

Technical Memo

Site Address:	Kenmore Drive, Cleckheaton, BD19 3EJ
Project Reference No:	NP-014860
Subject:	Validation Testing to As Evidence Discharge Condition 27
Client:	Robertson Construction Yorkshire & East Midlands
Reported By:	P. Soler, BEng, MIOA
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Date:	06/10/2026

Introduction

NOVA Acoustics Ltd has been commissioned to provide a Noise Impact and Mitigation Validation Report for the installed fixed mechanical plant serving the new-build care-home at Land off Kenmore Drive, Cleckheaton, BD19 3EJ ("the site").

The applicant has received conditional planning approval from Kirklees Council under planning application reference 2025/91279 for the proposed care-home development ("the Application"). This report has been prepared as evidence to discharge Conditions 26 and 27 imposed by the Local Planning Authority ("LPA").

"Condition 26

The hereby approved Air Source Heat Pump Enclosure (ASHP), External Plan Area, and Substation, as shown on plan ref. CLK-BBAXX-XX-DR-A-91- 0001 Rev. C07 shall be constructed in accordance with the specification and mitigation measures contained in the Noise Impact Assessment referenced NP-013449 revision 03. The Air Source Heat Pump Enclosure (ASHP), External Plan Area, and Substation shall thereafter operate and be maintained in accordance with the manufacturer's recommendations.

Reason: In the interest of mitigating potential noise pollution, in accordance with Policies LP24 and LP52 of the Kirklees Local Plan.

Condition 27

Prior to first occupation of the hereby approved development, but after the works required by condition 26 having been undertaken, a Noise Impact and Mitigation Validation Report, to be undertaken in accordance with BS4142, shall be submitted to, and approved in writing by, the Local Planning Authority. The report shall demonstrate whether that the mitigation measures implemented via condition 26 have been successful. In the scenario where they have not, a further noise mitigation strategy shall be detailed for approval. Thereafter, if required, the approved further noise mitigation shall be implemented prior to the approved development being brought into use.

Reason: In the interest of mitigating potential noise pollution, in accordance with Policies LP24 and LP52 of the Kirklees Local Plan."

Consequently, the aim of this report is to outline the results of the post-installation noise measurements and to assess whether the installed ASHP units, AC units, MVHR systems and extraction plant comply with the noise control requirements established for the development.

The assessment has been undertaken in accordance with BS4142:2014+A1:2019, using matched plant operational and residual measurements at source positions, concurrent unattended monitoring at the site boundary, and attended measurements at the closest surrounding noise-sensitive receptors.

Assessment Criteria & Measurement Methodology

The previous noise impact assessments, NP-013291 and NP-013449, adopted background sound levels of 50dB $L_{A90,15min}$ during the daytime period and 42dB $L_{A90,15min}$ during the night-time period. The approved planning requirement is that the combined rating sound level from fixed mechanical services and external plant does not exceed the prevailing background sound level at any time, with the terminology defined in BS4142:2014+A1:2019.

Attended measurements were undertaken on 28th September 2026 using calibrated Class 1 sound level meters, recording one-second L_{Aeq} and 1/3 octave band L_{Zeq} data with a fast time weighting. Pre and post-measurement calibration checks were within acceptable limits.

MP1 was positioned approximately 3m high in proximity to NSR1(A) and MP2 approximately 3m high in proximity to NSR3. MP3 and MP4 were used for attended measurements at NSR2 and NSR1(B) respectively. The acoustic environment without the development plant in operation was dominated by continuous tyre noise from the M62, with intermittent local road traffic and lower-level residential activity.

Indicated in the following figure are the NSR measurement locations.



During all measurements, the plant equipment was set to its normal operating duty and left to settle into its continuous steady-state nature.

During the survey the ASHP units were operating in normal COP mode as stipulated by the site operators. The ASHP screening compound and bolt-on acoustic packages were visually inspected; the enclosure was substantially complete, although the internal absorptive lining specified in the earlier mitigation design was not present at the time of survey.

Plant Noise Measurements Results at Source

The following sections summarise the ambient and residual sound levels measured at the relevant source positions. The calculated specific sound levels are also presented within the tables and are considered in the subsequent BS4142 noise impact assessment.

ASHP Units

The four ASHP units were measured while operating simultaneously. ASHP01 to ASHP10 represent the ambient measurements with all four ASHP units operational. ASHP11 and ASHP12 represent the matched residual measurements with all four units switched off. Measurements were undertaken to the north, north-west, west and south sides of the compound at distances of 4m, 5m and 10m, and at heights of both 1.5m (line of sight blocked by the screening compound) and 3m (direct line of sight) heights where access permitted. A low-frequency humming component was noted in proximity to the units.

