

The Bryn, Gredington

Foul Drainage Technical Note

December 2022

Project Information	
Project:	The Bryn, Gredington
Report Title:	Foul Drainage Technical Note
Client:	Gredington 90/10 Estate
Instruction:	The instruction to undertake this Foul Drainage Technical Note was received from Michael Paton on behalf of Gredington 90/10 Estate.
File Ref:	14670-Foul Drainage Technical Note-01

Approval Record	
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Document History		
Revision	Date	Comment
01	14/12/2022	First issue

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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

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Introduction

Waterco has been instructed to prepare a Foul Drainage Technical Note to support a planning application at land adjacent to The Bryn, Whitchurch, Wrexham, SY13 3DS.

The purpose of this Foul Drainage Technical Note is to establish a method of foul water discharge for the proposed 5 no. dwellings. This report has been prepared in consultation with Dŵr Cymru Welsh Water (DCWW).

Existing Conditions

The site covers an area of approximately 1.32ha and is located at National Grid Reference (NGR): 342943, 341099. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed December 2022) shows that the site currently comprises existing agricultural buildings. The site is bordered by Pigeon Lane to the north, agricultural land to the east and south, and a private access road to the west.

Local Topography

Contours on the existing site plan (Appendix B) indicate that the site generally slopes from 60.81metres Above Ordnance Datum (m AOD) in the south-west to approximately 50.45m AOD in the north-east.

Site levels are also shown on the LiDAR plan included in Appendix C.

Published Ground Conditions

With reference to the British Geological Survey (BGS) online mapping (1:50,000 scale), the site is underlain by superficial deposits of Devensian Till, generally comprising Diamicton. The superficial deposits are identified as being underlain by Tarporley Siltstone Formation consisting of siltstone, mudstone and sandstone.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The EA's 'Source Protection Zones' data, obtained from MAGIC's online mapping [accessed December 2022], indicates that the site is not located within a Groundwater Source Protection Zone.

Local Drainage

Public sewer records have been obtained from DCWW and are included in Appendix D. The sewer records show that there are no sewers within the vicinity to the site. The closest sewer is in excess of 1.75km from the site.

Planning Context

Planning Policy Wales (PPW), Edition 11 (February 2021) contains the following guidance relating to foul drainage:

'6.6.21 Development Proposing Non-mains Foul Drainage

Any development discharging domestic sewage should connect to the foul sewer where it is reasonable to do so. Development proposing the use of non-mains drainage schemes will only be considered acceptable where connection to the main sewer is not feasible. The installation of private sewage treatment facilities within publicly sewered areas is not considered acceptable because of the greater risk of failures leading to pollution when compared to public sewers. Where non-mains sewage proposals, such as septic tanks and or independent sewage treatment systems, are included in development applications they should be subject to an assessment of their effects on the environment, amenity and public health in the locality, in accordance with the criteria set out in Circular 10/99, prior to the determination of the planning application.'

Development Proposals

The proposed development is for the change of use from agricultural buildings to form 5 no. residential dwellings. The development plans indicate that plots 1-3 will comprise 3 bedrooms and plots 4-5 will comprise 4 bedrooms. Existing and proposed development plans are included within Appendix E.

Consultation

A planning application was submitted to Wrexham Council in March 2022 (planning reference: P/2022 /0013. Correspondence from Wrexham Council (Appendix F) states that:

'The Dee forms part of the River Dee and Baka Lake Special Area of Conservation (SAC) and in January 2021, Natural Resources Wales (NRW) introduced stringent standards on the discharge of phosphorus into the SAC.

This development will be served by a private foul drainage system has the potential to result in an increase in phosphate discharges into the SAC, so cannot be approved in its present form.'

A pre-development enquiry was submitted to DCWW in November 2022. In their response (Appendix D) DCWW have stated:

'Public Sewerage Network

There is no public sewerage system in this immediate locality and therefore any new development will require provision of satisfactory alternative facilities for sewage disposal. Alternatively, the site is located approximately 1500 metres to the south west of a public sewerage system that drains to Penley WwTW, and it may be possible for the Developer to requisition sewers from Dwr Cymru Welsh Water under Sections 98 - 101 of the Water Industry Act 1991.'

Foul Drainage Proposals

It is proposed to install a private sewage treatment plant to provide treatment to foul flows generated by the proposed development.

Foul flow estimates have been calculated using British Water Flows and Loads 4. Based on plots 1-3 comprising 3 bedrooms and plots 4-5 having 4 bedrooms, a population of approximately 27 is estimated (based on a population of 5 for each 3 bed house, and a population of 6 for each 4 bed house). Table 1 indicates the estimated daily flow, biochemical oxygen demand (BOD) and ammonia as nitrogen as estimated by British Water Flows and Loads 4.

Table 1 – Daily loadings, taken from British Water Flows and Loads 4

	Per person/day	27 person/day
Flow (l)	150	4,050
Biochemical oxygen demand (BOD) (g)	60	1,620
Ammonia as Nitrogen (g)	8	216

A Klargester BioFicient 6 Domestic Sewage Treatment Plant is proposed which accommodates a population equivalent of up to 30 people. The treatment performance of the Klargester BioFicient 6 plant is shown in Table 2 with certification provided as Appendix G.

Table 2- Klargester BioFicient 6 Treatment Data

	Efficiency (%)	Effluent (mg/l)
COD	90.6	67
BOD ₅	94.4	20
NH ₄ -N**	99	0.4
SS	92.7	27

*at a test influent of ≥ 300 mg/l BOD₅ (mean)

** determined for temperatures $\geq 12^{\circ}\text{C}$ in the bioreactor

The private sewage treatment plant will be located within the north-western extent of the site within the paddock. An 'Indicative Foul Drainage Plan' is included within Appendix H and shows the potential location for the treatment plan and associated drainage field.

Discharge Method

Treated effluent should be discharged to a drainage field. A drainage field is preferable so that treated effluent receives additional treatment through infiltration. Sufficient space for a drainage field is located in the paddock in the northern extent of the site.

In order to establish the permeability of the site, and suitability of a drainage field, Building Regulations Part H percolation tests should be undertaken.

Should infiltration not be a suitable option, the final consideration is to discharge treated foul effluent to the Cumber's Brook located approximately 170m north-east of the site. If this option is utilised, 3rd party permissions would need to be obtained from the landowner in order for a new drain to be laid between the site and Cumber's Brook.

Recommendations

- Undertake Building Regulations Part H percolation tests to determine the feasibility of a drainage field.

Appendix A Location Plan and Aerial Image

Cumber's Brook

CUMBER'S BROOK

The Bryn



Waterbody



CLIENT:

Gredlin



W

SCHEME:

The

PLOT TITLE:

PLOT STATUS:



CLIENT:

Gredin



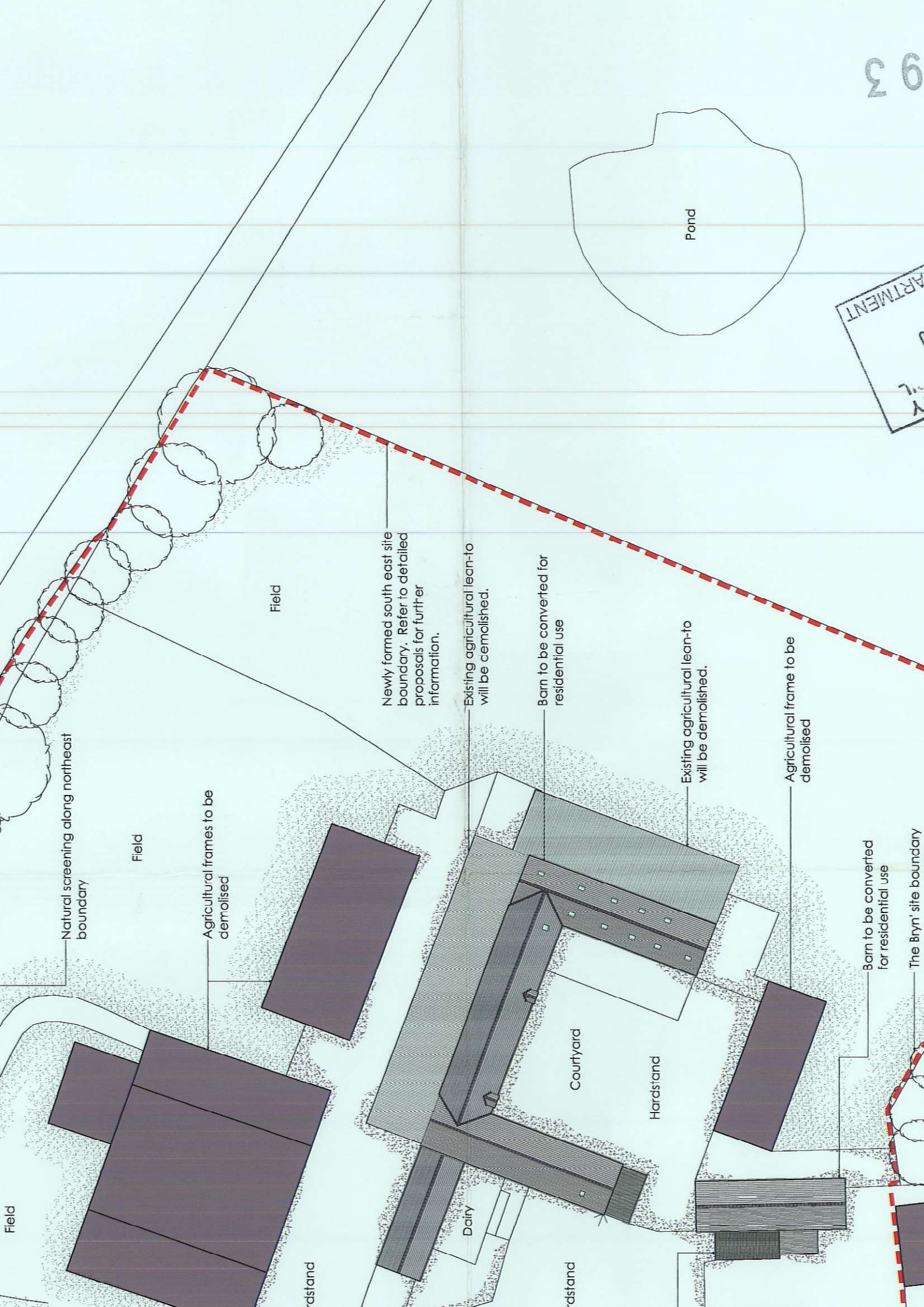
SCHEME:

The

PLOT TITLE:

PLOT STATUS:

Appendix B Existing Site Plans



ARTMENT
Y
7

Pond

Field

Newly formed south east site boundary. Refer to detailed proposals for further information.

Existing agricultural lean-to will be demolished.

Barn to be converted for residential use

Existing agricultural lean-to will be demolished.

