NOISE IMPACT ASSESSMENT

Site Of Former East Lodge Farm, Malthouse Lane, BN6 9LA

CELLS4LIFE GROUP LLP

OCTOBER 2025

NOISE IMPACT ASSESSMENT
SITE OF FORMER EAST LODGE FARM, MALTHOUSE LANE, BN6 9LA

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REVISION HISTORY

Version	Comments	Changes made by	Approved by
1.0	First draft version	JN	JB

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1 INTRODUCTION

Anderson Acoustics Ltd was commissioned by Cells4Life Group LLP in September 2025 to provide a noise impact assessment to support a planning application for a residential development on the site of Former East Lodge Farm, Malthouse Lane, Hurstpierpoint, BN6 9LA.

This report presents the results of a baseline noise survey, an assessment of internal ambient noise levels, the suitability of open windows to provide cooling during the overheating condition and an assessment of noise levels in external amenity areas.

This report is technical in nature and, as such, a summary of noise units and acoustic terminology can be found here for reference.

2 SITE DESCRIPTION

The site, shown in Figure 2.1, is a parcel of land situated just off Malthouse Lane approximately 2km to the west of the centre of Burgess Hill. The site is immediately bound by a small industrial estate to the north, a battery storage site to the west, Malthouse Lane to the east and arable land to the south.

Observations during site visits indicated that the noise environment at the eastern boundary is dominated by light road traffic noise on Malthouse Lane. Constant noise from the battery storage site is dominant on the western boundary of the site. Whilst on site, no noise was associated with the industrial estate however the presence of some HGVs suggests that noise from vehicle movements may be audible across the site.

Figure 2.1: Site location and baseline noise monitoring position

The proposed site layout is shown in Figure 2.2. It should be noted that the proposals include an earth bund to the west of the site, 5m wide and 2.5m in height. Additionally an acoustic fence is proposed to run the length of the northern and western boundaries of the site.

Figure 2.2: Proposed Site Plan

3 RELEVANT GUIDANCE AND CRITERIA

3.1 British Standard 8233

British Standard BS 8233:2014 provides guideline values for internal noise levels within a number of building types including residential dwellings. In general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values in Table 3.1.

Table 3.1: British Standard 8233 Indoor Noise Levels

Activity	Location	Daytime	Night-time
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 $L_{Aeq,\ 8hour}$

Notes: Daytime assessment period – 07:00 to 23:00 hrs
Night-time assessment period – 23:00 to 07:00 hrs

Furthermore, the Standard notes that, "*Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values.*" No thresholds/criteria are provided within the standard, however.

The previous, 1999 version of the Standard included the note that, "*For a reasonable standard in bedrooms at night, individual noise events (measured with F time-weighting) should not normally exceed 45 dB $L_{Amax,F}$.*".

This is the same threshold (i.e. 45 dB) given in the World Health Organization (WHO) Guidelines for Community Noise, and it is, therefore, considered to remain relevant and is described in the following sub-section.

In respect of external noise levels, the guidance in BS 8233:2014 suggests that "*it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments*". BS 8233:2014 however acknowledges that "*these guideline values are not achievable in all circumstances where development might be desirable*", and that "*...a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited*".

BS 8233:2014 suggests that proposed development within noisy environments should be designed to ensure that the recommended internal design standards are achieved, and that noise levels in external amenity areas are designed to effectively control and reduce noise levels; although it acknowledges that in certain circumstances meeting the external design recommendations may not be feasible, or necessary, especially where the provision of such spaces is desirable for other technical, planning or policy reasons.

3.2 Building Regulations Approved Document O

In June 2022, the Building Regulations Approved Document O: *Overheating* came into force, setting standards to control overheating in new residential buildings. The document also includes specific criteria with regard to noise levels in bedrooms during the overheating condition, as defined in the regulations.

Section 3 of ADO includes a sub-section on Noise, which states the following:

3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

a. 40 dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).
b. 55 dB L_{AFmax}, more than 10 times a night (between 11pm and 7am).

***NOTE**: Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020).*

The above statements do not specifically mention living rooms or any other habitable room (only bedrooms) and for the night-time period. The above criteria are likely to have been derived from BS8233 internal noise guidance levels + a 10 dB allowance during the overheating condition.

4 BASELINE NOISE CONDITIONS

4.1 General

The prevailing noise conditions at the site were determined by an unattended environmental noise survey undertaken at the location shown in Figure 2.1. Continuous noise measurements were obtained under free-field conditions at a height of 2m above ground between 13:30 hours on 10th September and 10:45 hours on 16th September 2025.

