

Abacus Belsize Primary School

Proof of Evidence (Noise)

19/0084 PoE/PINS Ref:APP/X5210/Y/20/3248003

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Proof of Evidence of Neil Jarman BSc (Hons) CEng MCIBSE MIOA

LPA Reference: 2019/2375/P

PINS Reference: APP/X5210/Y/20/32480038003

Revision	Description	Date	Prepared	Approved
0	First draft	27 th March 2020	Neil Jarman	Andy Emery
1	Second draft	29 th July 2020	Neil Jarman	Andy Emery
2	Third draft	17 th August 2020	Neil Jarman	Andy Emery
3	First Issue	18 th August 2020	Neil Jarman	Andy Emery

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 End of Section



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1 Qualifications and Experience

- 1.1 I am Neil Robert Jarman and I am a consultant at Cole Jarman, who are consultants in Acoustics.
- 1.2 I graduated from the University of Bath in 1982 with a BSc Honours Degree in Building Engineering with Environmental Engineering. I am a Chartered Engineer. I am a Member of the Chartered Institution of Building Services Engineers and also of the Institute of Acoustics.
- 1.3 I have worked in the field of acoustics for thirty-six years. From 1983 to 1994 I was employed by Hann Tucker Associates; in the last four years as an Associate Director. I joined Vernon Cole Associates in 1994 as a Partner. The practice is now called Cole Jarman and is part of the RSK Group of Companies. I was until recently a Director.
- 1.4 I have worked and continue to work on a wide range of development schemes. My experience and expertise relate to both building and environmental acoustics.
- 1.5 I have acted as an expert witness presenting evidence for planning inquiries, hearings and appeals by written representations for over 30 years. I am a listed expert witness with the UK Register of Expert Witnesses.
- 1.6 I confirm that the evidence which I have prepared and present for this appeal has been prepared in accordance with the guidance of my professional institutions and I confirm that the opinions expressed are my true and professional opinions.

2 Introduction and Scope of Evidence

- 2.1 In May 2019 a planning application was made for the change of use of the site from a police station (sui generis) to a one-form entry school (Use Class D1) for 210 pupils and business/enterprise space (Class B1) including alterations and extensions to the rear and associated works.
- 2.2 Cole Jarman had been instructed to undertake a noise assessment to accompany the planning application.
- 2.3 The noise assessment report (ref 19/0084/R1- Inquiry document CD01/29) included:
 - a) Results of a noise survey at the site
 - b) Results of a survey of playground use by the school at its existing temporary site at Camley Street
 - c) An assessment of noise break-in to the proposed school premises from road traffic noise



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d) An assessment of the impact of playground noise upon residences adjacent to the site.

2.4 The report proposed to mitigate playground noise to the nearest residences on the Downshire Hill side of the site by means of a 4m high acoustic barrier.

2.5 This proposal was discussed with residents and council planning officers at a meeting on site in July 2019. Residents of relevant properties raised concerns about the height and extent of the proposed acoustic barriers, and the effect they would have on visual amenity.

2.6 As a consequence, the barrier designs were amended taking into account those discussions and neighbour concerns, with the barrier reduced in height (3m) and extent.

2.7 A revised noise assessment report (ref 19/0084/R1-1) was submitted taking account of these changes (Inquiry Document CD01/30).

2.8 In subsequent discussions between the applicants and the Local Planning Authority planning officers it was agreed that that use of the playground by children would be limited to two hours a day term time only and on no more than four weekends a year.

2.9 The officer's report recommended that planning consent be granted. Environmental Health did not object to the application, proposing noise related planning conditions. However, the planning committee members refused consent for three reasons. Reason 2 was noise related:

The proposed development, by virtue of the proximity of its outdoor amenity space to neighbouring residential properties would result in an unacceptable increase in noise disturbance to the detriment of the amenity of neighbouring residents contrary to policy A1 (Managing the impact of development) of the Camden Local Plan 2017.

2.10 In this proof of evidence, I consider the impact of use of the playground upon residential amenity and why planning consent should not have been refused for this reason.

2.11 I also summarise other noise related matters, including how they are addressed in the scheme and by proposed planning conditions.

3 Planning Policy

National Planning Policy Framework and Noise Policy Statement for England

3.1 The National Planning Policy Framework (NPPF), published in March 2012 and updated in February 2019 and with a June 2019 correction, is currently a key document for defining the national policy toward noise and development (Inquiry document CD04/01).

3.2 Specifically, on the subject of noise, paragraph 180 of NPPF states:

"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



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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; ...”*
- 3.3 Paragraph 180 also references the Noise Policy Statement for England (Inquiry document CD09/01).
- 3.4 On the general issue of amenity, paragraph 127 states that planning policies and decisions should ensure that developments:
- “create places that [...] promote health and well-being, with a high standard of amenity for existing and future users...”*
- 3.5 Further to this, paragraph 170 states that 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 soil, air, water or noise pollution”*
- 3.6 Relevant sections of the NPPF and Noise Policy Statement for England (NPSE) are set out within Appendix A.

Planning Practice Guidance

- 3.7 Additional planning practice guidance (PPG) (Inquiry document CD04/02) has been issued by the Ministry of Housing, Communities and Local Government. Originally published in 2014 the noise section was most recently updated in July 2019. Relevant sections are also set out in Appendix A.
- 3.8 In summary, the guidance indicates the potential noise impact of a proposed development should be quantified to determine where it falls in relation to the Significant Observed Adverse Effect Level ¹ (SOAEL), the Lowest Observed Adverse Effect Level ² (LOAEL) and the No Observed Effect Level ³ (NOEL). The aims are to mitigate and reduce to a minimum adverse noise impacts, and to avoid significant adverse effects occurring.

¹ The level of noise exposure above which significant adverse effects on health and quality of life occur.

² The level of noise exposure above which adverse effects on health and quality of life can be detected.

³ The level of noise exposure below which no effect at all on health or quality of life can be detected.



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- 3.9 The July 2019 National Planning Practice Guidance on noise cautions against rigidly applying fixed noise standards. For Local Plans it advises:

“Plans may include specific standards to apply to various forms of proposed development and locations in their area. Care should be taken, however, to avoid these being applied as rigid thresholds, as specific circumstances may justify some variation being allowed.”

Camden Local Policy

- 3.10 The Camden Local Plan 2017 (Inquiry document CD05/03) set outs the current local planning guidance.

- 3.11 Policy A1 was given as the only policy reason for refusal of the consent of noise grounds.

Policy A1 Managing the impact of development

The council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity.

We will:

- a. *seek to ensure that the amenity of communities, occupiers and neighbours is protected.*
- b. *seek to ensure development contributes towards strong and successful communities by balancing the needs of development with the needs and characteristics of local areas and communities.*
- c. *resist development that fails to adequately assess and address transport impacts affecting communities, occupiers, neighbours and the existing transport network; and*
- d. *require mitigation measures where necessary.*

The factors we will consider include:

... j. noise and vibration levels

- 3.12 In outlining this policy paragraphs 6.19 and 6.20 reference the more detailed policy A4 and the supplementary planning document Camden Planning Guidance on Amenity (Inquiry document CD06/04).

- 3.13 Policy A4 relates to noise as quoted below:

Policy A4 Noise and vibration

The Council will seek to ensure that noise and vibration is controlled and managed.



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Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3). We will not grant planning permission for:

- a. development likely to generate unacceptable noise and vibration impacts; or*
- b. development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development."

3.14 Appendix 3 to the Camden Local Plan sets out thresholds for various types of noise assessment in terms of the various effect levels described in national planning guidance; NOEL, LOAEL, SOAEL.

3.15 Three design criteria are outlined are follows:

"The values will vary depending on the context, type of noise and sensitivity of the receptor:

- Green – where noise is considered to be at an acceptable level.*
- Amber – where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development.*
- Red – where noise is observed to have a significant adverse effect."*

3.16 There are no specific noise standards in the local plan that directly relate to playground noise.

3.17 For industrial and commercial noise sources criteria are set out relating to so called noise Rating Levels. However, these are not relevant to playground noise but typically plant and machinery.

3.18 For entertainment noise the following criteria are set out (see the attached glossary for explanation of noise units used):



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“Table D: Noise levels applicable to proposed entertainment premises (customer noise)

Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAL (Red)
Dwellings	Garden used for amenity (free field)	Day	The higher of 55dB $L_{Aeq,5min}$ or 10dB below existing $L_{Aeq,5min}$ without entertainment noise	56dB to 60dB $L_{Aeq,5min}$ or 9dB to 3dB below existing $L_{Aeq,5min}$ without entertainment noise	The higher of 61dB $L_{Aeq,5min}$ or 2dB below existing $L_{Aeq,5min}$ without entertainment noise
Dwellings	Garden used for amenity (free field)	Evening	The higher of 50dB $L_{Aeq,5min}$ or 10dB below existing $L_{Aeq,5min}$ without entertainment noise	51dB to 55dB $L_{Aeq,5min}$ or 9dB to 3dB below existing $L_{Aeq,5min}$ without entertainment noise	The higher of 56dB $L_{Aeq,5min}$ or 2dB below existing $L_{Aeq,5min}$ without entertainment noise
Dwellings	Garden used for amenity (free field)	Night	The higher of 45dB $L_{Aeq,5min}$ or 10dB below existing $L_{Aeq,5min}$ without entertainment noise	46dB to 50dB $L_{Aeq,5min}$ or 9dB to 3dB below existing $L_{Aeq,5min}$ without entertainment noise	The higher of 51dB $L_{Aeq,5min}$ or 2dB below existing $L_{Aeq,5min}$ without entertainment noise

For entertainment and plant noise rating curves should be measured as a 15 minute linear L_{eq} at the octave band centre frequencies.

Room	Noise rating curve	Design Period
Bedrooms	NR25	23:00-07:00hrs
All habitable rooms	NR35	07:00-23:00hrs

- 3.19 No thresholds are defined specifically covering noise from a school playground, but the criteria for noise from new entertainment sources including customer noise is considered to be similar in nature to that of a playground, although entertainment noise usually peaks in the more noise sensitive evening period and will extend over longer periods than will the playground noise. Therefore, considering school playground noise against these criteria represents a robust assessment, based on typical levels, particularly given the limited duration and time of activity.



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- 3.20 The time periods that apply to the values in Table D are not stated, however conventionally daytime would cover the period 0700-1900 hours, evening 1900-2300 hours and night-time 2300-0700 hours.
- 3.21 Whilst the L_{eq} noise levels quoted in Table D above are in terms of 5 minute L_{Aeq} levels, noise levels should be considered on the basis of typical L_{Aeq} levels, rather than maximum L_{Aeq} levels for example as it would clearly be unreasonable to base an assessment on a single 5 minute period in a complete 12 hour daytime period.
- 3.22 6.19 of the Camden Local Plan references World Health Organisation (WHO) guidance “*that excessive noise can seriously harm human health, disturb sleep and have cardiovascular and behavioural effects.*”
- 3.23 These comments are based on guidance in the 1999 WHO “Guidelines for Community Noise” (Inquiry Document CD09/03) - see Appendix A for more detail of this).
- 3.24 To prevent moderate annoyance in outdoor living areas, such as gardens and balconies of dwellings, the WHO guideline value is 50 dB $L_{\text{Aeq}, 16\text{h}}$. This represents the average noise level across the daytime and evening period (07:00h to 23:00h). The corresponding guideline value to prevent serious annoyance is stated as 55 dB $L_{\text{Aeq}, 16\text{h}}$.
- 3.25 It is important to note that the WHO Guidelines are aspirational, as illustrated by the National Noise Incidence Study (NNIS, 2000, Inquiry document CD09/04), which indicates that 55% of the population of England and Wales are exposed to external noise levels above 55 dB $L_{\text{Aeq}, \text{day}}$.
- 3.26 Section 6 of the Camden Planning Guidance document on Amenity relates to noise, setting out the following:
- “KEY MESSAGES:
- *The Council will assess the impact of noise and vibration through the consideration of acoustic reports submitted by applicants.*
 - *Noise mitigation (where appropriate) is expected to be incorporated into developments at the design stage.*
 - *The Council will secure mitigation measures through planning condition or legal agreement where necessary.*
 - *The Council will adopt the ‘agent of change’ principle.”*
- 3.27 The “agent of change” principle is discussed in paragraph 182 of the NPPF. It is however not directly relevant to this case as in terms of noise, this principle requires that those proposing a new noise sensitive development incorporate sufficient mitigation such that the operation of existing premises in the area is not unreasonably restricted in order to control noise impact upon the new development. In this case it is a new development potentially affecting existing residences that is the concern.



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3.28 The document also includes general guidance on acoustic assessments.

London Plan

3.29 The Intend to Publish London Plan (Dec 2019 Inquiry Doc CD05/02) includes noise policies. (D13 and D14) reproduced in Appendix A.

3.30 D13 concerns Agent of Change, but includes guidance for new noise generating development:

“C New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.”

3.31 Policy D14 concerns management of noise:

“In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

1) avoiding significant adverse noise impacts on health and quality of life

2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change

3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses

4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)

5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation

6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles”

7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.”

3.32 Supporting text states:

“The definition of Tranquil Areas, Quiet Areas and spaces of relative tranquillity are matters for London boroughs. These are likely to reflect the specific context of individual boroughs, such that Quiet Areas in central London boroughs may reasonably be expected not to be as quiet as



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Quiet Areas in more residential boroughs. Defra has identified parts of Metropolitan Open Land and local green spaces as potential Quiet Areas that boroughs may wish to designate”

- 3.33 The appeal site is neither Metropolitan Open Land nor been identified as local green space by Camden Council.
- 3.34 In paragraph 6.21 of the LB Camden Statement of Case reference is made to assessment of changes in the soundscape due to the introduction of noise from the playground. Whilst Camden included three standards relating to Soundscape in the draft list of inquiry documents, these are not on the final list and so are now no longer relied upon by the council in their evidence. This was not an issue considered by environmental health when the planning application was considered. Therefore, without knowing what the council’s case is in relation to this matter it is not possible for me to comment further at this stage. When I have reviewed their evidence, it may be that I will need to prepare rebuttal evidence.

4 Playground Noise Assessment

- 4.1 To inform the playground noise assessment Cole Jarman undertook two noise surveys, full details of which are in our amended report (Inquiry document CD01/30).
- 4.2 Noise measurements within the area where the playground would be formed typically were 47 dB L_{Aeq} . At the frontage on Rosslyn Hill they were higher typically 67 dB L_{Aeq} due to road traffic. The building screens the proposed playground area from the road traffic.
- 4.3 Guidance relating to external noise levels within school areas is provided within *Acoustics of Schools: a design guide*, which supports BB93 (Inquiry document CD09/05).
- 4.4 The document states that the 60 dB $L_{Aeq,30\text{ minutes}}$ should be taken as the aspirational design criterion for the boundary of external areas used for formal and informal outdoor teaching and recreation. The guidance then goes on to state that noise levels in unoccupied playgrounds, playing fields and other outdoor areas should not exceed 55dB $L_{Aeq,30\text{min}}$ and that there should be at least one area suitable for outdoor teaching activities where noise levels are below 50dB $L_{Aeq,30\text{min}}$ where possible.
- 4.5 The results of the site noise survey indicate that the aspirational targets of 55dB $L_{Aeq,30\text{min}}$ in the playground and 50dB $L_{Aeq,30\text{min}}$ in the outdoor teaching area will be achieved without additional mitigation.
- 4.6 Noise measurements were also made at the Abacus Belsize Primary School temporary site at 105 Camley Street near Camden Town.
- 4.7 During the survey there was approximately one hour of free play, during which the sports area was used for playing football constantly. There were approximately 25 children and one or two teachers within the sports area at any one time. In total there were estimated to be approximately 50 children within the entire playground at any one time.



