Technical Letter

Site Address:	10 Ffordd Caerfyrddin, Wrexham, LL11 2LD
Document Reference:	NP-014563
Subject:	Residential Noise Mitigation Scheme
Client:	Felgate and Partners
Reported By:	R. Whitfield, MSc, MIOA
Checked By:	S. Chesney, MSc, MIOA
Date:	27/07/2026

Introduction

NOVA Acoustics Ltd has been commissioned to undertake a noise assessment in support of a residential development at the above address.

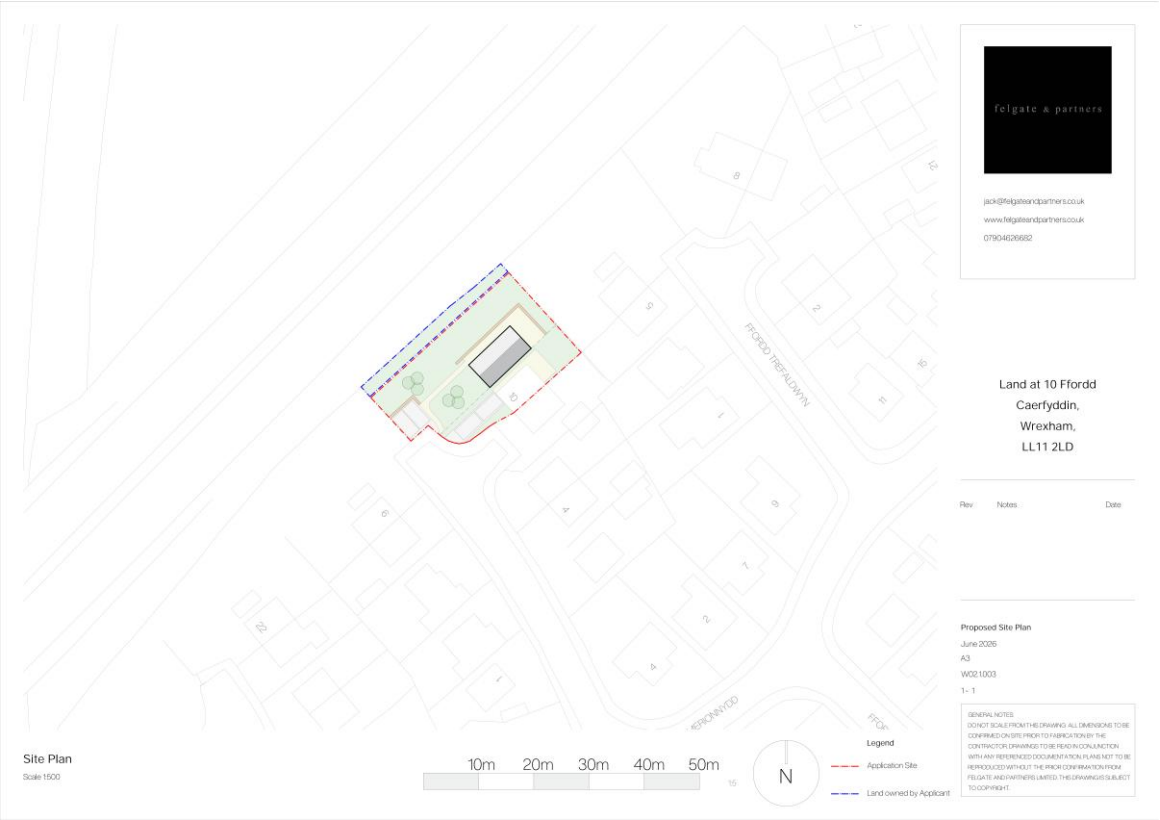
Planning permission for the demolition of an existing garage and the erection of a detached 3-bedroom residential dwelling-house was conditionally approved by Wrexham County Borough Council in November 2023 (planning ref. WRR P/2022/0287). NOVA Acoustics previously prepared a Noise Impact Assessment for the development (report ref. NP-009886, dated September 2023) which included recommendations relating to façade sound insulation requirements and the control of noise within external amenity areas.

Since the issue of the original assessment, detailed plans outlining the internal layout and location of glazing elements have been released. Consequently, a further review of the development has been undertaken to confirm that the previously recommended mitigation measures remain appropriate and that the development continues to satisfy the relevant planning requirements.

This report has therefore been prepared to support the discharge of the planning conditions relating to acoustics, as detailed below:

"4. As part of the Reserved Matters application, a scheme of noise insulation and attenuation measures shall be submitted to, and approved in writing by, the Local Planning Authority. The measures as are approved shall be fully implemented in strict accordance with the scheme prior to first occupation of the dwelling and shall thereafter be permanently retained."

