



Architectural & Environmental Acousticians

Noise & Vibration Engineers

Noise Assessment

Land Off Of Bullens Green Lane, Colney Heath

Noise Assessment

Project: LAND OFF OF BULLENS GREEN LANE, COLNEY HEATH

Report reference: RP01-20409

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1. INTRODUCTION

- 1.1 Cass Allen has been instructed by Canton Ltd to assess the noise impact of an outline planning application for residential development of up to 100 dwellings, including 45% affordable and 10% self-build, together with all ancillary works on Land off of Bullens Green Lane, Colney Heath. All matters reserved except access.
- 1.2 The assessment has been carried out in accordance with relevant local and national planning guidance.
- 1.3 The aims of the assessment were to establish the suitability of existing noise levels at the site for the proposed development and, where required, identify appropriate measures to optimise the acoustic design of the development and achieve acceptable noise levels in habitable areas.
- 1.4 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

2. PROJECT DESCRIPTION

- 2.1 The site is located in a predominantly residential area of Colney Heath at the junction of Bullens Green Lane, which runs along the eastern boundary of the site, and Fellowes Lane, which runs along the southern boundary of the site. To the west of the site is Roestock Park and a waterworks operated by Affinity Water. The A1 motorway is located approximately 330m to the east of the site.
- 2.2 An annotated aerial photo of the site is shown in Figure 1 below.

Figure 1 Annotated Aerial Photo



- 2.3 Canton Ltd are intending to submit an outline planning application for residential development of the site. The site straddles two boroughs; Welwyn Hatfield and St Albans. Applications will therefore need to be made to both Councils. The acoustic assessment outlined in this report is compliant with planning policies for both Welwyn Hatfield and St Albans and therefore is suitable for supporting both applications.

3. PLANNING POLICY

National Policy

- 3.1 Outline guidance for the assessment of noise affecting new developments is given in the National Planning Policy Framework (NPPF). Section 170 of the NPPF states:

Planning policies and decisions should contribute to and enhance the natural and local environment by ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ...noise pollution.

and in Section 180:

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

Welwyn Hatfield Local Policy

- 3.2 Policy R19 of Welwyn Hatfield Council's District Plan 2005 states:

Policy R19 - Noise and Vibration Pollution

Proposals will be refused if the development is likely:

- (i) To generate unacceptable noise or vibration for other land uses; or*
- (ii) To be affected by unacceptable noise or vibration from other land uses.*

Planning permission will be granted where appropriate conditions may be imposed to ensure either:

- (iii) An adequate level of protection against noise or vibration; or*
- (iv) That the level of noise emitted can be controlled.*

Proposals should be in accordance with the Supplementary Design Guidance.

St Albans Local Policy

- 3.3 There are no specific noise-related policies in St Albans Council's current Local Plan or the supporting documents. However, to comply with the national planning guidance any new development in St Albans should ensure that unacceptable noise impacts will not occur.
- 3.4 To address the requirements of the national policies and Welwyn Hatfield Council's Policy R19, the key acoustic matter to be assessed in this case is noise affecting the habitable areas of the proposed development, i.e. the noise levels that will exist in the bedrooms, living rooms and gardens of the proposed residential development.

