



TECHNICAL NOTE

Date: September 2025

File Ref: BD/VL/P25-3515/01TN Rev A

Company: London Borough of Havering

Subject: Plant Noise Assessment

1.0 INTRODUCTION

- 1.1 Create Consulting Engineers Ltd have been commissioned by the London Borough of Havering to assess the cumulative operational noise levels for newly proposed plant equipment located on the roof of the Havering Town Hall.
- 1.2 The proposals include the retention or replacement for like for like plant for 7 DX units. A new variable refrigeration flow units (VRF) unit is to be installed on the west wing and a new air handling unit (AHU), with the potential for supporting condenser units, is to be installed towards the centre of the roof.
- 1.3 At the time of writing three options for the AHU have been proposed, which have been assessed separately below.
- 1.4 This report has been informed by the results of an acoustic survey conducted on the site (*details have been provided herein*), and the documentation supplied by the client, which includes:
 - Appendix A Architectural Drawings; and
 - Appendix B MEP Drawings
- 1.5 The development area is situated reasonably close to pre-existing noise sensitive receptors (NSRs).

- 1.6 Typically, noise sensitive receptors include dwellings, hotels, hospitals and in some instances, schools and healthcare facilities.
- 1.7 The closest residential receptor is approximately 50m and the closest non-residential receptor (St Edward the Confessor Church) is approximately 30m from the Town Hall.
- 1.8 The following figure shows the NSR locations, the proposed development area, the monitor location from the acoustic survey, and the locations of measurement for existing plant units on the roof.

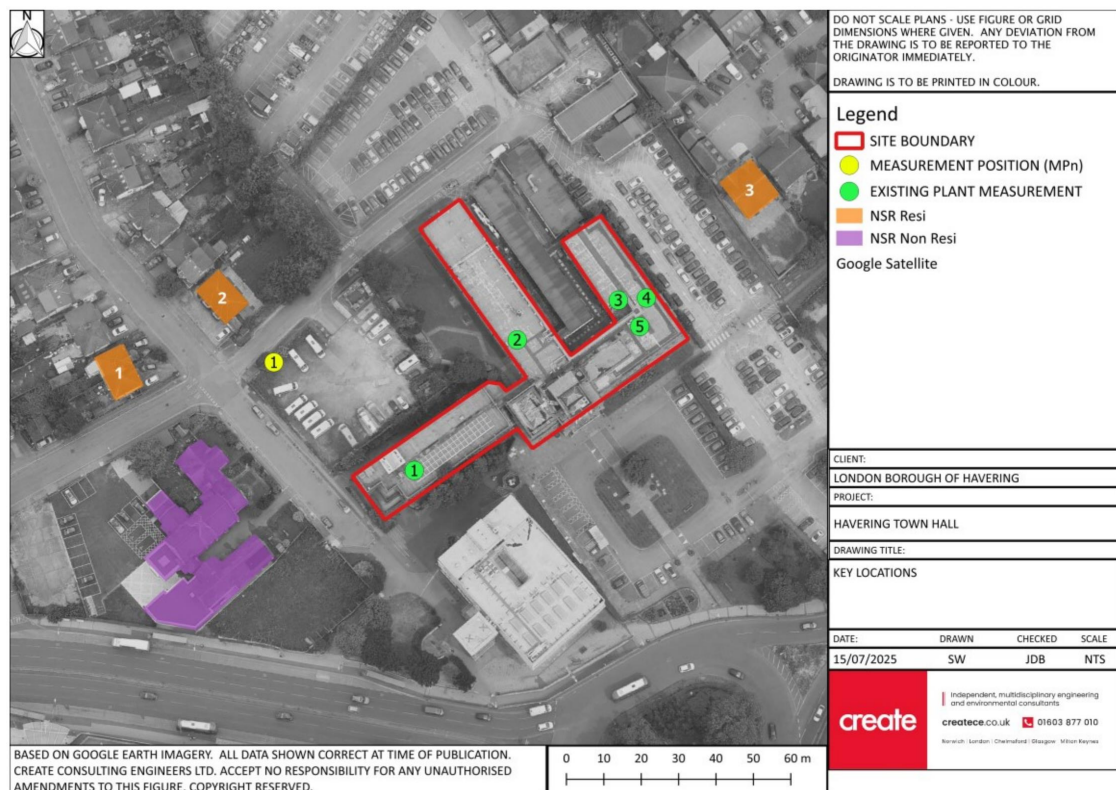


Figure 1.1: Key Locations

2.0 LEGISLATION, POLICY AND GUIDANCE

Local Policy

- 2.1 The London Borough of Havering Local Plan 2016–2031 (Adopted 2021) contains the following policies relevant to this assessment.

