King Street, Wrexham

Foul Drainage - Phosphate Neutrality Assessment

October 2025



Waterco

Assessment | Modelling | Design

Project Information	
Project:	King Street, Wrexham
Report Title:	Foul Drainage - Phosphate Neutrality Assessment
Client:	True Estates Ltd
Instruction:	The instruction to undertake this Foul Drainage - Phosphate Neutrality Assessment Report was received from Carl Hughs of HDS Architectural Services acting on behalf of the Client
File Ref:	17155-Foul Drainage- Phosphate Neutrality Assessment- 01

Approval Record	
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Approver:	Nigel Jones BEng (Hons) CEng MICE

Document History		
Revision	**Date**	**Comment**
01	17/10/2025	First issue

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Introduction

Waterco have been commissioned to prepare a Foul Drainage Phosphate Neutrality Assessment in relation to the proposed conversion of an office building to a House in Multiple Occupancy at 67 King Street, Wrexham, LL11 1HR.

Site Overview

The site covers an area of approximately 195m^2 and is located at National Grid Reference (NGR): 333388, 350675. A location plan and aerial image are included within Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed October 2025) shows that the site comprises an existing office building. The site is bordered by a commercial property to the north, Rhosddu Road to the east, commercial / residential properties and King Street to the south, and Wrexham Telephone Exchange to the west. Access to the site is provided from Rhosddu Road and King Street.

Existing Drainage

Public sewer records have been obtained from Dŵr Cymru Welsh Water (DCWW) and are included in Appendix B. The DCWW sewer records show that there is a 750mm public combined sewer immediately east of the site within Rhosddu Road flowing south. The sewer records also show a 375mm public combined sewer located south-west of the site within King Street flowing north-east. The 375mm public combined sewer in King Street connects to the 750mm public combined sewer within Rhosddu Road.

Foul flows from the site currently discharge to the public combined sewer. Foul flows will continue to discharge to the public combined sewer (via the existing connection) post-development.

Nutrient Neutrality Assessment

In order to inform the assessment of phosphate quantities from the site, the existing and proposed foul flows have been estimated.

Existing Foul Flows

The British Water Code of Practice, Flows and Loads-4 (Sizing Criteria, Treatment Capacity for Sewage Treatment Systems) has been used to estimate the existing daily foul flows. Foul flows have been estimated based on:

- A staff population of 19 for the office building.
- A daily flow of 50 litres per person per day (for an office without canteen).

Based on a flow of 50 litres per person per day, the estimated daily flow from the existing office building is 950 litres.

Proposed Foul Flows

The proposed development includes the conversion of the office building into a House in Multiple Occupation (HMO). 9no. single bedrooms are proposed. A population of 9 has therefore been used for this assessment. Existing and proposed development plans are included as Appendix C.

The HMO will be served by a shared kitchen, 1no. kitchenette, 6no. individual en-suite bathrooms (toilet and shower), and 1no. shared bathroom (toilet and shower) for bedrooms 4, 5 and 8.

In accordance with requirement G2 of the Building Regulations 2010 – Sanitation, Hot Water Safety and Water Efficiency, water consumption of a new dwelling must not exceed 125 litres per person per day under the mandatory standard, or 110 litres per person per day where the optional higher efficiency requirement is adopted. These figures incorporate an allowance of 5 litres per person per day to account for outdoor water use.

Given the nature of the development (HMO), site specific water usage has been estimated. The water efficiency calculator based on Part G of the Building Regulations has been completed and is included in Appendix D. A water usage (equivalent to wastewater flow) estimate of 92.1 litres per person per day has been calculated.

Based on a population of 9 and a water usage of 92.1 litres per person per day, the estimated daily wastewater flow from the proposed development is 828.9 litres.

Table 1 summarises the existing and proposed foul flow quantities.

Table 1 – Existing and Proposed Foul Flow Quantities

	Existing	Proposed (with water efficient appliances)
Foul Flows (litres per day)	950	828.9

The phosphate concentration (mg/l) discharged into the River Dee Special Area of Conservation (SAC) is controlled by the performance of the receiving Welsh Water wastewater treatment works and is not influenced by the proposed development use. Therefore, where a development results in a reduction in wastewater flow entering the public sewer and downstream wastewater treatment works, it will also reduce the phosphate quantity discharged from the wastewater treatment works into the River Dee.

As the development will reduce the quantity of foul flows, it will also reduce the phosphate quantity entering the River Dee. The development is therefore phosphate neutral and will not cause detriment to the River Dee SAC.

Conclusions

Foul flows from the proposed development will continue to discharge to the public combined sewer.

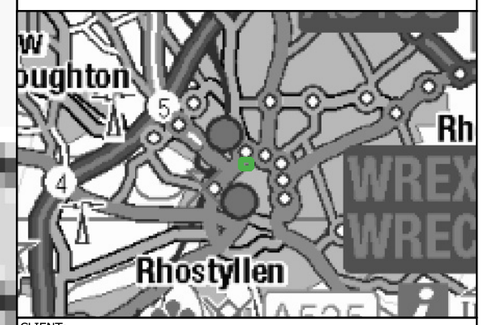
When utilising water efficient appliances, foul flows from the proposed development will reduce when compared with the existing situation. As the development will reduce the quantity of foul flows, it will also reduce the phosphate quantity entering the River Dee. The development is therefore phosphate neutral and will not cause detriment to the River Dee SAC.