4.2 Equipment details

Table 4.1: Inventory of Measurement Equipment

Item	Make and Model	Serial Number	Calibration	
			Certificate number	Expiry Date
Sound Level Meter	Rion NL-53	00830426	N/A*	21/09/2026
Calibrator	Rion NC-74	34745903	TCRT24/1543	18/09/2025

* New monitor covered by manufacturers calibration

4.3 Weather Conditions

At the time of setting up the noise monitor, weather conditions were clear, dry with a low breeze.

Weather conditions during the survey period were obtained from www.wunderground.com (weather station at Lydd Airport) which indicated dry conditions with low to moderate breezes occasionally exceeding 5 m/s during the survey period.

The weather conditions are not expected to have impacted on the measured noise levels.

4.4 Unattended Survey Results

A summary of the daily daytime and night-time ambient and background noise levels in addition to typical night-time maximum levels (not exceeded more than 10 times) are presented in Table 4.2 below.

Average daytime and night-time noise levels with octave band levels are presented in Table 4.3 below. A time history plot is provided in Appendix A.

Table 4.2: Unattended noise survey results (free-field)

Date	Day (07:00-23:00)		Night (23:00-07:00)		
	$L_{Aeq,T}$	$L_{A90,T}$	$L_{Aeq,T}$	$L_{A90,T}$	$L_{Amax,F}$
Weds 10/09/2025[1]	56	51	54	50	60
Thurs 11/09/2025	58	50	51	50	57
Fri 12/09/2025	55	51	58	48	68
Sat 13/09/2025	57	51	54	43	59
Sun 14/09/2025	57	51	60	51	69
Mon 15/09/2025	58	52	57	50	62
Tues 16/09/2025[2]	56	51	-	-	-
Overall	57	51	57	50	63

[1] Not a full 16-hour measurement. Start time 13:30h
[2] Not a full 16-hour measurement. End time 10:45h

Table 4.3: Octave band levels of unattended noise survey (free-field)

Monitoring Period	Octave Band Centre Frequency, Hz						dB(A)
	125	250	500	1k	2k	4k	
Daytime $L_{eq,16h}$ (0700-2300 hours)	57	60	54	51	48	44	57
Night-time $L_{eq,8h}$ (2300-0700 hours)	56	60	54	50	47	44	57
Night-time L_{Amax} (2300-0700 hours)	69	61 66	68 56	53 58	50 55	47 52	49 63

4.5 Attended Survey Results

Although the main concern raised by the Environmental Health Team related to the vicinity of the battery storage site, a short term attended survey was also conducted to the east of the site to understand the contribution of road traffic noise across the site.

An half hour measurement was undertaken between 11:40am and 12:10pm on 16th September 2025 at the location shown in Figure 2.1.

The noise monitor was positioned approximately 1m from the edge of the road. The results of the survey are as follows:

- 62dB $L_{Aeq,30mins}$
- 42dB $L_{A90,30mins}$
- 81dB L_{AMax}

5 INTERNAL NOISE LEVEL GUIDELINES

In order to achieve the internal noise guidelines set out in BS 8233, it is necessary to estimate internal noise levels with windows closed using standard glazing and ventilation products.

Calculations have been undertaken in accordance with BS EN 12354-3:2017. The area of glazing and method of ventilation in any particular room, along with the room size and room acoustic conditions, affect the degree of reduction in noise transmission from outside to inside.

5.1 Predicted External Noise Levels

A 3D noise model was built in CadnaA to estimate noise levels from the battery storage site and road traffic incident on the facades of the proposed dwellings, calibrated to the measured noise levels. Figure 5.1 shows the highest average daytime levels at each façade.

Figure 5.1: Example 3D view of noise model showing average daytime noise levels due to road traffic noise, dBA (free-field)

While the principal concern at the site is noise from the battery storage unit, the noise levels they produce are relatively constant. It is likely that maximum noise events were produced by vehicle movements on Malthouse Lane. Although not measured at night, the maximum noise level ($L_{Amax,F}$) from individual vehicle movements during the attended survey were modelled across the site by calibrating a point source at the closest point of the road to the measured noise level. The point source was then moved along the modelled road to model the $L_{Amax,F}$ maximum noise levels at each plot. However, where the resultant L_{Amax} using this method was less than that measured during the unattended survey, the level from the unattended survey was used instead. This is considered a worst case scenario. The resulting maximum levels are given in Table 5.1.

