

**Assessment of the Internal Noise
Climate of Flat 9 Within the Residential Development at
the Former Smithy Bridge Public House in Littleborough.**

Report Prepared for:

Armstrong Projects Ltd
The Annexe
Rear of 26 Church Street
Altrincham
WA14 4DW

Report Prepared By: Mr. Robert Smith

Report Reference: DRUK/ACC/RS/ APLSBPHSBRL/3232.2 ver. 2

Date: 3rd March 2025

Contents

- 1.0 Summary**
- 2.0 Introduction**
- 3.0 Site Description**
- 4.0 Assessment Criteria**
- 5.0 Noise Climate Assessment Details**
 - 5.1 Survey Times and Personnel
 - 5.2 Weather
 - 5.3 Equipment
 - 5.4 Measurement Procedure
- 6.0 Noise Survey Results**
- 7.0 Discussion**
- 8.0 Conclusion**

Appendix 1. Emails

Appendix 2: Standardised Internal Noise Levels

1.0 Summary

Planning consent permitting the redevelopment of the former Smithy Bridge public house on Smithy Bridge Road in Littleborough, to provide 14 new self-contained flats, was issued in May 2023. The planning consent contained a number of conditions one of which, condition 17, required the completion of a pre-occupation report to evaluate whether the specified internal sound levels, contained within condition 17 had been achieved.

As the development is approaching completion, Druk Limited was commissioned to undertake an assessment of the internal noise climate within the development, in compliance with the requirements contained within planning condition 17. With reference to the internal noise climate assessment, agreement was reached with Rochdale Borough Council relating to both the format of the assessment and the flat to be assessed. In this respect it was agreed that an assessment within Flat 9 over a 24 hour period would be acceptable to Rochdale Borough Council. Consequently, a noise assessment was undertaken between Thursday 27th February to Friday 28th February 2025 within the living room and bedroom of Flat 9.

The measurements of the internal noise climate, resulting from external noise break-in, have demonstrated that the internal noise climate within the living room and bedroom of Flat 9 complied with the design guide values contained within planning condition 17 and as such it is suggested that the requirements of this planning condition have been met.

Report Prepared by:



.....
Robert Smith

2.0 Introduction

Planning consent permitting the redevelopment of the former Smithy Bridge public house on Smithy Bridge Road in Littleborough, to provide 14 new self-contained flats, was issued in May 2023. The planning consent contained a number of conditions one of which, condition 17, required the completion of a pre-occupation report to evaluate whether the specified internal sound levels, contained within condition 17 had been achieved.

As the development is approaching completion, Druk Limited was commissioned to undertake an additional assessment of the internal noise climate within the development and in particular within Flat 9 on the Smithy Bridge Road elevation of the development.

3.0 Site Description

The residential development formed from the redevelopment of the former Smithy Bridge public house on Smithy Bridge Road in Littleborough, contains 14 self-contained flats. Directly to the North West of the permitted development site is Bridgenorth Drive with the Smithy Bridge Foundation Primary School beyond (photograph 2 overleaf). To the South of the permitted development site is Smithy Bridge Road itself with a number of residential properties beyond (photograph 3 overleaf). To the East of the permitted development site is the Bridge Centre, a cafe and charity shop (photograph 4 overleaf) with the existing residential properties on Henry Street beyond. Immediately to the West of the permitted development site, across Bridgenorth Drive, is the car park serving the primary school with Smithy Bridge Road beyond. Approximately 130 metres to the West of the permitted development site is the railway line running East to West.

Photograph 1. Former Smithy Bridge public house (looking North)



Photograph 2. Bridgenorth Drive and the Smithy Bridge Foundation Primary School to the North West of the proposed development



Photograph 3. Smithy Bridge Road to the South of the permitted development site with the existing residential properties beyond



Photograph 4. The Bridge Centre to the East of the permitted development site



4.0 Assessment Criteria

The original planning consent, issued in May 2023, contained a number of conditions relating to the new development. Of these, condition 17 required the completion of a pre-occupation report to evaluate whether the specified internal sound levels within the flats had been achieved. With reference to condition 17, the full text of this condition is reproduced below:

