to protect the special character and architectural interest and integrity of the building in accordance with the requirements of Section 16 of the Planning (Listed Buildings and Conservation Areas) Act 1990.

Refer to Lynch Architects proposed typical detail LA-112-SK-2150 showing floor, plinth and timber wall upgrades. Also see existing plinth wall sections (LA-112-SK-2100 & 2101) included in Lynch Architects drawing appendix.



### **Appendices**

- A Topographic CAD plan survey JWC Survey Ltd, July 2006
- B Structural Appraisal
  GC Robertson & Associates Ltd, January 2008
- C Hand Drawn Survey
  Mark Perkins Partnership, April 2008
- D **Photographic Survey** Lynch Architects, 2018
- Existing Drawings
  Lynch Architects, 2018
- F Timber Survey
  Hutton + Rostron, November 2018

A Topographic CAD Plan Survey

JWC Survey Ltd July 2006

9

### B Structural Appraisal

GC Robertson & Associates Ltd January 2008

### STRUCTURAL APPRAISAL

### BARN AND ASSOCIATED BUILDINGS

JANKES FARM

WAKES COLNE

**COLCHESTER** 

**ESSEX** 

Report No. 07/8184 January 2008

G. C. Robertson & Associates Ltd Consulting Civil & Structural Engineers The Salt House, Tide Mill Way, Woodbridge, Suffolk IP12 1BY

> Tel: 01394 – 384887 Fax: 01394 – 380739 e-mail engineers@gcrobertson.co.uk web site: http://www.gcrobertson.co.uk

### **CONTENTS**

**BRIEF** 

DESCRIPTION AND PROPOSED DEVELOPMENT INSPECTIONS AND INVESTIGATIONS **ASSESSMENT** CONCLUSIONS

APPENDIX A

SCOPE OF INVESTIGATIONS FOR EXISTING COMMERCIAL,

INDUSTRIAL AND INSTITUTIONAL BUILDINGS

APPENDIX B

TRIAL HOLE LOGS

APPENDIX C

**PHOTOGRAPHS** 

DRAWING NO 01

SKETCH SITE LAYOUT

DRAWING NO 02 BARN PLAN AND SECTIONS

DRAWING NO 03 OUTBUILDING/PIGGERY PLAN/SECTIONS

## STRUCTURAL APPRAISAL JAKES FARM, WAKES COLNE, COLCHESTER, ESSEX

### BRIEF

G C Robertson & Associates Ltd were instructed by Mr R and Mrs S Harris to prepare a report on the suitability of existing barn and outbuilding structure for conversion to residential accommodation.

This report has been undertaken to establish the suitability of the buildings for conversion and the investigations have not been carried out to the detail required to produce an actual remedial works scheme.

This report should be read in conjunction with our Scope of Investigations sheet for Existing Commercial, Industrial & Institutional Buildings, which is attached as Appendix A.

### DESCRIPTION AND PROPOSED DEVELOPMENT

The main barn is a traditional five bay timber framed threshing barn of approximate plan size 18m x 5m with a mid strey and a pitched slate covered roof. Open fronted lean-to additions have been constructed on the front elevation each side of the mid strey and a further lean-to addition has been constructed using close centred timber posts founded directly into the earth at the rear of the building towards the left hand side.

The front outbuilding is a 215 solid brick walled building of approximate plan size 6.5m x 5.m and is rhomboidal in shape. The roof structure of the building is a pitched cut timber roof covered in slates.

In addition at the front of the site is a small lean to piggery built behind the original boundary wall.

It is proposed to convert the main barn and the front outbuilding into residential accommodation.

No details of a proposed conversion scheme were available at the time of preparation of this report.

The buildings stand on an site sloping slightly downwards towards the right hand side and there are several existing trees in the vicinity of the buildings.

### Jakes Farm, Wakes Colne, Colchester, Essex

### INSPECTIONS AND INVESTIGATIONS

The site was visited by the undersigned on 7<sup>th</sup> January 2008. A visual inspection of the barn, the outbuilding and the former piggery was carried out and the basic structural arrangement of the buildings was noted together with the type and location of the significant adjacent trees.

Two trial holes were excavated to confirm the foundations of the barn and the outbuilding; the trial holes were extended using a 70mm diameter hand auger to determine the nature of the underlying soil.

### ASSESSMENT

### Main Barn

### a) Roof Structure

The roof structure of the main barn comprises hardwood common rafters of varying sizes, approximately 110 wide x 70 deep at 550 centres supported by 100 x 63 approximate purlins with collars and principal rafters at bay and mid strey locations. The rafters are partly pegged at the apex and partly fixed with a ridge board. The mid strey has a similar roof structure with a hipped end.

The roof is covered with slates and has not been felted. In some parts of the building the original roof structure is badly deflected and this has been strengthened by adding additional softwood rafters between or above the original rafters. Some sections of the original purlins have also been replaced in softwood. Diagonal bracing has been installed running below the existing rafter lines.

The lean-to roof structures will require strengthening to the purlins and eaves beams.

Overall it is considered that the roof structure of the barn will require significant strengthening by the addition of new collars, additional purlins etc, and probably the addition of ply sheathing to the roof structure. It is likely that (subject to an inspection of the timbers at high level) about 75% of the existing roof structure can be reused.

### Jakes Farm, Wakes Colne, Colchester, Essex

Assessment – Main Barn (continued)

### b) Walls and Cross Frames

The main barn timber framed walls comprise hardwood studs at approximately 600mm centres built off wall plates over relatively high level brick plinth walls. The rear right hand section of the timber framed wall and the plinth wall below appear to have been replaced relatively recently i.e. in the last 20 years.

In general the timberwork in the walls is in relatively good condition though some areas of local decay exist; it is considered that at least 85% of the existing timberwork can be reused.

The cross frames of traditional barns are rarely adequate to sustain design lateral wind loadings without excessive deflection, especially where the high level fixing of the frames is provided by knees rather than diagonal braces. Having said that, in this case, if ply sheathing is provided to the barn structure including the mid strey walls and that the roof is also sheathed, the racking resistance of these walls and of the roof diaphragm alone will provide the necessary stability.

The mid strey walls are badly decayed at their bases and new sole plates and replacement lower sections of the main posts will be required.

### c) Floor Slabs

The floor structure appears to be a combination of concrete slabs and cobbles covered with asphalt and appears badly cracked. A new floor slab will undoubtedly be required.

### d) Plinth Walls and Foundations

The trial hole TH2 indicated the plinth wall foundations to be 350mm deep plain brickwork footings on what appears to be highly shrinkable London clay in the presence of Ash and Cherry trees on one side of the barn and Elm trees on the other. These footings will need to be underpinned or the plinth walls replaced on new deep footings. The required depths would be considerably reduced if the current Ash and Cherry trees (which are small) and the Elm trees (which are deceased) could be removed.

The right hand plinth wall is cracked but will be satisfactory following underpinning and local repair.

### Jakes Farm, Wakes Colne, Colchester, Essex

Assessment – Main Barn (continued)

### d) Plinth Walls and Foundations (continued)

The left hand rear plinth wall is leaning so badly outwards that it will in any case need to be replaced. The left hand rear lean-to ground posts are badly decayed and would be best cut off and supported on a new plinth wall off a new foundation. A new bearing for the post supporting the front right hand lean-to will also be required.

### Outbuilding

### a) Roof Structure

The outbuilding roof structure is a conventional timber cut roof covered in tiles. The roof structure is slightly deflected but from the limited internal inspection carried out the roof lintels appear to be in satisfactory condition and most are suitable for reuse. Additional collars will need to be provided together with hangers and binders to support the overspanned ceiling joists.

### b) Walls

The existing solid brick walls are not significantly distorted and are generally in satisfactory condition for reuse as are the timber framed gable walls, though some remedial works may be required to the sole plates when these are inspected in detail.

### c) Floor Slab

The existing concrete floor slab appears in satisfactory condition for reused subject to a detailed check following the removal of the furniture at present in the room.

### d) Foundations

The existing foundations where exposed were found to be 650mm deep plain brick footings on stiff silty clay strata. In the absence of trees these foundations would be adequate but there are currently a group of large Elm trees about 10m from the buildings so underpinning of the foundations will be required.

Jakes Farm, Wakes Colne, Colchester, Essex

Assessment (continued)

**Former Piggery** 

The former piggery is a single low height lean-to building and unsuitable for residential occupation. It can however be refurbished for storage use by replacement of the collapsed section of roof structure and sections of decayed wall plates, together with local repairs to deteriorated areas of brickwork.

CONCLUSIONS

Overall the barn and outbuildings are buildings in need of some remedial works (extensive in some areas) but overall are still eminently suitable for conversion to residential use whilst retaining the main parts of the existing building's structural elements.

J K Davis BSc CEng MICE MCIWEM

January 2008

G. C. Robertson & Associates Ltd Consulting Civil & Structural Engineers The Salt House, Tide Mill Way Woodbridge, Suffolk IP12 1BY

Tel: 01394 – 384887 Fax: 01394 – 380739 e-mail engineers@gcrobertson.co.uk web site: http://www.gcrobertson.co.uk

### APPENDIX A

# STRUCTURAL ENGINEER'S REPORTS ON EXISTING COMMERCIAL, INDUSTRIAL & INSTITUTIONAL BUILDINGS

### SCOPE OF INVESTIGATIONS

- 1. Structural Engineer's reports on existing commercial industrial and institutional buildings are normally prepared as part of proposals for modification or refurbishment of premises, or when specific defects have been noted within a building by the Owner or a third party. In the accompanying report, the scope of the Engineer's brief is as stated in the report.
- 2. Unless specifically instructed, the Engineer's investigations have been confined to those relating to the brief and the report should not be taken as a complete investigation of all the load bearing elements of the building.
- 3. In any event, the Engineer's investigations do not include such items as damp penetration, adequacy of services, state of finishes, timber infestation, which would be undertaken as part of a full building survey carried out by a Chartered Surveyor.
- 4. The report has been prepared from a visual inspection of the building, together with other investigations detailed in the report. Any further investigations have been limited to those practical in the circumstances of the inspection, as in many cases extensive breaking out of existing finishes and floors, pavings etc. is required for a complete inspection. Conclusions and recommendations are based on this evidence and do not take account of items not directly inspected. A more thorough investigation has been recommended where the Engineer considers it would be advisable.
- 5. The Engineer has not inspected the woodwork or other parts of the structure which are covered, unexposed or inaccessible and is thus unable to report that any such part of the building is free from defect.
- 6. When subsoil investigations have been undertaken, it must be noted that exceptional conditions may exist elsewhere on the site not revealed by the exploratory borings or trial pits. Where reference is made to groundwater levels, this relates only to the time of boring and does not take account of variations due to seasonal or other effects.
- 7. Within the report, all orientations are given when facing the building from the road.
- 8. This report is the property of the G C Robertson & Associates Ltd and is confidential to the client designated in the report. Whilst it may be shown to his professional advisors, the contents are not to be disclosed to, or made use of, by any third party, without our express written consent. Without such consent we can accept no responsibility to any third party.
- 9. We cannot give any advice, instructions, recommendations, warnings, notices or supervision regarding asbestos, asbestos fibres or structures materials containing asbestos. Any client will need to make their own arrangements regarding the possible presence of asbestos in the structure, or on the site.

Revision D – September 2004

### APPENDIX B

### TRIAL HOLE LOGS

(7<sup>th</sup> January 2008)

### TH 1

DEPTH (mm)	STRATA
0 - 350	Made ground above footing.
350 - 500	Firm gravelly CLAY.
500 - 750	Stiff grey/brown silty CLAY with some flint gravel.
750	End of Hole.
	(Hole dry).

### TH 2

DEPTH (mm)	STRATA
0 - 300	Made ground above footing.
300 - 750	Stiff brown silty CLAY.
750	End of Hole.
	(Hole dry).

## APPENDIX C PHOTOGRAPHS

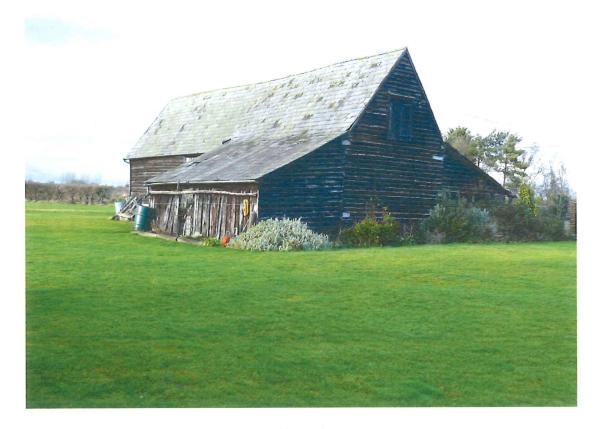


Photo 1 Barn Rear /Left Elevations

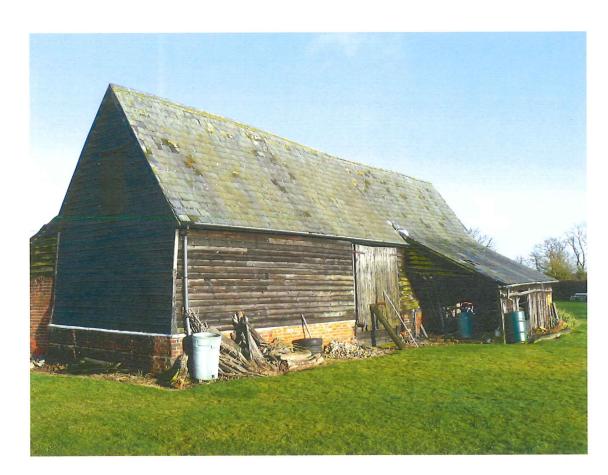


Photo 2 Barn Rear/Right Elevations

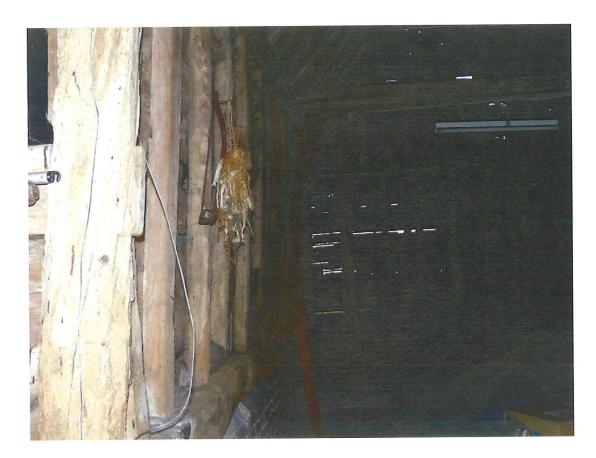


Photo 3 Barn Front Wall Looking Left



Photo 4 Barn Rear Plinth Wall Looking Left



Photo 5 Barn Right Hand Gable (Internal)

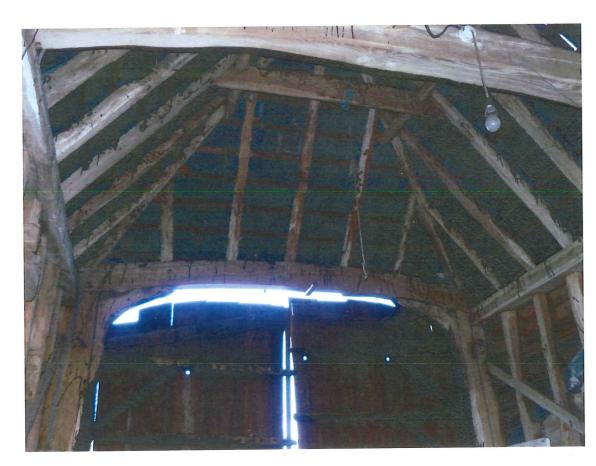


Photo 6 Barn Mid Strey Roof Structure – 1



Photo 7
Barn Mid Strey Roof Structure – 2



Photo 8 Barn Roof Structure Looking Left



Photo 9 Front Left Barn Lean-to Looking Right



Photo 10 Front Right Hand Barn Lean-to Looking Right



Photo 11 Barn Rear Lean-to Looking Left



Photo 12 Outbuilding – Front Elevation

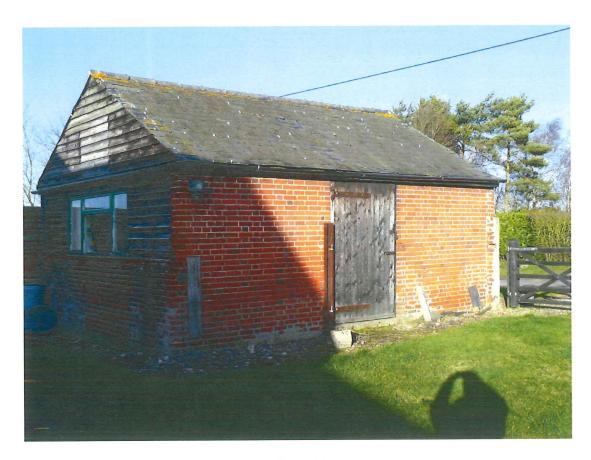


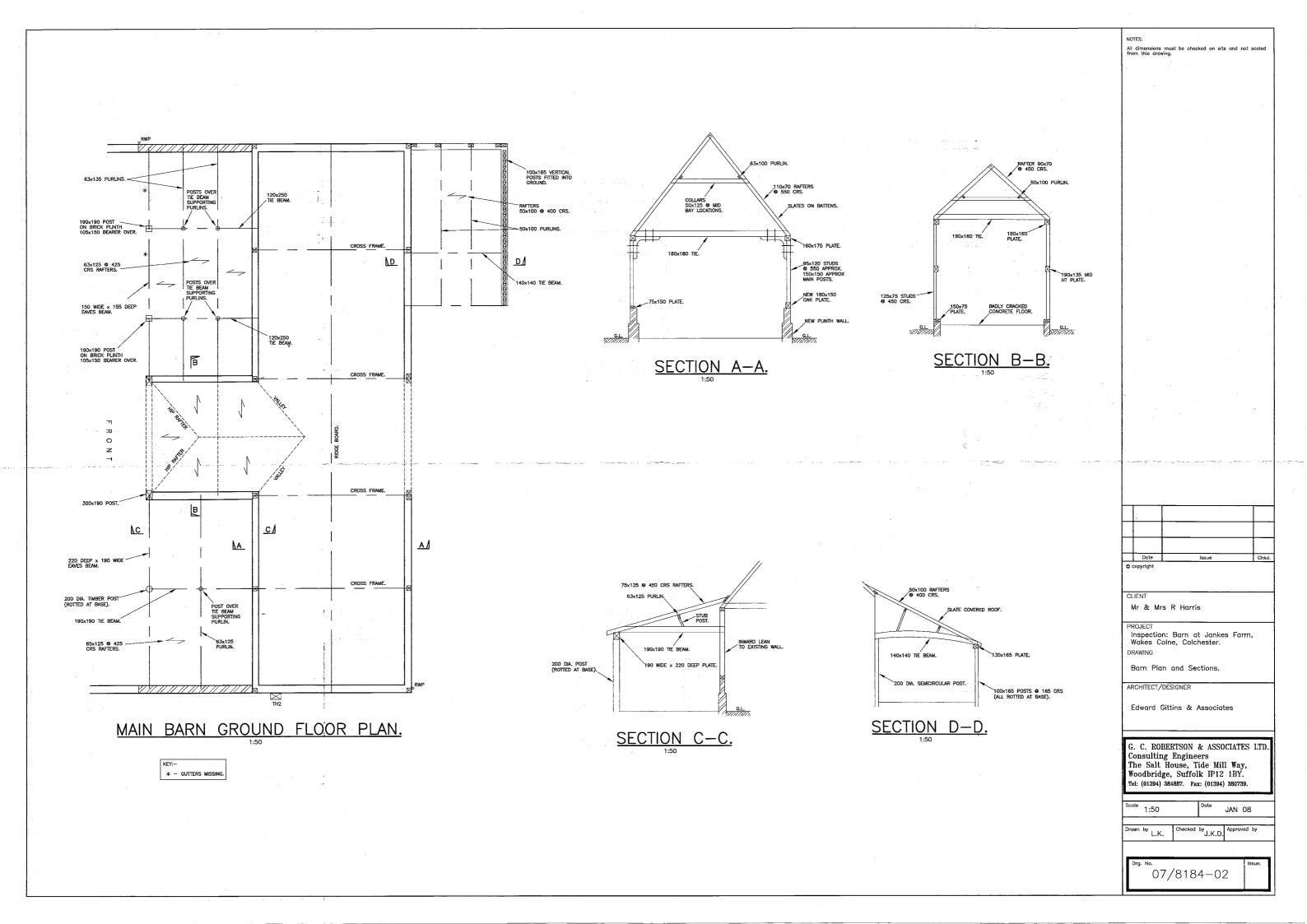
Photo 13 Outbuilding – Left Elevation

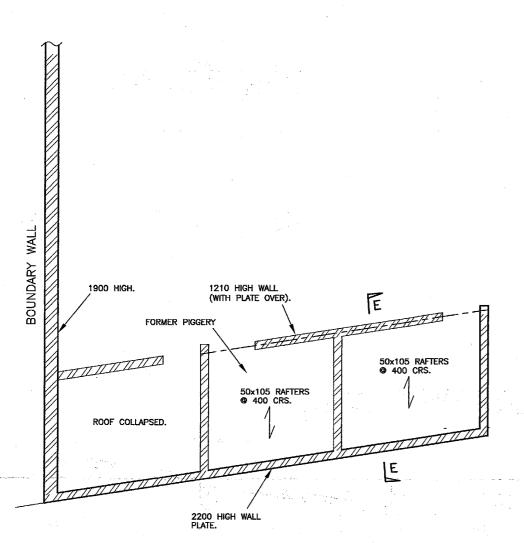


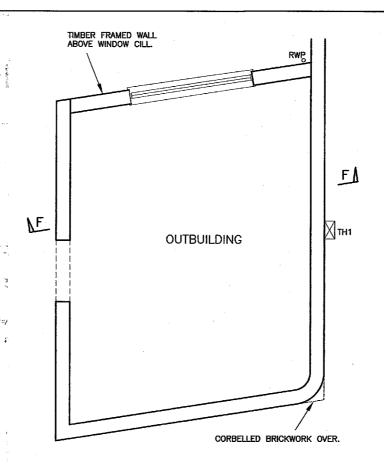
Photo 14 Outbuilding – Roof Structure



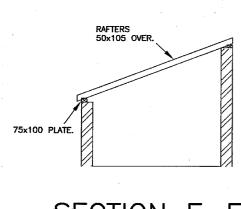
Picture 15 Piggery - Rear Elevation



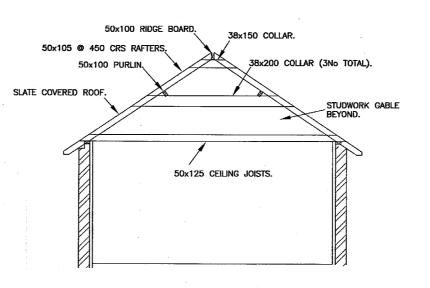




# OUTBUILDING AND PIGGERY LAYOUT.



SECTION E-E.



SECTION F-F.

All dimensions must be checked on site and not scaled from this drawing.

Date Chkd. Issue copyright copyright

CLIENT

Mr & Mrs R Harris

PROJECT

Inspection: Barn at Jankes Farm, Wakes Colne, Colchester.

DRAWING

Outbuilding/piggery plans & sections.

ARCHITECT/DESIGNER

Edward Gittins & Associates

G. C. ROBERTSON & ASSOCIATES **Consulting Engineers** The Salt House, Tide Mill Way, Woodbridge, Suffolk IP12 1BY. Tel: (01394) 384887. Fax: (01394) 380739.

Scale 1:50

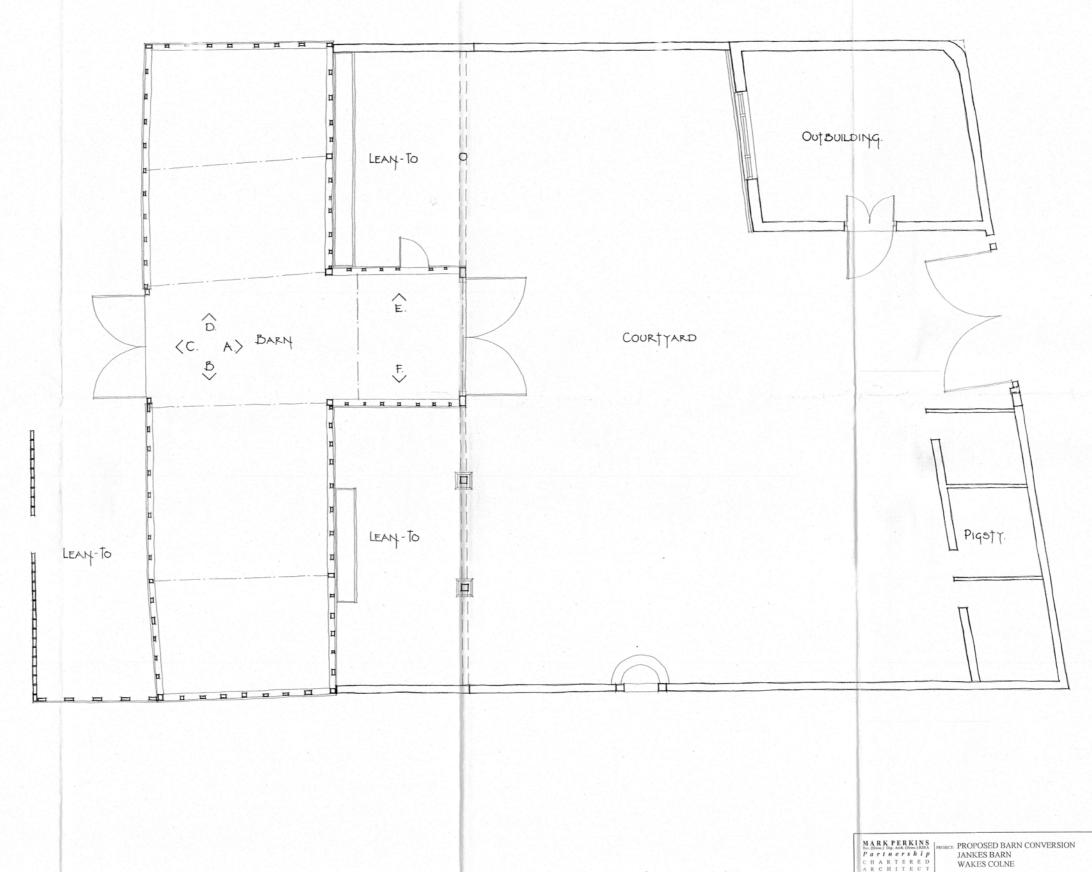
JAN 08.

Checked by JKD

07/8184-03

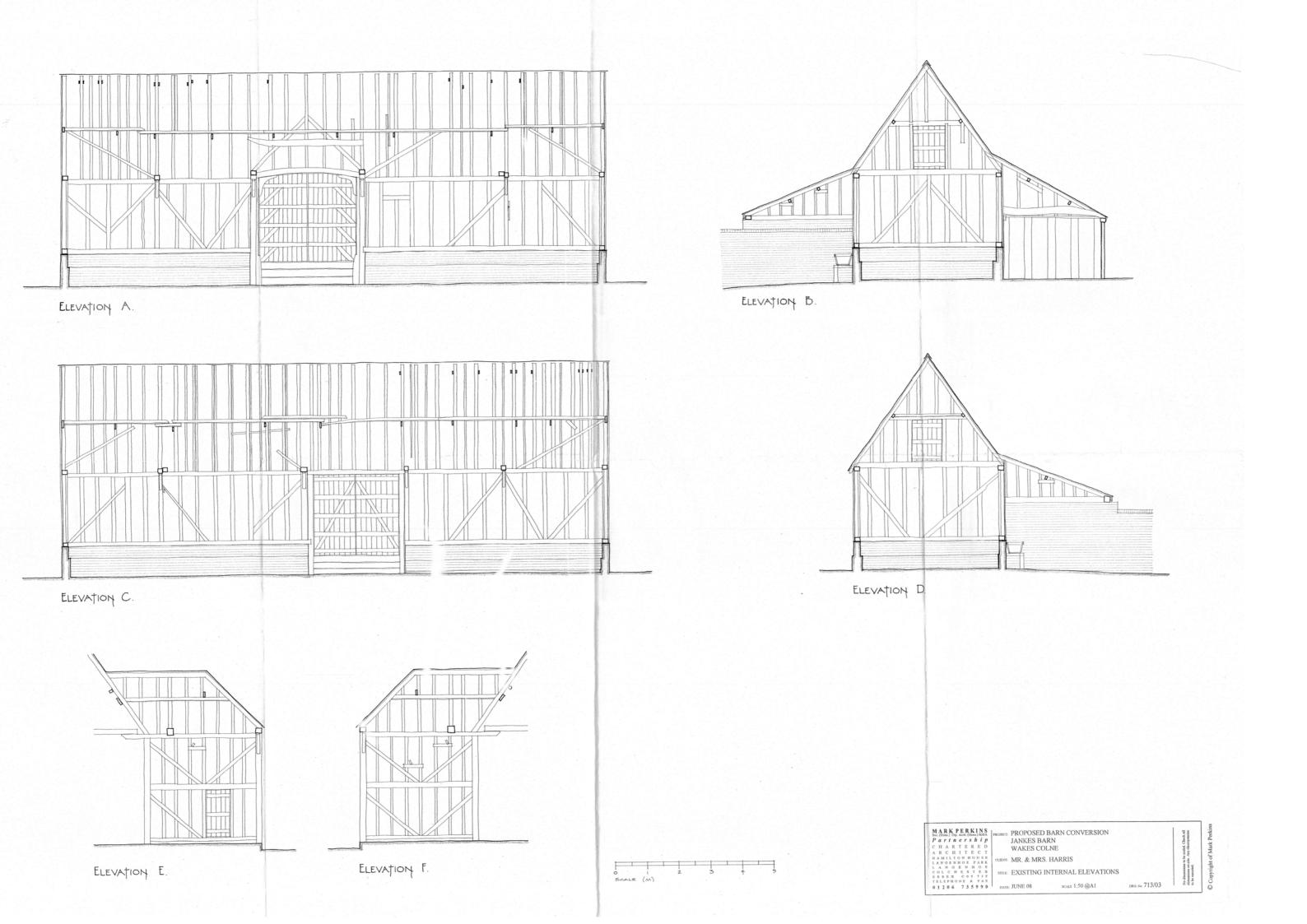
# C Hand Drawn Survey

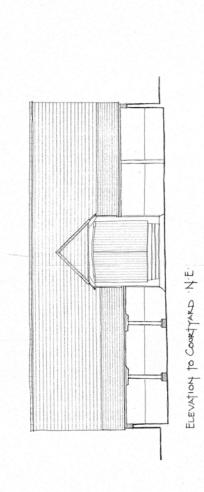
Mark Perkins Partnership April 2008

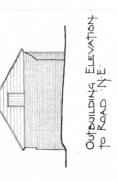


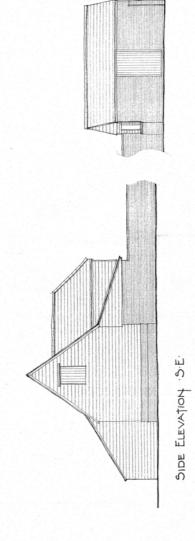
0 1 2 5 4 5 SCALE (M) MARK PERKINS
Discrete Control of the Art Control Mark
Pariners hip
CHARTER ED
ARCHITECT
AND ENHOE FARK
LANGENHOE FARK
LANGENHOE FARK
LANGENHOE FARK
ESSEX COS 7 PR
ESSEX COS 7 PR
ESSEX COS 7 PR
ESSEX COS 7 PR

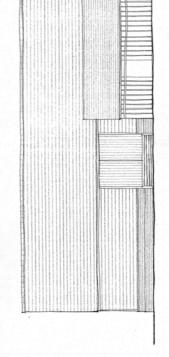
TELEFRONE & FAX 91206 735990 DATE APRIL 08 SCALE I:50 @ A1 DEC.No. 713/01





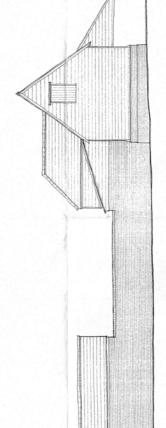






REAR ELEVATION .5.W.