The site layout is shown in the figure overleaf.



Drawing Ref No. W02.1.003 from 'Felgate and Partners'

Figure 1 – Proposed Development

Environmental Noise Survey Results

As discussed, a noise survey was undertaken in September 2023. The measured sound levels recorded during the survey are summarised in Table 1, below. The full time-history results are provided within the original noise impact assessment.

Location	Measurement Period ('T')	Octave Frequency Band (Hz, $L_{eq,T}$ dB)						$L_{Aeq,T}$ (dB)	$L_{AFmax,1min}$ (dB)
		125	250	500	1k	2k	4k		
MP1 [1]	$L_{eq,16hr}$ (Day)	56	56	59	63	56	41	64	--
	$L_{eq,8hr}$ (Night)	51	52	53	56	50	38	58	70
MP2	$L_{eq,16hr}$ (Day)	54	52	54	56	49	39	58	--
	$L_{eq,8hr}$ (Night)	48	46	46	48	42	31	50	62

Table 1 – Sound Level Results Summary

It was noted within the original report that the prevailing noise climate was dominated by road traffic noise from the A483.

Attended measurements were also undertaken at the approximate location of the nearest façade to the road. This position was slightly closer to the A483 and the results were 1dB higher than those measured at MP1 during the same time period. Accordingly, As such, the $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ levels at MP1 will be increased by 1dB and used for the assessment at the proposed development site.

These noise levels are not expected to have materially changed since the original survey and, as such, the measured data is considered representative and has been used as the basis of the following assessment.

TAN 11: Noise Assessment

TAN 11 is used to categorise noise level for proposed development sites. Annex A offers four noise exposure categories (NECs) for dwellings. The categories range from A-D, where A is the lowest noise levels and D is the highest. The tables below provide a breakdown of the NECs and relative advice.

Time	Noise Exposure Category (dB $L_{Aeq,T}$)			
	A	B	C	D
07:00 - 23:00	<55	55-63	63-72	>72
23:00 – 07:00	<45	45-57	57-66	>66

Table 2 – TAN 11 Threshold for Road Traffic Noise

Noise Exposure Category	Planning Outcome
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

Table 3 – TAN 11 Noise Exposure Categories

The measured noise levels incident upon the proposed facades are 65dB $L_{Aeq,16hr}$ during the daytime period and 59dB $L_{Aeq,8hr}$ during the night-time period. As such, the proposed development site would be classified under noise exposure category C.

Noise Mitigation Scheme (BS8233)

For completeness, the internal and external noise criteria outlined in the original report (taken from BS8233:2014) are reproduced in the table below.

Activity	Location	07:00 – 23:00	23:00 – 07:00
Resting	Living Room	35 dB $L_{Aeq,16hour}$	--
Dining	Dining Room/Area	40 dB $L_{Aeq,16hour}$	--
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$
Rest & Relaxation	External Amenity	50 – 55 $L_{Aeq,16hr}$	--

Table 4 – BS8233:2014 Internal Noise Level Criteria

Glazing and Background Ventilation Specification

The following section provides a glazing and background ventilation specification that achieves the relevant internal noise criteria. The calculations considering the following sound insulation scheme can be found in Appendix C.

Glazing Specification

The recommended glazing specifications are shown in the following table.

Description	Octave Frequency Band (Hz, dB)							Overall (dB)
	63	125	250	500	1k	2k	4k	
Master Bedroom & Bedroom 2								
8mm Glass / 16mm Air Cavity / 6mm Glass	21	22	21	28	38	40	47	33 R_w (-4 C_{tr})
Titon Standard Vent + C75	36	38	36	35	42	39	42	35 $D_{ne,w}$ (-1 C_{tr})
All Other Living Rooms & Bedrooms								
6mm Glass / 16mm Air Cavity / 4mm Glass	20	21	20	26	38	37	39	31 R_w (-4 C_{tr})
Titon Standard Vent + C75	36	38	36	35	42	39	42	35 $D_{ne,w}$ (-1 C_{tr})

Table 5 – Glazing Specification & Background Ventilation Specification

Any other window or ventilation specification capable of providing this attenuation will be suitable provided the glazing suppliers can provide an acoustic test report in accordance with BS EN ISO 10140-2:2010 or an evidence-based calculation

Structural Building Envelope Elements

In order to not downgrade the performance of the façade, the remaining elements of the external envelope, e.g., the roof & external wall should be designed to achieve 10dB above the glazing sound insulation performances presented above.

In relation to the external walls, this would be readily achievable with a standard cavity masonry wall construction. In relation to the roof, this can be achieved with a 'typical' detail, as follows.