Description	Position	1/1 Octave Frequency Band (Hz, L _z eq dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
ASHP01	North, 1.5m high, 4m	68	61	55	48	41	36	32	28	51
ASHP02	North, 3m high, 4m	68	61	55	48	41	37	30	24	51
ASHP03	North, 1.5m high, 10m	63	53	47	40	38	30	23	21	45
ASHP04	North, 3m high, 10m	57	54	48	43	41	33	25	21	46
ASHP05	North-west, 1.5m high, 5m	63	57	51	43	40	32	25	22	48
ASHP06	North-west, 3m high, 5m	61	57	52	44	41	33	25	21	48
ASHP07	North-west, 1.5m high, 10m	65	57	48	42	38	32	26	28	47
ASHP08	North-west, 3m high, 10m	64	57	51	43	40	34	26	24	48
ASHP09	West, 3m high, 10m	60	54	47	42	40	32	24	22	46
ASHP10	South, 3m high, 5m	70	65	54	47	40	37	29	24	53
ASHP11	Residual – North façade	49	43	40	38	38	29	24	24	41
ASHP12	Residual – North-west façade	52	44	40	37	36	29	24	24	40

Table 1 – Spot Measurements Summary Results of ASHPs

The following table presents the calculated specific sound levels, derived by correcting the measured ambient sound levels for the corresponding residual sound levels

Description	Position	1/1 Octave Frequency Band (Hz, L _{zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
ASHP01	North, 1.5m high, 4m	68	61	55	48	39	35	31	26	51
ASHP02	North, 3m high, 4m	68	61	55	48	39	36	29	19 ^[1]	51
ASHP03	North, 1.5m high, 10m	63	52	46	37	34	23	20 ^[1]	16 ^[1]	43
ASHP04	North, 3m high, 10m	55	54	47	42	39	31	18	16 ^[1]	45
ASHP05	North-west, 1.5m high, 5m	63	57	51	42	38	29	18	17 ^[1]	47
ASHP06	North-west, 3m high, 5m	60	57	52	43	39	31	18	16 ^[1]	47
ASHP07	North-west, 1.5m high, 10m	65	57	47	40	34	29	22	26	45
ASHP08	North-west, 3m high, 10m	64	57	51	42	38	32	22	19 ^[1]	47
ASHP09	West, 3m high, 10m	60	54	46	40	36	29	19 ^[1]	17 ^[1]	44
ASHP10	South, 3m high, 5m	70	65	54	46	36	36	27	19 ^[1]	52

Notes: ^[1] A -5dB reduction has been applied in all those cases where the ambient was equal or lower than the residual.

Table 2 – Calculated Specific Sound Levels of ASHPs

The calculated specific sound levels show that ASHP08 represents the most onerous measurement position for assessment. Applying the distance correction from the 10m measurement position to the closest and most exposed apartment façade at approximately 35m, the ASHP contribution is predicted to be approximately 36dBA at the most affected NSR1(A).

AC Units

The AC units are roof-mounted. The measurement references are as follows:

- AC01 – both AC units operational, measured at 5m to the south.
- AC02 – both AC units operational, measured at 5m to the north.
- AC03 – both AC units operational, measured in a central position at 5m.
- AC06 – residual measurement, with both AC units switched off.

Description	Position	1/1 Octave Frequency Band (Hz, L _{zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
AC01	5m, south	57	57	50	50	48	42	37	35	57
AC02	5m, north	56	59	51	50	48	44	40	39	58
AC03	5m, centre	57	56	51	50	48	42	38	35	57
AC06	5m, centre residual	49	46	40	39	38	31	28	31	47

Table 3 – Spot Measurements Summary Results - ACs

The following table presents the calculated specific sound levels, derived by correcting the measured ambient sound levels for the corresponding residual sound levels.

Description	Position	1/1 Octave Frequency Band (Hz, L _{Ze} q dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
AC01	5m, south	57	57	50	50	48	42	37	33	57
AC02	5m, north	55	59	51	51	47	44	40	39	58
AC03	5m, centre	56	56	51	50	48	42	38	34	57

Table 4 – Calculated Specific Sound Levels – Acs

AC01, representing both AC units operating simultaneously to the south of them has been adopted for the assessment as NSR1 is located to the south of the units.