Policy 7 Residential design and amenity

Residential development should be of a high design quality that is inclusive and provides an attractive, safe and accessible living environment for new residents whilst ensuring that the amenity and quality of life of existing and future residents is not adversely impacted.

To protect the amenity of existing and future residents the Council will support developments that do not result in:

- i. Unacceptable overlooking or loss of privacy or outlook;*
- ii. Unacceptable loss of daylight and sunlight; and*
- iii. Unacceptable levels of noise, vibration and disturbance. To ensure a high quality living environment for residents of new developments, the Council will support residential developments that:*
- iv. Meet the National Space Standards and the London Plan requirement for floor to ceiling heights;*
- v. Are sited and designed to maximise daylight and sunlight;*
- vi. Incorporate an appropriate level of high quality, usable green infrastructure and amenity space that is designed to be multi-functional and offer a range of environmental benefits and leisure and recreation opportunities;*
- vii. Provide both balconies and communal amenity space in flatted schemes; and*
- viii. Maximises the provision of dual aspect accommodation unless exceptional circumstances are demonstrated;*

In any development affordable and market housing will be expected to have the same external appearance and equivalent amenity in relation to views, daylight, noise and proximity to open space.

New developments should promote independent living by utilising designs which can allow for alterations to be made in the future. The Council will require 90% of new build housing to meet Building Regulation requirement M4(2) 'Accessible and Adaptable Dwellings', with the remaining 10 percent meeting Building Regulation requirement M4(3) 'Wheelchair User Dwellings'.

The Council will support and encourage proposals which provide adaptations enabling residents to live independently and safely in their own homes.

Policy 34 Managing pollution

The Council will support development proposals that:

- i. Do not unduly impact upon amenity, human health and safety and the natural environment by noise, dust, odour and light pollution, vibration and land contamination;*
- ii. Do not pose an unacceptable risk to the quality of the water catchment, groundwater or surface water; and*
- iii. Optimise the design, layout and orientation of buildings and the use of green infrastructure to minimise exposure to the above pollutants.*

Policy 36 Low carbon design and renewable energy

The Council will seek to optimise the energy efficiency of buildings and support low carbon and renewable energy developments including energy efficiency improvements to existing buildings.

The Council requires major development proposals to include a detailed energy assessment to demonstrate how the targets for carbon dioxide emissions reduction set out in the London Plan will be met. The Council will require a cash in lieu contribution to the Council's Carbon Reduction Fund on any shortfall to secure the delivery of carbon dioxide savings elsewhere.

The Council will require major development to prioritise connection to any existing or planned decentralised energy networks and, where feasible, integrate combined heat and power systems on site.

All stand-alone renewable energy developments should be located and designed to minimise any adverse impacts. Applicants are required to address the following issues in their proposals: impacts on landscape, biodiversity, historic environment, residential amenity, aviation activities, air quality, highway safety and fuel/energy security, including their cumulative and visual impacts.

In assessing the likely impacts of potential wind energy development when identifying suitable areas, and in determining planning applications for such development, the Council will follow the approach set out in the National Policy Statement for Renewable Energy Infrastructure (along with the relevant sections of the Overarching National Policy Statement for Energy Infrastructure, including that on aviation impacts).

