



Architectural & Environmental Consultants

Noise | Vibration | Air Quality

Noise Assessment

St Ann's Hospital, Haringey – Phase 1B & 2

Noise Assessment

Project: ST ANN'S HOSPITAL, HARINGEY – PHASE 1B & 2

Report reference: N15302-CAS-ZZ-ZZ-RP-V-81001

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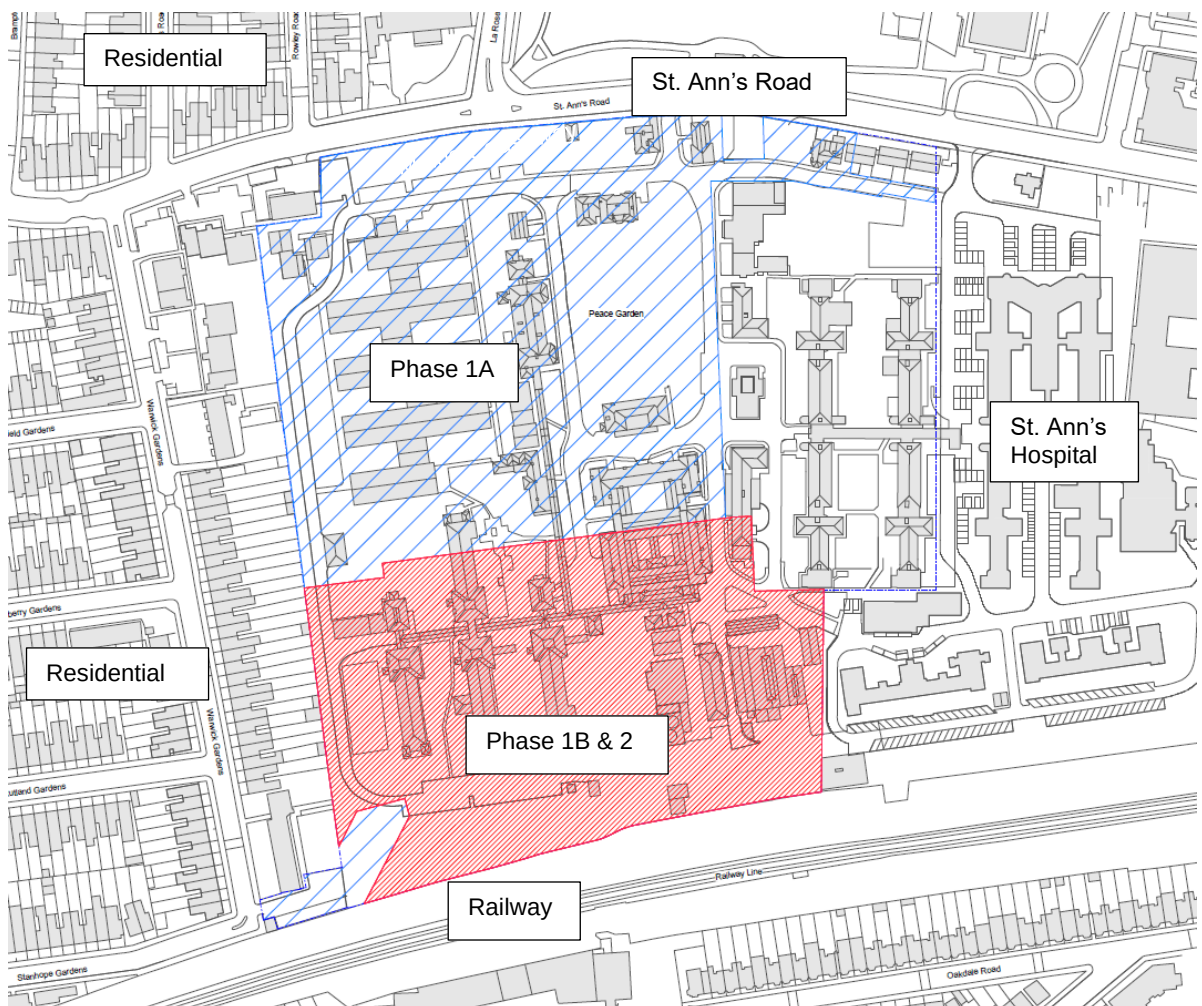
1. EXECUTIVE SUMMARY

- 1.1 Cass Allen has been instructed by Peabody Trust, Catalyst by Design and Hill Residential Limited to carry out a noise assessment to accompany the Reserved Matters Application for the development known as St Ann's Hospital, Haringey – Phase 1B & 2, which was granted outline planning consent (reference no. HGY/2022/1833).
- 1.2 The assessment was carried out in accordance with relevant local and national planning guidance and is a submission requirement as part of the hybrid application decision notice within Annex 1.
- 1.3 A noise survey was carried out at the site from 23 to 28 September 2021. This data informed the noise chapter of the EIA which was submitted and accepted as part of the initial hybrid planning application. Noise levels at the site are dictated by traffic on St. Ann's Road and a railway to the south.
- 1.4 A 3D noise model of the development was developed based on the results of the site noise survey. The noise model was used to calculate the spread of noise levels across the site and at the location of the proposed facades of the development.
- 1.5 Based on the results of the 3D noise model, a preliminary glazing acoustic performance specification has been developed to comply with the internal noise level criteria in ProPG.
- 1.6 The results of the 3D modelling indicate that noise levels in the gardens of the proposed development layout will be compliant with ProPG/BS8233 guidance.
- 1.7 It is expected that the non-residential uses will not generate significant noise levels. If a noisier use is proposed (e.g. a café playing louder music), noise break out can be controlled subject to the adoption of appropriate noise mitigation measures during the fitout and the use of the non-residential units. This can be ensured via a clause in the future tenant's lease agreement or, if deemed necessary, a planning condition.
- 1.8 In summary of the above, it is our view that there is no noise-related reason why permission for the Reserved Matters Application should not be granted.
- 1.9 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 currently contains disused buildings associated with St Ann's Hospital. Phase 1A of the wider development and St. Ann's Road are to the north. A railway line is to the south. To the east are NHS buildings associated with St. Ann's Hospital. To the west is a predominantly residential area.
- 2.2 The site location is shown in Figure 1 below. The extent of the Phase 1B & 2 Reserved Matters Application (RMA) assessed in this report is indicated in red. Phase 1A (which has full planning consent) of the wider development is indicated in blue.

Figure 1 Site Location and Surrounding Area



- 2.3 The proposal is to develop Phase 1B and 2 for residential use and a flexible range of non-residential uses within Use Class E, F1/F2. A current drawing of the proposed development layout is shown in Appendix 1.

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). Relevant sections in this case are highlighted below:

174. 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.

185. 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.

Local Policy

- 3.2 Haringey Council's *Development Management DPD* (July 2017) provides outline guidance on the assessment of noise affecting new development in the borough. *Policy DM23: Environmental Protection* states the following:

“D. The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution. Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.

E. A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise.”

- 3.3 To address the requirements of the national and local policies, noise affecting the habitable areas of the proposed development have been assessed.