- 17 A report that demonstrates that the following maximum noise levels have been achieved shall be submitted to and approved in writing prior to first occupation of the development.
- o 35 dB(A) Leq (1 hour) in the bedrooms with windows shut and other means of ventilation provided between 7 am and 11pm;
 - o 30dB(A) Leq 5mins in the bedrooms with windows shut and other means of ventilation provided between 11pm and 7am;
 - o 35 dB(A) Leq (1 hour) in the living room/s with windows shut and other means of ventilation provided between 7 am and 11pm;
 - o 40dB(A) Leq (1 hour) in other habitable rooms with windows shut and other means of ventilation provided at all times.

The measures to achieve these noise levels shall be retained thereafter.

Reason: In the interests of residential amenity and to protect future residents from any excessive noise levels associated with the adjacent highway and to accord with policies G9 and DM1 of the adopted Rochdale Core Strategy.

5.0 Noise Climate Assessment Details

The internal noise climate assessment within Flat 9 was conducted in accordance with the details presented below.

5.1 Survey Times and Personnel

As the development site is still an active site, arrangements had to be made to permit the appropriate measurements to be made in the complete absence of any construction noise associated with the ongoing development. However, as the suspension of construction activity to permit the measurements to be made would have a detrimental impact on the build programme, discussions were undertaken with Rochdale Borough Council's Planning department to evaluate an assessment procedure that would comply with the spirit of condition 17 whilst minimising the loss of construction time on site. To this end it was agreed with Rochdale Borough Council that measurements could be restricted to one flat, Flat 9, in order to indicate the likely performance of the remaining flats on the development. Details of the discussions with Rochdale Borough Council are contained within Appendix 1.

Flat 9 on the first floor of the development on the Smithy Bridge Road elevation was selected as this represented potentially the most noise exposed flat within the development. The premise being that compliance with the internal noise levels within this flat would suggest compliance within the remaining flats exposed to lower levels of noise.

As a consequence all construction activity was suspended for a period of 24 hours between 16:00 hours on the 27th and 16:00 hours on the 28th February 2025, during which time the necessary measurements were made within the flat.

5.2 Weather

At the commencement of the internal noise measurements, the external weather conditions were as follows:

Thursday 27th February 2025

All surfaces were dry, cloud cover was approximately 5%, the external temperature was approximately 9°C, the barometric pressure was approximately 1004mb and the average wind speed was 0.5m/s from the South West.

5.3 Equipment

The noise survey was conducted using the equipment detailed in the table 1 overleaf.

The sound level meters were field calibrated before, after and during the surveys as necessary, during which time no significant deviation in the calibrated level was observed.

All the equipment used is calibrated by a UKAS accredited calibration laboratory.

Table 1. Equipment used during the internal noise survey

Equipment description	Manufacturer	Model number	Serial number
Acoustic calibrator	Norsonic AS	Nor 1251	31522
Sound level meter	NTI Audio	XL2-TA	A2A-10232-E
Microphone pre-amplifier	NTI Audio	MA220	5537
Microphone	NTI Audio	M2230	8636
Sound level meter	NTI Audio	XL2-TA	A2A-23832-E1
Microphone pre-amplifier	NTI Audio	MA220	141157
Microphone	NTI Audio	M2230	A26843

5.4 Measurement Procedure

With respect to the internal measurements, due regard was paid to the guidance provided within the Association of Noise Consultants (ANC) – Measurement of Sound Levels in Buildings, Version 1.0, June 2020.

Flat 9 is a one bedroom flat on the middle (first floor) of the development. Measurements of the internal noise climate within Flat 9 were made within the living room, facing Smithy Bridge Road, and the bedroom, facing the junction of Smithy Bridge Road and Bridgenorth Road.

Throughout the internal noise assessments the measurement time interval was 5 minutes, the windows were closed but the ventilation provision was open and all measurements were made with the fast time weighting engaged. During the course of the assessments, the sound level meter microphones were tripod mounted, such that they were approximately 1.2 metres above floor level and approximately 1.0 metre from the internal walls. The tripod mounted microphones were placed in positions that approximated the likely positions of a bed within the bedroom and a sofa within the living room area.

