Planning Condition 16 Building Services Noise Impact Assessment

Amethyst Lane

Reading

RG30 2EZ

Stroma Built Environment Ltd.

SBE Ref: OP-C254 – AC - 2v1

I. Revision History

Revision	Date	Description	
2v1	18/02/2025	First Issue	
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1. Introduction

1.1 Stroma Built Environment (SBE) have been appointed by Helix Construct Limited (the client) to review the proposed Air Source Heat Pumps (ASHP) at their development at Amethyst Lane, Reading. This assessment comes after planning conditions 16 and 30 have been imposed on the development by the Local Authority.

1.2 This report will assess the noise emissions from the Air Source Heat Pumps against the criterion given in planning condition 16. The development comprises 17 houses, each with an individual Air Source Heat Pump, spread over 3 blocks. A fourth block will be used as a residential care facility, with an internal plant room containing a further two Air Source Heat Pumps.

1.3 The wording of the planning condition has been updated so that the domestic Air Source Heat Pumps can be excluded from the assessment. This assessment will only assess the noise emissions from the Air Source Heat Pumps located at the residential care facility.

1.4 This document has been prepared for the sole use, benefit, and information of the client for the purposes set out in the document or instructions commissioning works. The liability of SBE in respect of the information contained herein will not extend to any third party.

1.5 This report is limited to addressing the specific acoustic issues contained herein and is based on information and drawings provided by the client.

1.6 Whilst every effort has been made to ensure that this report is easy to read, it is technical in nature. A glossary of terminology has been included in Appendix II.

2. Standards and Guidance Documents

Local Authority – Reading Borough Council

2.1 This site falls within the jurisdiction of Reading Borough Council. During the planning phase of this development, Reading Borough Council imposed planning condition 16 on the site. After conversations with Rebecca Moon and others at the planning department of Reading Borough Council, the planning condition has been replaced. The replacement planning condition 16 states:

"No mechanical plant, including commercial air source heat pumps (excluding residential air source heat pumps) shall be installed until a noise assessment of the proposed mechanical plant has been submitted and approved by the Local Planning Authority. The assessment shall be carried out for in accordance with BS4142:2014+A1:2019 methodology. The predicted specific sound level ($L_{Aeq,TR}$) (with reference to BS:4142) as measured at a point 1 metre external to the nearest noise-sensitive facade shall be at least 10dB below the pre-existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation. The predicted rating level, $L_{Ar,Tr}$ (specific sound level plus any adjustment for the characteristic features of the sound) as measured at a point 1 metre external to the nearest noise-sensitive façade (habitable window of a dwelling) shall not exceed the pre-existing background sound level, $L_{A90,T}$ when all plant/equipment (or any part of it) is in operation. The plant shall thereafter only be installed in accordance with the assessment and shall thereafter be maintained so that it operates to the same standard.

REASON: To safeguard the amenities of the adjoining premises and the area generally, in accordance with Policy CC8 and EN17 of the Reading Borough Local Plan 2019."

2.2 It is understood that the client has clarified with Reading Borough Council what the specific requirements are for discharging the noise aspects of planning condition 30. Reading Borough Council have stated that the noise emissions for the air source heat pumps will need to be assessed using the *Microgeneration Installation Standard MCS 020* methodology. This assessment has been done in SBE's report *OP-C254 AC 1v3 Planning Condition 30 Air Source Heat Pump Assessment,* dated 18th February 2025.

BS 4142:2014 *Methods for rating and assessing industrial and commercial sound*

2.3 BS 4142 describes a method for assessing the impact from noise sources that are of an industrial nature (e.g. fans, pumps, chillers, air handling units etc.). The assessment methodology is based upon determining a 'rating level' for the equipment being assessed, which is the level of noise from the item, or items of plant being assessed (measured as an L_{Aeq}).

2.4 The rating level is then compared with the underlying background noise level (measured as an L_{A90}) in the absence of noise from the item or items of plant being assessed. 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.

2.5 BS 4142 states that a penalty should be added for any plant which gives rise to noise features that may increase disturbance such as tonal, impulsive, or intermittent characteristics. A rating penalty for a sound may be applied based on a subjective assessment of its characteristics.