The Council will support proposals for wind turbines, in addition to the above criteria for renewable energy developments, where:

- i. They are located within an 'Area Suitable for Wind Energy Development' as designated on the Policies Map;*
- ii. The proposal has been subject to meaningful pre-application consultation with the affected local community and the application is supported by a consultation statement;*
- iii. There is no unacceptable adverse impact on residential amenity in terms of noise, shadow flicker, vibration and visual dominance;*
- iv. A noise impact assessment, which considers all relevant National and Local guidance, must be conducted, and identify appropriate noise mitigation measures where required to reduce the impacts on the surrounding occupants;*
- v. It is in compliance with the NPPF and Ministerial Written Statement (HCWS42) or subsequent national policy; and*
- vi. There is no unacceptable adverse impact on highway safety on the existing infrastructure or the proposed M25 Junction 28 Improvement Scheme.*

National Policy

National Planning Policy Framework (December 2024)

- 2.2 The National Planning Policy Framework (NPPF) replaces the previous version of the NPPF and the Planning Policy Statements (PPS) and Planning Policy Guidance (PPG), including the Department of the Environment's Planning Policy Guidance Note 24: 'Planning and Noise' (PPG 24), which was published in 1994. The main reference to noise within the latest version of the NPPF is at Paragraphs 187 (e) and 198:

'Para.187 (e). "Planning policies and decisions should contribute to and enhance the natural and local environment by:

(e) 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 or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and."

'Para.198. 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 life⁷⁵;*
- (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; and*
- (c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*

- 2.3 The reference number 72 cross references the National Policy Statement for England (2010) Explanatory Note.
- 2.4 Although some qualitative guidance on noise has been provided in the web-based Planning Practice Guidance document, there has been no alternative quantitative guidance proposed by the Government as a direct replacement for PPG24. This was due to the recognition that every site is different and that there is no single acceptable noise level, suitable for all applications.

National Planning Policy Guidance (2019)

- 2.5 On 6th March 2014, the Department for Communities and Local Government (DCLG) launched the National Planning Practice Guidance (NPPG) web-based resource to supersede previous planning guidance documents including PPG24 and provide clarification over all disciplinary sectors in the delivery of the design quality aspirations of the NPPF. This has been updated in July 2019.
- 2.6 The NPPG-Noise provides guidance on the assessment of noise, the needs to be considered when new developments may create additional noise and when developments would be sensitive to the prevailing acoustic environment.
- 2.7 The acoustic environment should be taken into account in the planning of new development and decision making should take the following into consideration:
- *'whether or not 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.'*
- 2.8 It then cross-references the Noise Policy Statement for England (2010) for further clarification on how to assess the overall effect of noise exposure.

The Noise Policy Statement for England (2010)

- 2.9 The Noise Policy Statement for England (NPSE) was published in March 2010 and is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long-term vision of Government noise policy which is to:

'Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'

- 2.10 The vision is supported by the following aims which are reflected in paragraph 1.7 of the Noise Policy Statement for England:

'Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *Avoid significant adverse impacts on health and quality of life;*
- *Mitigate and minimise adverse impacts on health and quality of life; and*
- *Where possible, contribute to the improvement of health and quality of life.'*

- 2.11 The Explanatory Note to the NPSE introduces three concepts to the assessment of the potential effects of noise:

- **'NOEL** – No Observed Effect Level: *This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.*
- **LOAEL** – Lowest Observed Adverse Effect Level: *This is the level above which adverse effects on health and quality of life can be detected.*
- **SOAEL** – Significant Observed Adverse Effect Level: *This is the level above which significant adverse effects on health and quality of life occur.'*

- 2.12 Unlike the now redundant PPG24, the three levels are not defined numerically in the NPSE, and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent a SOAEL for noise is acknowledged and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

3.0 ASSESSMENT METHODOLOGY AND CRITERIA

BS 4142:2014+A1:2019

3.1 This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature. Amended in 2019, following the 2014 update which introduced the application of acoustical characteristics and guidance on the determination of appropriate background sound levels.

3.2 BS 4142 specifies that an initial estimate of the impact of the specific sound can be obtained by subtracting the measured background sound level from the rating level and then considering the following:

- Typically, the greater this difference, the greater the magnitude of the impact;
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

3.3 Acoustical characteristics are applied cumulatively for the following characters;

Acoustic Character	Subjective Level	Correction
Tonality	Just perceptible	+2 dB
	Clearly perceptible	+4 dB
	Highly Perceptible	+6 dB
Impulsivity	Just perceptible	+3 dB
	Clearly perceptible	+6 dB
	Highly Perceptible	+9 dB
Intermittency	Readily distinctive	+3 dB
Other sound characteristics	Readily distinctive	+3 dB

Table 3.1: Acoustical Characteristics for Determining the Rated Sound Level

3.4 The above correction values are based on the subjective nature of the sound, however BS 4142 also provides detailed guidance on objectively calculating the correction factors, which are included within Annexes C, D and E of the British Standard.