Appendix A Location Plan & Aerial Image

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Watercourses
- Waterbodies



PW

0 10 20 30 40 50 m

CLIENT:
True Estates Ltd

www.waterco.co.uk

SCHEME:
King Street, Wrexham

PLOT TITLE:
Location Plan

PLOT STATUS:	DATE:
FINAL	09-10-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:400

PLOT NAME:	REVISION:
17155_Location_Plan	-

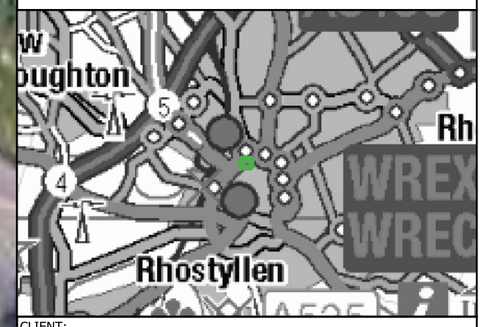
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Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary



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True Estates Ltd

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SCHEME:
King Street, Wrexham

PLOT TITLE:
Aerial Plan

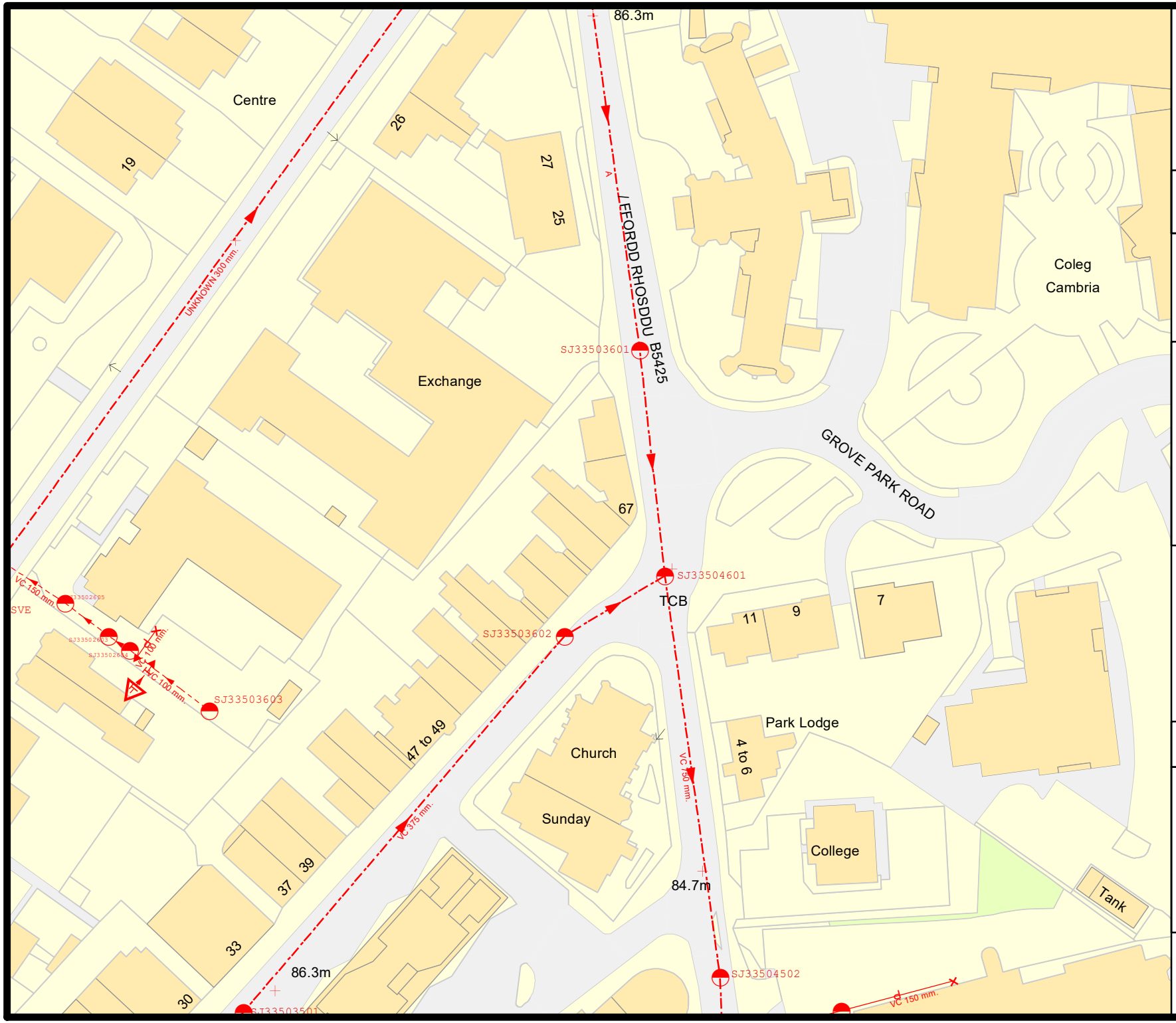
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FINAL	09-10-2025

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AM	AW	NJ	1:400

PLOT NAME:	REVISION:
17155_Aerial_Plan	-

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Appendix B DCWW Sewer Plan



Dŵr Cymru
Welsh Water

King Street, Wrexham, LL11 1HR

N
W E
S

LEGEND(Representative of most common features)

Waste network:

	Foul chamber		Outfall
	Surface water chamber	LH	Lamphole
	Combined chamber		Storm Overflow
CO	Combined sewer overflow		Rising main
SPC	Special purpose chamber		Gravity sewer
	Treatment works	P	Private sewer
	Pumping station	S 104 P	Private sewer subject to Sect. 104 adoption agreement
		T	Private Sewer Transfer
		L	Lateral Drain
			Inspection Chamber

NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.