Agricultural frame to be demolished

Natural screening along northeast boundary

Field

Agricultural frames to be demolished

Courtyard

Hardstand

Dairy

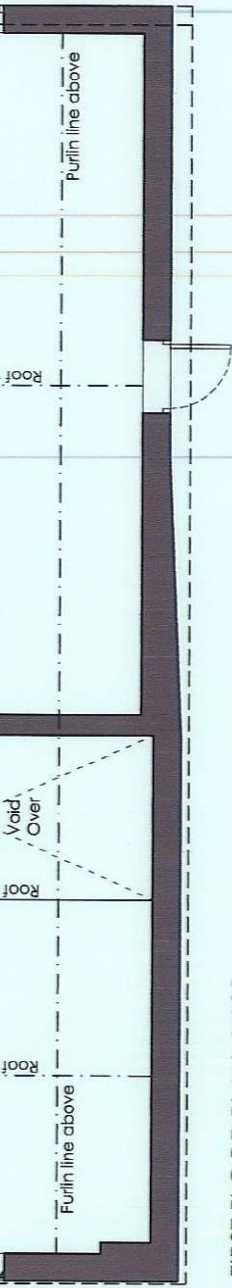
Hardstand

Hardstand

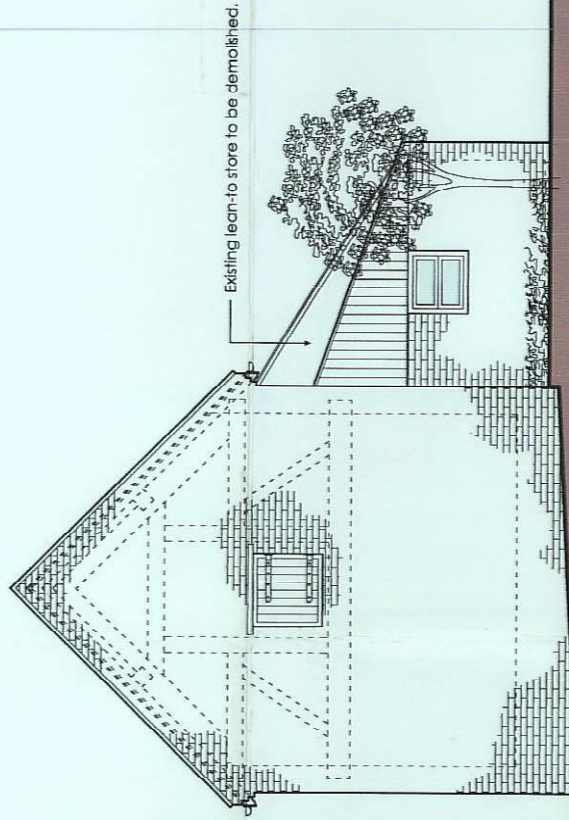
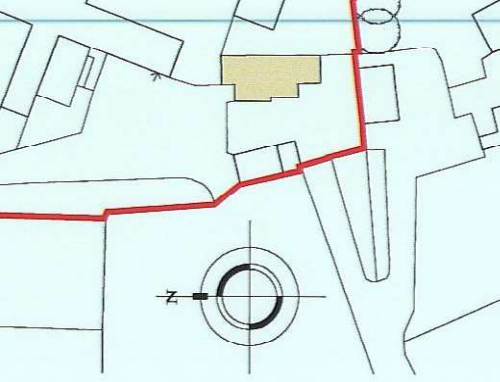
Barn to be converted for residential use