- Pitched roof with slates or tiles
- 200mm rafters with 100mm acoustic insulation (min. density of 45kg/m^3)
- 1no. standard 12.5mm plasterboard.

Overheating Screening Assessment

In order to avoid excessively high temperatures and provide adequate levels of thermal comfort within dwellings, an overheating mitigation strategy must be developed. In low noise areas, this strategy can often rely upon opening windows as the primary source of ventilation, however, in areas with higher levels of noise, this would present a risk of adverse effects on health and quality of life.

The threshold levels at which adverse effects may occur are defined in Approved Document O ('ADO') and the 'Acoustics Ventilation and Overheating Design Guide' ('AVO'). Considering that a partially open window provides approximately 10dB of attenuation in areas of moderate risk (as stated in the ADO supporting documentation), the proposed internal and external noise criteria are summarised below alongside an assessment.

Period	Proposed Criteria (dB)		External Level (dB)	
	Internal	External	Predicted	Exceedance
All Façades				
Daytime ($L_{Aeq,16hr}$)	50 [1]	60	65	+5
Night-time ($L_{Aeq,8hr}$)	40 [2]	50	59	+9
Night-time ($L_{AFmax,T}$) [3]	55 [2]	65	70	+5

Notes:
[1] *Criterion taken from the AVO guide. Above this level, it is stated: "Noise causes a material change in behaviour, e.g., having to keep windows closed most of the time."*
[2] *Criteria taken from Approved Document O. Above this level, it is stated: "Windows are likely to be closed during sleeping hours."*
[3] L_{AFmax} *exceeded fewer than 10 times per night.*

Table 6 – Overheating Screening Assessment

The noise levels determined at the facades of the proposed development exceed the external noise criteria shown in the table above. As such, an assessment of whether the development is at risk of overheating would need to be undertaken by a suitably qualified person. Should the outcome indicate the site is at low risk of overheating, then a secondary ventilation strategy may not be required. If the outcome is that

the site is at moderate to high risk, then it is recommended that openable windows are not used as the primary source of ventilation.

Alternative forms of ventilation include passive systems (such as acoustic louvres) and mechanical systems (such as 'centralised mechanical extract ventilation' and 'mechanical ventilation with heat recovery'). The installation of passive systems is generally preferable; however, the precise requirements must be confirmed with a ventilation specialist. Regardless of the ventilation strategy, it must be ensured that all designs are compliant with the requirements of Approved Document F.

It should be noted that this assessment relates exclusively to overheating mitigation, and as such, open windows may be used for purge ventilation without acoustic constraint.

Internal Mechanical Plant Design

Mechanical Ventilation Regenerated Noise Considerations

Please note that where a mechanical ventilation system is to be installed, it must be ensured that regenerated noise within the dwellings is appropriately controlled.

Desirable internal ambient noise levels that should be met during periods where these systems are in use are defined in ADF and AVO. These figures are presented below.

Ventilation Condition	Desirable Internal Ambient Noise Levels for Mechanical Services (dB $L_{Aeq,T}$)		
	Bedrooms	Living / Dining Rooms	Bathroom / WC / Kitchen
ADF – Whole Dwelling (Background) Ventilation	≤ 26 or 30 [1]	≤ 30	--
ADF – Extract Ventilation	≤ 26 or 30 [1]	≤ 35	≤ 45
ADF – Purge Ventilation	-- [2]		
AVO – Overheating Provision	≤ 30 [3]	≤ 35	--

Notes:
[1] *AVO states that a figure of 26dB(A) may be more appropriate 'to prevent an adverse reaction from most occupants while falling asleep'.*
[2] *AVO states that 'no desirable noise levels are currently proposed based on the lack of evidence of acceptable noise levels when providing purge ventilation for the purpose of rapidly diluting indoor pollutants.*
[3] *Section 1.10.10 of CIBSE Guide A 2015 states that a range of +/- 5 dB may be acceptable depending on the situation.*

Table 7 – Internal Noise Level Design Criteria

Based on the above, the mechanical ventilation system should be designed to no greater than 30dB $L_{Aeq,T}$ (NR25) in bedrooms at night and 35dB $L_{Aeq,T}$ (NR30) in living rooms during the daytime.

Based on the above and as a general design guide, the following maximum duct velocities for conventional low velocity systems should not be exceeded. The below information has been taken from Table 2.16 of CIBSE Guide B2 'Ventilation and ductwork: 2016'.