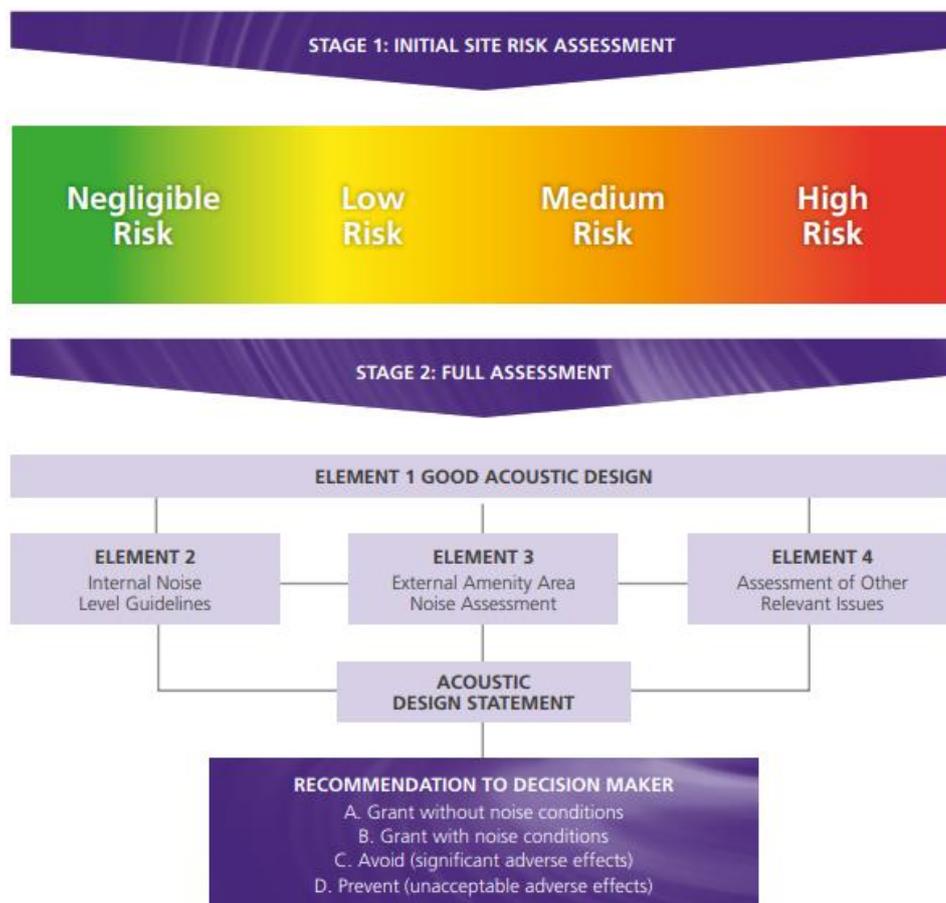
4. NOISE AFFECTING THE DEVELOPMENT

4.1 Specific guidance on the assessment of noise affecting new residential development is given in ProPG: Planning and Noise for New Residential Development, May 2017 (ProPG). The process within the ProPG guidance for the appraisal of noise levels affecting new residential development is current 'best practice' and therefore has been followed for the assessment. The assessment process can be summarised as follows:

- Stage 1 – measure noise levels at the site and carry out an initial noise risk assessment of the proposed development site based on the measured levels.
- Stage 2 – where a higher noise risk is identified, carry out a detailed assessment including the following four considerations:
 - Element 1 – the overall acoustic design and layout of the site
 - Element 2 – internal noise levels in habitable areas
 - Element 3 – noise levels in external amenity areas
 - Element 4 – consideration of other relevant issues
- Based on the results of the Stage assessment, provide a recommendation to the decision maker on whether planning permission can and should be granted.

4.2 The process is shown visually in Figure 2 below

Figure 2 ProPG Assessment Process



- 4.3 It should be noted that the guidance in ProPG only relates to noise from transportation sources, i.e. road traffic, aircraft, rail etc. Any significant noise from other sources (e.g. industrial, commercial or entertainment sources) is outside the scope of the ProPG guidance and requires separate consideration. This is discussed further below in relation to noise from the Affinity Waterworks.

Stage 1 – Noise survey and initial assessment

- 4.4 A noise survey was carried out at the site between 25th and 29th June 2020 to assess existing noise levels in the area. The full methodology and results of the noise survey are provided in Appendix 1.
- 4.5 Average noise levels across the site were generally fairly low and dictated by a combination of continuous low level road traffic noise from the A1M to the east and intermittent vehicle movements on Bullens Green Lane and Fellowes Lane to the east and south respectively. Noise from natural sources (birdsong, wind in trees) also contributed to average noise levels towards the north-western edge of the site where road traffic noise levels are lowest.

- 4.6 Maximum noise levels at the eastern and southern edges of the site were dictated by vehicle movements on Bullens Green Lane and Fellowes Lane. Birdsong generally dictated noise levels at the north western edge of the site.
- 4.7 Long-term monitoring of noise levels was carried out at the western edge of the site (Position L1 in Appendix 1) to assess noise emissions from the Affinity Waterworks, which was identified as the only commercial use in the vicinity of the site that had the potential to generate significant noise levels. Analysis of audio recordings taken throughout the long-term monitoring did not identify any significant noise from the waterworks. No significant noise from the waterworks occurred during the attended survey periods. Based on our observations and analysis, we are satisfied that noise from the waterworks would not adversely impact future residential development of the site and therefore this is not considered further. It is also worth noting that there are existing residential properties located close to the waterworks.
- 4.8 Areas of the development at the north eastern edge of the site will be subject to the highest noise levels. The noise survey results show that the noise levels at 2m from the edge of Bullens Green Lane (Position L2) were as follows:
- Average noise levels during the daytime - 55 dB LAeq,0700-2300hrs;
 - Average noise levels during the night-time - 51 dB LAeq,2300-0700hrs;
 - Typical maximum noise levels during the night-time - 71 dB LMax.
- 4.9 The measured noise levels can be compared with Figure 3 below to assess the ‘noise risk’ of the site. Where the noise risk is high, significant acoustic design measures may be required to achieve acceptable noise levels in the development. Where the noise risk is low, acceptable noise levels may be achievable with no specific acoustic design measures.