The Bryn' site boundary

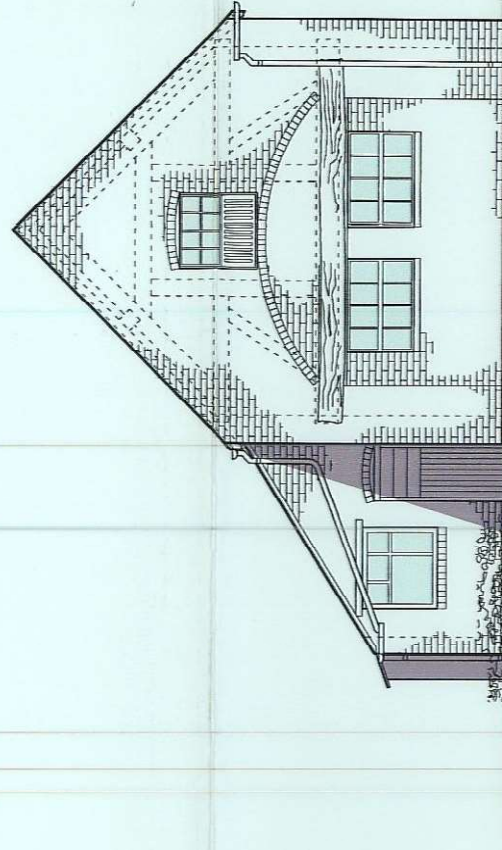
Field



FIRST FLOOR PLAN 1:100



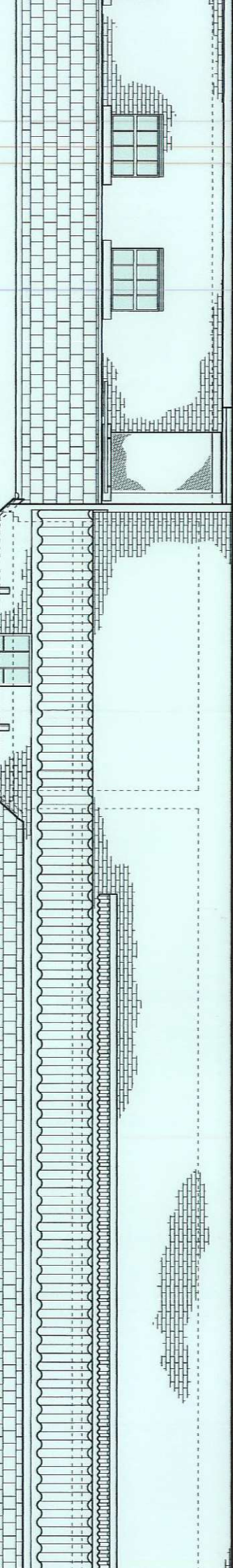
SIDE ELEVATION - NORTH FACING 1:100



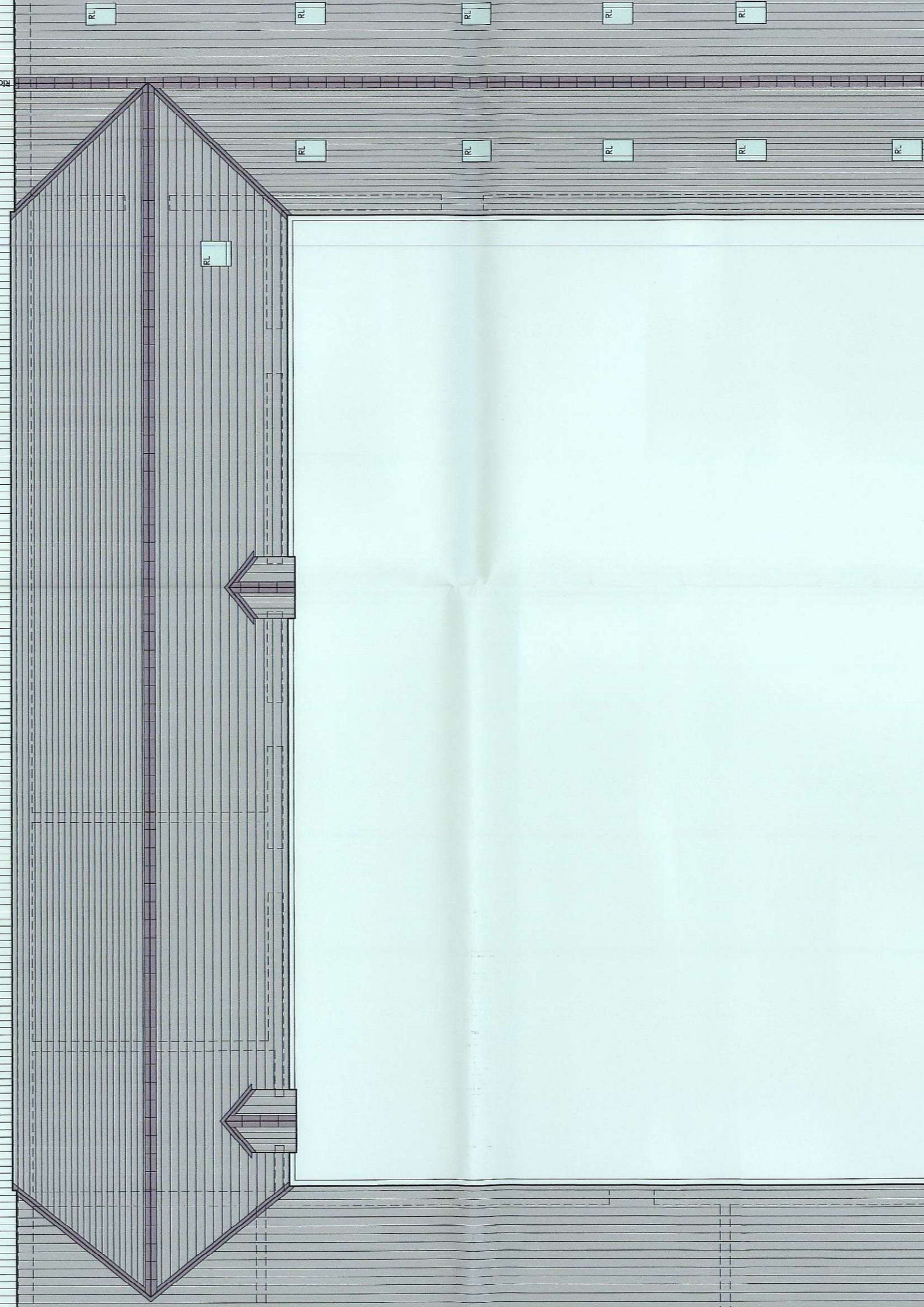
SIDE ELEVATION - SOUTH FACING 1:100

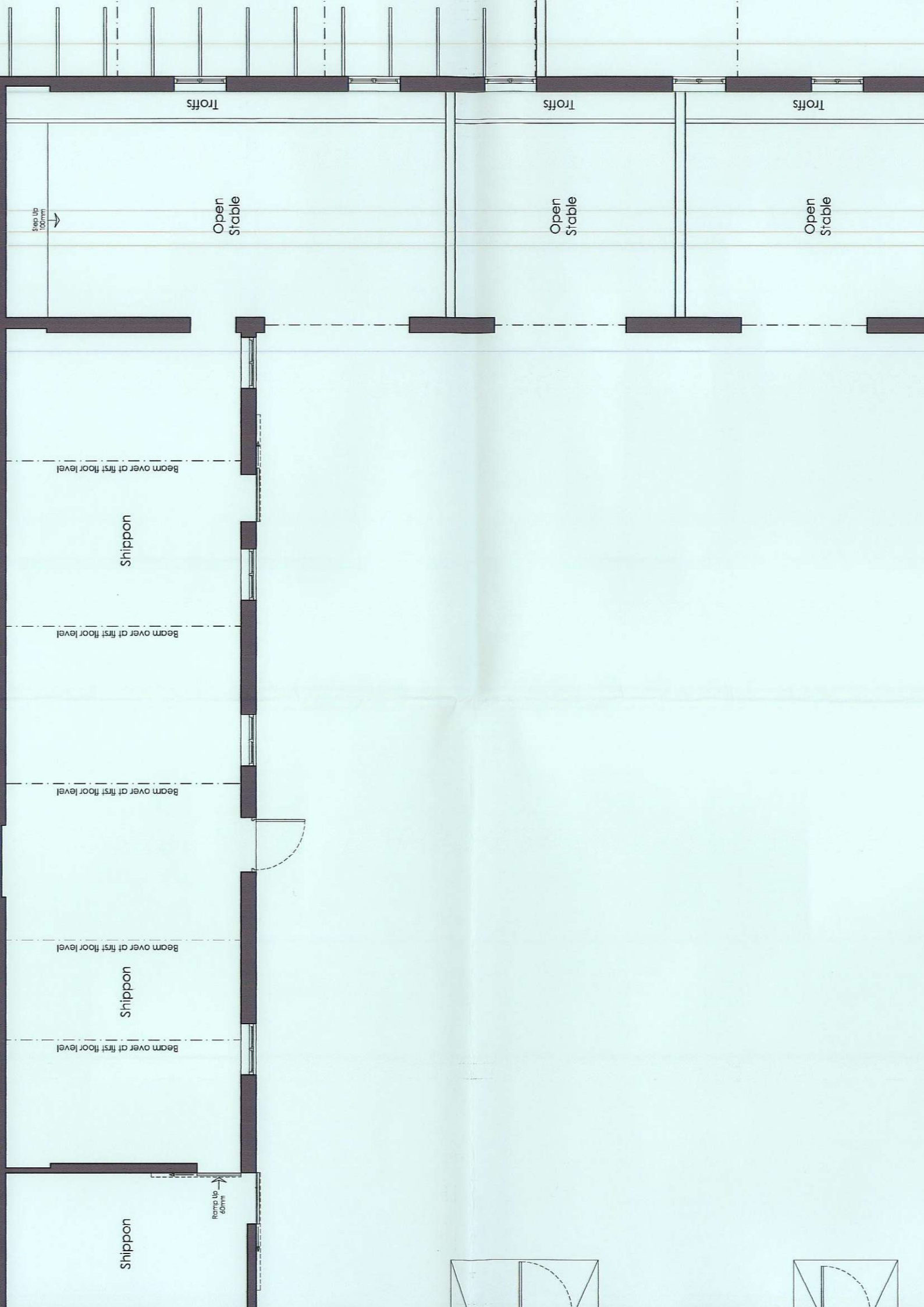
Existing lean-to store to be demolished.

264010



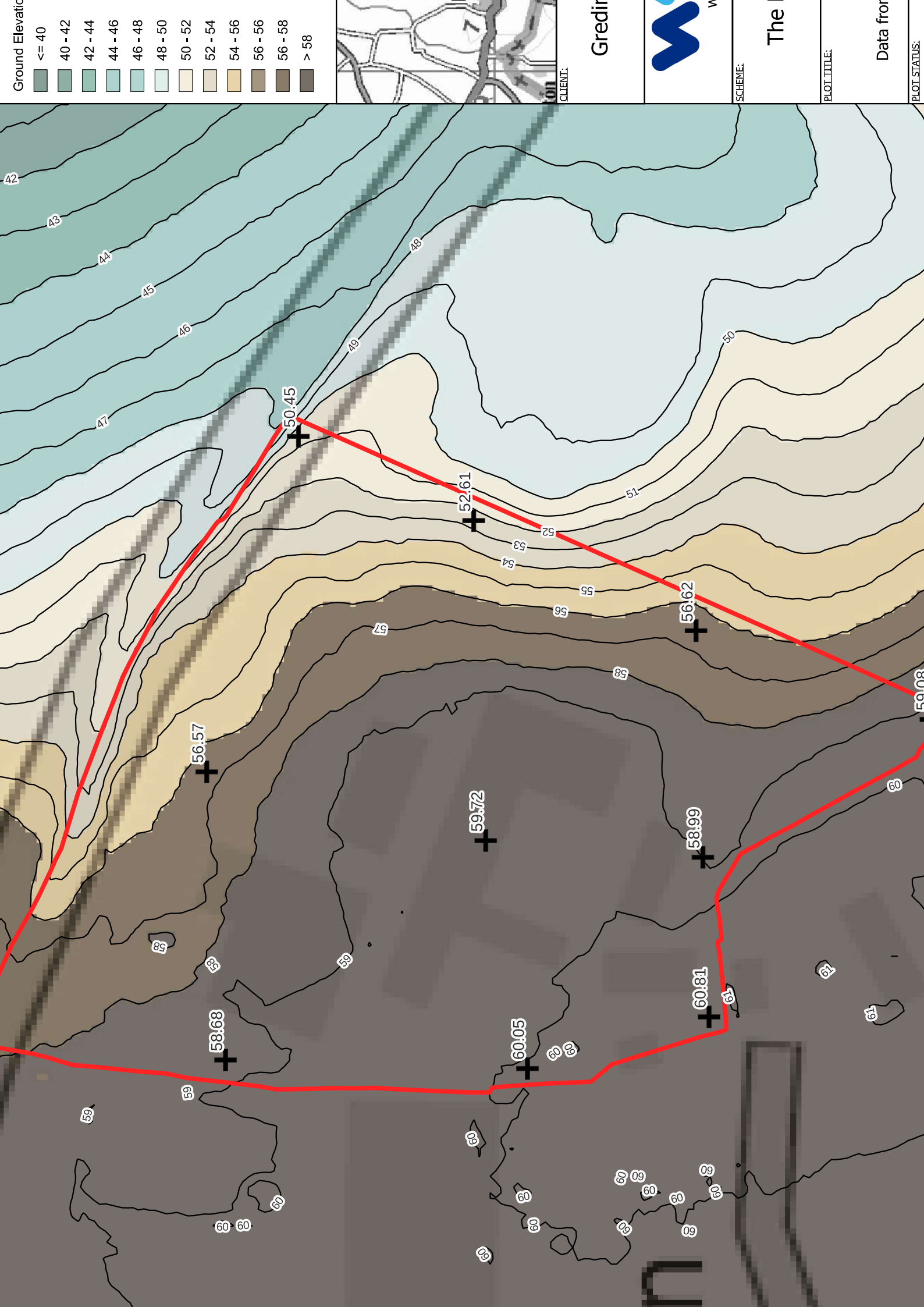
SECTION ELEVATION - SOUTH EAST FACING 1:100







Appendix C LiDAR Data



Appendix D DCWW Sewer Plan and Correspondence



Pond

Pond

Pond

61.7m

62.1m

Wellington House

Marlborough House
Dukes Farm

58.8m

61.7m

Dukes Byre

Dukes Mews

Lodge

Pond

62.6m

63.6m

1

Dukes Cottage

Issues

PIGEON LANE

Pond

Pond

Pond

55.7m

57.5m

57.8m

57.8m

The Bryn

The Bryn

Pond

Pond

59.2m

59.8m

Pond

Dingles Farm

Miss Jessica Roberts
Waterco
Ruthin
Denbighshire
LL15 1NJ

Date: 08/11/2022
Our Ref: PPA0007283

Dear Miss Roberts,

Site Address: The Bryn, Whitchurch, Wrexham, SY13 3DS.

Development: Change of use to form five residential dwellings at The Bryn.

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

Firstly, we note that the proposal relates to a change of use to form 5 residential units at the Bryn and acknowledge that the site comprises of a potential windfall development with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage and watermains systems, we offer the following comments as part of our appraisal of this development.

Public Sewerage Network

There is no public sewerage system in this immediate locality and therefore any new development will require provision of satisfactory alternative facilities for sewage disposal. Alternatively, the site is located approximately 1500 metres to the south west of a public sewerage system that drains to Penley WwTW, and it may be possible for the Developer to requisition sewers from Dwr Cymru Welsh Water under Sections 98 - 101 of the Water Industry Act 1991.

Surface Water Drainage

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in

these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.

It is therefore recommended that the developer consult with Wrexham Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

Potable Water Supply

Dwr Cymru Welsh Water are not the potable water operator for this area, we therefore have no comments regards potable water.

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.

Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at developer.services@dwrcymru.com

Please quote our reference number in all communications and correspondence.

Yours faithfully,



Owain George
Planning Liaison Manager
Developer Services



Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in
Welsh and English

Dŵr Cymru Cyf, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

Please Note that demands upon the water and sewerage systems change continually; consequently the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.



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Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

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Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

Appendix E Development Plans



Natural screening along northeast boundary

Means of access to rear of plot 4

Landscape buffer formed at residential boundary

Landscaped Paddock

Secured entrance point on approach to development.

Extent of agricultural frame to be retained.

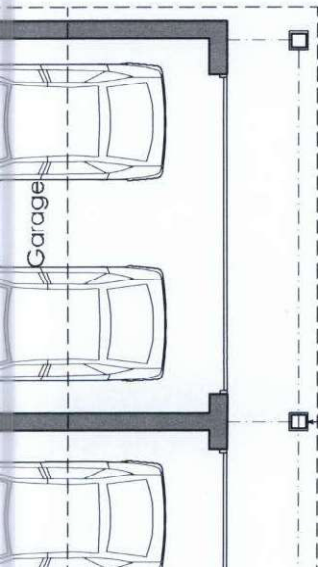
Track leading up to courtyard widened to allow vehicles to pass.

Low level reclaimed brick boundary walls within development.

Paved courtyard and pavement area.

Newly constructed garage.

4.5m radius turning splays in

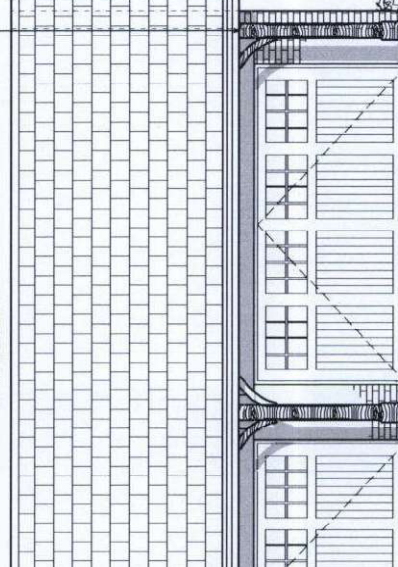


Approved
at garage

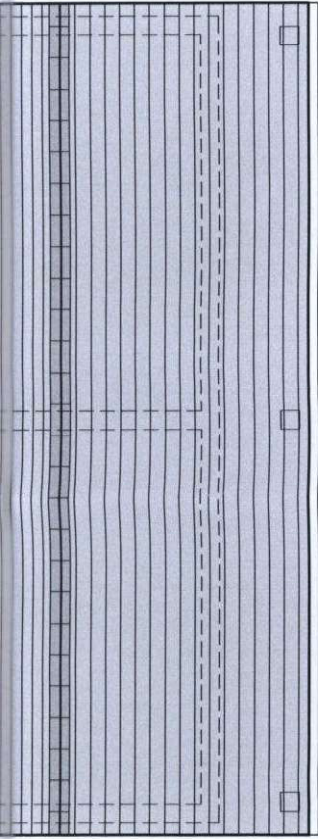
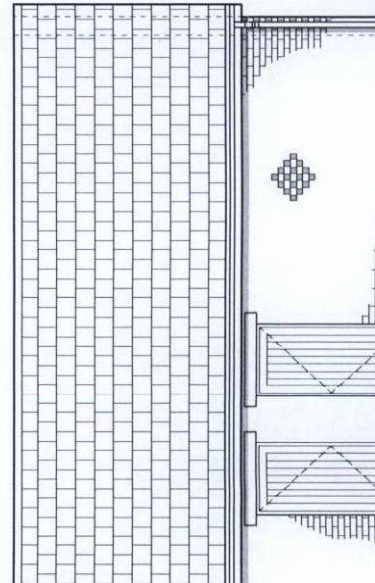
canopy to
ed roof
expanse with
t.