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- 4.8 The children then returned inside the building, before a smaller number came outside for a P.E. lesson in the sports area, noise levels of which were measured for approximately 20 minutes. There were 18 children and one teacher within the sports area during this time. During the lesson there were periods of throwing and catching when many children spoke at once and periods in between where only one person spoke at once.
- 4.9 Measuring directly at the playground edge the overall noise levels were 79dB L_{Aeq} (1 hour) during play and 76 dB L_{Aeq} (20 min) during the PE lesson. During these periods there was some minor variation in L_{Aeq} (5 min) noise levels, L_{Aeq} (5 min) levels being +/- 3dB for the playground noise and +2/-5dB for PE.
- 4.10 Cole Jarman then applied this average playground data to a computer model taking account of the numbers of pupils expected to use the playground, the size of the playground and the relationship to the neighbouring residences.
- 4.11 The proposed playground is overlooked by existing houses and apartments up to five storeys high. There are existing brick walls along the site boundaries shared with residences, which extend between approximately 2 - 4m above the adjacent part of the application site.
- 4.12 Following the site discussion with local residents and Camden Planning Officers additional noise screening was agreed, that being a section of 3m fence on the Downshire Hill side and a 3.5m fence to the boundary of 26 Rosslyn Hill, a property expected to come into residential use.
- 4.13 In our report we assessed noise levels on the assumption that use of the playground for play and PE would total up to 5 hours per school day. As noted above it has subsequently been agreed that use of the playground will be limited to use by pupils 2 hours a day maximum. It is now expected that outdoor PE lessons would largely be held offsite and after school club activity within the building.
- 4.14 The expected playground utilisation is as outlined below. It is noted that this adds up to 1.75 hours only, in practice there would be some slight overrun as children arrive and depart the playground.



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Time	Lower Playground	Higher Playground	Reception Playground
08:00 – 08:30	0	0	0
08:30 – 09:00	80 play in total		
09:00 – 10:15	0	0	0
10:15 – 10:30	60 play in total		
10:30 – 10:45	0	0	0
10:45 – 11:00	120 play in total		
11:00 – 12:15	0	0	0
12:15 – 13:00	120 play in total		
13:00 – 13:15	0	0	0
13:15 – 15:00	0	0	0
15:00 – 16:30	0	0	0
16:30 – 17:30	0	0	0

T1 Playground occupation forecast

- 4.15 The rounded average results of the noise modelling in the various neighbouring garden areas are set out in table T2 below, the assessment positions shown in the attached figure 19/0071/F2. In T2 the L_{Aeq} values refer to the levels over the stated time periods, as average values in those periods the 5 minute L_{Aeq} levels will have the same values. For reference to the WHO guideline values 16 hour averages are shown. Also shown are averages over the extended school day in line with our original assessment:

Time	Calculated noise level from playground use in neighbouring garden areas, dB $L_{Aeq,T}$				
	AP1	AP2	AP3	AP4	AP5
08:00 – 08:30	-	-	-	-	-
08:30 – 09:00	63	56	56	54	57
09:00 – 10:15	-	-	-	-	-
10:15 – 10:30	61	55	55	53	56
10:30 – 10:45	-	-	-	-	-
10:45 – 11:00	64	58	58	56	59
11:00 – 12:15	-	-	-	-	-
12:15 – 13:00	64	58	58	56	59
$L_{Aeq,16\text{ hours}}$	54	48	47	45	48
$L_{Aeq,9.5\text{ hours}}$	56	50	49	48	50

T2 Playground Noise Modelling Results



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- 4.16 At the garden positions AP2, AP3, AP4 and AP5, the highest noise level when the playground is fully occupied would be 59dB $L_{Aeq,T}$ reducing to 50 dB L_{Aeq} or lower over the 9.5 hours the school is occupied and 48 dB L_{Aeq} over the full 16 hour day. Comparing these results in table T2 above with the Camden entertainment criteria set out in Table D beneath paragraph 3.18, it can be seen this equates to “Amber” at worst for some periods of the day and “Green” for the remainder. The Camden guidance states that “Amber” is “where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development” and “Green” is “where noise is considered to be at an acceptable level”.
- 4.17 As can be seen in table T2 at one location only (AP1) the highest noise level predicted from the playground (when fully occupied) in a garden area is higher at 64dB $L_{Aeq,T}$, reducing to 56 dB L_{Aeq} over the 9.5 hours the school is occupied and 54 dB L_{Aeq} over the full 16 hour day.
- 4.18 Comparing the results in table T2 above with the Camden entertainment criteria set out in Table D beneath paragraph 3.18, it can be seen this equates to “Red” for some periods of the day. The Camden guidance states that “Red” is “where noise is observed to have a significant adverse effect”. As noted before this is a robust assessment as the playground noise is of limited duration on limited number of days compared to entertainment noise and does not extend into the evening or at weekends as entertainment noise does typically. It should be noted the relevant residents have indicated they would prefer no new acoustic screening be erected to their relevant section of the site boundary, but that the existing brickwork wall be retained. It is also relevant to note the clarification added to the Planning Practice Guidance in July 2019 on noise standards contained within Local Plans:
- “Plans may include specific standards to apply to various forms of proposed development and locations in their area. Care should be taken, however, to avoid these being applied as rigid thresholds, as specific circumstances may justify some variation being allowed.”*
- 4.19 The Camden noise guideline used is primarily aimed at activity taking place at times when people are typically at home relaxing in the evening and at weekends. There will be no playground use in evenings and only for up to 4 weekends a year, daytime only. The Camden noise guidance also is aimed at activities that could be expected to occur over several hours, not just two hours per school day as here.
- 4.20 The assessed playground related noise levels reflect the limited time the activity takes place, with average levels typically 8-10 dB lower and those only occurring on days the school is in use. The average noise levels over school days at the five positions considered are assessed to be 45-54 dB $L_{Aeq(16\text{ hours})}$, thereby meeting the guideline value for gardens in the 1999 WHO guidelines. to prevent serious annoyance of 55 dB $L_{Aeq, 16h}$. These levels would only apply for around ½ the year, the remaining days the playground not being in use.
- 4.21 It is important to reiterate that the WHO Guidelines are aspirational, as illustrated by the National Noise Incidence Study (NNIS, 2000), which indicates that 55% of the population of England and Wales are exposed to external noise levels above 55 dB $L_{Aeq, day}$.



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- 4.22 It is an important part of the context that the duration of this noise exposure will be limited to no more than 2 hours on school days only, expected to be 183 days per year. The benefit of this is illustrated by the $L_{Aeq(9.5 \text{ hour})}$ average noise levels which are 4-5dB lower than assessed in our report, where PE lesson and after school usage were then included also.
- 4.23 The computer noise model was also used to calculate noise levels at the upper floors of existing residential façades so internal noise levels within existing residences could be considered in the context of local planning authority guidance.
- 4.24 The highest noise level calculated at a residential façade while the playground is fully occupied (i.e. 10:45 – 11:00 and 12:15 – 13:00 hours) was 76dB $L_{Aeq,T}$, reducing to 68dB over the 9.5 hours the school is occupied.
- 4.25 In our assessment we assumed that properties were single glazed with 4mm glass. Given the age of the properties this reasonable. If any properties do have thermal double glazing or secondary glazing the levels of sound insulation would be expected to be higher.
- 4.26 Our indicative noise intrusion calculations give highest results of $L_{eq(15 \text{ min})}$ NR41 and L_{eq} NR34 over the 9.5 hour school day internally with windows closed. These noise levels are applicable at first floor level on the rear façades of Downshire Hill residences adjacent to the sections of the playground where no new acoustic screen is proposed. It should be noted the relevant residents have indicated they would prefer no new acoustic screening be erected to their relevant section of the site boundary. At second floor level and above on these same façades, and at all other residential façades, our indicative calculations give results of $L_{eq(15 \text{ min})}$ NR40 highest and L_{eq} NR35 over the 9.5 hour school day internally with windows closed.
- 4.27 During the daytime, the Camden guidance for new entertainment sources including customer noise gives a single internal target of NR35 rather than Red, Amber and Green ranges as is provided for garden criteria. The NR35 target is therefore taken to be intended to equate to the threshold between Green and Amber (i.e. LOAEL). Applying a 5dB “Amber” range as for the gardens gives a second threshold of NR40, equating to the threshold between Amber and Red (i.e. SOAEL).
- 4.28 The conclusion on internal levels is therefore similar as for the assessed noise levels in gardens. By 1dB only a significant adverse noise impact is assessed where the relevant residents have indicated they would prefer no new acoustic screening be erected to the relevant section of the site boundary. This 1dB excess should be seen in the context that only a 3dB change in noise levels is considered perceptible. It of course only applies for a limited period of each school day.
- 4.29 The PPG section on noise provides descriptive text relating to Significant Observed Adverse Effect Level (SOAEL), the Lowest Observed Adverse Effect Level (LOAEL) and the No Observed Effect Level (NOEL). Between LOAEL and SOAEL there is an Observed Adverse Effect where:

“Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise.”



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Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life"

4.30 This descriptor fits with the conclusion of the noise assessment. In this situation the PPG proposes noise should be mitigated and reduced to a minimum, not that planning consent be refused. This mitigation is to be achieved by the provision of the acoustic barrier treatment and by the restrictions on use of the playground area.

4.31 Our noise assessment report was reviewed by environmental health officers. In paragraph 9.9 of the Report to planning Committee it is reported the environmental health officers had no objections subject to conditions.

4.32 In the report to Committee it was noted in paragraph 9.9:

"Officers recognise that the playground would generate significant noise levels, but given the limited times, this is not considered a significant issue. Noise averaged out over a day would not be an issue. Many people would be at work when the playground would be in use, and during the summer holidays and at weekends, when people are most likely to use their gardens, the playground would not be in use. Given the limited hours of use, the officers consider that there would not be a material amenity impact in terms of noise from the playground".

4.33 It is also relevant to note that it is common for residences to be found located close to school playground areas. Within LB Camden there are (excluding hospital schools) 41 state primary schools, all with playgrounds. On the basis of a desktop study 20 of those schools have residential windows within 5m plan distance of a school playground area, a total of 31 have residential windows within 10m of a playground area. (These are illustrated in the attached Appendix B.)

5 Planning Conditions

5.1 A number of noise related planning conditions are proposed:

6. The design of the development shall be of such a standard that it will protect residents in adjoining buildings from noise from the interior of the building, so that they are not exposed to noise levels indoors with windows open of more than 35dB $L_{Aeq1\text{ hr}}$ between 0700 and 2300 hrs, and $L_{Aeq, 15\text{ min}}$ 30dBA or L_{Amax} 45 dB between 2300 and 0700 hrs

5.2 This condition concerns protecting residents from noise generated within the buildings. Very high noise levels are unlikely to be generated within the school during the school day. Also, the complete building is to be mechanically ventilated, so there would not be noise breakout via open windows.

5.3 This condition could though protect residents from potential noise from community use of the building. There is another proposed condition (No 18) restricting community use to within the period 08:00-22:00. Therefore, as there would be no night-time activity the night-time limit is unnecessary and could be removed. Having the noise limit apply within the dwellings



Proof of Evidence (Noise)

with windows open also provides some uncertainty as the question arises as to how far open a window would be and where the noise level is then recorded in the dwelling. For a part open window a sound reduction of 15 dB is typical. Therefore, the same level of protection could be achieved by specifying an external limit of 50dB L_{Aeq} (1 hour), applicable at the residential site boundaries. This would also have the advantage that the operators could themselves monitor the noise levels if necessary without accessing the residences. With reference to our noise survey in the rear carpark, figure 19/0084/TH01 in report 19/0084/R1 shows that generally existing noise levels are below 50 dB L_{Aeq} , so setting a limit at this level would be enforceable.

7. The approved acoustic screen shall be erected, retained and maintained in its entirety, in accordance with the details submitted and approved with regards condition 3, prior to the first operation of the school

5.4 The condition ensures the installation and retention of the acoustic barriers.

8. The external noise level emitted from plant, machinery or equipment at the development hereby approved shall meet the green noise criteria set in the Camden Local Plan, Table C at the nearest and/or most affected noise sensitive premises, with all machinery operating together at maximum capacity.

5.5 The effect of this proposed planning condition is to limit noise levels from plant and machinery at neighbouring residential properties to a level 10dB below existing background noise levels. There would be some plant associated with the scheme providing ventilation, heating and cooling to the building. This plant would be designed to achieve the noise limits which would be derived from the results of our noise survey recorded in the noise assessment report.

9. Hours of use – school

The School shall not operate except between 08:00 and 18:00 Monday to Friday

10. Weekday use of playground

The playground shall not be used for more than 120 minutes per day during the week

11. Weekend use of the playground

The playground (not including the external area under the canopy as shown in approved drawing number P-1732-102 G) shall not be used for more than four weekend per year

5.6 These three conditions are accepted subject to minor rewording, including allowing weekday use of the external area under the canopy.

5.7 Our noise assessment report also considered the impact of external noise upon the building, proposing mitigation through the use of upgraded sound insulation and mechanical ventilation to rooms affected by road traffic noise from Rosslyn Hill. The impact of noise upon school buildings is covered by Part E to the Building Regulations. Regulation E4 requires:



Proof of Evidence (Noise)

“Each room or other space in a school building shall be designed and constructed in such a way that it has the acoustic conditions and the insulation against disturbance by noise appropriate to its intended use”

- 5.8 At the appropriate time a report would be submitted to Building Control providing details of the school designs to satisfy these requirements. Our assessment showed that this requirement can be satisfied.
- 5.9 Therefore, as these other controls are in place planning conditions to secure the internal noise environment within the school are unnecessary.

6 Conclusions

- 6.1 In May 2019 a planning application was made for the change of use of the site from a police station (sui generis) to a one-form entry school (Use Class D1) for 210 pupils and business/enterprise space (Class B1) including alterations and extensions to the rear and associated works.
- 6.2 Cole Jarman undertook a noise assessment that accompanied the application. This included;
- Results of a noise survey at the site
 - Results of a survey of playground use by the school at its existing temporary site at Camley Street
 - An assessment of noise break-in to the proposed school premises from road traffic noise)
 - An assessment of the impact of playground noise upon residences adjacent to the site.
- 6.3 Following discussions with residents and council planning officers the proposed acoustic barriers on the Downshire Hill side of the site were reduced in extent and in height to 3m.
- 6.4 It was also subsequently agreed that use of the playground by children would be limited to two hours a day term time only and on no more than four weekends a year.
- 6.5 Whilst the application was recommended for approval (with no objections from Environmental Health), members refused. Reason for refusal 2 concerned noise from the playground area impacting neighbouring residents.
- 6.6 There are no specific noise criteria adopted nationally or locally with respect to playground noise. Camden do however have guideline noise levels with respect to entertainment premises (customer noise) which is considered to be similar in nature to that of a playground, although entertainment noise usually peaks in the more noise sensitive evening period. Therefore, considering school playground noise against these criteria represents a robust assessment, based on average levels.