Figure 3 Noise Risk Assessment (Adaption of Figure 1 from ProPG)



- 4.10 It can be seen from a comparison of the measured noise levels in paragraph 4.8 above with Figure 3 that the site is ‘Low’ risk in relation to daytime and night-time noise levels.
- 4.11 It is straightforward to achieve acceptable noise levels in habitable areas of ‘Low’ risk sites. This has been assessed further via a ProPG ‘Stage 2’ assessment as set out below.

Stage 2 – Element 1 – Overall acoustic design of the site

4.12 The acoustic design of development has been considered in relation to the measured noise levels at the site. In this case the following measures would help optimise the acoustic design of the development:

- Where practicable, set back dwellings from Bullens Green Lane and Fellowes Lane. A minimum set back distance of around 5-10m would be appropriate in our view.
- Include 1.8m close-boarded timber fencing around any gardens adjoining Bullens Green Lane or Fellowes Lane.
- Although no significant noise was identified from Affinity Water during the surveys, it would be appropriate in our view to include 1.8m close-boarded timber fencing to any gardens abutting the boundary of the Affinity Water site.

Stage 2 – Element 2 - Internal noise levels

4.13 Appropriate design criteria for acceptable noise levels in acoustically sensitive areas of new developments are given in BS8233:2014 ‘Guidance on sound insulation and noise reduction for buildings’.

4.14 Relevant BS8233 design criteria are summarised in Table 1 below.

Table 1 BS8233:2014 Internal Noise Criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq,16hour	-
Dining	Dining room/area	40 dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

4.15 It is also considered appropriate in this case to assess the potential impact of noise emissions from individual vehicle movements on Bullens Green Lane and Fellowes Lane on the bedrooms of the development during the night-time. This is in line with guidance given in BS8233:2014 and ProPG, which both point out that regular individual noise events during the night have the potential to cause sleep disturbance.

4.16 Appropriate design criteria for acceptable maximum noise levels in habitable rooms of new residential developments are given in the ProPG guidance, which states that “*In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB LAmax,F more than 10 times a night.*”

4.17 The following acoustic design criteria have therefore been adopted for the assessment:

- Average noise levels in living rooms and dining rooms during the day should not exceed 35 dB LAeq,0700-2300hrs and 40 dB LAeq,0700-2300hrs respectively;
- Average noise levels in bedrooms should not exceed 35 dB LAeq,0700-2300hrs during the day and 30 dB LAeq,2300-0700hrs during the night;

- Maximum noise levels should not regularly exceed 45 dB LAmax in bedrooms during the night.
- 4.18 It has been assumed that the external walls of the future dwellings will be constructed using a standard masonry construction (e.g. 102mm brick, 100mm insulated cavity, 100mm concrete block) or a light-weight construction designed to achieve a similar level of sound insulation (this is technically achievable subject to detailed design). Consequently, internal noise levels would be dictated by external noise ingress via glazing and ventilators.
- 4.19 For the purpose of the assessment, it has been assumed that units will be ventilated via trickle ventilators in the external facades with openable windows for the provision of purge ventilation (as per System 1 or System 3 from Building Regulations Part F).
- 4.20 Calculations were carried out using façade modelling software in accordance with the methodology given in BS8233:2014 to calculate the sound insulation performance required of the glazing and ventilation to achieve the nominated internal noise criteria in the ‘worst-case’ habitable rooms of the development, i.e. the habitable rooms that will be subject to the highest external noise levels. These would be any habitable rooms at the north eastern edge of the site facing Bullens Green Road.
- 4.21 If acceptable internal noise levels can be achieved in ‘worst case’ habitable rooms then it follows that acceptable internal noise levels can be achieved in all other habitable rooms of the development using similar glazing and ventilator types.
- 4.22 A plus 3dB correction was added to the measured average day and night-time levels to compensate for lower traffic flows due to the COVID-19 restrictions. This correction essentially accounts for traffic flows being approximately 50% of normal levels. Analysis of Highways England traffic data has shown that this is a reasonable correction to apply at this time. The lower than normal traffic flows would not have a significant effect on the maximum noise levels at night (which are dictated by individual vehicle passes) and therefore no correction was added to the measured maximum levels.
- 4.23 The calculations were carried out based on the following typical dimensions/details for facade elements:
- Glazing – 1.5m² for bedrooms and 2m² for living rooms;
 - External walls – 8m² for bedrooms and 15m² for living rooms; and
 - 1 in-frame trickle ventilator in bedrooms and 2 in-frame trickle ventilators in living rooms.
- 4.24 It should be noted that the calculations were carried out using the noise data measured at 2m from Bullens Green Lane. In reality we expect that the dwellings will be set back at least 5-10m from the road and therefore the actual noise levels external to the rooms would be around 3 dB lower. The calculation results are therefore considered to be conservatively high.
- 4.25 The calculation results are given in Appendix 2 and show that BS8233 compliant noise levels will be achieved in the ‘worst case’ habitable rooms of the development using standard thermal glazing and standard ‘hit & miss’ trickle ventilators in the bedrooms and living rooms. The development is

therefore acceptable with regards to the noise levels that will exist in habitable rooms and acceptable internal noise levels will be readily achieved across the site using standard glazing and ventilation systems.