3.5 This latest version of the British Standard states that the most relevant background sound level should be applied for the most relevant time period and should reflect the period which is being assessed. This could include the use of statistical analysis or averaging to calculate the most applicable background sound level.

4.0 PLANT NOISE ASSESSMENT

Baseline Sound Levels

- 4.1 A Baseline acoustic survey was undertaken between 27th March – 1st April 2025 at the 2 locations shown in Figure 1.1
- 4.2 The noise monitors were calibrated to manufacturer specifications before and after the measurement period, and no significant drift in calibration was observed. Details of the equipment used is provided below:

Equipment No.	Equipment	Make/Model	Certification	
32 (Long-term measurements)	Class 1 Sound Level Meter	Norsonic 140 RTA	Serial Number	
			1406932	
			Cert No.	
			1146505	
	Preamplifier	Norsonic 1209	Calibration Date	
			22/06/2023	
			Serial Number	
			1209.2114	
	Microphone	Norsonic 1225	Cert No.	
			1146505	
			Calibration Date	
			23/06/2023	
			Serial Number	
			1225.285513	
			Cert No.	
			1146505	
		Calibration Date		
		23/06/2023		
Calibrated Level Before:		113.9	Sens	-26.2
Calibrated Level After:		113.9	Sens	-26.2

Table 4.1: Calibration Information for Long Term Equipment

Equipment No.	Equipment	Make/Model	Certification	
33 (Short-term measurements)	Class 1 Sound Level Meter	Norsonic 140 RTA	Serial Number	
			1406933	
			Cert No.	
			1146506	
	Preamplifier	Norsonic 1209	Calibration Date	
			23/06/2023	
			Serial Number	
			1209.21141	
	Microphone	Norsonic 1225	Cert No.	
			1146506	
			Calibration Date	
			23/06/2023	
			Serial Number	
			1225.285519	
Cert No.				
1146506				
Calibration Date				
23/06/2023				
Calibrated Level Before:		113.9	Sens	-25.9
Calibrated Level After:		113.9	Sens	-25.9

Table 4.2: Calibration Information for Attended Equipment

Equipment No.	Equipment	Make/Model	Certification
1	Acoustic Calibrator	Norsonic 1251	Serial Number
			125134963
			Cert No.
			1164831
			Calibration Date
			08/07/2024

Table 4.3: Calibration Information for Calibrator

- 4.3 The long-term meter was left to run unattended in free-field conditions for the duration. The weather was also observed throughout the monitor period, and there were no periods of inclement weather which warranted exclusion from the assessment data.