Proof of Evidence (Noise)

- 6.7 Noise levels arising from playground use have been assessed for five different garden receptor locations taking account of the barriers now proposed and the limited use of the playground during the school day.
- 6.8 At four of those locations the highest noise level when the playground is fully occupied would be 59dB $L_{Aeq,T}$ reducing to 50 dB L_{Aeq} or lower over the 9.5 hours the school is occupied and 48 dB L_{Aeq} over the full 16 hour day. Comparing these results with the Camden entertainment criteria this equates to “Amber” at worst for some periods of the day and “Green” for the remainder. The Camden guidance states that “Amber” is “where noise is observed to have an adverse effect level, but which may be considered acceptable when assessed in the context of other merits of the development” and “Green” is “where noise is considered to be at an acceptable level”.
- 6.9 At the one other location the highest noise level predicted from the playground (when fully occupied) in a garden area is higher at 64dB $L_{Aeq,T}$, reducing to 56 dB L_{Aeq} over the 9.5 hours the school is occupied and 54 dB L_{Aeq} over the full 16 hour day.
- 6.10 Comparing these results with the Camden entertainment criteria this equates to “Red” for some periods of the day. The Camden guidance states that “Red” is “where noise is observed to have a significant adverse effect”. This is however a robust assessment as the playground noise is of limited duration on limited number of days compared to entertainment noise and does not extend into the evening or at weekends as entertainment noise does typically. It should be noted the relevant residents have indicated they would prefer no new acoustic screening be erected to their relevant section of the site boundary, but that the existing brickwork wall be retained. It is also relevant to note the clarification added to the Planning Practice Guidance in July 2019 on noise standards contained within Local Plans:
- “Plans may include specific standards to apply to various forms of proposed development and locations in their area. Care should be taken, however, to avoid these being applied as rigid thresholds, as specific circumstances may justify some variation being allowed.”*
- 6.11 The Camden noise guideline used is primarily aimed at activity taking place at times when people are typically at home relaxing in the evening and at weekends. There will be no playground use in evenings and only for up to 4 weekends a year, daytime only. The Camden noise guidance also is aimed at activities that could be expected to occur over several hours, not just two hours per school day as here.
- 6.12 The average noise levels over school days at the five positions considered are assessed to be 45-54 dB L_{Aeq} (16 hours), thereby meeting the guideline value for gardens in the 1999 WHO guidelines. to prevent serious annoyance of 55 dB $L_{Aeq, 16h}$. These levels would only apply for around ½ the year, the remaining days the playground not being in use.
- 6.13 The duration of this noise exposure will be limited to no more than 2 hours on school days only, expected to be 183 days per year, an important part of the context.



Proof of Evidence (Noise)

- 6.14 Noise levels within dwellings have also been considered, assuming properties are single glazed only, a reasonable assumption for the properties ages. (Double glazing or secondary glazing sound insulation would be greater).
- 6.15 Our indicative noise intrusion calculations give highest results of $L_{eq(15\text{ min})}$ NR41 and L_{eq} NR34 over the 9.5 hour school day internally with windows closed. These noise levels are applicable at first floor level on the rear façades of Downshire Hill residences adjacent to the sections of the playground where no new acoustic screen is proposed, although offered. At second floor level and above on these same façades, and at all other residential façades, our indicative calculations give highest results of $L_{eq(15\text{ min})}$ NR40 and L_{eq} NR35 over the 9.5 hour school day internally with windows closed.
- 6.16 During the daytime, the Camden guidance for new entertainment sources including customer noise gives a single internal target of NR35 rather than Red, Amber and Green ranges as is provided for garden criteria. The NR35 target is therefore taken to be intended to equate to the threshold between Green and Amber (i.e. LOAEL). Applying a 5dB “Amber” range as for the gardens gives a second threshold of NR40, equating to the threshold between Amber and Red (i.e. SOAEL).
- 6.17 The conclusion on internal levels is therefore similar as for the assessed noise levels in gardens. By 1dB only a significant adverse noise impact is assessed where the relevant residents have indicated they would prefer no new acoustic screening be erected to the relevant section of the site boundary. This 1dB excess should be seen in the context that only a 3dB change in noise levels is considered perceptible. It of course only applies for a limited period of each school day.
- 6.18 The PPG section on noise provides descriptive text relating to Significant Observed Adverse Effect Level (SOAEL), the Lowest Observed Adverse Effect Level (LOAEL) and the No Observed Effect Level (NOEL). Between LOAEL and SOAEL there is an Observed Adverse Effect where:
- “Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life”*
- 6.19 This descriptor fits with the conclusion of the noise assessment. In this situation the PPG proposes noise should be mitigated and reduced to a minimum, not that planning consent be refused. This mitigation is to be achieved by the provision of the acoustic barrier treatment and by the restrictions on use of the playground area.



Proof of Evidence (Noise)

- 6.20 It is noted that it is common for residences to be found located close to school playground areas. Within LB Camden there are (excluding hospital schools) 41 state primary schools, all with playgrounds. 20 of those schools have residential windows within 5m plan distance of a school playground area, a total of 31 have residential windows within 10m of a playground area.

■ End of Section



Proof of Evidence (Noise)

Glossary of Acoustic Terms

L_{Aeq} :

The notional steady sound level (in dB) which over a stated period of time, would have the same A-weighted acoustic energy as the A-weighted fluctuating noise measurement over that period. Values are sometimes written using the alternative expression dB(A) L_{eq} .

L_{Amax} :

The maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise when occasional loud noises occur, which may have little effect on the L_{Aeq} noise level. Unless described otherwise, L_{Amax} is measured using the “fast” sound level meter response.

L_{A10} & L_{A90} :

If non-steady noise is to be described, it is necessary to know both its level and degree of fluctuation. The L_{An} indices are used for this purpose. The term refers to the A-weighted level (in dB) exceeded for n% of the time specified. L_{A10} is the level exceeded for 10% of the time and as such gives an indication of the upper limit of fluctuating noise. Similarly, L_{A90} gives an indication of the lower levels of fluctuating noise. It is often used to define the background noise.




L_{A10} is commonly used to describe traffic noise. Values of dB L_{An} are sometimes written using the alternative expression dB(A) L_n .


L_{AX} , L_{AE} or SEL

The single event noise exposure level which, when maintained for 1 second, contains the same quantity of sound energy as the actual time varying level of one noise event. L_{AX} values for contributing noise sources can be considered as individual building blocks in the construction of a calculated value of L_{Aeq} for the total noise. The L_{AX} term can sometimes be referred to as Exposure Level (L_{AE}) or Single Event Level (SEL).

■ End of Section

Key

-  AP1 Noise assessment position
-  New acoustic screen
-  Existing boundary wall




Title: Proposed site layout showing noise assessment positions

Figure 19/0071/F2

Project: Abacus Belsize Primary School, Hampstead

Date: 25 September 2019

Revision: 1

Scale: Not to scale

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Proof of Evidence (Noise)

Appendix A -Planning Guidance

This appendix sets out the various standards and national guidance upon which the advice has been based.

National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF), published in March 2012 and updated in June 2019, is currently the relevant document for defining the national policy toward noise sensitive development. It refers to the Noise Policy Statement for England (NPSE), which is discussed in the subsequent section.

The current policy on sustainable development influences the emphasis of any noise assessment. The development of a quiet, rural site is by most measures less sustainable than the development of a site located near existing infrastructure and facilities. The rating of development sites based on prevailing noise levels should reflect this.

Specifically, on the subject of noise, paragraph 180 of NPPF states:

“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;”

Paragraph 180 references the Noise Policy Statement for England and no other particular standards.

On the general issue of amenity, paragraph 127 states that planning policies and decisions should ensure that developments:

“create places that [...] promote health and well-being, with a high standard of amenity for existing and future users...”

Further to this, paragraph 170 states that planning policies and decisions should contribute to and enhance the natural and local environment by:



Proof of Evidence (Noise)

“preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution”

A notable inclusion in the July 2018 edition of NPPF is the ‘agent of change’ principle in paragraph 182. In terms of noise, this principle requires that those proposing a new noise sensitive development incorporate sufficient mitigation such that the operation of existing premises in the area is not unreasonably restricted in order to control noise impact upon the new development:

“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

Noise Policy Statement for England (NPSE)

This NPSE does not set quantitative guidelines for the suitability of noise sensitive development in an area depending on the prevailing levels of noise. Absent, therefore, is reference to specific noise thresholds which determine whether noise sensitive development is suitable and, if so, whether particular mitigation factors need to be considered.

Instead, the NPSE sets out three aims:

The first aim of the Noise Policy Statement for England

“Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

The second aim of the Noise Policy Statement for England

“Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

The third aim of the Noise Policy Statement for England

“Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”



Proof of Evidence (Noise)

Paragraph 2.24 states that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life. It also states that this does not mean that such adverse effects cannot occur.

In essence, therefore, each development site must be judged on its ability to deliver on each of the stated aims. Quantifying the prevailing noise levels is therefore an essential first step in assessing a given site.

The NPSE refers to SOAEL, the Significant Observed Adverse Effect Level. This is defined as the level above which significant adverse impacts on health and quality of life occur. Given the overall thrust of the NPSE, the SOAEL is therefore an important assessment standard although the document also comments that:

"It is not possible to have a single objective noise based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times."

Attention is drawn to the fact that the SOAEL is the level above which significant adverse effects can be observed. Importantly, it should be noted that the overall objective is to avoid or minimise significant adverse impacts; some degree of impact is acceptable and it is not necessary to seek to achieve no impact at all.

Planning Practice Guidance (PPG)

The Department for Communities and Local Government 'Planning Practice Guidance' (PPG) was published on 6 March 2014 and updated in July 2019.

The PPG on Noise expands upon the NPPF and NPSE and sets out more detailed guidance on noise assessment. Like the NPPF and NPSE, the guidance does not include any specific noise levels but sets out further principles that should underpin an assessment.

The PPG includes a section on noise, which states:

"Plan-making and decision making need to take account of the acoustic environment and in doing so consider:

whether or not a significant adverse effect is occurring or likely to occur;

whether or not an adverse effect is occurring or likely to occur; and

whether or not a good standard of amenity can be achieved."



Proof of Evidence (Noise)

It then refers to the NPSE and states that the aim is to identify where the overall effect of the noise exposure falls in relation to Significant Observed Adverse Effect Level ⁴ (SOAEL), the Lowest Observed Adverse Effect Level ⁵ (LOAEL) and the No Observed Effect Level ⁶ (NOEL).

The guidance then presents a table, which is reproduced as table 0 overleaf. The implication of the final line of the table is that only the 'noticeable and very disruptive' outcomes are unacceptable and should be prevented. All other outcomes (i.e. all other lines in the table) can be acceptable, depending upon the specific circumstances and factors such as the practicalities of mitigation.

⁴ The level of noise exposure above which significant adverse effects on health and quality of life occur.

⁵ The level of noise exposure above which adverse effects on health and quality of life can be detected.

⁶ The level of noise exposure below which no effect at all on health or quality of life can be detected.



Proof of Evidence (Noise)

Response	Examples of Outcomes	Increasing effect level	Action
NOEL (<i>No Observed Effect Level</i>)			
Not present	No Effect	No Observed Effect	No specific measures required
NOAEL (<i>No Observed Adverse Effect Level</i>)			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
LOAEL (<i>Lowest Observable Adverse Effect Level</i>)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
SOAEL (<i>Significant Observed Adverse Effect Level</i>)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

T3 Summary of Noise Exposure Hierarchy (from PPG)



Proof of Evidence (Noise)

The World Health Organisation (WHO) Guidelines 1999

The Guidelines for Community Noise (World Health Organisation, 1999) included values for community noise in specific environments.

It is important to note that the WHO Guidelines are aspirational, as illustrated by the National Noise Incidence Study (NNIS, 2000), which indicates that 55% of the population of England and Wales are exposed to external noise levels above 55 dB $L_{Aeq, day}$. A National Physical Laboratory (NPL) report (with reference CMAM 16, dated September 1998) reviewing the original 1980 WHO Guidelines and the 1995 draft version of the current Guidelines stated:

"Exceedances of the WHO guideline values do not necessarily imply significant noise impact and indeed, it may be that significant impacts do not occur until much higher degrees of noise exposure are reached."

"As such, it would be unwise to use the WHO guidelines as targets for any form of strategic assessment, since, given the prevalence of existing noise exposure at higher noise levels, there might be little opportunity for and little real need for any across the board major improvements. On the other hand, the most constructive use for the WHO guidelines will be to set thresholds above which greater attention should be paid to the various possibilities for noise control action when planning new developments. It is important to make clear at this point that exceedances do not necessarily imply an over-riding need for noise control, merely that the relative advantages and disadvantages of noise control action should be weighed in the balance."

To prevent moderate annoyance in outdoor living areas, such as gardens and balconies of dwellings, the WHO guideline value is 50 dB $L_{Aeq, 16h}$. This can be described as an upper limit for the average noise level across the daytime and evening period (07:00h to 23:00h). The corresponding guideline value to prevent serious annoyance is stated as 55 dB $L_{Aeq, 16h}$. However, it is again noted that these levels are aspirational in nature.

In terms of the internal noise environment, in order to achieve maximum speech intelligibility and to avoid moderate annoyance, the guideline value for noise levels within dwellings is stated as 35 dB $L_{Aeq, 16h}$ (covering the day and evening 07:00h to 23:00h). The corresponding value for the night period (23:00h to 07:00h) to avoid sleep disturbance is 30 dB $L_{Aeq, 8h}$.

The London Plan – Intend to Publish Version December 2019

Policy D13 Agent of Change

A The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance-generating uses in a sensitive manner when new development is proposed nearby.



Proof of Evidence (Noise)

B Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.

C New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.

D Development proposals should manage noise and other potential nuisances by:

1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area

2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations

3) separating new noise-sensitive development where possible from existing noise-generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.

E Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed.

3.13.1 For a long time, the responsibility for managing and mitigating the impact of noise and other nuisances on neighbouring residents and businesses has been placed on the business or activity making the noise or other nuisance, regardless of how long the business or activity has been operating in the area. In many cases, this has led to newly-arrived residents complaining about noise and other nuisances from existing businesses or activities, sometimes forcing the businesses or other activities to close.

3.12.2 The Agent of Change principle places the responsibility for mitigating the impact of noise and other nuisances firmly on the new development. This means that where new developments are proposed close to existing noise generating uses, for example, applicants will need to design them in a more sensitive way to protect the new occupiers, such as residents, businesses, schools and religious institutions, from noise and other impacts. This could include paying for soundproofing for an existing use, such as a music venue. The Agent of Change principle works both ways. For example, if a new noise-generating use is proposed close to existing noise-sensitive uses, such as residential development or businesses, the onus is on the new use to ensure its building or activity is designed to protect existing users or residents from noise impacts.

3.13.3 The Agent of Change principle is included in the National Planning Policy Framework, and Planning Practice Guidance provides further information on how to mitigate the adverse impacts of noise and other impacts such as air and light pollution.