3. Site Baseline Conditions

Site Description

3.1 The site lies in a suburban residential area on and around Amethyst Lane. The site is currently not in use, however, it was previously in use by a hospice care facility. The site is surrounded to the south, east and west by residential dwellings. The Sue Ryder, Duchess of Kent Hospice lies on the northern site boundary.

3.2 The proposed development consists of 17 houses and a residential care facility spread over four blocks, A, B, C and D. Blocks A – C are either two or three storey blocks, while Block D is only a single storey in height.

3.3 A site plan showing the locations of Blocks A-D and the nearby noise sensitive receptors is shown as Figure 1.

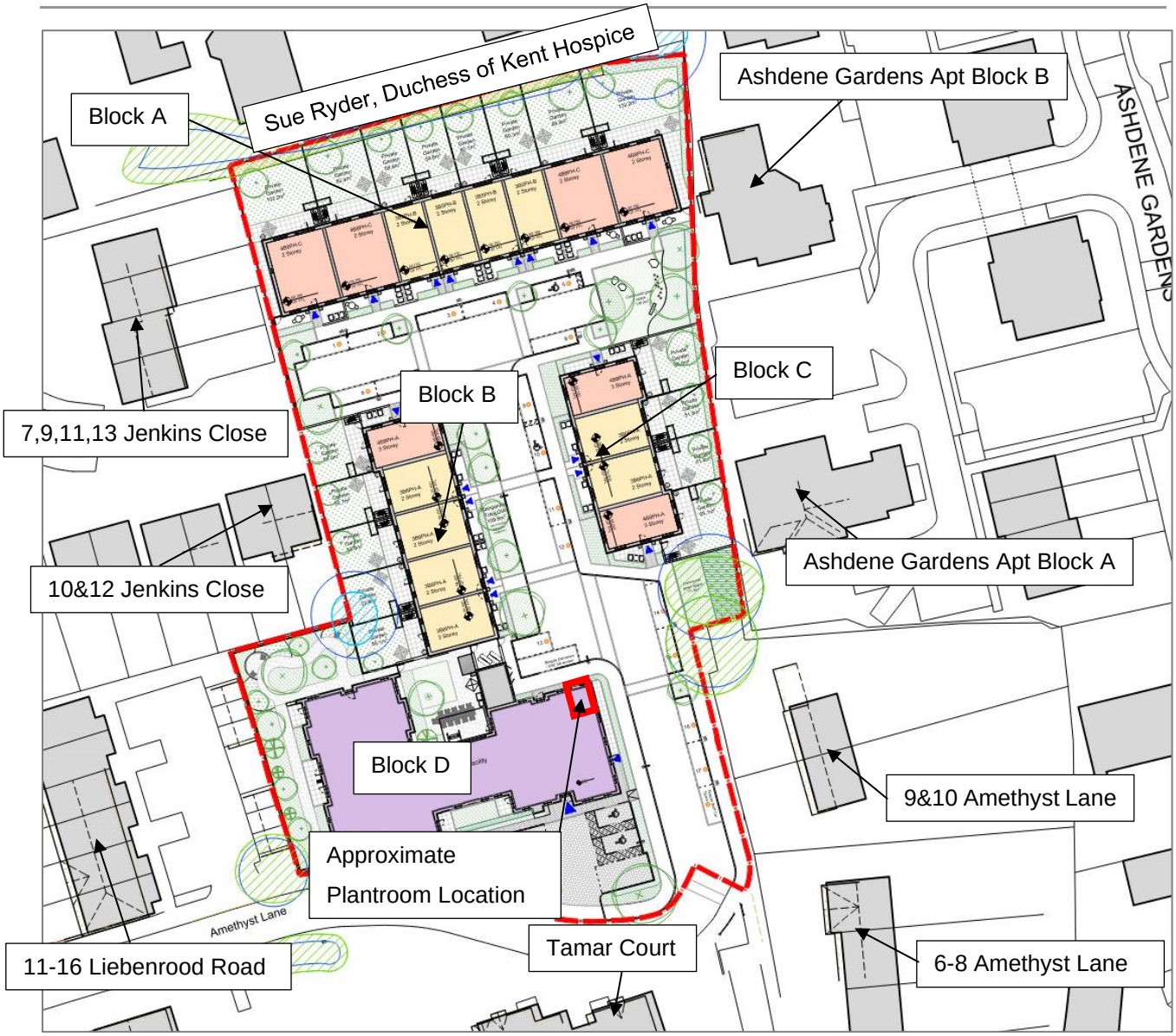


Figure 1: Site Plan

3.4 Blocks A – C are the housing blocks, and each house has its own Air Source Heat Pump located externally. Block D is the residential care facility. It has two Air Source Heat Pumps located in an internal plant room. This plant room is located on the northeastern corner of Block D.