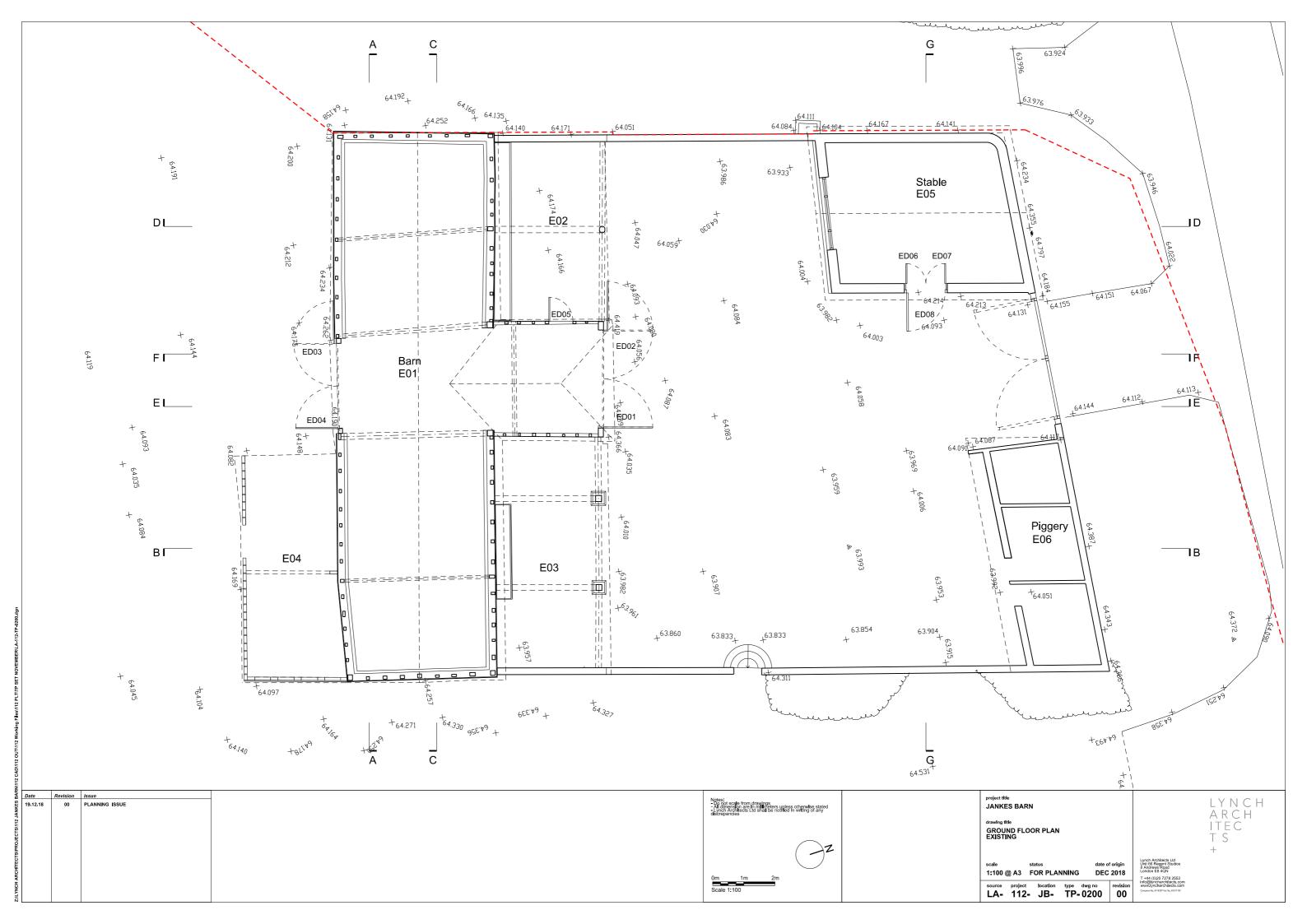
OUTBUILDING ELEVATION TO COURTTARD : 5.W.



SIDE ELEVATION . N.W.

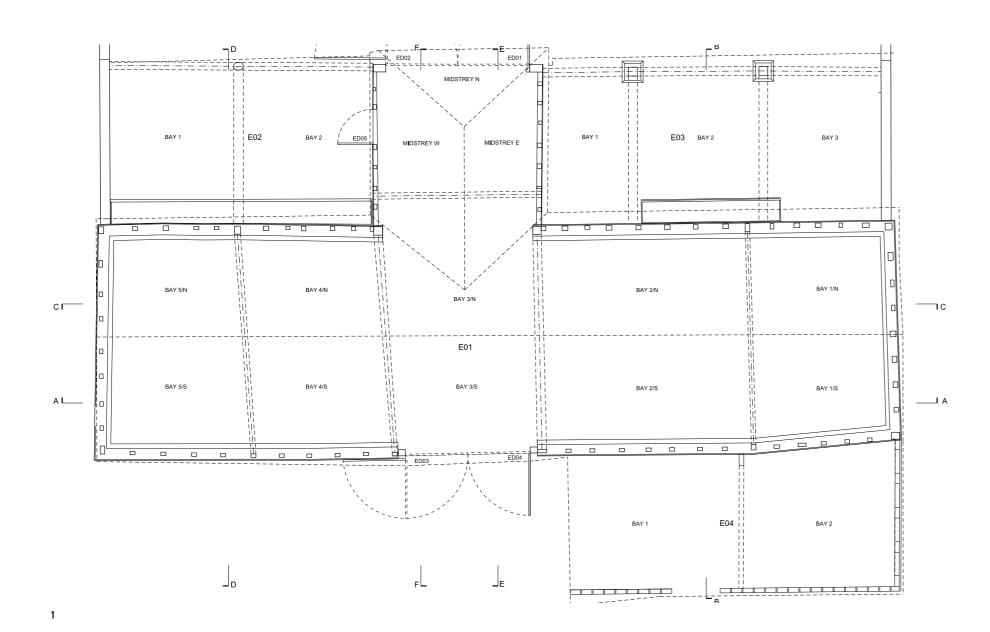


# D Photographic Survey



#### D Photographic Survey

Lynch Architects 2018



1 Extract from existing ground floor plan by Lynch Architects

# D Photographic Survey

Lynch Architects 2018







31







E01 Midstrey West

E01 Bay 5 North E01 Bay 4 North

#### D Photographic Survey













E01 Midstrey North E01 Midstrey East 1 E01 Midstrey East 2

## D Photographic Survey

Lynch Architects 2018







33







E01 Bay 2 North E01 Bay 2 North E01 Bay 1 North

## D Photographic Survey













E01 Bay 1 East E01 Bay 1 East E01 Bay 1 East

## D Photographic Survey

Lynch Architects 2018













E01 Bay 1 South E01 Bay 1/2 South E01 Bay 2 South

#### D Photographic Survey













E01 Bay 4 South E01 Bay 5 South E01 Bay 5 South

# D Photographic Survey













E01 Bay 5 West E01 Bay 5 West E01 Bay 5 West

# D Photographic Survey

Lynch Architects 2018



Roof composite looking North

## D Photographic Survey







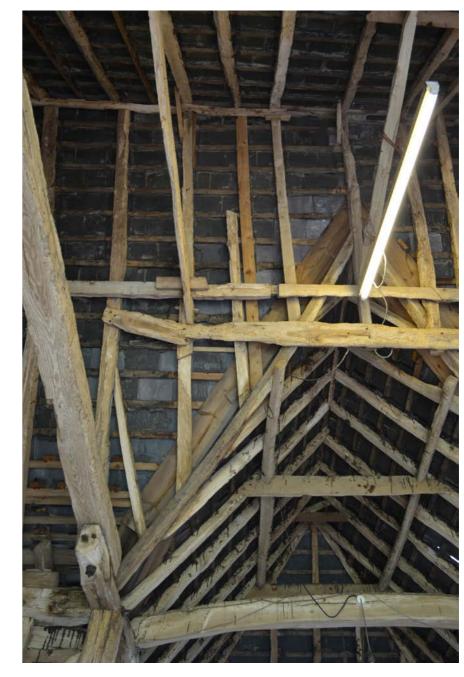
E01 Bay 5 North Roof E01 Bay 5 North Roof E01 Bay 4 North Roof