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Map Ref:	333385,350667
Map scale:	1:1000
Printed by:	Jessica Formosa
Printed on:	15 Oct 2025

Appendix C Existing & Proposed Development Plans

N

Level

Room-03

Level

Kitchen

up

W/C

Room-01

Room-02

up

up 50

Rhosddu Road

Ground floor plan 1:50

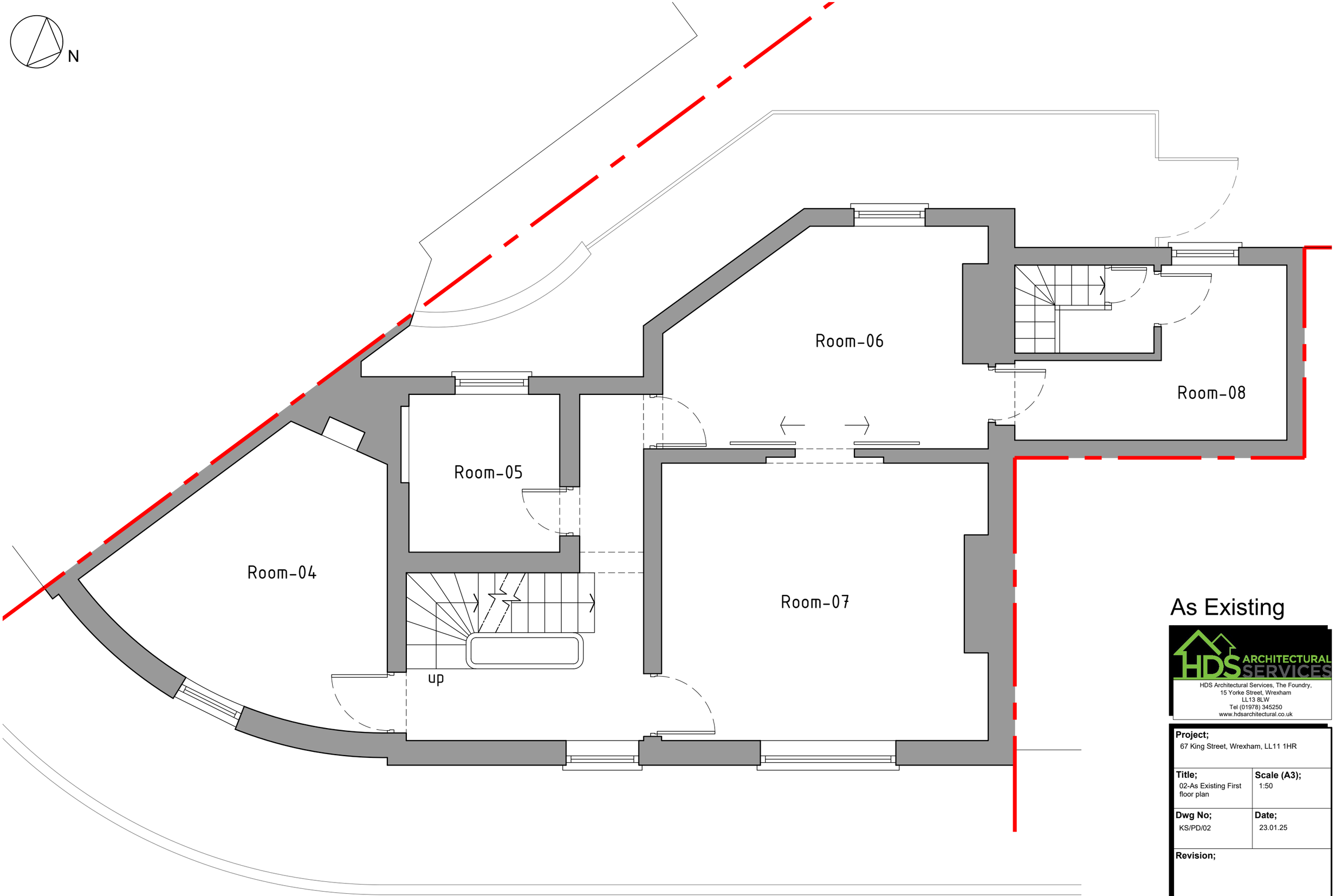
As Existing

HDS ARCHITECTURAL SERVICES
HDS Architectural Services, The Foundry,
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Tel (01978) 345250
www.hdsarchitectural.co.uk

Project;
67 King Street, Wrexham, LL11 1HR

Title;	**Scale (A3);**
01-As Existing Ground floor plan	1:50
Dwg No;	**Date;**
KS/PD/01	23.01.25

Revision;