3.5 As stated by planning condition 16, the domestic Air Source Heat Pumps are not included as part of this assessment. As such, only the Air Source Heat Pumps located in the Block D plantroom will be assessed.

Noise Sensitive Receptors

3.6 As shown by Figure 1, the site is surrounded by noise sensitive receptors (NSR). Due to the location of the plantroom, those receptors closest to it are likely the ones that will be worst affected by this installation. These are 9&10 Amethyst Lane, and Ashdene Gardens Apt Block A.

3.7 Although, those receptors are likely the worst affected, the assessment will be undertaken at all receptors shown on Figure 1.

Noise Survey

3.8 SBE has not been appointed for a noise survey for this development. As such, the assessment will be based on measurements taken by another acoustic consultancy.

3.9 During the planning phase of this development, *24 Acoustics* were commissioned to provide an initial noise impact assessment. This report is titled *'Proposed Residential Development and respite Centre at Amethyst Lane, Reading – Noise Impact Assessment'*, referenced as 'R9942-1 Rev 1' and dated 18th April 2023. This report was submitted as part of the planning application for this development.

3.10 For their noise survey, *24 Acoustics* utilised an unattended noise monitoring strategy. They monitored the noise levels at a single location at the '*south east of the site, at a height of approximately 4m above local ground level'*. The noise monitoring was conducted over a period of seven days; logging noise levels every 5 minutes.

3.11 Whilst the measured background noise values are not given, *24 Acoustics* state that *'the measured typical background noise levels representative of the existing noise sensitive properties to the east and west of the site, were in the order of 40 dB $L_{A90,1hr}$ during daytime periods (07:00 – 23:00) and 29 dB $L_{A90,15min}$ during the night (23:00 – 07:00).'*

Building Services Noise Limits

3.12 Using the *24 Acoustics* stated typical background noise levels, noise limits for the building services noise emissions that will achieve the requirements of planning condition 16 can be set. Planning condition 16 states that building services noise emissions shall be at least 10 dB below the pre-existing background sound level. The building services noise limits are shown for the daytime and night-times periods in Table 1, below.

Table 1: Building Services Noise Limits

Period	Plant Items requiring assessment	Typical Background Noise Level (dB $L_{A90,T}$)	Building Services Noise Limit (dB $L_{Ar,Tr}$)
Daytime (07:00 – 23:00)	Respite Care Facility Air Source Heat Pumps	40	30
Night-time (23:00 – 07:00)		29	19

3.13 The building services noise limits shown in Table 1 must be achieved in order to discharge planning condition 16. Please note that the noise limits are cumulative and apply to all pieces of operating plant collectively and not to each individual piece of plant.

4. Building Services Noise Impact Assessment

Assessed Building Services Plant

4.1 Planning condition 16 states that only noise emissions from commercial air source heat pumps are required to be assessed. These sources are the two air source heat pumps located in the plant room of Block D. The proposed Air Source Heat Pumps (ASHP) are Mitsubishi CAVH-R450YA-HPB units. Data for these units and a plan of the plant room can be found in Appendix I.

4.2 Air will be supplied to and extracted from this plant room by three façade louvres. There are two supply louvres proposed on the eastern facade; both will be approximately 4m^2. There is a single extract louvre located on the northern façade that is approximately 2m^2.

4.3 It is also understood that there is a boundary, close boarded timber fence running around the perimeter of the site.

4.4 Calculations have been undertaken to determine the sound power level for both of these façade openings.

4.5 To accurately calculate the impact all the above noise sources would have on the Noise Sensitive Receptors (NSR), a noise model was made using the modelling software, *CadnaA*.