Applying a distance correction to NSR1(A), located approximately 54m from the AC units, and correction for the partially shielding provided by the site building roof ridge, gives a predicted specific sound level of ~32dBA.

MVHR Units

The MVHR intake and discharge terminals were assessed at the accessible external façade positions, at 1m from the relevant terminal. The surveyor noted that most units operated at a very low level, with the north-west outlet of MVHR002B representing the most audible terminal locally.

Description	Position	1/1 Octave Frequency Band (Hz, L _{Ze} q dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
MV01	MVHR005 Exhaust – Ambient	47	43	42	41	43	34	20	17	45
MV02	MVHR006 exhaust – Ambient	50	46	45	43	45	40	26	18	48
MV03	MVHR005 & MVHR006 – Residual	48	43	42	41	42	32	19	18	44
MV04	MVHR002B Outlet – Ambient	54	54	55	47	37	38	36	30	50
MV05	MVHR002B Intake – Ambient	50	48	49	42	37	30	23	22	44
MV06	MVHR002B – Residual	43	40	37	37	36	27	23	21	39
MV07	MVHR002A Outlet – Ambient	44	46	41	37	36	29	26	26	40
MV08	MVHR002A Intake – Ambient	49	49	45	39	36	30	22	19	42
MV09	MVHR002A – Residual	45	44	41	38	35	26	21	21	40
MV10	MVHR001A Outlet – Ambient	59	56	52	44	37	32	30	25	47

MV11	MVHR001A Intake – Ambient	55	51	50	44	36	29	23	21	45
MV12	MVHR001A – Residual	54	52	48	41	36	33	28	24	44
MV13	MVHR001B Outlet – Ambient	51	51	48	37	35	32	27	23	43
MV14	MVHR001B Intake – Ambient	46	48	45	37	37	29	22	19	42
MV15	MVHR004 Intake/Outlet – Ambient	53	54	48	46	40	41	39	30	49

Table 5 – Spot Measurements Summary Results – MVHRs

The calculated specific sound levels are summarised overleaf for the measurements where the ambient-to-residual difference was at least 3dB.

For MV01, MV07, MV08, MV11, MV13 and MV14, the difference between ambient and residual levels was less than 3dB. Accordingly, an accurate specific sound level cannot be derived by subtraction and the corresponding terminal noise emissions are considered negligible within the local residual sound climate.

Description	Position	1/1 Octave Frequency Band (Hz, L _{Ze} q dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
MV02	MVHR006 exhaust – Specific	46	43	42	39	42	39	25	13 ^[1]	45
MV04	MVHR002B Outlet – Specific	54	54	55	47	30	38	36	29	49
MV05	MVHR002B Intake – Specific	50	47	49	40	30	27	18	15	43
MV10	MVHR001A Outlet – Specific	57	54	50	41	30	27	26	18	45
MV15	MVHR004 Outlet – Specific	48	50	43	44	38	40	39	29	47

Notes: ^[1] A -5dB reduction has been applied in all those cases where the ambient was equal or lower than the residual.

Table 6 – Calculated Specific Sound Levels – MVHRs

The calculated specific sound levels demonstrate that the MVHR noise emissions are low. The most onerous measured terminal was MV04, associated with the MVHR002B outlet, which generated a specific sound level of 49dB L_{Aeq,T} at a distance of approximately 1m. Applying a distance correction to the closest NSR1(A), located approximately 25m from this terminal, results in a predicted specific sound level of approximately 21dB L_{Aeq,T}. Cumulatively, the specific sound levels are calculated in the order of 25dBA at the most affected NSR1(A).

Extraction Fans

The extraction systems were measured close to the respective discharge terminals, generally at 1m. The kitchen extract fan and the ground-floor extraction fan generated the highest local source levels. The surveyor noted that extraneous activity occurred during some measurements; the ambient and residual periods shown below were selected to provide the most representative comparison.

Description	Position	1/1 Octave Frequency Band (Hz, L _z eq dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
EX01	EF010 - Ambient	48	48	43	42	39	29	23	21	43
EX01	EF010 - Residual	44	42	41	37	36	27	17	17	40
EX02	EF009 - Ambient	48	51	46	42	39	32	31	23	44
EX02	EF009 - Residual	44	41	40	39	39	30	21	18	42
EX03	EF008 - Ambient	57	71	66	52	47	47	42	35	60
EX03	EF008 - Residual	44	43	39	38	39	33	20	18	42
EX04	EF004 - Ambient	52	60	56	47	42	46	37	29	53
EX05	EF004 - Residual	45	38	38	36	35	32	19	16	39
EX06	KEF01 - Ambient	55	66	70	61	49	49	43	35	64
EX06	KEF01 - Residual	44	42	40	36	36	30	24	23	40

Table 7 – Spot Measurements Summary Results – EFs

The following table presents the calculated specific sound levels, derived by correcting the measured ambient sound levels for the corresponding residual sound levels.