First floor plan 1:50

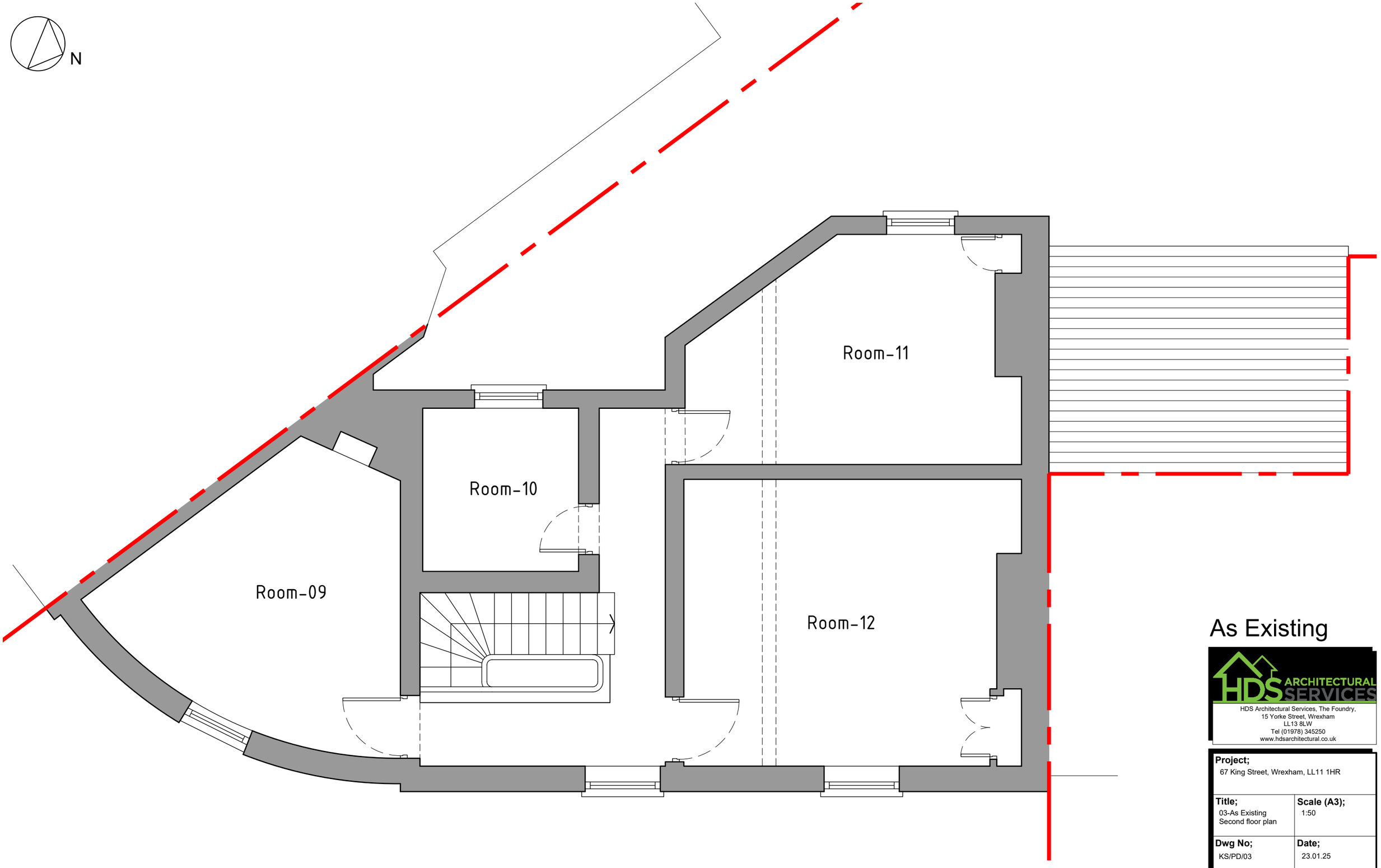
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Title;	**Scale (A3);**
02-As Existing First floor plan	1:50
Dwg No;	**Date;**
KS/PD/02	23.01.25

Revision;



Second floor plan 1:50

As Existing

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67 King Street, Wrexham, LL11 1HR

Title;
03-As Existing
Second floor plan

Scale (A3);
1:50

Dwg No;
KS/PD/03

Date;
23.01.25

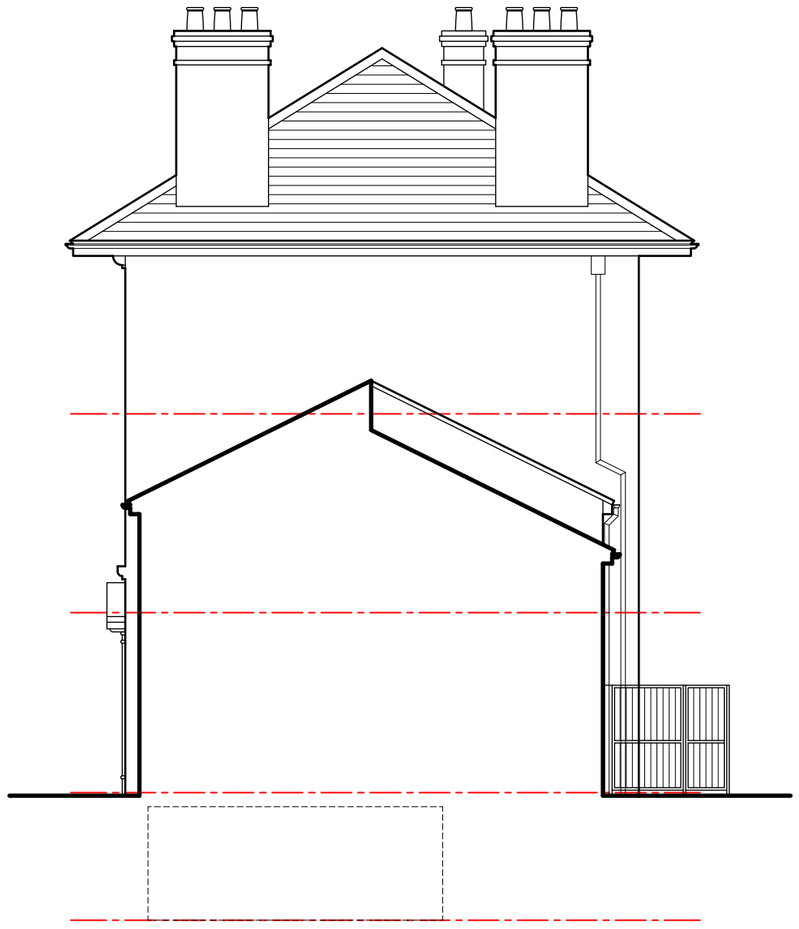
Revision;