4.6 The noise model was based on the following assumptions and limitations:

- Noise propagation is calculated according to ISO 9613 methodology;
- Sound reflections up to the 2nd order have been considered;
- Ground absorption has been set to 0.5 to reflect the relatively built up natural environment around the site;
- Building absorption has been set to 0.2;
- The effect of topography has not been considered in the model as the site and surrounding area have little topographical features;
- Receptor height has been set to 1.5 m to reflect ground floor level, 4 m to reflect first floor level, and 6.5m to reflect second floor level of the identified NSRs;
- Receptors are set to 1 m from facades of all NSRs;
- It has been undertaken on the basis that the plant included within the assessment will potentially operate concurrently at any point during the day and at design duty; while this is unlikely to be the case in reality, this assumption presents a worst-case assessment;
- BS 4142 acoustic feature corrections have not been included in the calculations as based on the type of plant equipment and manufacturer noise data provided, SBE does not expect impulsive or tonal characteristics, or distinctive intermittency to the noise emitted.

4.7 It has been assumed that the building services have the possibility of running throughout the daytime period. At night, it is understood that their operation will be limited to 25%. To account for this, a -6 dB correction has been made to the night-time assessment.

4.8 Table 2 presents the cumulative plant noise levels at the nearest identified NSRs, along with a comparison against the rating noise level criteria set out in Table 2.

Table 2: Calculated BS4142 Plant Noise Levels at NSR

NSR	Period	Calculated Cumulative Noise Level at NSR (dB $L_{Ar,Tr}$)	Rating Level Limit (dB $L_{Ar,Tr}$)	Level Above Rating Level Limit (dB)	Compliant
Ashdene Gardens Apt Block B	Daytime (07:00 – 2300)	24	30	-6	YES
	Night-time (23:00 – 07:00)	18	19	-1	YES
Ashdene Gardens Apt Block A	Daytime (07:00 – 2300)	39	30	+9	NO
	Night-time (23:00 – 07:00)	33	19	+14	NO
9&10 Amethyst Lane	Daytime (07:00 – 2300)	40	30	+10	NO
	Night-time (23:00 – 07:00)	34	19	+15	NO
6-8 Amethyst Lane	Daytime (07:00 – 2300)	35	30	+5	NO
	Night-time (23:00 – 07:00)	30	19	+11	NO
Tamar Court	Daytime (07:00 – 2300)	30	30	+0	YES
	Night-time (23:00 – 07:00)	24	19	+5	NO
11-16 Liebenrood Road	Daytime (07:00 – 2300)	17	30	-13	YES
	Night-time (23:00 – 07:00)	11	19	-8	YES
10 &12 Jenkins Close	Daytime (07:00 – 2300)	15	30	-15	YES
	Night-time (23:00 – 07:00)	<10	19	-9	YES
7,9,11,13 Jenkins Close	Daytime (07:00 – 2300)	12	30	-18	YES
	Night-time (23:00 – 07:00)	<10	19	-6	YES

4.9 Table 2 shows that the calculated cumulative building services noise levels at some of NSRs are above the rating level limit and is therefore not compliant with the rating level criteria set out in Table 1. Planning condition 16 cannot be discharged without noise mitigation measures.

Noise Mitigation Measures

4.10 To achieve the requirements of planning condition 16, a total of 15 dB of noise reduction is required. This is a significant amount of noise reduction.

4.11 Please discuss any proposed noise mitigation measures with your mechanical services consultant as there may be other factors that may affect what noise mitigation measures are possible.

4.12 It is understood that ducting the ASHPs in the plant room is not possible due to a lack of space in the plant room.

4.13 The noise from the ASHPs is breaking out of the plant room via façade louvres which are currently specified as non-acoustic weather louvres. Acoustic louvres could be installed here to help reduce the noise emissions. A louvre providing a minimum sound reduction of 24 dB R_w would be sufficient to control noise break out from the plant room, which is likely to require a 600mm deep double banked louvre.

4.14 Suitable products are available from *Wakefield Acoustics* Type WA-ACL-600DB Acoustic Louvre (24 dB R_w), or *Gilberts* Type ALD/60 acoustic louvre (25 dB R_w). Proposals will need to be reviewed by M&E engineers to confirm whether acoustic louvres will provide sufficient air flow for condenser operation.

4.15 The assessment has been repeated with these noise mitigation measures in place. Table 3 shows the results of the updated assessment.