#### D Photographic Survey

Lynch Architects 2018





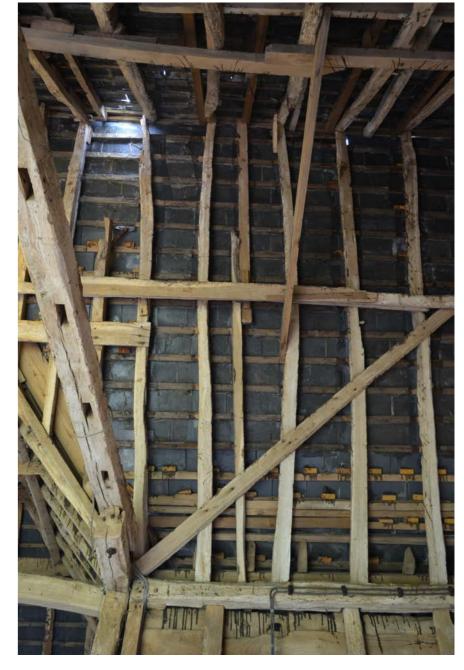


E01 Bay 4 North Roof E01 Bay 4/3 North Roof E01 Bay 3 North Roof

## D Photographic Survey







E01 Bay 3 North Roof and Midstrey

E01 Bay 3 North Roof and Midstrey

E01 Bay 2 North Roof

#### D Photographic Survey







E01 Bay 2 North Roof E01 Bay 2 North Roof E01 Bay 2/1 North Roof

# D Photographic Survey

Lynch Architects 2018







43

E01 Bay 1 North Roof E01 Bay 1 North Roof E01 Bay 1 North Roof

## D Photographic Survey

Lynch Architects 2018

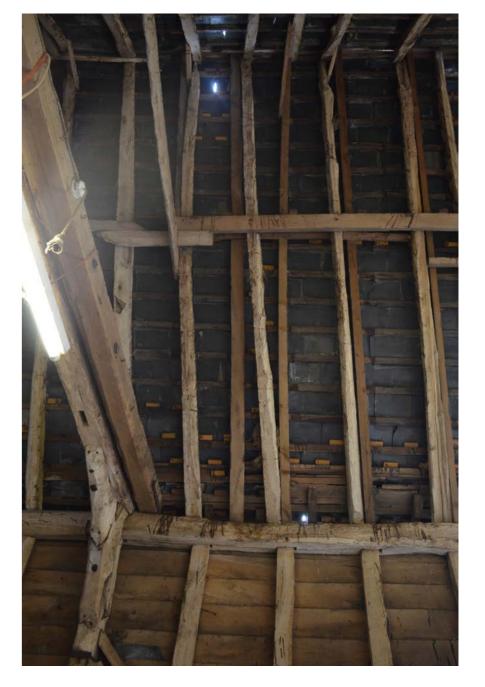


Roof composite from below

# D Photographic Survey



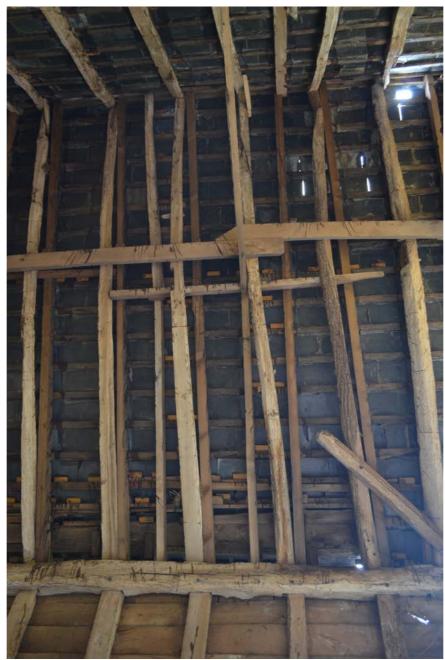


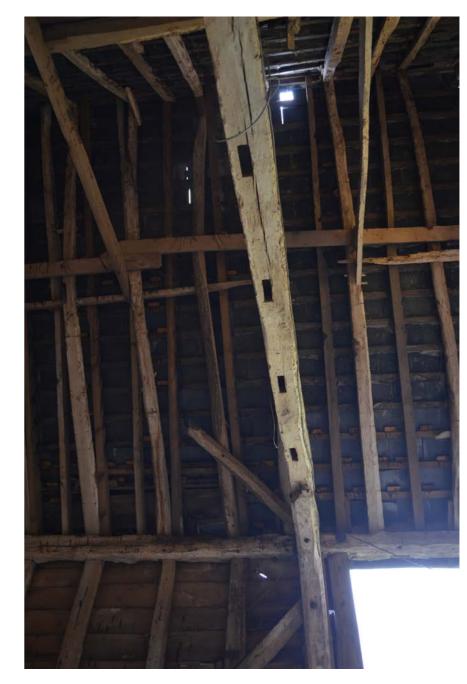


E01 Bay 1 South Roof E01 Bay 2 South Roof E01 Bay 2 South Roof

#### D Photographic Survey







E01 Bay 2 South Roof E01 Bay 2 South Roof E01 Bay 2 South Roof

# D Photographic Survey

Lynch Architects 2018







47

E01 Bay 3 South Roof E01 Bay 4 South Roof E01 Bay 5 South Roof

#### D Photographic Survey







E01 Bay 4 South Roof E01 Bay 4/5 South Roof E01 Bay 5 South Roof

#### **D Photographic Survey** Lynch Architects 2018











E03 Bay 3 East E03 Bay 3 South E03 Bay 2 South

# D Photographic Survey













E03 Bay 2/1 South E03 Bay 2 West

E03 Bay 1 West Close up

#### **D Photographic Survey** Lynch Architects 2018













ED01 North Door ED01 North Door Close Up

ED01 North Door Close Up

## D Photographic Survey







E02 Bay 1 Structural Post E02 Bay 1 Structural Post

E02 Bay 1 Structural Post

#### **D Photographic Survey** Lynch Architects 2018

53











E02 Bay 2 East ED05 Door Close Up

ED05 Door Close Up

#### D Photographic Survey













E02 Bay 1 South E02 Bay 2 South

E02 Bay 2 West

#### **D Photographic Survey** Lynch Architects 2018



Courtyard Entrance and North Elevation of Barn

## D Photographic Survey



Courtyard Entrance and North Elevation of Stable & Piggery

# D Photographic Survey



Barn North 01

## D Photographic Survey

Lynch Architects 2018





Barn North 02 Barn North 03

# D Photographic Survey



Courtyard and Barn from driveway looking West

## D Photographic Survey



Courtyard and Barn from driveway looking West

## D Photographic Survey



Barn East Elevation

## D Photographic Survey



Barn South Elevation

## D Photographic Survey



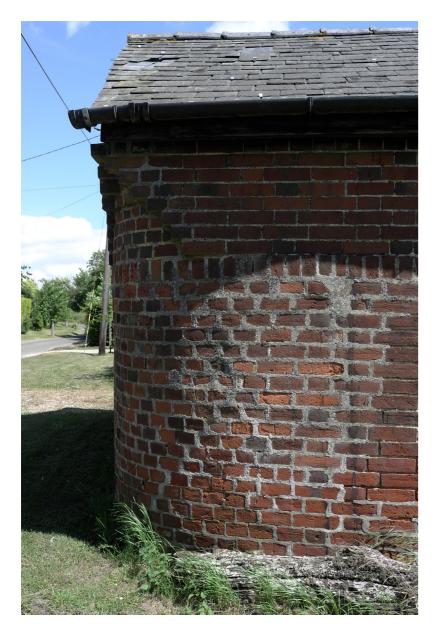
Barn West Elevation

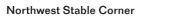
## D Photographic Survey



Barn West Elevation showing Courtyard Wall and Stable

## D Photographic Survey







Stable North Elevation

## D Photographic Survey



Stable East Elevation

## D Photographic Survey



Stable South Elevation

#### D Photographic Survey



Piggery South Elevation

## D Photographic Survey



Piggery West Elevation

## D Photographic Survey



Courtyard Garden looking East

## D Photographic Survey

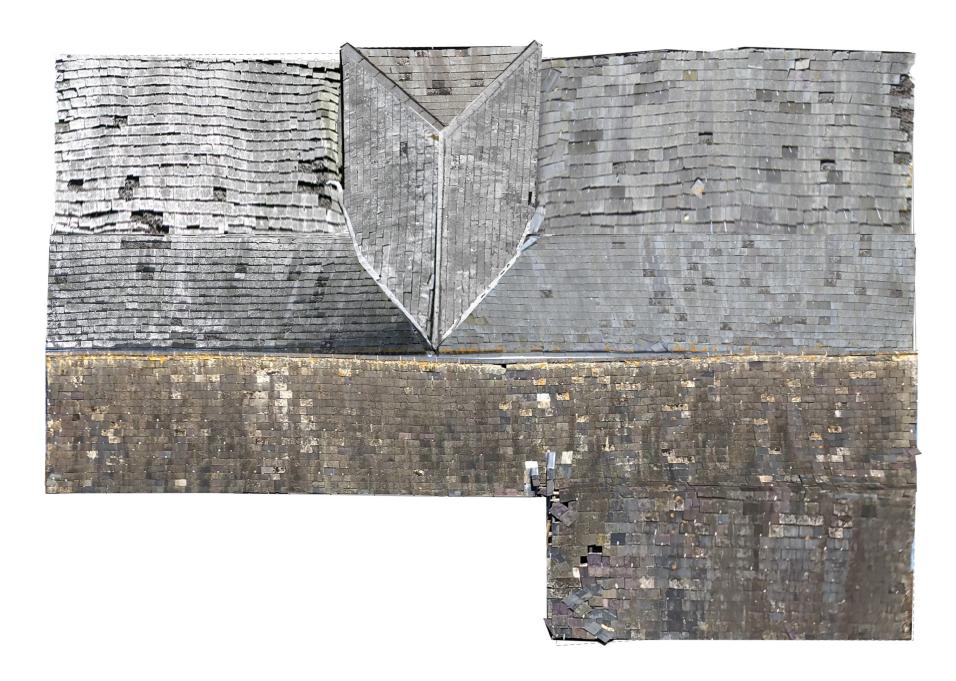


Courtyard Garden looking West

The second of th

## D Photographic Survey

Lynch Architects 2018

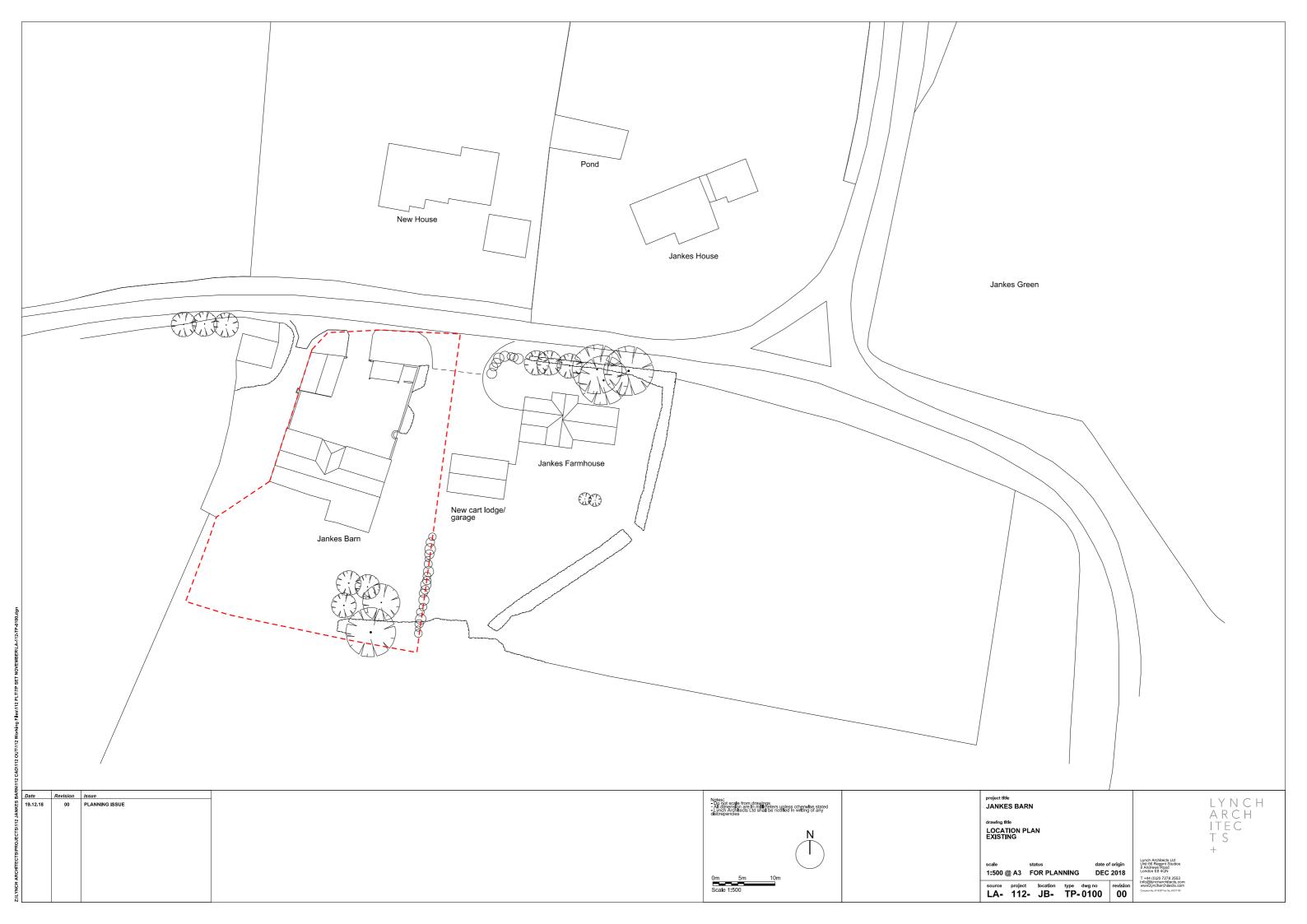


Roof composite showing condition of existing slates

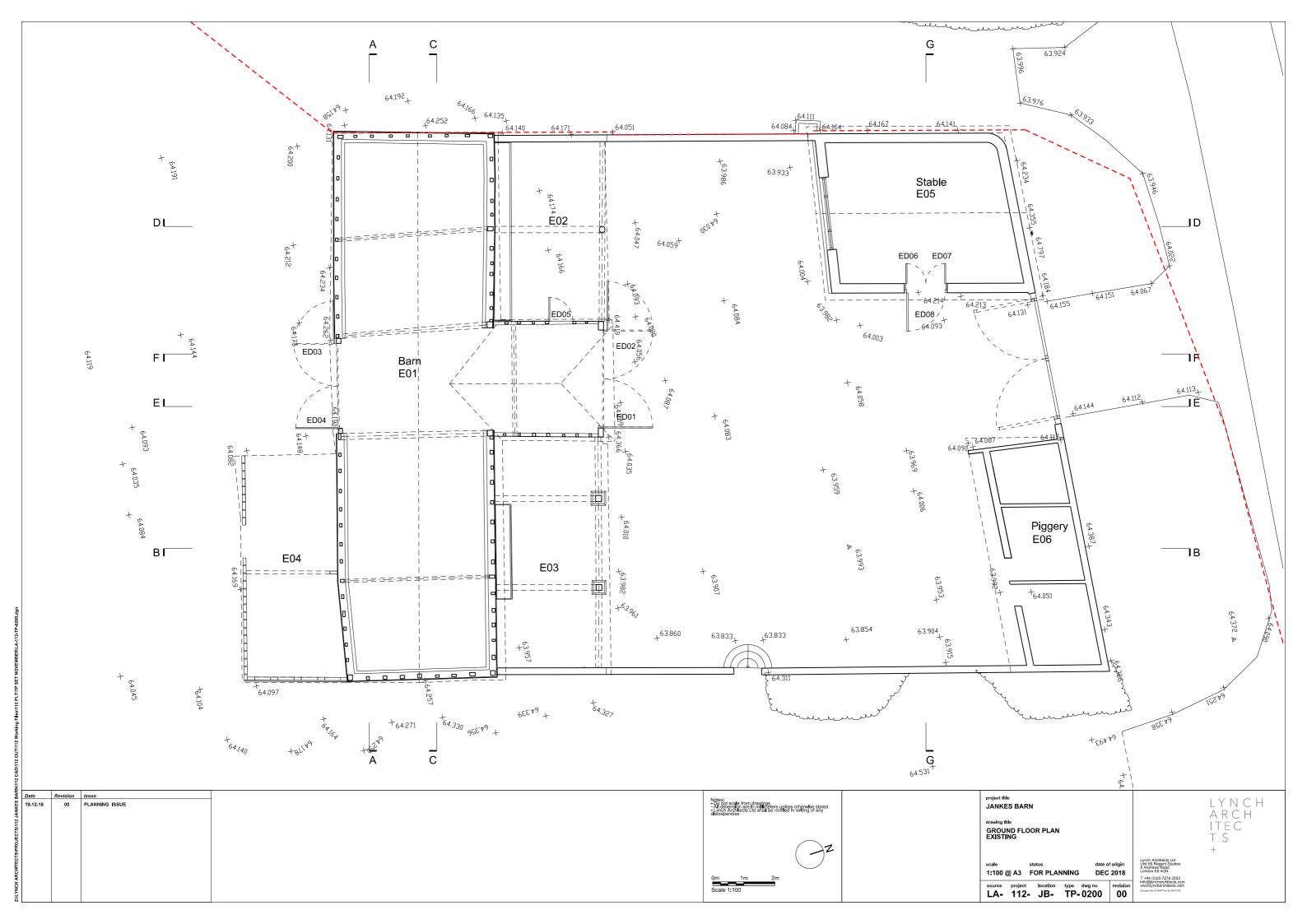
## **E Existing Drawings**

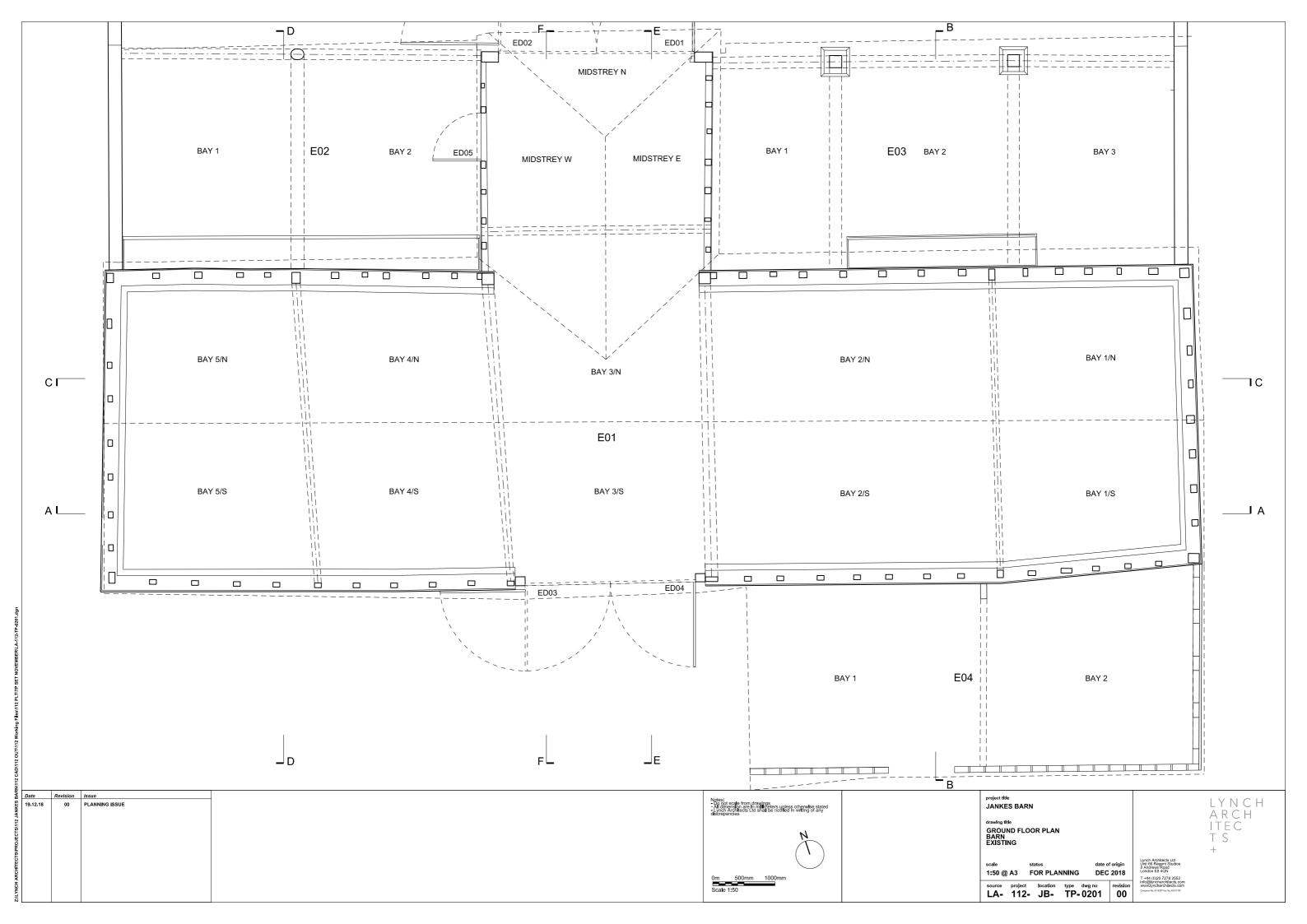
Lynch Architects 2018

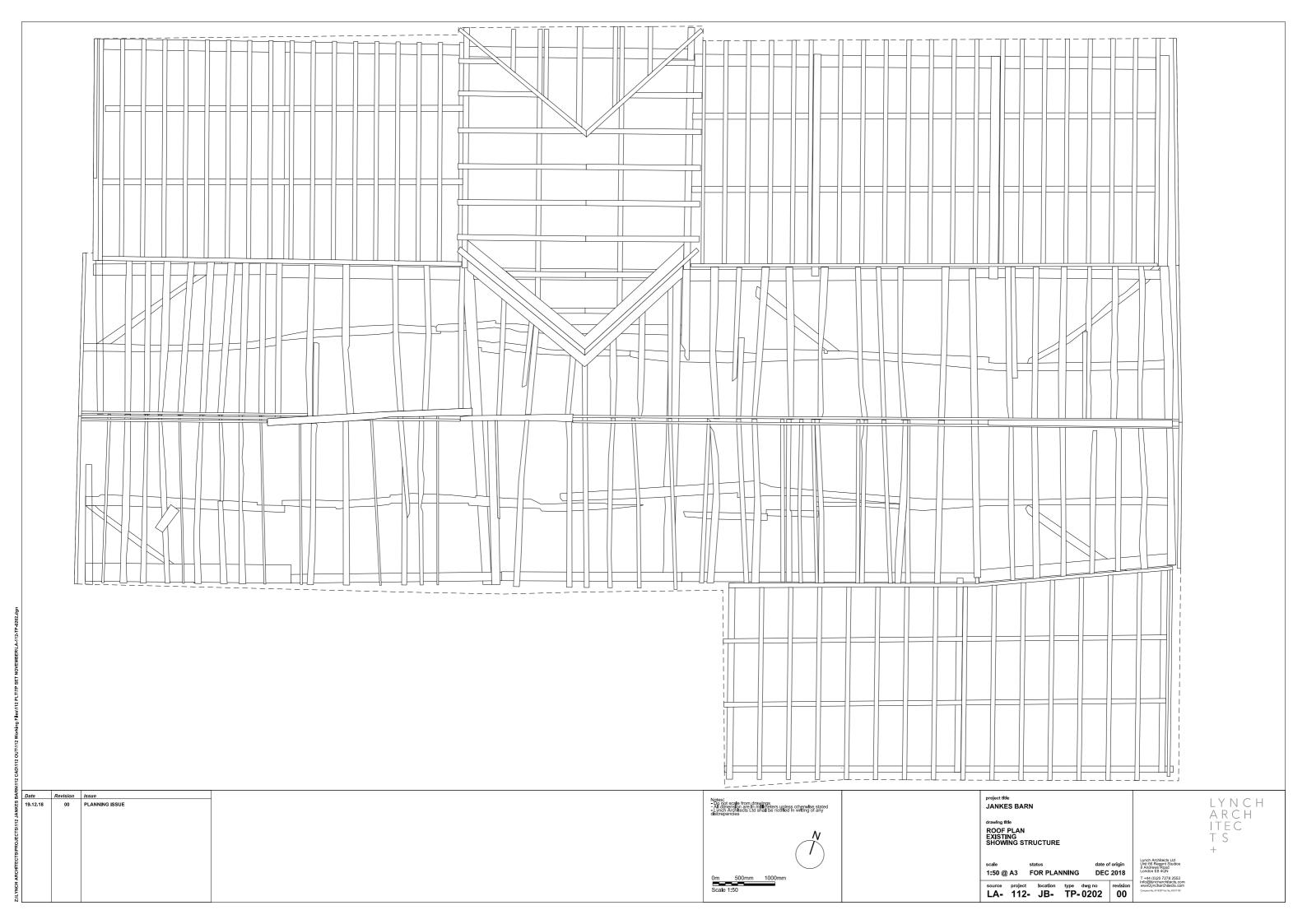
73

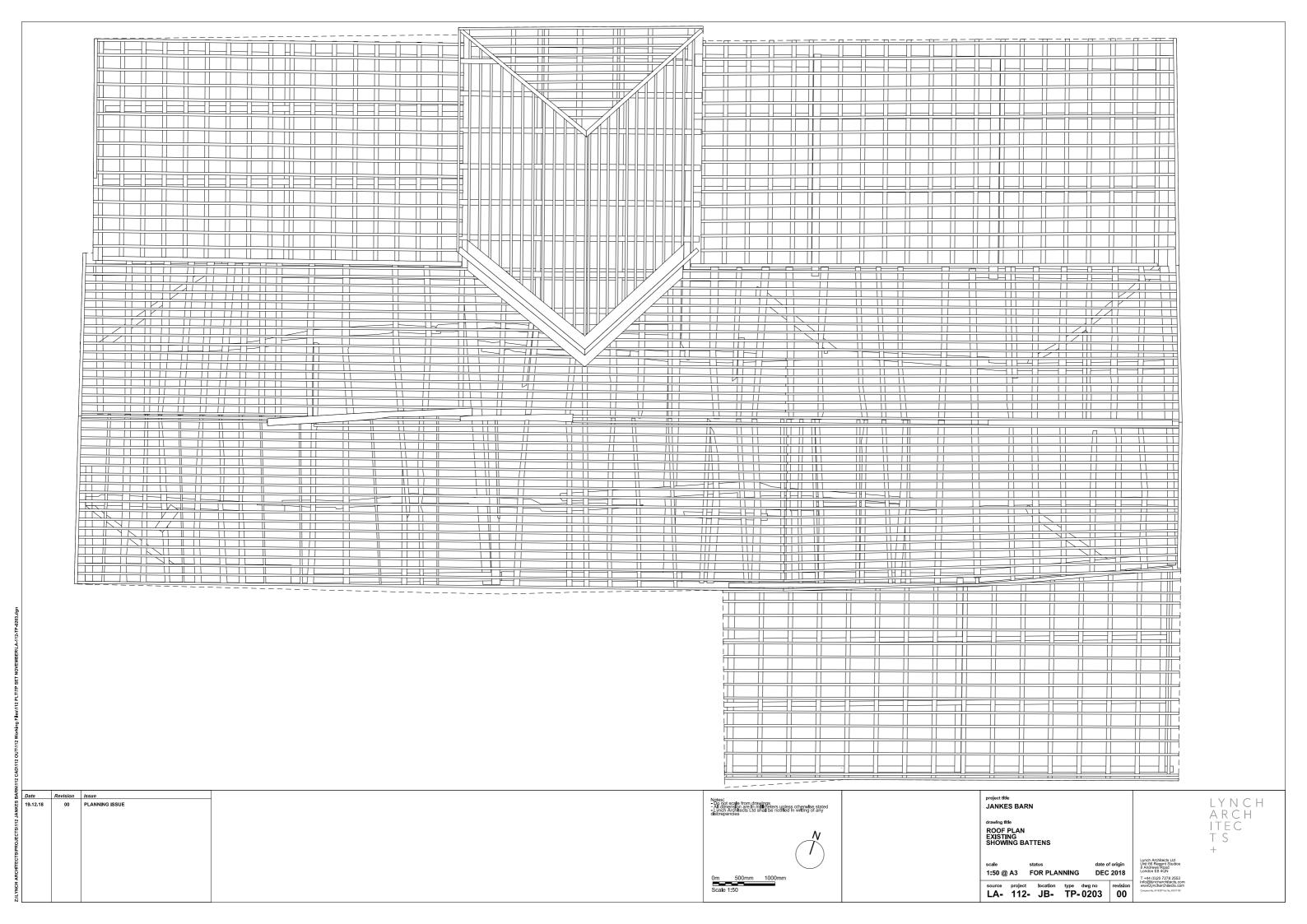


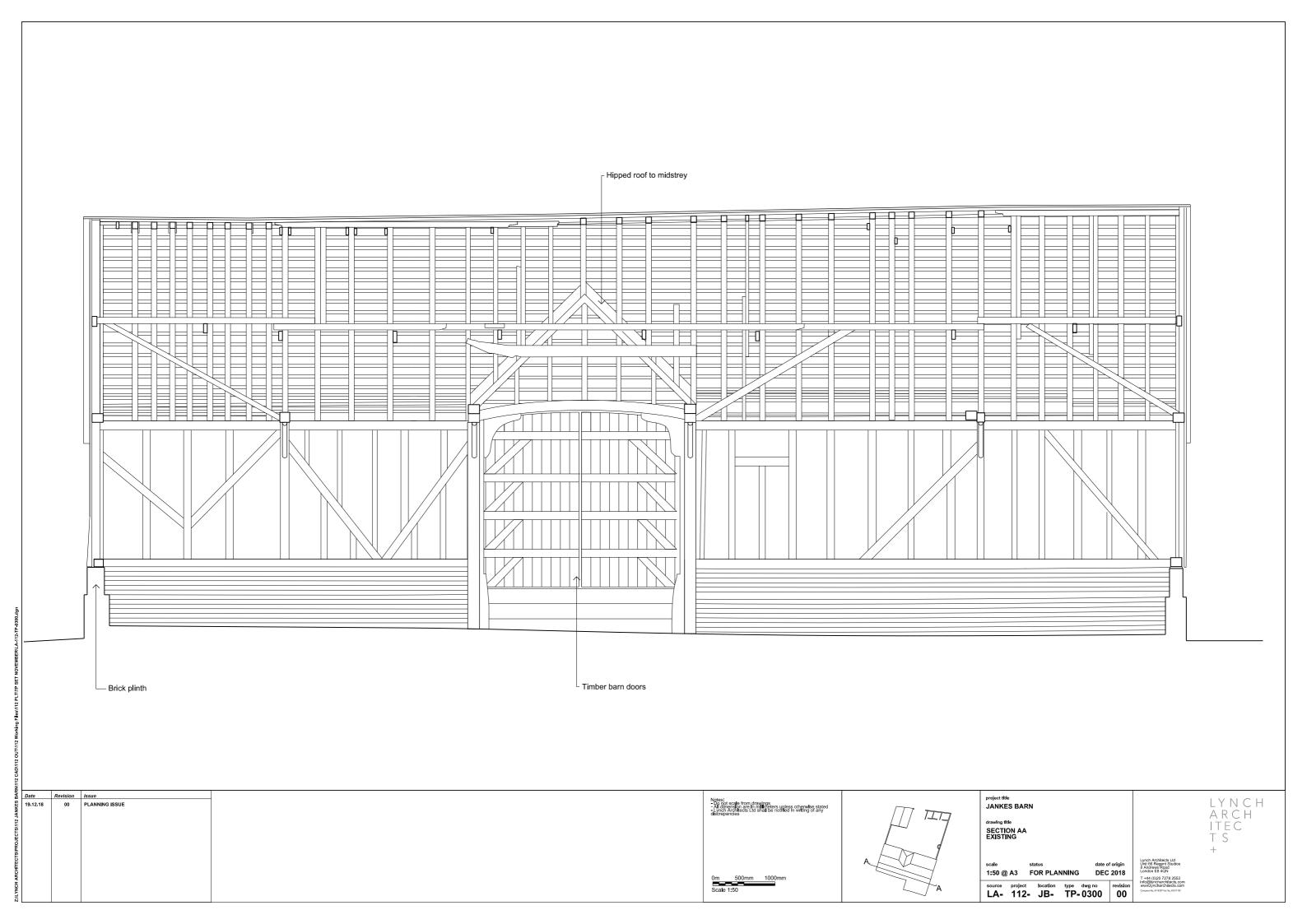


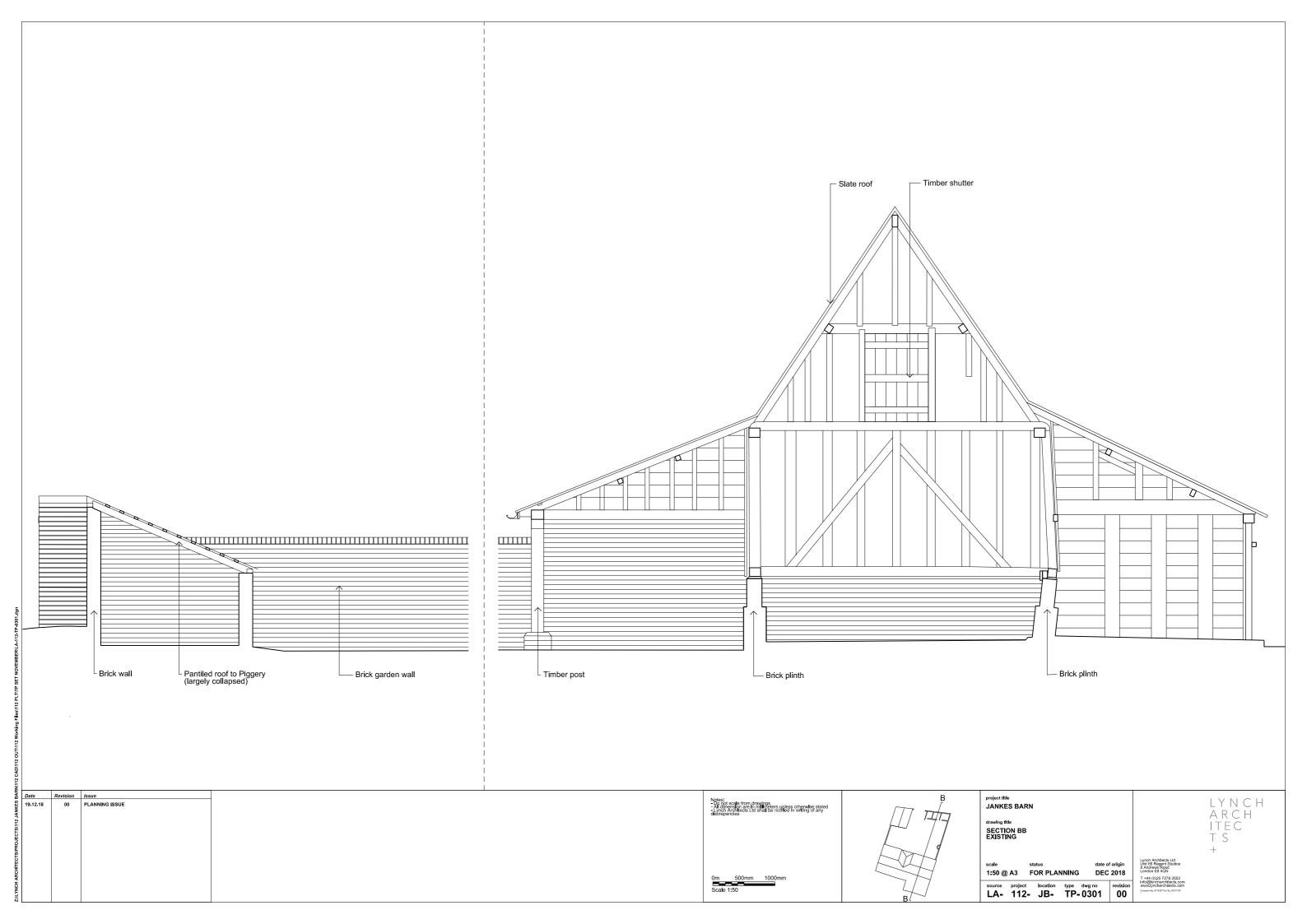


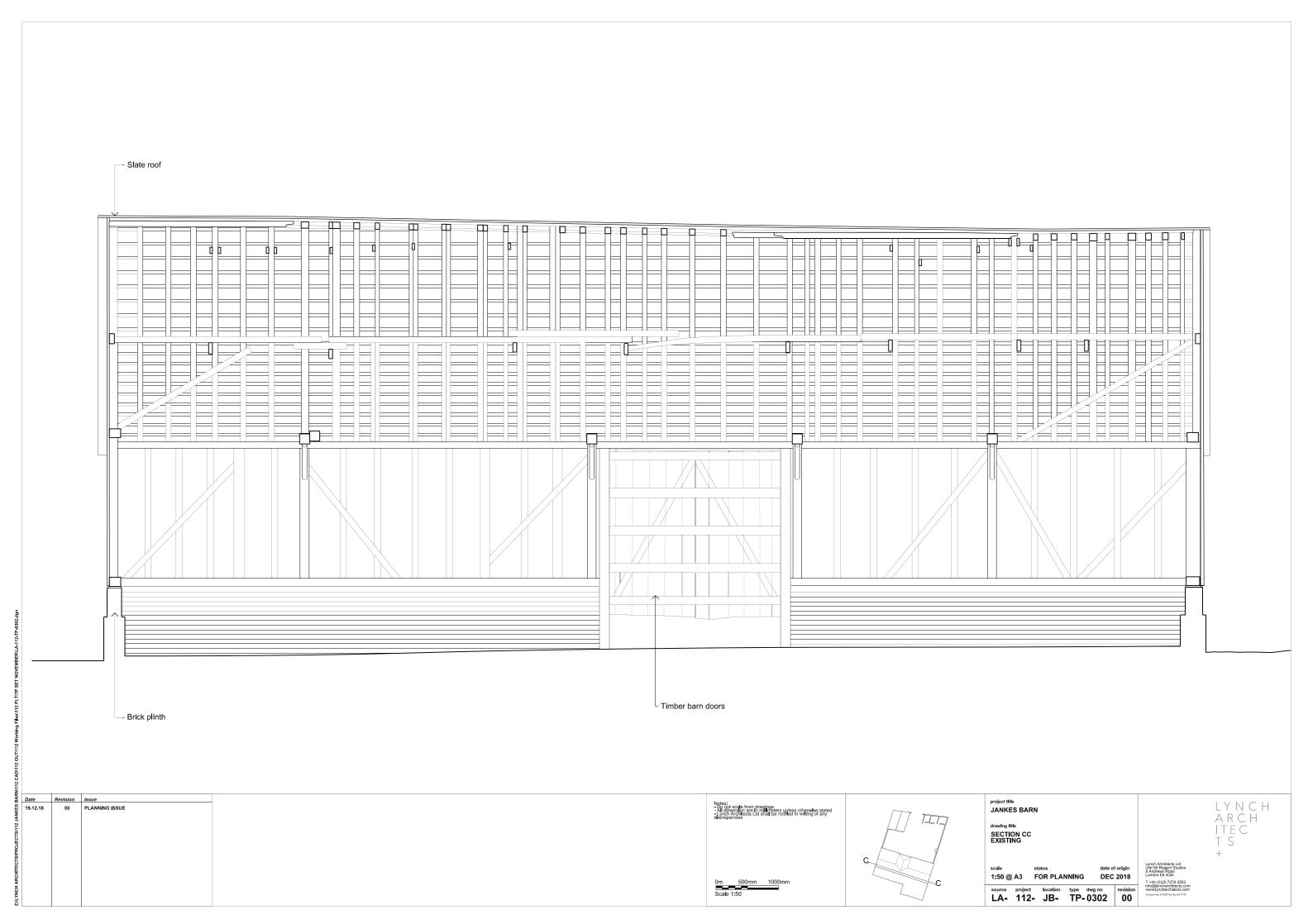


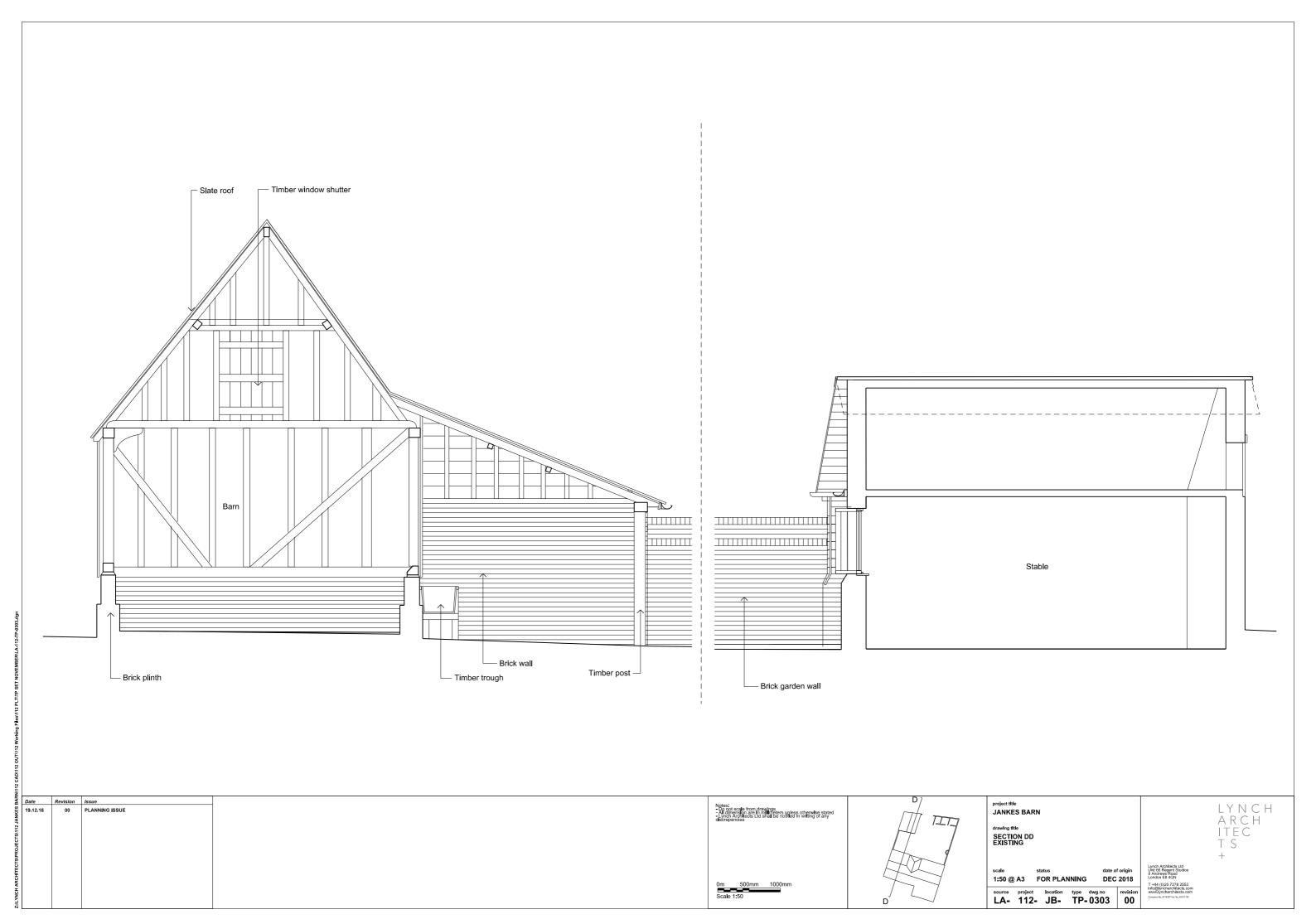


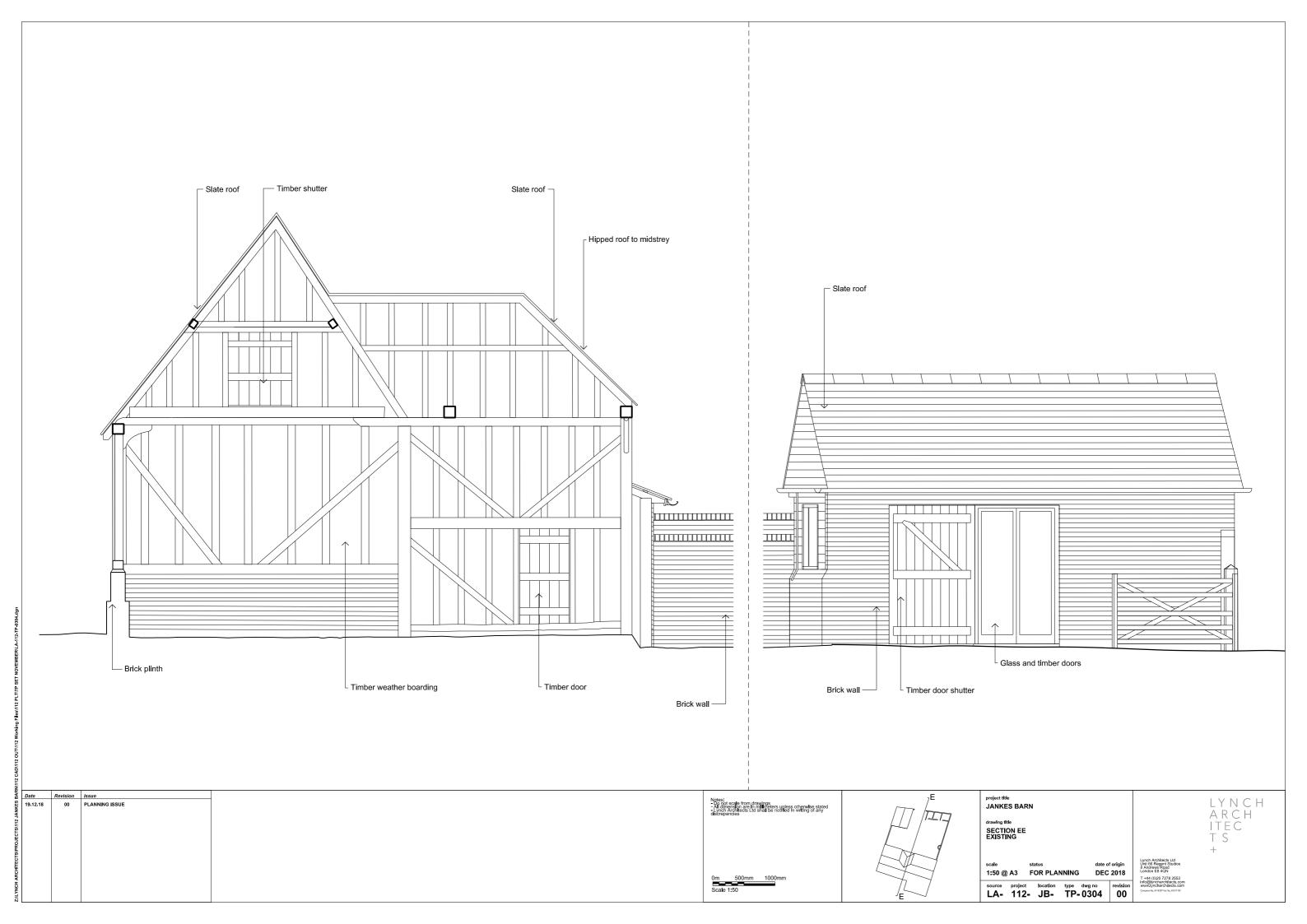


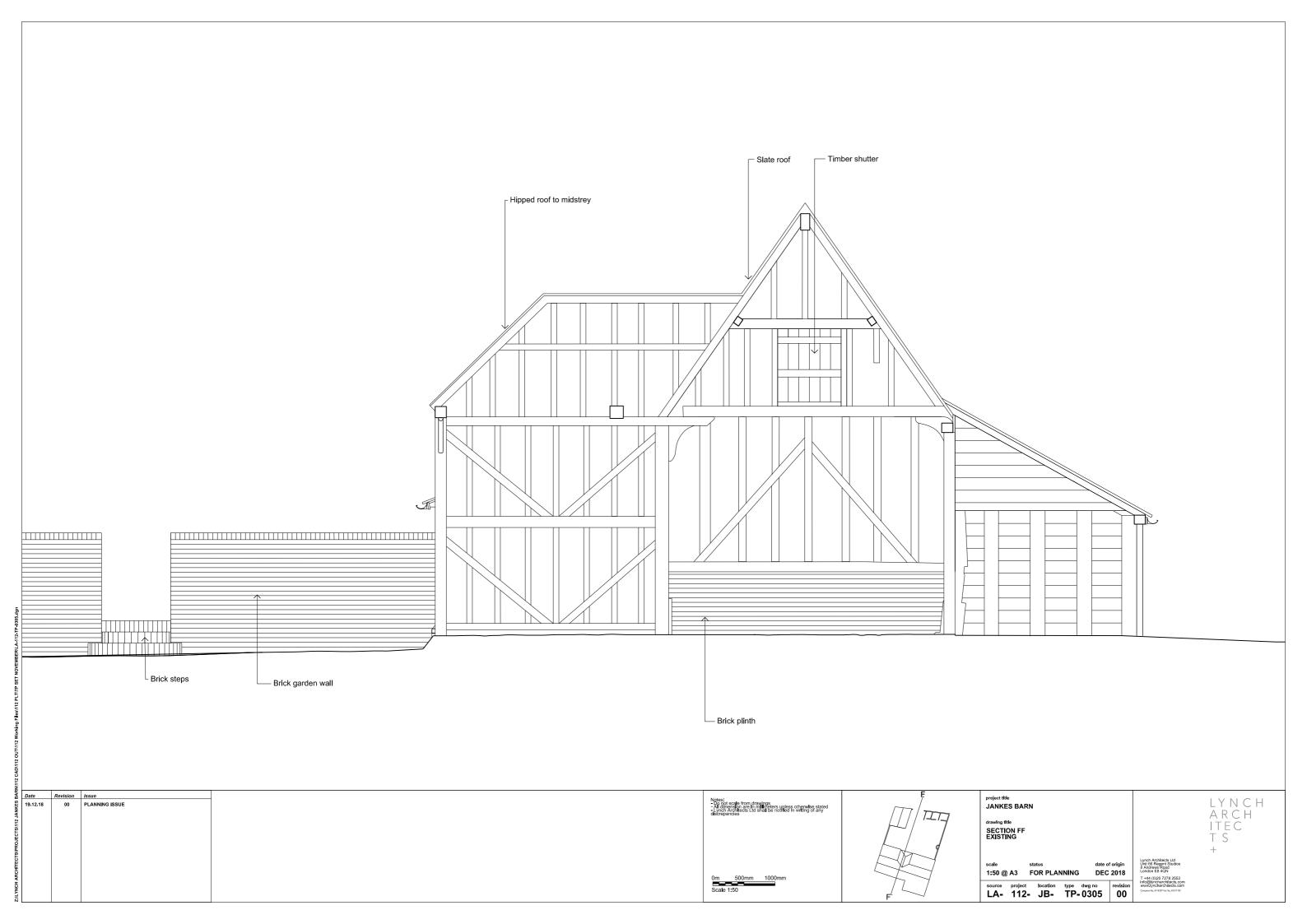


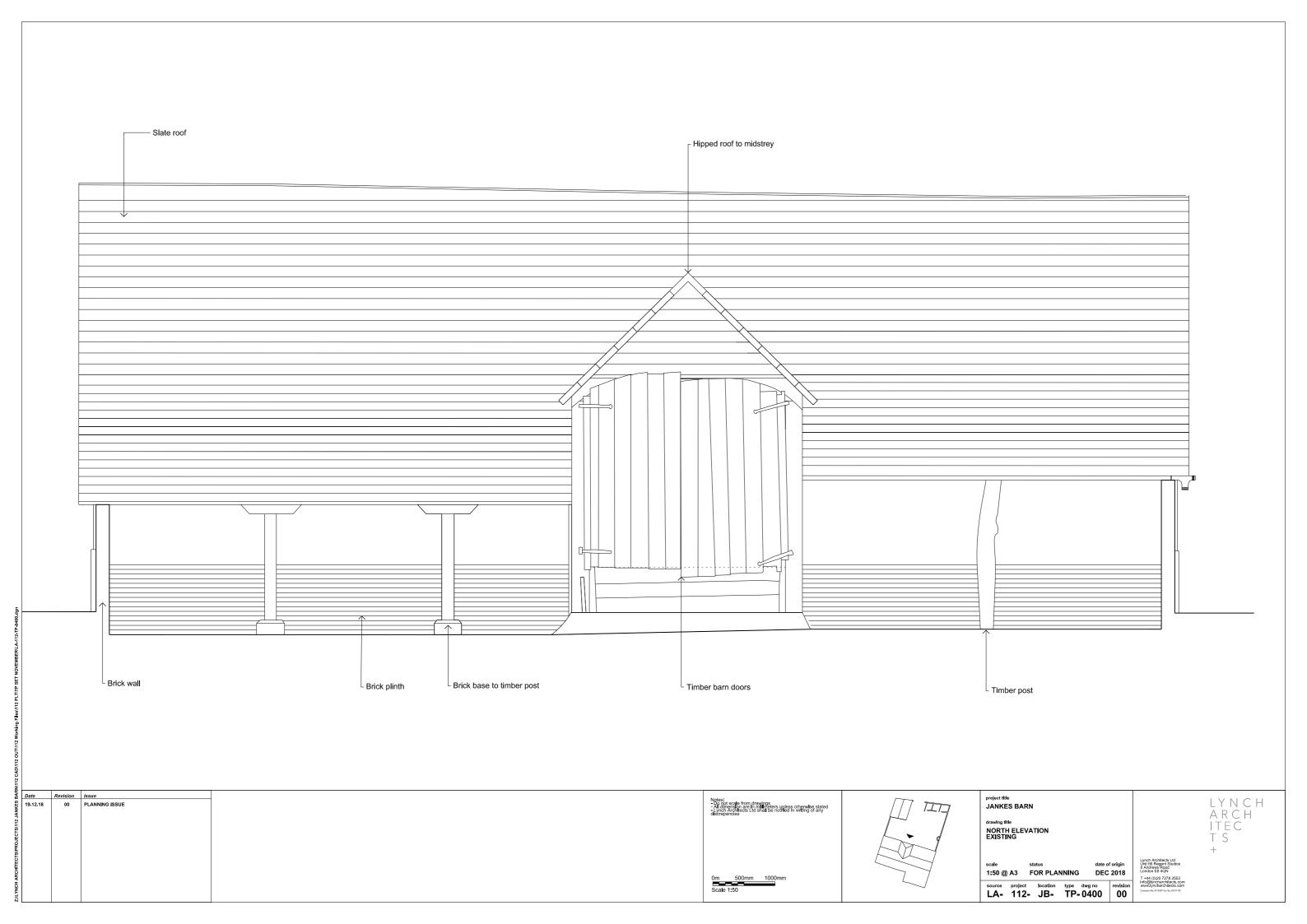


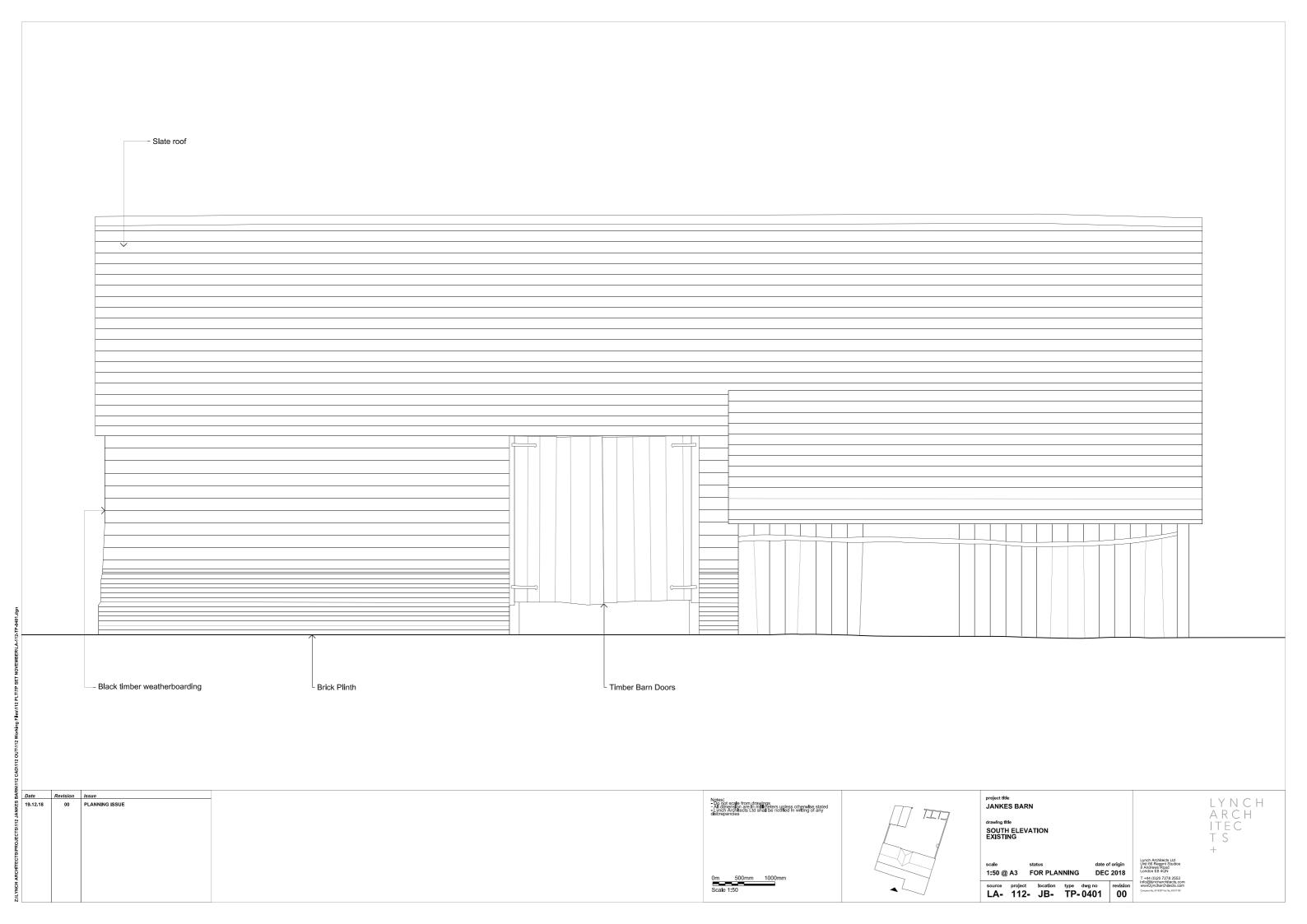


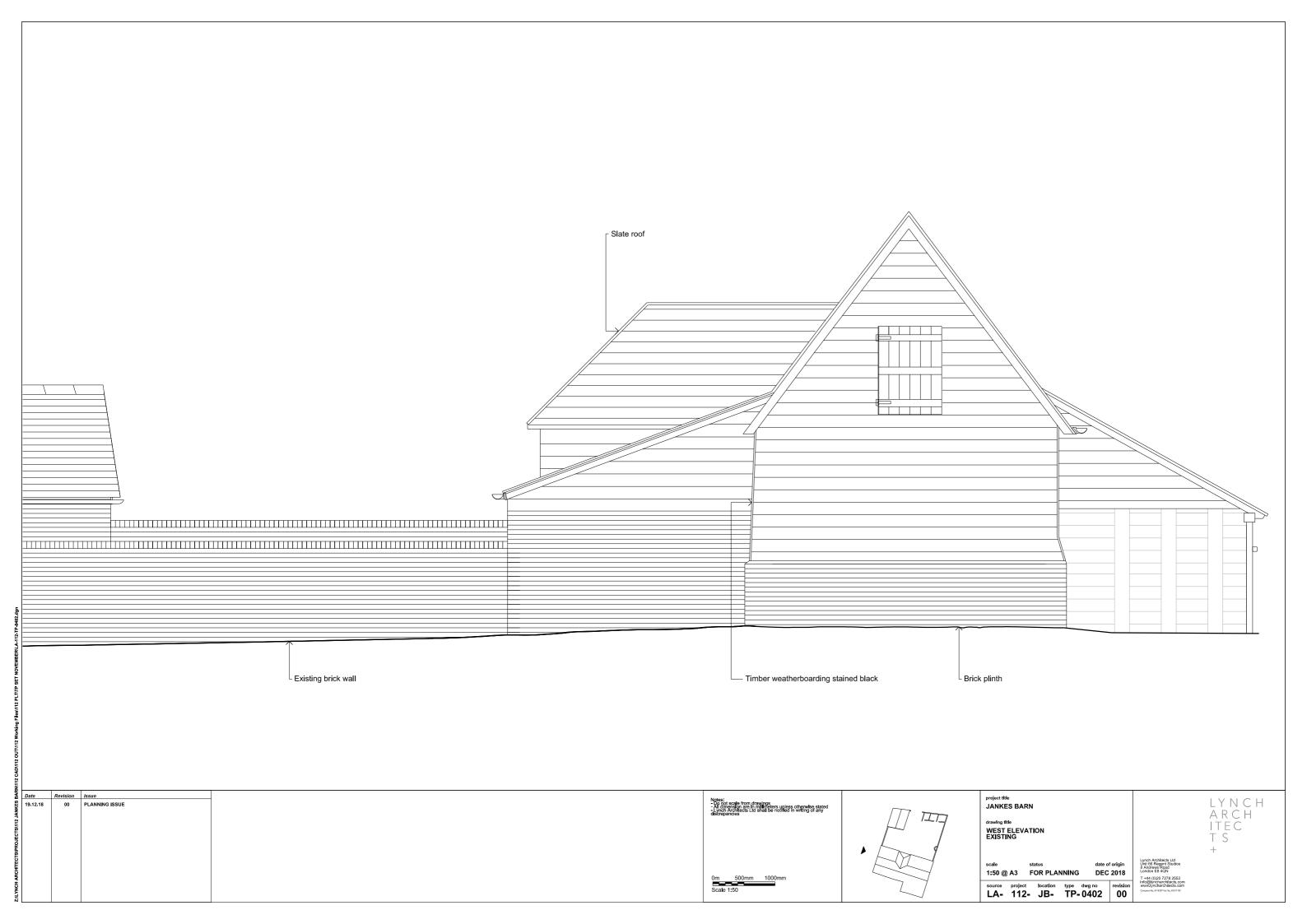


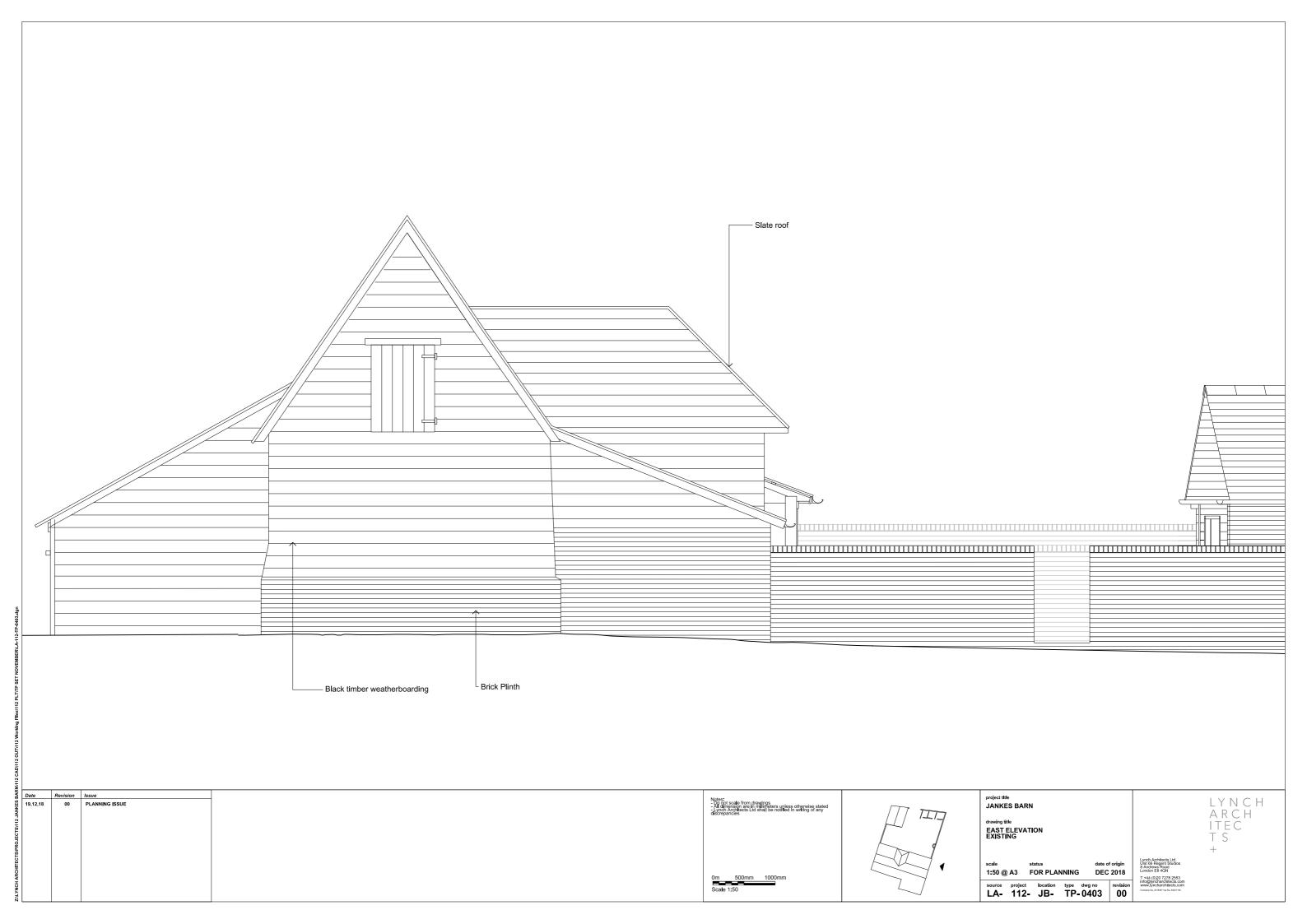


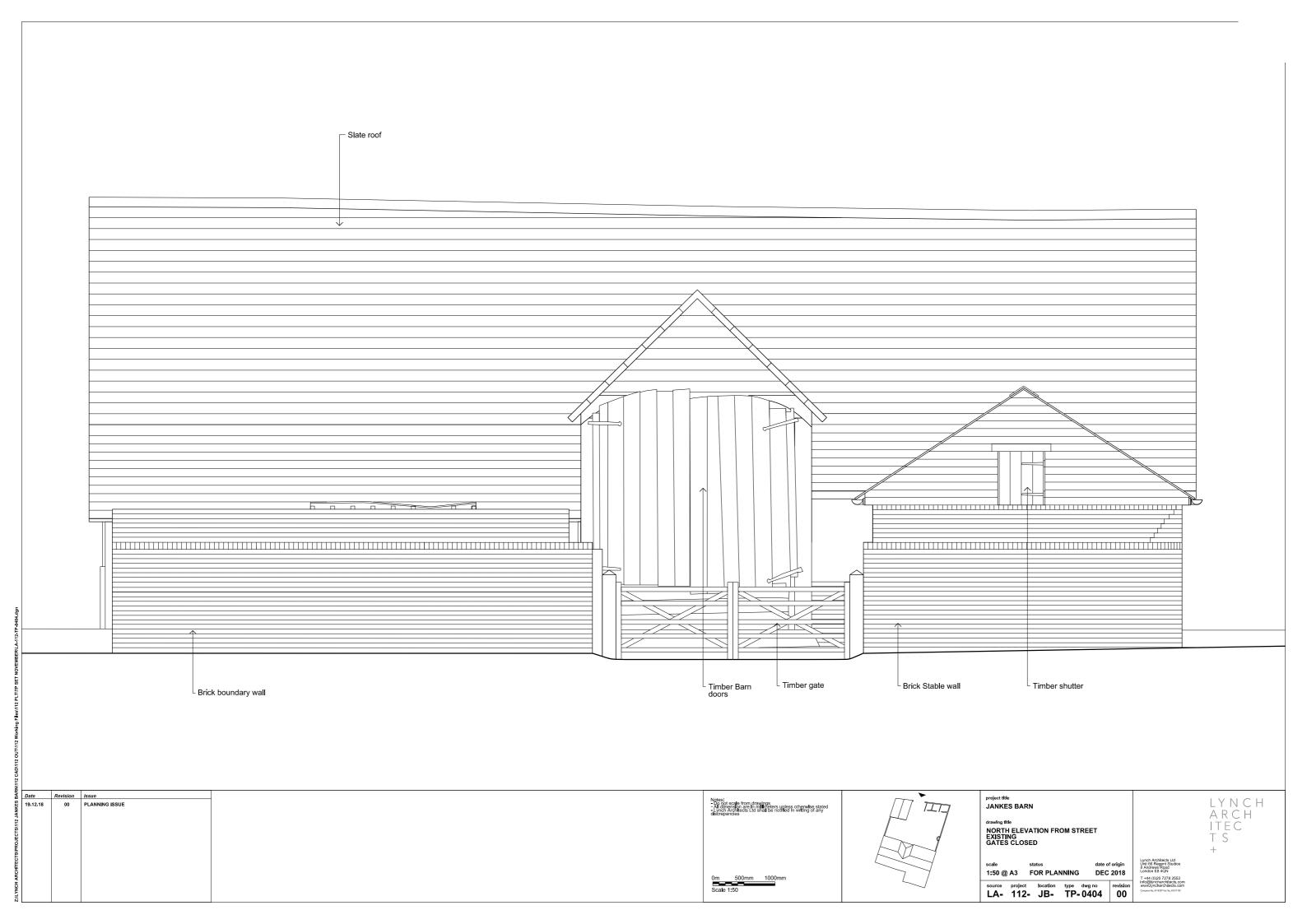


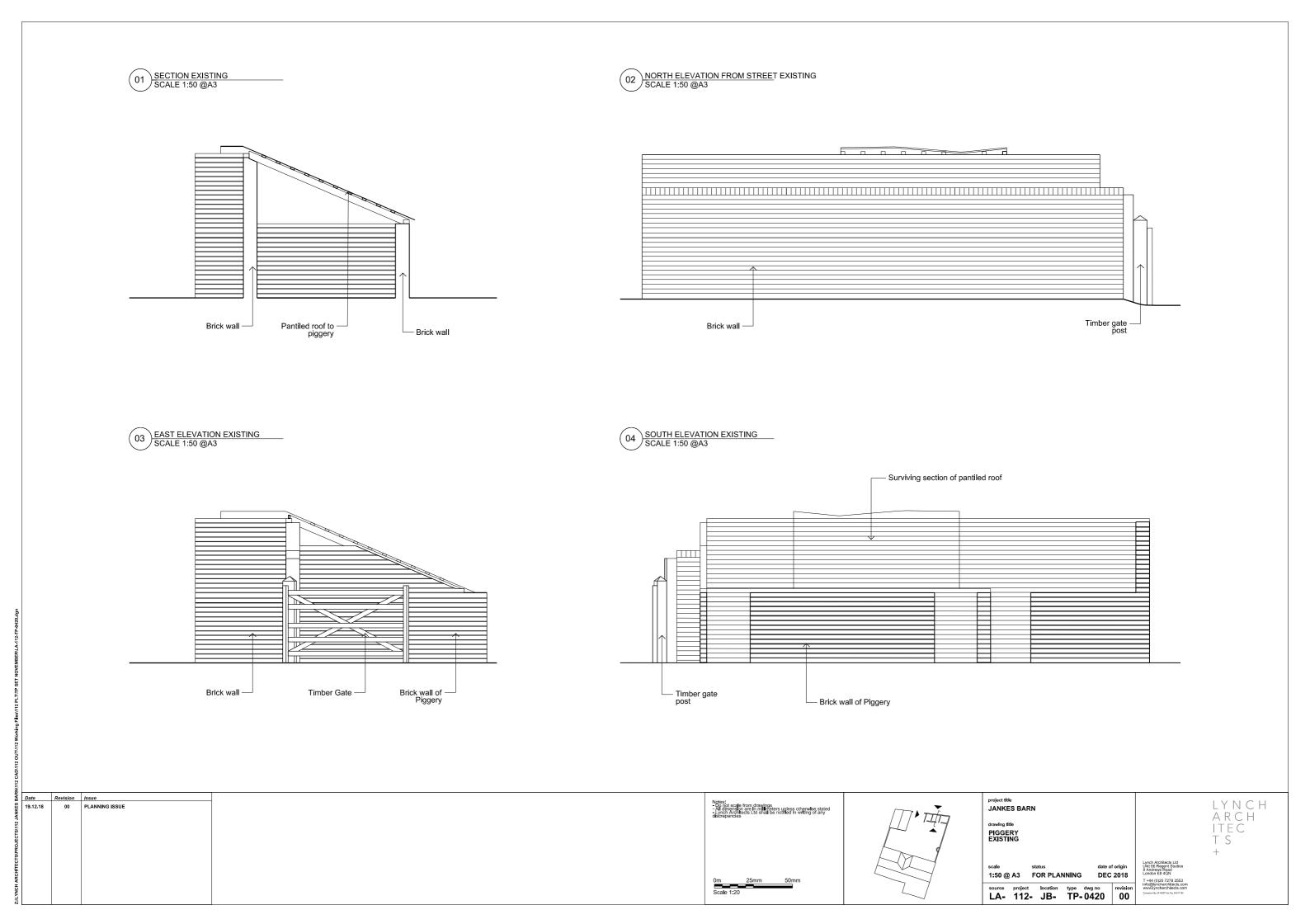


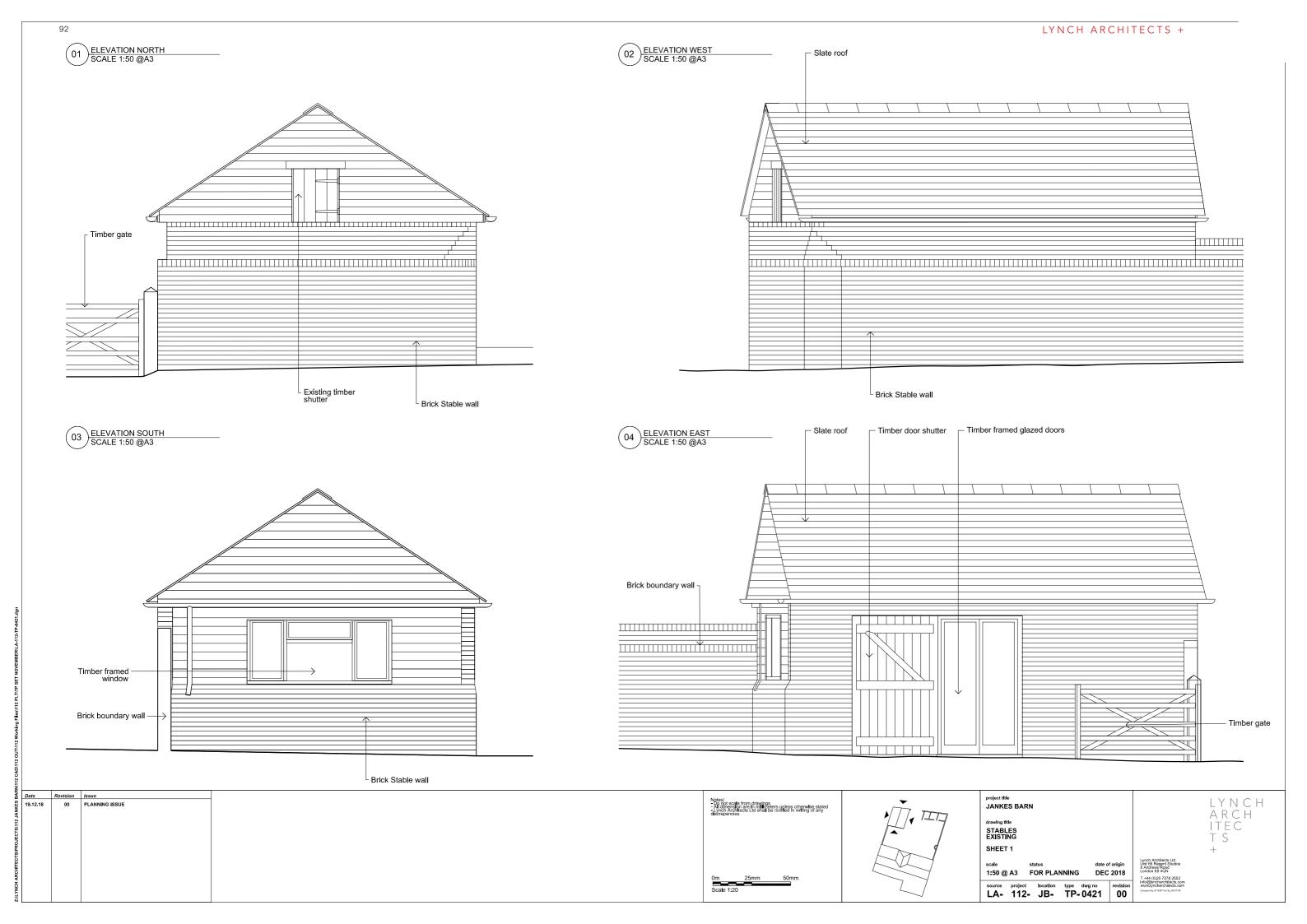


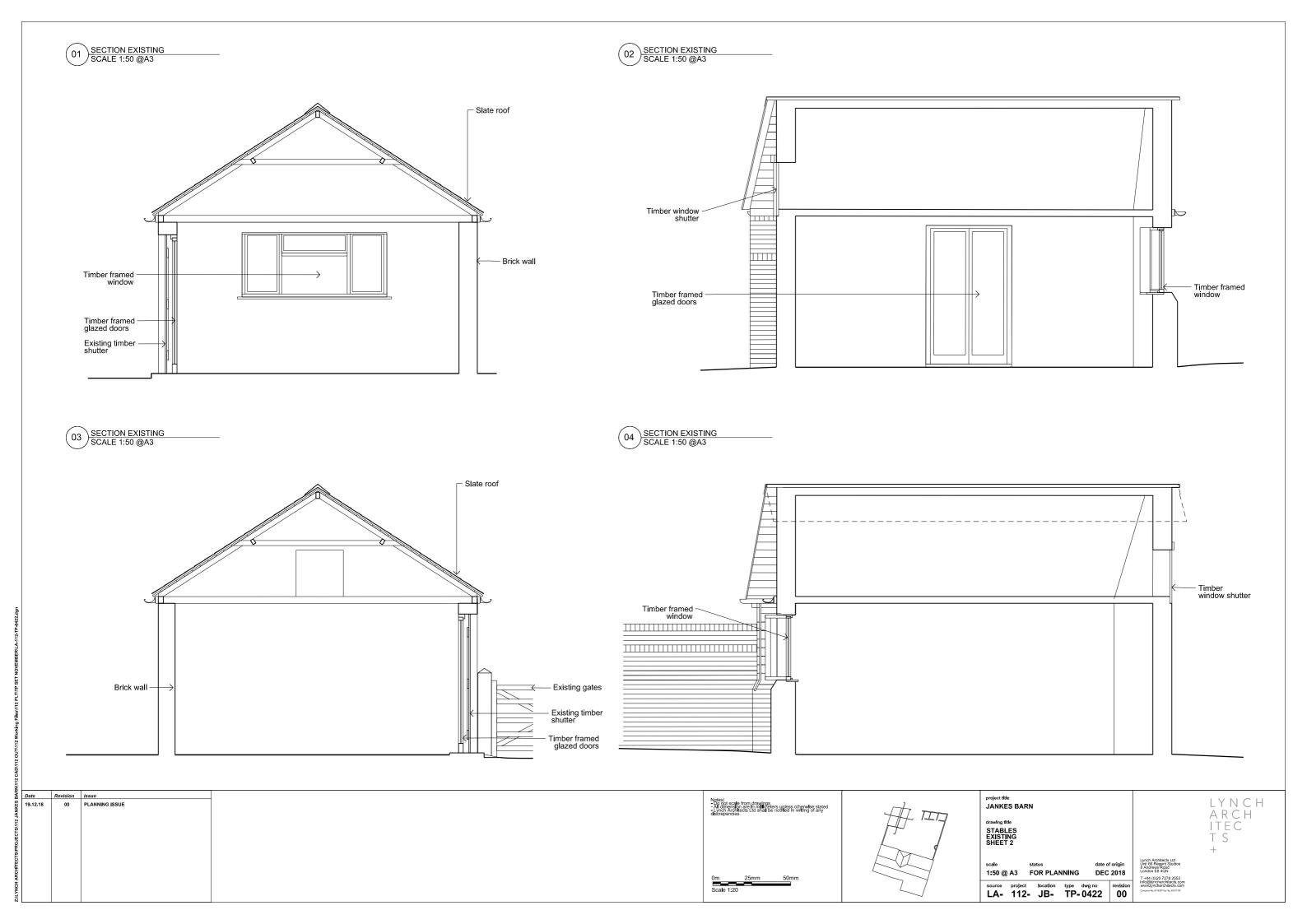


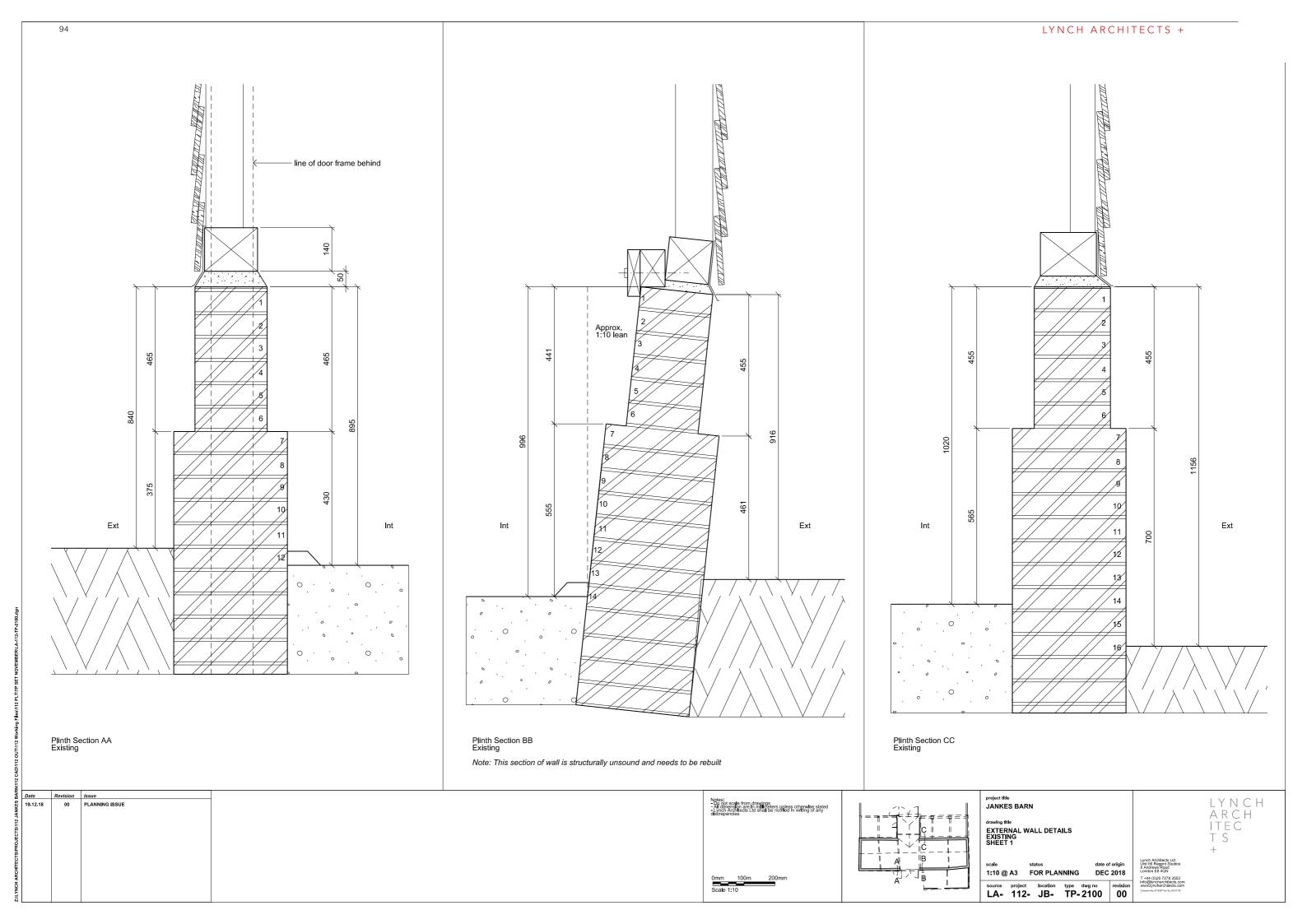


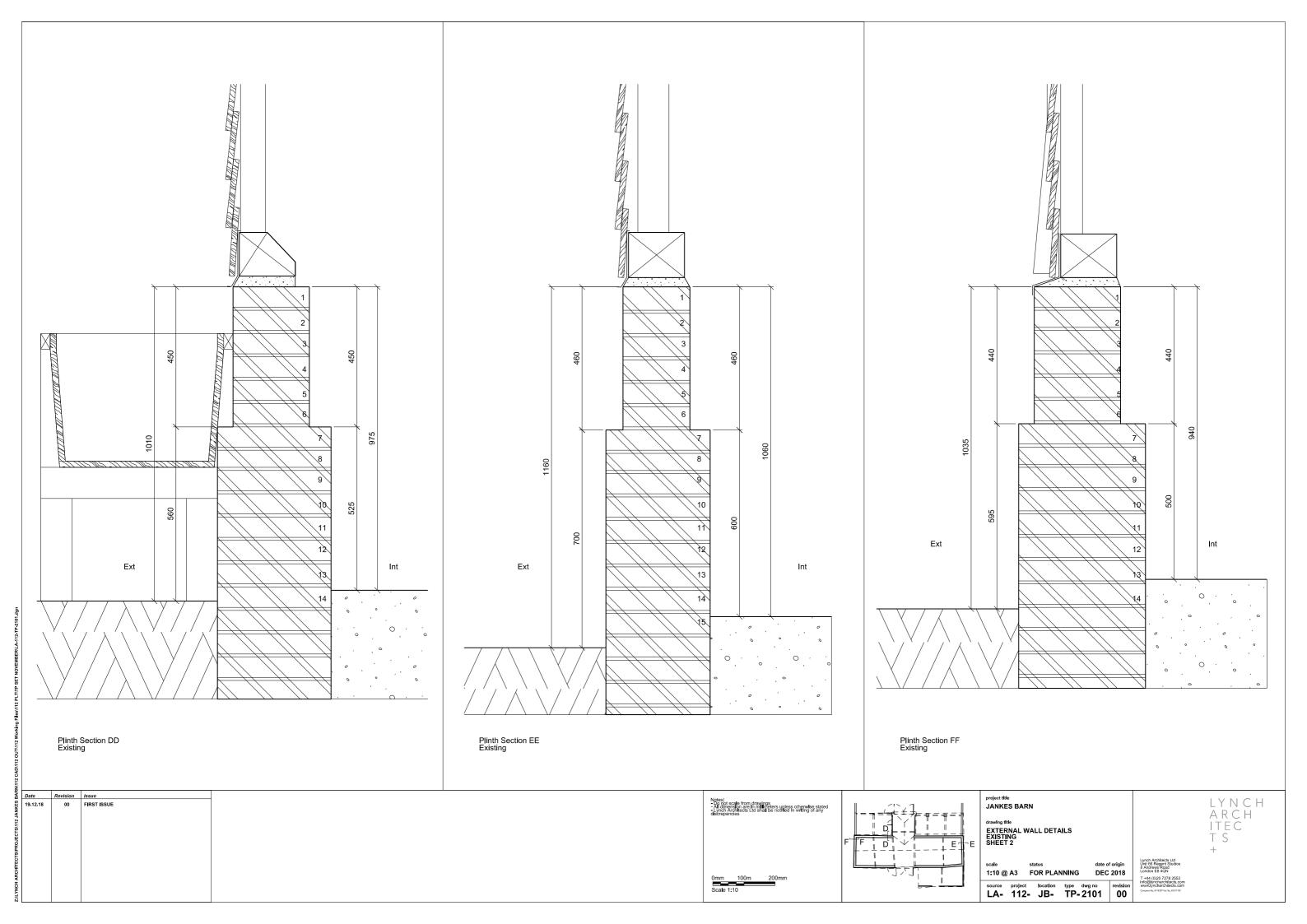












96 LYNCH ARCHITECTS +

LYNCH ARCHITECTS +

## F Timber Survey

Hutton + Rostron, November 2018

### Hutton + Rostron Environmental Investigations Limited

# Jankes Barn: Species identification, and timber strength grading

Site note 1 for 26 October 2018, job no. 149.50 - Revision A

$\sim$	ΝТ		ITC
CU	I VI	ΈN	IJσ

- 1 Introduction
- 2 Staff on site and contacts
- 3 Observations
- 4 H+R work on site
- 5 Proposed action by H+R
- 6 Information required by H+R
- 7 Administrative requirements

#### **Attachments**

- A Photographs
- **B** Drawings

Distribution:

Joanne Bernstein Rachel Elliott – Lynch Architects

File: 149.50 Revision A

© Copyright Hutton+Rostron, 2018 H+R 1

#### 1 INTRODUCTION

#### 1.1 AUTHORITY AND REFERENCES

Hutton + Rostron Environmental Investigations Limited carried out a site visit to Jankes Barn on 26 October 2018 in accordance with instructions from Rachel Elliot by email, on 19 October 2018. Drawings provided by Lynch Architects were used for the identification of structures. For the purpose of orientation in this report, the entrance to the building was taken as facing north

#### 1.2 AIM

The aim of this survey was to identify timber species in order to determine the historic significance and probable age of the timber structure, and to provide in-situ timber strength grading