Noise Level (dBA)	Duct Velocity (m/s)		
	Main Duct	Branch Duct	Final Runout
30 (NR25)	3.0	2.5	<2.0
35 (NR30)	5.0	4.5	2.5
45 (NR40)	7.5	6.0	3.5

Table 8 – Indicative Maximum Duct Velocities

External Amenity Areas

The original assessment identified an existing earth berm, approximately 3m in height, extending along the north-western site boundary between the proposed development and the adjacent A483. Road traffic on the A483 is considered to represent the dominant noise source affecting the site. It was also understood that a retaining wall would be installed to facilitate the extension of the proposed garden areas further to the north-west. The retaining wall would maintain the level difference between the external amenity areas and the crest of the existing berm, thereby preserving the acoustic screening provided by the landform.

On this basis, calculations were previously undertaken to assess the impact of road traffic noise within the proposed external amenity areas. The latest drawings provided by the Client indicate that the proposed layout and relevant boundary treatments remain unchanged. Accordingly, the conclusions of the original assessment remain valid, and noise levels within the external amenity areas are considered acceptable without the need for additional mitigation measures.

Further details of the assessment methodology are provided within the original report. For completeness, the predicted noise levels within the proposed external amenity areas are summarised in the table below.

Noise Level without Mitigation (dB)	Barrier Attenuation (dB)	Noise Level with Mitigation (dB)	BS8233 Criteria (dB)	Exceedance (dB)
65dB $L_{Aeq,16hr}$	-16	49	50 – 55 $L_{Aeq,16hr}$	-1

Table 9 – External Noise Level Analysis

Conclusion

The proposed development has been assessed against the acoustic design criteria, and a sound insulation scheme has been provided to ensure the criteria has been achieved.

The following 'Action Plan' is outlined to ensure the design considerations and specifications from this report are duly implemented:

1. The proposed glazing and background ventilation strategy, or a suitable alternative achieving the required acoustic performance, should be installed in accordance with Table 3. This requires standard glazing and trickle ventilation at each façade.
2. The predicted external noise levels are considered sufficiently high that a TM59 assessment is recommended to determine the frequency with which openable windows may be required to mitigate overheating at some plots. Should a mechanical ventilation system be required to mitigate overheating, general design advice and acoustic criteria have been provided for reference.
3. Noise levels within the proposed external amenity areas are predicted to be within the BS8233 guideline criteria, subject to the appropriate acoustic barriers being in place as discussed.
4. For further details and applicable calculations, this report should be read in conjunction with previous report ref: NP-009886.

The findings of this report will require written approval from the Local Authority prior to work commencing.