Proof of Evidence (Noise)

3.13.4 *The Agent of Change principle predominantly concerns the impacts of noise-generating uses and activities but other nuisances should be considered under this policy. Other nuisances include dust, odour, light and vibrations (see Policy SI 1 Improving air quality and Policy T7 Freight and servicing). This is particularly important for development proposed for co-location with industrial uses and the intensification of industrial estates (see Part D4 of Policy E7 Industrial intensification, co-location and substitution). When considering co-location and intensification of industrial areas, boroughs should ensure that existing businesses and uses do not have unreasonable restrictions placed on them because of the new development.*

3.13.5 *Noise-generating cultural venues such as theatres, concert halls, pubs, night-clubs and other venues that host live or electronic music should be protected (see Policy HC5 Supporting London's culture and creative industries). This requires a sensitive approach to managing change in the surrounding area. Adjacent development and land uses should be brought forward and designed in ways which ensure established cultural venues remain viable and can continue in their present form without the prospect of licensing restrictions or the threat of closure due to noise complaints from neighbours.*

3.13.6 *As well as cultural venues, the Agent of Change principle should be applied to all noise-generating uses and activities including schools, places of worship, sporting venues, offices, shops, industrial sites, waste sites, safeguarded wharves, rail and other transport infrastructure.*

3.13.7 *Housing and other noise-sensitive development proposed near to an existing noise-generating use should include necessary acoustic design measures, for example, site layout, building orientation, uses and materials. This will ensure new development has effective measures in place to mitigate and minimise potential noise impacts or neighbour amenity issues. Mitigation measures should be explored at an early stage in the design process, with necessary and appropriate provisions secured through planning obligations.*

3.13.8 *Ongoing and longer-term management of mitigation measures should be considered, for example through a noise management plan. Policy T7 Deliveries, servicing and construction provides guidance on managing the impacts of freight, servicing and deliveries.*

3.13.9 *Some permitted development, including change of use from office to residential, requires noise impacts to be taken into consideration by the Local Planning Authority as part of the prior approval process. Boroughs must take account of national planning policy and guidance on noise, and therefore the Agent of Change principle would apply to these applications.*

3.13.10 *Noise and other impact assessments accompanying planning applications should be carefully tailored to local circumstances and be fit for purpose. That way, the particular characteristics of existing uses can be properly captured and assessed. For example, some businesses and activities can have peaks of noise at different times of the day and night and on different days of the week, and boroughs should require a noise impact assessment to take this into consideration. Boroughs should pay close attention to the assumptions made and methods used in impact assessments to ensure a full and accurate assessment.*

3.13.11 *Reference should be made to Policy D13 Noise which considers the impacts of noise-generating activities on a wider scale and Policy SI 1 Improving air quality which considers the*



Proof of Evidence (Noise)

impacts of existing air pollution. Further guidance on managing and mitigating noise in development is also provided in the Mayor's London Environment Strategy.

Policy D14 Noise

A In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

- 1) avoiding significant adverse noise impacts on health and quality of life*
- 2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change*
- 3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses*
- 4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)*
- 5) separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation*
- 6) where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles*
- 7) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.*

B Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations.

3.14.1 The management of noise is about encouraging the right acoustic environment, both internal and external, in the right place at the right time. This is important to promote good health and a good quality of life within the wider context of achieving sustainable development. The management of noise should be an integral part of development proposals and considered as early as possible. Managing noise includes improving and enhancing the acoustic environment and promoting appropriate soundscapes. This can mean allowing some places or certain times to become noisier within reason, whilst others become quieter. Consideration of existing noise sensitivity within an area is important to minimise potential conflicts of uses or activities, for example in relation to internationally important nature conservation sites which contain noise sensitive wildlife species, or parks and green spaces affected by traffic noise and pollution. Boroughs, developers, businesses and other stakeholders should work collaboratively



Proof of Evidence (Noise)

to identify the existing noise climate and other noise issues to ensure effective management and mitigation measures are achieved in new development proposals.

3.14.2 The Agent of Change Principle places the responsibility for mitigating impacts from existing noise-generating activities or uses on the new development. Through the application of this principle existing land uses should not be unduly affected by the introduction of new noise-sensitive uses. Regard should be given to noise-generating uses to avoid prejudicing their potential for intensification or expansion.

3.14.3 The management of noise also includes promoting good acoustic design of the inside of buildings. Section 5 of BS 8223:2014 provides guidance on how best to achieve this. The Institute of Acoustics has produced advice, Pro:PG Planning and Noise (May 2017), that may assist with the implementation of residential developments. BS4214 provides guidance on monitoring noise issues in mixed residential/industrial areas.

3.14.4 Deliberately introducing sounds can help mitigate the adverse impact of existing sources of noise, enhance the enjoyment of the public realm, and help protect the relative tranquillity and quietness of places where such features are valued. For example, playing low-level music outside the entrance to nightclubs has been found to reduce noise from queueing patrons, leading to an overall reduction in noise levels. Water features can be used to reduce the traffic noise, replacing it with the sound of falling water, generally found to be more pleasant by most people.³⁷

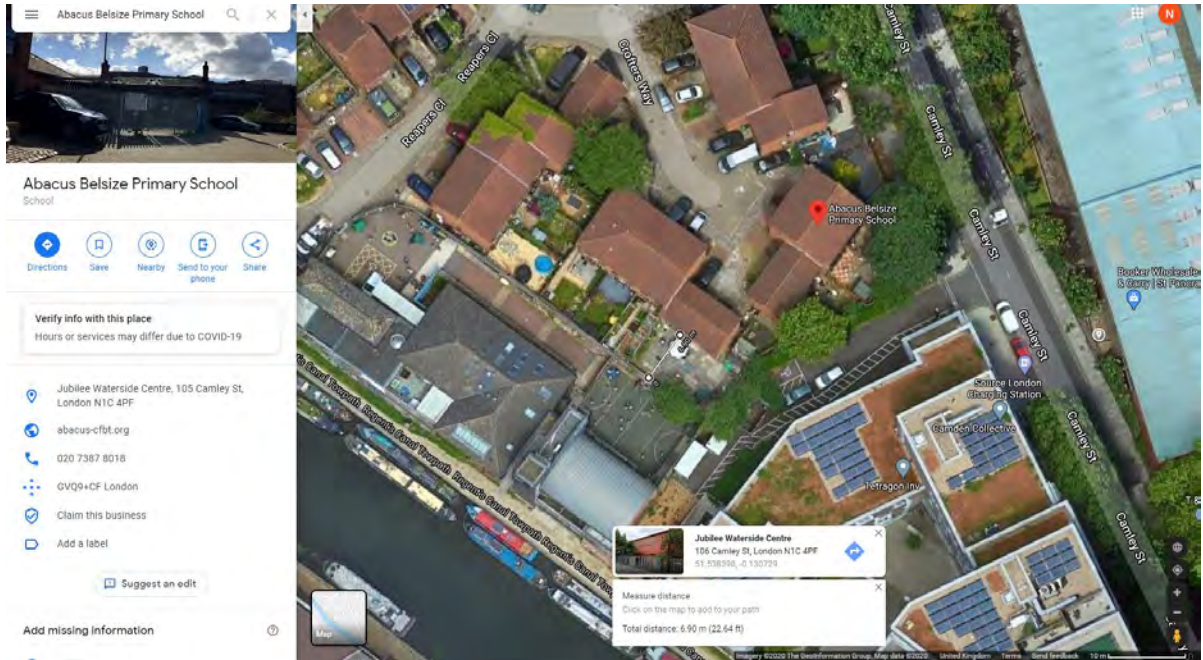
3.14.5 Heathrow and London City Airport Operators have responsibility for noise action plans for airports. Policy T8 Aviation sets out the Mayor's approach to aviation-related development.

3.14.6 The definition of Tranquil Areas, Quiet Areas and spaces of relative tranquillity are matters for London boroughs. These are likely to reflect the specific context of individual boroughs, such that Quiet Areas in central London boroughs may reasonably be expected not to be as quiet as Quiet Areas in more residential boroughs. Defra has identified parts of Metropolitan Open Land and local green spaces as potential Quiet Areas that boroughs may wish to designate."

■ End of Section

Appendix B - School playground areas in Camden.

Abacus Belsize Primary



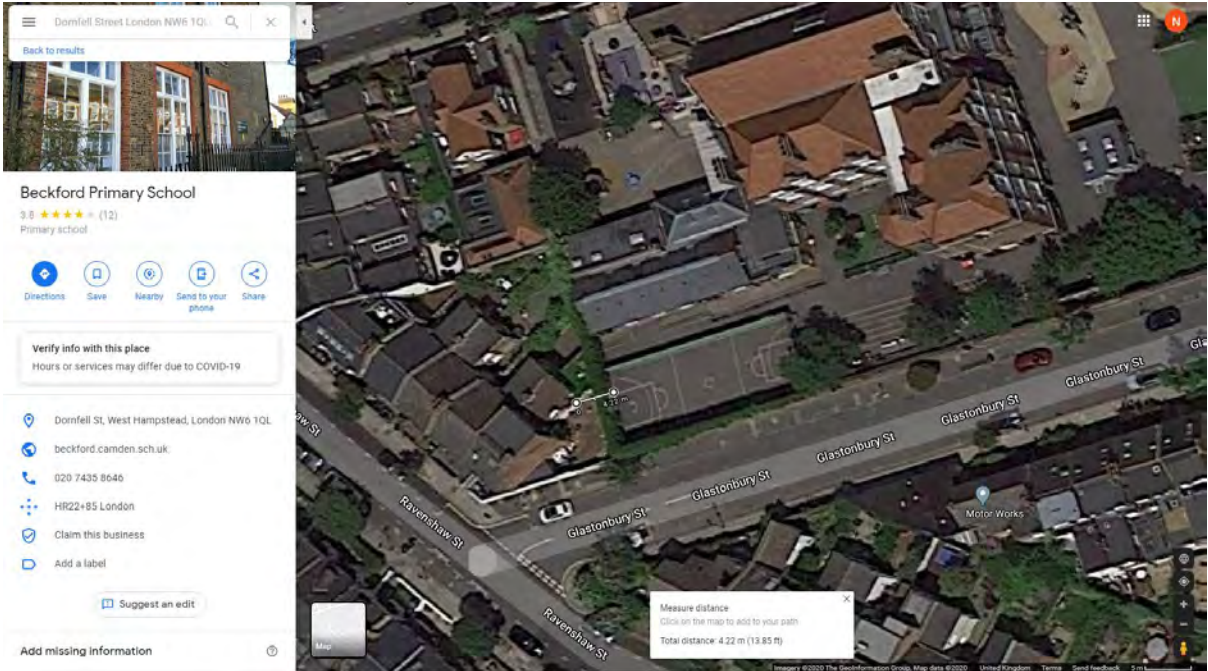
Argyle Primary School



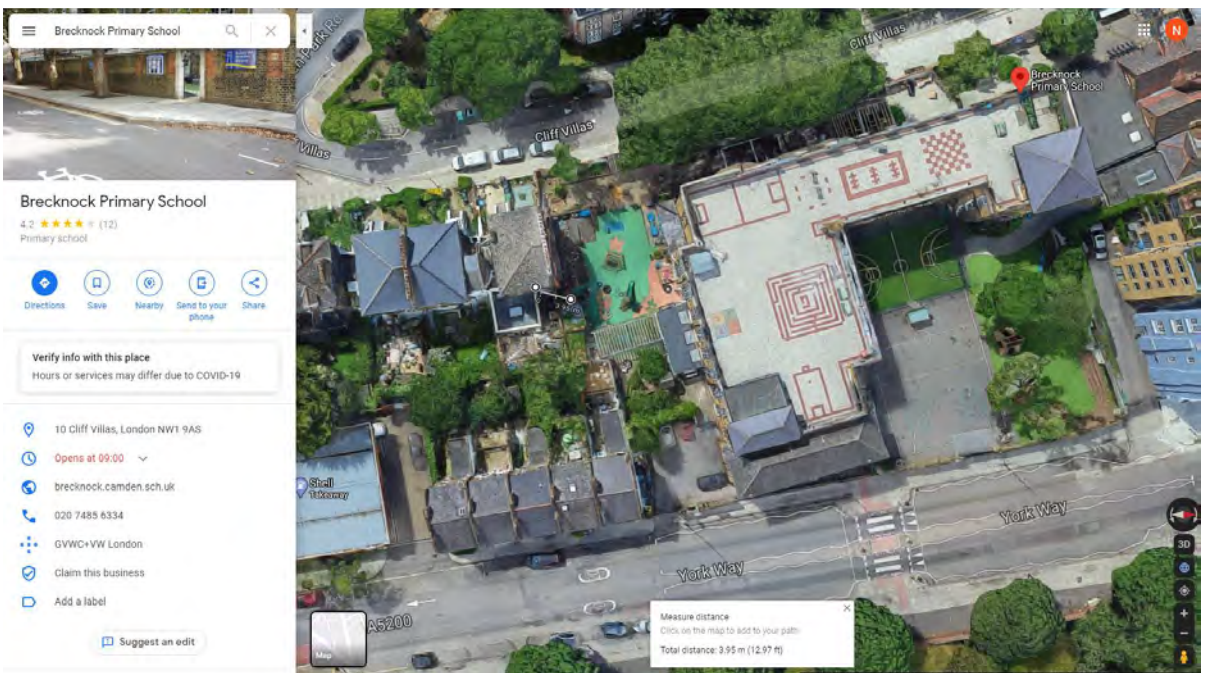


Proof of Evidence (Noise)