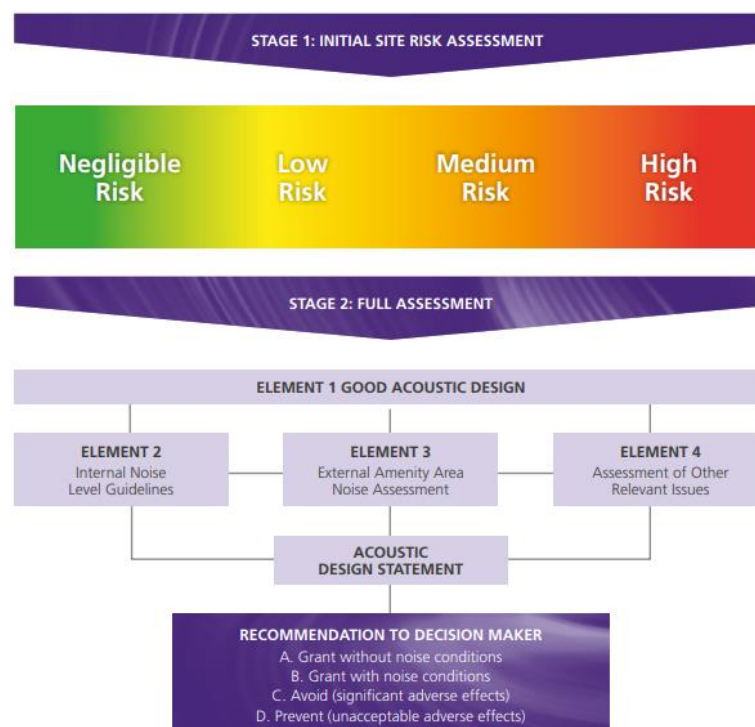
4. NOISE AFFECTING THE DEVELOPMENT

4.1 Specific guidance on the assessment of noise affecting new residential developments 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 considered to be current 'best practice' and has, therefore, 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 2 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 relates primarily 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, therefore, requires separate consideration. This is discussed further below in relation to noise from the proposed non-residential uses under Use Class E and F1/F2.

Stage 1 – Noise survey and initial assessment

- 4.4 A noise survey was carried out at the site from 23 to 28 September 2021 to investigate the existing noise environment. This data informed the noise chapter of the EIA which was submitted and accepted as part of the initial hybrid planning application. We are not aware of any significant changes to the noise environment at the site since the survey was carried out. It is our view that the existing data remains valid and therefore has been used to inform this noise assessment. The full methodology and results of the noise survey are provided in Appendix 2.
- 4.5 Average (LAeq) and maximum (LAFmax) noise levels across the site were dictated by St Ann's Road and the railway to the south of the site.
- 4.6 Background noise levels (LA90) across the site were dictated by distant traffic on surrounding roads.
- 4.7 A 3D computer noise model was developed using CadnaA v2023 environmental noise modelling software to calculate the spread of noise levels that will exist across the development. CadnaA incorporates the calculation methodology from the Department of Transport Welsh Office - *Calculation of Road Traffic Noise* (CRTN) for the assessment of road traffic noise propagation, and ISO 9613 for other sources. The model was calibrated to the results of the site noise measurements.
- 4.8 The methodology and results of the noise modelling are provided in Appendix 3. It can be seen from the modelling results that noise levels will be highest on facades of the development at the south facing the railway, as follows:
- Average noise levels during the daytime - 53 dB LAeq,0700-2300hrs;
 - Average noise levels during the night-time - 51 dB LAeq,2300-0700hrs;
 - Typical maximum noise levels during the night-time - 70 dB LMax.
- 4.9 The predicted noise levels above 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 and therefore, ProPG requires that a more detailed 'Stage 2' assessment is carried out.

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

4.11 It is our view that the site demonstrates good acoustic design for the following reasons:

- Noise levels across the site are generally very low.
- The layout includes a buffer area to the south, which reduces the maximum railway noise levels on the nearest noise-sensitive facades.
- The layout incorporates shared amenity areas that benefit from additional screening provided by the associated buildings.

Stage 2 – Element 2 - Internal noise levels

4.12 The ProPG design criteria for internal noise levels in acoustically sensitive areas of new developments have been adopted and are summarised in Table 1 below.

Table 1 ProPG Internal Noise Criteria

Location	07:00 to 23:00	23:00 to 07:00
Living room	35 dB LAeq,16hour	-
Dining room/area	40 dB LAeq,16hour	-
Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour 45 dB LAmax

4.13 Background ventilation for habitable areas of the development will be provided by mechanical ventilation with heat recovery (MVHR) systems with no direct penetrations in the facade for ventilations to habitable rooms.

4.14 Full construction details for the development have not been finalised. It has therefore been assumed that the external walls of the development 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.

- 4.15 Calculations were carried out using facade modelling software in accordance with the methodology given in BS8233:2014 'Guidance on sound insulation and noise reduction for buildings' (BS8233) to calculate the sound insulation performance required of the glazing to achieve the proposed internal noise criteria in the habitable rooms of the development. The calculations included a 3 dBA design margin.
- 4.16 The calculations were carried out based on dimensions read from the project drawings.
- 4.17 The results of the calculations are shown in Appendix 4 and are summarised in Table 2 below.

Table 2 Preliminary Acoustic Requirements for Habitable Rooms

Reference (refer to Appendix 4)	Glazing Performance Requirements (inc. Frames)	
	Bedrooms	Living Rooms and Dining Rooms
FC01	30 dB Rw+Ctr	27 dB Rw+Ctr
FC02	27 dB Rw+Ctr	27 dB Rw+Ctr
Note	The requirements given are preliminary and should be confirmed at the detailed design stage when full design details are available.	

- 4.18 Based on the results of the calculations summarised in Table 2, a preliminary specification has been developed showing the sound insulation performance requirements for all facades of Phase 1B & 2. The preliminary facade acoustic specification is provided in Appendix 5.
- 4.19 In summary of the above, internal noise levels compliant with ProPG criteria can be achieved via the selection of glazing to comply with the preliminary specification provided in Appendix 5.
- 4.20 The above ProPG assessment for planning purposes is based on internal noise levels with windows closed (assumed to be "normal" circumstances). However, it is anticipated that residents will open their windows at times for thermal comfort (e.g. to prevent overheating in warmer months). Noise levels in the rooms will increase under these circumstances.
- 4.21 The development will be subject to Part O of the Building Regulations (Approved Document O), which came into effect on 15 June 2022. Section 3.2 of Approved Document O (ADO) states:

"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).

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

a. 40dB LAeq,T, averaged over 8 hours (between 11pm and 7am).

b. 55dB LAFmax, more than 10 times a night (between 11pm and 7am)."

- 4.22 The results of the noise survey indicate that areas of the development may exceed the noise limits provided in ADO when the windows are opened. The overheating assessment is, therefore, not likely to be able to rely solely on open windows for some facades. The Dynamic Overheating Report (December 2023) produced to support this Reserved Matters Application identifies the areas that require mechanical cooling through MVHR which will be finalised at detailed design stage.

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

- 4.23 ProPG reflects and extends the advice contained in BS8233, stating 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 an upper guideline value.
- 4.24 The results of the 3D modelling indicate that noise levels in the gardens and on balconies will be compliant with the ProPG/BS8233 guidance.
- 4.25 The current design of the development is therefore considered to be acceptable in relation to noise levels in external amenity areas without any specific acoustic mitigation.