Description	Position	1/1 Octave Frequency Band (Hz, L _{zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
EX01	EF010 - Specific	46	47	39	40	36	25	22	19	41
EX02	EF009 - Specific	46	51	45	39	34 ^[1]	28	31	21	42
EX03	EF008 - Specific	57	71	66	52	46	47	42	35	60
EX04	EF004 - Specific	51	60	56	47	41	46	37	29	52
EX06	KEF01 - Specific	55	66	70	61	49	49	43	35	64

Notes: ^[1] A -5dB reduction has been applied in all those cases where the ambient was equal or lower than the residual.

Table 8 – Calculated Specific Sound Levels – EFs

It has been confirmed that KEF01 serves the kitchen and operates during daytime hours only, up to 18:00. KEF01 has therefore been included in the daytime cumulative assessment but excluded from the night-time assessment.

The two extraction sources with the greatest predicted contribution at NSR1(A) are KEF01 and EF008. Applying a distance correction from the 1m source measurements, KEF01 is predicted to generate a specific sound level of approximately 35dBA at NSR1(A), located approximately 27m from the discharge terminal.

EF008 is predicted to generate a specific sound level of approximately 27dBA at NSR1(A), located approximately 45m from the discharge terminal.

The cumulative specific sound level from these two sources is approximately 36dBA.

Plant Noise Measurements Results at NSRs

MP1 & MP2 Unattended Monitoring

MP1 and MP2 were installed in proximity to NSR1(A) and NSR3 respectively. The results below compare the receptor levels during the representative highest-level source tests with the relevant residual periods. The figures shown are measured $L_{Aeq,T}$ values and are not calculated specific sound levels.

Description	Measurement Period	1/1 Octave Frequency Band (Hz, L_{Zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
ASHP08 - Ambient	20:03:17 - 20:05:08	52	45	42	41	41	31	24	21	44
ASHP11 - Residual	20:20:36 - 20:21:37	45	43	41	41	40	31	20	19	43
ASHP12 - Residual	20:21:51 - 20:23:55	48	45	43	42	41	30	22	20	44
MV04 - Ambient	21:30:59 - 21:31:34	42	43	38	36	36	26	18	19	39
MV06 - Residual	21:35:13 - 21:36:16	42	41	38	36	37	28	23	22	39
MV07 - Ambient	21:37:10 - 21:40:18	42	43	39	36	37	27	18	18	39
MV08 - Ambient	21:41:17 - 21:41:48	43	42	39	38	38	28	20	20	41
MV09 - Residual	21:42:04 - 21:42:34	42	43	42	37	37	26	18	19	40
MV12 - Residual	21:58:09 - 21:59:10	41	38	36	37	36	25	18	18	38
MV15 - Ambient	22:07:11 - 22:10:13	42	41	39	38	37	28	18	18	40
EX03 - Ambient	22:15:42 - 22:16:28	41	40	37	37	36	26	19	19	39
EX03 - Residual	22:16:36 - 22:17:11	41	38	37	37	36	26	20	19	39
EX06 – Ambient	22:29:51 - 22:30:23	43	41	38	35	36	26	18	18	39
EX06 - Residual	22:30:33 - 22:30:52	43	40	37	39	36	26	19	19	40