Table 3: Calculated BS4142 Plant Noise Levels at NSR – with noise mitigation measures

NSR	Period	Calculated Cumulative Noise Level at NSR (dB $L_{Ar,Tr}$)	Rating Level Limit (dB $L_{Ar,Tr}$)	Level Above Rating Level Limit (dB)	Compliant
Ashdene Gardens Apt Block B	Daytime (07:00 – 2300)	11	30	-19	YES
	Night-time (23:00 – 07:00)	<10	19	-9	YES
Ashdene Gardens Apt Block A	Daytime (07:00 – 2300)	25	30	-5	YES
	Night-time (23:00 – 07:00)	19	19	-0	YES
9&10 Amethyst Lane	Daytime (07:00 – 2300)	25	30	-5	YES
	Night-time (23:00 – 07:00)	19	19	+0	YES
6-8 Amethyst Lane	Daytime (07:00 – 2300)	22	30	-8	YES
	Night-time (23:00 – 07:00)	16	19	-3	YES
Tamar Court	Daytime (07:00 – 2300)	18	30	-12	YES
	Night-time (23:00 – 07:00)	12	19	-7	YES
11-16 Liebenrood Road	Daytime (07:00 – 2300)	<10	30	-20	YES
	Night-time (23:00 – 07:00)	<10	19	-9	YES
10&12 Jenkins Close	Daytime (07:00 – 2300)	<10	30	-20	YES
	Night-time (23:00 – 07:00)	<10	19	-9	YES
7,9,11,13 Jenkins Close	Daytime (07:00 – 2300)	<10	30	-20	YES
	Night-time (23:00 – 07:00)	<10	19	-9	YES

4.16 Table 3 shows that with the noise mitigation measures in place, the requirements of planning condition 16 would be met. On this basis, the planning condition can be discharged when the noise mitigation measures are installed.

Estimate of Calculation Uncertainty

4.17 An assessment of uncertainty in measurement and calculation is undertaken following guidance in University of Salford document '*A good practice guide on the sources and magnitude of uncertainty arising in the practical measurement of environmental noise'* (2007).

4.18 Assessment is undertaken against measured site background sound level measurements. The uncertainty of noise survey measurements is expected to be ± 1 dB based on the allowable uncertainty for a calibrated Class 1 precision integrating sound level meter, quoted by BS 61672-11:2003 as ± 1 dB at 1 kHz.

4.19 Sound data for plant equipment has been taken from manufacturer quoted noise. In accordance with BS EN ISO 3740:2001 the uncertainty of source measurement is expected to be ± 1 dB in each octave band.

4.20 The uncertainty in a distance attenuation calculation is quoted by ISO 9613-2:1996 as ± 3 dB for sources < 5m from ground level.

4.21 It is therefore considered that the maximum uncertainty in measurement and calculation is ± 3 dB.

4.22 Planning condition 16 states that the noise emissions must be at least 10 dB below the typical background noise level. A BS 4142 assessment would indicate that there would be negligible/no impact on the NSRs, and this result is not affected by the uncertainty in calculation.

5. Conclusions

5.1 Stroma Built Environment (SBE) have been appointed by Helix Construct Limited (the client) to review and assess the proposed air source heat pumps at their development at Amethyst Lane, Reading. This assessment comes after planning condition 16 has been imposed on the development by the Local Authority.