Stage 2 – Element 4 – Other relevant issues

- 4.26 The development is in a 'Low' risk noise area. Where noise-sensitive areas of the development are exposed to higher noise levels (night-time maximum levels from the railway), it has been shown that properties can be acoustically upgraded to achieve acceptable noise levels in habitable areas, in line with Policy DM23 of Haringey Council's *Development Management DPD*.
- 4.27 There is a proposed non-residential area on the ground floor of Block G, which will fall under Use Class E or F1/F2. These uses are less noise-sensitive than residential uses and therefore can be acoustically upgraded as per the strategy for habitable areas to achieve internal noise levels compliant with BS8233.
- 4.28 It is expected that the non-residential uses will not generate significant noise levels, as is typical of commercial uses within primarily residential buildings (i.e. a small shop or office). However, if a noisier use is proposed (e.g. a café playing louder music), noise break out can be controlled to protect the amenity of nearby residents using the following mitigation measures, where necessary:
- Upgrading the separating walls and floors between commercial and residential units during fitout,
 - Imposing noise limits on commercial tenants and preventing noisy commercial uses from occupying the units,
 - Imposing operational restrictions on commercial units, e.g. noise limits, limiting operating hours and delivery timings.
- 4.29 This can be ensured via a clause in the future tenant's lease agreement or, if deemed necessary, a planning condition.

Recommendation to decision maker

- 4.30 It is our view that there is no noise-related reason why permission for the Reserved Matters Application should not be granted.

5. CONCLUSIONS

- 5.1 Cass Allen was instructed by Peabody Trust, Catalyst by Design and Hill Residential Limited to carry out a noise assessment to accompany the Reserved Matters Application for the development known as St Ann's Hospital, Haringey – Phase 1B & 2, which was granted outline planning consent.
- 5.2 A noise survey was carried out at the site from 23 to 28 September 2021. This data informed the noise chapter of the EIA which was submitted and accepted as part of the initial hybrid planning application. Noise levels at the site are dictated by traffic on St. Ann's Road and a railway to the south.
- 5.3 A 3D noise model of the development was developed based on the results of the site noise survey. The noise model was used to calculate the spread of noise levels at all facades of the development.
- 5.4 Based on the results of the 3D noise model, a preliminary glazing acoustic performance specification was developed to comply with the internal noise level criteria in ProPG.
- 5.5 The results of the 3D modelling indicate that noise levels in the gardens will be compliant with ProPG/BS8233 guidance.
- 5.6 It is expected that the non-residential uses will not generate significant noise levels. If a noisier use is proposed (e.g. a café playing louder music), noise break out can be controlled subject to the adoption of appropriate noise mitigation measures during the fitout and the use of the non-residential units. This can be ensured via a clause in the future tenant's lease agreement or, if deemed necessary, a planning condition.
- 5.7 In summary of the above it is our view that there is no noise-related reason why permission for the Reserved Matters Application should not be granted.

Appendix 1 Development Layout

1st Floor Site Plan



Appendix 2 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 St Ann's Road and noise from train passes on the adjacent railway.

Activity due to a film set on site contaminated unattended noise levels. Any periods of unattended monitoring that may have been adversely affected by activities on the film set have been excluded from the data analysis.

Survey Period:

23/09/2021 to 28/09/2021

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:

Type	Manufacturer	Model	Serial Number
Sound level meter ¹	NTi Audio	XL2	A2A-17487-E0
Calibrator	NTi Audio	600 000 388	15011
Sound level meter ¹ (noise logger)	Rion	NL-32	01182950
Sound level meter ¹ (noise logger)	Rion	NL-32	01213688
Calibrator	Rion	NC-74	34551703
Sound level meter ¹	Rion	NL-52	00965090

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.

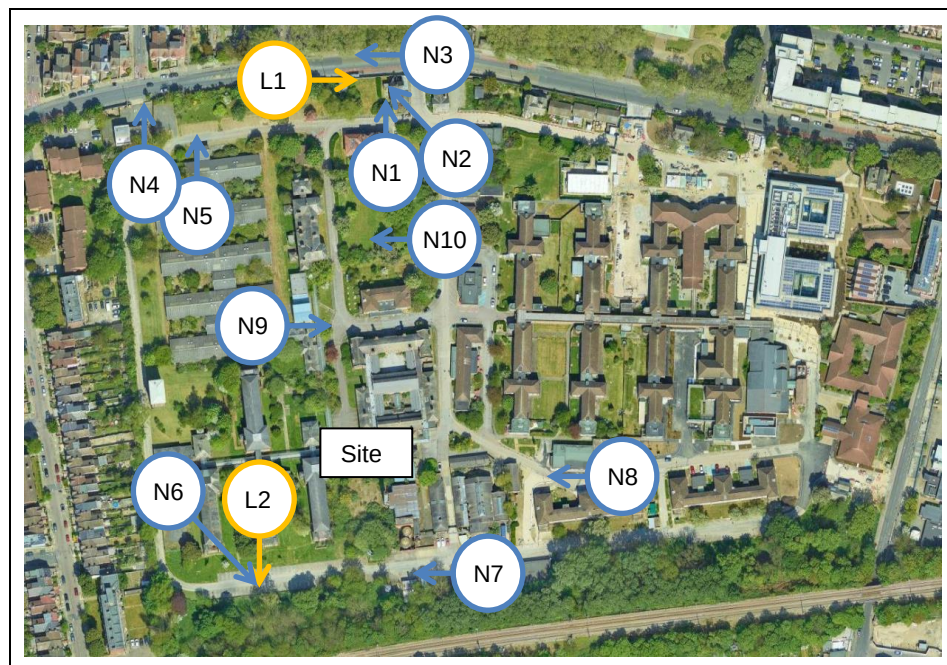
Weather Conditions:

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.

**Measurement
Positions:**

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. 1m from façade.
N2	Attended noise monitoring position. 1.5m above ground. 1m from façade.
N3	Attended noise monitoring position. 1.5m above ground. Free-field. 1m from edge of carriageway on St Ann's Road.
N4	Attended noise monitoring position. 1.5m above ground. Free-field. 3m from edge of carriageway on St Ann's Road.
N5	Attended noise monitoring position. 1.5m above ground. Free-field. 25m from St Ann's Road.
N6	Attended noise monitoring position. 1.5m above ground. Free-field. 45m with direct line of sight to rail. Same location as L2.
N7	Attended noise monitoring position. 1.5m above ground. Free-field. 5m from plant next to rail.
N8	Attended noise monitoring position. 1.5m above ground. Free-field.
N9	Attended noise monitoring position. 1.5m above ground. Free-field.
N10	Attended noise monitoring position. 1.5m above ground. Free-field.
L1	Unattended noise logging position. 3m above ground level. Free-field. Direct line of sight to St Ann's Road.
L2	Unattended noise logging position. 3m above ground level. Free-field. 45m with direct line of sight to railway. Same location as N6.