The microphones were connected to the sound level meters via 5 metre extension cables, so permitting the operator to remain outside the assessment spaces. The measurements were unmanned for their duration although simultaneous audio recordings were made to permit subsequent interrogation of the audio data as necessary.

6.0 Noise Survey Results

At the time of the internal noise measurements, Flat 9 was complete, unfurnished and unoccupied. As a consequence it was likely that the amount of sound absorption within the rooms and so the reverberation times of the rooms used in this assessment, would be different to that which would prevail when the flat was occupied and furnished. In order to permit the obtained sound levels to be standardised, sample reverberation time measurements were made within the assessed rooms within Flat 9. The mean reverberation times are presented in table 2 below. For the purposes of the subsequent assessments the measured internal ambient noise levels will be 'standardised' to a reverberation time of 0.5 seconds, which would be typical of a furnished and occupied dwelling.

Table 2. Mean reverberation time measurements, Flat 9

Room	Mean Reverberation Time, T_{20} , seconds
Living room	1.26
Bedroom	1.49

By virtue of the significant amounts of measured noise data collected during the noise surveys, tables 3 and 4 below and overleaf and graphs 1 and 2 overleaf contain summaries of the noise data from the measurement surveys. Full measured noise data are presented in tabular form in Appendix 1.

Table 3. Standardised internal overall sound level summary, living room, Flat 9

	$L_{Aeq,T}$
Standard deviation, daytime	2.23
Daytime mean (log)	34
Daytime modal value	34

Table 4. Standardised internal sound level summary, bedroom, Flat 9

	$L_{Aeq,T}$
Standard deviation, daytime	2.18
Standard deviation, night time	4.55
Daytime mean (log)	30
Night time mean (log)	24
Daytime modal value	30
Night time modal value	20

Tables 5, 6 and 7 below and overleaf contain the hourly mean (log) values for the measured data collected during the survey.

Table 5. Standardised internal hourly mean (log) sound level summary, living room, Flat 9

Time period	Mean L_{Aeq} , 1 hour
16:00 – 17:00	35
17:00 – 18:00	34
18:00 – 19:00	34
19:00 – 20:00	34
20:00 – 21:00	33
21:00 – 22:00	31
22:00 – 23:00	29
07:00 – 08:00	34
08:00 – 09:00	34
09:00 – 10:00	34
10:00 – 11:00	35
11:00 – 12:00	34
12:00 – 13:00	34
13:00 – 14:00	35
14:00 – 15:00	34
15:00 – 16:00	34