- 4.26 It should be noted that the above assessment is based on windows being closed whereas the ProPG guidance suggests that internal noise levels should also be assessed with windows in the open position, which will likely be required at times to control overheating.
- 4.27 With open windows the resultant internal noise levels in the 'worst case' habitable rooms at the north eastern edge of the site are also in line with current recommended acceptable levels for the open window scenario (i.e. BS8233 internal average levels + 5 dB). It will therefore be acceptable to rely on open windows for the control of overheating for all dwellings across the site.

Stage 2 – Element 3 – Noise levels in external amenity areas

- 4.28 BS8233 states that it is desirable that noise levels in external amenity areas of residential developments do not exceed 50 dB LAeq and that 55 dB LAeq,T should be regarded as a upper guideline value. BS8233 recognises however that these guideline values will not always be achievable in urban areas adjoining main roads or other transport sources. In these cases, BS8233 states that the development should be designed to achieve the lowest practical noise levels in the amenity spaces.
- 4.29 The noise survey results show that noise levels in external amenity areas are predicted to generally achieve the BS8233 recommended levels. The measured average noise levels at the north eastern edge of the site (2m from Bullens Green Lane) are at the upper limit of the BS8233 recommended levels and therefore, as per Paragraph 4.12 above, we would recommend that 1.8m close-boarded timber fencing is included around gardens adjoining Bullens Green Lane (and Fellowes Lane) where practicable.
- 4.30 The proposed development is therefore also considered to be acceptable based on noise levels in external amenity areas.

Stage 2 – Element 4 – Other relevant issues

- 4.31 In our view the proposed development is in line with both local and national noise policy. Noise levels are sufficiently low at the site that no significant noise mitigation measures will be required to achieve acceptable noise levels in habitable areas across the finished development.

Recommendation to decision maker

- 4.32 It is our view that planning permission should be granted in relation to noise.

5. CONCLUSIONS

- 5.1 Cass Allen was instructed by Canton Ltd to assess the suitability of the site for the proposed development with regards to noise.
- 5.2 The assessment was carried out in accordance with relevant local and national planning guidance.
- 5.3 A noise survey was carried out at the site. Noise levels at the site are low and dictated by road traffic noise emissions from surrounding roads, including low level noise from the A1M to the east.
- 5.4 Noise affecting the development has been assessed in accordance with the ProPG guidance. A ProPG assessment rates the site as 'Low risk' with regards to noise.
- 5.5 Acceptable noise levels will be achievable in all habitable areas of the development (bedrooms, living rooms and gardens) across the site with no specific acoustic treatments.
- 5.6 To acoustically optimise the design of the development, it is recommended that, where practicable; 1.8m close-boarded fencing is included around gardens adjoining Bullens Green Lane, Fellowes Lane and the Affinity Water site. Also, dwellings would ideally be set back from the edge of Bullens Green Lane and Felllowes Lane by a minimum of around 5-10m.
- 5.7 In summary of the above it is our view that the site is suitable for the development and planning permission may be granted in terms of noise.

Appendix 1 Survey Results

Survey Summary:

The survey comprised short-term operator attended noise measurements and longer-term unattended noise monitoring at the site. Noise levels at the site were generally dictated by road traffic on surrounding roads and distant noise from the A1(M).

Survey Period:

25/06/2020 to 29/06/2020

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise levels around the site over a typical day and night-time period.

Equipment Used (Appendix 1, Table 1):

Type	Manufacturer	Model	Serial Number
Calibrator	Rion	NC-74	34551703
Sound level meter ¹	Rion	NL-52	00965090
Sound level meter ¹ (noise logger)	Rion	NL-32	00623765
Sound level meter ¹ (noise logger)	Rion	NL-32	01213688

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain). Weather records for the area confirmed that weather conditions were also generally acceptable for acoustic measurement during the unattended monitoring. Any periods of unattended monitoring that may have been adversely affected by weather conditions have been excluded from the data analysis.

Measurement Positions (Appendix 1, Table 2):

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Bullens Green Lane
N2	
N3	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to nearby roads
N4	
N5	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Fellows Lane
L1	Unattended noise logging position. 2m above ground level. Free-field. Direct line of sight to Affinity Water

Measurement Positions (Appendix 1, Table 2):

Position (refer plan below)	Description
L2	Unattended noise logging position. 2m above ground level. Free-field. Direct line of sight to Bullens Green Lane. 2m from the edge of the road.