Site Plan showing Measurement Positions:



Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmix, dB	LA90, dB	Observations
23/09/2021	N1	14:59	1min49s	57	61	55	1m in front of wall-mounted fan.
23/09/2021	N2	15:03	30s	56	58	56	1m in front of open window to IT network/server room.
23/09/2021	N3	15:12	5s	75	83	66	Motorcycle passing westbound.
23/09/2021		15:12	13s	70	76	63	Motorcycle passing westbound slowing.
23/09/2021		15:14	6s	70	73	67	Double decker bus passing westbound.
23/09/2021		15:15	7s	70	74	63	Single car pass.
23/09/2021		15:15	6s	62	66	56	Single car pass slowing.
23/09/2021		15:16	24s	67	71	64	Double decker bus idling then pulling away.
23/09/2021		15:17	22s	70	72	67	Louder double decker bus idling then pulling away.
23/09/2021	N4	15:20	5min	67	85	56	Road measurement in front of Tottenham Ambulance Service, simultaneous with L1. LAmix dictated by car horn. Children occasionally walked in front of microphone, talking loudly, due to primary school collection time.
23/09/2021		15:25	5min	67	81	58	Road measurement in front of Tottenham Ambulance Service, simultaneous with L1. The following levels (peak LAF) of busses passing were noted: 71 dB, 72 dB, 72 dB.
23/09/2021	N5	15:35	5min	51	69	44	Background measurement at north of site; 25m from St Ann's Road, with wall separating.
23/09/2021	N6	15:46	27s	59	60	58	Slow passenger train. LA90 dictated by temporary generator.
23/09/2021		15:50	17s	63	67	60	Slow passenger train (eastbound). Measurement contaminated by machinery servicing film set.
23/09/2021		16:02	14s	61	63	60	Slow passenger train (westbound). Measurement contaminated by machinery servicing film set.
23/09/2021		16:03	16s	63	66	61	Slow passenger train (eastbound). Measurement contaminated by machinery servicing film set.
28/09/2021		10:35	9s	61	65	52	Passenger train westbound.
28/09/2021		10:37	12s	67	69	62	Freight train eastbound, contaminated by car passes.
28/09/2021		10:45	11s	55	59	51	Passenger train westbound.
28/09/2021		10:48	8s	64	71	54	Passenger train eastbound, contaminated by car passes.
28/09/2021		10:49	7s	63	65	62	Freight train westbound.

Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmx, dB	LA90, dB	Observations
28/09/2021	N6	11:00	12s	54	58	49	Passenger train eastbound.
28/09/2021		11:06	6s	55	60	50	Passenger train westbound.
28/09/2021		11:15	6s	52	56	50	Passenger train westbound.
28/09/2021		11:20	29s	61	66	52	Freight train westbound simultaneously with passenger train eastbound.
28/09/2021		13:24	4min10s	60	69	44	Background (LA90) dictated by general road network noise. Measurement contaminated by film set deconstruction.
28/09/2021	N7	13:30	48s	56	64	54	Background (LA90) dictated by plant noise next to railway, measured from 5m away.
28/09/2021	N8	13:32	5min	50	67	43	Background levels near hospital. Noise included people talking, cars passing, some quiet hospital plant.
28/09/2021	N9	13:39	5min	44	55	41	Background levels further from hospital. Very quiet; LA90 dictated by noise from general road network to south.
28/09/2021	N10	13:45	5min	44	52	42	Background levels in garden area. LA90 dictated by traffic on St Ann's Road.

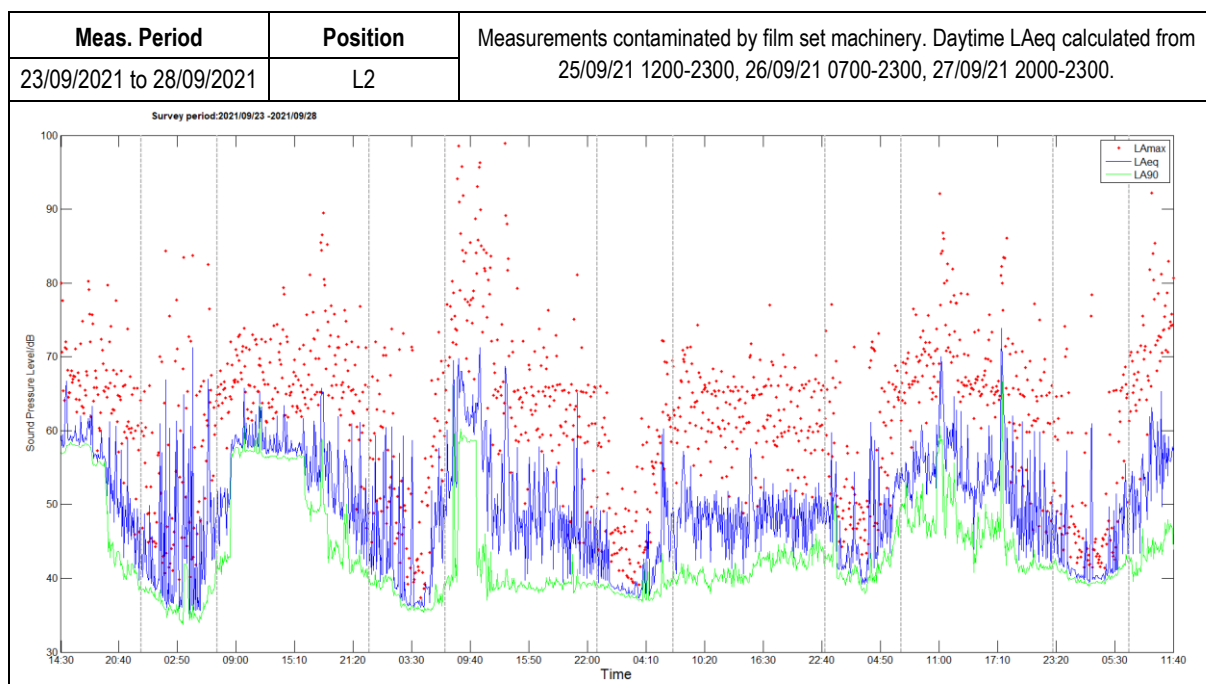
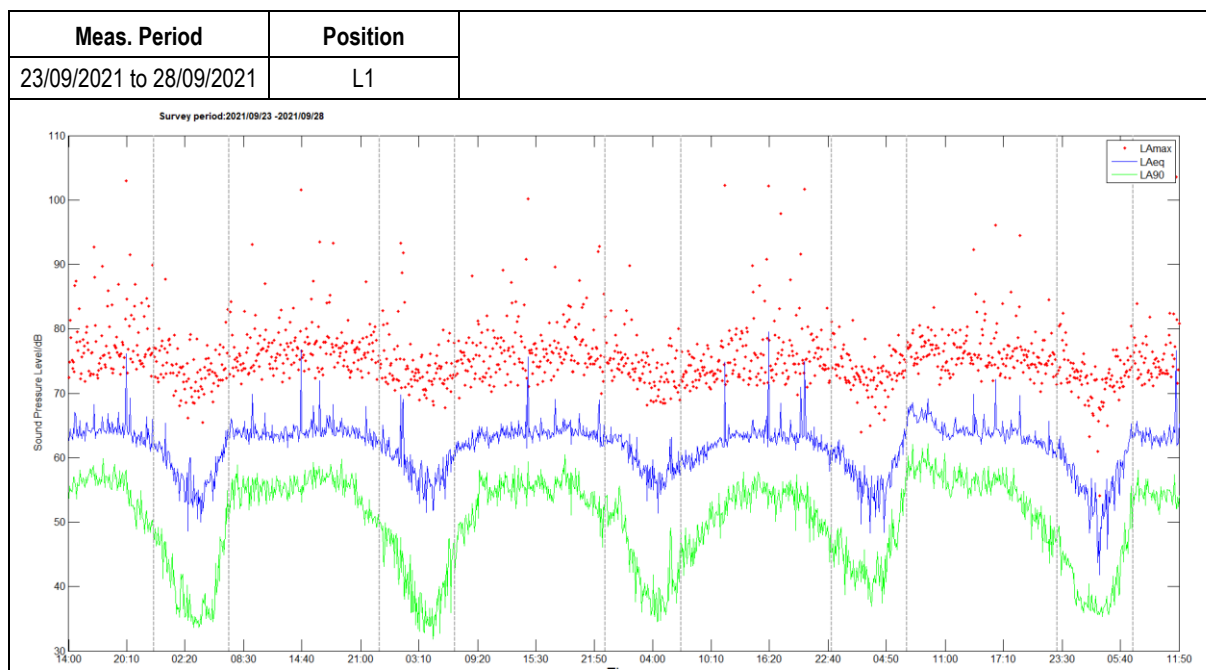
Unattended Noise Monitoring Results:

Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB ¹	LAeq,8hr, dB	LA90,5mins, dB ¹	LAmaz, dB ²
23/09/2021 to 28/09/2021	L1	65	45	59	34	78
23/09/2021 to 28/09/2021	L2	52	38	50	34	68

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 3 Modelling Results

Modelling Software:

CADNA/A Version 2023

Modelled Scenarios:

Average and maximum noise levels across the site.

Data inputs:

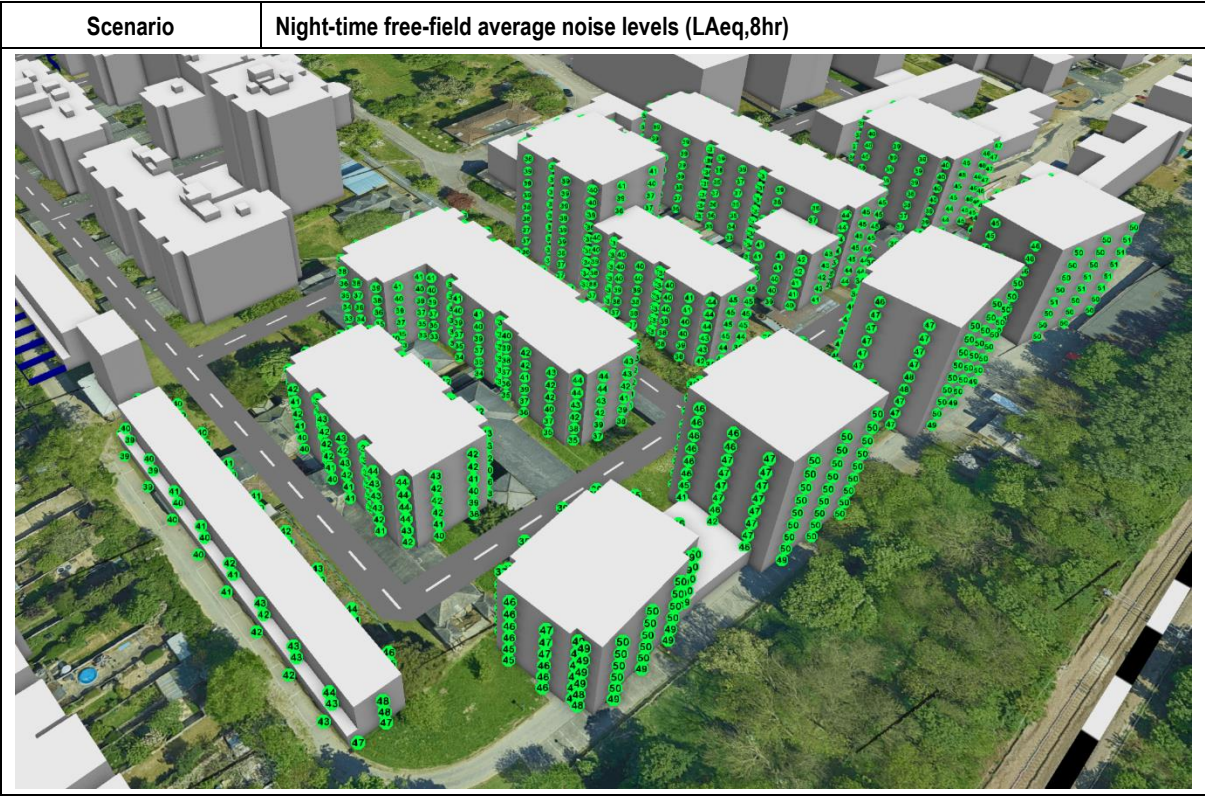
- Noise survey results
- Topographical data for the site
- Development layout

Calculation Algorithms Used:

- Calculation of Road Traffic Noise 1988 – Department of Transport
- ISO 9613-1:1993 Acoustics-Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere
- ISO 9613-2:1996 Acoustics-Attenuation of sound during propagation outdoors – Part 2: General method of calculation

Modelling Printout:





Appendix 4 Facade Acoustic Calculations

FACSIM V2.7.5 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

PROJECT: 21150 - St. Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)
ROOM: Bedroom
VARIANT: FC01 Nighttime Maximum 65-70 dB LAmax
NOTES:

Room Dimensions [m] W 3.9 X L 2.3 X H 2.6
Room Volume = 22.7 m3
Partition Area = 5.9 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)

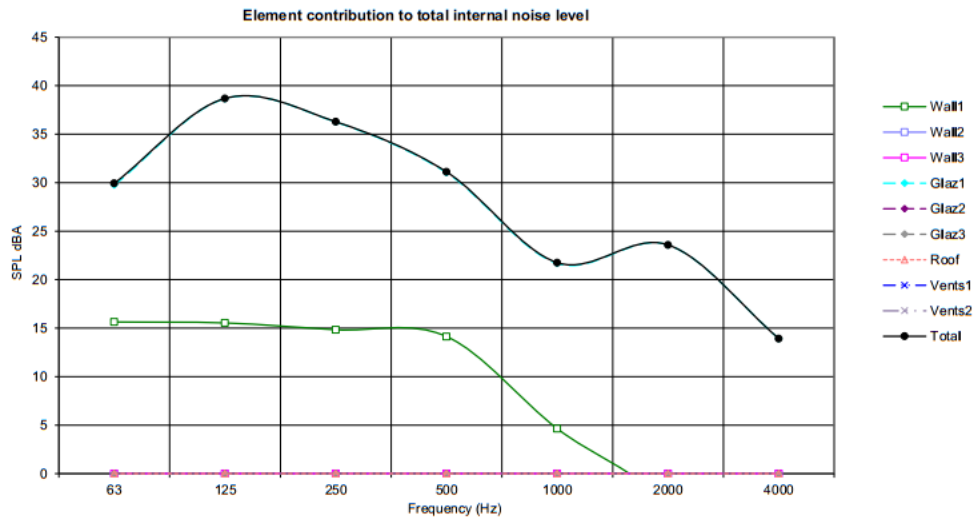
dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB	70.0	52.7	61.6	59.9	62.2	62.7	64.8
Road traffic spectrum (according to BS 8233:1999 section 6)	52.7	61.6	59.9	62.2	62.7	64.8	59.1