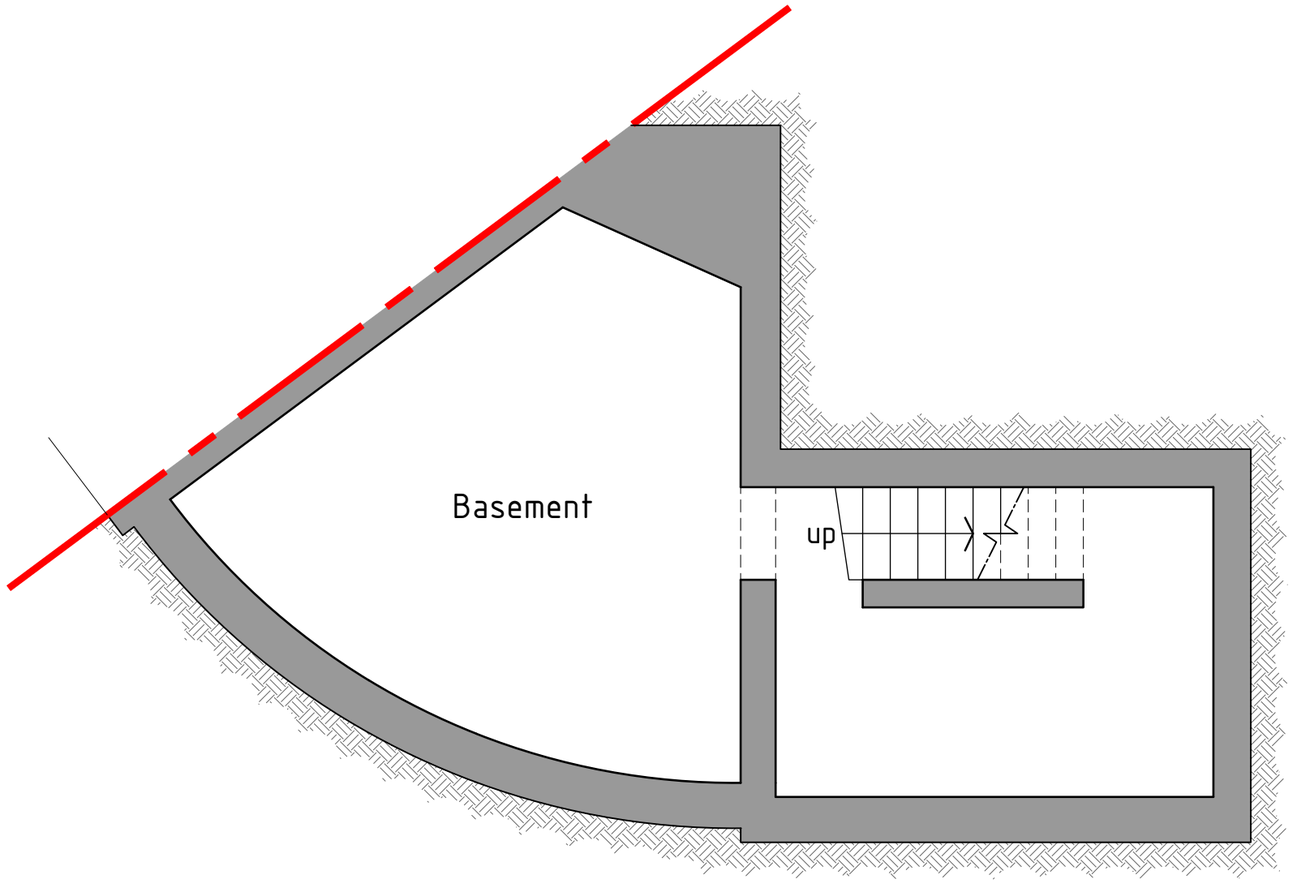
Front elevation 1:100

As Existing

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HDS Architectural Services, The Foundry, 15 Yorke Street, Wrexham LL13 8LW Tel (01978) 345250 www.hdsarchitectural.co.uk	**Title;** 04-As Existing Front Elevation	**Scale (A3);** 1:100	**Revision;**	



Side-01 Elevation 1:100



Basement 1:50

N

As Existing

HDS ARCHITECTURAL SERVICES	**Project;** 67 King Street, Wrexham, LL11 1HR		**Dwg No;** KS/PD/06 / **Date;** 24.01.25
HDS Architectural Services, The Foundry, 15 Yorke Street, Wrexham LL13 8LW Tel (01978) 345250 www.hdsarchitectural.co.uk	**Title;** 05-As Existing Side Elevation & Basement Plan	**Scale (A3);** 1:50/100	**Revision;**

N

Please note;

Cycle Storage Area to be covered and provide a minimum of 1 metre between each stand and 1.5m between each space for an adapted cycle.
Fixed ground anchor to be used to keep cycles secure