1:100

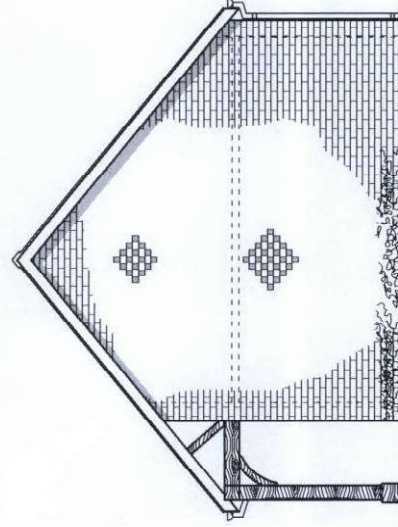
Solid oak posts or similar approved
forming lightweight canopy at garage
entrance point.



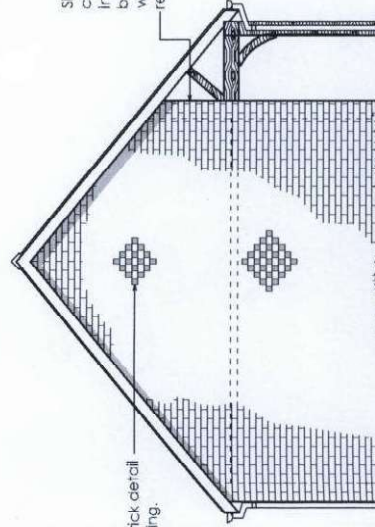
North East Facing 1:100



ROOF PLAN 1:100



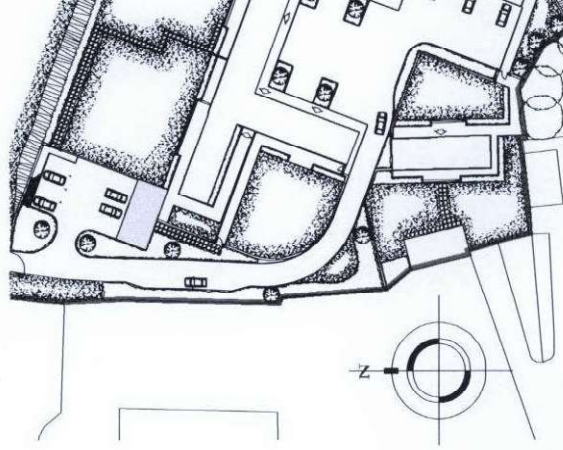
SIDE ELEVATION - NORTH WEST FACING 1:100



Decorative Recessed brick detail
to replicate existing building.

Slatted timber panels below
canopy to provide access
into conical roof void for
bat roosting in accordance
with consultant's mitigation
report.

building.
Windows / Doors:
Painted timber windows and doors. Colour
profile to be agreed with planning officer.
Rainwater goods:
Cast aluminium half round gutters and
downpipes.
Other:
Canopy over garage entrance point to be
constructed in solid oak or similar approved.



SITE

Plot 2 & 3 garages (linked to

STRUTT &

Change of use of for
to form residence

Plot 2 & 3 Garages-Plans & E

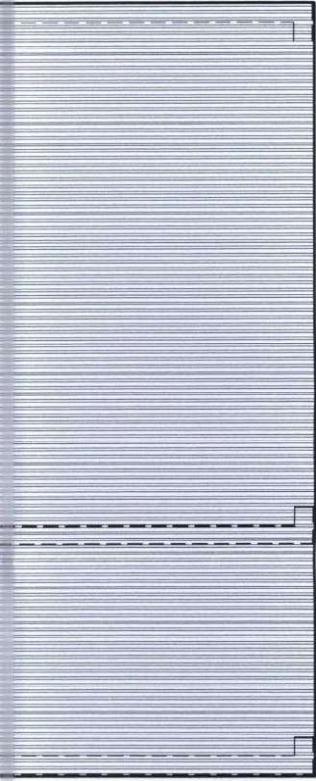
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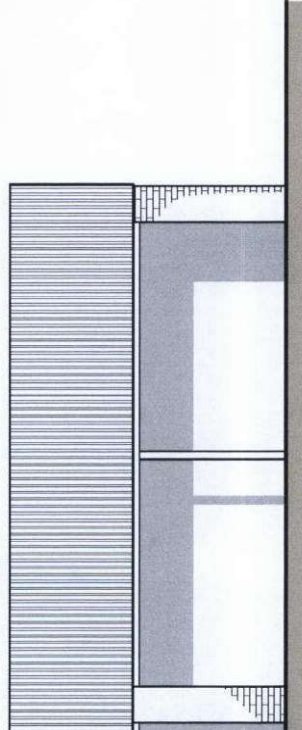
Dutch
Barn

Beam over

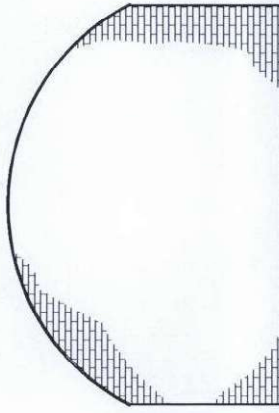
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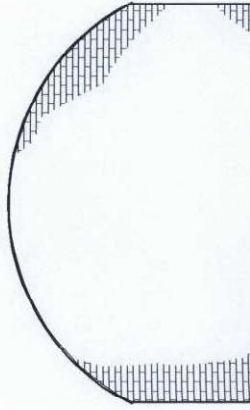
ROOF PLAN 1:100



EAST FACING 1:100



SIDE ELEVATION - NORTH WEST FACING 1:100



SITE

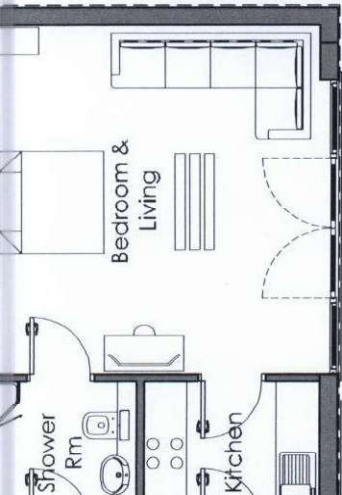
STRUTT 8

Change of use of for
to form resider

Barn 2 Outbuilding- Pland 8

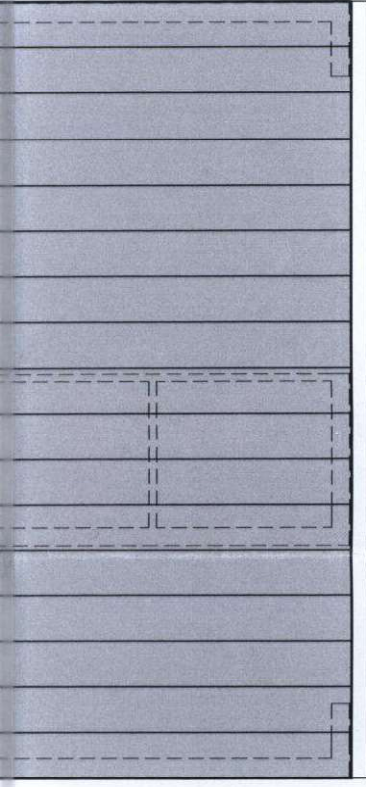
Greding

THE OLD

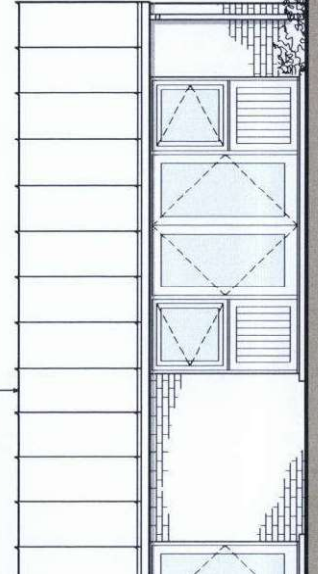
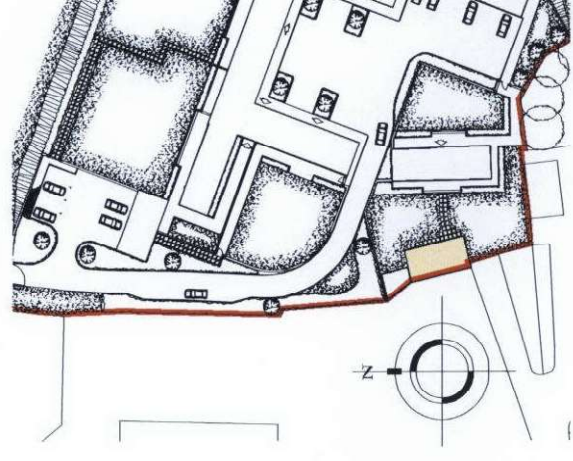


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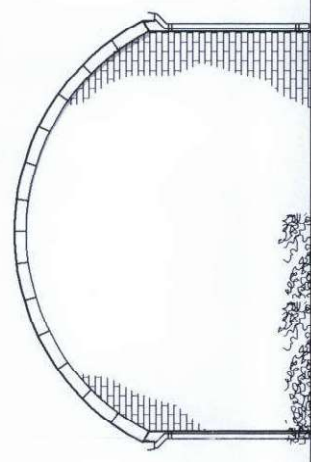
WREXHAM COUNTY
BOROUGH COUNCIL
17 AUG 2010
AMENDED
PLANNING DEPARTMENT



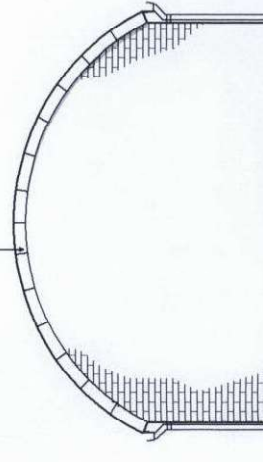
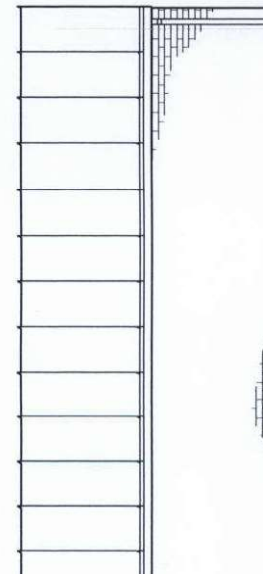
ROOF PLAN 1:100



EAST FACING 1:100



SIDE ELEVATION - NORTH WEST FACING 1:100



Pie weathered s'onding seam Zinc roof
lapped at edges over verge.

STRUTT &

Change of use of for
to form residen

Barn 2 Outbuilding- Pland & t

Gredin

THE OL

Parking provisions within site curtilage designed in accordance with LPGN 16.

Secured entrance point on approach to development.

4.5m radius turning plays in accordance with Highway standards.