REVERBERATION TIME

DIRECT INPUT								No data
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 [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block ATTENUATION	2.9	36	45	44	47	57	67	77	1%	54	0	-4
Wall 2 WALLS ATTENUATION		0	0	0	0	0	0	0	0%			
Wall 3 WALLS ATTENUATION		0	0	0	0	0	0	0	0%			
Glazing 1 30 dB Rw + Ctr - Acoustically Upgraded Double Glazing ATTENUATION	3.0	22	22	23	30	40	40	44	99%	30 (Inc Ctr)	-	-
Glazing 2 GLAZING ATTENUATION		0	0	0	0	0	0	0	0%			
Glazing 3 GLAZING ATTENUATION		0	0	0	0	0	0	0	0%			
Roof ROOF / FLOOR ATTENUATION		0	0	0	0	0	0	0	0%			
Resultant composite Façade SRI		25	25	26	33	43	43	47				
Resultant SPL inside room excluding ventilators dB		41.6	30	39	36	31	22	24	14	100%		

Ventilator Type	Num	Dnw dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation VENTS ATTENUATION		0	0	0	0	0	0	0	0%			
Ventilation VENTS ATTENUATION		0	0	0	0	0	0	0	0%			
Resultant SPL inside room through ventilators dB		-99.0	-96	-96	-96	-96	-96	-96	-96	0%		
Total SPL inside room		41.6	30	39	36	31	22	24	14			



PROJECT: 21150 - St. Ann's Hospital, Harrogate - RMA 1 (Phase 1B & 2)

ROOM: Bedroom

VARIANT: FC02 Night-time Maximum 0-64 dB L_{Amax}

NOTES:

Room Dimensions (m) W 3.9 X L 2.3 X H 2.6

Room Volume = 22.7 m³

Partition Area = 5.9 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	64.0	46.7	55.6	53.9	56.2	56.7	58.8
Road traffic spectrum (according to BS 8233:1999 section 6)							
	46.7	55.6	53.9	56.2	56.7	58.8	53.1

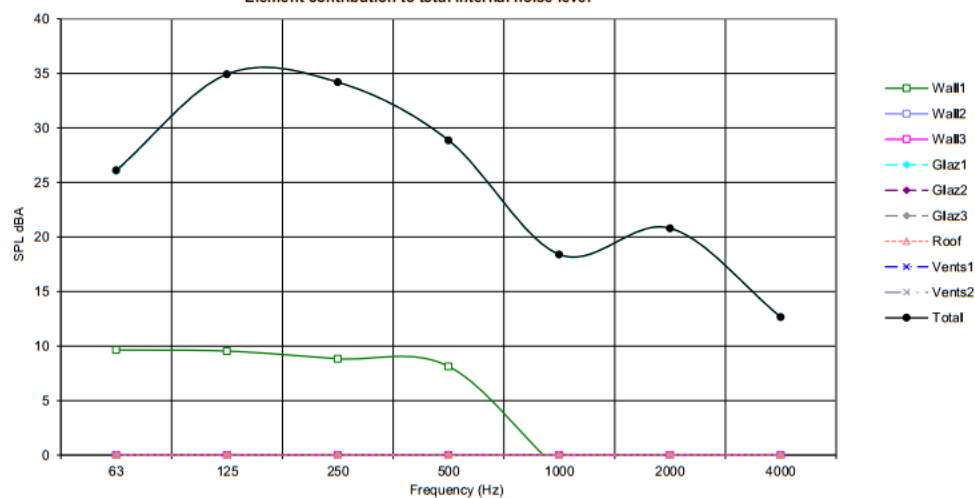
REVERBERATION TIME

DIRECT INPUT								No data
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								R _w	C	C _{tr}
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	2.9	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 27 dB R _w + C _{tr} - Standard Thermal Double Glazing	3.0	20	20	19	27	38	37	40	99%	27 (inc C _{tr})	-	-
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		23	23	22	29	40	40	43				
Resultant SPL inside room excluding ventilators dB		38.5	26	35	34	29	18	21	100%			

Ventilator Type	Num	D _{wa} dB to BS EN 20140-10:1992								D _{new}	C	C _{tr}
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		-99.0	-96	-96	-96	-96	-96	-96	0%			
Total SPL inside room		38.5	26	35	34	29	18	21				

Element contribution to total internal noise level



PROJECT: 21150 - St Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)

ROOM: Bedroom

VARIANT: FC01 Daytime Average (dB LAeq,16hr)

NOTES: FC01 is not specified to mitigate daytime average noise levels in bedrooms.

Room Dimensions [m] W 3.9 X L 2.3 X H 2.6

Room Volume = 22.7 m³

Partition Area = 5.9 m²

Ventilation ref area = 10.0 m²

Free Field SPL K = 3 dB

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

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB	53.0	35.7	44.6	42.9	45.2	45.7	47.8
Road traffic spectrum (according to BS 8233:1999 section 6)							

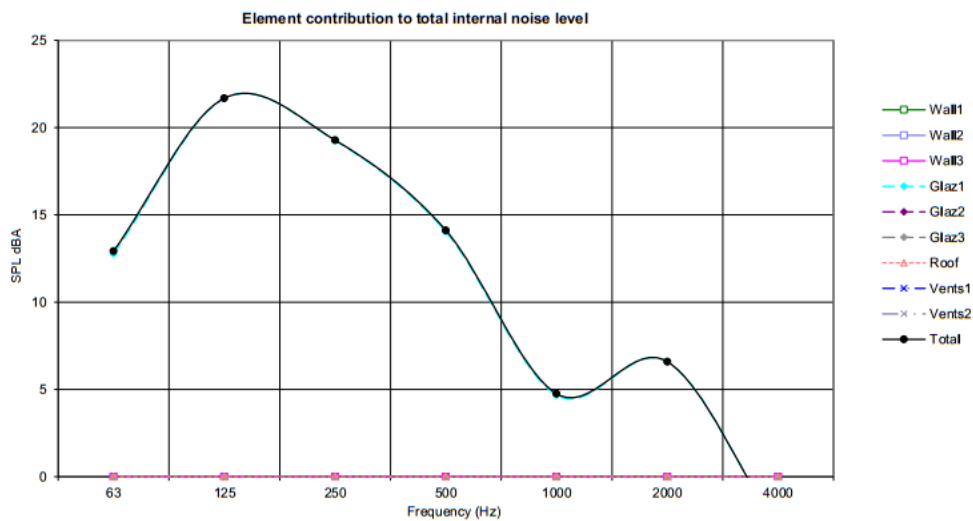
REVERBERATION TIME

DIRECT INPUT								No data
EQUAL RT for all bands								Default - RT set to 0.5s
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	