Appendix A – Location Plans

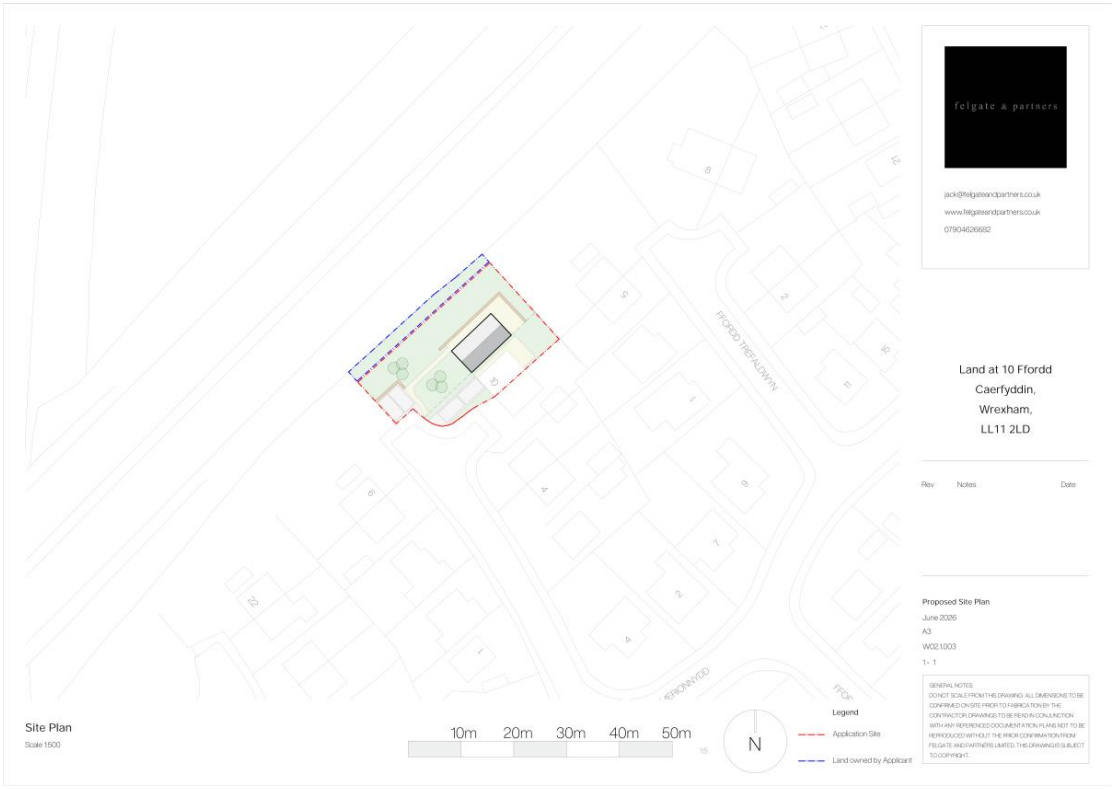


Figure 2 – Site Plan

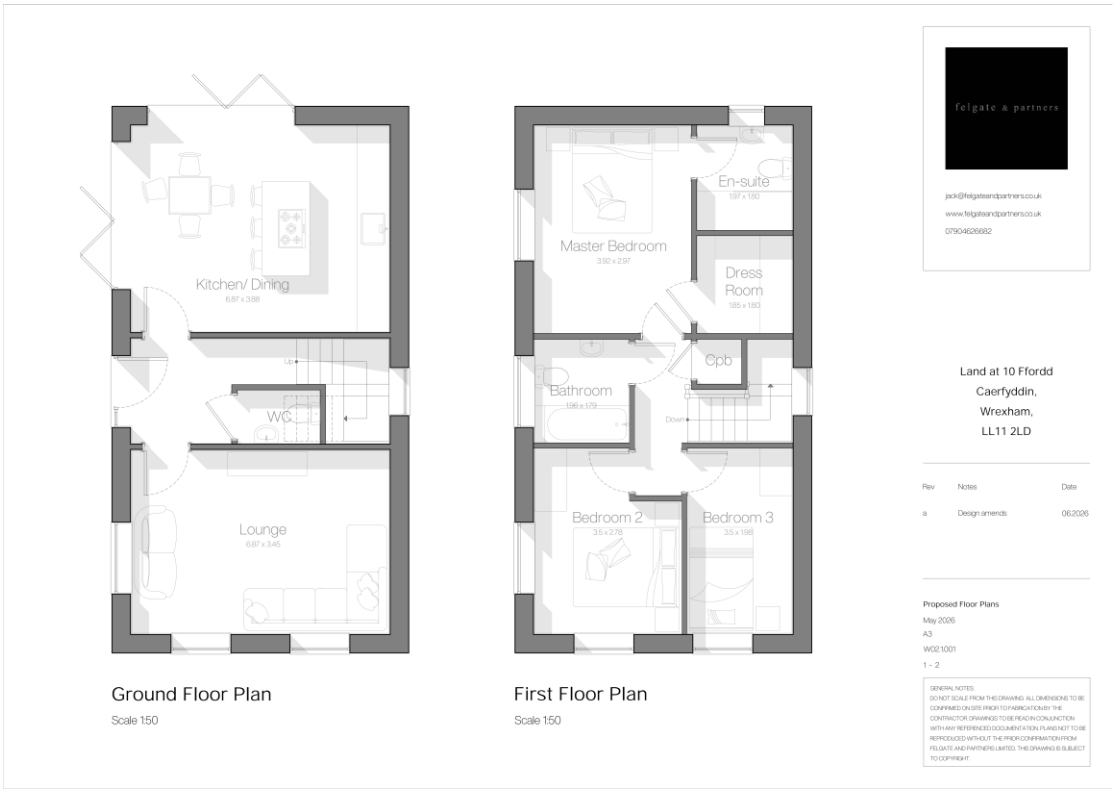


Figure 3 – Floorplans

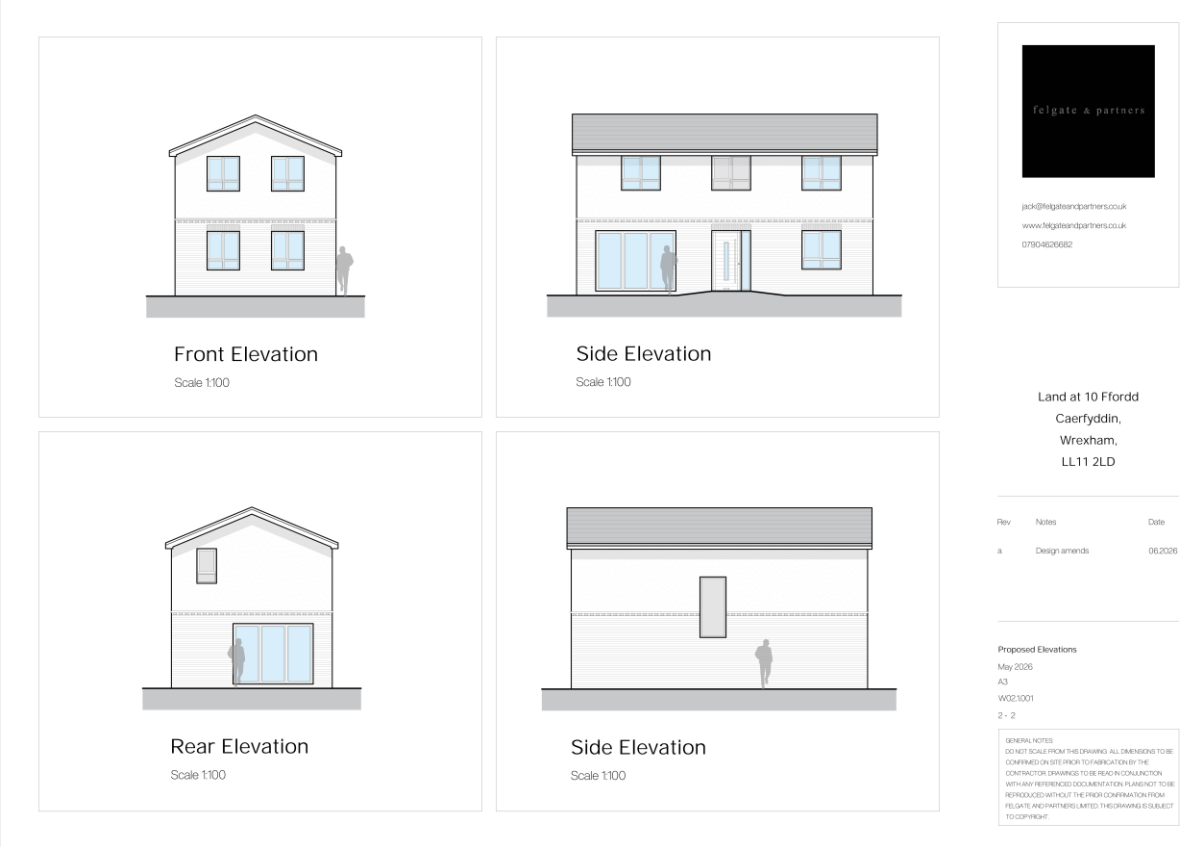


Figure 4 – Elevation Plans

Appendix B – Noise Break-in Calculations

The façade sound reduction and predicted internal noise levels are calculated assuming the following:

- The calculation method for façade sound reduction is in accordance with BS8233:2014 and BS EN 12354-3.
- The reverberation time is typically 0.5 seconds across the relevant frequency range for a furnished living room in the UK. This value is used for both living rooms and bedrooms.
- Based on the technical drawings provided to NOVA Acoustics, window areas of 1.5-3m^2 and room volumes of 24 - 29m^3 are used in the calculations for bedrooms as a worst-case scenario. For living rooms, the calculations are based on a window area of 4.5-11m^2 and room volume of 59 - 63m^3 as a worst-case scenario.
- The acoustic performance of the façade elements is taken from the relevant manufacturer's technical information, or the sound reduction has been predicted using INSUL 10.0.
- For background trickle ventilation a total Equivalent Area of 5000mm^2 per habitable room has been used in the calculations, which equates to 2no. trickle vents (2500mm^2 each).
- Exceedances of 1-2dB are considered acoustically negligible and as such, deemed acceptable.

Living Room (Front Façade) Day Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	64	64	56	56	59	63	56	41	30
Glazing Noise Ingress	27	38	29	30	27	19	13	-4	-15
Ventilation Noise Ingress	26	29	19	21	25	22	18	0	-11
Wall Noise Ingress	5	21	8	6	-1	2	-5	-20	-31
Roof Noise Ingress									
Room Absorption Correction		1	0	0	0	0	-1	-2	-3
Total Noise Ingress	**32**	**42**	**33**	**34**	**32**	**26**	**21**	**2**	**-10**
NR30	35	59	48	39	33	30	26	24	22
Exceedance of Criteria	-3	-17	-15	-5	-1	-4	-5	-22	-32