Bike storage area

4415.50

1691.50

Bin storage area

Acoustic wall lining as defined in sound report

Level

New stud partition

Bedroom-02
10.9m2

Bedroom-03
10.7m2

E/S

up

Doorway blocked up and made good

Level

Acoustic wall lining as defined in sound report

Doorway blocked up and made good

New opening

E/S

Doorway blocked up and made good

Bedroom-01
14.7m2

Kitchen &
Communal
space

19.5m2

up

Lobby

W-01-01 Secondary glazing to be installed

Ground floor plan 1:50

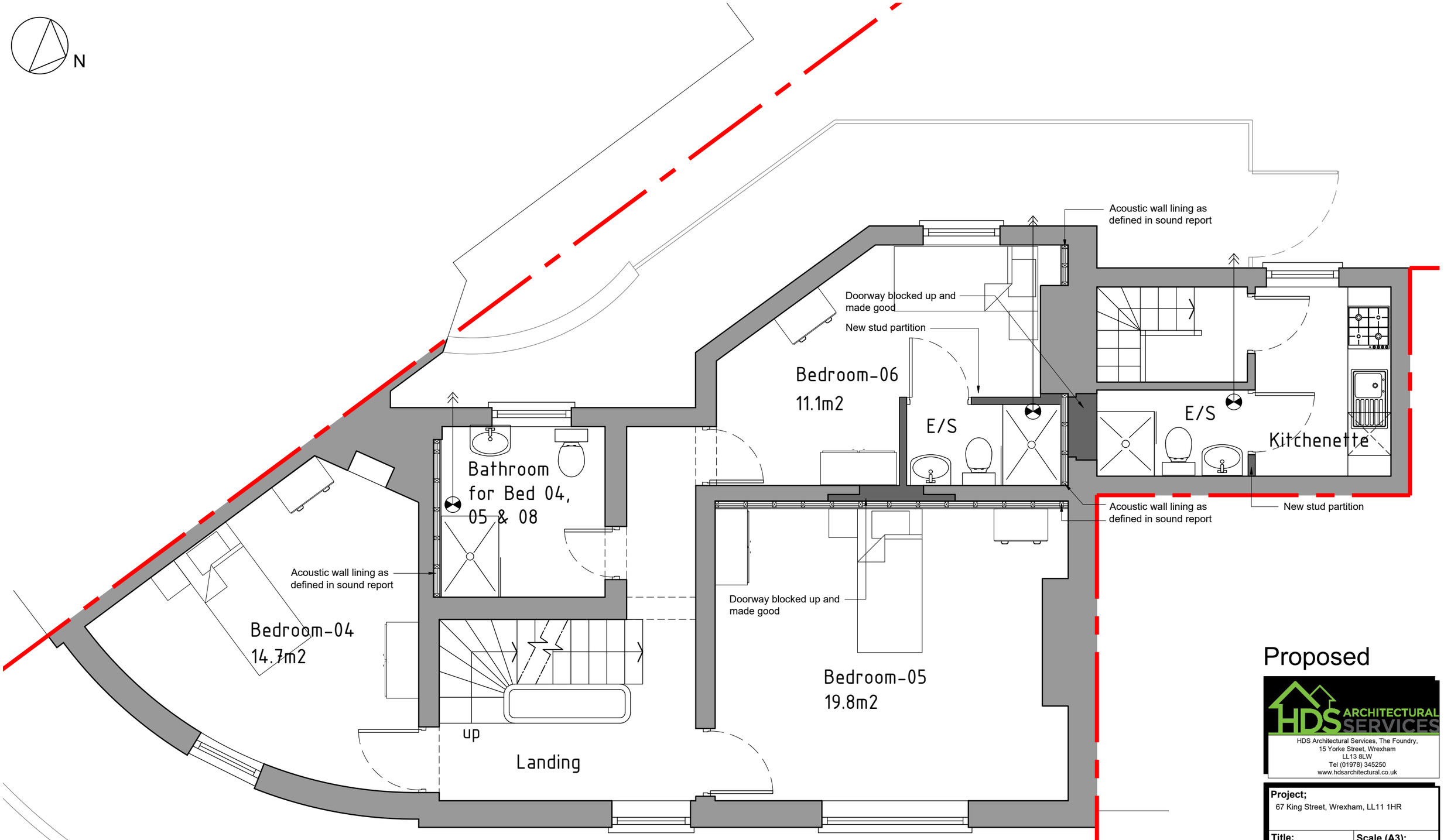
Proposed

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Project;
67 King Street, Wrexham, LL11 1HR

Title;	**Scale (A3);**
07-Proposed Ground floor plan	1:50
Dwg No;	**Date;**
KS/PD/07	27.01.25

Revision;
Rev A - Amend layout following meeting with conservation officer - 30-04-25
Rev B - Amendments requested by conservation officer - 07-05-25
Rev-C Noise report recommendations added 18.06.25
Rev D - Revise bin and bike stores - 08-07-25



First floor plan 1:50

Proposed

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Project;
67 King Street, Wrexham, LL11 1HR