Site Plan showing Measurement Positions (Appendix 1, Figure 4):



Attended Noise Monitoring Results (Appendix 1, Table 3):

Date	Position	Time	Meas. Length	LAeq, dB	LAmx, dB	LA90, dB	Observations
25/06/2020	N1	12:28	1min 30secs	50	55	48	Noise dictated by road traffic from Bullens Green Lane and A1(M)
		12:30	11 secs	70	82	57	
		12:31	4 mins 4 secs	51	59	49	
		12:35	9 secs	70	80	55	
		12:36	7 secs	69	78	54	

Attended Noise Monitoring Results (Appendix 1, Table 3):

Date	Position	Time	Meas. Length	LAeq, dB	LAmix, dB	LA90, dB	Observations
	N2	12:47	5 mins	50	57	46	
		12:53	5 mins	47	54	45	
	N3	13:03	5 mins	51	60	49	
		13:08	5 mins	50	56	48	
	N4	13:21	5 mins	50	60	48	
		13:27	5 mins	49	54	47	
	N5	13:44	5 mins	50	59	47	
		13:49	1min 6 secs	49	55	48	
		13:50	7 secs	65	74	56	
		13:52	3 mins 44 secs	49	60	48	
		13:55	10 secs	61	71	50	

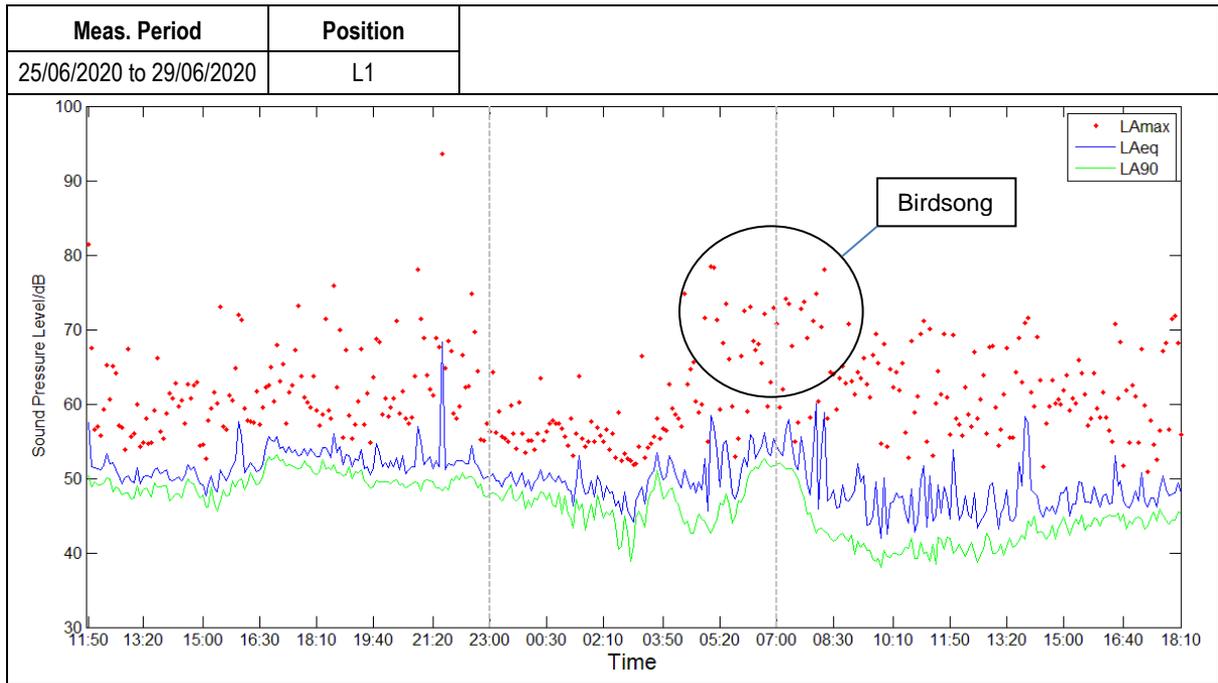
Unattended Noise Monitoring Results (Appendix 1, Table 4):

Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB ¹	LAeq,8hr, dB	LA90,5mins, dB ¹	LAmix, dB ²
25/06/2020 to 29/06/2020	L1	53	49	51	47	61-71
	L2	55	46	47	40	65-67