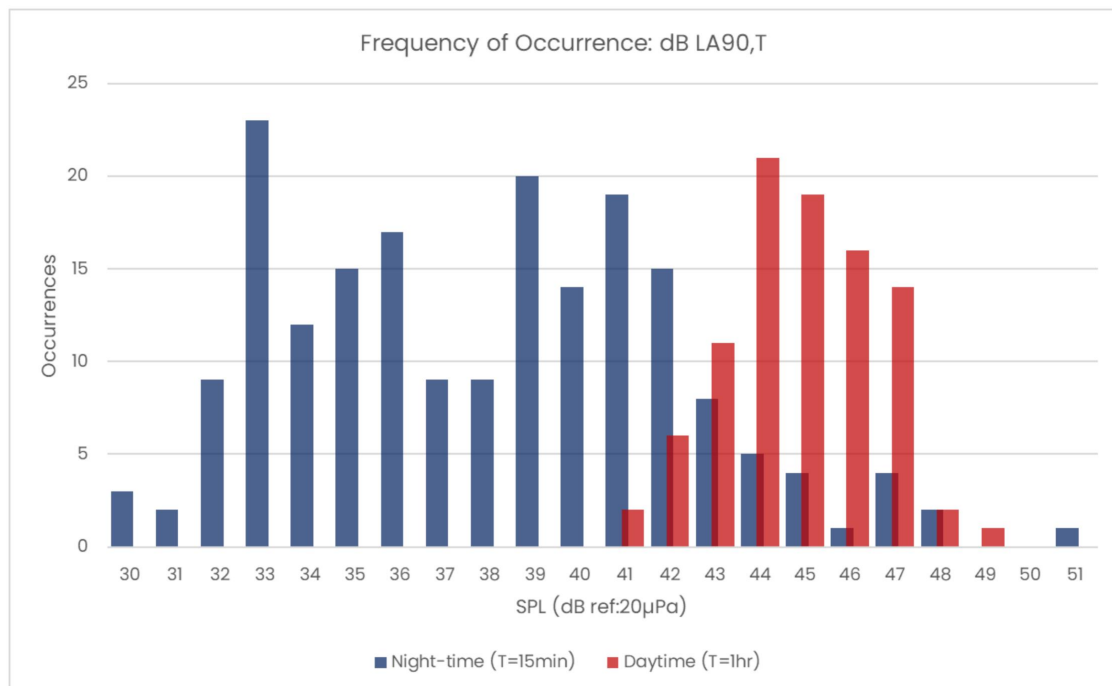


Chart 4.1: Distribution of Background Sound Levels

4.4 The representative daytime background sound levels were measured to be **44 dB**.

4.5 The representative night-time background sound levels were measured to be **33 dB**.

5.0 PLANT NOISE ASSESSMENT

Proposed Plant Equipment

- 5.1 The proposed plant equipment has been provided by CPW.
- 5.2 We understand that 7 existing DX units are to be retained or replaced like for like. Where units are to be retained there is technically no requirement to assess the impact as they form part of the existing sound scape in the area.
- 5.3 Replacing units like for like results in effectively no change, assuming the unit's sound levels are comparable. In practice quieter sound levels are possible as wear and tear on existing units can alter the sound level they operate at.
- 5.4 In our view a like for like replacement should not necessarily require an assessment against BS 4142, providing the unit is shown to have an equivalent sound level or lower than the existing unit.
- 5.5 For the purposes of this assessment we have not assessed units to be reused or replaced.
- 5.6 The proposals include the addition of one new VRF unit to be installed to the west wing and a new air handling unit (AHU) with the potential for supporting condenser units is to be installed towards the centre of the roof.