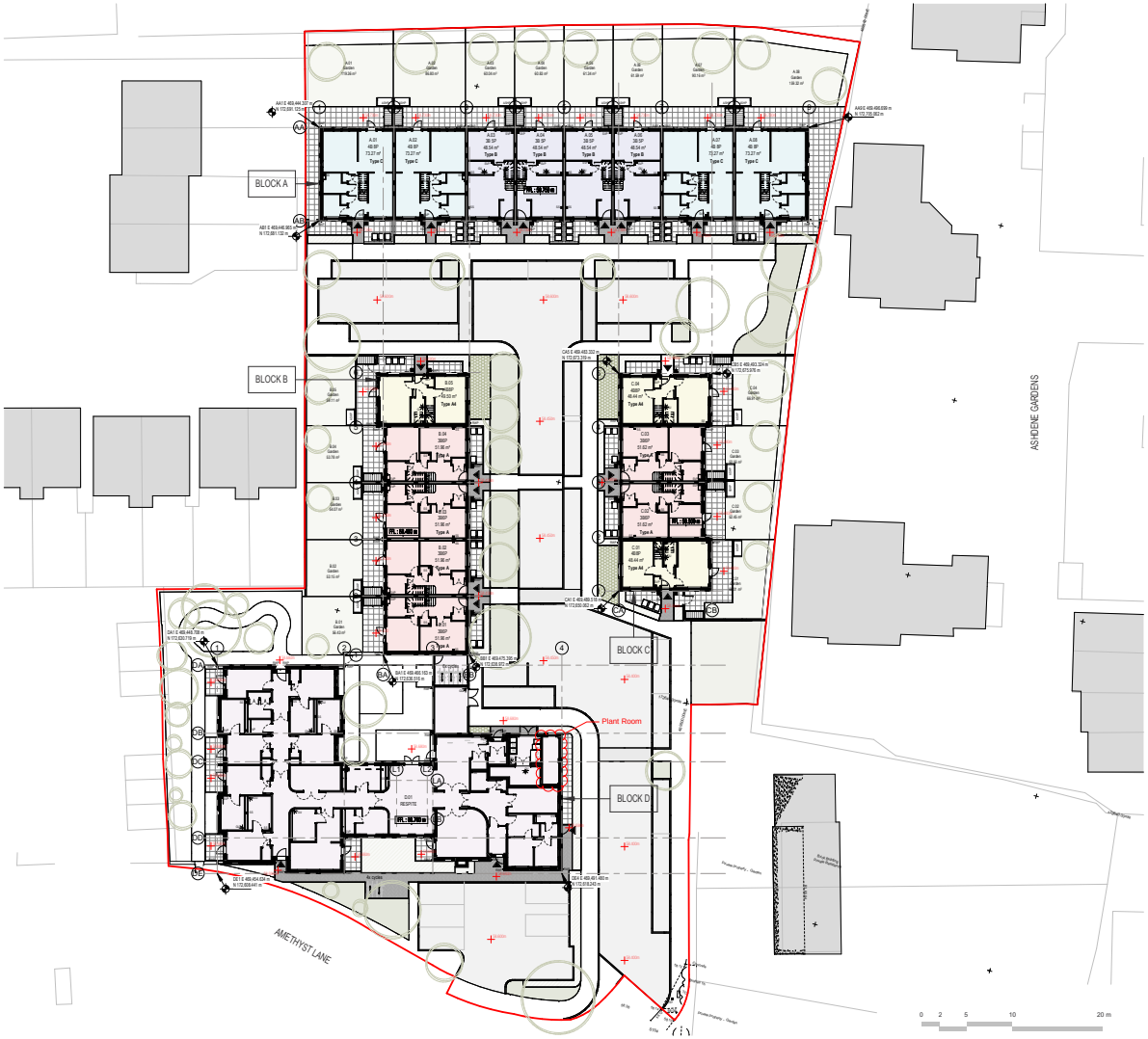
5.2 The Local Authority have clarified the noise requirements for the discharge of planning condition 16. They have stated domestic Air Source Heat Pumps can be excluded from the assessment; however, any remaining air source heat pumps must achieve the requirements of planning condition 16.

5.3 A BS 4142 assessment of the noise emissions from the care facility air source heat pumps found that the noise emissions exceeded the requirements of planning condition 16 at the majority of NSRs. As such, planning condition 16 cannot be discharged without noise mitigation measures.

5.4 Noise mitigation measures that can reduce the noise emissions to the required levels have been outlined, however, a high level of noise mitigation is required. An acoustic louvre with a minimum sound reductrion of 24 dB R_w would be sufficient to reduce noise emissions to comply with local authority requirements. Discussions with the mechanical services consultant as to what mitigation measures are possible are recommended.