Title;
08-Proposed First floor plan

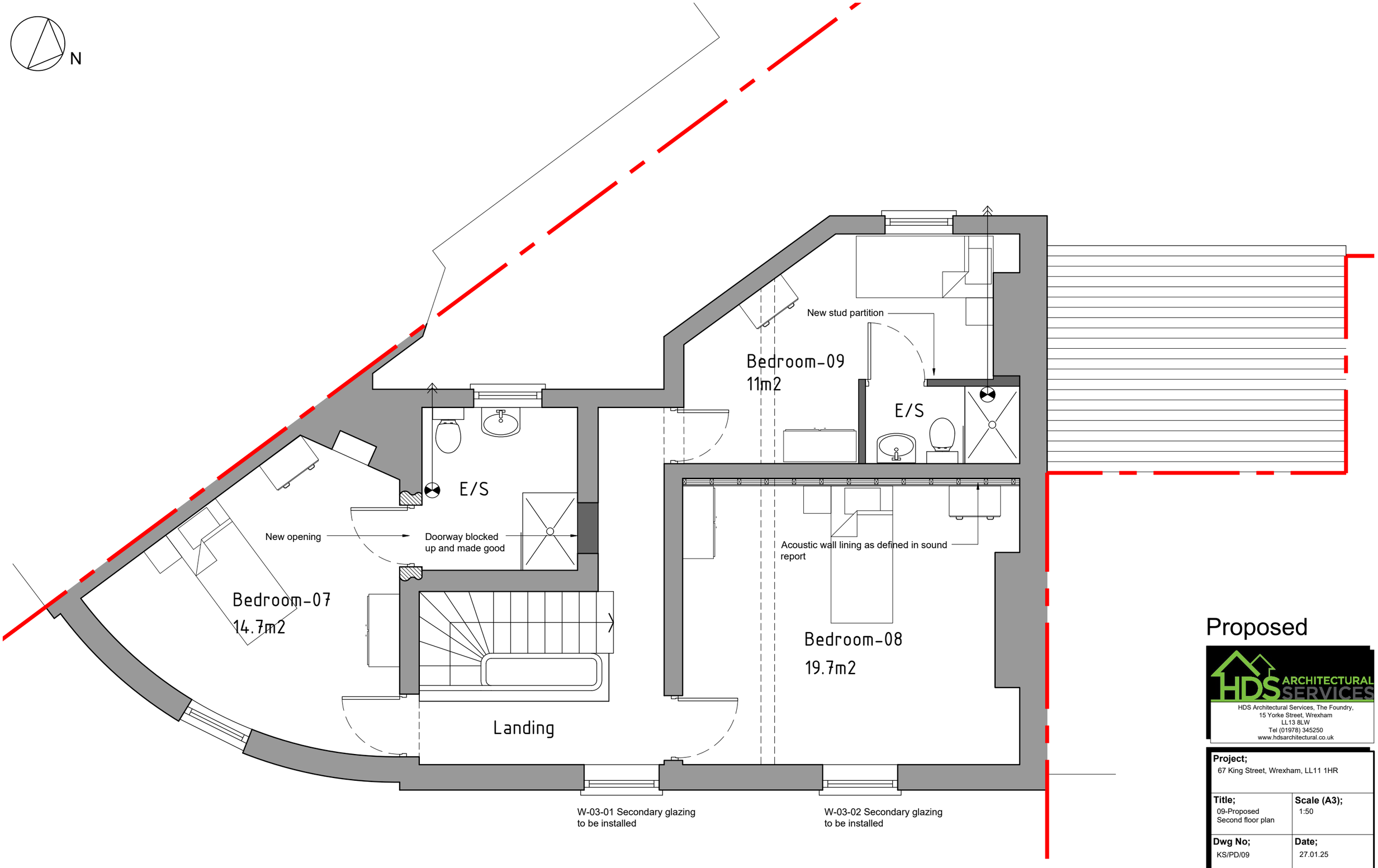
Scale (A3);
1:50

Dwg No;
KS/PD/08

Date;
27.01.25

Revision;
Rev A - Amend layout following meeting with conservation officer - 30-04-25
Rev B - Amendments requested by conservation officer - 07-05-25
Rev-C Noise report recommendations added 18.06.25

N



Second floor plan 1:50

Proposed

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Project;
67 King Street, Wrexham, LL11 1HR

Title;
09-Proposed
Second floor plan

Scale (A3);
1:50

Dwg No;
KS/PD/09

Date;
27.01.25

Revision;
Rev A - Amend layout following meeting with conservation officer - 30-04-25
Rev B - Amendments requested by conservation officer - 07-05-25
Rev-C Noise report recommendations added 18.06.25