#### 1.3 LIMITATIONS

This survey was confined to the accessible structures. The condition of concealed timbers may be deduced from the general condition and moisture content of the adjacent structure. Only demolition or exposure work can enable the condition of timber to be determined with certainty, and this destroys what it is intended to preserve. Specialist investigative techniques are therefore employed as aids to the surveyor. No such technique can be 100 per cent reliable, but their use allows deductions to be made about the most probable condition of materials at the time of examination. Structures were not examined in detail except as described in this report, and no liability can be accepted for defects that may exist in other parts of the building. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect or in the event that such part of the property is not free from defect it will not contaminate and/or affect any other part of the property. Any design work carried out in conjunction with this report has taken account of available pre-construction or construction phase information to assist in the management of health and safety risks. The sample remedial details and other recommendations in this report are included to advise and inform the design team appointed by the client. The contents of this report do not imply the adoption of the role of Principal Designer by H+R for the purposes of the Construction Design and Management (CDM) Regulations 2015

#### **2 STAFF ON SITE AND CONTACTS**

#### 2.1 H+R STAFF ON SITE

Joe Lovelock Andrew Ellis

#### 2.2 PERSONNEL CONTACTED

Joanne Bernstein Richard Harris

© Copyright Hutton+Rostron, 2018 H+R 2

#### **3 OBSERVATIONS**

#### 3.1 SPECIES IDENTIFICATION

#### 3.1.1 Methodology

Visual timber species recognition was undertaken on-site, and the samples were examined visually with a x10 magnifying hand lens to determine their gross characteristics. Identification via growth patterns, insect attack patterns, and other distinguishing features was also undertaken. The distinctive contrasting odours given off through the decay detection drilling process was also an identification technique used on the day of the investigation

#### 3.1.2 Material

The timber structure was identified to consist of a mixture of historic (original) oak (*Quercus robur*), historic (original) elm (*Ulmus minor*), as well as more recent use of a relatively small amount of softwood (European redwood - *Pinus sylvestris*) and recent elm and oak additions. For distribution of each material in the barn complex, please refer to the attached drawings

#### 3.1.3 History

The timber elements of the building were generally of historic material, although some elements showed signs of historic mortices and were likely salvaged from previous barns; common practice in the early part of the 18<sup>th</sup> century. The west part of the south long wall (Bays 4 and 5) had been rebuilt using oak (*Quercus robur*) and reclaimed brick, reinstalled to match the bonding patterns in the remainder of the barn (English bond below, and Flemish bond above); cutting marks from a modern mechanised bandsaw were particularly evident on the timbers in this area. A number of the west gable end timbers showed circular saw marks also indicating mechanised timber conversion

#### 3.1.4 Characteristics and identification

- Oak: The medullary rays in oak, formed from the cambium division process, are transverse lines visible to the naked eye on the end-grain of oak, perpendicular to the growth rings. They can also be seen as silver patterning on the face of the timber, most distinguishable when the timber has been converted using the 'quarter-sawn' technique. Wood-boring insect attack to oak from common furniture beetle (*Anobium punctatum*) and death watch beetle (*Xestobium rufovillosum*) is usually confined to the non-structural sapwood band of the timber due to the higher concentration of moisture and nutrients. This side-effect is clearly visible to the naked eye due to the sapwood of oak being usually much lighter in colour when compared to the heartwood
- Elm: Elm is most easily identified by the wavy nature of the latewood pores on the end-grain known as 'ulmiform' (derived from *Ulmus*), which is visible using a magnifying hand lens. The proportion of latewood/earlywood pore distribution in *Ulmus minor* in this country is usually around 50 per cent. Wood-boring insect attack is commonly found to affect both heartwood and sapwood of elm, and the pattern of flight hole distribution to the timbers suspected as elm in the barn were consistent with this

#### 3.2 TIMBER STRENGTH GRADING

#### 3.2.1 Methodology

The timber elements were inspected on the basis of exhibiting strength reducing features such as slope of grain, distortion, wane and fissures. A probable strength grade assessment of ungradeable (UG), general structural (GS) grade or special structural (SS) grade was made on the basis of measuring these features for softwood elements. For Temperate Hardwoods (TH) a probable strength grade assessment of TH1/TH2 was made for section sizes below 20,000mm² and THA/THB for section sizes equal to or greater than 20,000mm². The extent of strength reducing features that are permissible within strength grades are detailed in British Standard 4978: Specification for Visual Strength Grading of Softwood and BS 5756 Visual Strength Grading of Hardwood. Identification of timber species was carried out in elements from each area. The samples were examined visually with a x10 lens to determine their gross characteristics. The anatomical features of each sample were compared with published information and where applicable with reference timber samples. The combination of probable visual grade and timber species was undertaken to enable the assessment of strength class by reference to BS 5268: Part 2: 2007 or Eurocode 5 and BS 5756:2017