Table 5.1: Estimated noise levels incident on each facade, dBA (free-field noise levels)

Unit	Day ($L_{Aeq,16hrs}$)	Night ($L_{Aeq,8hrs}$)	Night (L_{AMax})
1	49	46	63
2	49	48	63
3	48	47	63
4	48	47	63
5	49	48	63
6	55	50	63
7	57	52	65

5.2 Internal Noise Levels - Windows Closed (whole dwelling ventilation condition)

The following sections will outline the mitigation required in order to meet BS 8233 and WHO internal and external noise guidelines with windows closed.

Reverberation

A reverberation time in furnished bedrooms and living rooms of 0.5 seconds across the frequency spectrum between 125 Hz and 4kHz has been assumed.

External Wall Construction

We have assumed the proposed external walls in the development will consist of a brick-block cavity wall. We would expect such a construction to achieve the following minimum sound reduction performance, based on experience of similar wall constructions:

Table 5.2: Estimated sound reduction index (dB) of the assumed external wall construction

125	250	500	1k	2k	4k	R_w / R_w + C_{tr}
41	45	45	54	58	58	52 / 48

It should be noted that even if the external wall configurations differ from the above, this will not impact on the predicted internal ambient noise levels within the apartments and houses; as the major noise break-in contribution into ambient noise levels are the glazing and ventilation elements of the façade.

Ventilation

The Design and Access Statement for the scheme indicates that Mechanical Ventilation with Heat Recovery will be installed throughout.

For the purposes of this assessment, noise break-in through the ventilation system is assumed negligible.

It should be noted that the design of the MVHR systems should aim at achieving at least the internal noise criteria set out in Section 3.1, such the cumulative internal noise level due to external noise intrusion and mechanical services noise comply with the criteria in BS 8233.

Glazing

Calculations based on the proposed external wall construction and ventilation systems demonstrate that standard double glazing capable of achieving the minimum sound reduction performance shown in Table 5.3 should ensure appropriate internal noise levels are met across the development. Example calculations showing the worst affected rooms (first floor bedroom Plot 7) are shown in Appendix B.

Table 5.3: Minimum sound reduction performance (dB) for the glazed elements of habitable rooms in the development

Glazing example	125	250	500	1k	2k	4k	R_w / $R_w + C_{tr}$
4/12/6mm	23	22	27	38	40	41	35/29

The sound insulation requirements of the glazing are applicable to the window system as a whole, including frames, mullions and panels. They are based on BS EN ISO 10140: 2021 "*Acoustics – Laboratory measurement of sound insulation of building elements*" and rated in accordance with BS EN ISO 717-1:2020 "*Acoustics – Rating of sound insulation in buildings and of building elements Part 1. Airborne sound insulation*".

The proposed external wall, glazing and ventilation façade elements should ensure that appropriate BS 8233 internal noise levels are achieved.

6 OVERHEATING AND VENTILATION

A qualitative assessment has been undertaken in this section to determine whether openable windows can be used to provide thermal comfort to the proposed dwellings.

Predicted noise levels incident on the façade of the development have been compared to the Approved Document O criteria given in Section 3.2, taking into account the assumed sound reduction in internal noise levels of 13 dB provided by a partially open window.

Table 6.1: Predicted internal night-time noise levels (free-field), dB

Facade	External night-time, dB		Internal night-time, dB		Meets ADO requirements? (windows open)
	$L_{Aeq,8hr}$	$L_{Amax,F}$	$L_{Aeq,8hr}$	$L_{Amax,F}$	
1	46	63	33	50	Y
2	48	63	35	50	Y
3	47	63	34	50	Y
4	47	63	34	50	Y
5	48	63	35	50	Y
6	50	63	37	50	Y
7	52	65	39	52	Y

The table above shows that all properties that may rely on open windows to control overheating according to Approved Document O requirements.

7 EXTERNAL AMENITY AREA NOISE ASSESSMENT

BS 8233 states that "*it is desirable that the external noise level does not exceed 50dB $L_{Aeq,T}$, with an upper guideline value of 55dB $L_{Aeq,T}$ which would be acceptable in noisier environments*". Given that the proposed development is adjacent to a strategic transport network, an upper external noise limit of 55 dB $L_{Aeq,T}$ has been considered in our assessment.

It is shown in Figure 7.1 that the average ambient noise levels for the amenity areas of all plots with the exception of a small area to the west of Plot 7 will meet the 55 dB $L_{Aeq,T}$ criterion.

Itis therefore considered that external noise levels in external amenity areas of the development are acceptable for residential use and compliant with the requirements of BS 8233.