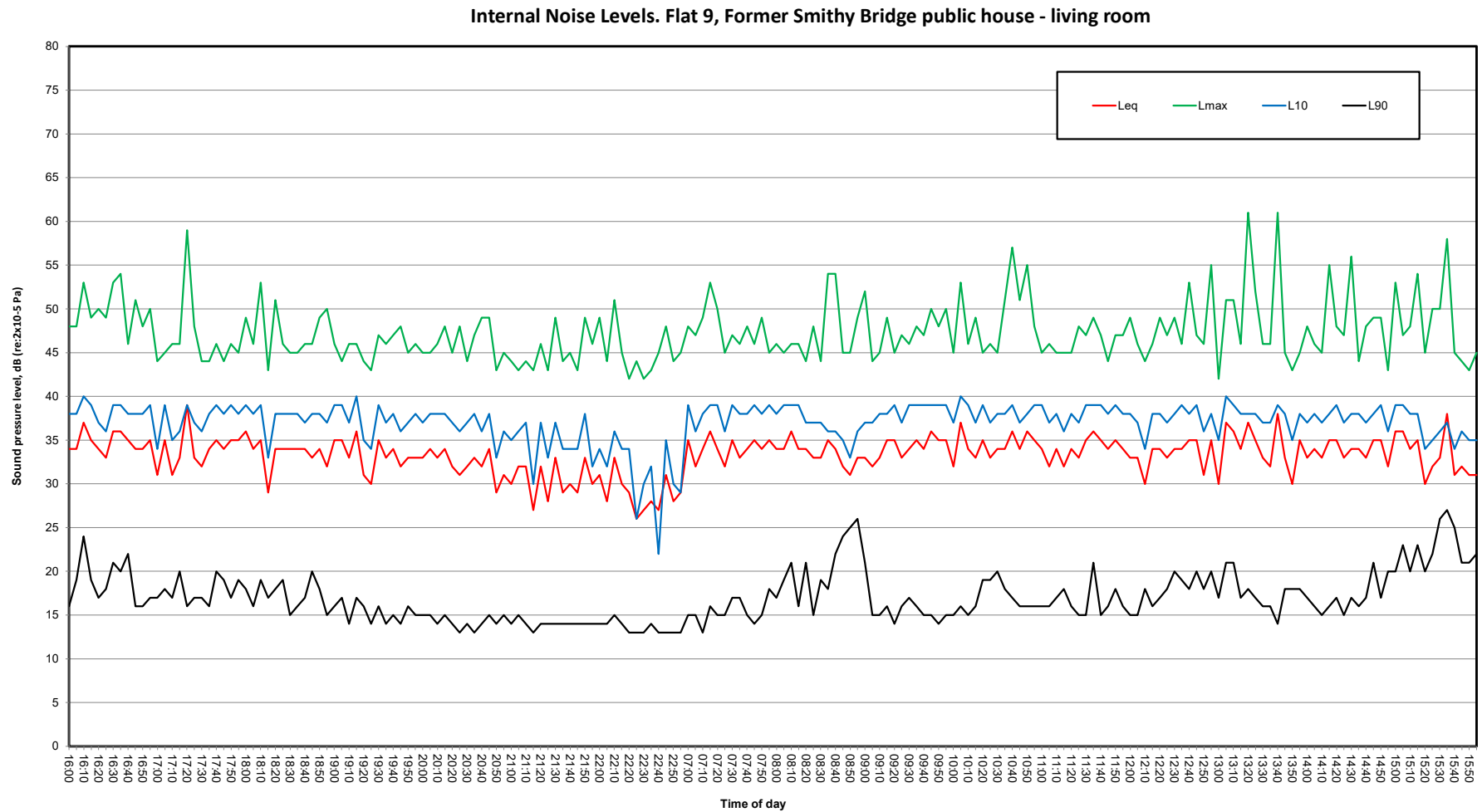
Table 6. Standardised internal hourly mean (log) sound level summary - daytime, bedroom, Flat 9