ITEM	DIMENSIONS	PROBABLE STRENGTH GRADE	SPECIES	PROBABLE STRENGTH CLASS	COMMENT	
Main barn structural elements						
Tie beams	~180X180mm	60% THB	OAK	60% D30		
Rafter plate	~160x175mm	80%THA	OAK	80%D40		
Main posts	~150x150mm	70%THB	OAK	70%D30		
Main posts	~150x150mm	50%THB	ELM	50%D30		
Sill plate	~110x150mm	40%THB	OAK	40%D30		
Sill plate	~120x150mm	GS	SW	C16		
Knee brace	~	20%THB	ELM	20%D30		
Stud	~95x120mm	50%TH2	OAK	50%D24		
Stud	~90x120mm	40%TH2	ELM	40%D24		
Diagonal stud brace	~90x125mm	50%TH2	OAK	50%D24		
Diagonal stud brace	~90x125mm	40%TH2	ELM	40%D24		
Collar	~50x125mm	50%TH2	ELM	50%D24		
Collar	~50x100mm	80%GS	SW	80%C16		
Common rafter	~110x75mm	50%TH2	OAK	50%D24		
Common rafter	~110x35mm	40%TH2	ELM	40%D24		
Common rafter	~	~	SW	~		
Purlin	~60x100mm	40%TH2	OAK	40%D24		
Purlin	~60x100mm	30%TH2	ELM	30%D24		
Wind brace	Vind brace ~25x125mm		ELM	50%D24		
Wind brace	~25x120mm	80%GS	SW	80%C16		
Ridge	~	~	~	~		
Hip	~	100%GS	SW	100%C16		
Midstrey structural elemen	nts					
Midstrey mid-rail	~190x135mm	50%THA	OAK	50%D40		
Midstrey arched tie beam	~160x160mm	80%THA	ELM	80%D40		
Midstrey rafter plate	~160x160mm	50%THB	OAK	50%D30		
Midstrey sill plate	~150x75	60%TH1	OAK	60%D30		
Midstrey main post	~300x190mm	60%THA	OAK	60%D40		
Midstrey studs	~125x75mm	60%TH1	OAK	60%D30		
Midstrey studs	~125x75mm	50%TH1	ELM	50%D30		
Midstrey diagonal stud	~125x75mm	60%TH1	OAK	60%D30		

© Copyright Hutton+Rostron, 2018 H+R 3 © Copyright Hutton+Rostron, 2018 H+R 4

braces					
Midstrey diagonal stud braces	~125x75mm	50%TH2	ELM	50%D24	
Midstrey collar	~50x125mm	~	~	~	
Midstrey purlin	~50x100mm	~	ELM	~	
Midstrey common/jack rafter	~90x70mm	40%TH2	ELM	40%D24	
Catslides 1,2 and 3 structural elements					
Catslide half-tie beam	~190x190mm	40%THB	ELM	40%D30	
Catslide common rafters	~75x125mm	60%SS	SW	60%C24	
Catslide main post	~190x190mm	60%THA	OAK	60%D40	
Catslide main post	~200 diameter	~	ELM	~	
Catslide rafter plate	~190x120mm	50%THB	OAK	50%D30	
Catslide rafter plate	~130x165mm	80%SS	SW	80%C24	
Catslide purlin	~60X135mm	80%SS	SW	80%C24	
Catslide raking strut	~	80%GS	SW	80%C16	
Caslide 3-wall timbers	~100x165mm	UG	SW	UG	

To grading rules: BS 5756 2011

OAK = Oak
ELM= Elm
SW= Softwood

TH1 and TH2 = Cross-section less than 20,000mm<sup>2</sup>
THA and THB = Cross-section equal or greater than 20,000mm<sup>2</sup>

- 1 The strength grades given above are based on preliminary observation of accessible faces of the timber only
- The actual grades may be less on the basis of defects that were previously not apparent at the time of the assessment

#### **4 H+R WORK ON SITE**

**4.1** H+R inspected all timbers visually under a x10 hand lens in order to identify species

#### **5 PROPOSED ACTION BY H+R**

- **5.1** H+R will advise on repair and conservation of timber elements, so as to minimise the risk of decay after refurbishment if instructed
- **5.2** H+R will advise on remedial detailing, so as to minimise the risk of damp and decay problems after refurbishment if instructed
- **5.3** H+R will advise on conservation of original fabric with regard to damp, decay and salt damage, as necessary and if instructed
- 5.4 H+R will review proposed remedial details as these become available if instructed
- 5.5 H+R will return to site to inspect sample remedial details if instructed
- H+R will liaise with conservation and historic building authorities, if instructed, so as to ensure the cost-effective conservation of original fabric
- **5.7** H+R will liaise with building guarantors, as necessary, so as to ensure the issuing of collateral warranties and building guarantees at practical completion, if required
- 5.8 H+R will return to site to inspect other buildings on site for structurally significant decay; and advise on timbers at risk of decay during the latent defect period due to water penetration before and during refurbishment if instructed

#### **6 INFORMATION REQUIRED BY H+R**

- **6.1** H+R require up-to-date copies of project programmes, as these become available
- **6.2** H+R require copies of up-to-date lists of project personnel and contact lists as these become available
- **6.3** H+R require copies of proposed remedial details for comment as these become available
- 6.4 H+R should be informed as a matter of urgency if further significant water penetration occurs onto site; so that advice can be given on cost-effective remedial measures, to minimise the risk of cost or programme overruns and so as to minimise the risk of damp or decay problems during the latent defect period

#### **7 ADMINISTRATION REQUIREMENTS**

- **7.1** H+R require formal instructions for further investigations and consultancy on this project
- **7.2** H+R require confirmation of distribution of digital and printed copies of reports and site notes

© Copyright Hutton+Rostron, 2018 H+R 5 © Copyright Hutton+Rostron, 2018 H+R 6

### Attachment A



### Fig 1:

Jankes barn; showing a general view of the barn towards the west. Samples were taken from most of the timber components and visually identified on the day of the investigation



### Fig 2:

Jankes barn; showing one of the rafters at the joint with the top plate. The nature of the grain on the rafter as well as the pattern of insect attack identified the timber as elm (*Ulmus minor*)





Fig 3:

Jankes barn; showing some conversion marks on one of the rafters on the north side. The marks are consistent with the hand-sawing action of pit sawn timber conversion



### Fig 5:

Jankes barn; showing the clear marks left by a mechanised circular saw on an oak timber element in the west end of the barn



Fig 4:

Jankes barn; showing the effects of insect attack to elm with the damage not exclusively confined to the sapwood band of the timber



# Fig 6:

Jankes barn; showing pit sawn markings to one of the elm timber studs. Note the wavy nature of the grain pattern in elm; a useful identification characteristic



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 1 Page2 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 1 Page3 © Copyright Hutton+Rostron 2018



Fig 7:

Jankes barn; showing some of the mechanical bandsaw marks to the timbers comprising the rebuilt wall to the south-west. The strong vertical marks with fainter marks between are common marks caused when a mechanical bandsaw is very slightly misaligned



### Fig 9:

Jankes barn; showing some horizontal marks on one of the timber studs. Very close together marks such as these are most commonly caused from use of a modern planer/thicknesser machine which shapes timber to the required section-size using a rotating cylindrical blade



Fig 8:

Jankes barn; showing some axe marks to the timbers in the east of the barn



Fig 10:

Jankes barn; showing some very clear adze marks to one of the midstrey timbers



Jankes Barn
Photographs
26 October 2018
Not to scale





Jankes Barn
Photographs
26 October 2018
Not to scale



Fig 11:

Jankes barn; showing the south doors and the signs of modern machining marks to the boards suggesting they may not be as old as the remainder of the building and most likely date from the mid to late 20th century



### Fig 13:

Jankes barn; showing the rafters in the east catslide area. These were clearly recent softwood interventions and were most likely pressure-treated with preservative prior to installation. The tie-beams however, appeared to be historic elm and probably salvaged from a previous barn



### Fig 12:

Jankes barn; showing the south doors. The beaded moulding appeared to have been formed by modern machining methods. The boards appeared to be softwood, but the density of knot distribution also suggested Larch (*Larix decidua*) which is commonly used in external applications. Note again the faint modern machine markings to the boards indicating mid to late 20th century manufacture



### Fig 14:

Jankes barn; showing the east catslide support post. It was understood on the day that the posts on this side had been replaced recently. The evidence of mechanised timber conversion by circular saw was clear on the face of the timber



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

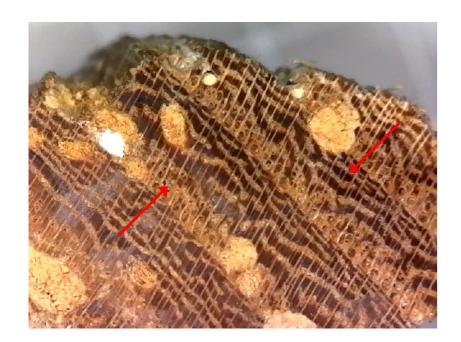
Job no. 149-50 Site Note 1 Page6 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

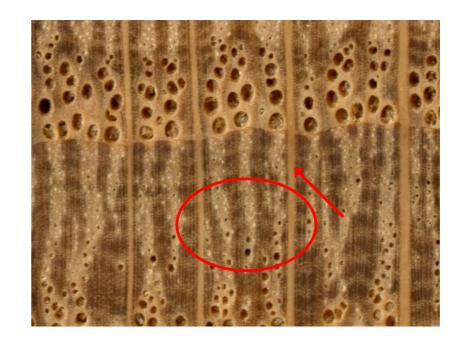
Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 1 Page7 © Copyright Hutton+Rostron 2018



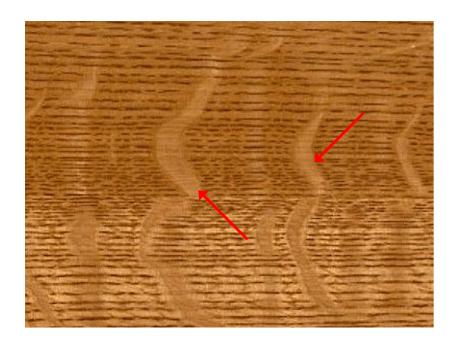
### Fig 15:

Laboratory image; showing the endgrain of elm (*Ulmus minor*) under a microscope. The latewood and earlywood stages are quite clearly defined, as is the wavy 'ulmiform' arrangement of the latewood pores. The rays are much less conspicuous in elm than oak and are barely visible without use of a hand lens



### Fig 17:

Laboratory image; showing the endgrain of oak (*Quercus robur*). The rays appear as strong vertical lines easily visible to the naked eye. Earlywood pores are large and clustered. The latewood pores gradually reduce in size until virtually invisible even under a lens



### Fig 16:

Example image; showing the effect of medullary rays on the surface of oak (*Quercus robur*). This is most prominent when the timber has been converted using the 'quarter-sawn method; perpendicular to the growth rings, and is commonly used decoratively especially in furniture manufacture

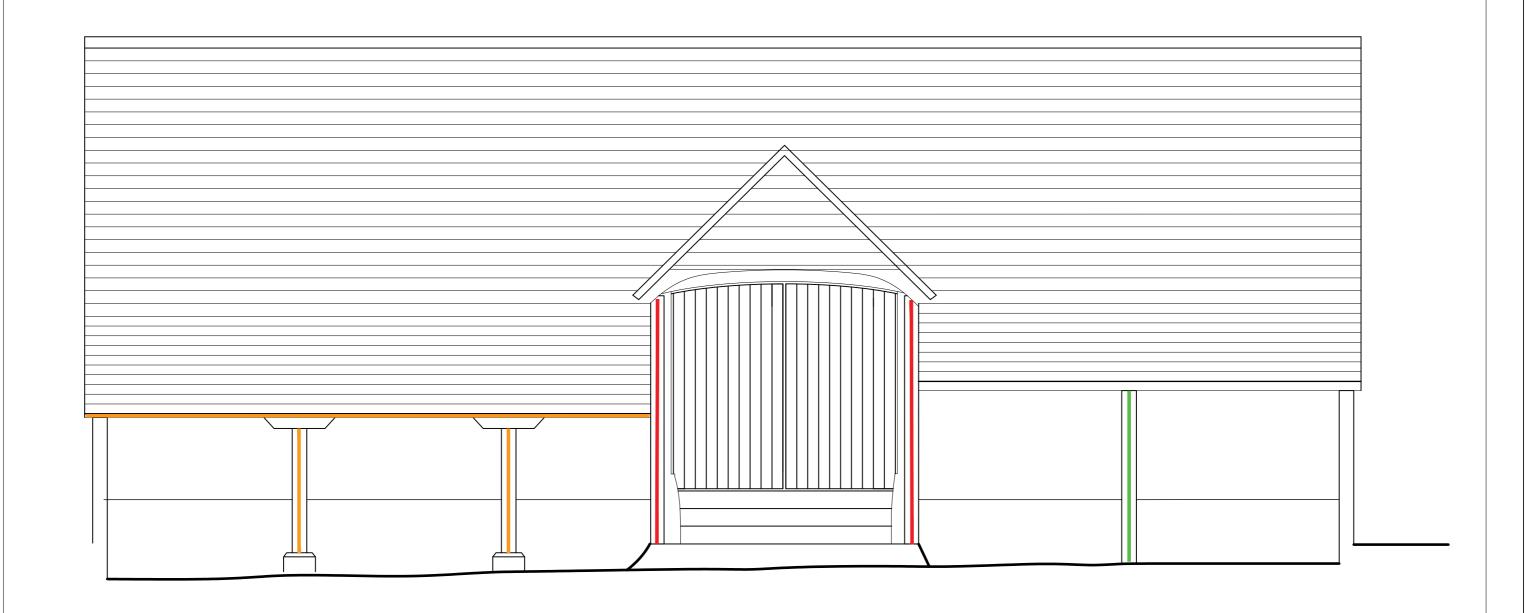


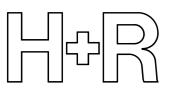




Jankes Barn
Photographs
26 October 2018
Not to scale

# Attachment B





Jankes Barn, North Elevation HISTORIC SIGNIFICANCE 26 October 2018

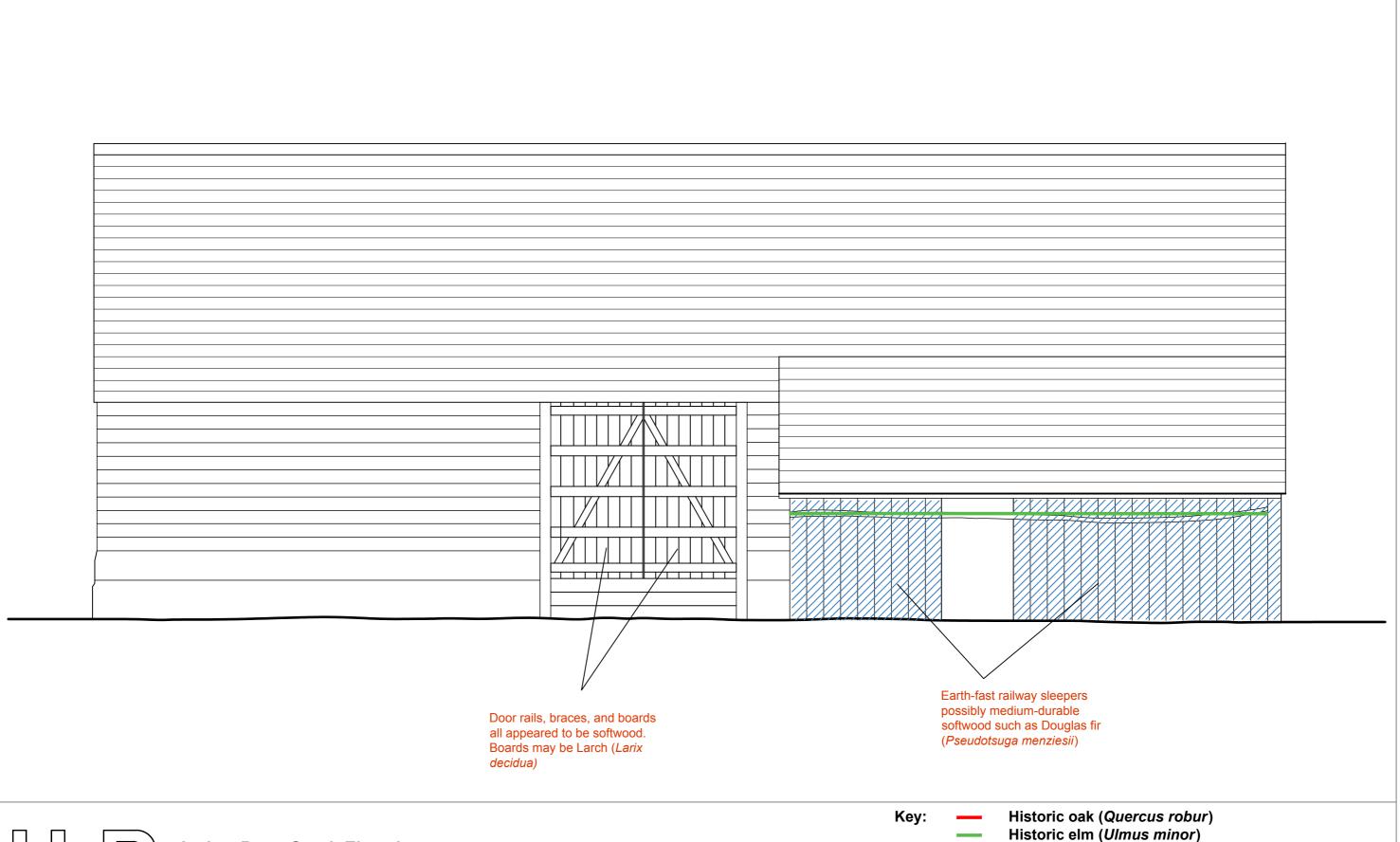
Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

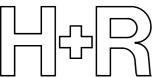
Key:

Historic oak (Quercus robur)

Historic elm (Ulmus minor)

Non-original hardwood intervention
Non-original softwood intervention (Pinus sylvestris)





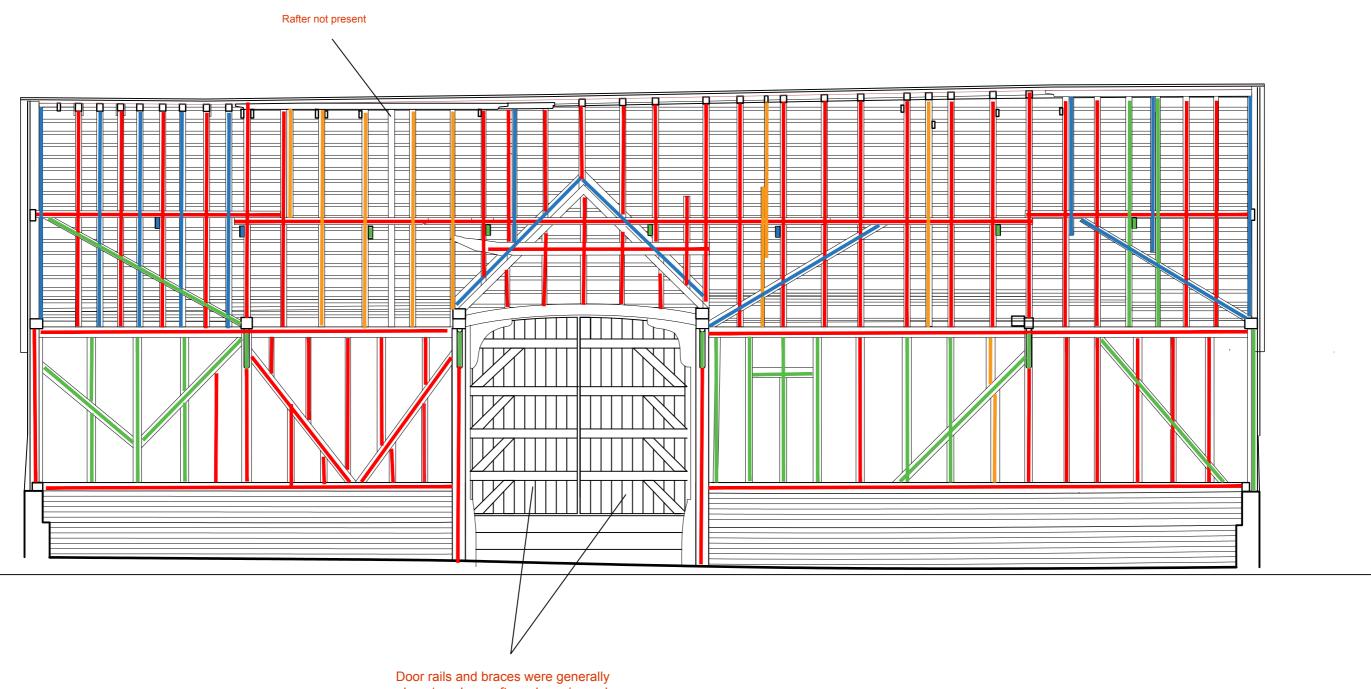
Jankes Barn, South Elevation SPECIES IDENTIFICATION 26 October 2018

**Hutton + Rostron** Environmental Investigations Ltd Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

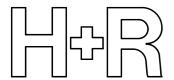
Non-original hardwood intervention

Non-original softwood intervention (*Pinus sylvestris*)

Area of softwood timber



elm w/ modern softwood repairs and softwood T&G beaded boards



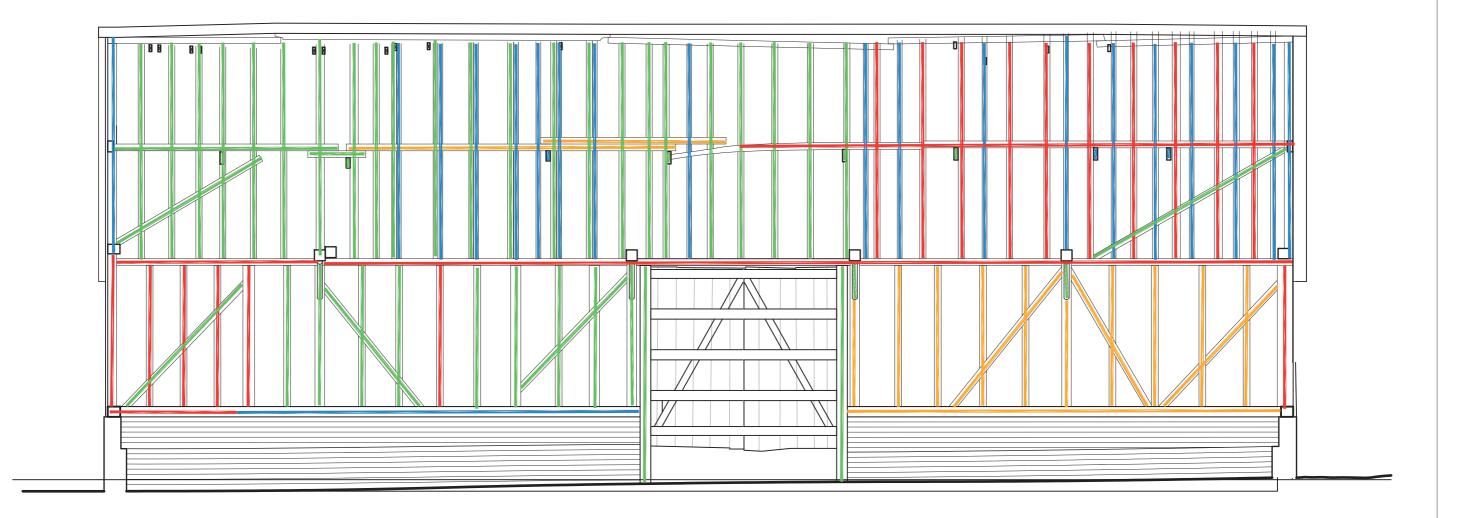
Jankes Barn, North Long Wall SPECIES IDENTIFICATION 26 October 2018

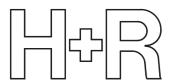
**Hutton + Rostron** Environmental Investigations Ltd Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018 Key:

Historic oak (Quercus robur)

Historic elm (Ulmus minor)

Non-original hardwood intervention





Jankes Barn, South Long Wall SPECIES IDENTIFICATION 26 October 2018

Hutton + Rostron Environmental Investigations Ltd

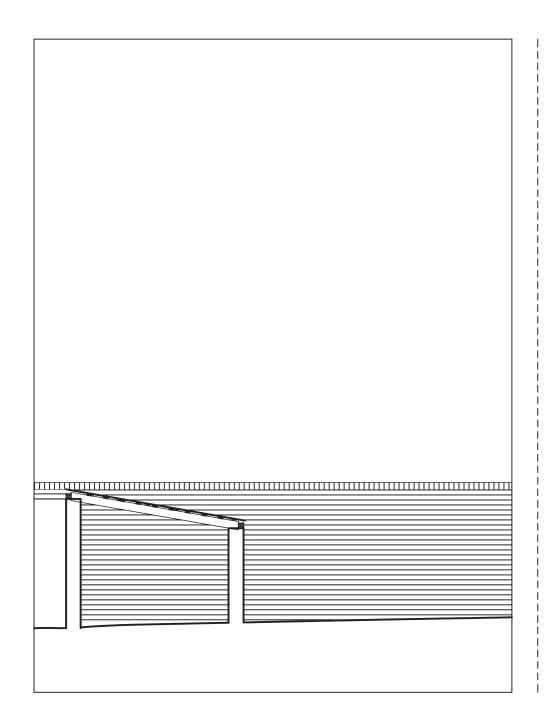
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911

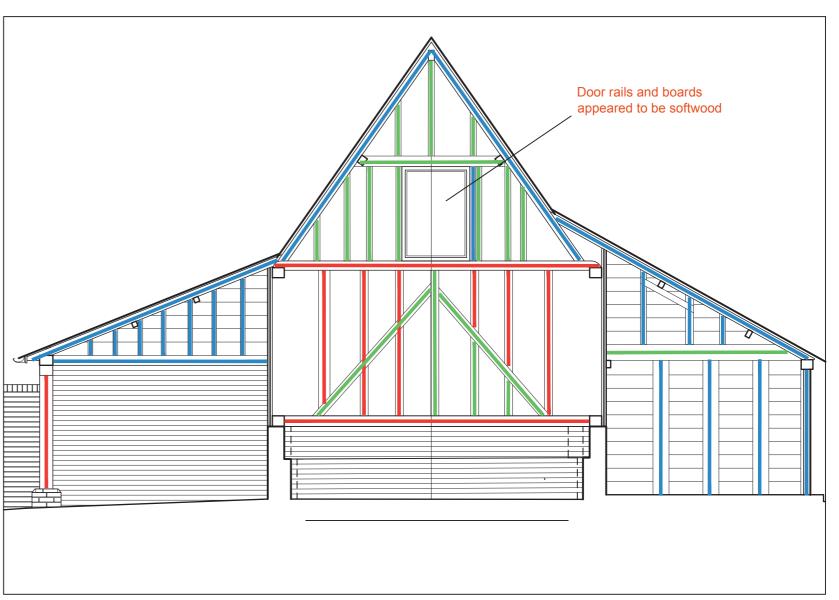
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

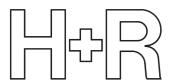
Key: — Historic oak (Quercus robur)

Historic elm (Ulmus minor)

-- Non-original hardwood intervention







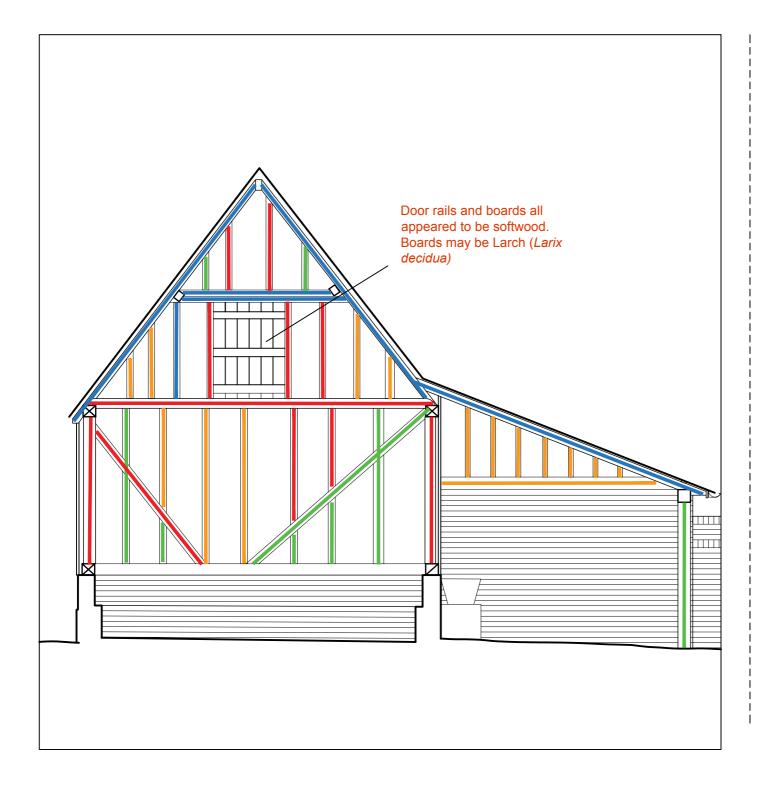
Jankes Barn, Section SPECIES IDENTIFICATION 26 October 2018

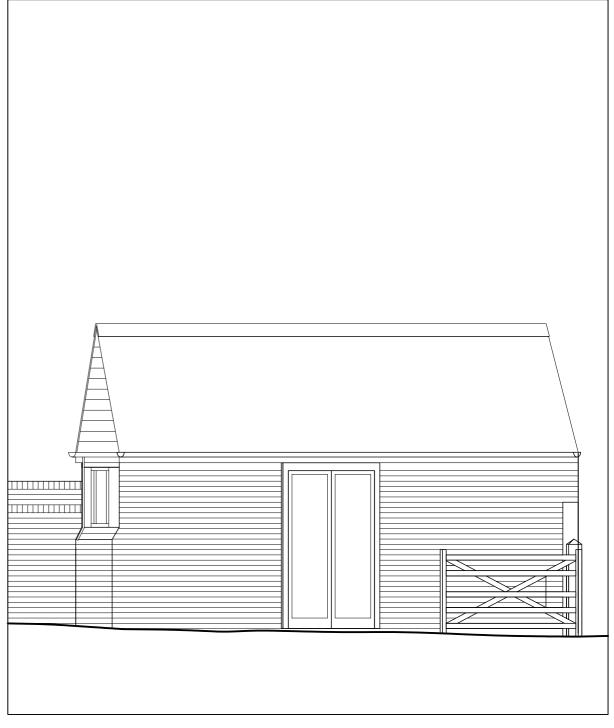
Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

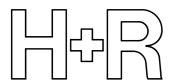
Key: — Historic oak (Quercus robur)

— Historic elm (Ulmus minor)

Non-original hardwood intervention







Jankes Barn, Section SPECIES IDENTIFICATION 26 October 2018

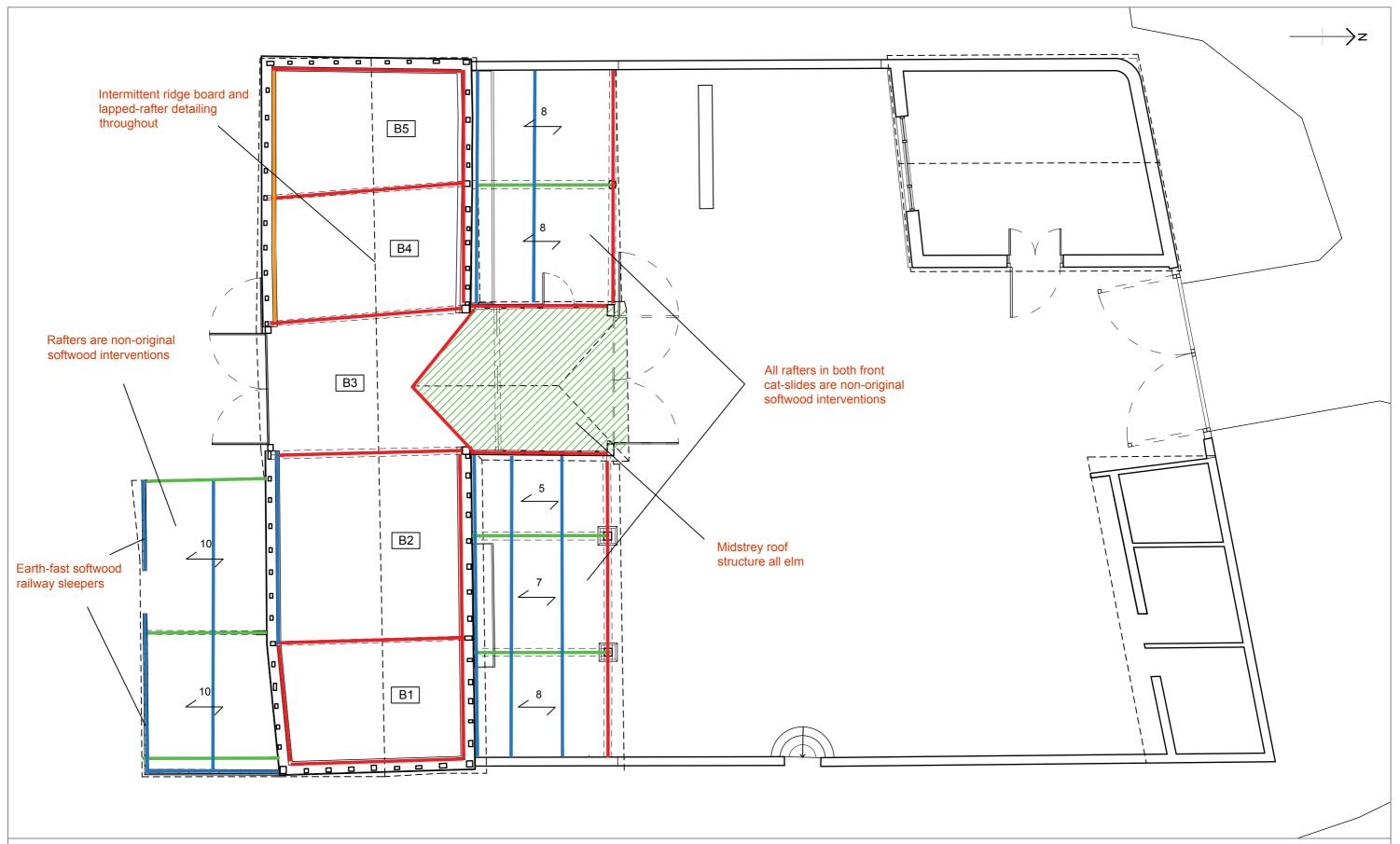
Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