Table 9 – Unattended Monitoring Summary Results – MP1

Description	Measurement Period	1/1 Octave Frequency Band (Hz, L _{zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
ASHP08 - Ambient	20:03:17 - 20:05:08	54	46	42	41	42	33	28	24	44
ASHP11 - Residual	20:20:36 - 20:21:37	46	43	42	48	46	35	29	23	48
ASHP12 - Residual	20:21:51 - 20:23:55	49	43	42	42	42	36	36	31	46
MV04 - Ambient	21:30:59 - 21:31:34	41	39	38	36	37	27	21	19	39
MV06 - Residual	21:35:13 - 21:36:16	41	37	37	36	37	29	23	19	39
MV07 - Ambient	21:37:10 - 21:40:18	41	39	38	37	37	28	22	20	40
MV08 - Ambient	21:41:17 - 21:41:48	43	41	39	39	39	28	21	19	41
MV09 - Residual	21:42:04 - 21:42:34	41	41	43	41	40	29	20	19	43
MV12 - Residual	21:58:09 - 21:59:10	40	37	38	38	38	28	20	18	40
MV15 - Ambient	22:07:11 - 22:10:13	41	40	39	38	38	28	20	18	40
EX03 - Ambient	22:15:42 - 22:16:28	40	37	37	37	38	27	20	18	40
EX03 - Residual	22:16:36 - 22:17:11	41	38	37	36	37	28	21	18	39
EX06 – Ambient	22:29:51 - 22:30:23	41	41	39	37	38	29	22	19	40
EX06 - Residual	22:30:33 - 22:30:52	41	38	38	38	39	28	21	20	41

Table 10 – Unattended Monitoring Summary Results – MP2

The overall levels measured at MP1 and MP2 during the selected plant-operational periods are generally within 3dB of the relevant residual periods. In several instances, the residual level was equal to or higher than the corresponding ambient level. The measurements therefore do not identify a consistent or material increase in overall sound level associated with the operation of the development plant at either unattended monitoring position.

Accordingly, the unattended monitoring data cannot be used to derive a robust plant-specific sound level at the receptor positions by subtraction alone. Nevertheless, the results demonstrate that the development plant was not a dominant contributor to the sound environment at MP1 or MP2 during the tested conditions. The observed variations are consistent with the subjective impression obtained during the testing.

MP3 & MP4 Attended Monitoring

Direct attended measurements were undertaken at MP3 adjacent to NSR2 and MP4 in proximity to NSR1(B). The measurements were divided into residual and ambient plant-operational periods. The table below presents the measured octave-band and overall levels at each position.

Description	Measurement Period	1/1 Octave Frequency Band (Hz, L _{zeq} dB)								Overall (dBA)
		63	125	250	500	1k	2k	4k	8k	
NSR2 - Ambient	22:53:14 - 23:21:06	44	40	36	34	36	25	19	18	38
NSR2 - Residual	22:42:15 - 22:52:53	44	40	36	35	37	25	18	18	39
NSR1(B) – Ambient	23:41:39 - 23:49:07	51	45	40	40	41	31	23	20	43
NSR1(B) - Residual	23:50:08 - 00:12:32	47	42	37	38	40	30	19	18	42

Table 11 – Attended Monitoring Summary Results – MP3 & MP4

At MP3, the ambient sound level during the plant-operational period was 38dBA, which was 1dB lower than the residual level. At MP4, the ambient sound level was 43dBA, only 1dB higher than the residual level. These differences are below 3dB and do not allow an accurate plant-specific sound level to be derived by subtraction.

The attended measurements therefore confirm that the development plant was not a dominant or readily measurable contributor to the overall sound environment at either NSR2 or NSR1(B) during the surveyed operational conditions. This finding is consistent with the concurrent unattended-monitoring results.

Cumulative Noise Impact Assessment

The receptor measurements show that the difference between the ambient and residual overall sound levels was less than 3dB in all instances (in several cases, the residual level was equal to or higher than the corresponding plant-operational level). The receptor data therefore do not allow an accurate plant-specific sound level to be derived by subtraction alone. They do, however, indicate that the development plant was not a dominant contributor to the sound environment at the surrounding noise-sensitive receptors during the surveyed conditions.

The following table shows therefore, a cumulative BS4142 noise impact assessment based on the measurements undertaken at source and discussed in the previous section of this report; this is in line with BS4142.

Cumulative BS4142 Noise Impact Assessment		
Description	Comments	Overall (dBA)
Specific Sound Level ($L_{eq,T}$) – ASHP Units	Cumulative noise emissions of all 4no. ASHP units operating simultaneously.	36
Specific Sound Level ($L_{eq,T}$) – AC Units	Cumulative noise emissions of all 2no. AC units operating simultaneously, with -5dB for partial shielding.	32
Specific Sound Level ($L_{eq,T}$) – MVHR Units	Cumulative noise emissions of all 5no. MVHR units operating simultaneously.	25
Specific Sound Level ($L_{eq,T}$) – EF Units	Cumulative noise emissions of all 5no. EF units operating simultaneously.	36
Cumulative Specific Sound Level at NSR1(A) ($L_{eq,T}$)	--	40
BS4142 Subjective Acoustic Feature Correction	<i>A +2dB penalty has been applied to account for the 'just perceptible' low frequency hum perceived at the NSRs during the site visit.</i>	+2
Rating Sound Level ($L_{r,Tr}$)	Specific sound level + rating penalties	42
Background Sound Level	Daytime $L_{90,15min}$	50
Exceedance	$L_{Ar,Tr} - L_{A90,15min}$	-8
Initial BS4142 Assessment Outcome	'Low impact, dependant on context'.	
NPPF & NPSE Outcome	'No Observed Adverse Effect Level ('NOAEL')	