Proposed

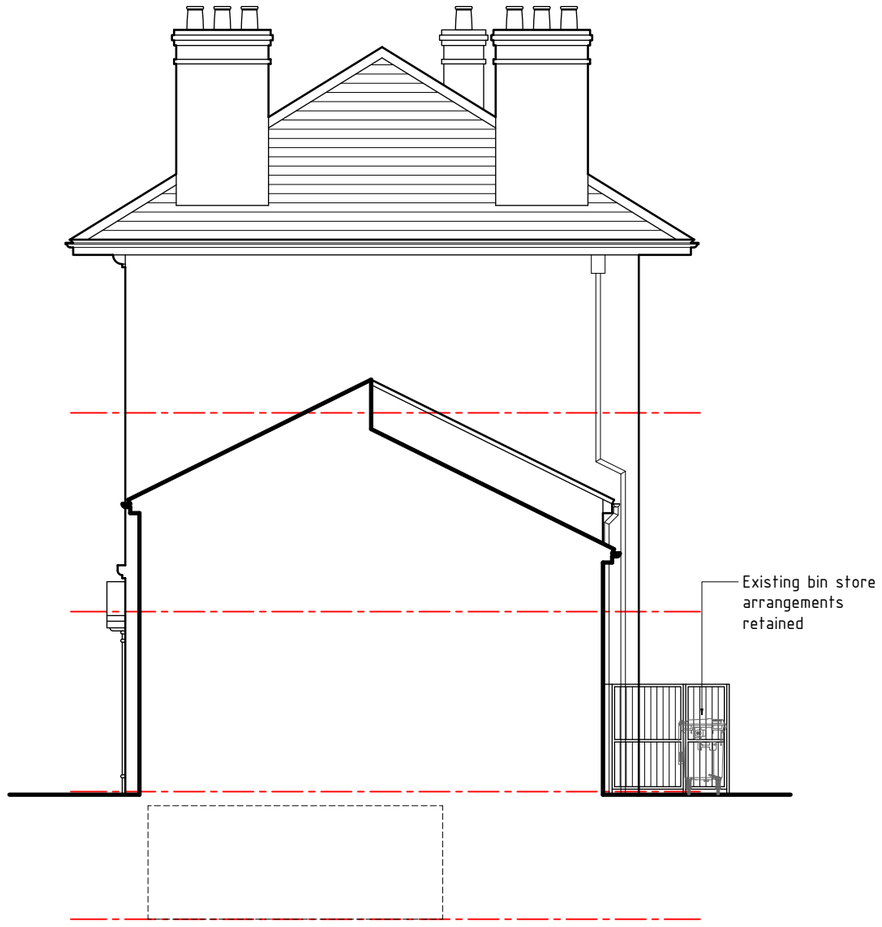
Front elevation 1:100

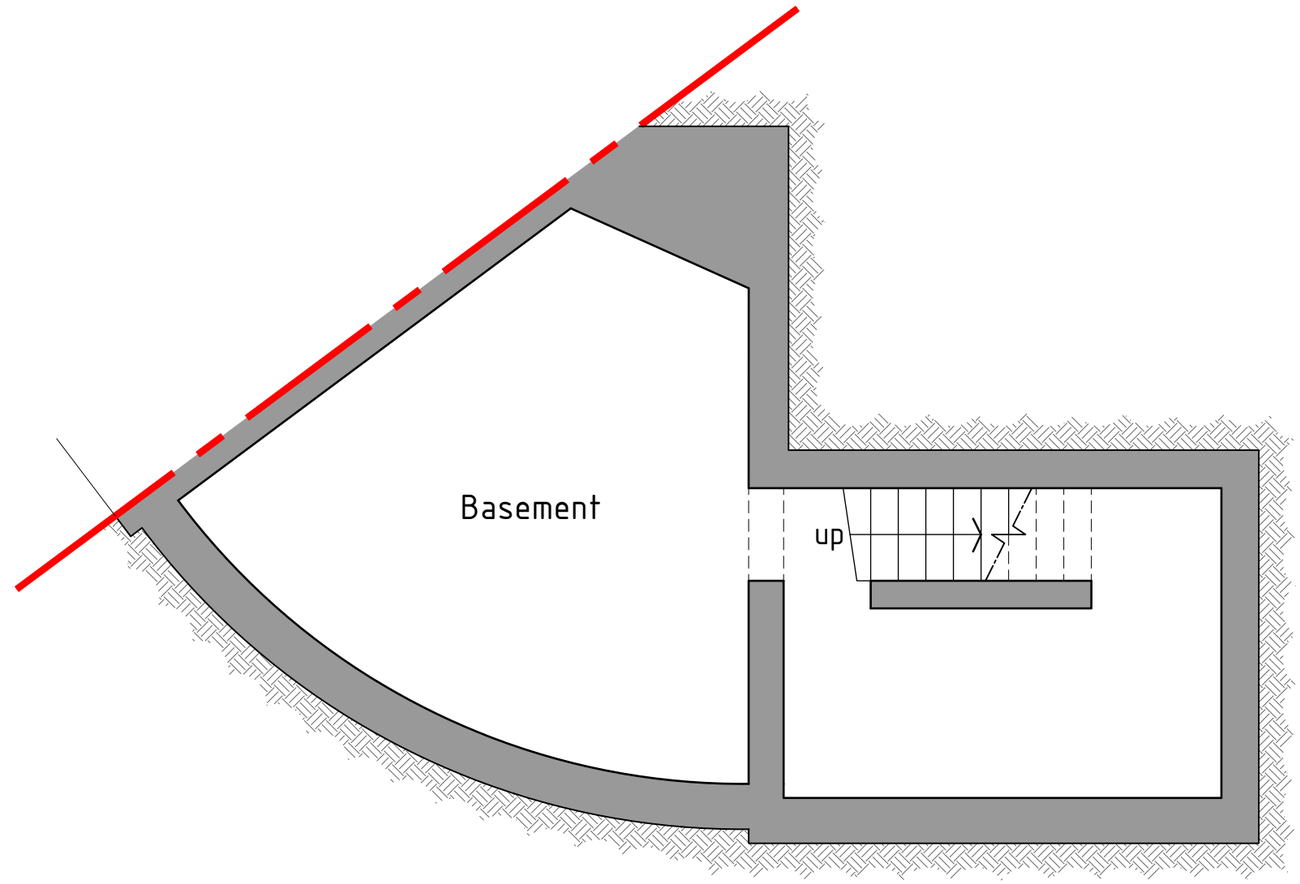
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Project;	Dwg No;	Date;
67 King Street, Wrexham, LL11 1HR	KS/PD/10	27.01.25

Title;	Scale (A3);	Revision;
10-Proposed Front Elevation	1:100	Rev-A window and repair information added 20.06.25

N





Side-01 Elevation 1:100

Basement 1:50

Proposed

HDS Architectural Services, The Foundry, 15 Yorke Street, Wrexham LL13 8LW Tel (01978) 345250 www.hdsarchitectural.co.uk	**Project;** 67 King Street, Wrexham, LL11 1HR		**Dwg No;** KS/PD/12 / **Date;** 27.01.25
	Title; 12-Proposed Side Elevation & Basement Plan	**Scale (A3);** 1:50/100	**Revision;**

Appendix D Water Efficiency Calculator

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	4.5	1.46	0.00	6.57
	Part flush Volume (litres)	3	2.96	0.00	8.88
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower also present)	Capacity to overflow(litres)		0.11	0.00	0
Shower (where bath also present)	Flow Rate(litres / minute)		4.37	0.00	0
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)	8.00	5.60	0.00	44.80
Kitchen/Utility room sink taps	Flow rate (litres/minute)	4.00	0.44	10.36	12.12
Washing Machine	(Litres/kg dry load)	5.20	2.1	0.00	10.92
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			95.69
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			87.08
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			92.1

Installation Type	Make/Model (mandatory)	Litres/Person/Day
WC (dual flush)	EcoDelux Venice Water Saving Close Coupled Toilet	15.45
Taps	Armitage Shanks Sandringham SL 21 Basin Pillar Taps	7.90
Showers Only	Methven MAKU Satinjet Water Saving 8l/min Power Shower Head In Chrome, Boosts Electric Shower Power MAHPCPUK	44.80
Kitchen Taps	Armitage Shanks Sandringham SL 21 Basin Pillar Taps	12.12
Washing Machines	LG TurboWash 360 with AI F4C510GBTN1 10 kg 1400 Spin Washing Machine	10.92
Dishwasher	N/A	4.5

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