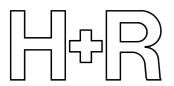
Key:

Historic oak (Quercus robur)

- Historic elm (Ulmus minor)

Non-original hardwood intervention





Jankes Barn, Plan view HISTORIC SIGNIFICANCE 26 October 2018

Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

Key:

Historic oak (Quercus robur)

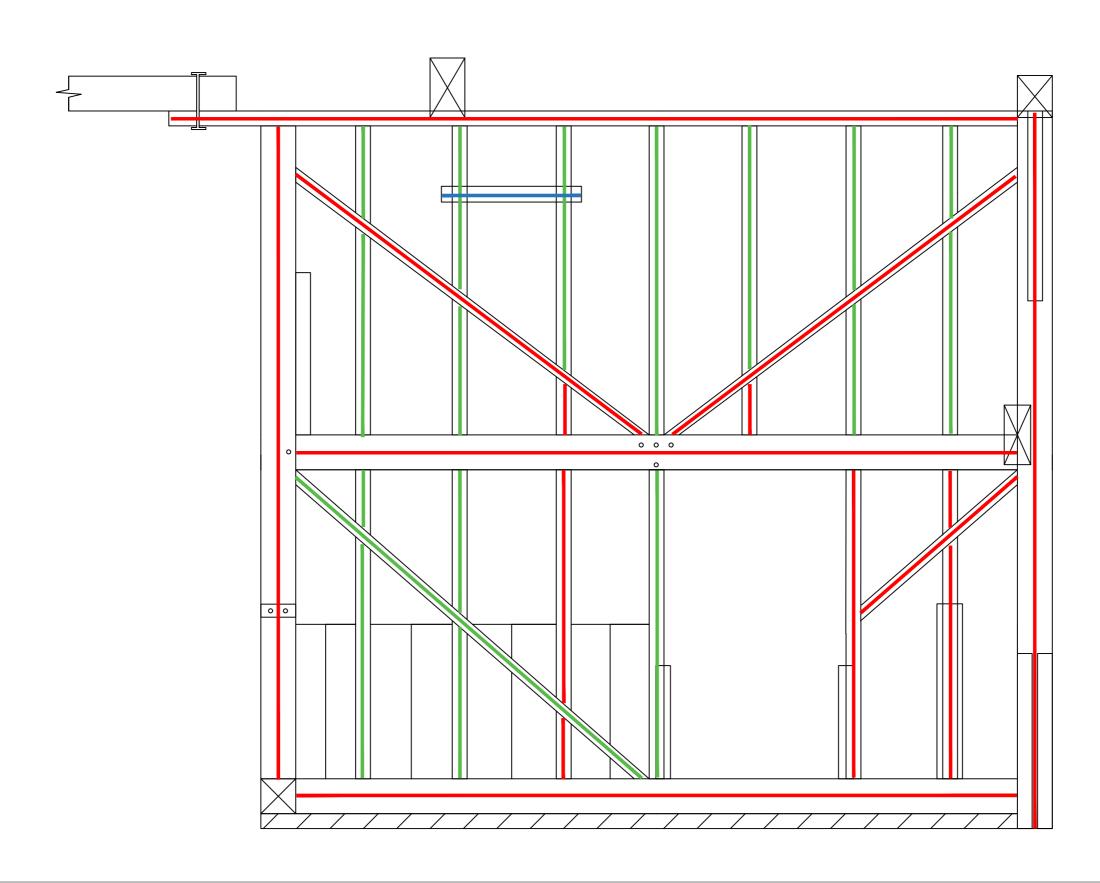
— Historic elm (Ulmus minor)

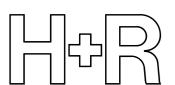
Non-original hardwood intervention

Non-original softwood intervention (*Pinus sylvestris*)

Area of elm timber

Bay number





Jankes Barn, Midstrey West Wall SPECIES IDENTIFICATION 26 October 2018

Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

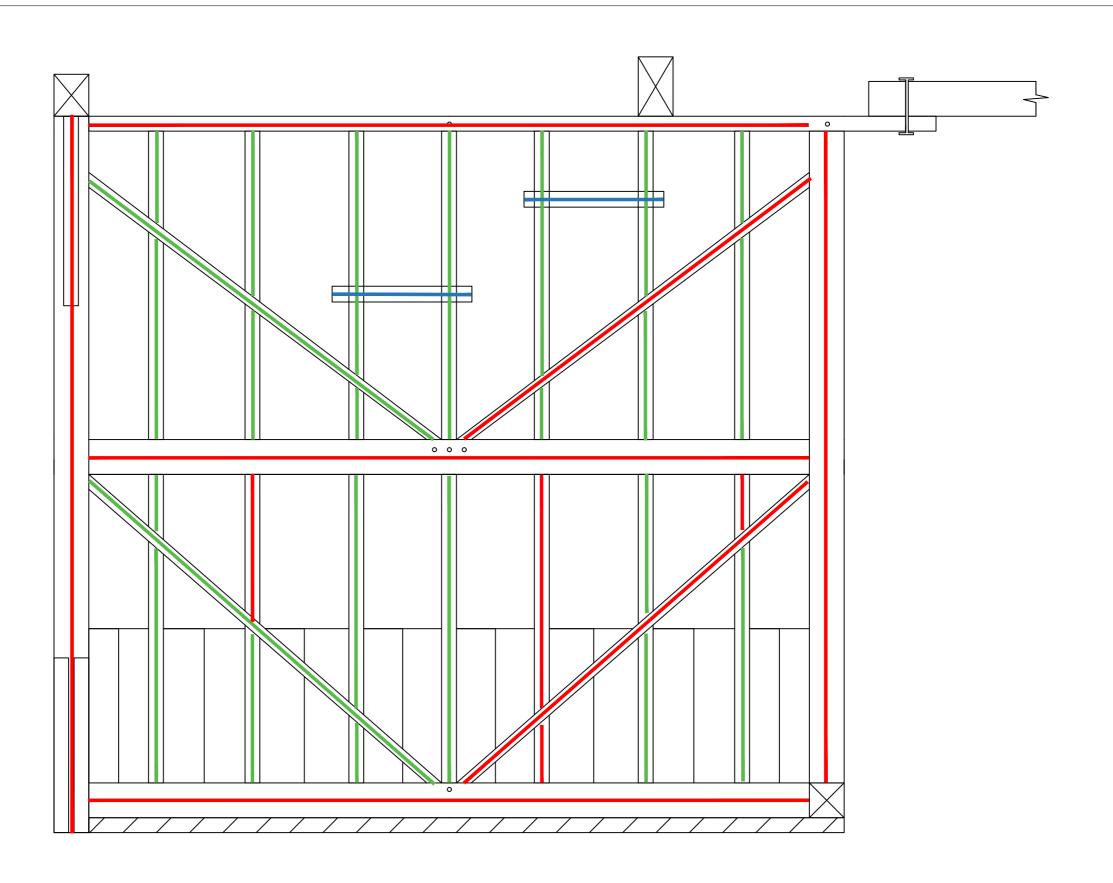
Key:

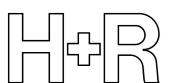
Historic oak (Quercus robur)

Historic elm (Ulmus minor)

Non-original hardwood intervention
Non-original softwood intervention (*Pinus sylvestris*)

///. Area of softwood timber





Jankes Barn, Midstrey East Wall SPECIES IDENTIFICATION 26 October 2018

Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 1 October 2018 -Not to scale- © Copyright Hutton+Rostron 2018

Key:

Historic oak (Quercus robur)

Historic elm (*Ulmus minor*)

Non-original hardwood intervention

Non-original softwood intervention (*Pinus sylvestris*)

/// Area of softwood timber

### Hutton + Rostron Environmental Investigations Limited

# Jankes Barn: Timber condition investigation

Site note 2 for 26 October 2018, job no. 149.50 - Revision A

	NΤ	ΓF	

- 1 Introduction
- 2 Staff on site and contacts
- 3 Observations and Recommendations
- 4 H+R work on site
- 5 Proposed action by H+R
- 6 Information required by H+R
- 7 Administrative requirements

#### **Attachments**

A Drawings

B Photographs

Distribution:

Joanne Bernstein Rachel Elliott – Lynch Architects

File: 149.50 Revision A

#### 1 INTRODUCTION

#### 1.1 AUTHORITY AND REFERENCES

Hutton + Rostron Environmental Investigations Limited carried out a site visit to Jankes Barn on 26 October 2018 in accordance with instructions from Rachel Elliott by email, on 19 October 2018. Drawings provided by Lynch Architects were used for the identification of structures. For the purpose of orientation in this report, the entrance to the building was taken as facing north

#### 1.2 AIM

The aim of this investigation was to determine the condition and decay state of the existing timber elements so that suitable advice can be given for planning purposes on cost effective conservation and refurbishment measures, along conservation guidelines and with regards to the future occupancy, whilst retaining the maximum historic fabric

#### 1.3 LIMITATIONS

This survey was confined to the accessible structures. The condition of concealed timbers may be deduced from the general condition and moisture content of the adjacent structures. Only demolition or exposure work can enable the condition of timber to be determined with certainty, and this destroys what it is intended to preserve. Specialist investigative techniques are therefore employed as aids to the surveyor. No such technique can be 100 per cent reliable, but their use allows deductions to be made about the most probable condition of materials at the time of examination. Structures were not examined in detail except as described in this report, and no liability can be accepted for defects that may exist in other parts of the building. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect or in the event that such part of the property is not free from defect it will not contaminate and/or affect any other part of the property. Any design work carried out in conjunction with this report has taken account of available pre-construction or construction phase information to assist in the management of health and safety risks. The sample remedial details and other recommendations in this report are included to advise and inform the design team appointed by the client. The contents of this report do not imply the adoption of the role of Principal Designer by H+R for the purposes of the Construction Design and Management (CDM) Regulations 2015. No formal investigation of moisture distribution was made

#### **2 STAFF ON SITE AND CONTACTS**

#### 2.1 H+R STAFF ON SITE

Andrew Ellis Joe Lovelock

#### 2.2 PERSONNEL CONTACTED

Rachel Elliot – Lynch Architects

#### **3 OBSERVATIONS AND RECOMMENDATIONS**

#### 3.1 TIMBER DECAY

#### 3.1.1 Wood boring insect infestation

- Oak (*Quercus robur*): There was evidence of infestation and decay to the sapwood band of many of the existing timbers by wood boring beetle in the past. This had included woodworm (*Anobium punctatum*) and death watch (*Xestobium rufovillosum*). However, no evidence of significant active infestation of these organisms was found at the time of survey
- Elm (*Ulmus minor*): There was evidence of infestation and decay to the heartwood and sapwood band of many of the existing timbers by wood boring beetle in the past. This had included woodworm (*Anobium punctatum*) and death watch (*Xestobium rufovillosum*). However, no evidence of significant active infestation of these organisms was found at the time of survey

No insecticidal or chemical remedial timber treatments are required, before, during or after refurbishment. However, the timber elements at the base of the external walls should be isolated from damp or potentially damp masonry with a damp-proof material, so as to minimise the risk of further wet rot decay and infestation decay by wood boring insects. This may be done in conjunction with conservation and repair measures as described below

#### 3.1.2 Fungal decay

- Main barn: There was evidence of past problems of localised wet rot decay to original timber elements and to timbers installed on previous refurbishments. In particular, there was evidence of continuing wet rot decay in areas of chronic water penetration to the studs, diagonal bracing and clapboarding of the east midstrey wall as a result of faulty flashing detail to the east midstrey valley. Limited wet rot decay had also affected the external faces of the west and north-west sills where there appeared to have been historic failure of the clapboarding. Without removal of the external clapboarding adjacent to the sill, it was not possible to determine the extent of this decay at the time of the survey. However, it is likely to be predominantly historic judging by the general condition and moisture content of the surrounding timbers
  - No chemical remedial timber treatments are required. Decayed or partially decayed timbers should be repaired or replaced as directed by the Structural Engineer and all practical measures should be taken so as to minimise further water penetration before, during, and after proposed refurbishment. This will provisionally include the replacement and possible re-detailing of the midstrey valley flashings to shed water clear of the structure and prevent further moisture ingress
- Earth-bound timbers: Wet rot decay was also found to be chronically affecting the earth-bound post of the north-west catslide as well as the earth-bound wall of the south catslide. This is an obvious result of direct ground moisture penetrating the embedded timbers

Provisionally allow for the re-detailing of these earth-bound timber elements so that the timbers are separated from the earth with plinth masonry structures as well as accommodation for drainage and damp-proofing. Decayed or partially decayed timbers should be repaired by cutting back to sound timber and new elements scarfed and fixed into position

#### 3.1.3 Previous remedial treatments

There was evidence of repeated chemical remedial timber treatments to both original timbers and timbers installed on previous refurbishments. These appeared to include treatments with 'creosotes' and what may be organochlorides. It is unclear whether these had provided the timbers with any significant form of protection. However, residues from previous chemical remedial treatments may represent a health hazard to those working on the building and occupying the building after refurbishment

No further chemical remedial timber treatments are required. However, consideration should be given to the careful handling and works conducted upon timbers contaminated with creosotes and organochlorides. In particular, consideration should be given to removing loose frass and partially decayed timbers, as these may represent a significant 'dust hazard' on drying and working during and after refurbishment. H+R can advise further on decontamination measures after detailed investigation if required

#### 3.2 WATER PENETRATION PROVIDING CONDITIONS FOR DECAY

#### 3.2.1 Roof

The roof had been re-laid with slate tiles on a previous refurbishment, with what appeared to be new and salvaged slate, fixed with galvanised nails or pegs onto sawn battens, and supplemented with foam pads attached with adhesive to prevent tile slippage. There were a number of broken and missing slates and the adhesive foam pads appeared to be at the end of their service life

- Detailed inspection of existing roof surfaces: Consideration should be given to undertaking a detailed inspection of existing slate tiled roof surfaces via the method of percussion auscultation. This should be conducted by the roofer in-situ to every tile via the tapping of the tile with a metallic tool to test and listen for inherent weaknesses in the slate tile, so as to determine their condition and probable service life. Cost effective remedial action may then be decided upon and actioned. Provisionally allow for consolidation of remaining sound tiles to approximately a single pitch of the roof
- Temporary roofing: Consideration should be given to providing effective temporary roofing, so as to minimise water penetration into structures beneath before and during proposed conservation and refurbishment works
- Replacement of existing roof: Consideration should be given to replacing existing roof surfaces with new throughout to match the original; and including provision for insulation and ventilation, so as to meet the requirements for sustainable conservation and occupancy under current Building Regulations. H+R can advise further on detailing if required
- Provision should be allowed for additional strengthening to existing roof structure with the use of ply sheeting. Fixed externally to the rafters and effectively 'knitting' the structure together in-situ, the plywood would create a structural diaphragm over which the insulation and weatherproofing surfaces could be fixed. Deflected and distorted historic rafters will require 'firring pieces' in order to create a level surface to affix the ply sheeting to. H+R can advise further if required
- Allowance should be made for the flashing details to the midstrey valleys to be repaired or replaced to prevent further moisture penetration to the timber elements beneath
- Allow for removal of previous chemical remedial treatments as well as accumulative dirt and debris to the timber services. H+R recommend sandpiper restoration for sympathetic historic timber cleaning to conduct this work. http://www.sandpiper-restoration.co.uk/

© Copyright Hutton+Rostron, 2018 H+R 3 © Copyright Hutton+Rostron, 2018 H+R 4

#### 3.2.2 Roof drainage and flashing details

Inadequate provision had been made for roof drainage on previous refurbishments. This had allowed water to drain onto surfaces beneath, providing conditions for damp and decay. This was especially evident to the catslide structure to the south. Flashing between surfaces and to adjoining structures also appeared to be allowing water penetration to structures beneath, providing conditions for damp and decay

Existing provision for roof drainage should be reviewed and replaced with new throughout, detailed so as to drain water clear of the structures beneath, and so as to facilitate access for inspection and maintenance on future occupancy. In particular, consideration should be given to re-detailing midstrey valleys to be repaired or replaced to prevent further moisture penetration to the timber elements beneath. H+R can advise further when required

#### 3.2.3 Wind-driven rain

The building was vulnerable to water penetration from wind-driven rain; especially to the south and west. This had allowed water to penetrate into the structure of the walls, providing conditions for damp and decay in the past, and the structure remained very vulnerable to further damp and decay during and after refurbishment

The timber frame elements should be inspected in detail when the clapboarding comes down in these areas and repaired or replaced as necessary. The flashing detail between the timber frame wall and plinth wall below should also be inspected in detail and repaired or replaced where necessary

#### 3.2.4 Ground and surface drainage

Ground and surface drainage details were not inspected in detail at the time of investigation. However, the existing ground appeared to be draining water into the base of the walls and foundations; especially from the south and west. The overflowing water butts around the base of the walls to the south also appeared to be draining water into the foundations locally. Problems with moisture and salt penetration to the base of the walls had provided conditions for moderate erosion to the original brickwork and mortar

- Consideration should be given to reducing ground levels around the building to 150mm below the internal finished floor level, and for the laying of new land drainage, so as to drain water clear of the structure; especially to the south and west. New provision should also be made for surface drainage around the building, in conjunction with landscaping and laying of the adjoining carriageways, so as to ensure that water is drained clear of the base of the walls and foundations, and that water does not penetrate to the interiors of the building during wind driven rain or
- 2 Foundations: The adequacy of existing foundations at the base of the walls of the building should be reviewed by the Structural Engineer, so as to help inform decisions on proposed demolition and landscaping in adjacent areas, and so as to inform the proposed conservation and repair to the brickwork at the base of the walls
- Consideration should be given to forming a drainage gulley around the base of the walls. This may be done in conjunction with installation of effective roof drainage, as described above. H+R can advise further on detailing if required

© Copyright Hutton+Rostron, 2018 H+R 5 © Copyright Hutton+Rostron, 2018 H+R 6

#### 3.3 TIMBER STRUCTURES

#### 3.3.1 Main barn roof timbers

Rafters: The ~40 no. pairs of oak and elm rafters, dimensions approximately 110 x 70mm spanning north-south at 550mm centres (variable), appeared to have suffered from decay in the past, and additional timbers had been introduced between the rafters during re-covering; this was primarily to the south and southwest of the barn. The additional timbers appeared to be pre-treated softwood material although this could not be verified at the time of the survey. There also appeared to be previous remedial repairs to the south of bays 5 and 6 with tile battens being used vertically as intermediary common rafters. The rafters were noted to be jointed with a pegged or nailed lap joint at the apex. This was judged to be the original ridge detail. However, significant areas of the ridge line had been previously repaired and replaced with an inserted ridge board. It was unclear at the time of the survey whether this was of softwood or hardwood construction. The roof showed limited signs of settlement at the second and fourth bays and some movement was evident towards the west gable end

Allowance should be made for repair and replacement of original and previously repaired roof timbers, using new or salvaged oak to match the original, taking care to ensure the maximum retention of original material and using traditional repairs where possible. See Drawings at Attachment A for locations. Provision should also be made for the re-detailing of the existing ridge structure. H+R advise the consolidation of the ridge structures into one continuous ridge board line to match the dimensions of the existing ridge boards. This will provide the roof elements with additional lateral support and create an improved apex from which to finish roof surface detailing. Existing historic lap jointed rafters (making up approximately 50 per cent of the roof) should be cut back with the appropriate 'plumb' cut to meet the newly inserted ridge board. Areas where there is evidence of removed or damaged historic wind bracing may be re-instated at the discretion of the conservation officer and architect/structural engineer. H+R can advise further if required

Purlins: The oak and elm purlins, dimensions approximately 70 x 100mm, approximately 7 no. to each of the roof pitches are of 'clasped' construction (where by the purlin is supported by a housing cut-out of the collar, thereby 'clasping' it in position). They have been subject to previous remedial treatment, alteration and structural failure; The north purlin in bay 3 shows severe deflection and lack of adequate bearing. Additionally, partial structural failure or minimal bearing to purlins was noted in bays 2 and 4. See Drawings at Attachment A for locations.

Conventionally purlins match the length of the bays and are lapped or jointed together at or near the location of the main trusses. This means they can be supported via the collars and any queen posts/struts. However, Jankes barn breaks this rule, with the purlins being of varied lengths, beginning and ending in often midbay locations. This is likely due to a lack of available finance at the time for suitable timbers. The resulting factor of this is the seemingly random positioning of the collars to support the purlin joints. There was also evidence of historic purlins being replaced with newer elm elements to the south of bays 2 and 3. This has caused the removal of an historic collar in bay 2 which has left the historic purlin joint in this location relatively unsupported. Structural Engineer to comment. See Drawings at Attachment A for locations

It is recommended that the original purlin and collar locations are reinstated as the historic evidence in the building demonstrates them to be. Purlins demonstrating partial failure should be replaced with like for like or newer sections scarfed in. Structural engineer to comment upon purlins exhibiting severe deflection. Additionally, provisionally allow for all non-historic softwood collars to be replaced with suitable hardwood alternatives to match the originals and to maintain the historic integrity of the structure. H+R can advise further if required

- Rafter wall-plate: The oak wall plate, dimensions approximately 160 x 175mm, running along the north and south elevations, was jointed using predominantly a side halved and vertical butt joint and fixed with ¾ inch oak pegs. The inspection revealed that joints had partially failed in two locations and an inappropriate face halved scarf joint was used in another (indicated on Plans at Attachment A) Structural Engineer to comment
  - It is recommended that the repairs to the wall plate jointing be undertaken by a suitably qualified and experienced specialist in the repair of historic timber frame structures, so as to ensure the maximum conservation of original historic material. Any replacement timber elements should be new or salvaged oak to match the original in moisture content and quality. Newer scarfed in elements should be counter sunk and coach-screwed with stainless-steel fixings, concealed with the use of oak plugs
- Trusses: The trusses were initially numbered T1-T6 from east to west (see attached plans). The connection joints between the main post, tie beam, and rafter plate were intact and appeared sound on all of the trusses, apart from the north end of truss 6 where the tie beam had minimal bearing upon the rafter plate and post structures. It was noted that the majority of the trusses had been historically strengthened with use of steel strapping around the connecting joint. Some of these straps may have reached the end of their service life. Complete structural failure of the supporting elm knee brace was evident to the south end of truss 2 as well as partial failure to its opposing knee brace at the north elevation of truss 2. There was also no current provision for diagonal bracing to the north ends of trusses 3 and 4. At this juncture the tie beams rested upon the overshooting midstrey rafter plates and were secured with historic iron bolts. Evidence suggests that, historically, diagonal bracing did exist in these locations but has since been removed. The structural engineer should assess these joints for structural suitability

It is recommended that any repairs to the truss jointing be undertaken by a suitably qualified and experienced specialist in the repair of historic timber frame structures, so as to ensure the maximum conservation of original historic material. Any replacement timber should match the original and be either new or salvaged oak. Consideration should be given to using galvanised or stainless-steel straps so as to ensure adequate structural repair while retaining the maximum original material and to be in keeping with the historic authenticity of the structure. Where trusses exhibit minimal bearing, effort should be made to pull the timber wall structures back into plumb, affording the correct bearing to the tie beam ends, and then suitably fixed into position using appropriate steel work. Where possible, historic mortice and peg locations where the pegs have failed should be re-pegged using new handmade ¾ inch oak pegs. H+R can advise further if required

#### 3.3.2 Catslide roofs

The three catslide roofs on the north and south long walls of the building were constructed using softwood rafters, dimensions approximately 75 x 90mm at 450mm centres. The remainder of their structural build-up was a mixture of historic hardwood and modern softwood elements. See Drawings at Attachment A for Catslide locations:

Catslide 1: Was of lean-to construction at the north-west area of the main barn. It featured a single earth-fast round section post (200mm diameter) to the open north façade which was chronically decayed at its base. This supported a plate at 190 x 220mm which carried the rafters. A single historic half-tie beam (190 x190mm) spanned between the rafter plate and the main barn. This was supported at its south end by a metal strap and fixings onto truss 5's north main post. There was no other support offered to this large section timber and this fixing method was deemed to be insubstantial for the task. Structural engineer to review adequacy of support. A single raking strut supported the purlin from the half-tie. See drawings at Attachment A for locations

- Catslide 2: Was of lean-to construction at the north-east area of the main barn. It featured two main posts (at 190 x 190mm) supported on brick plinths to the open north facade. The post feet were embedded within the masonry structure of the plinths creating the conditions for damp and decay. The posts supported a plate at 150 x 155mm which carried the rafters. Twin historic half-tie beams (120 x250mm) spanned between the rafter plate and the main barn. These were supported at their south end by metal straps and fixings onto truss 2's north main post and the central stud of bay 2. There was no other support offered to these large section timbers and these fixing methods were deemed to be insubstantial. Structural engineer to review adequacy of support. See drawings at Attachment A for locations
- Catslide 3: Was of lean-to construction at the south-east area of the main barn. It was constructed with softwood rafters at 50 x100 with 400mm centres. Supporting these was a rafter plate of 135 x 165mm. This in turn was supported by a solid timber wall of earth-bound reclaimed train sleepers at 120 x 200mm all of which were chronically rotted at their bases. A single historic arched half-tie beam (140 x140mm) spanned between the rafter plate and the main barn. This was supported at its north end by a vertical post to ground level. Raking struts supported the purlins from the half-tie

The catslide roofs all appeared to be in good condition although further inspection during the refurbishment process is recommended in order to determine whether any decayed timber elements are present. Provisionally allow for re-detailing of all earth-bound timber elements so that the timbers are separated from the earth with plinth masonry structures as well as accommodation for drainage and damp proofing. Decayed or partially decayed timber should be repaired by cutting back to sound timber and new elements scarfed and fixed into position

#### 3.3.3 Timber frames

The walls of the building consisted, throughout, of oak and elm timber frame elements in close studded fashion with diagonal bracing between each bay. A brick plinth wall supported the continuously running sill plate which in turn supported the main posts and stud walls. Historic timbers were either tenoned or lapped (bare faced tenoned) into each other and held fast with oak 3/4 inch pegs or historic metal fastenings. Where the diagonal bracing interceded the upright studs, the studs were rarely tenoned into the brace but cut flush and 'butted' with an historic rose head (hand forged) nail fixing. There was widespread evidence that the timbers had been extensively infested and decayed by wood boring insect attack and wet rot to the non-structurally significant sapwood parts of the timber. However, there was limited evidence of any active infestation at the time of investigation. Some of the timber framed elements of the structure had been removed on the south long wall in bays 4 and 5, presumably from extensive historic decay, and replaced with a new oak like-for-like structure. In addition to this, this area also featured a new masonry brick plinth wall to match the original masonry structures. The timber frame was generally found to be of good sound condition considering the age of the structure although inspection externally of the timber frame was obstructed by the clapboarding and was therefore not visible for inspection at the time of the survey

- Structural diaphragm: Consideration should be given to cladding the exteriors of the existing walls with a 'structural diaphragm', so as to allow the retention of the maximum original historically important timbers and joints; and so as to provide an insulated and through-ventilated dry lining to allow sustainable occupancy and conservation of the original structure. This may be done using structural boarding or plywood, secured to the existing timbers with galvanised or stainless-steel fixings, as directed by the Structural Engineer. H+R can advise further when required
- Clapboarding: Further investigation of the timber frame elements (in particular the sill plate) behind the clapboarding on the west wall is recommended in order to determine its integrity in conjunction with the Structural Engineer. This may require

© Copyright Hutton+Rostron, 2018 H+R 7 © Copyright Hutton+Rostron, 2018 H+R 8

the removal of the boarding in isolated areas or entirely, as necessary to allow for inspection

#### 3.3.4 Timber frame uprights and posts

The uprights and posts consisted of a mixture of oak and elm elements and were subject to historic and more recent remedial repairs and interventions. Dimensions varied significantly. Due to structural settlement of the brick plinth wall to the south in bays 1 and 2 the stud walls had been subjected to over-stressing and had subsequently deflected beyond what is conventionally acceptable. In particular, 3 no. upright studs to the south of bay 2 were deemed to be of little structural use. In addition to this, both ends of truss 2 main posts had been historically repaired with new post feet. These did not appear to have adequate structural bearing on the sill plate. The main posts flanking the south barn door had also been subject to previous historic remedial intervention. The west post had a new post foot spliced at an angle of between 25-30 degrees, which was judged to be an overly steep splice and the structural engineer should comment. Both the west and east posts also did not appear to have sufficient structural loading on ground level, with a gap of approximately 100mm to both. This meant that they are contributing little, structurally, to the south long wall. See Drawings at Attachment A for locations

- Studs: Provisionally allow for 3 no. replacement studs in like-for-like fashion and suitably dry timber to the south of bay 2. Joints should be located where the originals were and be fashioned of the same design. Ie. Bare-faced or butted etc. Historically in keeping galvanised rose head nails should be used where historic elements were also fixed with metal fastenings
- Posts: All main posts that were deemed to have minimal or insufficient structural bearing should be reviewed by the Structural Engineer. Provision should be made for new timber oak pads to be inserted (scarfed) into the sill plate structure to meet the main post feet adequately, or the post feet themselves should be extended to meet the surface that supports them
- 3 Craftmanship: All works should be undertaken by a suitably qualified and experienced specialist in the repair of historic timber frame structures, so as to ensure the maximum conservation of original historic material. Any replacement timber should match the original and be either new or salvaged oak to the same moisture content and quality of the element it is being used to repair
- Inappropriate repairs: Any defunct historic mortices that are found to have been filled with cement-based mortar should be cleared out and either left empty or repaired with timber. Where possible all failed peg joints should be re-drilled and repegged with new ¾ inch oak pegs to support the joints. H+R can advise further if required

#### 3.3.5 Sill plate structures

The continuous running sill plate, supported by the brick plinth wall, featured simple table scarf and vertical butt joints. As with most of the structural elements the sill originally featured significant quantities of sap wood which had subsequently decayed and/or been eaten by wood boring insects. However, deep drilling and probing showed the majority of the remaining heartwood timbers to be in sound condition. The south wall at bays 1 and 2 which had settled significantly showed substantial previous remedial alteration to the historic sill and in this location a newer additional large section timber of softwood had been coupled against the original with the remaining section of historic sill almost entirely embedded with a cementitious/lime mixture. This had no doubt trapped moisture within this timber structure creating and enhancing the conditions for damp and decay. The historic sill within this area was not accessible for decay detection drilling at the time of investigation due to concealment by a cementitious build-up and the remedial softwood sill plate. It can therefore be assumed that little structural integrity remains to the sill in this

area. There was also evidence of partially failed or insubstantial jointing methods between the sill plate sections. Most notably at the north-west corner and the south-west corner of the midstrey (see Drawings at Attachment A for locations)

- South sill section: Where the plinth wall had structurally failed and the historic sill had been embedded in concrete, provisionally allow for the complete replacement of the historic sill plate to the south side of bay 2 and for approximately 50 per cent of the south side of bay 1. This will first necessitate the repair of the brick plinth wall under the supervision of the Structural Engineer. The previous remedial softwood sill may be retained or removed at the discretion of the Conservation officer and the Architect with consideration to its enhancement of the structure's historic narrative
- Cement-based renders: All cementitious renders and repairs to the brick plinth should be carefully removed and replaced, if necessary, with a salt-resistant and breathable lime-based product to prevent moisture build-up within the masonry. Cementitious products and renders in contact with timber should be removed and where decay has occurred, the timber should be repaired with suitable material
- Where feasible and appropriate, sill plate structures should be separated from potentially damp masonry with the use of a DPM layer. This may be inserted when the roof finishes and cladding are removed so that the weight acting upon the sill is at its most reduced. For a holistic approach; where the historic plate is sat upon existing or repaired breathable lime-based mortar this detail may not be necessary

#### **3.4 DOORS**

#### 3.4.1 Construction

- North doors: The north pair of doors, overall dimensions ~1.6 x 2.9m, braces ~80 150mm (variable), rails ~80 x 60mm, stiles ~65 x 50mm, and tongue-and-groove jointed boards ~265 x 25mm, opened to the north and were constructed in a very primitive ledged and braced fashion with a hinge stile. Rails were through-tenoned and dowelled into the hinge stile and boards were nailed through the face to the rails and braces. There were signs of mechanised conversion of the boards in particular and many of the replacement elements were of modern origin
- South doors: The south pair of doors, overall dimensions ~1.4 x 2.5m, braces ~80 x 35mm, rails ~100 x 50mm with bevelled tops, stiles ~45 x35mm on-end, tongue-and-groove jointed boards ~140 x 20mm with moulded beading to front and back on tongued edge, opened to the south and were constructed in a primitive framed, ledged, and braced fashion. Stiles were nailed to the rails, and the boards were nailed to the braces and rails through the face. The stiles were non-structural and presumably later additions to protect the door edge. There were obvious signs of mechanised conversion of all the timber components especially to the boards, and the uniform nature of the rails and braces also suggested relatively modern replacement

#### 3.4.2 Material

- North doors: The boards appeared to be softwood (*Pinus sylvestris*) although this was difficult to determine at the time of survey due to the severe weathering of the timber; the knot distribution and density also suggested possible use of larch (*Larix decidua*). The majority of the rails and braces appeared to be elm (*Ulmus minor*), however some modern softwood repairs had been introduced to increase the stability of the doors, and to replace elements that had failed
- South doors: The boards appeared to be softwood (*Pinus sylvestris*) and again, the knot distribution and density suggested possible use of larch (*Larix decidua*). Stiles appeared to be softwood. The rails and braces were again difficult to identify due to

© Copyright Hutton+Rostron, 2018 H+R 9 © Copyright Hutton+Rostron, 2018 H+R 10

severe weathering and previous coats of stain preservative, but they may have been oak (*Quercus robur*)