5.5 With the proposed noise mitigation measures, the requirements of planning condition 16 can be met.

Appendix I. Site plan



Appendix II. Air Source Heat Pump Datasheets

MODEL			CAHV-R450YA-HPB
Power source			3-phase 4-wire 380-400-415V 50/60 Hz
Capacity(EN14511) *1		kW	40
	Power input	kW	14.03
	Current input	A	23.7-22.5-21.7
	COP (kW/kW)		2.85
	SCOP Low/Medium		3.57/3.24
Capacity *2		kW	33.4
	Power input	kW	16.6
	Current input	A	28.0-26.6-25.7
	COP (kW/kW)		2.01
Maximum current input		A	44.0-41.8-40.3
Water pressure drop *1			10.2 kPa (1.47 psi)
Temperature range *5	Outlet water temperature		24-70°C
	Outdoor temperature	D.B.	-25-43°C
Circulating water volume range *5			25 l/min-250 l/min
Sound pressure level (measured 1m below the unit in an anechoic room) *1*4		dB (A)	64
Sound pressure level (measured 1m below the unit in an anechoic room) *3*4		dB (A)	72
Water pipe diameter and type	Inlet	mm (in)	38.1 (1 1/2"), housing type joint
	Outlet	mm (in)	38.1 (1 1/2"), housing type joint
External finish			Acrylic painted steel sheet <Munsell 5Y 8/1 or similar>
External dimensions H × W × D		mm	1710 × 1750 × 740
Net weight		kg (lbs)	359 (791)
Design pressure	R454C	MPa	3.85
	Water	MPa	1.0
Heat exchanger	Water-side		Copper brazed stainless steel sheet
	Air-side		Plate fins and copper tubes
Compressor	Type		Inverter scroll hermetic compressor
	Manufacturer		MITSUBISHI ELECTRIC CORPORATION
	Starting method		Inverter
	Motor output	kW	12.1
	Lubricant		FVC32EA
Fan	Air flow rate	L/s	2500 × 2
	External static pressure		10 Pa (1mm H2O)
	Type and quantity		Propeller fan × 2
	Control and driving mechanism		Inverter control, direct driven by motor
	Motor output	kW	0.92 × 2
HIC (Heat inter-changer) circuit			Copper pipe
Protection devices	High pressure		High-pressure sensor and switch set at 3.85 MPa (643 psi)
	Inverter circuit		Overheat and overcurrent protection
	Compressor		Overheat protection
	Fan motor		Thermal switch
Defrosting method			Auto-defrost mode (Reversed refrigerant cycle)
Refrigerant	Type and factory charge	kg	R454C, 9.0 kg
	Flow and temperature control		LEV and HIC circuit

Appendix III. Acoustic Glossary

Sound pressure level and the decibel, dB

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. The decibel is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120 dB (threshold of pain).

Frequency and hertz, Hz

Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kilohertz (kHz), where 1 kHz = 1000 Hz. The human range of hearing is commonly accepted to be 20 Hz to 20,000 Hz. Additionally, an octave can be used to describe the interval between a frequency in Hz and either half or double that frequency.

Frequency weighting

Different weighting networks can be applied to a given sound level in each stated octave band by a specified amount, in order to better represent the response of the human ear. The most commonly used weighting network is the 'A' weighting, and the letter 'A' will be included within a descriptor to indicate that the value has been 'A' weighted, e.g. $L_{Aeq,T}$ or L_{A90}. An 'A' weighted noise level may also be written as dB(A). Other weightings less commonly used are 'C' and 'D' weighting.

Noise indices

When a noise level varies with time, the measured 'A' weighted dB level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple 'A' weighted dB value. In order to describe noise where the level is continuously varying, a number of other indices, including statistical parameters, are used. The various indices used are described as below:

$L_{Aeq,T}$	The 'A' weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified time period, *T*
L_{Amax}	The maximum 'A' weighted noise level that was recorded during the monitoring period.
L_{A10}	The 'A' weighted noise level that was recorded for at least 10% of the monitoring period.
L_{A90}	The 'A' weighted noise level that was recorded for at least 90% of the monitoring period, usually taken as the underlying 'background' noise level.

Sound level difference, *D*

The sound level difference between two internal spaces, or between internal and external spaces. The '*D*' value is used to denote the differences at each third octave or octave band, with a single figure 'weighted' value to

describe an overall performance. Note that the '*D*' value will always describe an in-situ or on-site acoustic performance. All values are described using the decibel.

D_w	Single figure weighted sound level difference, simply the measured source noise level minus receiver noise level, not adjusted to reference conditions
$D_{nT,w}$	Weighted normalised sound level difference – a single, weighted sound insulation value, normalised to a reference reverberation time using the measured reverberation time in the receive room
$D_{nT,w} + C_{tr}$	As above, with a spectral adaptation term applied to account for the effects of low frequency noise, and based on urban traffic noise
$D_{nf,w}$	Overall flanking normalised level difference - A parameter that defines the flanking transmission of sound from room to room where a dividing partition or floor construction abuts a flanking building element common to both rooms, such as the building façade or ceiling
$D_{n,e,w}$	Element normalised level difference. A level difference level derived transmission through the small technical element only, irrespective of area. This value is used to represent the sound insulation of façade ventilators.
$D_{n,e,w} + C_{tr}$	As above, with a spectral adaptation term applied to account for the effects of low frequency noise, and based on urban traffic noise

Sound reduction index, *R*

This describes the sound transmitted through a material or building element, such as a wall, door or window. It is measured in a laboratory with suppressed flanking transmission. The '*R*' value is used to denote the differences at each third octave or octave band, with a single figure 'weighted' value to describe an overall performance. All values are described using the decibel.