Figure 7.1: Predicted external amenity noise levels across the site (daytime L_{Aeq} free-field levels), dB (1.5m agl)

8 CONCLUSIONS

Anderson Acoustics Ltd was commissioned by Cell4Life Group LLP in September 2025 to provide acoustic consultancy services to provide a noise impact assessment to support a planning application for a residential development on the site of the former East Lodge Farm, Malthouse Lane, BN6 9LA.

The outcome of our noise assessment is summarised below.

- An on-site survey was carried out to understand noise levels caused by the proximity the battery storage site to the east of the site.
- Mechanical ventilation with heat recovery is proposed throughout the development. Therefore, noise ingress through the ventilation system is considered negligible.
- In order to meet the internal ambient noise levels in habitable rooms recommended by BS 8233, double glazing with a minimum sound reduction performance of 29 dB $R_w + C_{tr}$ should be installed throughout.
- Open windows may be relied on to control overheating across the development.
- Predicted noise levels across the majority of the external amenity areas will meet the upper guideline level in BS 8233 of 55 dB $L_{Aeq,T}$.

The outcome of our assessment demonstrates that planning permission should not be refused on noise grounds subject to the recommendations made in this report.

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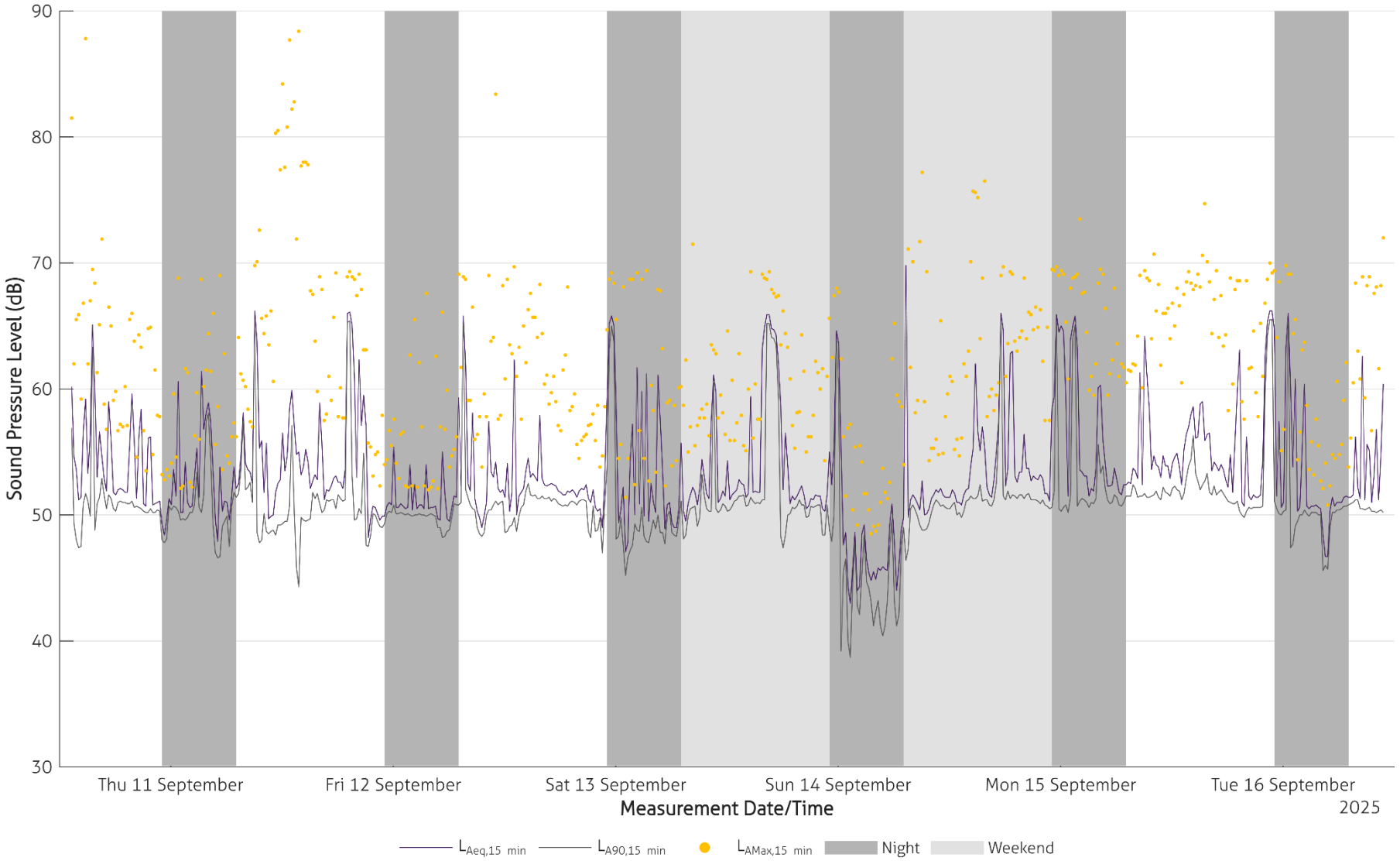
APPENDIX A