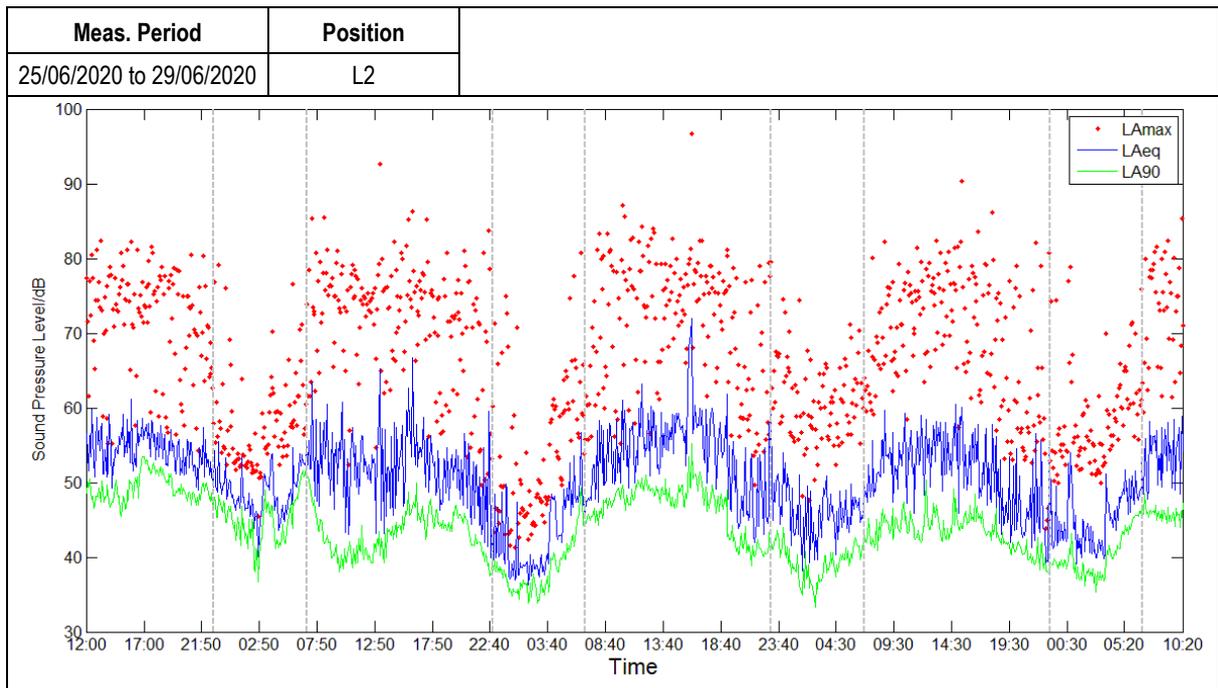
Note 1: Typical lowest measured during the period shown.

Note 2: Highest typical maximum noise level during the night-time (not exceeded more than 10-15 times per night).

Unattended Noise Monitoring Results (Appendix 1, Figure 5):



Unattended Noise Monitoring Results (Appendix 1, Figure 3):



Appendix 2 Habitable Rooms Noise Calculations

CLIENT: Canton Ltd
 PROJECT: Land off Fellowes Lane
 ROOM: Bedroom facing Bullens Green Lane
 RUN REF:
 VARIANT: LAeq,8hrs

Room Dimensions [m] **4.0** X **3.0** X **2.4**

Room Volume = 28.8 m³
 Partition Area = 9.5 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>>

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						
Road traffic spectrum (according to BS 8233:1999 section 6)	51.0						
Reference spectrum	32.8	36.9	40.4	43.8	47.0	44.2	39.0

REVERBERATION TIME

DIRECT INPUT ----->							
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

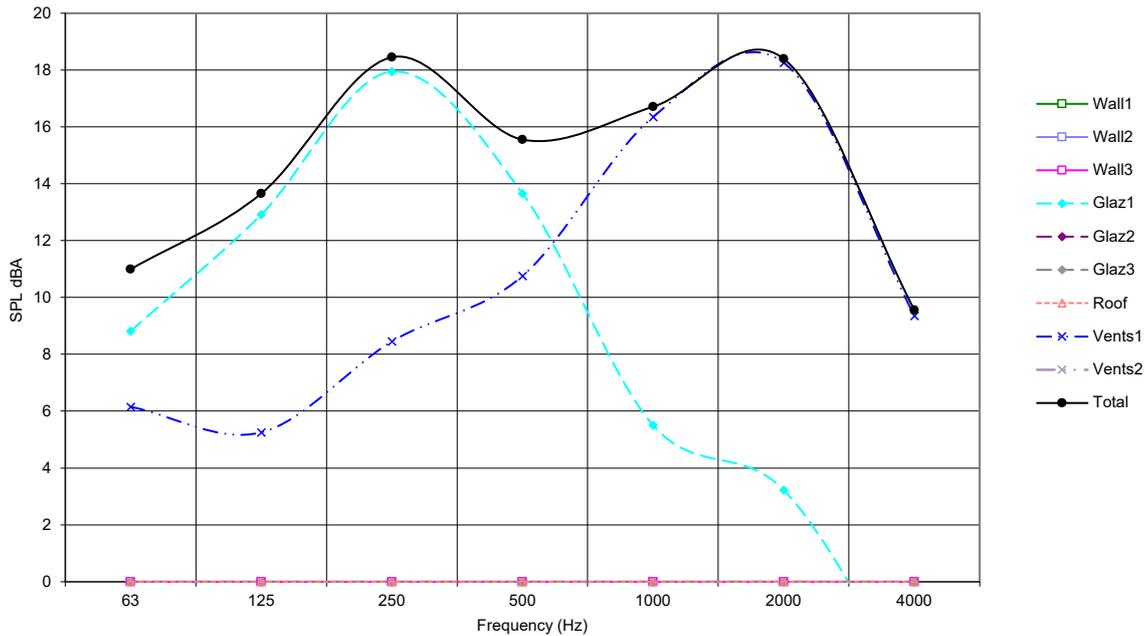
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NOTES:

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	0%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 26 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	19	19	18	25	37	36	38	44%	26 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	27	26	33	44	44	46				
Resultant SPL inside room excluding ventilators dB		20.9	9	13	18	14	6	3	-4	46%		

Ventilator Type	Num	D _{na} dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Titan Trimvent XS13	1	30	35	35	36	34	29	33	54%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		21.6	6	5	8	11	16	18	9	54%		
Total SPL inside room		24.3	11	14	18	16	17	18	10			

Element contribution to total internal noise level



CLIENT: Canton Ltd
 PROJECT: Land off Fellowes Lane
 ROOM: Bedroom facing Bullens Green Lane
 RUN REF:
 VARIANT: Lamax

Room Dimensions [m] **4.0** X **3.0** X **2.4**

Room Volume = **28.8** m3
 Partition Area = **9.5** m2
 Ventilation ref area = **10.0** m2
 Free Field SPL K = **3** dB

SELECT Free Field or Façade SPL for model input >>> Free Field SPL

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						
Road traffic spectrum (according to BS 8233:1999 section 6)	71.0						
Reference spectrum	52.8	56.9	60.4	63.8	67.0	64.2	59.0

REVERBERATION TIME

DIRECT INPUT ----->							
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

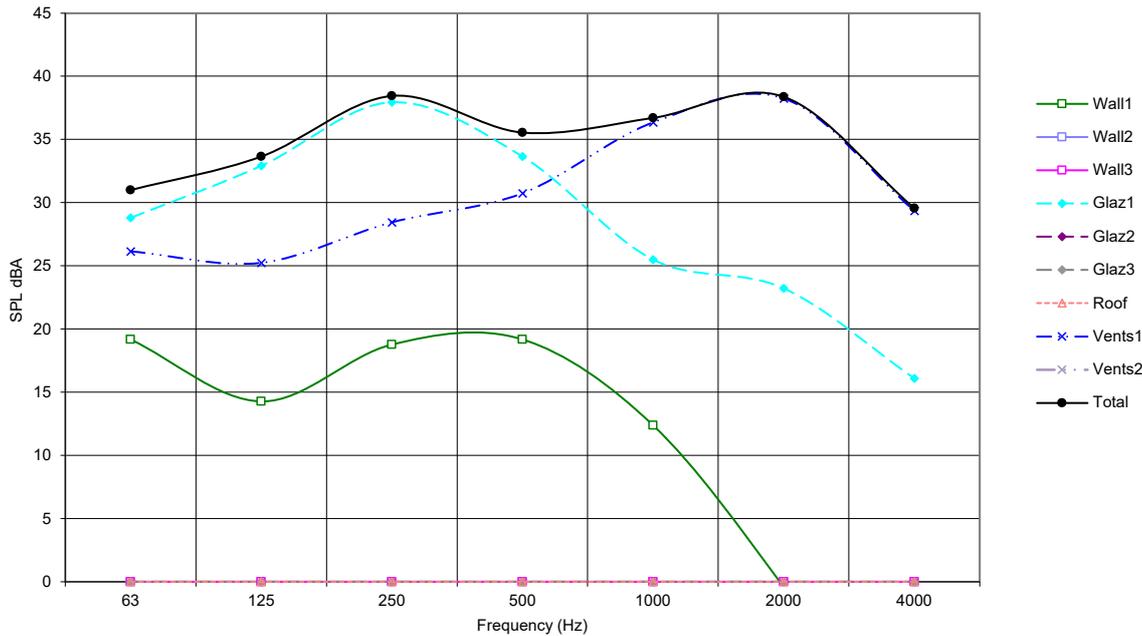
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NOTES:

Façade Element	Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 26 dB Rw + Ctr - Standard Thermal Double Glazing	1.5	19	19	18	25	37	36	38	45%	26 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		27	27	26	33	44	44	46				
Resultant SPL inside room excluding ventilators dB		40.9	29	33	38	34	26	23	16	46%		

Ventilator Type	Num	D _{na} dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Tilon Trimvent XS13	1	30	35	35	36	34	29	33	54%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		41.6	26	25	28	31	36	38	29	54%		
Total SPL inside room		44.3	31	34	38	36	37	38	30			

Element contribution to total internal noise level



CLIENT: Canton Ltd
 PROJECT: Land off Fellowes Lane
 ROOM: Living room facing Bullens Green Lane
 RUN REF:
 VARIANT: LAeq,16hrs

Room Dimensions [m] **4.0** X **5.0** X **2.4**

Room Volume = 48.0 m³
 Partition Area = 17.0 m²
 Ventilation ref area = 10.0 m²
 Free Field SPL K = 3 dB

SELECT Free Field or Façade SPL for model input >>> Free Field SPL

NOTES:

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-						
Road traffic spectrum (according to BS 8233:1999 section 6)	55.0						
Reference spectrum	36.8	40.9	44.4	47.8	51.0	48.2	43.0

REVERBERATION TIME

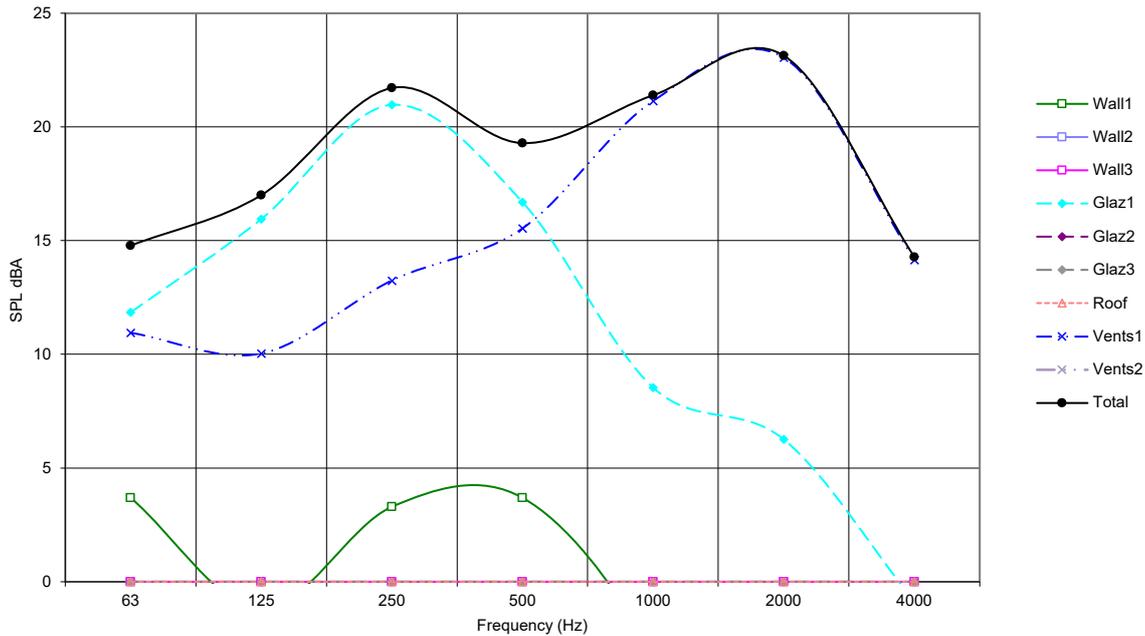
DIRECT INPUT ----->							
EQUAL RT for all bands ----->	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Default - RT set to 0.5s

Façade Element	Area [m ²]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	15.0	36	45	44	47	57	67	77	1%	54	0	-4
ATTENUATION												
Wall 2 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 26 dB Rw + Ctr - Standard Thermal Double Glazing	2.0	19	19	18	25	37	36	38	35%	26 (inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING		0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		28	28	27	34	46	45	47				
Resultant SPL inside room excluding ventilators dB		23.9	12	16	21	17	9	6	-1	36%		

Ventilator Type	Num	D _{n,e} dB to BS EN 20140-10:1992								D _{nw}	C	Ctr
Ventilation Hit and miss trickle (4000mm ²) e.g. Tilon Trimvent XS13	2	30	35	35	36	34	29	33	63%	32	0	-1
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		26.4	11	10	13	16	21	23	14	64%		
Total SPL inside room		28.4	15	17	22	19	21	23	14			

Element contribution to total internal noise level





Architectural & Environmental Acousticians Noise & Vibration Engineers

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