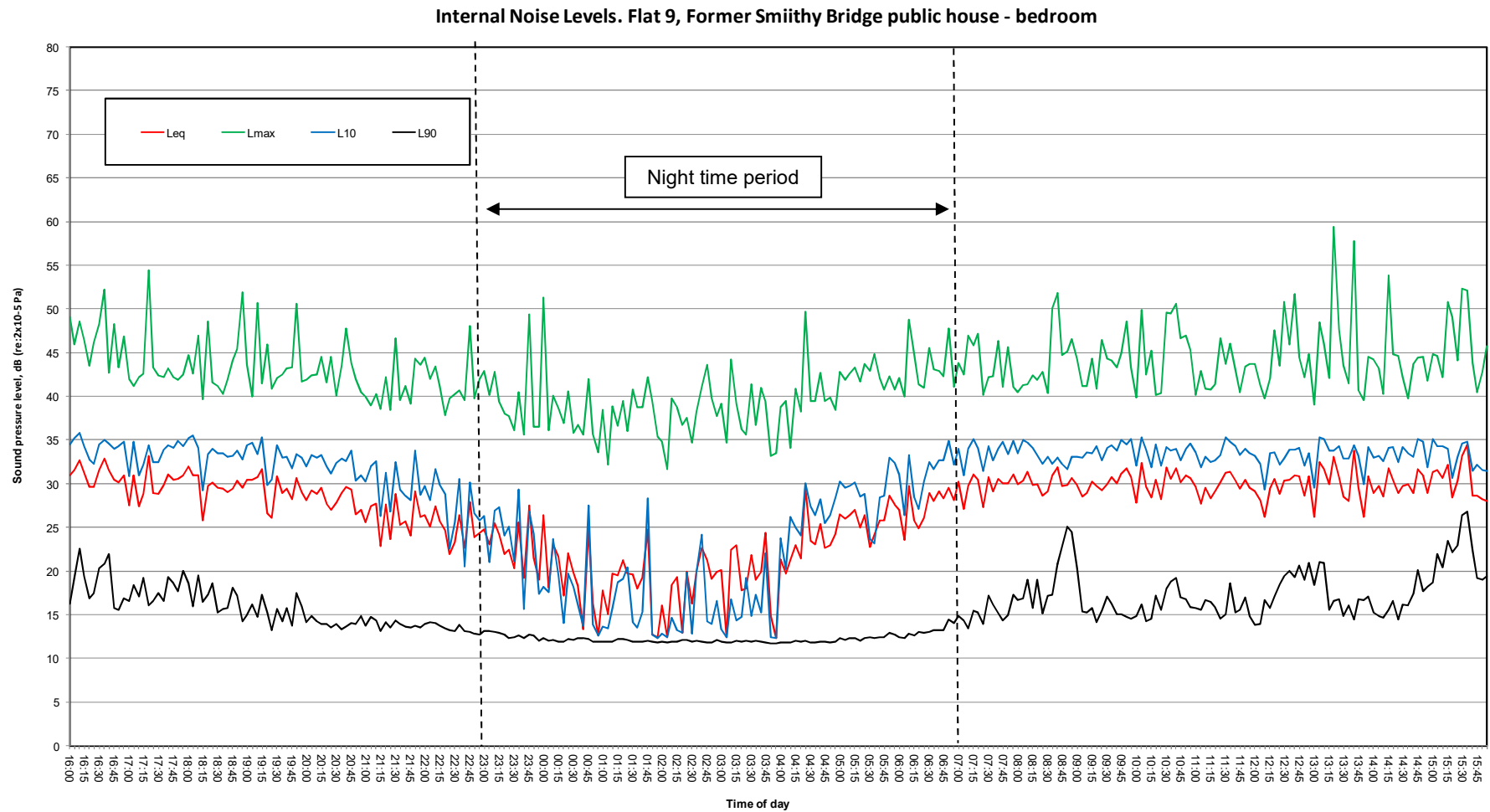
Time period	Mean $L_{Aeq, 1 \text{ hour}}$
16:00 – 17:00	31
17:00 – 18:00	30
18:00 – 19:00	30
19:00 – 20:00	30
20:00 – 21:00	29
21:00 – 22:00	27
22:00 – 23:00	25
07:00 – 08:00	30
08:00 – 09:00	30
09:00 – 10:00	30
10:00 – 11:00	30
11:00 – 12:00	30
12:00 – 13:00	30
13:00 – 14:00	31
14:00 – 15:00	30
15:00 – 16:00	31

Table 7. Standardised internal hourly mean (log) sound level summary – night time, bedroom, Flat 9

Time period	Mean $L_{Aeq, 1 \text{ hour}}$
23:00 – 00:00	24
00:00 – 01:00	21
01:00 – 02:00	20
02:00 – 03:00	19
03:00 – 04:00	20
04:00 – 05:00	24
05:00 – 06:00	26
06:00 – 07:00	28

Graph 1. Standardised sound level summary, living room, Flat 9



Graph 2. Standardised sound level summary, bedroom, Flat 9

7.0 **Discussion**

With reference to the design guide values contained within planning condition 17 and presented within section 4 of this report, the requirements are that the daytime (07:00 – 23:00 hours) internal noise climate within the living rooms and bedrooms should not exceed 35dB $L_{Aeq(1 \text{ hour})}$ and should not exceed 30dB $L_{Aeq(5 \text{ mins})}$ in bedrooms during the night time (23:00 – 07:00 hours) period.

With respect to the measured levels resulting from this assessment of the internal noise climate, the standardised mean (log) sound level for the daytime period within the living room was 34dB L_{Aeq} . Turning to the standardised sound levels within the bedroom, the mean (log) day and night time values for the two periods were 30 and 24dB L_{Aeq} respectively.