Extent of agricultural frame to be retained.

Track leading up to courtyard widened to allow vehicles to pass.

Landscape buffer to consist of Hawthorn hedging with post and rail fencing and low maintenance planting to rear of plot boundaries. Detailed specification to be provided post planning approval.

Grazing Land

Natural screening along northeast boundary

Means of access to rear of plot 4

Landscape buffer formed at residential boundary

Paths around garden areas to be finished with Stafford Gravel or similar approved.

Agricultural post and rail fencing between track and grazing land.
Driveway and courtyard to be finished with Marshalls traditional Drivsett Tegula Deco and edgings. Details samples to be submitted to the Local Authority for approval prior to construction.

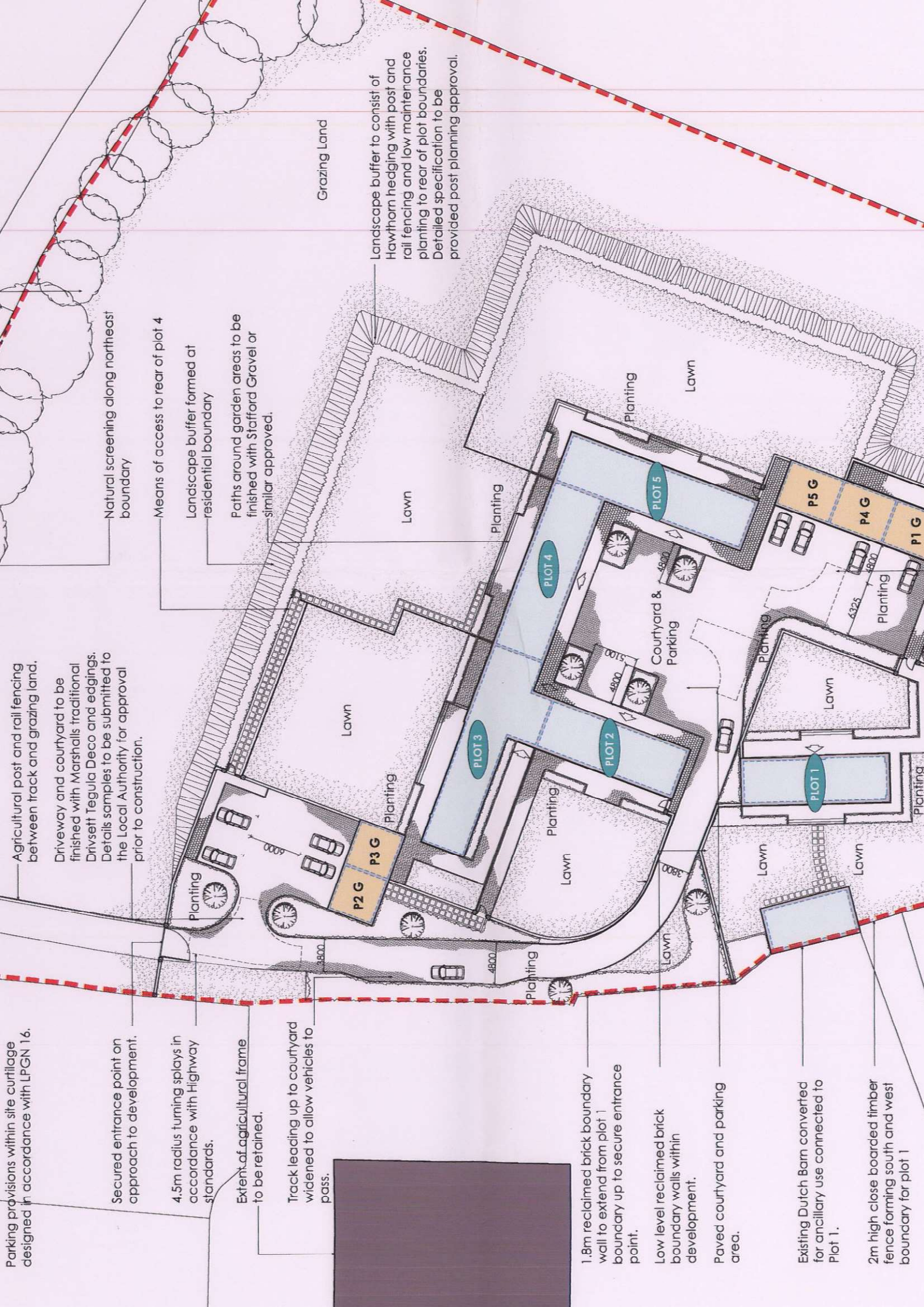
1.8m reclaimed brick boundary wall to extend from plot 1 boundary up to secure entrance point.

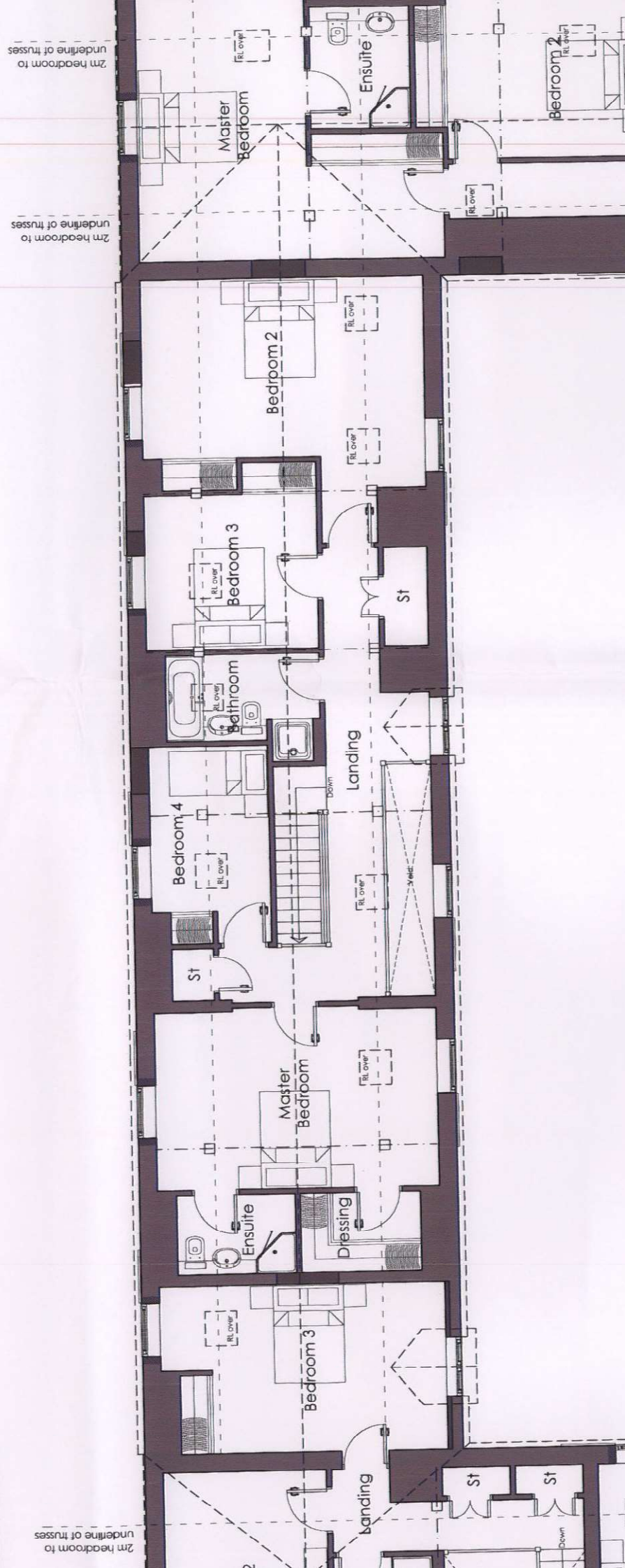
Low level reclaimed brick boundary walls within development.

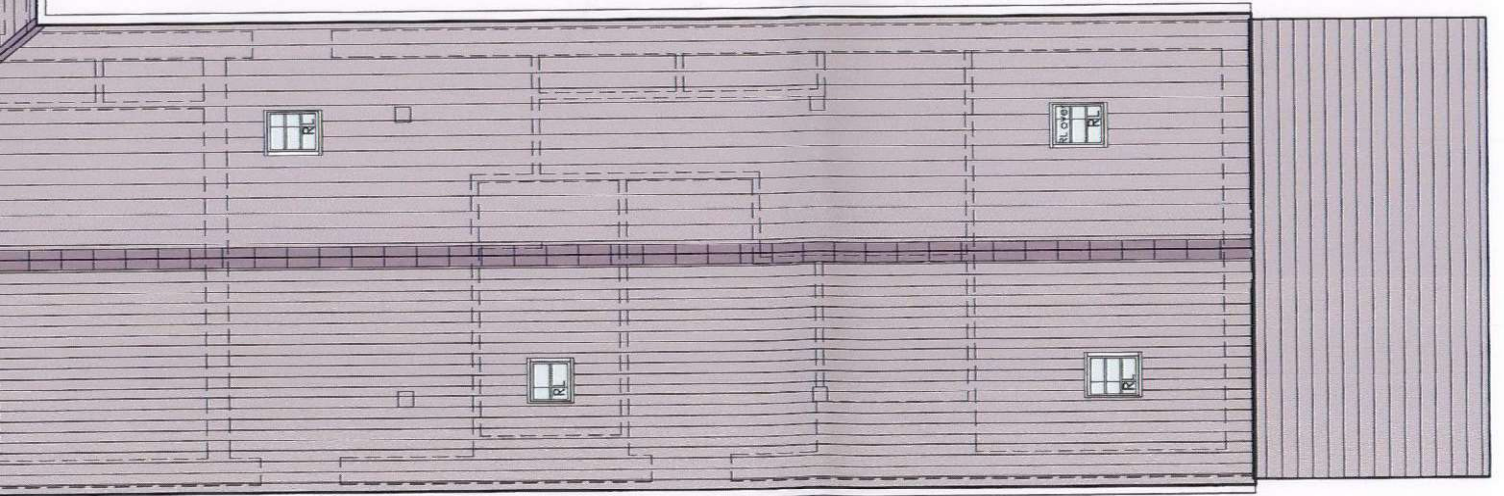
Paved courtyard and parking area.

Existing Dutch Barn converted for ancillary use connected to Plot 1.