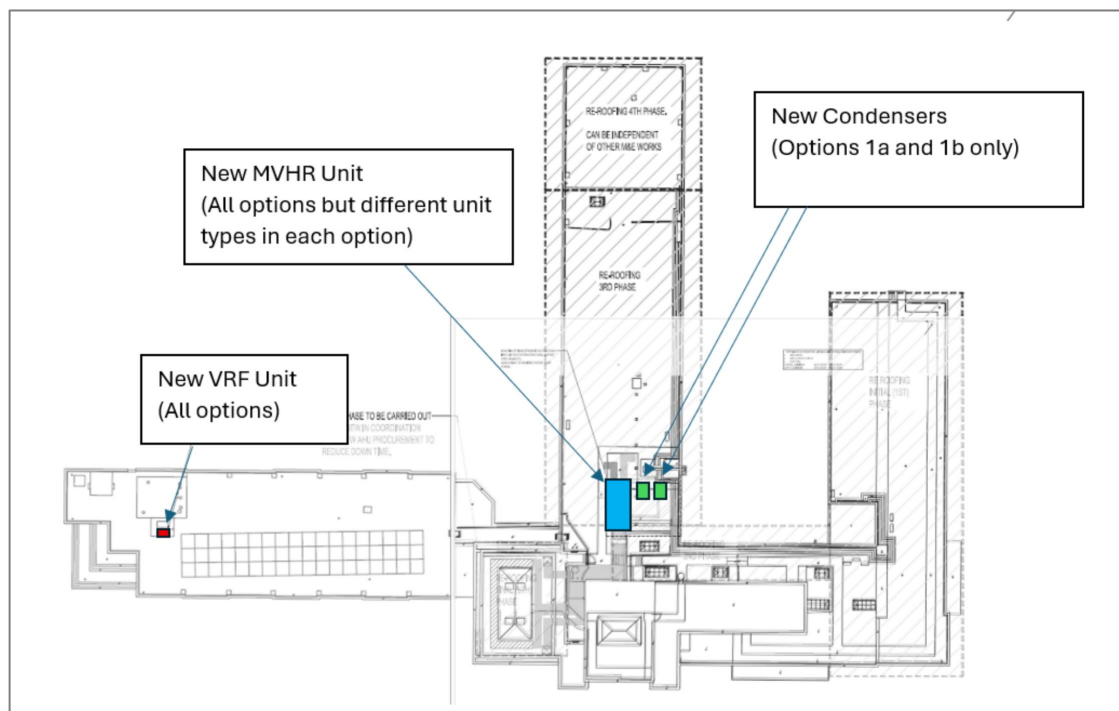


Figure 5.1: Plant Locations and Options

5.7 Specific model numbers have not been provided for the potential AHUs, however, sound power data has been provided.

5.8 Unit information and the sound levels used in our model have been provided below:

Unit	Octave Band Sound Level (dB)							A-Weighted Sound Level (dBA)
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
AHU Option 1a – Outdoor Air	77 [a]	78 [a]	77 [a]	73 [a]	62 [a]	58 [a]	53 [a]	73 [a]
AHU Option 1a – Exhaust Air	80 [a]	85 [a]	84 [a]	82 [a]	81 [a]	78 [a]	78 [a]	88 [a]
AHU Option 1a – Sound Break Out	74 [a]	70 [a]	65 [a]	60 [a]	58 [a]	55 [a]	51 [a]	64 [a]
AHU Option 1b – Outdoor Air	71 [a]	78 [a]	72 [a]	69 [a]	60 [a]	54 [a]	46 [a]	69 [a]
AHU Option 1b – Exhaust Air	78 [a]	84 [a]	79 [a]	81 [a]	78 [a]	75 [a]	72 [a]	83 [a]
AHU Option 1b – Sound Break Out	71 [a]	70 [a]	60 [a]	57 [a]	55 [a]	49 [a]	45 [a]	60 [a]
AHU Option 2 – Outdoor Air	73 [a]	77 [a]	72 [a]	69 [a]	60 [a]	53 [a]	46 [a]	69 [a]
AHU Option 2 – Exhaust Air	78 [a]	85 [a]	80 [a]	82 [a]	79 [a]	77 [a]	74 [a]	84 [a]
AHU Option 2 – Sound Break Out	71 [a]	70 [a]	61 [a]	57 [a]	55 [a]	50 [a]	46 [a]	61 [a]
Condenser – SYSVRF3 180 AIR EVO32 HP R	82 [b]	73 [b]	64 [b]	55 [b]	48 [b]	46 [b]	39 [b]	73 [a]
Daikin REYA 26 (comprising data for REYA 14 and REYA 12 units)	82 [a]	88 [a]	85 [a]	86 [a]	80 [a]	76 [a]	76 [a]	86 [a]

Table 5.1: Sound Data Used for This Assessment [a] = sound power, [b] = sound pressure at 1 m

5.9 The above data was used to inform a computer model of the site and surrounding area.

5.10 Our assessment has been conducted using a CadnaA 3D noise propagation model, which was constructed using the supplied plans for the plant locations, and geographical data from OpenStreetMap for the surrounding area. Ground conditions were set to hard, building facades were set to structured and a total of 2 orders of reflections were accounted for.

5.11 The supplied plans were used to populate the model with the noise sources as detailed above. The model geometry is shown in Figure 5.2 below:

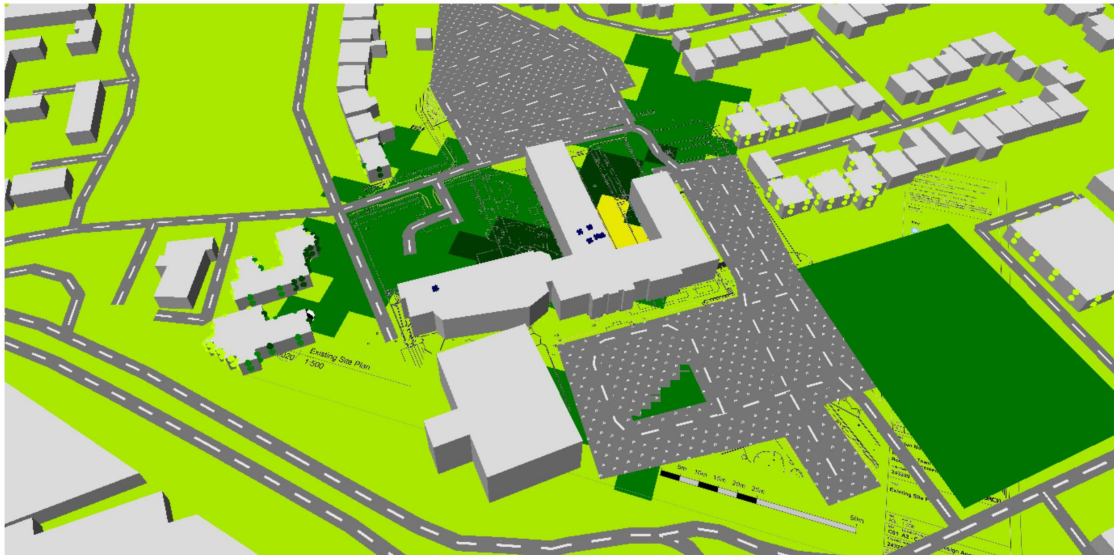


Figure 5.2: Computer Model of The Site

- 5.12 As previously discussed, to understand the impact of equipment BS 4142 states that an appropriate penalty should be applied to take into account the character of the sound of any plant.
- 5.13 The data collected from the manufacturer is not sufficiently detailed to determine if the proposed plant is likely to be tonal. However, none of the equipment measured was shown to have clearly tonal components when assessed to the objective one third octave method contained in BS 4142. In our experience new and well-maintained building services plant is not significantly tonal and given that all equipment measured did not present significant tones, even after being operational, we would consider it unnecessary to apply a correction for clearly perceptible tones in this instant. Tones which are just audible may be present and as such when the plant is at or above the background level a penalty has been considered as a worst case.
- 5.14 As with tones, new mechanical plant is often designed to avoid significant impulsive sounds, however, due to the nature of the equipment, intermittent operation will occur and where audible at the receptor this could be perceived as intermittent, particularly during quiet periods.
- 5.15 With the above considered we have applied a 3 dB combined penalty rating to account for potential tonality and any intermittent operation when the predicted sound level is equal to, or higher than the background sound level at the receptor.
- 5.16 Where the sound of the plant is below the representative background sound level, we have not assigned a penalty.
- 5.17 The predicted plant sound levels, penalties and assessment in line with the Stage 1 assessment of BS 4142 is summarised for each option in Tables 5.2, 5.3 and 5.4 below:

Assessment Location	Cumulative Specific Noise Level, $L_{Aeq,T}$	Character Penalty (Day/Night)	Rating Level, $L_{Ar,Tr}$	Background $L_{A90,T}$ (where T is 1-hr during the daytime/ 15-min during the night-time)	Level Over Background
Church	40	0 / +3	40/43	44/33	-4 / +10
Houses west of Park End Road (Plan reference 1)	40	0 / +3	40/43	44/33	-4 / +10
Houses east of Park End Road (Plan reference 2)	42	0 / +3	42/45	44/33	-2 / +12
Houses off Brunel Close (Plan reference 3)	34	0 / +3	34/37	44/33	-10 / +4

Table 5.2: BS 4142 Assessment of Impact to Existing Nearest NSRs (Combined Impact Option 1A)

Assessment Location	Cumulative Specific Noise Level, $L_{Aeq,T}$	Character Penalty (Day/Night)	Rating Level, $L_{Ar,Tr}$	Background $L_{A90,T}$ (where T is 1-hr during the daytime/ 15-min during the night-time)	Level Over Background
Church	39	0 / +3	39/42	44/33	-5 / +9
Houses west of Park End Road (Plan reference 1)	39	0 / +3	39/42	44/33	-5 / +9
Houses east of Park End Road (Plan reference 2)	40	0 / +3	40/43	44/33	-4 / +10
Houses off Brunel Close (Plan reference 3)	32	0 / 0	32/32	44/33	-12 / -1

Table 5.3: BS 4142 Assessment of Impact to Existing Nearest NSRs (Combined Impact Option 1B)