#### 3.4.3 Condition

- North doors: The doors were generally in very poor condition with a pronounced dropping towards the closing edge. This was due to failure of many of the pegged rail joints and failing bracing. There were numerous splices to boards, rails, and bracing, and the majority of door elements were affected by structurally significant decay and loss of cross-sectional size. Many of the braces were ineffective, dowels from the rail joints missing, as well as widespread decay to mortice cheeks. There were signs of historic wood-boring insect attack to the stiles of both doors
- South doors: The doors were again in a very poor condition. Most of the boards were severely decayed and damaged from weathering, with cracking and splitting of the timbers allowing significant moisture penetration to the rails and bracing. The west door had severe damage to the lower edge of boards with loss of ~200mm to 4 no. boards, and a large section of damage to the boards at the mid-height closing edge. The west 'stile' was also damaged

#### 3.4.4 Recommendations

- North doors: In-situ repairs to the doors are unlikely to be successful. The boards of the north doors may be salvageable for re-use after splice repairs to the decayed bottoms, however allowance should be made for the replacement of the majority of the timber components of the doors. Consideration should be given to the use of a traditional durable hardwood for the replacement components such as oak, chestnut, or elm (or larch for boards), new or salvaged. Boards of barn doors are often non-durable softwood and as such regarded as sacrificial and likely to need replacement in the future. Re-detailing of the door construction could be considered, for example, increasing the length of the bracing and possibly using a framed, ledged, and braced construction method for increased durability and stability
- South doors: In-situ repairs to the doors are unlikely to be successful. The rails and braces may be salvageable for re-use however the nature of the door construction requires complete disassembly. There is likely to be significant decay to the hidden areas of the rails and braces which may have to be repaired during the process. Consideration should be given to the use of a traditional durable hardwood for the replacement components such as oak, chestnut, or elm (or larch for boards), new or salvaged. As stated above, the boards of barn doors are often regarded as sacrificial and likely to need replacing. If replacement is an option then consideration should be given to framed, ledged, and braced doors which are generally more durable providing better protection to the board edges due to the increase of stile material, and subsequently results in an increase of stability
- 4 Splicing boards: Splices to boards should be in a zig-zag fashion with the rake of the splice alternating between boards. An angle of between 20 and 30 degrees should be cut to eliminate the effects of shrinkage and to allow any moisture to drain away. False 'slip' tongues should be inserted between boards to strengthen connections
- Any repairs conducted or subsequent replacement door construction should be undertaken in a workshop environment and by a qualified joiner/cabinetmaker experienced in the repair/manufacture of historic joinery
- 6 Chemical remedial treatment: No chemical remedial treatments are either required or recommended in relation to fungal decay organisms or wood-boring insect infestation

#### 4 H+R WORK ON SITE

- **4.1** H+R inspected structural timbers by deep drilling and probing, as necessary, so as to determine their decay state and deep moisture content
- **4.2** H+R inspected the structure for defects liable to allow water penetration before and after refurbishment

#### **5 PROPOSED ACTION BY H+R**

- **5.1** H+R will advise on repair and conservation of timber elements, so as to minimise the risk of decay after refurbishment if instructed
- **5.2** H+R will advise on remedial detailing, so as to minimise the risk of damp and decay problems after refurbishment if instructed
- **5.3** H+R will advise on conservation of original fabric with regard to damp, decay and salt damage, as necessary and if instructed
- 5.4 H+R will review proposed remedial details as these become available if instructed
- **5.5** H+R will return to site to inspect sample remedial details if instructed
- **5.6** H+R will liaise with conservation and historic building authorities, if instructed, so as to ensure the cost-effective conservation of original fabric

#### **6 INFORMATION REQUIRED BY H+R**

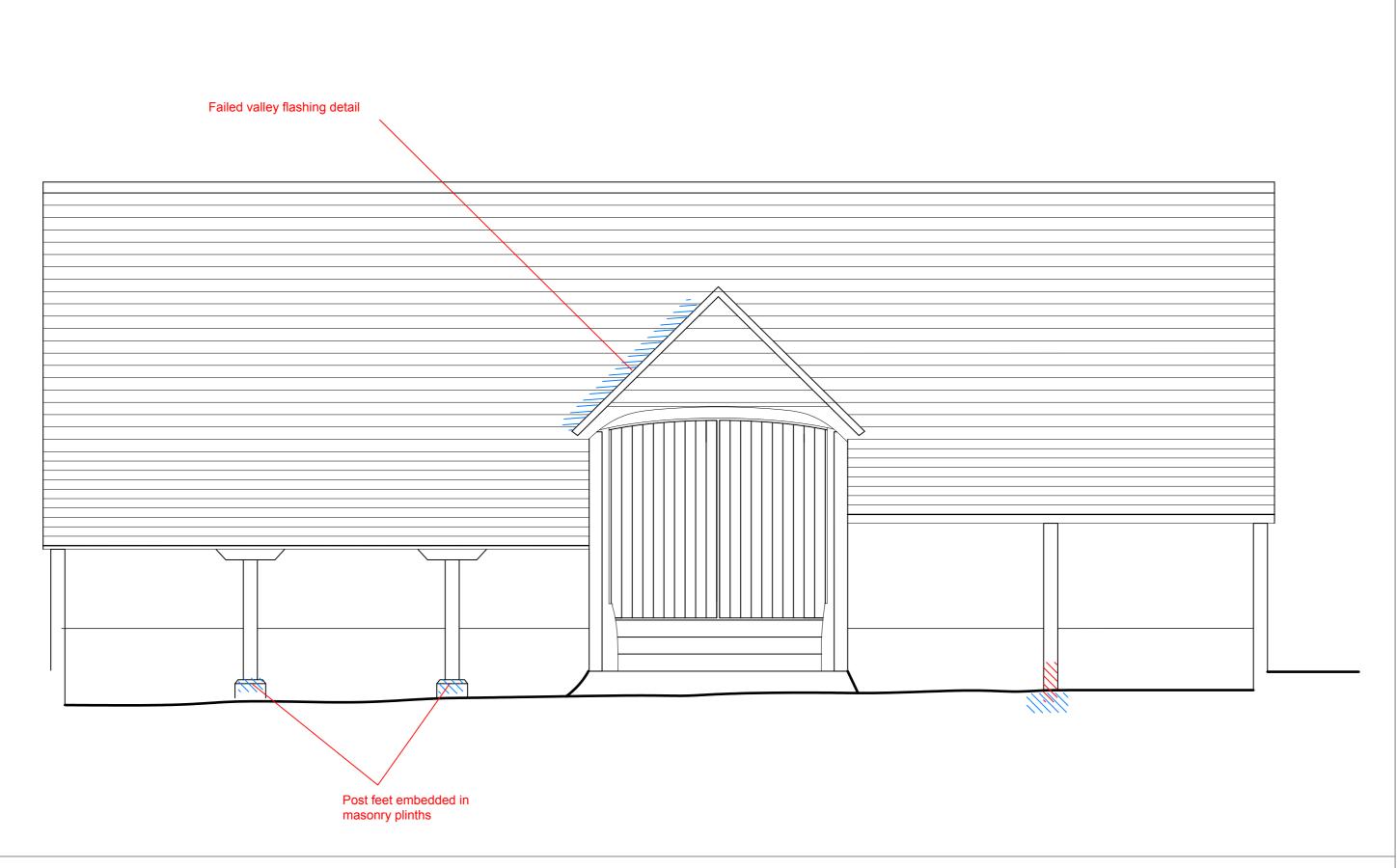
- **6.1** H+R require up-to-date copies of project programmes, as these become available
- **6.2** H+R require copies of up-to-date lists of project personnel and contact lists as these become available
- **6.3** H+R require copies of proposed remedial details for comment as these become available
- 6.4 H+R should be informed as a matter of urgency if further significant water penetration occurs onto site; so that advice can be given on cost-effective remedial measures, to minimise the risk of cost or programme overruns and so as to minimise the risk of damp or decay problems during the latent defect period

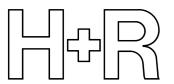
#### **7 ADMINISTRATION REQUIREMENTS**

- **7.1** H+R require formal instructions for further investigations and consultancy on this project
- **7.2** H+R require confirmation of distribution of digital and printed copies of reports and site notes

© Copyright Hutton+Rostron, 2018 H+R 11 © Copyright Hutton+Rostron, 2018 H+R 12

## Attachment A





# Jankes Barn, North Elevation Timber condition investigation 26 october 2018

**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

**Key:** Structural engineer to comment

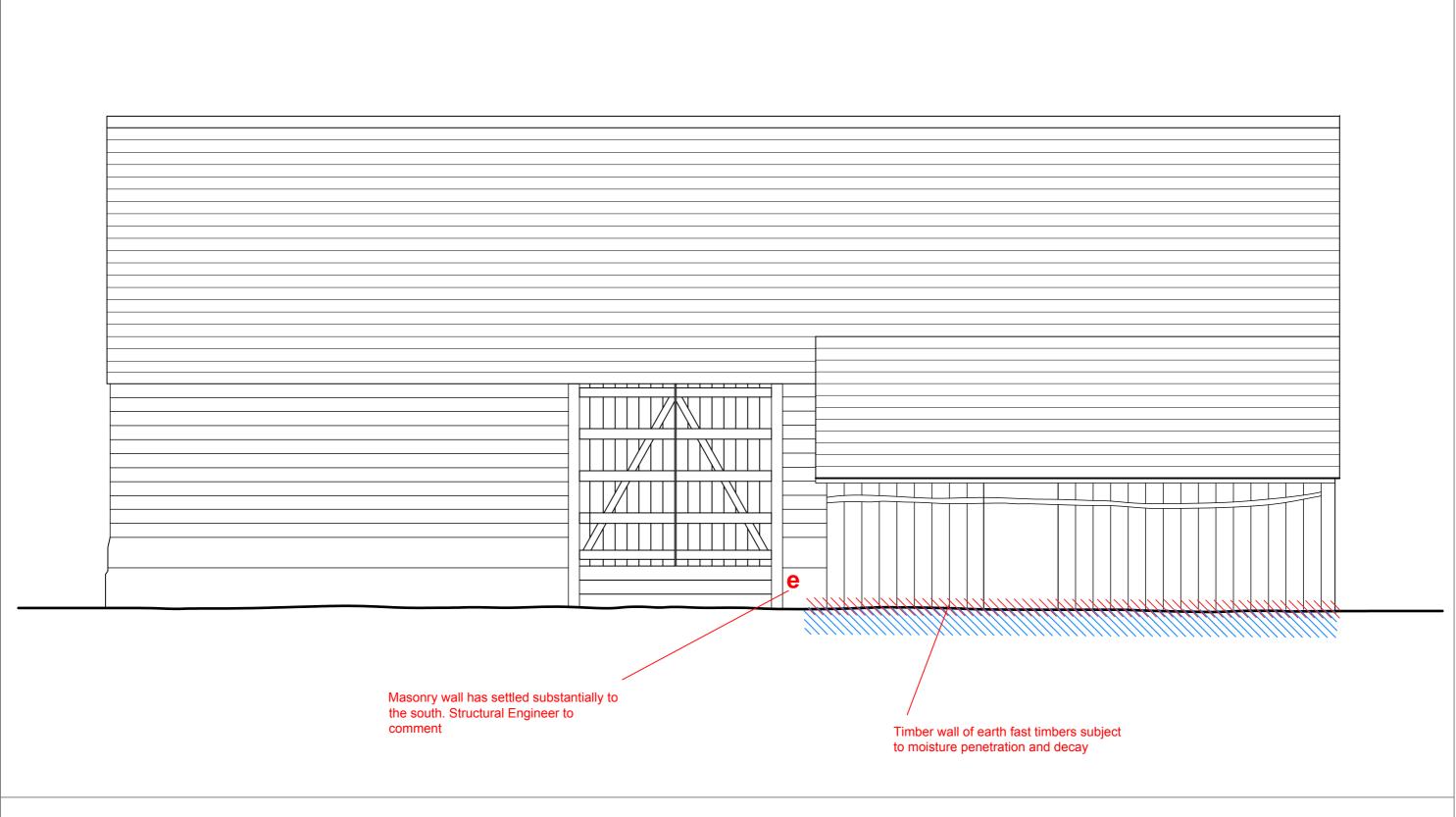
**X** Failed timber element or bearing end

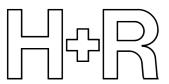
////, Area subject to timber decay

Structurally decayed timber element

/// Approximate area of cement based mortar

//// Location of missing historic/structural element





# Jankes Barn, South Elevation Timber Condition Investigation 26 October 2018

**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

**Key:** • Structural engineer to comment

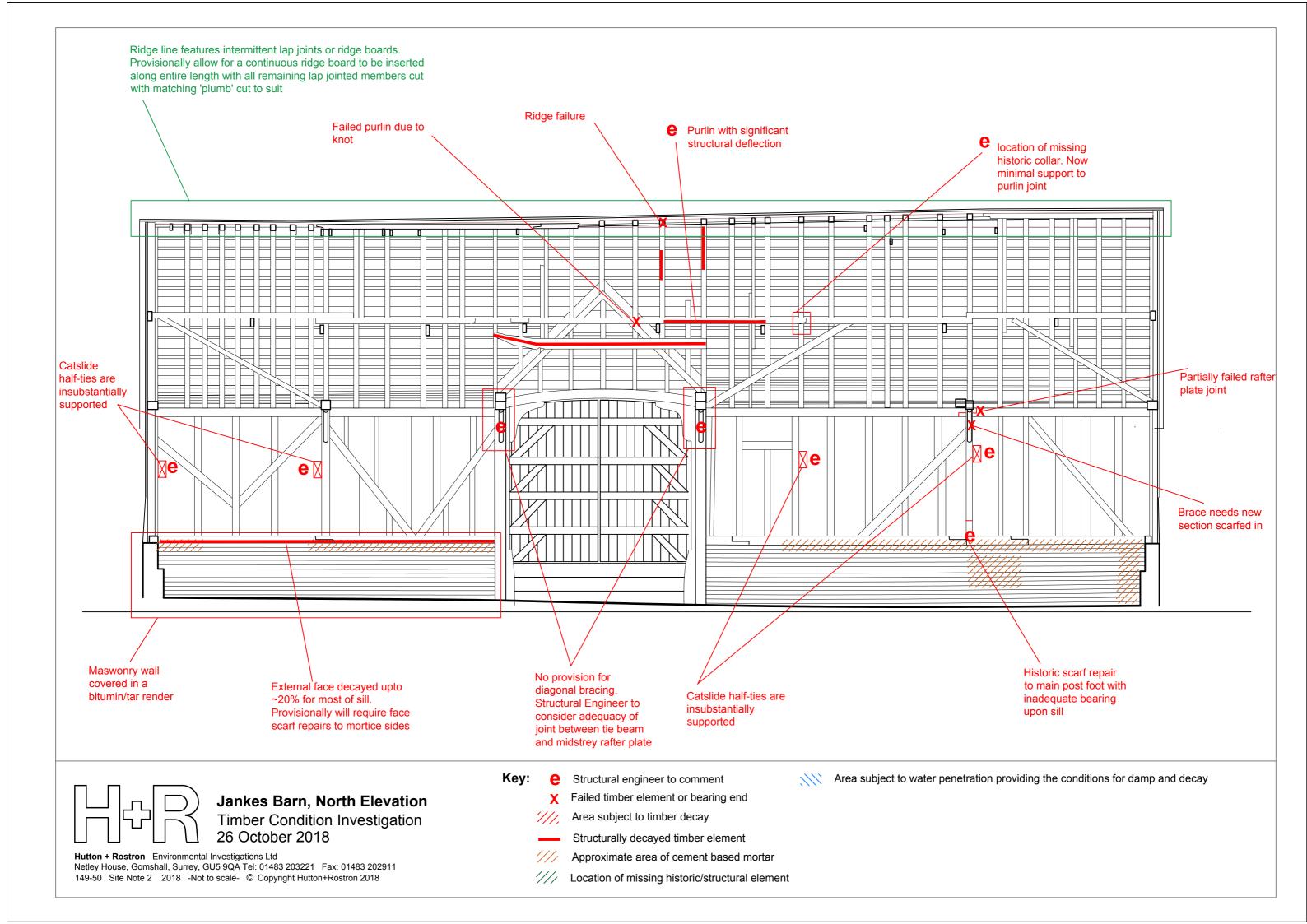
**X** Failed timber element or bearing end

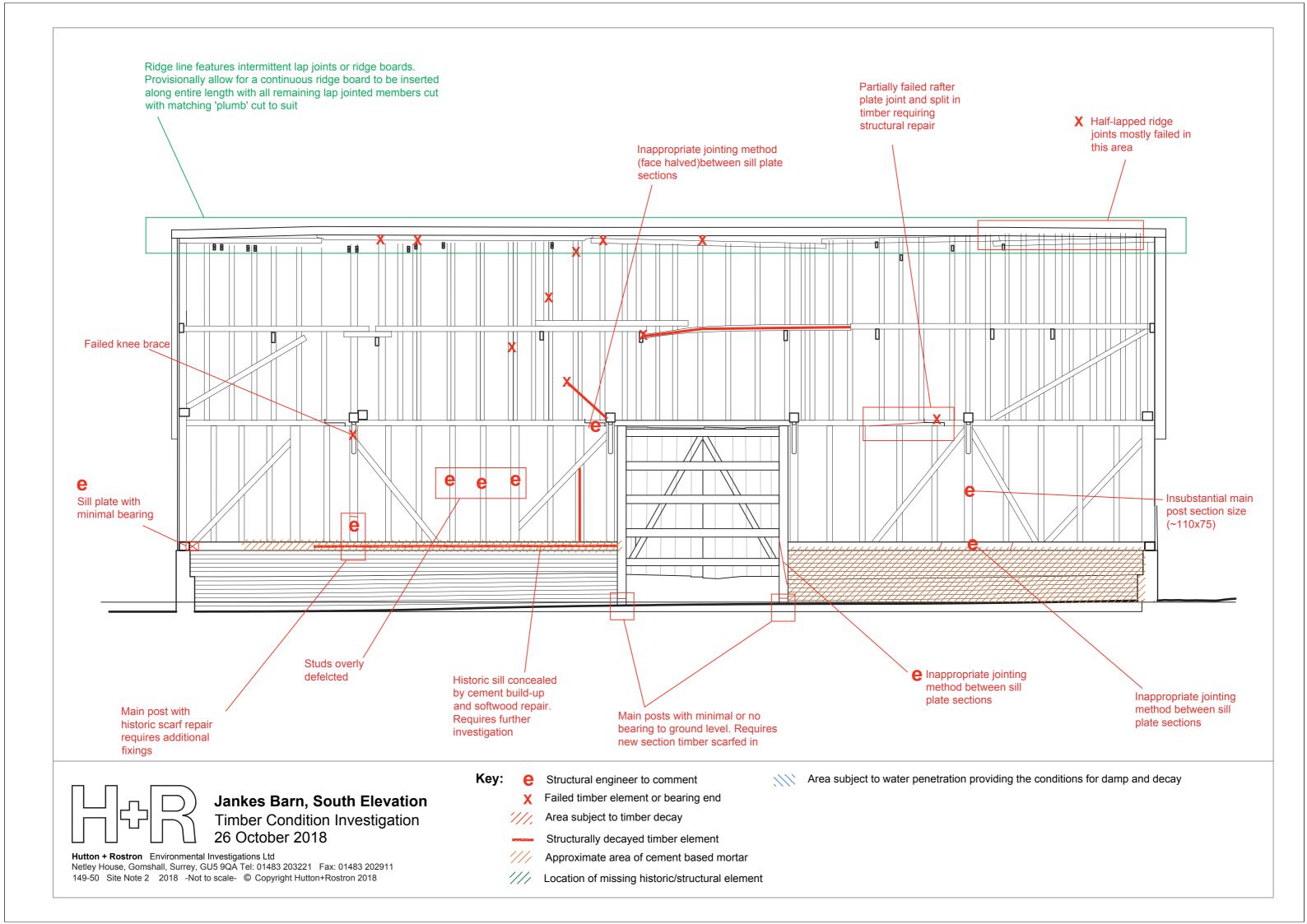
//// Area subject to timber decay

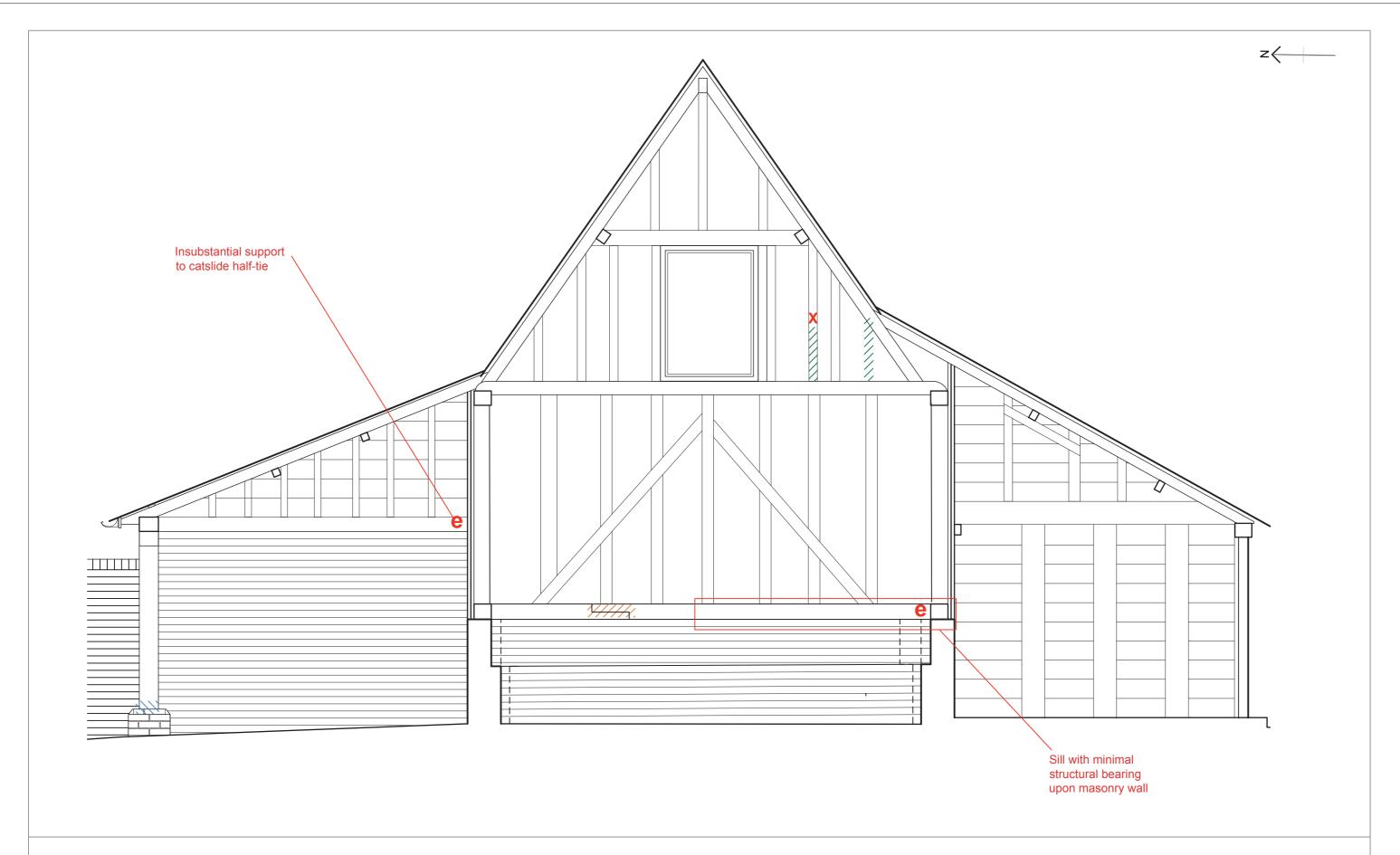
Structurally decayed timber element

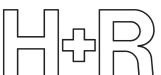
/// Approximate area of cement based mortar

/// Location of missing historic/structural element









Jankes Barn, East Gable End Timber Condition Investigation 26 October 2018

**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

**Key:** Structural engineer to comment

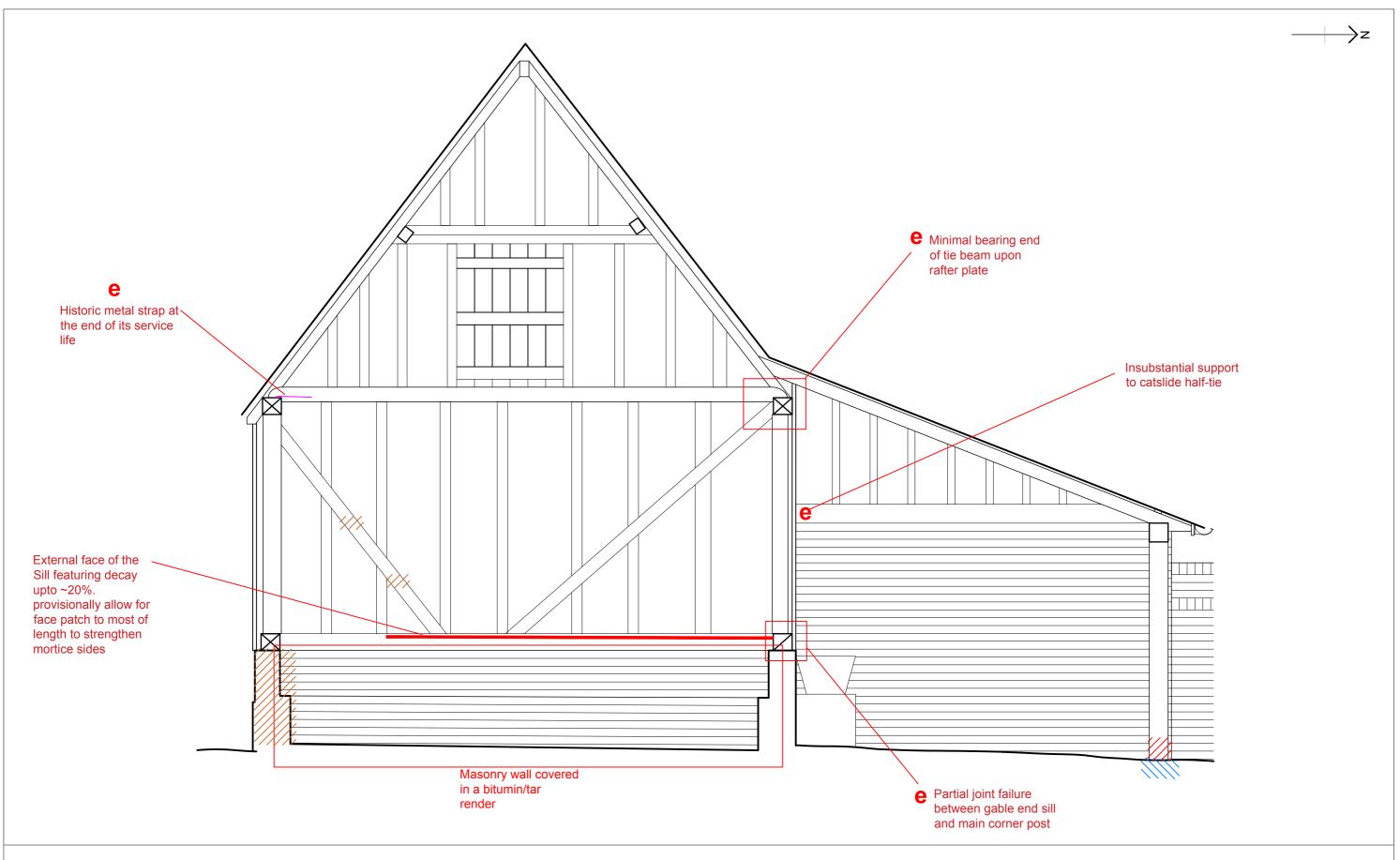
**X** Failed timber element or bearing end

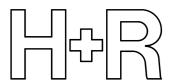
//// Area subject to timber decay

Structurally decayed timber element

Approximate area of cement based mortar

/// Location of missing historic/structural element





#### Jankes Barn, West Gable End Timber Condition Investigation 26 October 2018

Hutton + Rostron Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911
149-50 Site Note 2018 -Not to scale- © Copyright Hutton+Rostron 2018

**Key:** • Structural engineer to comment

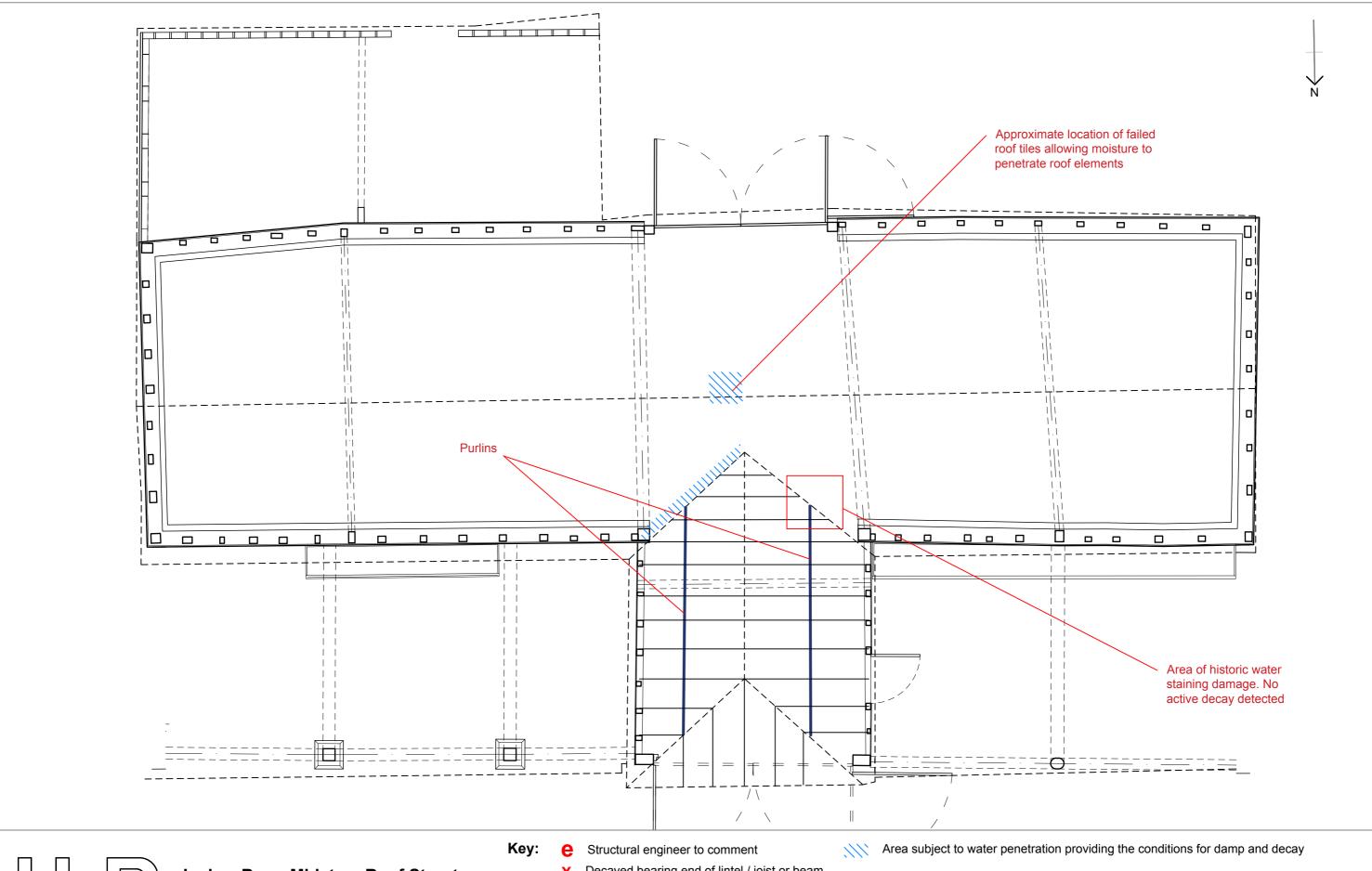
X Failed timber element or bearing end

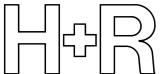
/// Area subject to timber decay

///, / red subject to uniber decay

Structurally decayed timber element

/// Approximate area of cement based mortar
/// Location of missing historic/structural element





#### Jankes Barn, Midstrey Roof Structure Timber Condition Investigation 26 October 2018

**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

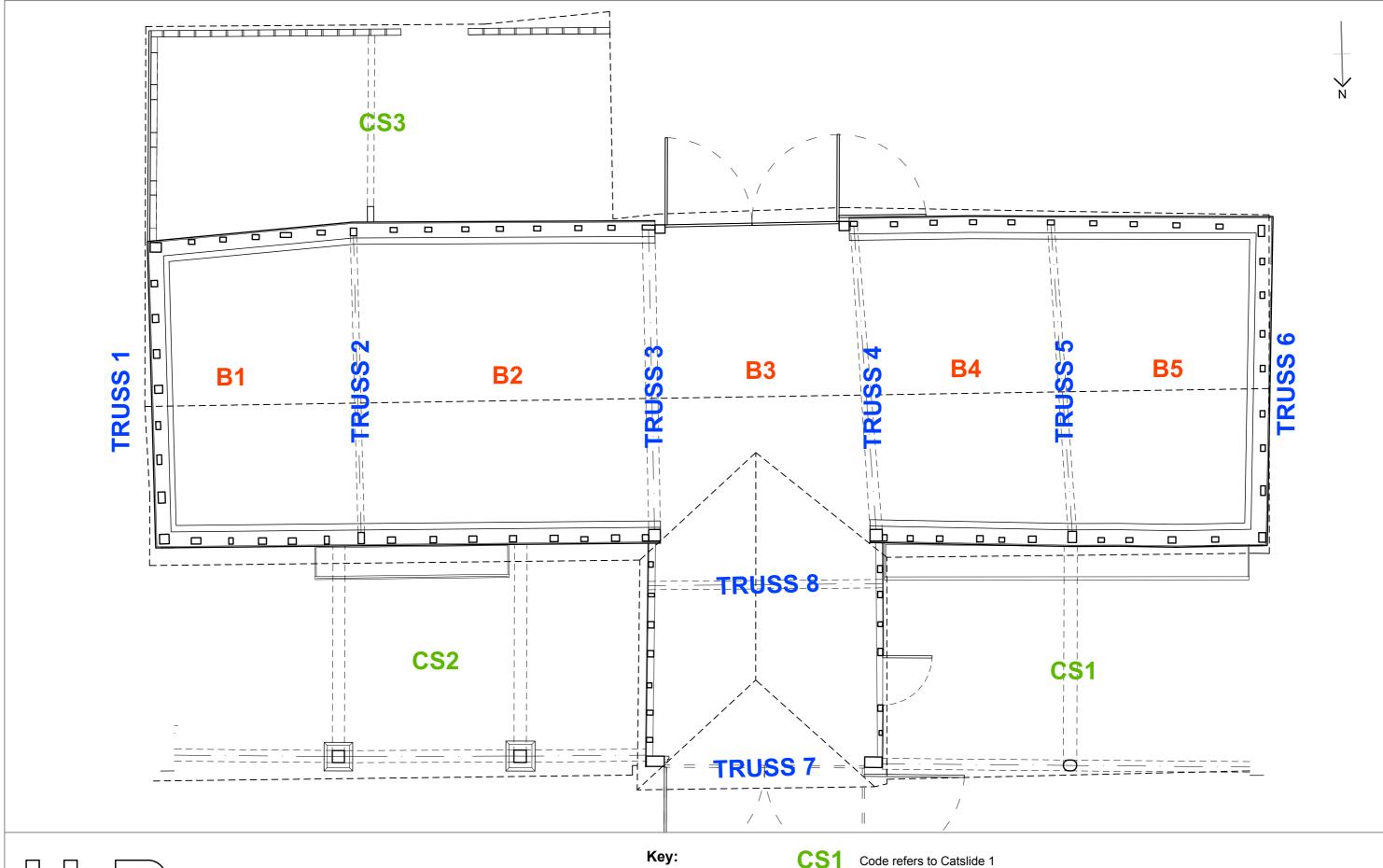
X Decayed bearing end of lintel / joist or beam