Beckford Primary School



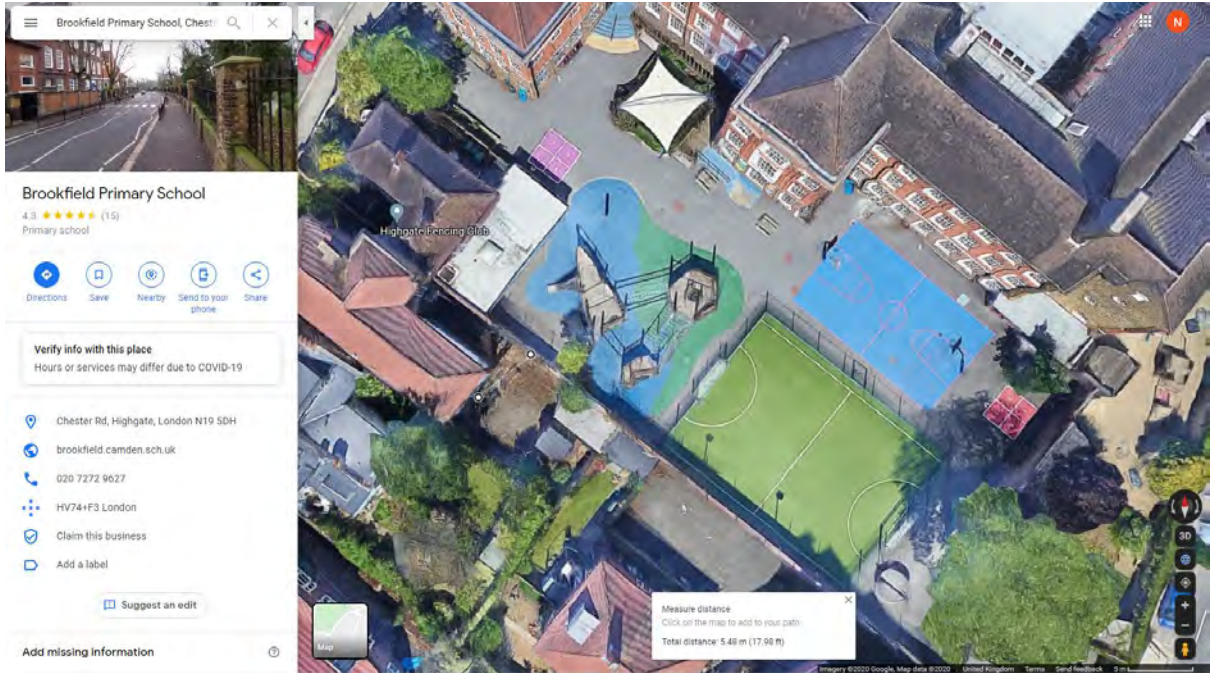
Brecknock Primary School



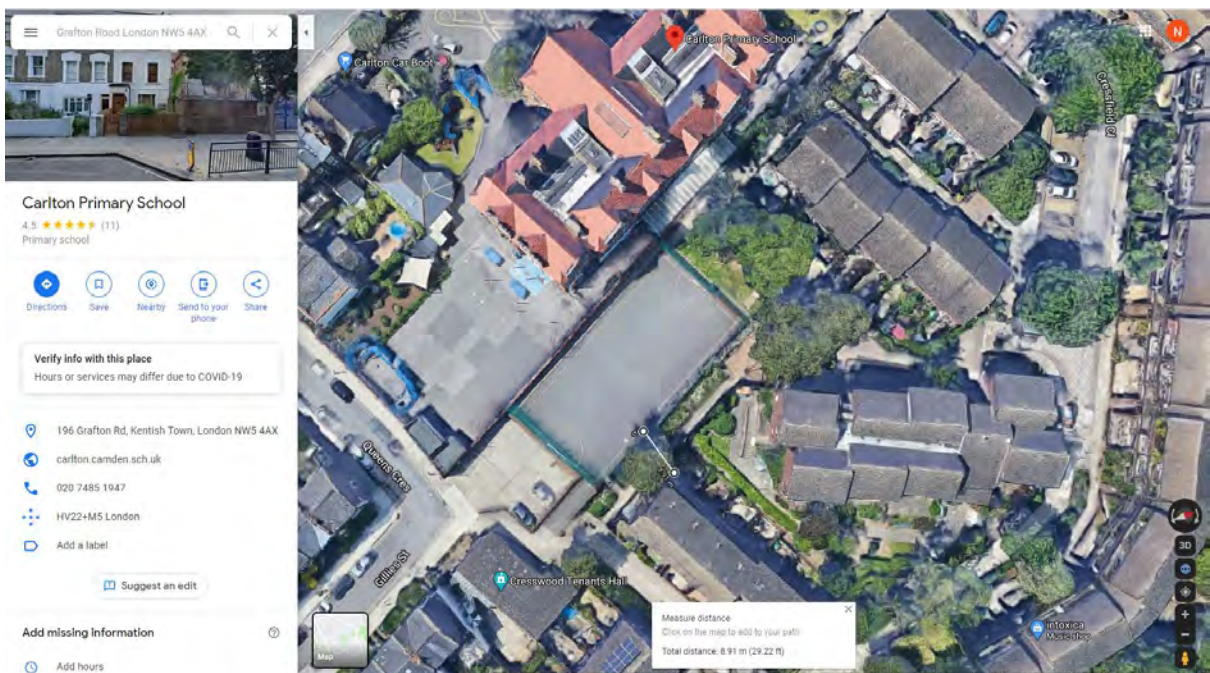


Proof of Evidence (Noise)

Brookfield Primary School



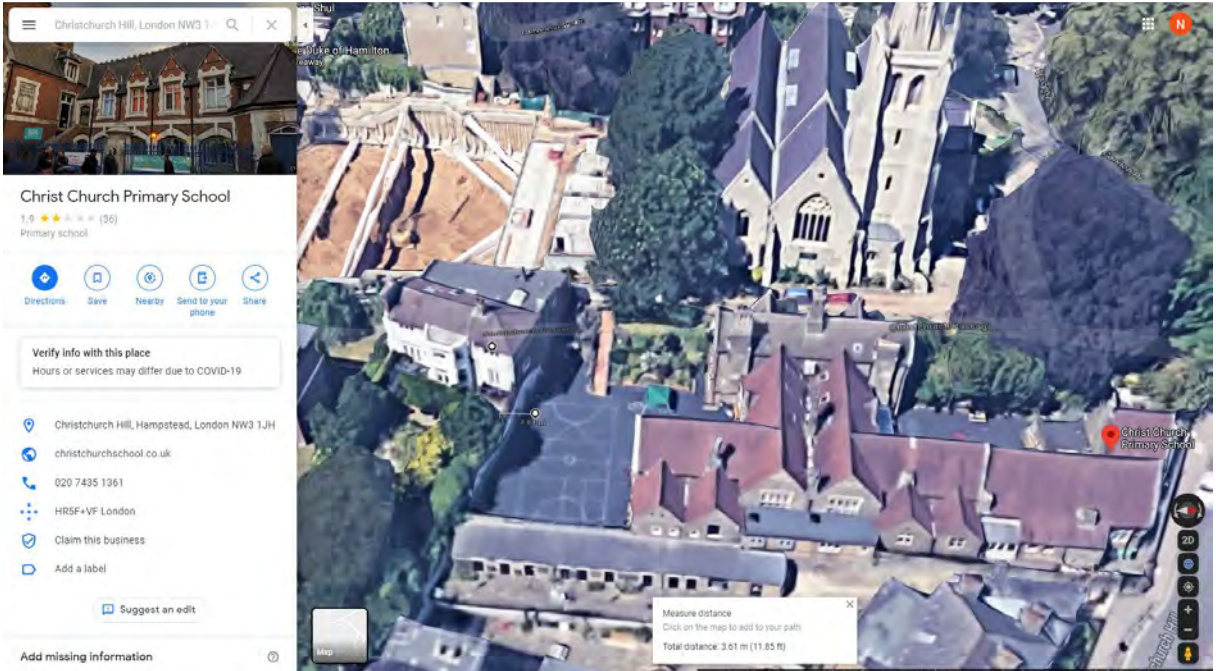
Carlton Primary School





Proof of Evidence (Noise)

Christ Church, Church of England Primary School (Hampstead)



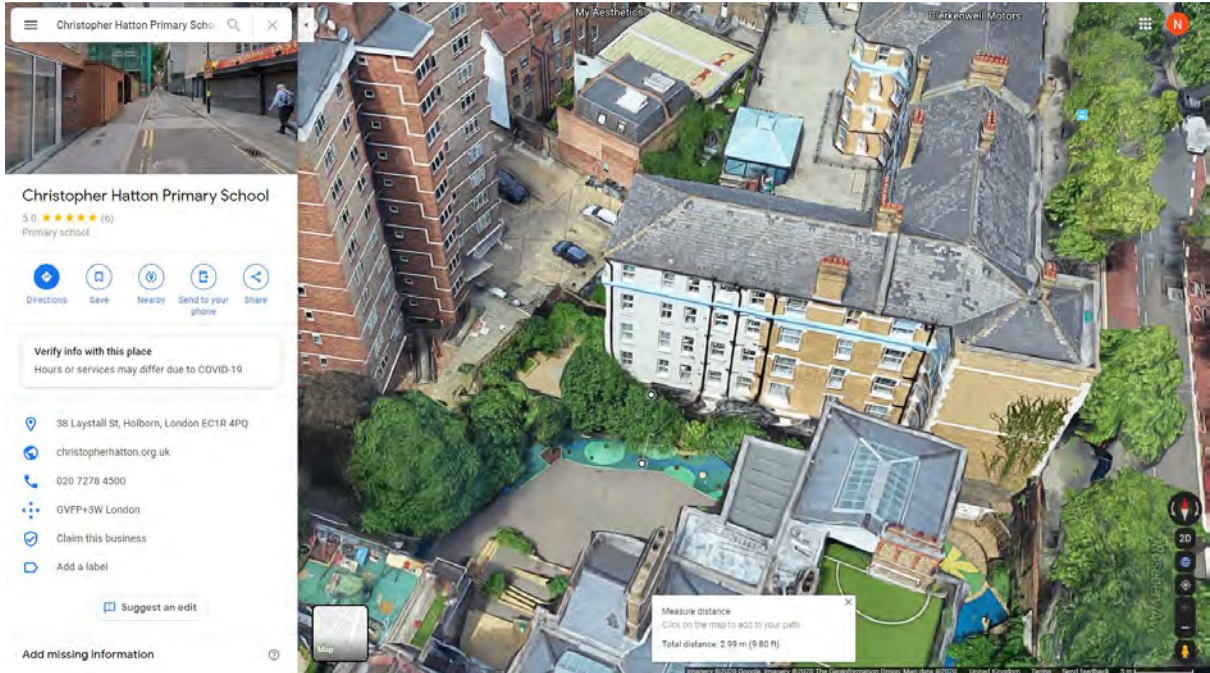
Christ Church, Church of England Primary School (Redhill Street)



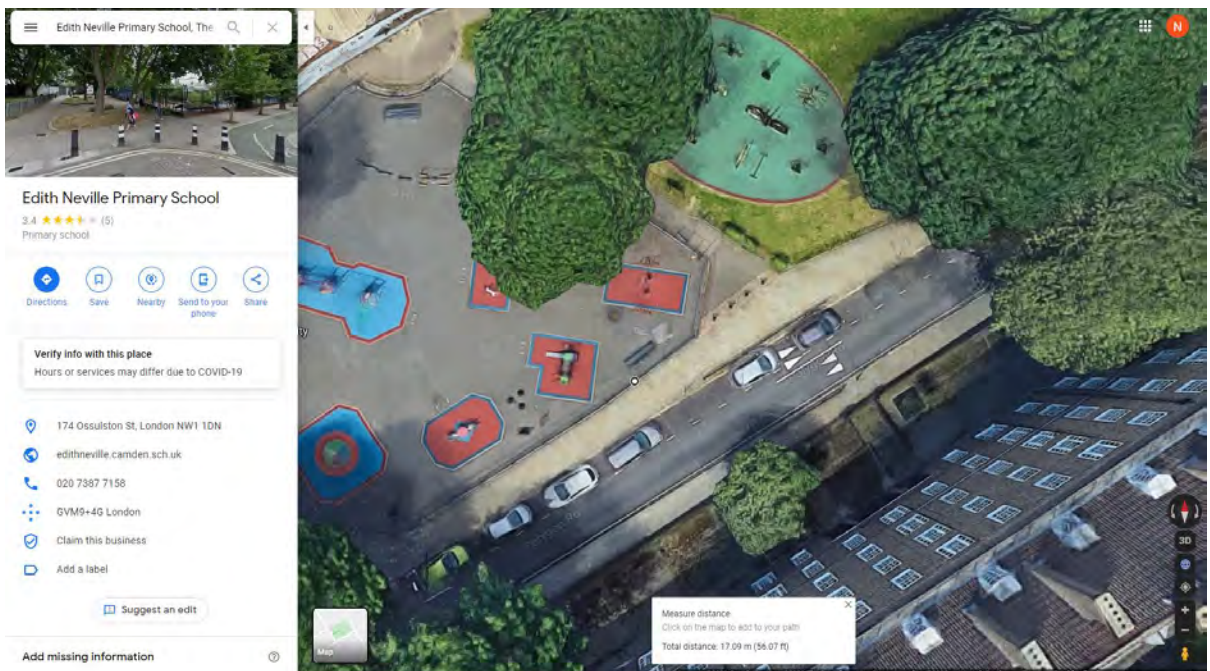


Proof of Evidence (Noise)

Christopher Hatton Primary School



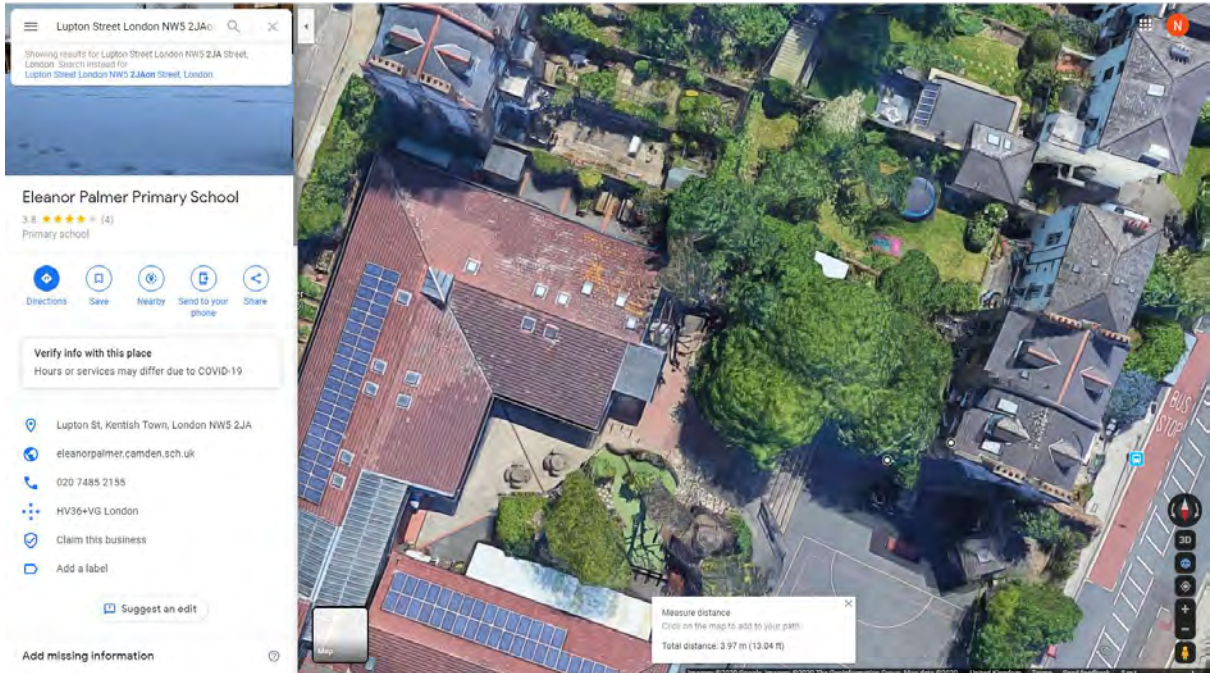
Edith Neville Primary School





Proof of Evidence (Noise)

Eleanor Palmer Primary School



Emmanuel Church of England Primary School





Proof of Evidence (Noise)

Fitzjohn's Primary School



Fleet Primary School





Proof of Evidence (Noise)

Gospel Oak Primary School



Great Ormond Street Hospital for Children School (No playground visible)

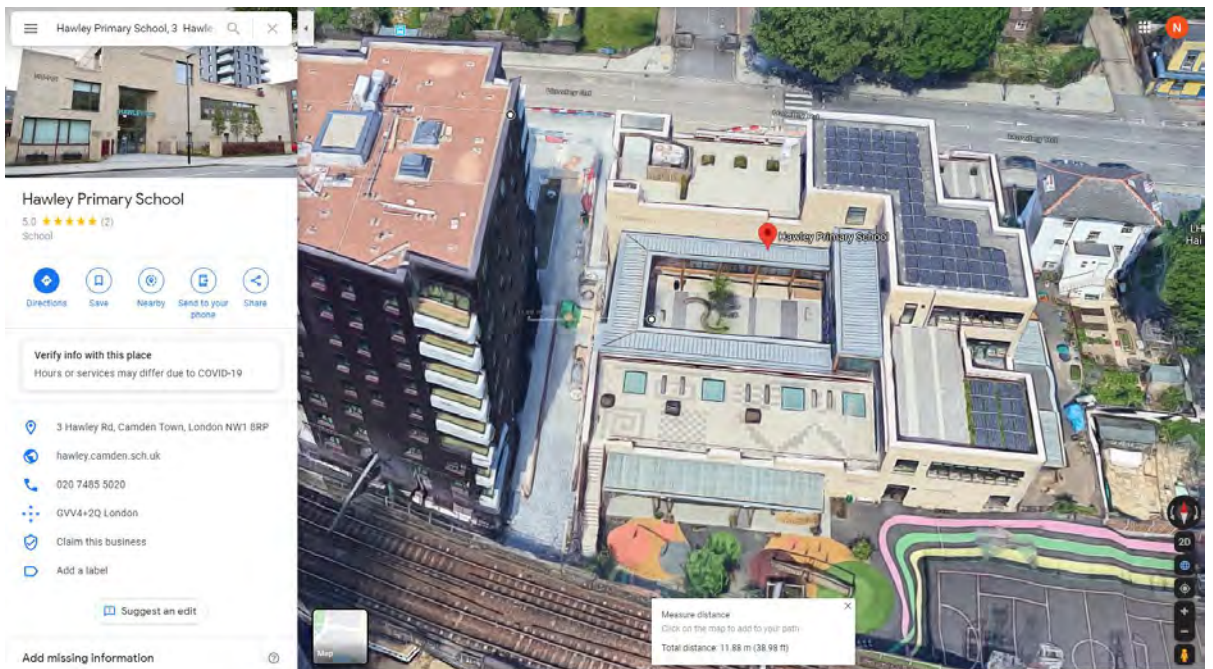


Proof of Evidence (Noise)