Assessment Location	Cumulative Specific Noise Level, $L_{Aeq,T}$	Character Penalty (Day/Night)	Rating Level, $L_{Ar,Tr}$	Background $L_{A90,T}$ (where T is 1-hr during the daytime / 15-min during the night-time)	Level Over Background
Church	39	0 / +3	39/42	44/33	-5 / +9
Houses west of Park End Road (Plan reference 1)	39	0 / +3	39/42	44/33	-5 / +9
Houses east of Park End Road (Plan reference 2)	40	0 / +3	40/43	44/33	-4 / +10
Houses off Brunel Close (Plan reference 3)	32	0 / 0	32/32	44/33	-12 / -1

Table 5.4: BS 4142 Assessment of Impact to Existing Nearest NSRs (Combined Impact Option 2)

- 5.18 It can be seen that all receptor locations are subject to levels below the point at which an adverse impact during the daytime and to houses off Brunel Road, are below the point at which an adverse impact during the night-time.
- 5.19 During the night-time dwellings off Park End Road, and the church are shown to be subject to levels which indicate an adverse impact or significant adverse impact.
- 5.20 A review of the model shows the primary source of noise is the Daikin REYA 26 and to a lesser extent the exhaust branch of the MVHR unit.
- 5.21 Following a discussion with the mechanical engineer the potential running periods of the units are unknown and will be dependent on the client use of the space. If the use of the building is restricted so that the Daikin unit does not operate during the night-time, then the impact can be significantly reduced so as to avoid adverse impact during the night-time. However, if this cannot be enforced, then further mitigation would be required.
- 5.22 We have been provided with the following performance data for the Environ SCVRF150 V3, which we understand is to be installed on the Daikin REYA 26 Unit:

	dB Octave band centre frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Intake								
louvres								
front -	6	10	15	21	25	24	20	15
upgraded								
Discharge								
louvres								
top -	6	10	15	21	25	24	20	15
upgraded								

Table 5.5: EnvironSCVRF150 Acoustic Enclosure Performance

- 5.23 Following discussions with the design team, following review of our initial technical note, we understand Option 1B is to be progressed, and our recommendations are therefore based on ensuring this scenario is mitigated to avoid an adverse impact on the basis that these mitigation measures would ensure the other two scenarios are adequately reduced.
- 5.24 At this stage we have considered an inline attenuator to the atmosphere side duct work with the following insertion loss values.

Item	Insertion Loss					
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Example attenuator	5	7	16	21	21	17

Table 5.6: Example Attenuator

- 5.25 With the proposed mitigation the following sound levels are calculated in the worst-case assessment scenario:

Assessment Location	Cumulative Specific Noise Level, $L_{Aeq,T}$	Character Penalty (Day/Night)	Rating Level, $L_{Ar,Tr}$	Background $L_{A90,T}$ (where T is 1-hr during the daytime / 15-min during the night-time)	Level Over Background
Church	27	0 / 0	27/27	44/33	-17 / -6
Houses west of Park End Road (Plan reference 1)	23	0 / 0	23/23	44/33	-21 / -10
Houses east of Park End Road (Plan reference 2)	25	0 / 0	25/25	44/33	-19 / -8
Houses off Brunel Close (Plan reference 3)	24	0 / 0	24/24	44/33	-20 / -9

Table 5.7: BS 4142 Assessment of Impact to Existing Nearest NSRs (Combined Impact Option 1A With Mitigation)

- 5.26 With the above mitigation the predicted sound level with all equipment running and with penalties applied in line with BS 4142, our assessment shows that sound levels during the night-time would be below the point at which BS 4142 suggests that an adverse impact may occur and that the likelihood for adverse impact is low at all receptors.

6.0 SUMMARY

- 6.1 Create Consulting Engineers Ltd have conducted an assessment of plant noise emissions at the proposed changes to Havering Town Hall.
- 6.2 A background sound level has been determined based on the results of a baseline acoustic survey.
- 6.3 An assessment of the proposals has been conducted, and initial calculations suggest that an adverse or significant adverse impact may occur should the Daikin RAYE 26 unit operate during the night-time hours without suitable mitigation.
- 6.4 Following the proposed mitigation measures outlined in the previous section, it has been shown that the sound levels can be reduced below the point at which BS 4142 suggests that an adverse impact may occur.
- 6.5 We predict that, when taking into account the proposed mitigation, the likelihood for adverse impact at all receptors is low.
- 6.6 Throughout we have tended to worst case assumptions, and we are therefore confident that unfavourable uncertainty has been reduced to a minimum.

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