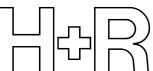
Area subject to timber decay

Structurally decayed timber element

Approximate area of cement based mortar

//// Location of missing historic/structural element





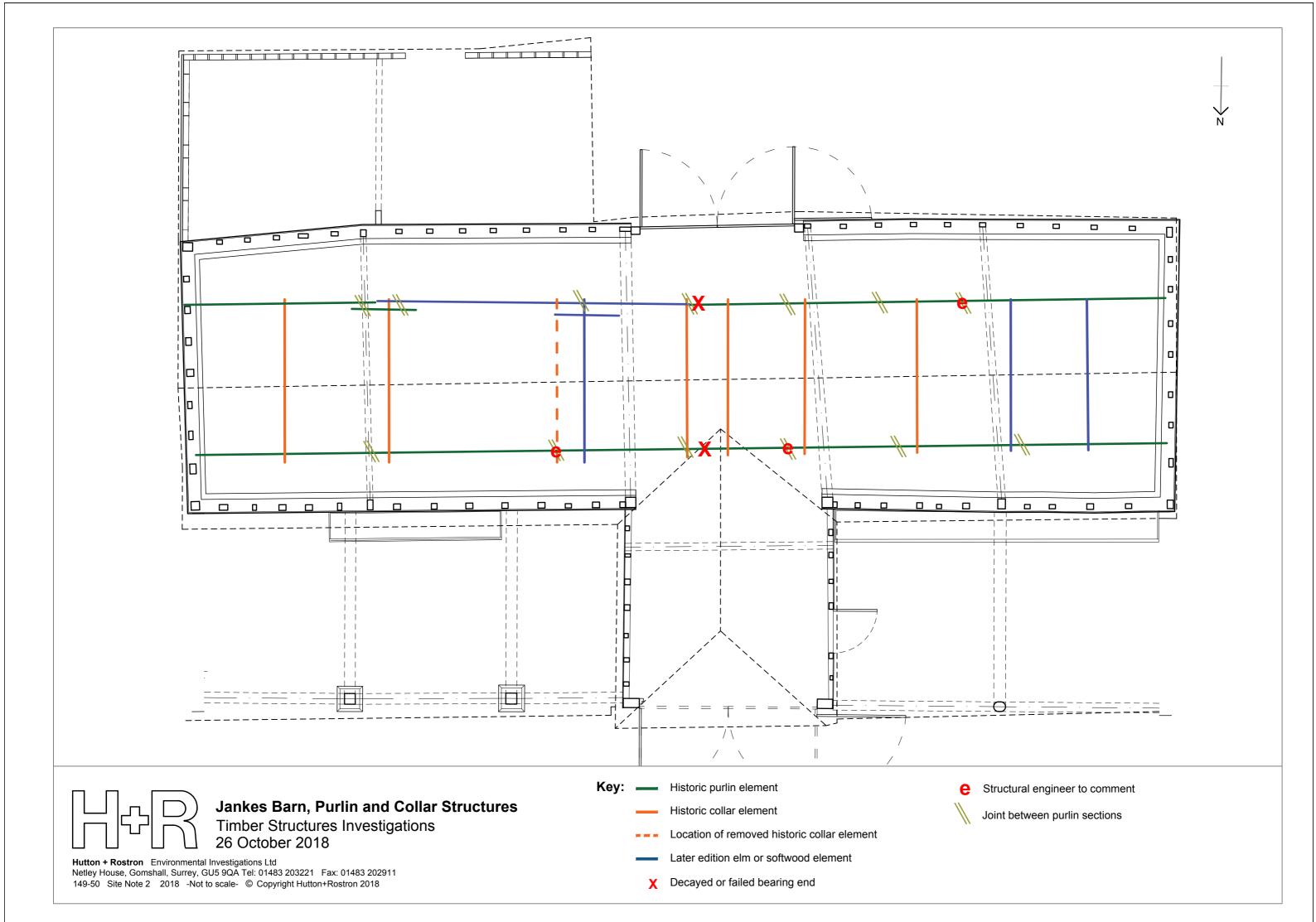
Jankes Barn, Identification of areas

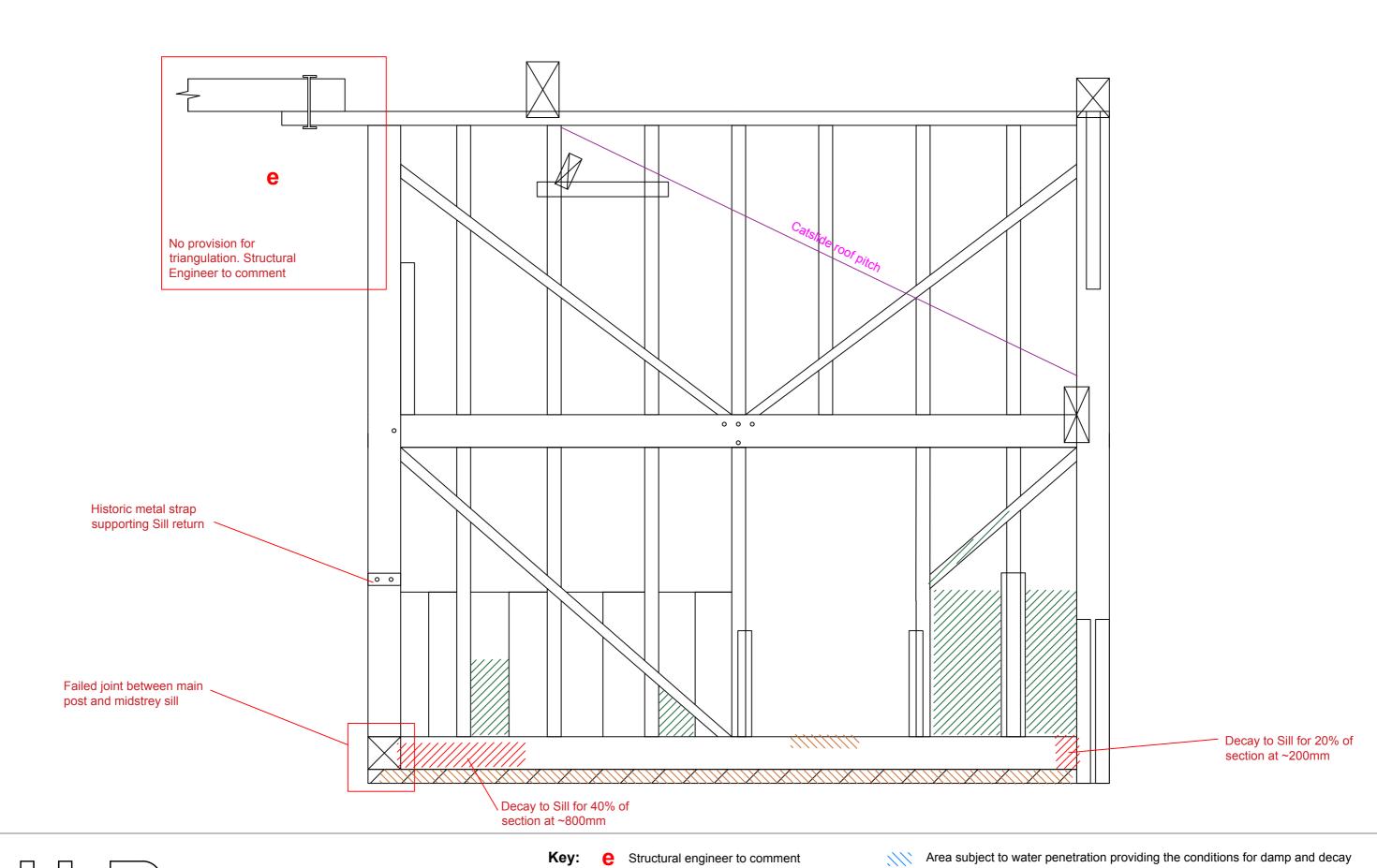
Timber Condition Investigation 26 October 2018

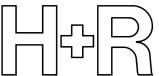
**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

Code refers to Bay 1

TRUSS 1 Refers to Truss no. 1





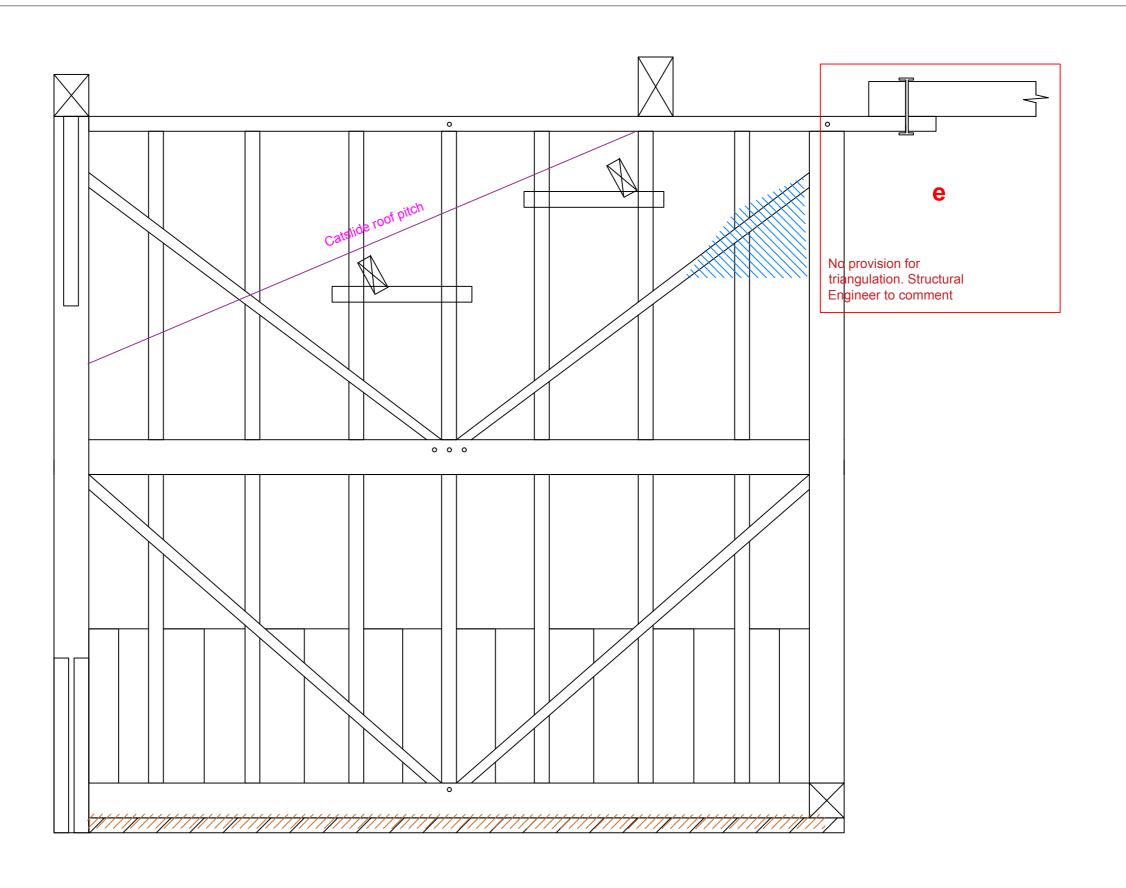


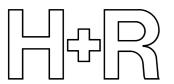
#### Jankes Barn, Midstrey West Wall **Timber Condition Investigation** 26 October 2018

**Hutton + Rostron** Environmental Investigations Ltd
Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 2018 -Not to scale- © Copyright Hutton+Rostron 2018

Key:

- **e** Structural engineer to comment
- Failed timber element or bearing end
- Area subject to timber decay
- Structurally decayed timber element
- Approximate area of cement based mortar
- /// Location of missing historic/structural element





# Jankes Barn, Midstrey East Wall Timber Condition Investigation 26 October 2018

Hutton + Rostron Environmental Investigations Ltd Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483 202911 149-50 Site Note 2 Month 2018 -Not to scale- © Copyright Hutton+Rostron 2018 **Key:** • Structural engineer to comment

Area subject to water penetration providing the conditions for damp and decay

X Decayed bearing end of lintel / joist or beam

////, Area subject to timber decay

Structurally decayed timber element

Approximate area of cement based mortar

/// Location of missing historic/structural element

# Attachment B



## Fig 1:

Jankes barn, image in general looking east; showing the main barn is of 5 no. bays with an out-shot (or midstrey) to the north extending the original threshing area to the central bay. Timber elements were predominantly of oak and elm wood with some softwood repairs. Sill level sat upon a brick plinth and walls were of close stud framing



## Fig 3:

Jankes barn; showing external image of structure from the south-east. Note the later addition catslide to the rear of the structure and the full gabled roof



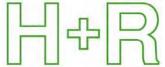
### Fig 2:

Midstrey, looking north; showing hipped roof structure and additional arched elm tie beam giving further support to structure at centre of strey



#### Fig 4:

Jankes barn; showing external image of structure from the south. Note full gabled construction with catslides to the north and south elevation



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page1 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

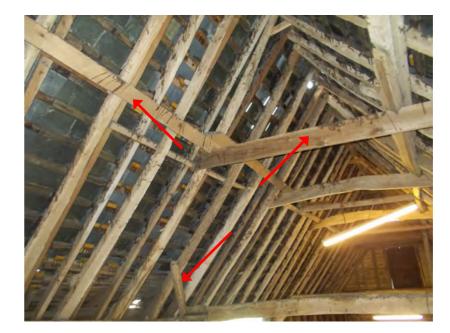
Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page2 © Copyright Hutton+Rostron 2018



## Fig 5:

Jankes barn; showing external image of structure from the north-east. Note open-sided catslides to east and west of central midstrey with an earth fast main post to the west and 2 no. main posts supported on brick plinths to the east



## Fig 7:

Roof; looking west showing nonhistoric elm purlins along the south pitched roof supported by a nonhistoric softwood collar. Note also diagonal brace has broken away near its point of genesis



#### Fig 6:

Roof; showing east end. Note the 'clasped purlin' construction whereby the purlin is housed into the collar. Note the collars are supported at the gable ends via the lower studs however, the remainder of the collars within the roof structure are self supporting. Note there has been a softwood ridge board inserted between the historic rafters within this bay



#### Fig 8:

Roof; showing north-east corner where rafters meet rafter plate. It was noticed at the time of survey that the housings for the rafter feet were oversized for the rafters placed in them. This is likely as a result of 'pre-cutting' the housings deliberately oversized before assembly as a means of saving time to the carpenters



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page3 © Copyright Hutton+Rostron 2018



Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page4 © Copyright Hutton+Rostron 2018



Fig 9:

Roof; showing where a rafter foot meets the rafter plate. Note the 'scotched' housing is deliberately oversized as a likely result of speeding up production by pre-cutting the scotches



## Fig 11:

Roof; showing Truss 2 north end. Note the peg has failed within the joint for the knee. Effort should be made in locations such as these to remove the broken section of peg and re-fasten with a fresh oak peg (3/4" in diameter) in order to pull the shoulders tight once more



#### Fig 10:

Roof; showing north-east corner. Note how the diagonal wind brace meets the tie beam which in turn is supported by the rafter wall plate and main post. Also note the historic metal strapping. It is unclear whether this was original to the construction of the building or as a later remedial measure



### Fig 12:

Roof; showing joint between knee, tie beam, main post and rafter plate to form the north end of truss 2. Note partial failure to the rafter plate lap joint. Also note an old carriage wheel hoop iron has been used as remedial strapping for the tie beam. This is distinguishable from its curved edges from wear during use and the evenly spaced square fixing holes 'hot punched' into the iron at even intervals



Jankes Barn Photographs 26 October 2018 Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page5 © Copyright Hutton+Rostron 2018



Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page6 © Copyright Hutton+Rostron 2018



Fig 13:

Roof; showing truss 3 with non-original softwood tie beam coupled alongside historic member and retained with metal strapping



## Fig 15:

Roof; showing roof structure. Note historic collars to the north (right side), and non-historic elm purlins to the south. Also note the common rafters are lapped and pegged together to form the ridge apex in this area



### Fig 14:

Roof; showing roof elements that have been previously painted with what appears to be a chemical treatment. Hutton and Rostron do not advocate the use of remedial chemical treatments and care should be taken when working with timbers that have been treated, as it may be harmful to health



### Fig 16:

Roof; showing south-west area of roof. Note how tile battens have been used inappropriately for mid-span common rafters between historic common rafters. Also note a ridge board has been introduced in this area



Jankes Barn Photographs 26 October 2018 Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page7 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page8 © Copyright Hutton+Rostron 2018



### Fig 17:

Roof; showing truss 4 north end. Note how all of the sapwood to the back of the tie beam has been historically removed before the bolt was put in position to retain the knee. This was a common measure by historic carpenters as they would have known that sapwood is vulnerable to wood boring insect and subsequent decay



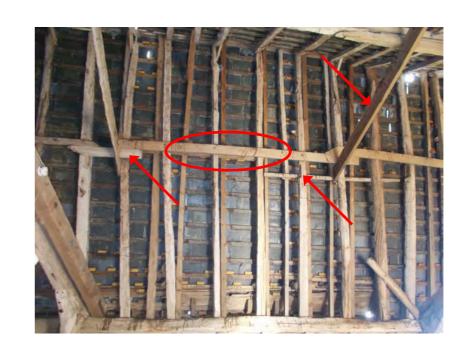
## Fig 19:

Roof; showing roof structure with failed tiles at ridge level. Moisture is being allowed to penetrate the structure at this location potentially providing the conditions for damp and decay to the elements below. Also note broken wind brace to south pitch roof showing signs of active wood boring insect attack



#### Fig 18:

Roof; showing broken wind brace in bay 2. Note the timber used is elm and has been extensively eaten by common furniture beetle. Activity was found to be active in this timber but not aggressively so, however still allow for this damaged timber element to be removed



Jankes Barn

Photographs

Job no. 149-50 Site Note 2 Page10 © Copyright Hutton+Rostron 2018

#### Fig 20:

Roof; showing bay 2 roof structure. Note how the historic purlin at truss 2 has been cut short but is still supporting the replacement elm purlins. Also note the right purlin in the image is non-historic and would have originally been further east to support the original purlin joint locations. Potentially historic timber locations could be re-introduced in this location and remedial efforts removed subject to approval from the conservation officer



Jankes Barn Photographs 26 October 2018 Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk Job no. 149-50 Site Note 2 Page9 © Copyright Hutton+Rostron 2018



Not to scale Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk



Fig 21:

Roof; showing the knee to the south end of truss 2. Note the knee has structurally failed. It is not likely this timber element is salvageable if it is to continue in its structural role



## Fig 23:

Roof; showing the north-west corner of bay 5. Note there has been significant historic movement to the truss at this gable end and the tie beam now has limited bearing upon the rafter plate. Note the underside of the 'dovetail cog' is now visible by up to ~100mm. Structural engineer to comment. Provisionally allow for wall frame to be pulled back to upright to correct bearing end in this location



## Fig 22:

Roof; showing roof structure in general looking west. Note the two trusses flanking the original threshing bay (Bay 3) lap onto the overshooting rafter plates of the strey and are bolted together with historic ironwork. There are no diagonal supports to this location



#### Fig 24:

Roof; showing south corner of truss 6. Note the historic cast iron strapping may have passed its service life. Provisionally allow for supplementary or replacement steelwork in keeping with historic fabric of the structure



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page11 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page12 © Copyright Hutton+Rostron 2018



Fig 25:

Roof; showing catslide 2 altering the main pitch of the roof. Roof of simple lean-to design and likely not original to structures construction



## Fig 27:

Roof; showing catslide 1 supported by single earth-fast round section main post. Note catslide 1 has a slightly shallower pitch than catslide 2 otherwise construction is much the same



### Fig 26:

Roof; showing catslide 2, featuring 2 no. historic elm half-ties supporting a largely 20th century softwood roof consisting of raking struts, 2 no. purlins, common rafters, and rafter plate. Note the rafter plate and main posts have been treated in a bitumen type preservative



### Fig 28:

Roof; showing roof structure of catslide 1. Note the purlin is supported by a short raking strut off of the half-tie (in elm). Remainder of roof elements in softwood. Also note poor provision for support to half-tie where it meets the main barn structure



Jankes Barn Photographs 26 October 2018 Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page13 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page14 © Copyright Hutton+Rostron 2018



Fig 29:

Roof; showing cat slide 2 half-tie element where it meets the main barn. Note little provision has been made to support this timber adequately. Structural engineer to comment



## Fig 31:

Roof; showing south-east corner of midstrey. Note the active wet rot decay to the historic clapboards in this location as a result of defective flashing details



### Fig 30:

Roof; showing east wall of midstrey. Note how the pitch and flashing of the catslide are evident from this position. Also note how purlins project through into midstrey structure and are supported on short horizontal timbers



### Fig 32:

Roof; showing valley location where moisture is likely being allowed to penetrate structures beneath causing the conditions for damp and decay to the midstrey east elements



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page15 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page16 © Copyright Hutton+Rostron 2018



Fig 33:

Roof; showing rear catslide no 3. Note the change in pitch to the roof as well as a number of slipped tiles. Roof structure constructed much the same way as catslides 1 and 2



### Fig 35:

Timber frame; showing brick plinth wall coated in what appeared to be a bituminous material. This may be trapping moisture against the brickwork and preventing the masonry structure from breathing leading to damp and decay issues to the brickwork



Fig 34:

Roof; showing catslide 3's roof structure. Note the half-tie has additional support from an upright member whereas the catslides to the north elevation do not. Also note the majority of the roof structure (apart from half-tie) is of softwood



## Fig 36:

Timber frame; showing plinth wall without bituminous coating. Note how the lower wall is of English bond whereas the top courses are of Flemish bond. The change in method may be due to the change in thickness of the wall structure. Also note significant areas of unsuitable repair to brick work in a cement based mortar. This relatively modern material is not harmonious with the historic lime based mortar and provisionally should be removed and repointed in lime mortar



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page17 © Copyright Hutton+Rostron 2018



Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page18 © Copyright Hutton+Rostron 2018



### Fig 37:

Timber frame; showing where main north end of truss 2 meets the sill. Note the sill has lost 25 per cent of its section to historic decay. Also note it has been repaired unsuitably with a cement based mortar pointing. This is likely to be trapping moisture inside the timber and creating the conditions for damp and decay. Lastly note the relatively simple lap joint between sill lengths; as this element was undercompression a more complex joint was not necessary



## Fig 39:

Timber frame; showing partially failed rafter plate scarf joint at the north end of truss 2



#### Fig 38:

Timber frame; showing north end of truss main post foot. Note how the main post foot has had a new element scarfed into it for 50 per cent of its section and bolted together. Also note how the newer scarfed-in section is now taking the entire bearing weight of the main post. Provisionally allow for a patch to be placed under the front historic post foot to share the weight with the rear patch. Structural engineer to comment



#### Fig 40:

Timber frame; showing oak stud meeting oak sill. Note how all of the sapwood band to the sill has been historically eaten away leaving only the heartwood remaining. Note remaining timber was deep drilled and moisture contents were taken. No decay detected



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page19 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page20 © Copyright Hutton+Rostron 2018



Fig 41:

Timber frame; showing a pleasing carpentry detail where the stud has been well scribed to meet the sloped face of the sill which is also lapped over another sill section. Then all three elements fixed through with three hand forged rose head nails



## Fig 43:

Timber frame; showing partial failure to underside of rafter plate joint. Note the tenon is now visible from below. Also note the joint had been historically repaired with an iron bolt



#### Fig 42:

Timber frame; showing underside of rafter plate with heart wood shakes in timber surface. These are of no structural concern. Also note stud mortice location is oversized for stud. The carpenter has also dispensed away with the usual practice of squaring off the corners (which are rounded from the hand auger) of the mortice suggesting it was always intended to be oversized and perhaps done pre-emptively



### Fig 44:

Timber frame; showing south main post of truss 4. Note that the elm post foot had been historically repaired with a new section of oak spliced into it at a very steep angle and should be assessed by the structural engineer. Provisionally allow for additional fixings to be implemented to this joint



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page21 © Copyright Hutton+Rostron 2018



Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page22 © Copyright Hutton+Rostron 2018



### Fig 45:

Timber frame; showing repaired timber frame wall to south side of bays 4 and 5. Repaired circa 1980's, bandsawn oak was used which has dried well with relatively low amount of checking. However sap wood band to underside of sill is vulnerable to decay due to proximity to cement-based pointing of repaired plinth wall below. Provisionally allow for pointing in this area to be replaced with a lime based mortar that will allow timber to breath sufficiently. New timbers should be isolated from masonry via a damp-proof material



### Fig 47:

Timber frame; showing main post at south side of truss 2. Note how the post foot has been historically repaired by a scarfed-in lap joint. No fixings were visible to this scarf joint at the time of survey (should be assessed externally when weather boarding is removed). Provisionally allow for 2 no. coach screws to be added to this joint. Also note main post foot is embedded into a cement-based mortar which will be trapping moisture and creating the conditions for damp and decay



#### Fig 46:

Timber frame; showing south side of bay 2 where the brick structural wall has subsided allowing significant movement and distortion of the timber frame elements above. Note the studs have deflected by up to ~120mm along their length and can no longer perform their structural role. Additionally stud feet and the historic sill are now encased in a cement-based mortar which will likely be causing the conditions for damp and decay, and may affect the timbers



#### Fig 48:

Timber frame; showing south end of truss 2. Note the irregular rotation of the table scarf joint used for the rafter plate joint. It is judged that the stud is providing an overly significant amount of support to this plate due to the minimal structural strength of this joint



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page23 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page24 © Copyright Hutton+Rostron 2018



#### Fig 49:

Timber frame; showing east gable end. Note the evenly spaced filled mortice locations in the sill plate suggesting this was a recycled timber. Additionally the diagonal cut outs (or housings) to the upright studs also suggest these are recycled elements from a previous structure



## Fig 51:

Timber frame; showing south end of east gable end. Note how the sill has an overhang of up to ~150mm and therefore has minimal bearing upon the brick structure beneath. Provisionally allow for additional support to this area. Structural engineer to comment



#### Fig 50:

Timber frame; showing historic location of mortice for a brace location in the tie beam of the east gable end. There is no other evidence to suggest this tie beam was braced in its current situation and it is therefore likely to be a salvaged element. Also note how the stud mortice location intercedes with the historic defunct mortice but is still doing its job appropriately



### Fig 52:

Timber frame; showing failed joint between north-west corner post and west gable end sill plate. Note the historic remedial efforts of using iron straps to maintain structural adequacy. This method appears to have been effective, however the ironwork appears to be approaching the end of its service life. Provisionally allow for repair to location with dry oak scarfs



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page25 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale



#### Fig 53:

Timber frame; showing north side of bay 4. Note the exterior edge of the sill appears to have significantly degraded due to historic water penetration from failed clapboarding and wind driven rain. Provisionally allow for a face scarf to the exterior of the sill in this location to reform and strengthen the mortice pockets



## Fig 55:

Timber frame; showing main post to catslide 1. Note how the post foot is earth fast and is vulnerable to rapid decay. Provisionally allow for redetailing of this to match that of catslide 2. Also note the lack of bracing to the posts to this entire elevation. Likely as a result of animal traffic to and from the covered trough areas



#### Fig 54:

Timber frame; showing post feet of catslide 2 have been raised off the ground and set on brick plinths. However, the post feet have been embedded with the brick plinth which is likely to be trapping moisture and creating the conditions for damp and decay. An alternative detailing to this would be to cut back the timber posts and isolate from the masonry via the use of a damp-proof material



#### Fig 56:

Timber frame; showing midstrey west wall. Note how the entrance is a later addition as it has necessitated the cutting short of the diagonal bracing member. Also note the threshing boards still in situ (hence the term 'threshold') fitted into the purposefully carved channels in the main post feet. An excellent historic detail



Jankes Barn
Photographs
26 October 2018
Not to scale





Jankes Barn
Photographs
26 October 2018
Not to scale



#### Fig 57:

Timber frame; showing midstrey west wall with historic kickboards to the lower sections. Note the cement-based mortar build-up below the sill plate. This has caused localised decay to the sill at both ends. See drawings at attachment B for details



## Fig 59:

Timber frame; showing midstrey east wall. Note the localised wet rot decay to the clapboarding and studs/diagonal brace. This is likely a result of defective valley flashing detailing above. Also note notch cut out of the post of truss 2. This is a likely location of an historic brace that would have supported the tie beam and is matched on its opposite post at truss 3



#### Fig 58:

Timber frame; showing midstrey east wall with complete run of historic kick boards set into stud divisions. Note also this sill plate has been set on a bed of cement-based mortar which will be creating the conditions for damp and decay. However, the timber was deep drilled and probed and no decay was detected. Provisionally allow for removal of all cement-based mortar and replacement with a lime-based mixture



#### Fig 60:

Timber frame; showing catslide 3 to the rear of the structure. Walls formed of earth fast recycled railway sleepers now much decayed at their bases with very limited remaining service life. Provisionally allow for complete redetailing of this structure for refurbishment



Jankes Barn Photographs 26 October 2018 Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page29 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page30 © Copyright Hutton+Rostron 2018



## Fig 61:

Timber frame; showing truss 4 where it meets the midstrey rafter plate. Note the historic iron fixings and no current provision for diagonal bracing of this structure. These areas were deep drilled and probed. No decay detected at the time of the survey. Structural engineer to review lifespan of historic metal fixings and their adequacy for refurbishment



## Fig 63:

Barn doors; showing the repaired ril and brace on the west door. Note the severe decay to the lower rail and boards



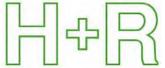
### Fig 62:

Barn doors; showing north midstrey barn doors. The doors were dropping towards the centre meeting edges due to the failing braces and hinge posts. Note the numerous repairs



### Fig 64:

Barn doors; showing some decay to one of the rails on the north doors. Most of the rails and braces were decayed or partially decayed



Jankes Barn
Photographs
26 October 2018
Not to scale





Jankes Barn
Photographs
26 October 2018
Not to scale



Fig 65:

Barn doors; showing one of the recent repairs in softwood timber to a brace on the north doors



## Fig 67:

Barn doors; showing the north doors and the bottom of the west door. The boards were decayed in this location and the hinge had subsequently failed



Fig 66:

Barn doors; showing the north doors and the decay to the bottom stile of the west door. The boards in this area were also badly damaged



## Fig 68:

Barn doors; showing the north doors and the previous repair work conducted. Note the decayed mortice cheek around the dowelled rail joint above



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page33 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page34 © Copyright Hutton+Rostron 2018



## Fig 69:

Barn doors; showing the south doors and the severely damaged closing side of the west door. The boards of this door were also significantly decayed at the base



## Fig 71:

Historic marks; showing the mid-rail to the midstrey west wall. Note the smooth scalloped finish to the timber surface suggesting this timber was converted on this face via the use of an adze, with the timber being laid flat and the carpenter working along its surface in the direction of the arrow towards his feet



#### Fig 70:

Barn doors; showing the south doors and the severe decay to the boards at the base of the east door. All of the boards of the south pair of doors were significantly weather damaged



### Fig 72:

Historic marks; the 1980's oak repair has clearly visible band saw marks upon its surface. Note the regularity of the teeth marks with a distinctive heavy groove every inch suggesting a misaligned saw band



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page35 © Copyright Hutton+Rostron 2018



Jankes Barn
Photographs
26 October 2018
Not to scale

Hutton + Rostron Environmental Investigations Ltd, Netley House, Gomshall, Surrey, GU5 9QA Tel: 01483 203221 Fax: 01483202911 email: ei@handr.co.uk

Job no. 149-50 Site Note 2 Page36 © Copyright Hutton+Rostron 2018



Fig 73:

Historic marks; Note the markings indicated in the photograph suggest an axe was used to convert this timber, with quick multiple striking actions to the timber in its current rotation. The carpenter would have stood on the other side of the timber as he operated his side axe



## Fig 75:

Historic marks; showing the typical markings of a pit sawn elm timber. The most common conversion method used for the timbers in Jankes barn. Note the irregularity of the saw marks in both depth and width. The saw marks will also be just off from 90 degrees to the timbers edge as it was incredibly difficult to attain a completely square cut



Fig 74:

Historic marks; the long diagonal grooves in this timber suggest a plane, (likely a scrub plane) was used very quickly and crudely to remove the uneven surface



Photographs
26 October 2018
Not to scale





Jankes Barn
Photographs
26 October 2018
Not to scale