Table 12 – BS4142 Cumulative Noise Impact Assessment – Daytime

Cumulative BS4142 Noise Impact Assessment		
Description	Comments	Overall (dBA)
Specific Sound Level ($L_{eq,T}$) – ASHP Units	Cumulative noise emissions of all 4no. ASHP units operating simultaneously.	36
Specific Sound Level ($L_{eq,T}$) – AC Units	Cumulative noise emissions of all 2no. AC units operating simultaneously, with -5dB for partial shielding.	32
Specific Sound Level ($L_{eq,T}$) – MVHR Units	Cumulative noise emissions of all 5no. MVHR units operating simultaneously.	25
Specific Sound Level ($L_{eq,T}$) – EF Units	Cumulative noise emissions of all 4no. EF units operating simultaneously, except of the KEF01.	28
Cumulative Specific Sound Level at NSR1(A) ($L_{eq,T}$)	--	38
BS4142 Subjective Acoustic Feature Correction	<i>A +2dB penalty has been applied to account for the 'just perceptible' low frequency hum perceived at the NSRs during the site visit.</i>	+2
Rating Sound Level ($L_{r,Tr}$)	Specific sound level + rating penalties	40
Background Sound Level	Night-time $L_{90,15min}$	42
Exceedance	$L_{Ar,Tr} - L_{A90,15min}$	-2
Initial BS4142 Assessment Outcome	'Low impact, dependant on context'.	
NPPF & NPSE Outcome	'No Observed Adverse Effect Level ('NOAEL')	

Table 13 – BS4142 Cumulative Noise Impact Assessment – Night-time

Two operational scenarios have been assessed. The daytime assessment includes all assessed plant items, including KEF01. The night-time assessment excludes KEF01, as the kitchen extract system operates only until 18:00.

During the daytime period, the cumulative specific sound level is 40dB. With the +2dB character correction applied for the just perceptible tonal component, the resulting rating sound level is 42dB $L_{Ar,Tr}$. This is 8dB below the adopted daytime background sound level.

During the night-time period, excluding KEF01, the cumulative specific sound level is 38dB. With the +2dB character correction, the resulting rating sound level is 40dB $L_{Ar,Tr}$. This is 2dB below the adopted night-time background sound level.

The BS4142 assessment therefore indicates a low impact in both the daytime and night-time periods. This is consistent with the receptor monitoring, which did not identify a material or repeatable increase in overall sound level when the plant was operating.

Conclusion

This validation assessment has considered the installed ASHP units, AC units, MVHR terminals and extraction systems using matched operational and residual measurements at source positions, concurrent unattended monitoring at MP1 and MP2, and attended measurements at MP3 and MP4.

The unattended and attended receptor measurements do not identify a material or repeatable increase in overall sound level when the relevant plant was operating. At MP3, the ambient level was lower than the residual level, while at MP4 the increase was only 1dB. The overall differences at MP1 and MP2 were similarly generally within 3dB, with several residual periods equal to or higher than the corresponding operational periods. An accurate plant-specific sound level could not therefore be derived from the receptor measurements by subtraction alone; this supports the subjective impression obtained during the testing.

The source measurements and associated propagation calculations provide the appropriate basis for the BS4142 assessment. During the daytime period, including KEF01, the cumulative rating sound level is approximately 42dB $L_{A,r,T,r}$, which is 8dB below the adopted daytime background sound level of 50dB. During the night-time period, excluding KEF01 because it operates only until 18:00, the cumulative rating sound level is approximately 40dB $L_{A,r,T,r}$, which is 2dB below the adopted night-time background sound level of 42dB. The assessment therefore indicates a low impact during both periods, supported by the receptor monitoring results.

Therefore, the validation assessment demonstrates that the installed plant is not expected to cause adverse impact at the surrounding non-associated noise-sensitive receptors and provides the information required to address Conditions 26 and 27.

Document End

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