R_w	Weighted single figure sound reduction index
$R_w + C_{tr}$	As above, with a spectral adaptation term applied to account for the effects of low frequency noise, and based on urban traffic noise
R'_w	The 'apparent sound reduction index', a field measurement to obtain the sound reduction index of a material or element, with all effects of site installation accepted.

Standardised impact sound pressure level, $L'_{nT,w}$

$L'_{nT,w}$ is the single figure used to characterise the impact sound pressure level in a receiving room, normalised to a reference reverberation time. Impact noise can be classified as (but is not limited to) the result of footfall impact on a separating floor to a habitable space below. All values are described using the decibel.

Reverberation time, *T* and T_{mf}

The reverberation time of a space is a measure of the rate at which sound decays, measured in seconds. It is defined as the time taken for the sound pressure level to reduce by 60 dB from its original impulse level.

Reverberation time is commonly quoted in terms of the mid-frequency reverberation time, T_{mf}, the arithmetic average of the reverberation times in the 500 Hz, 1 kHz and 2 kHz octave bands.

Absorption Coefficient

The acoustic absorption provided by a surface is defined as the sound absorption coefficient α, which denotes the fraction of sound energy absorbed between 0 (no absorption) and 1 (no reflection). The absorption coefficient of a material varies with the frequency of incident sound waves, therefore is considered for different frequencies.

Absorption Class

Based on the absorption coefficients, the overall sound absorption of a material is classified from Class A to Class E as defined in BS EN ISO 11654:1997, with Class A providing the highest level of acoustic absorption.

Noise rating, NR

The noise rating or NR system is commonly used in the design of noise emitted by internal building services systems. The system is frequency dependent, and was empirically derived to prevent disturbance to occupants in habitable or working areas from building services noise that exhibits 'tonal' elements, e.g. rumbles, whines, whistles etc. There is no direct relationship between the average 'A' weighted noise level in dB and the NR. However, as a guide, and assuming the absence of strong low frequency content in a given noise, the NR could generally be said to be 6 dB less than the average 'A' weighted dB value.

Privacy

Privacy is the addition of the level of sound insulation between two rooms and the background noise within a receiving room. It can be used to assess the level of privacy afforded in the 'receiving room' for speech from the 'source room'. The 'privacy factor' is a unit-less value that is the combination of the average 'A' weighted background noise level in dB and the weighted sound level difference (D_w) in dB.

Appendix IV. SBE Acoustic Credentials

SBE have specialised in providing the UK Construction Industry with a range of acoustics services since 2006. Specialising in Building Acoustics, all SBE acousticians are members of the Institute of Acoustics.

SBE is accredited for on-site acoustic testing by United Kingdom Accreditation Service (UKAS) (Testing Laboratory Number 2731).
SBE meet the relevant acoustic requirements typically required in the UK, including for sound insulation testing as defined in Approved Document E for the purposes of testing for Part E to the Building Regulations 2010.

Appendix V. Report Conditions

This document has been prepared for the sole use, benefit and information of the Client. The liability of Stroma Built Environment Ltd. in respect of the information contained herein will not extend to any third party unless prior agreement is obtained in writing from Stroma Built Environment Ltd.

This report is limited to addressing the specific acoustic issues contained herein. Advice has been provided for acoustic reasons only and it is recommended that appropriate expert advice be sought on all the ramifications, e.g. safety, fire, structural, CDM etc., associated with any proposals contained herein.

The in-situ performance of acoustic measures is influenced to a large extent by the quality of workmanship and compliance with the specifications on-site during construction, as such, Stroma Built Environment Ltd. accepts no liability for issues with acoustic performance arising from such factors.

Acoustic survey and testing work carried out for the project is representative of the prevailing conditions at the time of the work. Conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

In particular, it should be noted that where calculations are carried out that are based on assumptions regarding certain aspects where information has not been supplied, these are provided for indicative purposes only and should be treated as such.