Bedroom (Front Façade) Day Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	64	64	56	56	59	63	56	41	30
Glazing Noise Ingress	24	35	26	27	23	17	8	-14	-25
Ventilation Noise Ingress	25	28	18	20	24	21	17	-1	-12
Wall Noise Ingress	1	17	4	2	-5	-2	-9	-24	-35
Roof Noise Ingress	20	40	28	19	16	14	7	-9	-20
Room Absorption Correction		5	5	4	4	4	3	2	1
Total Noise Ingress	**35**	**50**	**38**	**36**	**34**	**30**	**25**	**5**	**-7**
NR30	35	59	48	39	33	30	26	24	22
Exceedance of Criteria	0	-9	-10	-3	1	0	-1	-19	-29

Bedroom (Front Façade) Night Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	58	58	51	52	53	56	50	38	31
Glazing Noise Ingress	18	29	21	23	17	10	2	-17	-24
Ventilation Noise Ingress	19	22	13	16	18	14	11	-4	-11
Wall Noise Ingress	-5	11	-1	-2	-11	-9	-15	-27	-34
Roof Noise Ingress	15	34	23	15	10	7	1	-12	-19
Room Absorption Correction		5	5	4	4	4	3	2	1
Total Noise Ingress	**30**	**44**	**33**	**32**	**28**	**23**	**19**	**2**	**-6**
NR25	30	55	43	35	28	25	21	19	17
Exceedance of Criteria	0	-11	-10	-3	0	-2	-2	-17	-23

Bedroom (Front Façade) Night Time Max

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Corrected Lmax Spectrum	70	70	63	64	65	68	62	50	43
Glazing Noise Ingress	30	41	33	35	29	22	14	-5	-12
Ventilation Noise Ingress	31	34	25	28	30	26	23	8	1
Wall Noise Ingress	7	23	11	10	1	3	-3	-15	-22
Roof Noise Ingress	26	46	35	27	22	19	13	0	-7
Room Absorption Correction		5	5	4	4	4	3	2	1
Total Noise Ingress	**41**	**55**	**45**	**43**	**40**	**35**	**30**	**14**	**6**
NR40	45	67	56	49	43	40	37	34	33
Exceedance of Criteria	-4	-12	-11	-6	-3	-5	-7	-20	-27

Living Room (Rear Façade) Day Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	58	63	54	52	54	56	49	39	33
Glazing Noise Ingress	27	41	31	30	26	16	10	-2	-8
Ventilation Noise Ingress	20	28	17	17	20	15	11	-2	-8
Wall Noise Ingress	-4	16	2	-2	-10	-9	-16	-26	-32
Roof Noise Ingress									
Room Absorption Correction		0	0	-1	-1	-1	-1	-2	-4
Total Noise Ingress	**30**	**45**	**34**	**33**	**29**	**21**	**15**	**2**	**-6**
NR30	35	59	48	39	33	30	26	24	22
Exceedance of Criteria	-5	-14	-14	-6	-4	-9	-11	-22	-28

Bedroom (Rear Façade) Day Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	58	63	54	52	54	56	49	39	33
Glazing Noise Ingress	17	31	21	20	16	6	0	-12	-18
Ventilation Noise Ingress	19	27	16	16	19	14	10	-3	-9
Wall Noise Ingress	-3	17	3	-1	-9	-8	-15	-25	-31
Roof Noise Ingress	17	39	26	15	11	7	0	-11	-17
Room Absorption Correction		5	4	4	4	4	3	2	1
Total Noise Ingress	**29**	**48**	**35**	**30**	**28**	**22**	**17**	**3**	**-4**
NR30	35	59	48	39	33	30	26	24	22
Exceedance of Criteria	-6	-11	-13	-9	-5	-8	-9	-21	-26

Bedroom (Rear Façade) Night Time Leq

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Measured Leq,T	51	56	48	46	46	48	42	31	21
Glazing Noise Ingress	10	24	15	14	8	-2	-7	-20	-30
Ventilation Noise Ingress	11	20	10	10	11	6	3	-11	-21
Wall Noise Ingress	-10	10	-3	-7	-17	-16	-22	-33	-43
Roof Noise Ingress	10	32	20	9	3	-1	-7	-19	-29
Room Absorption Correction		5	4	4	4	4	3	2	1
Total Noise Ingress	**22**	**41**	**29**	**24**	**20**	**14**	**10**	**-5**	**-16**
NR25	30	55	43	35	28	25	21	19	17
Exceedance of Criteria	-8	-14	-14	-11	-8	-11	-11	-24	-33