Hampstead Parochial Church of England Primary School



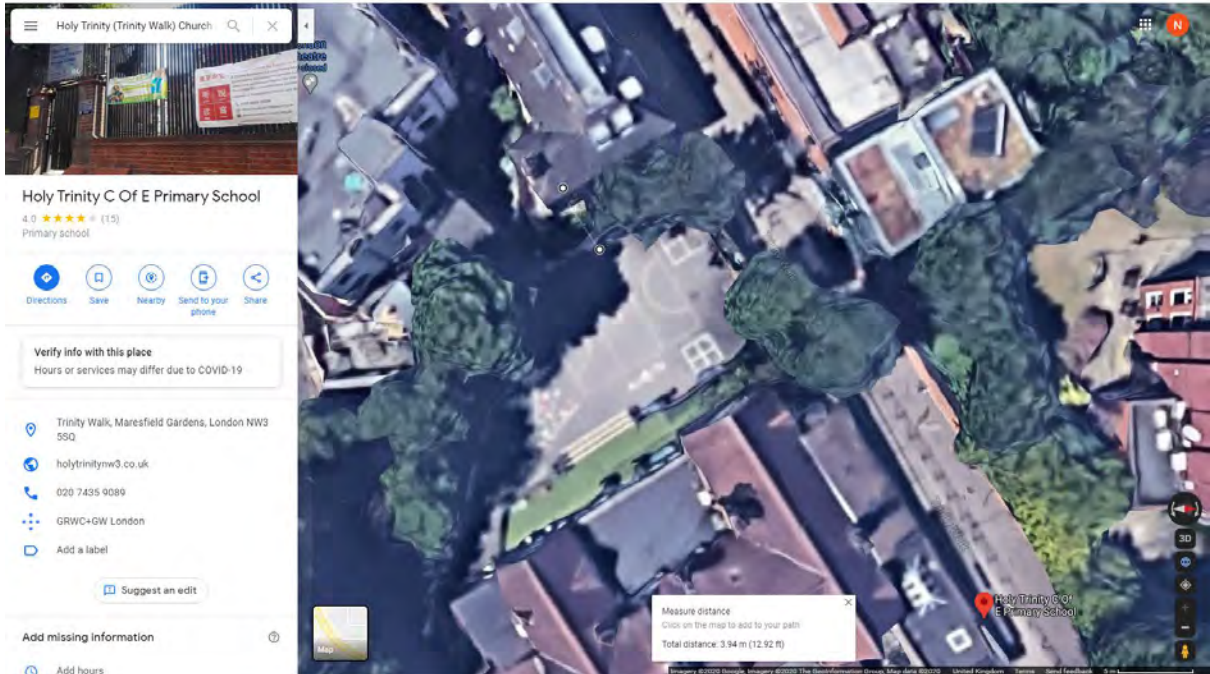
Hawley Primary School



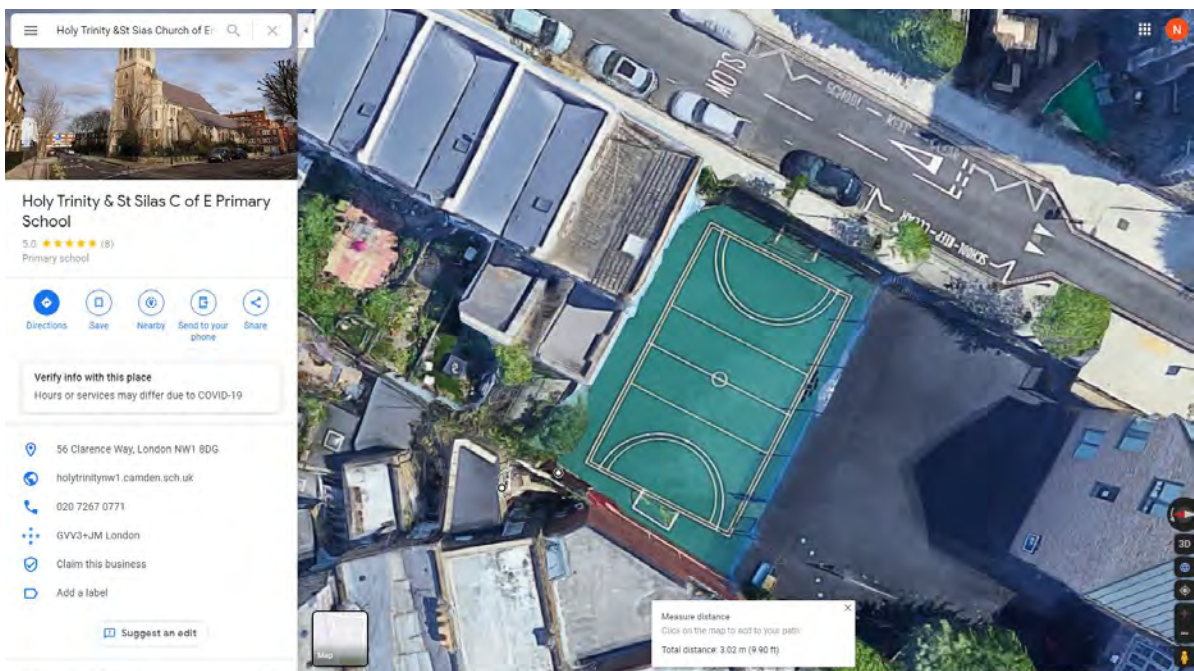


Proof of Evidence (Noise)

Holy Trinity (Trinity Walk) Church of England Primary School



Holy Trinity and St Silas Church of England Primary School





Proof of Evidence (Noise)

Kentish Town Church of England Primary School



King's Cross Academy





Proof of Evidence (Noise)

Kingsgate Primary School



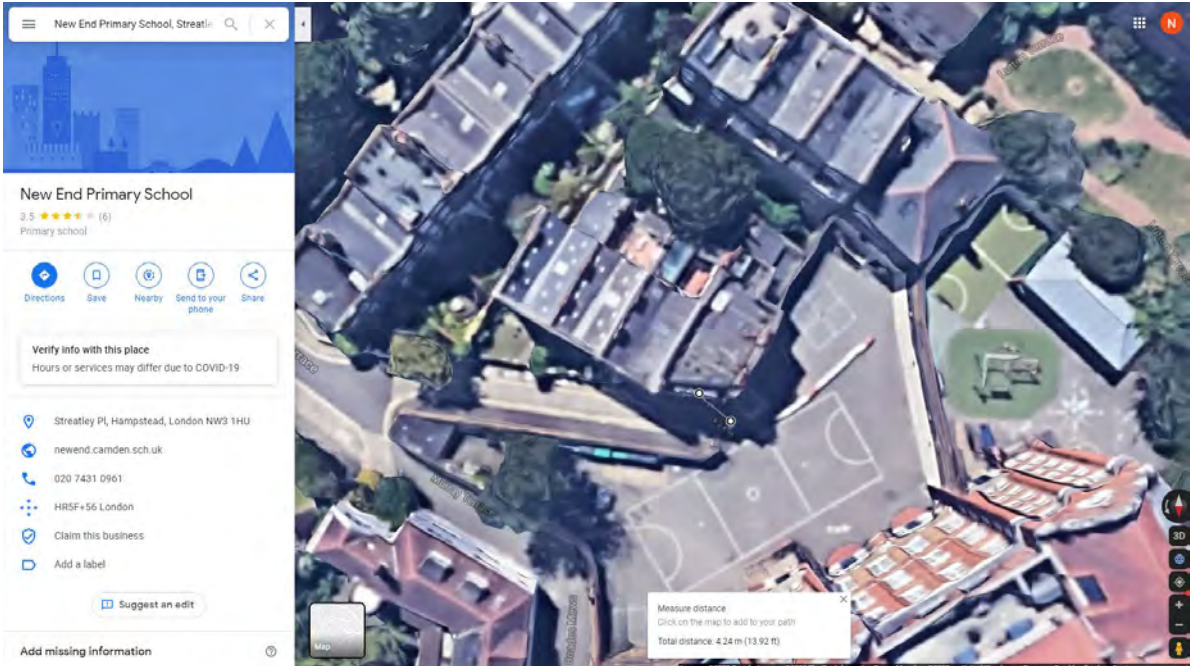
Netley Primary School



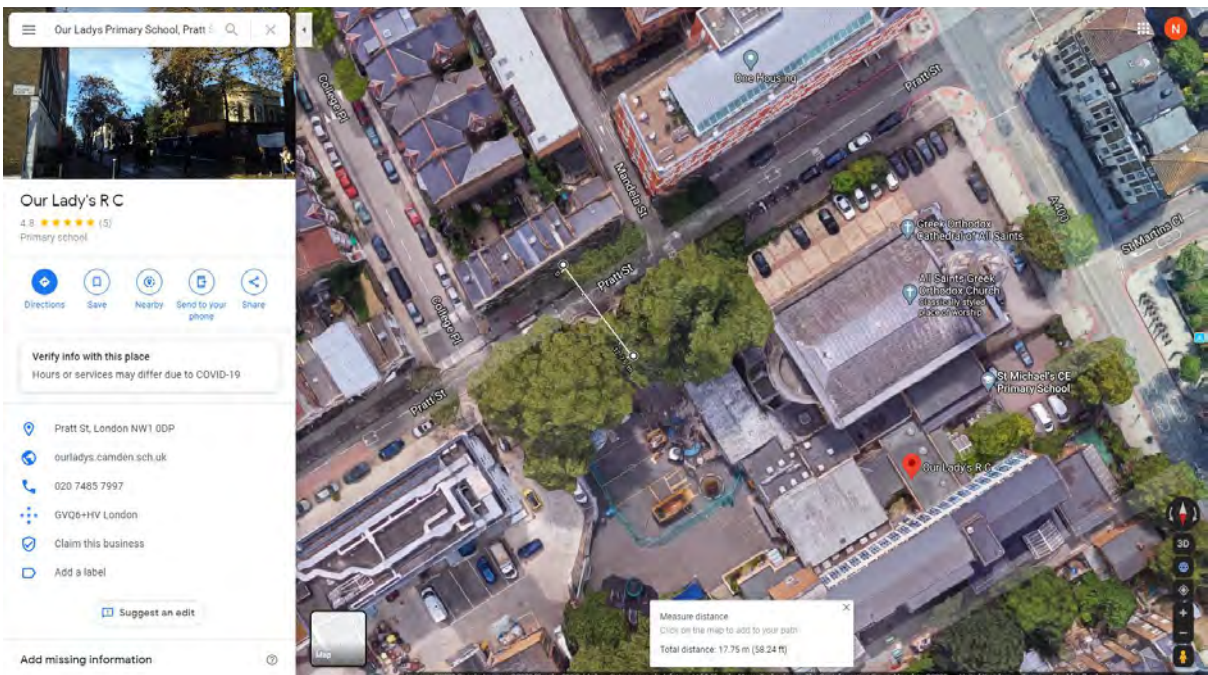


Proof of Evidence (Noise)

New End Primary School



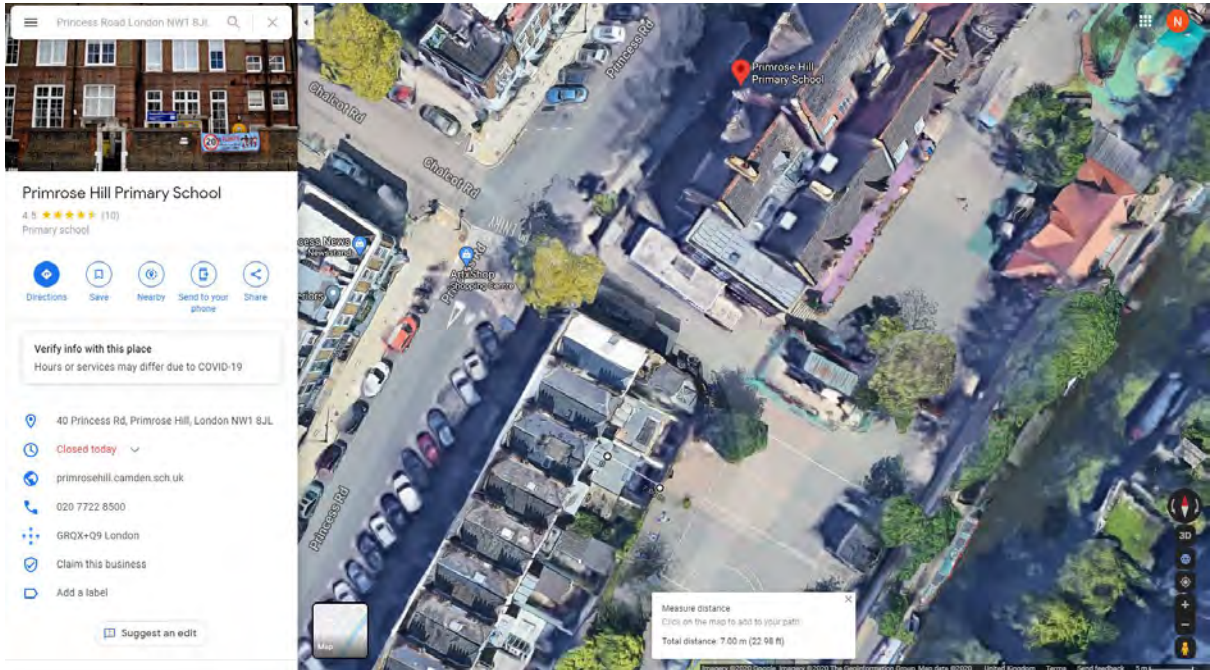
Our Lady's Roman Catholic Primary School



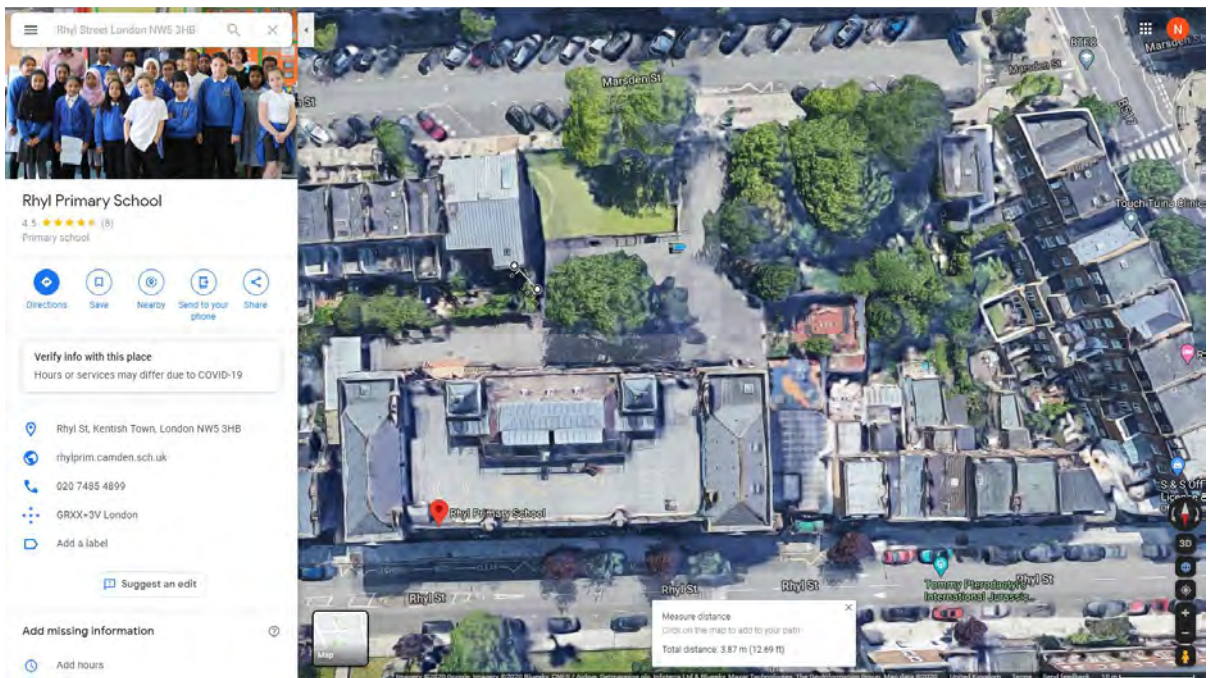


Proof of Evidence (Noise)