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	2.9	36	45	44	47	57	67	77	0%	54	0	-4
Wall 2	ATTENUATION												
	WALLS		0	0	0	0	0	0	0	0%			
Wall 3	ATTENUATION												
	WALLS		0	0	0	0	0	0	0	0%			
Glazing 1	ATTENUATION												
	30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	3.0	22	22	23	30	40	40	44	98%	30 (Inc Ctr)	-	-
Glazing 2	ATTENUATION												
	GLAZING		0	0	0	0	0	0	0	0%			
Glazing 3	ATTENUATION												
	GLAZING		0	0	0	0	0	0	0	0%			
Roof	ATTENUATION												
	ROOF / FLOOR		0	0	0	0	0	0	0	0%			
Resultant composite Façade SRI				25	25	26	33	43	43	47			
Resultant SPL inside room excluding ventilators dB			24.6	13	22	19	14	5	7	-3	100%		

Ventilator Type		Num	D _{ne} dB to BS EN 20140-10:1992									Dnew	C	Ctr
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Ventilation	VENTS		0	0	0	0	0	0	0	0%				
	ATTENUATION													
Resultant SPL inside room through ventilators dB			-99.0	-96	-96	-96	-96	-96	-96	-96	0%			

Total SPL inside room



PROJECT: 21150 - St. Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)
ROOM: Bedroom
VARIANT: FC02 Daytime Average 0-53 dB LAeq,16hr
NOTES:

Room Dimensions (m) W 3.9 X L 2.3 X H 2.6

Room Volume = 22.7 m³
Partition Area = 5.9 m²
Ventilation ref area = 10.0 m²
Free Field SPL K = 3 dB

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

EXTERNAL SPECTRUM (A weighted)

dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB	53.0	35.7	44.6	42.9	45.2	45.7	47.8
Road traffic spectrum (according to BS 8233:1999 section 6)	35.7	44.6	42.9	45.2	45.7	47.8	42.1

REVERBERATION TIME

DIRECT INPUT	No data
EQUAL RT for all bands	0.5 0.5 0.5 0.5 0.5 0.5 0.5

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	2.9	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 27 dB Rw + Ctr - Standard Thermal Double Glazing	3.0	20	20	19	27	38	37	40	99%	27 (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												

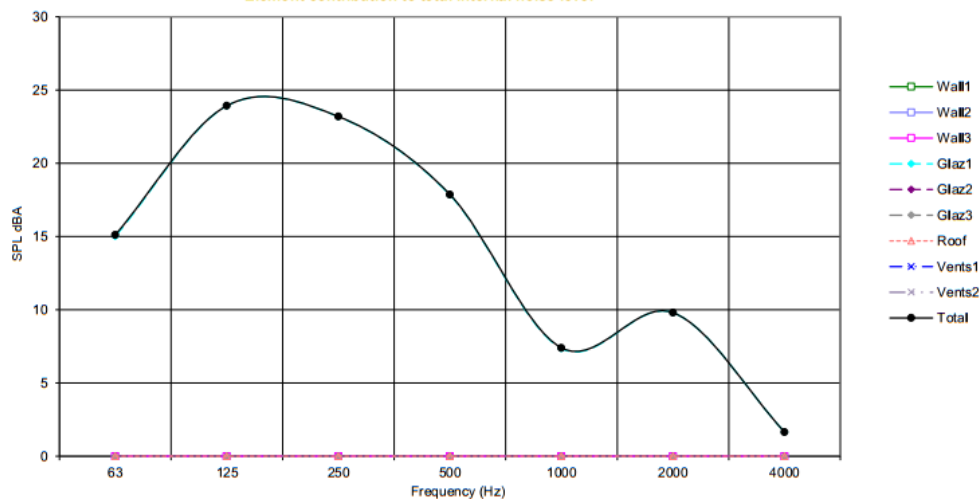
Resultant composite Façade SRI	23	23	22	29	40	40	43
Resultant SPL inside room excluding ventilators dB	27.5	15	24	23	18	7	10

Ventilator Type	Num	D _{ref} dB to BS EN 20140-10:1992								D _{new}	C	Ctr
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												

Resultant SPL inside room through ventilators dB	-99.0	-96	-96	-96	-96	-96	-96	-96	0%
--	-------	-----	-----	-----	-----	-----	-----	-----	----

Total SPL inside room	27.5	15	24	23	18	7	10	2
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Element contribution to total internal noise level



PROJECT: 21150 - St. Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)

ROOM: Bedroom

VARIANT: FC01 Night-time Average (dB LAeq,8hr)

NOTES: FC01 is not specified to mitigate daytime average noise levels in bedrooms.

Room Dimensions [m] W 3.9 X L 2.3 X H 2.6

Room Volume = 22.7 m³

Partition Area = 5.9 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)

Direct input - Free Field SPL (A weighted octave bands) dB

Road traffic spectrum (according to BS 8233:1999 section 6)

dBA	63	125	250	500	1000	2000	4000
51.0	33.7	42.6	40.9	43.2	43.7	45.8	40.1
	33.7	42.6	40.9	43.2	43.7	45.8	40.1

Direct input

REVERBERATION TIME

DIRECT INPUT

EQUAL RT for all bands

0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

No data

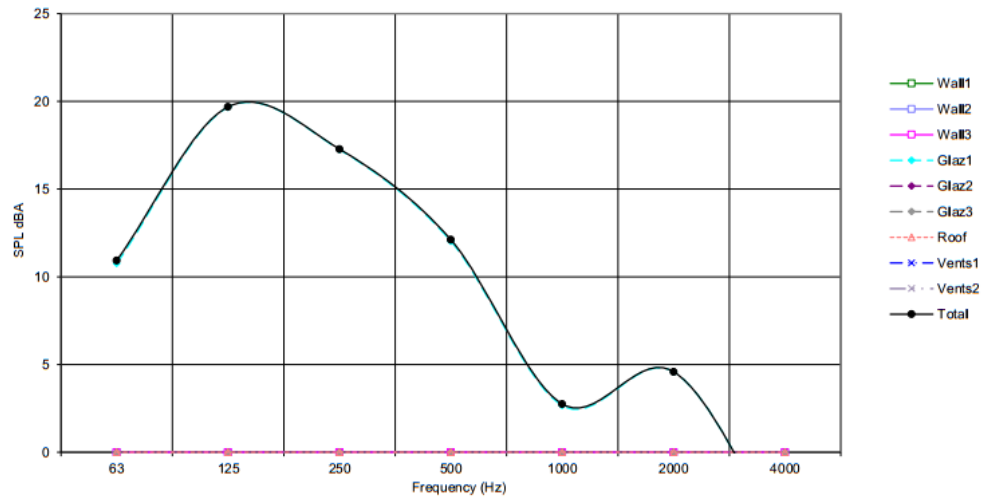
Default - RT set to 0.5s

NOTES:

Façade Element	Area (m ²)	SRI dB to BS EN ISO 140-3:1995								Rw	C	Cr
Wall 1 Typical - 102mm brick/50mm cavity/100mm block	2.9	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 30 dB Rw + Ctr - Acoustically Upgraded Double Glazing	3.0	22	22	23	30	40	40	44	96%	30 (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		25	25	26	33	43	43	47				
Resultant SPL inside room excluding ventilators dB		22.6	11	20	17	12	3	5	-5	100%		

Ventilator Type	Num	D _{ref} dB to BS EN 20140-10:1992								D _{new}	C	Cr
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Ventilation VENTS		0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		-99.0	-96	-96	-96	-96	-96	-96	-96	0%		
Total SPL inside room		22.6	11	20	17	12	3	5	-5			