Bedroom (Rear Façade) Night Time Max

Item / Description	dB(A)	63	125	250	500	1k	2k	4k	8k
Corrected Lmax Spectrum	62	67	59	57	57	59	53	42	32
Glazing Noise Ingress	21	36	27	26	20	10	5	-8	-18
Ventilation Noise Ingress	23	31	21	21	22	17	14	0	-10
Wall Noise Ingress	2	21	8	4	-6	-5	-11	-22	-32
Roof Noise Ingress	22	44	32	21	15	11	5	-7	-17
Room Absorption Correction		5	4	4	4	4	3	2	1
Total Noise Ingress	**34**	**53**	**41**	**35**	**31**	**25**	**21**	**7**	**-5**
NR40	45	67	56	49	43	40	37	34	33
Exceedance of Criteria	-11	-14	-15	-14	-12	-15	-16	-27	-38

Appendix C – Barrier Calculations

The following tables presents the barrier calculations for the berm. The distance between the road and the berm is taken from the central reservation, accounting for traffic travelling in both directions. Following the predicted attenuation, a result of -16dB is applied to the $L_{Aeq,16hr}$ value to represent the noise levels within the proposed garden area.

Source Noise Level (LAeq,16hr)	65
Path Length No Barrier	
Source Height (m)	0.5
Road to Barrier (m)	20
Receiver Height (m)	1.5
Barrier to Receiver	5
Path Length (m)	25.0
Path Length With Barrier	
Barrier Height (m)	3
Source Height (m)	0.5
Road to Barrier (m)	20
Path Length (A)	20.2
Receiver Height (m)	1.5
Barrier to Receiver	5
Path Length (A)	6.0
Total Path Length (m)	26.3
Attenuation	
Path Difference (m)	1.20
Attenuation (dB)	16
Façade Reflections	
Noise Level in Garden (dB)	49

Chart 9b Potential barrier correction A* dB(A) for path differences ($\delta = i + j$) calculated to the nearest 0.01 metres.**

j	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
i	*SHADOW ZONE*									
0.0	5.0	6.4	7.1	7.6	7.9	8.2	8.5	8.7	9.0	9.2
0.1	9.3	9.5	9.7	9.8	10.0	10.1	10.3	10.4	10.5	10.6
0.2	10.8	10.9	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7
0.3	11.7	11.8	11.9	12.0	12.1	12.1	12.2	12.3	12.4	12.4
0.4	12.5	12.6	12.6	12.7	12.8	12.8	12.9	13.0	13.0	13.1
0.5	13.1	13.2	13.3	13.3	13.4	13.4	13.5	13.5	13.6	13.6
0.6	13.7	13.7	13.8	13.8	13.9	13.9	14.0	14.0	14.1	14.1
0.7	14.2	14.2	14.3	14.3	14.4	14.4	14.5	14.5	14.5	14.6
0.8	14.6	14.7	14.7	14.7	14.8	14.8	14.9	14.9	14.9	15.0
0.9	15.0	15.1	15.1	15.1	15.2	15.2	15.3	15.3	15.3	15.4
1.0	15.4	15.4	15.5	15.5	15.5	15.6	15.6	15.6	15.7	15.7
1.1	15.7	15.8	15.8	15.8	15.9	15.9	15.9	16.0	16.0	16.0
1.2	16.1	16.1	16.1	16.2	16.2	16.2	16.3	16.3	16.3	16.3
1.3	16.4	16.4	16.4	16.5	16.5	16.5	16.6	16.6	16.6	16.6
1.4	16.7	16.7	16.7	16.8	16.8	16.8	16.8	16.9	16.9	16.9
1.5	16.9	17.0	17.0	17.0	17.1	17.1	17.1	17.1	17.2	17.2
1.6	17.2	17.2	17.3	17.3	17.3	17.3	17.4	17.4	17.4	17.4
1.7	17.5	17.5	17.5	17.5	17.6	17.6	17.6	17.6	17.7	17.7
1.8	17.7	17.7	17.8	17.8	17.8	17.8	17.8	17.9	17.9	17.9
1.9	17.9	18.0	18.0	18.0	18.0	18.1	18.1	18.1	18.1	18.1
2.0	18.2	18.2	18.2	18.2	18.3	18.3	18.3	18.3	18.3	18.4
	ILLUMINATED ZONE									
0.0	5.0	3.5	2.8	2.3	2.0	1.8	1.6	1.5	1.3	1.2
0.1	1.1	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.6	0.6
0.2	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3
0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0

* Values of A are negative

** e.g. where the reception point is in the shadow zone and $\delta = 1.45$ metres:
then $i = 1.4$ and $j = 0.05$
from the table the value of A is − 16.8 dB(A).

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Contact Details

NOVA Acoustics Ltd,
Suite 13, Crown House,
94 Armley Road,
Leeds,
LS12 2EJ

0113 322 7977

www.novaacoustics.co.uk

technical@novaacoustics.co.uk