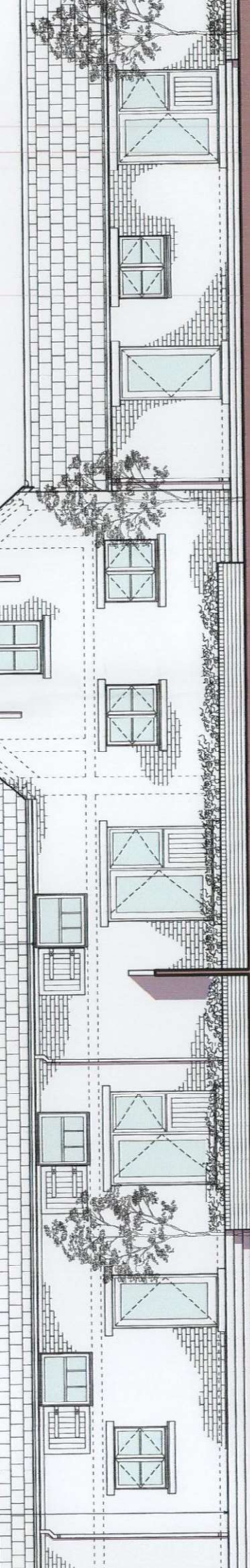
2m high close boarded timber fence forming south and west boundary for plot 1



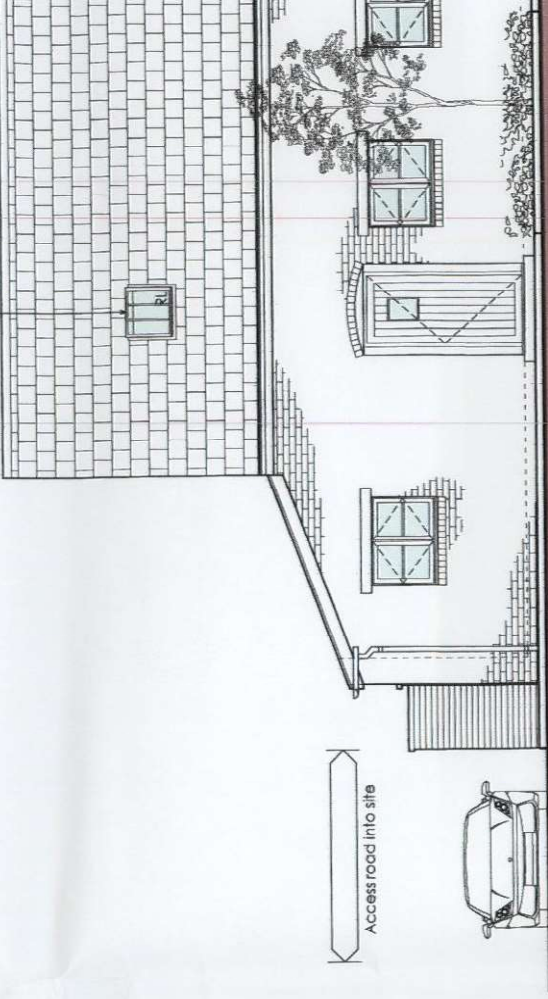




ROOF PLAN 1:100

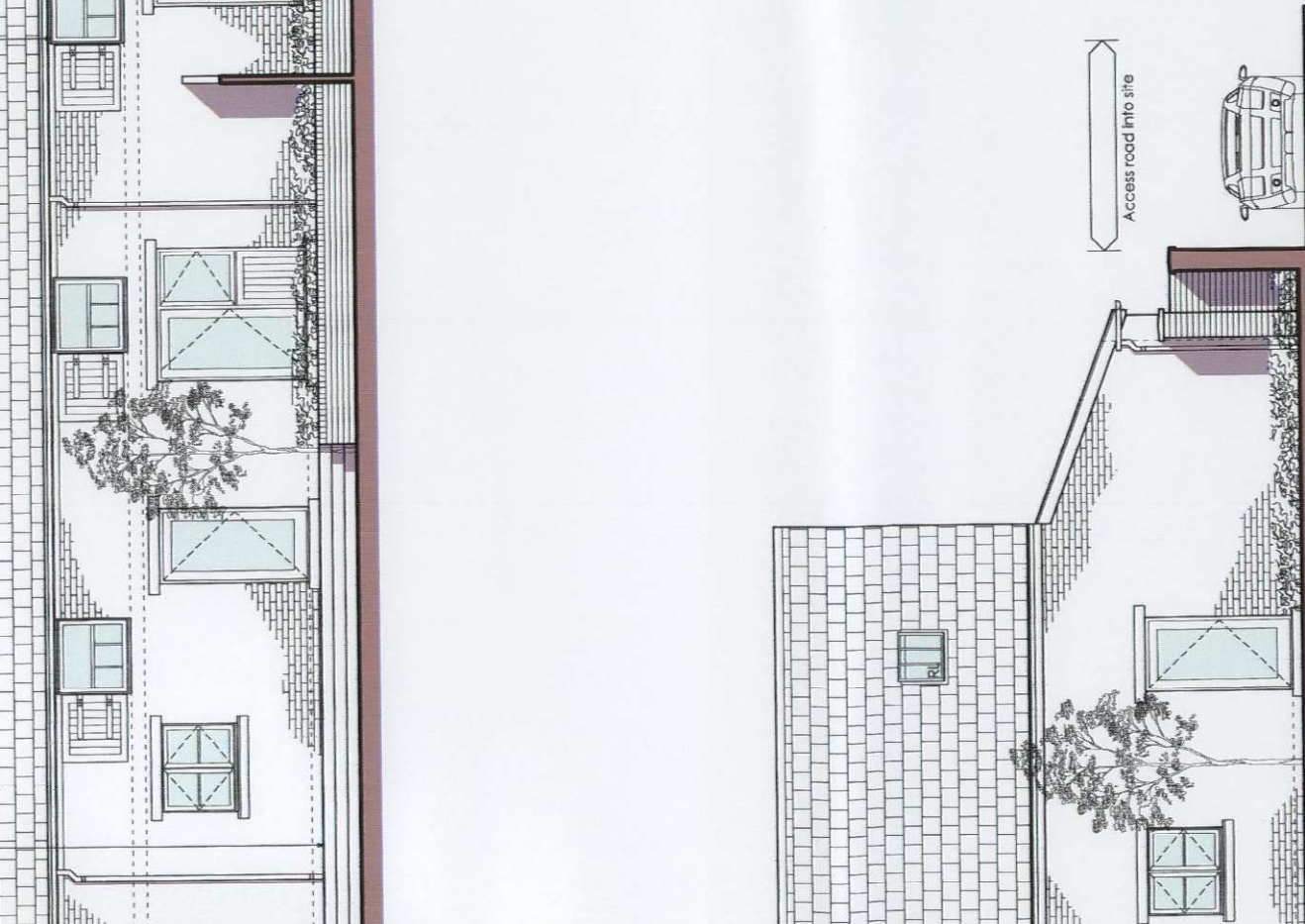


Existing rooflights replaced with
Conservation style rooflights.

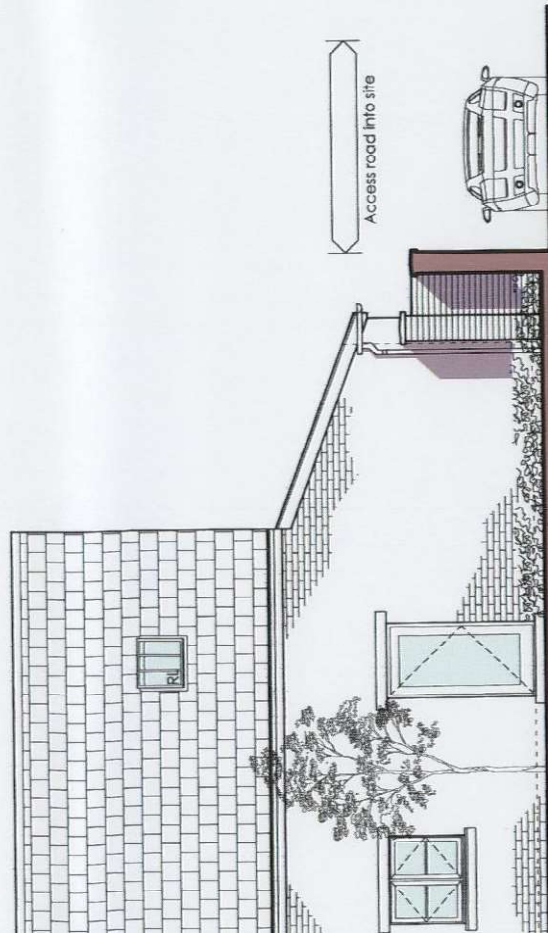


Access road into site

SECTION ELEVATION - SOUTH EAST FACING 1:100

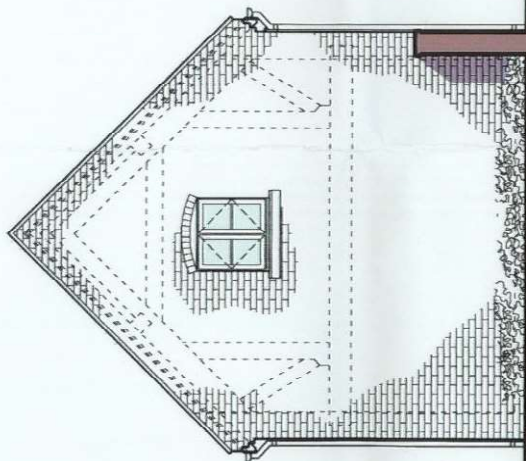


Access road into site

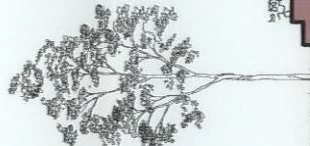




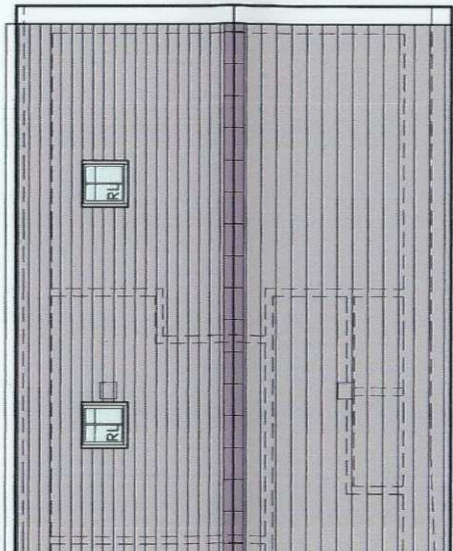
FIRST FLOOR PLAN 1:100



SIDE ELEVATION - NORTH FACING 1:100



SIDE ELEVATION - SOUTH FACING 1:100

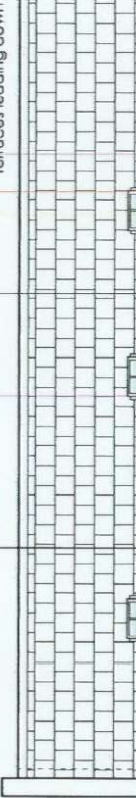


SIDE ELEVATION - NORTH FACING 1:100

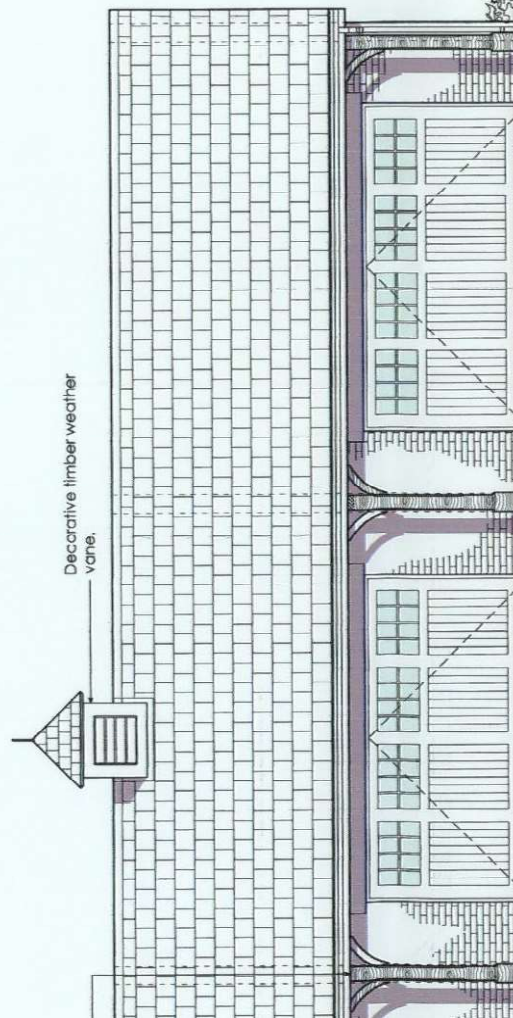
Conservation style rooflights to be installed in vaulted roof space.