Primrose Hill Primary School



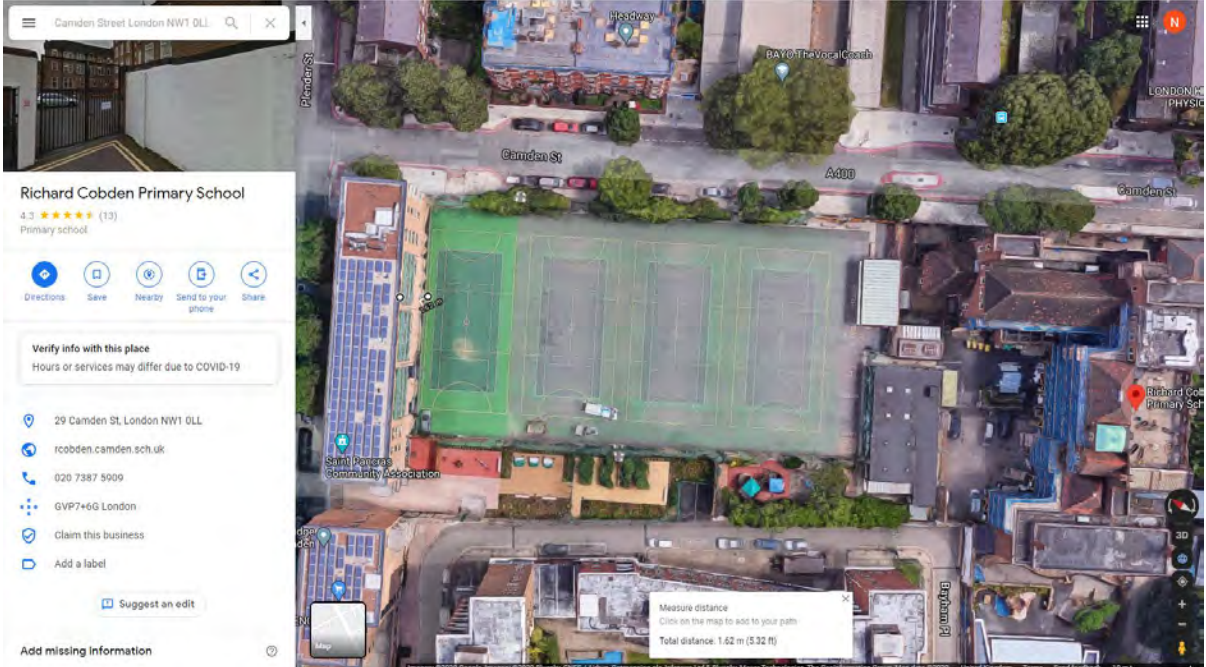
Rhyl Primary School



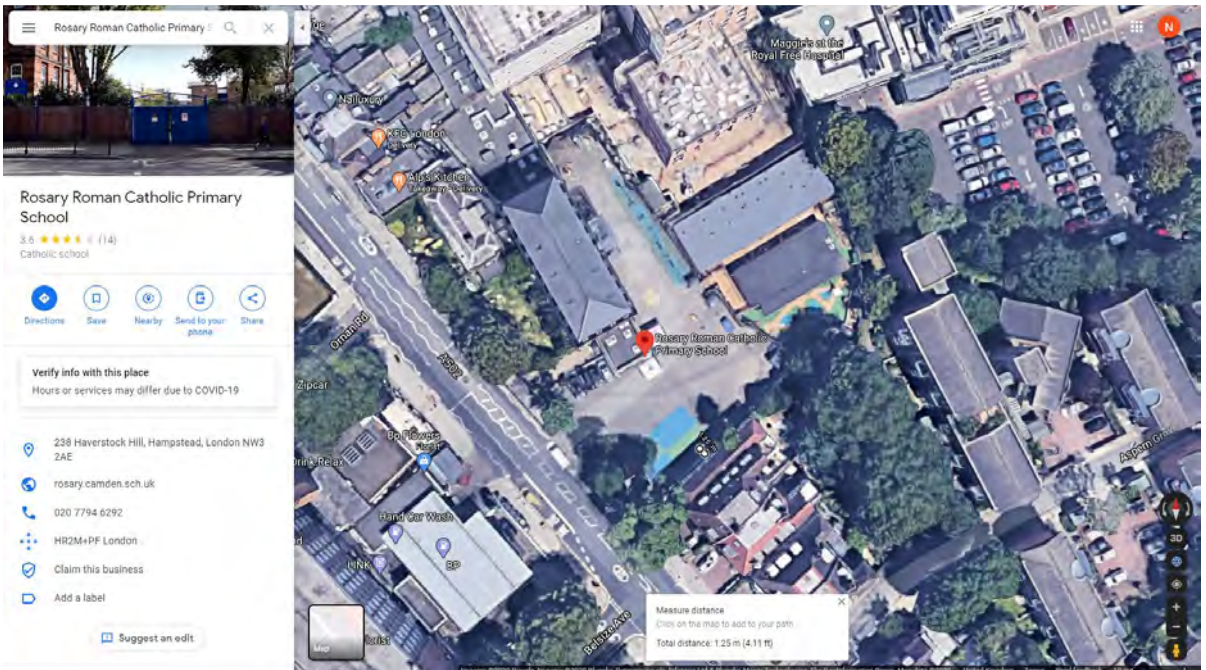


Proof of Evidence (Noise)

Richard Cobden Primary School



Rosary Catholic Primary School

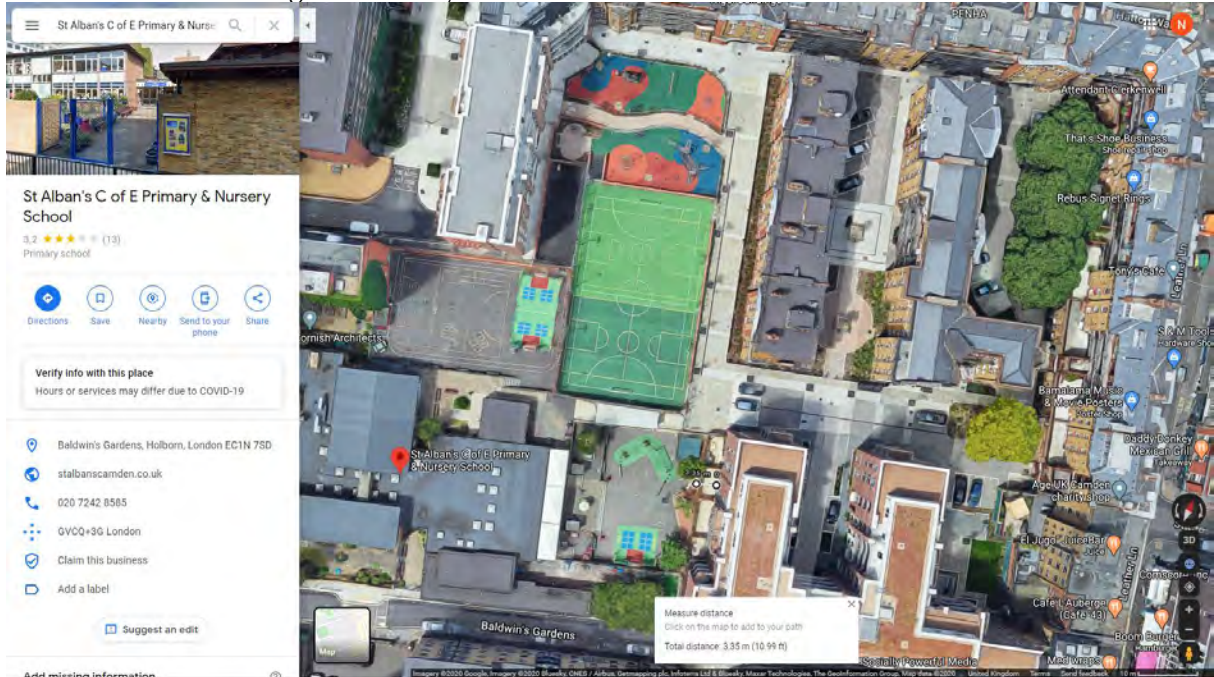




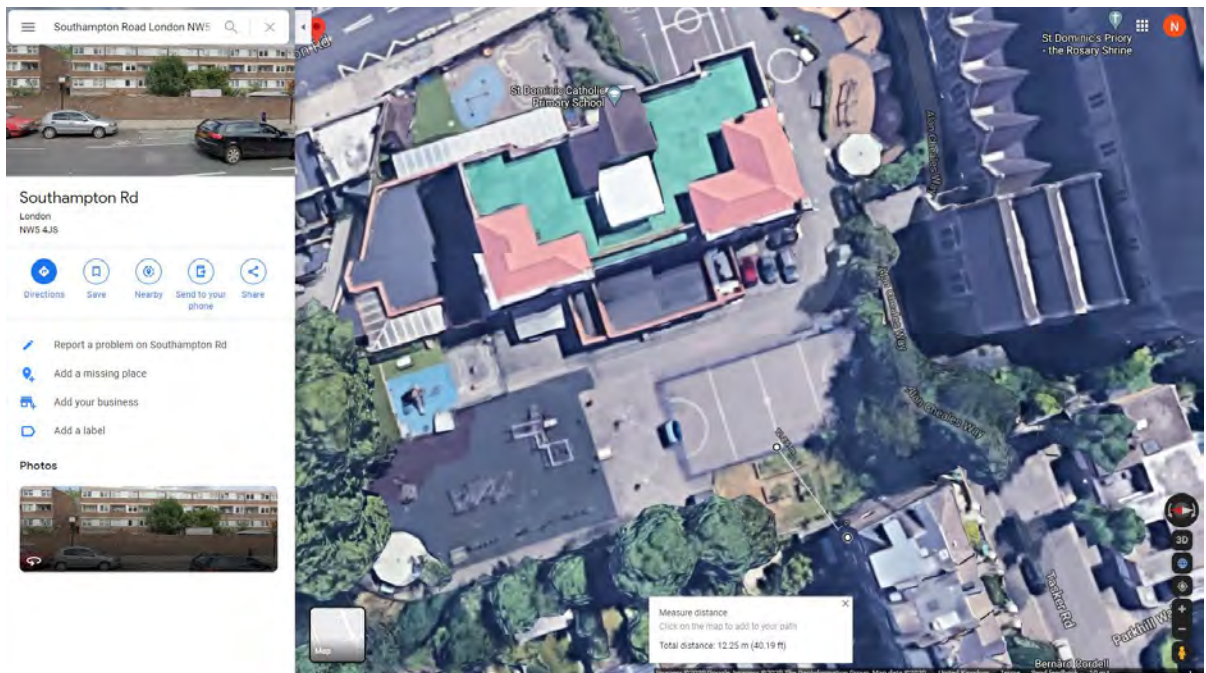
Proof of Evidence (Noise)

Royal Free Hospital Childrens School (Hospital school has four sites primarily secondary age pupils)

St Albans Church of England Primary School



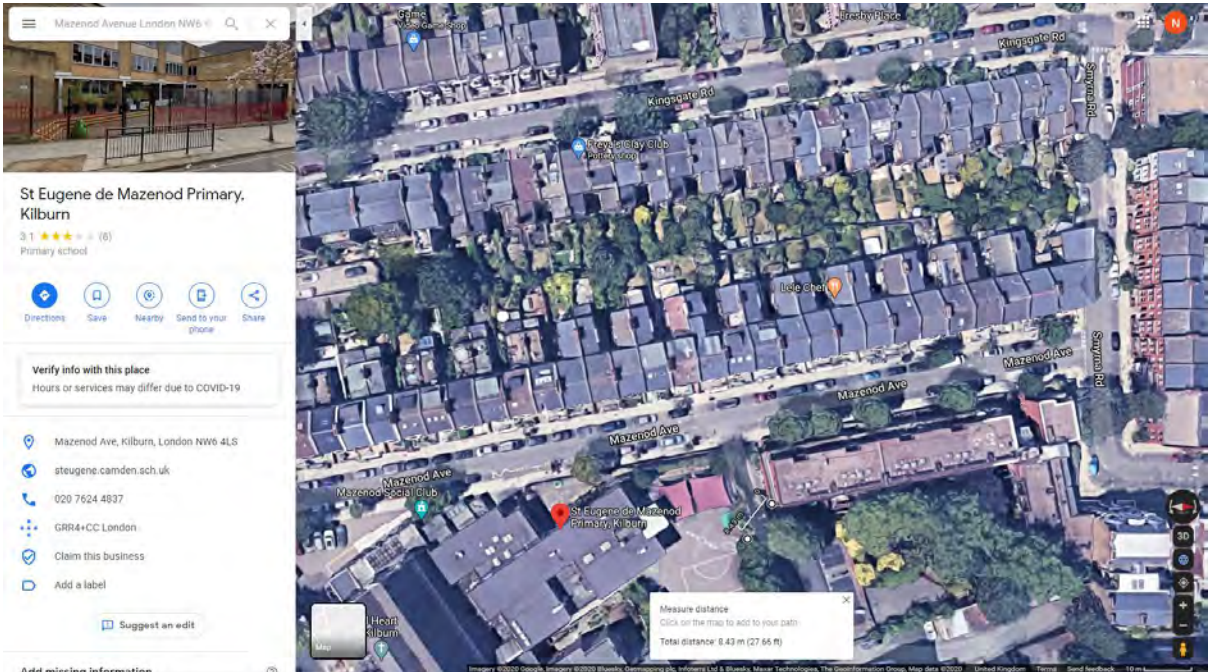
St Dominic's Roman Catholic Primary School





Proof of Evidence (Noise)