Element contribution to total internal noise level



PROJECT: 21150 - St Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)

ROOM: Bedroom

VARIANT: FC02 Night-time Average 0-51 dB LAeq,8hr

NOTES:

Room Dimensions [m] **3.9** X **2.3** X **2.6**

Room Volume = **22.7** m³

Partition Area = **5.9** 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)

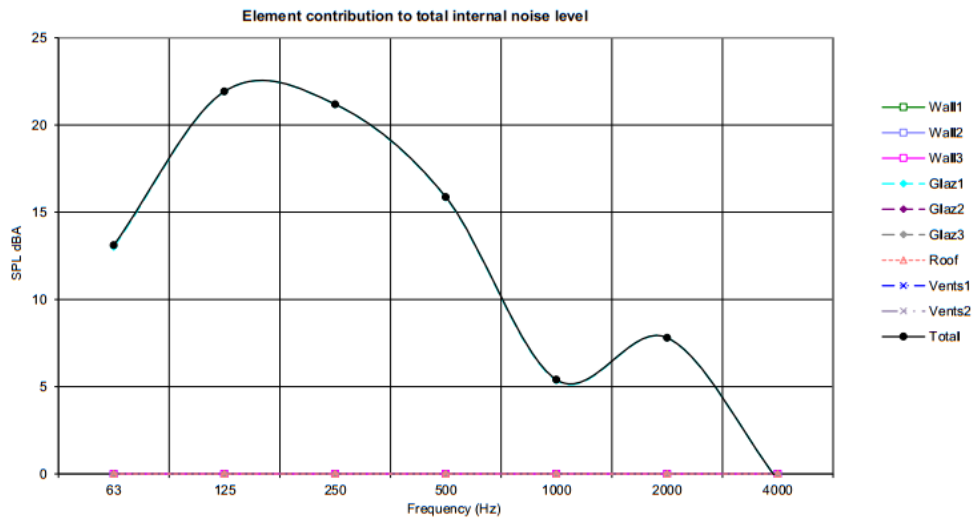
dBA	63	125	250	500	1000	2000	4000
Direct input - Free Field SPL (A weighted octave bands) dB	51.0	33.7	42.6	40.9	43.2	43.7	45.8
Road traffic spectrum (according to BS 8233:1999 section 6)							
	33.7	42.6	40.9	43.2	43.7	45.8	40.1

REVERBERATION TIME

DIRECT INPUT								No data
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 [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	2.9	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	27 dB Rw + Ctr - Standard Thermal Double Glazing	3.0	20	20	19	27	38	37	40	98%	27 (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			23	23	22	29	40	40	43				
Resultant SPL inside room excluding ventilators dB			25.5	13	22	21	16	5	8	0	100%		

Ventilator Type		Num	D _{ref} dB to BS EN 20140-10:1992								D _{new}	C	C _{tr}
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Resultant SPL inside room through ventilators dB			-99.0	-96	-96	-96	-96	-96	-96	-96	0%		
Total SPL inside room			25.5	13	22	21	16	5	8	0			



PROJECT: 21150 - St. Ann's Hospital, Haringey - RMA 1 (Phase 1B & 2)
 ROOM: Living Rooms and Dining Rooms
 VARIANT: FC01-02 Daytime Average 0-53 dB LAeq,16hr
 NOTES:

Room Dimensions (m) W X L X H
 5.2 X 3.5 X 2.6
 Room Volume = 47.4 m³
 Partition Area = 22.6 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)

Direct input - Free Field SPL (A weighted octave bands) dB →

dBA	63	125	250	500	1000	2000	4000
53.0	35.7	44.6	42.9	45.2	45.7	47.8	42.1

Road traffic spectrum (according to BS 8233:1999 section 6)

REVERBERATION TIME

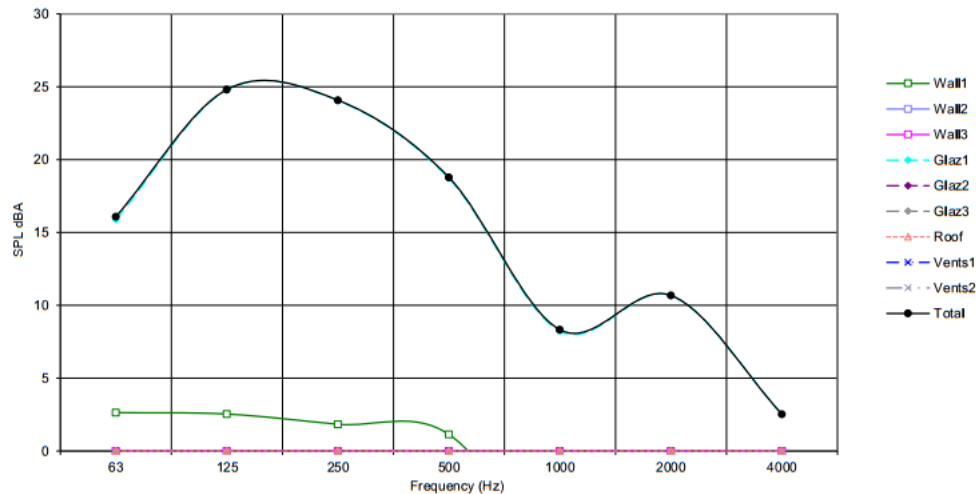
DIRECT INPUT → No data
 EQUAL RT for all bands → Default - RT set to 0.5s

RT (s)	63	125	250	500	1000	2000	4000
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

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	14.9	36	45	44	47	57	67	77	0%	54	0	-4
ATTENUATION												
Wall 2 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Wall 3 WALLS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 1 27 dB Rw + Ctr - Standard Thermal Double Glazing	7.7	20	20	19	27	38	37	40	99%	27 (Inc Ctr)	-	-
ATTENUATION												
Glazing 2 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Glazing 3 GLAZING	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Roof ROOF / FLOOR	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant composite Façade SRI		24	25	24	31	42	42	44				
Resultant SPL inside room excluding ventilators dB		28.4	16	25	24	19	8	11	3	100%		

Ventilator Type	Num	D _{wp} dB to BS EN 20140-10:1992								D _{new}	C	Ctr
Ventilation VENTS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Ventilation VENTS	0	0	0	0	0	0	0	0	0%			
ATTENUATION												
Resultant SPL inside room through ventilators dB		-99.0	-96	-96	-96	-96	-96	-96	0%			
Total SPL inside room		28.4	16	25	24	19	8	11	3			

Element contribution to total internal noise level



Appendix 5 Preliminary Facade Acoustic Specification

Reference	Colour	Glazing Performance Requirements (inc. Frames)	
		Bedrooms	Living & Dining Rooms
FC01		30 dB Rw+Ctr	27 dB Rw+Ctr
FC02	[No colour]	27 dB Rw+Ctr	27 dB Rw+Ctr

NOTES: Values must include the Ctr correction. Manufacturers or suppliers should provide laboratory test data demonstrating that the proposed systems are capable of achieving the values given. Windows should be tested as complete systems (rather than just the glazing in isolation).

All floors:





Architectural & Environmental Consultants

Noise | Vibration | Air Quality

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