ENVIRONMENTAL NOISE SURVEY DETAILS

Figure A.1: Unattended Survey Results



APPENDIX B

NOISE BREAK-IN CALCULATIONS

Figure B.1: Worst case noise break-in calculations – Plot 7 First Floor Bedroom (east façade)

Job name:	Malthouse Lane
Job no.:	8471
Façade:	Plot 7 - First floor bedroom

RESULT SUMMARY:	LAeq Day	57	
Predicted Internal Level:		27	dB L_A
Criterion:		35.0	dB L_A
Difference:		-8	dB L_A

RESULT SUMMARY:	LAeq Night	52	
Predicted Internal Level:		22	dB L_A
Criterion:		30.0	dB L_A
Difference:		-8	dB L_A

RESULT SUMMARY:	LAmax Nigh	63	
Predicted Internal Level:		35	dB L_A
Criterion:		45.0	dB L_A
Difference:		-10	dB L_A

SOUND INSULATION BY ELEMENT

Formula	Description	Data	Units	Octave band centre frequency, Hz						
	Bedrrom			125	250	500	a	2000	4000	dB(A)
	Reverberation Time	0.5	s	0.5	0.5	0.5	0.5	0.5	0.5	
	Receiver Room Volume	34.5	m^3							

Formula	Description	Data	Units	Octave band centre frequency, Hz						
	Bedrrom			125	250	500	1000	2000	4000	dB(A)
	Reverberation Time	0.5	s	0.5	0.5	0.5	0.5	0.5	0.5	
	Receiver Room Volume	34.5	m^3							

Formula	Description	Data	Units	Octave band centre frequency, Hz						
	Bedrrom			125	250	500	1000	2000	4000	dB(A)
	Reverberation Time	0.5	s	0.5	0.5	0.5	0.5	0.5	0.5	
	Receiver Room Volume	34.5	m^3							

Element 1				Free-field						
L1	Wall	Rw + Ctr	Leq	57	60	54	51	48	44	57
-R	Brick-block cavity wall	-		41	45	45	54	58	58	
+10logS	Element Area		18.9 m^2	13	13	13	13	13	13	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				21	20	14	2	-5	-9	**15**
L2tot	Running total			21	20	14	2	-5	-9	15

Element 1				Free-field						
L1	Wall	Rw + Ctr	Leq	51	55	49	45	42	39	52
-R	Brick-block cavity wall	-		41	45	45	54	58	58	
+10logS	Element Area		18.9 m^2	13	13	13	13	13	13	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				15	15	9	-4	-11	-14	**10**
L2tot	Running total			15	15	9	-4	-11	-14	10

Element 1				Free-field						
L1	Wall	Rw + Ctr	Leq	71	68	58	55	50	47	63
-R	Brick-block cavity wall	-		41	45	45	54	58	58	
+10logS	Element Area		18.9 m^2	13	13	13	13	13	13	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				35	28	18	6	-3	-6	**23**
L2tot	Running total			35	28	18	6	-3	-6	23

Element 2										
L1	Glazing	Rw + Ctr	Leq	57	60	54	51	48	44	
-R	SGG 4/12/6mm	29		23	22	27	38	40	41	
+10logS	Element Area		2.1 m^2	3	3	3	3	3	3	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				30	34	23	9	4	-1	**27**
L2tot	Running total			30	34	23	10	4	0	27

Element 2										
L1	Glazing	Rw + Ctr	Leq	51	55	49	45	42	39	
-R	SGG 4/12/6mm	29		23	22	27	38	40	41	
+10logS	Element Area		2.1 m^2	3	3	3	3	3	3	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				24	29	18	3	-2	-6	**22**
L2tot	Running total			24	29	18	4	-2	-5	22

Element 2										
L1	Glazing	Rw + Ctr	Leq	71	68	58	55	50	47	
-R	SGG 4/12/6mm	29		23	22	27	38	40	41	
+10logS	Element Area		2.1 m^2	3	3	3	3	3	3	
-10logA	where A=0.16V/T			10	10	10	10	10	10	
#N/A				3	3	3	3	3	3	
=L2				44	42	27	13	6	2	**35**
L2tot	Running total			44	42	27	14	6	3	35