St Eugene De Mazenod Roman Catholic School



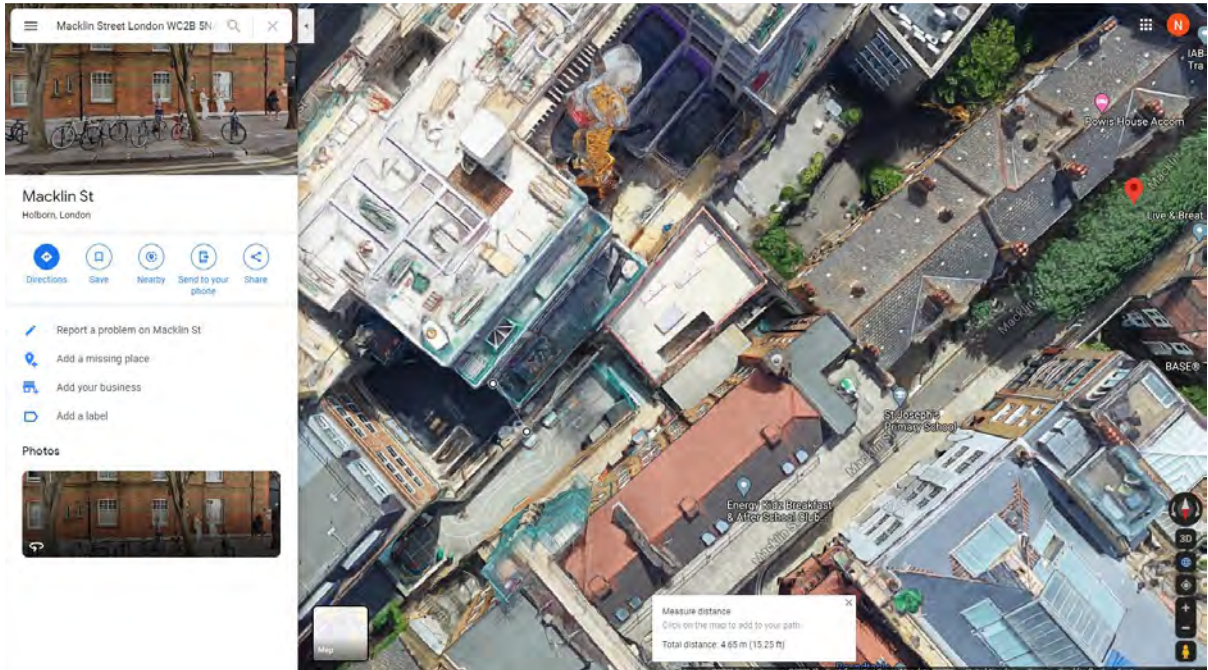
St George The Martyr Church of England Primary School





Proof of Evidence (Noise)

St Joseph's Roman Catholic Primary School



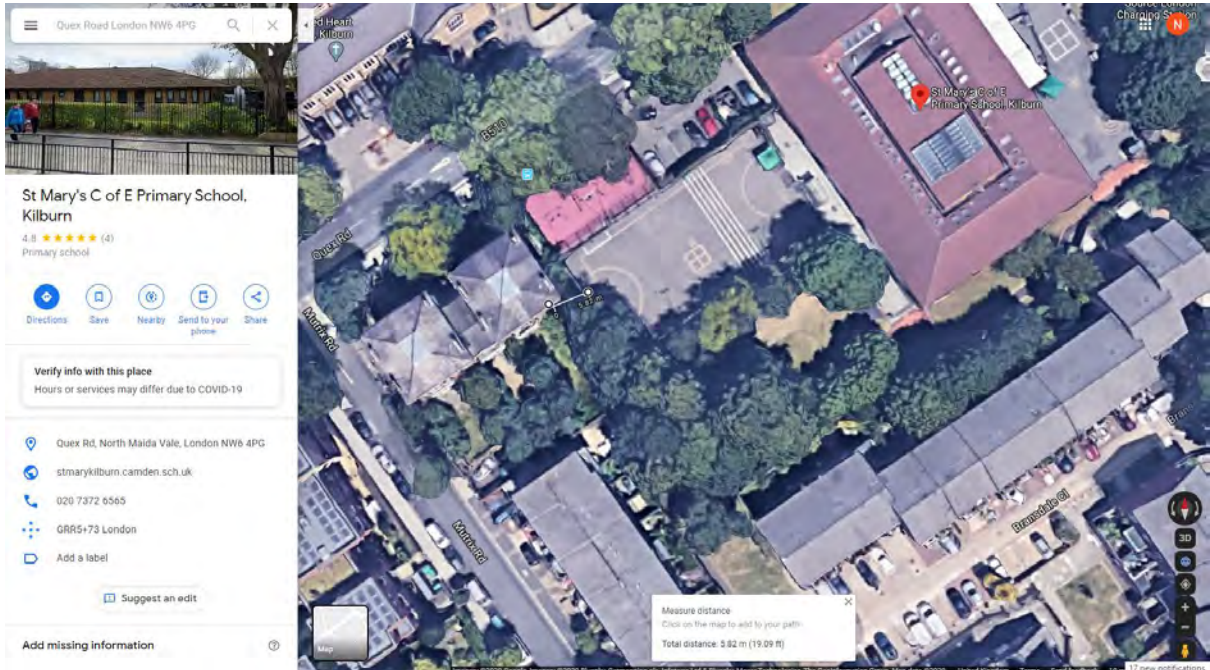
St Luke's Church of England School



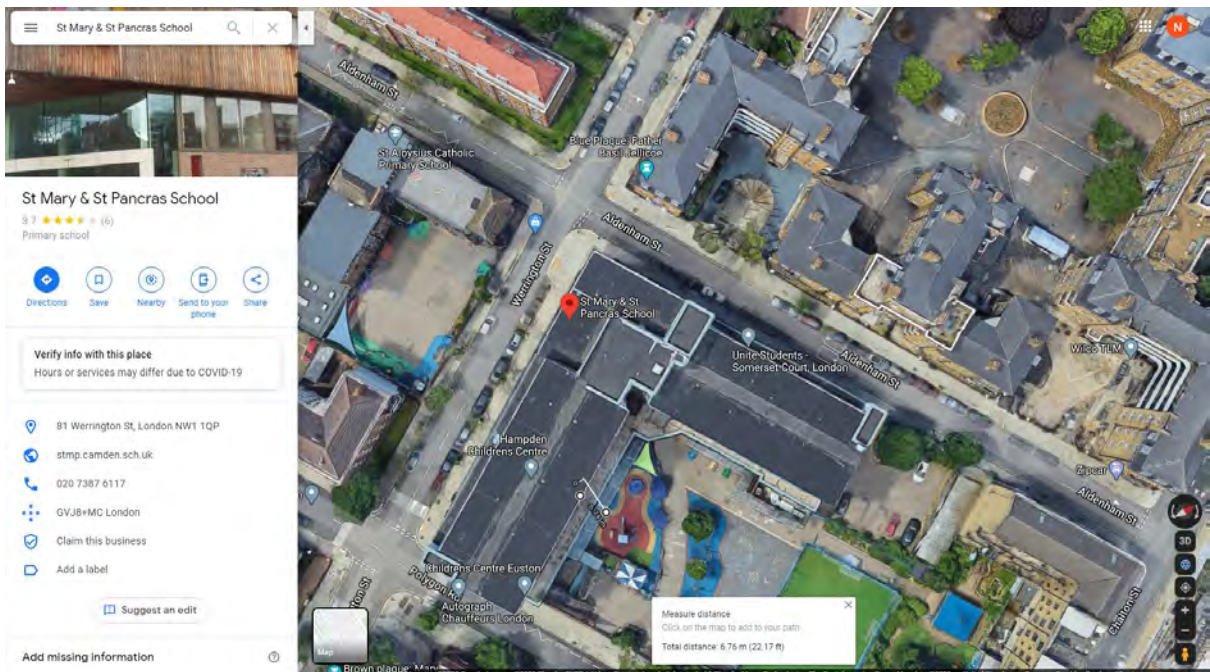


Proof of Evidence (Noise)

St Mary's Kilburn Church of England Primary School



St Mary and St Pancras Church of England Primary School



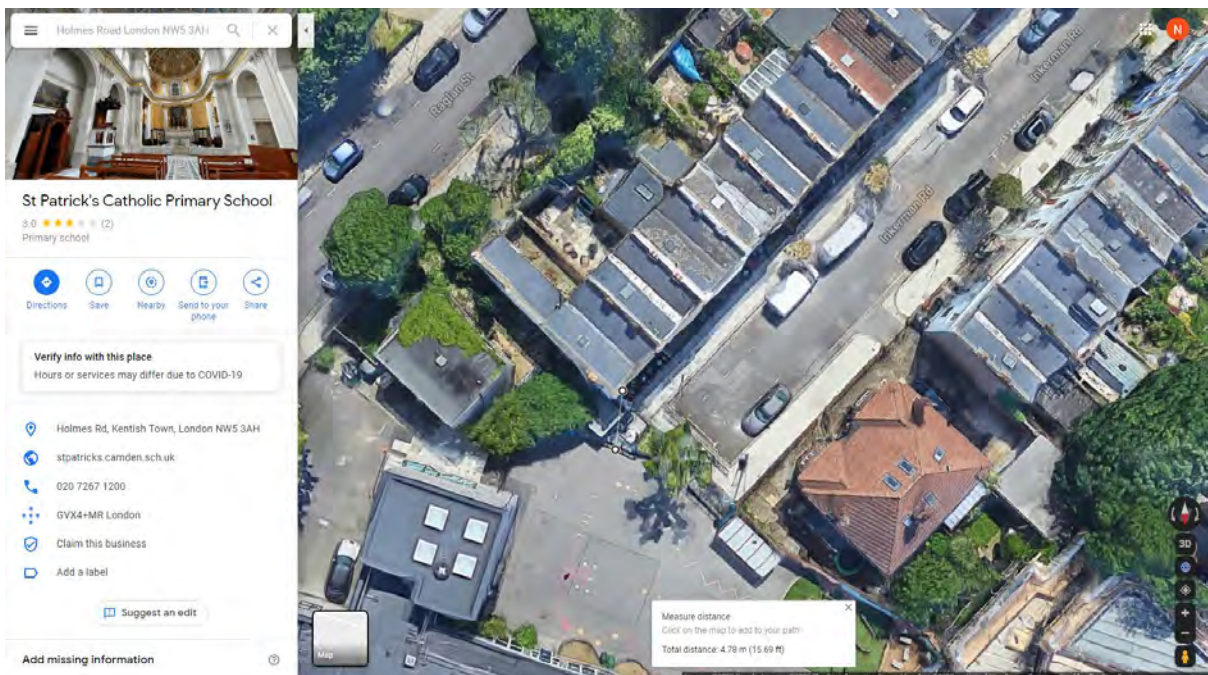


Proof of Evidence (Noise)

St Michael's Camden Town Church of England Primary School



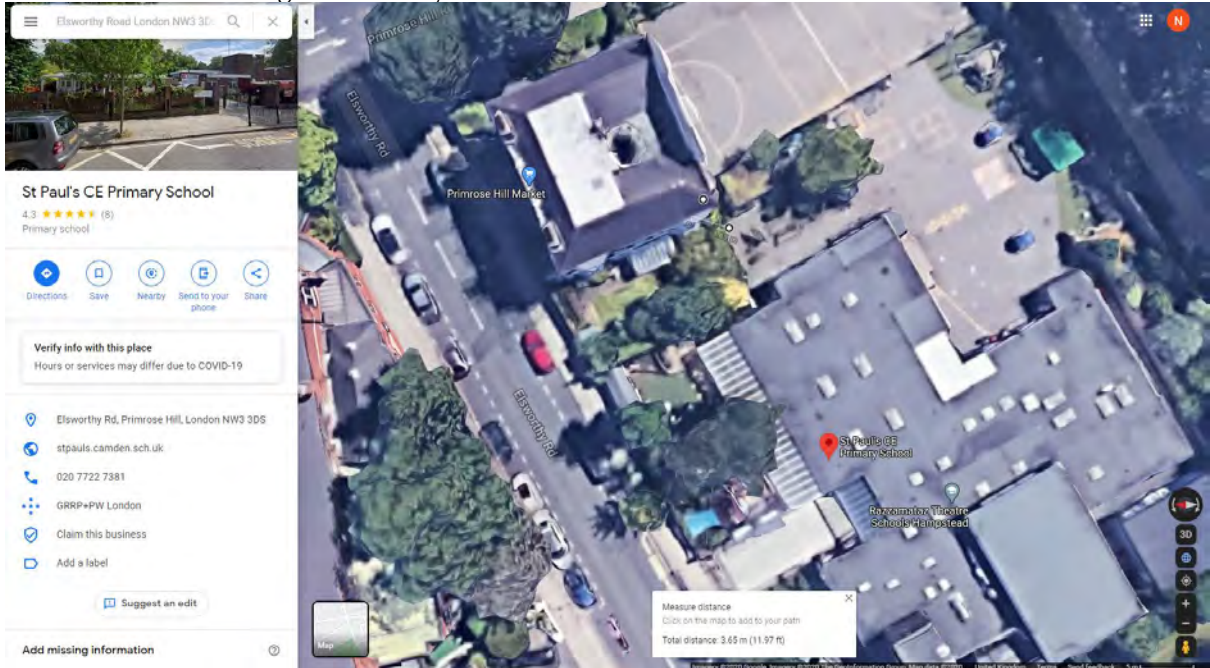
St Patrick's Catholic Primary School



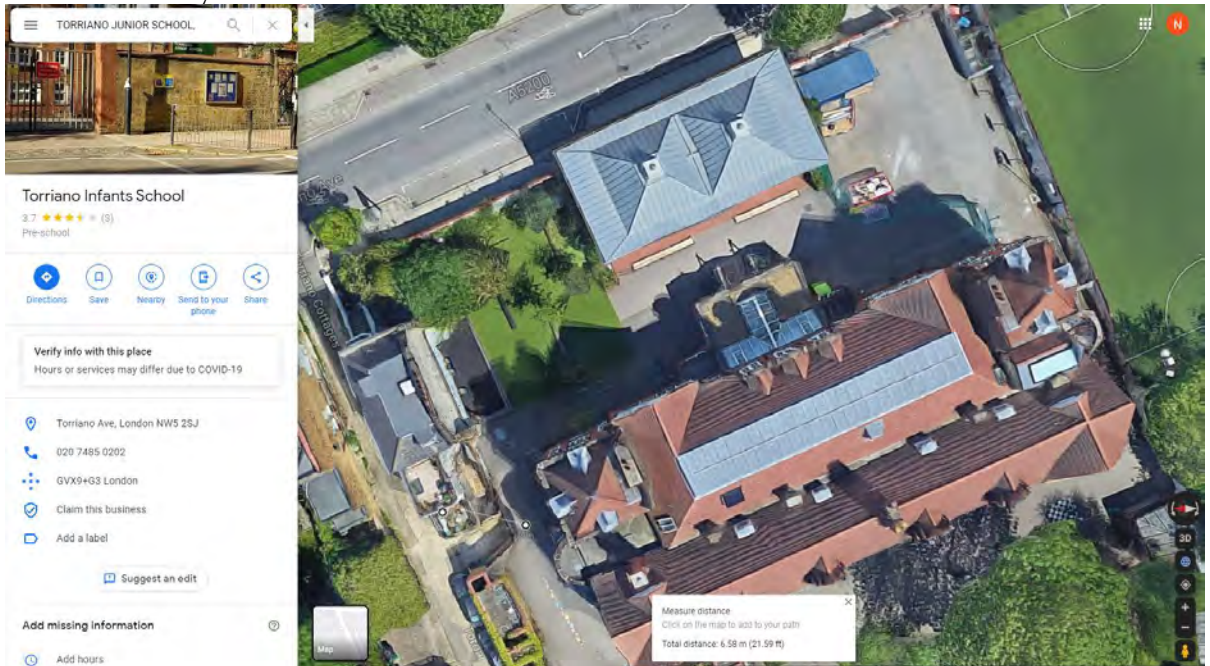


Proof of Evidence (Noise)

St Paul's Church of England Primary School



Torriano Primary School



■ End of Section



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