Existing openings retained.

Front and rear elevation terraces leading down

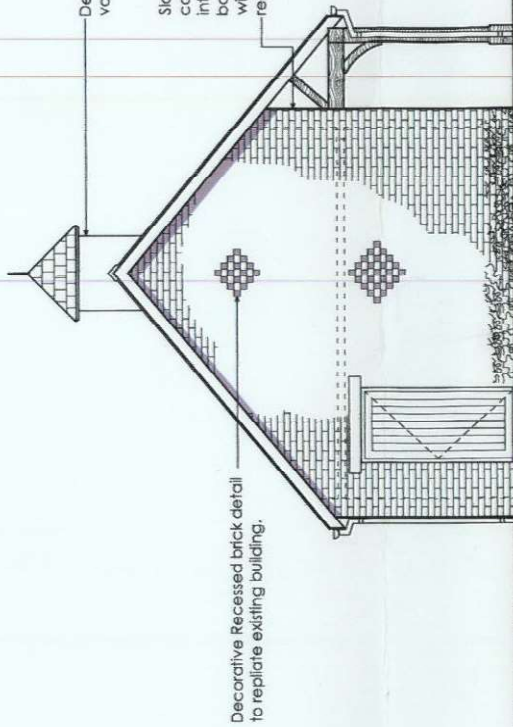


Slatted timber panels below canopy to provide access into contained roof void for bat roosting in accordance with consultants mitigation report.



Decorative timber weather vane.

ROOF PLAN 1:100

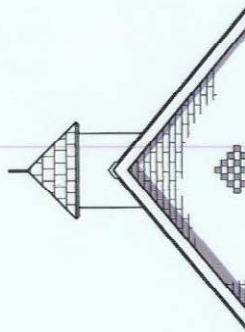


Decorative Recessed brick detail to replicate existing building.

Decorative timber weather vane.

Slatted timber panels below canopy to provide access into contained roof void for bat roosting in accordance with consultants mitigation report.

SIDE ELEVATION - NORTH EAST FACING 1:100



WIP
BC
PL

Existing window to be reconstructed door unit.

Utility

Store

Kitchen / Breakfast

Architectural floor plan of the first floor, showing a symmetrical layout with a central landing and staircase. The plan includes the following rooms and features:

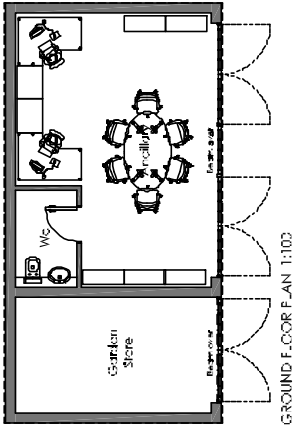
- Left Wing:**
 - Master Bedroom (with En-suite and Dressing)
 - Bedroom 3
 - Bathroom
 - Staircase (labeled "Down")
- Right Wing:**
 - Master Bedroom (with En-suite and Dressing)
 - Bedroom 3
 - Bathroom
 - Staircase (labeled "Down")
- Central Area:**
 - Landing
 - Staircase (labeled "St")
- Structural Details:**
 - Dimensions: 2m headroom to underline of trusses (indicated at the top and bottom).
 - Room labels: Master Bedroom, Bedroom 3, Bathroom, En-suite, Dressing, Landing, St.
 - Storage areas: Wardrobes, closets, and storage spaces.



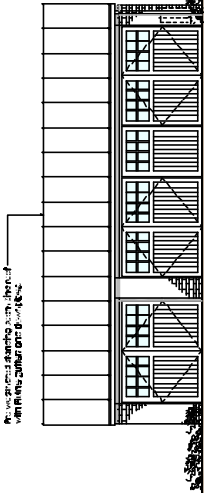
MENT

2010/0493

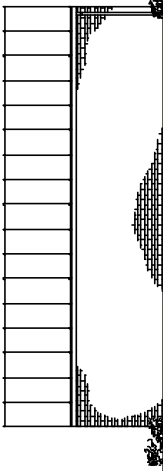
Storey built over
existing lean to



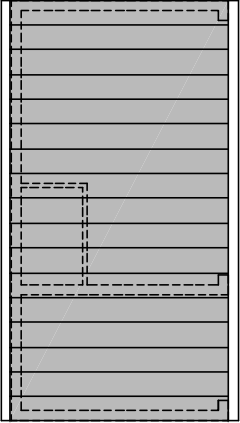
GROUND FLOOR PLAN 1:100



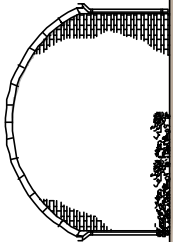
FRONT ELEVATION - NORTH EAST FACING 1:100



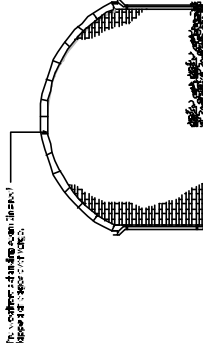
REAR ELEVATION - SOUTH WEST FACING 1:100



ROOFTOP PLAN 1:100



SIDE ELEVATION - NORTH WEST FACING 1:100



SIDE ELEVATION - SOUTH EAST FACING 1:100

NOTES

1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

2. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

3. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

5. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

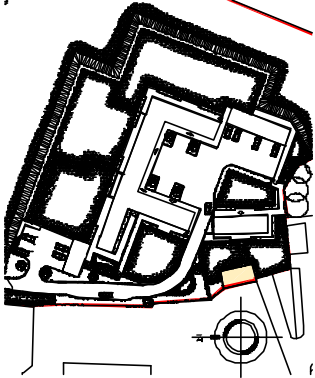
6. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

7. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

8. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

9. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.

10. ALL WORK TO BE DONE IN ACCORDANCE WITH THE BUILDING REGULATIONS 2010.



SITE LOCATION PLAN

Building Name	Address	Postcode	County
Strutt & Parker LLP	Strutt & Parker LLP	Strutt & Parker LLP	Strutt & Parker LLP

STRUTT & PARKER LLP

Client

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

11.11.10

Sept 2010

Dwg. P 382 16 A

Gredington, 11.11.10

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

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Strutt & Parker LLP

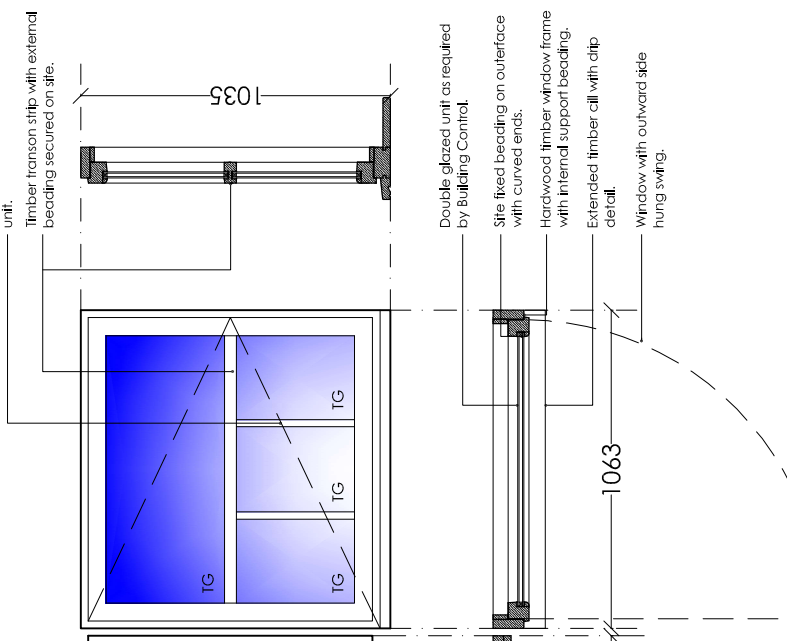
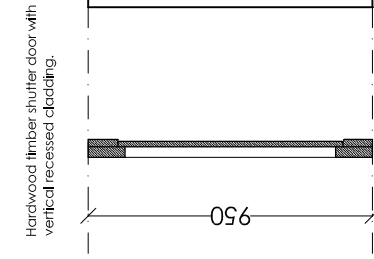
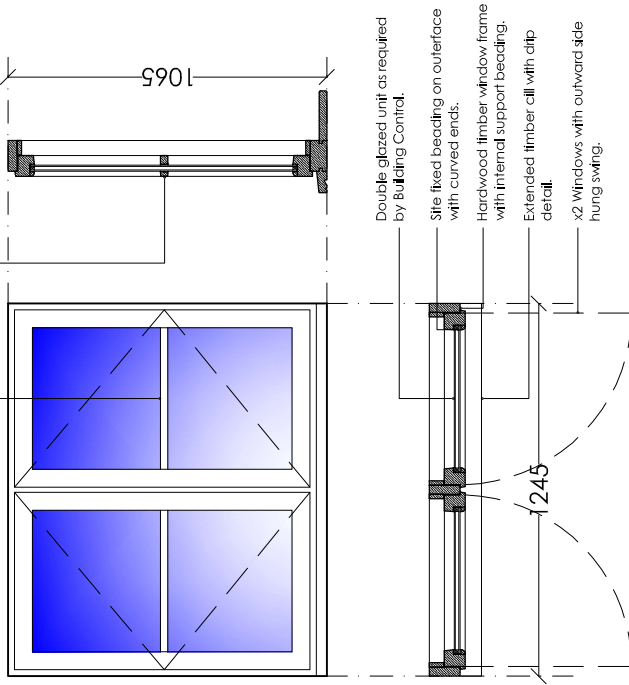
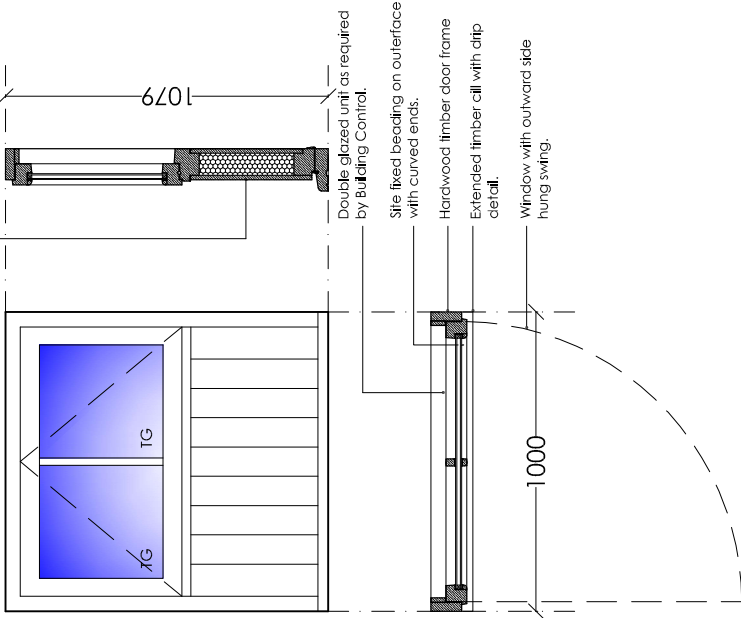
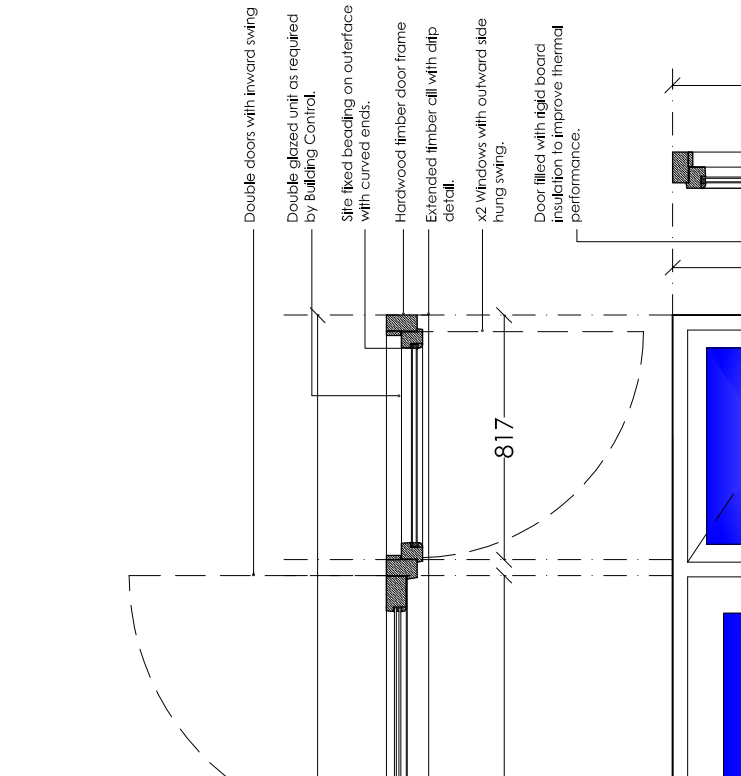
Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP

Strutt & Parker LLP



DISCLAIMER:
Please note sizes may vary on site to those referred to in the schedule. Detailed on site measurements should be checked by the contractor prior to fabrication.

Appendix F Wrexham Council Correspondence

MR GARETH EVANS
STRUTT AND PARKER
PARK HOUSE
37 LOWER BRIDGE STREET
CHESTER
CH1 1RS

Your Ref/Eich Cyf	P/2022 /0013
Our Ref/Ein Cyf	08/03/2022
Date/Dyddiad	John Kerr
Ask for/Gofynner am	01978 298786
Direct Dial/Rhif Union	john.kerr@wrexham.gov.uk
E-mail/E-bost	

Dear Sir/Madam,

Town and Country Planning Act 1990

**AMRYWIO AMOD 1 CANIATAD CYNLLUNIO P/2016/0431 I YMESTYN TERFYN AMSER AR
GYFER CYCHWYN DATBLYGIAD / VARIATION OF CONDITION 1 OF PLANNING
PERMISSION P/2016/0431 TO EXTEND TIME LIMIT FOR COMMENCEMENT OF
DEVELOPMENT
BRYN FARM GREDINGTON ESTATE, BRYN LANE, HANMER.**

Planning Application and Phosphorus Discharges to the River Dee

I refer to the above planning application.

The Dee forms part of the River Dee and Baka Lake Special Area of Conservation (SAC) and in January 2021, Natural Resources Wales (NRW) introduced stringent standards on the discharge of phosphorus into the SAC.

This development will be served by a private foul drainage system has the potential to result in an increase in phosphate discharges into the SAC, so cannot be approved in its present form.

In terms of a way forward, the following options are available to you:

1. Request refusal of the applicant, this allowed you to submit an appeal.
2. Request deferral of a decision until:
 - a) You have submitted sufficient information to demonstrate that the proposed drainage system will not have a significant effect on the SAC. Further advice on this matter can be found here:
Natural Resources Wales / Advice to planning authorities for planning applications affecting phosphorus sensitive river Special Areas of Conservation

*Rydym yn croesawu gohebiaeth yn Gymraeg.
Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.*

*We welcome correspondence in Welsh.
We will respond to any correspondence in Welsh and this will not lead to any delay.*

or

- b) You have prepared and submitted a detailed drainage scheme that includes provision for on-site and/or off-site mitigation that will prevent phosphorus from being discharged into the River Dee as a result of the development (such as reed beds and planting).

Both a) and b) above options are likely to require you to seek expert advice from specialist drainage engineers; or

- 3. Withdraw the application.

I would be grateful if you could confirm which of the above is your preferred option.

If you choose option 2 then I would be grateful if you could confirm in writing your agreement to extend the period for determining the application to **22nd April 2022.**

If I do not hear from you within 21 days of the date of this letter, I propose to proceed on the basis of option 1.

Yours faithfully,



Prif Swyddog Cynllunio a Rheoleiddio/Chief Officer Planning and Regulatory

*Rydym yn croesawu gohebiaeth yn Gymraeg.
Byddwn yn ymateb i unrhyw ohebiaeth yn Gymraeg ac ni fydd hyn yn arwain at unrhyw oedi.*

*We welcome correspondence in Welsh.
We will respond to any correspondence in Welsh and this will not lead to any delay.*

Appendix G Kingspan Wastewater Treatment Performance Results



Prüfinstitut für
Abwassertechnik
GmbH

PERFORMANCE RESULTS

Kingspan Environmental Limited
College Road North, HP22 5EW Aylesbury
United Kingdom

EN 12566-3

Results corresponding to the Irish National Annex for IS EN 12566-3
Small wastewater treatment system Bio-Ficient
Fluidized bed reactor

Nominal organic daily load*	0.23	kg/d	
Nominal hydraulic daily load	0.60	m ³ /d	
Material	glass reinforced plastic (GRP)		
Watertightness (water test)	pass		
Crushing resistance (vertical load test)	pass (also wet conditions)		
Durability	pass		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	90.6 %	67 mg/l
	BOD ₅	94.4 %	20 mg/l
	NH ₄ -N**	99.0 %	0.4 mg/l
	SS	92.7 %	27 mg/l
Electrical consumption	0.52	kWh/d	

* at a test influent of ≥ 300 mg/l BOD₅ (mean)
** determined for temperatures $\geq 12^{\circ}\text{C}$ in the bioreactor

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
D-52074 Aachen

This document replaces neither the declaration
of conformity nor the CE marking



Notified Body
number 1739:



Certified according to
ISO 9001:2008



Prüfinstitut für Abwassertechnik GmbH
[Signature]
geprüft - tested - testé

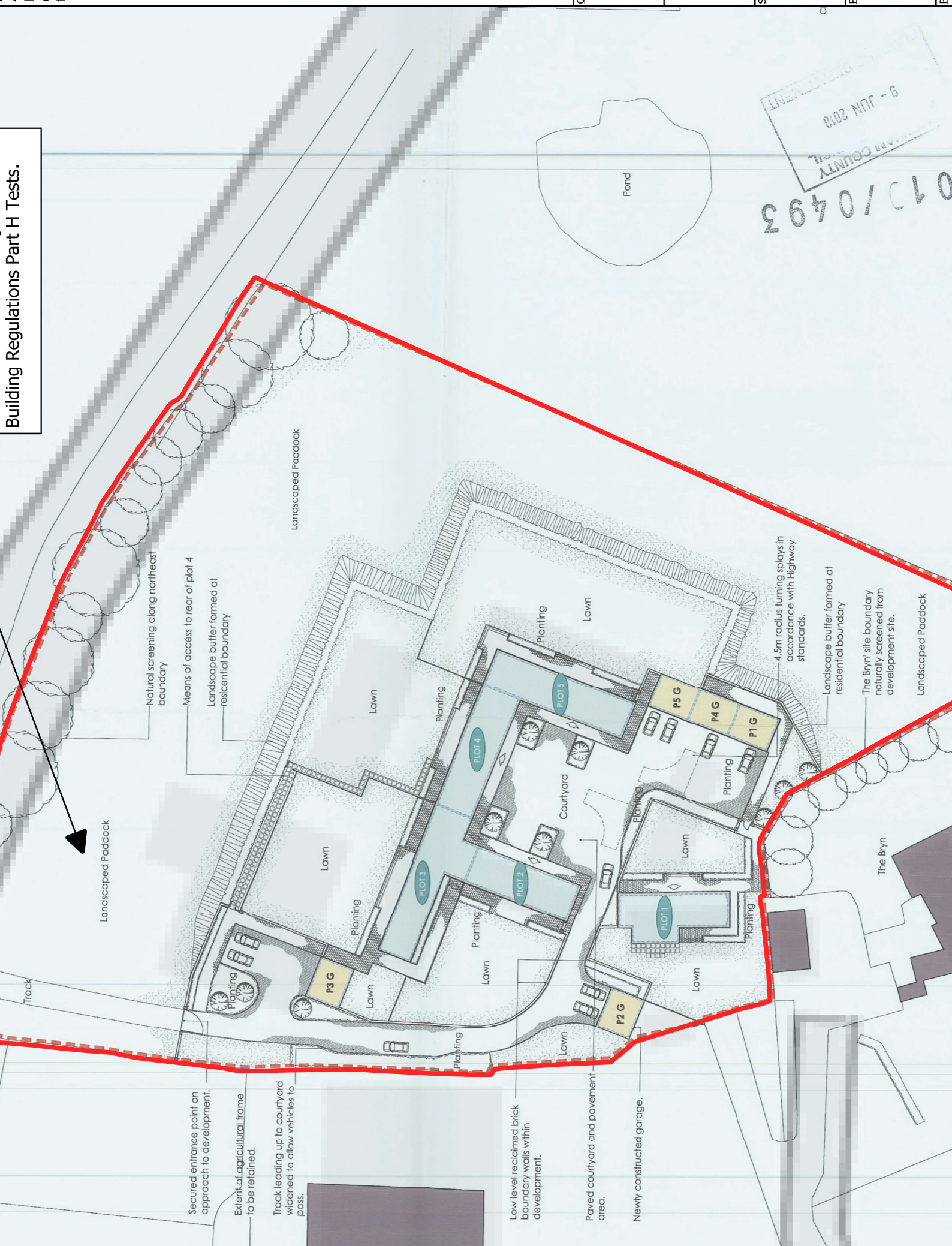
Elmar Lancé

March 2014

Appendix H Foul Drainage Plan

Building Regulations Part H Tests.

above ground and
4) This drawing
Plan as proposed
drawing provides
for detailed design



013/0493
9 JUN 2010
AM COUNTY
PLANNING
INDICATED

CLIENT:	Gre
SCHEME:	The
PLOT TITLE:	
PLOT STATUS:	