Turning to the living room and bedroom hourly values during the daytime tables 5 and 6 above, detailing the hourly mean (log) values, indicate that the 35dB $L_{Aeq(1 \text{ hour})}$ guide value for both rooms was not exceeded. With reference to the night time situation within the living room, table 7 and graph 2 above reveals that the 30dB $L_{Aeq(5 \text{ mins})}$ guide value was not exceeded during the night time period within the bedroom.

With the above in mind it is suggested that the measurements of the internal noise climate made within the living room and bedroom of Flat 9, have demonstrated that the guide values contained within planning condition 17 have been complied with.

8.0 **Conclusion**

Measurements of the internal noise climate resulting from external noise break-in, have been made within Flat 9 within the residential development built on the site of the former Smithy Bridge public house. The results of the break-in noise survey have demonstrated that the internal noise climate within the living room and bedroom of Flat 9 complied with the design guide values contained within planning condition 17 and as such it is suggested that the requirements of this planning condition have been met.

Appendix 1. Emails

From: Rachel Carney <Rachel.Carney@Rochdale.Gov.UK>
Sent: 13 February 2025 14:10
To: Tom Daly <tom.daly@armstrong-uk.com>
Subject: RE: Smithy Bridge , noise assessment cond 17

Dear Tom,

Environmental Services have advised that your approach is acceptable.

Kind regards
Rachel

Rachel Carney
Principal Planning Officer (Growth)
Economy



 [01706 924342](tel:01706924342)

 rachel.carney@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Tom Daly <tom.daly@armstrong-uk.com>
Sent: 13 February 2025 09:20
To: Rachel Carney <Rachel.Carney@Rochdale.Gov.UK>
Cc: Chris Greenall <chris.greenall@armstrong-uk.com>
Subject: RE: Smithy Bridge , noise assessment cond 17

You don't often get email from tom.daly@armstrong-uk.com. [Learn why this is important](#)

Thank you Rachel, much appreciated.

Kind Regards

Tom Daly | Armstrong Projects Ltd
Contracts manager
Email: tom.daly@armstrong-uk.com
Mobile: 07701 387 920

Armstrong Projects Ltd | Co. Reg No: 10437249 | Tel: 0330 117 1418
The Annexe, Rear of 26 Church Street, Altrincham, WA14 4DW | www.armstrong-uk.com

Disclaimer: The information transmitted including any attachments is intended only for the exclusive use of the person(s) or entity to which it is addressed and may contain confidential and privileged material that may be subject to legal privilege. Any perusal, review, retransmission, dissemination, distribution, reproduction or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient without the sender's prior consent is unauthorised and strictly prohibited. If you have received this message in error, please notify the sender immediately and delete the message from your computer without making any copies. Any personal views and opinions expressed in this email message are the sender's own and do not necessarily represent the views and opinions of the

Company. This footnote also confirms that this message has been swept for the presence of computer viruses but this does not guarantee that it is virus free.

Please consider the environment before printing this email

From: Rachel Carney <Rachel.Carney@Rochdale.Gov.UK>
Sent: 13 February 2025 09:18
To: Tom Daly <tom.daly@armstrong-uk.com>
Cc: Chris Greenall <chris.greenall@armstrong-uk.com>
Subject: RE: Smithy Bridge , noise assessment cond 17

Morning Tom,

I am seeking advice from our Environmental Services team and will let you know when I receive a reply.

Kind regards
Rachel

Rachel Carney
Principal Planning Officer (Growth)
Economy



 01706 924342

 rachel.carney@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk
For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Tom Daly <tom.daly@armstrong-uk.com>
Sent: 12 February 2025 16:31
To: Rachel Carney <Rachel.Carney@Rochdale.Gov.UK>
Cc: Chris Greenall <chris.greenall@armstrong-uk.com>
Subject: RE: Smithy Bridge , noise assessment cond 17

You don't often get email from tom.daly@armstrong-uk.com. [Learn why this is important](#)

:CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Good afternoon Rachel, just enquiring as to whether you have seen my prior email.

Please could we get your feedback. Thank you.

Kind Regards

Tom Daly | Armstrong Projects Ltd
Contracts manager
Email: tom.daly@armstrong-uk.com
Mobile: 07701 387 920

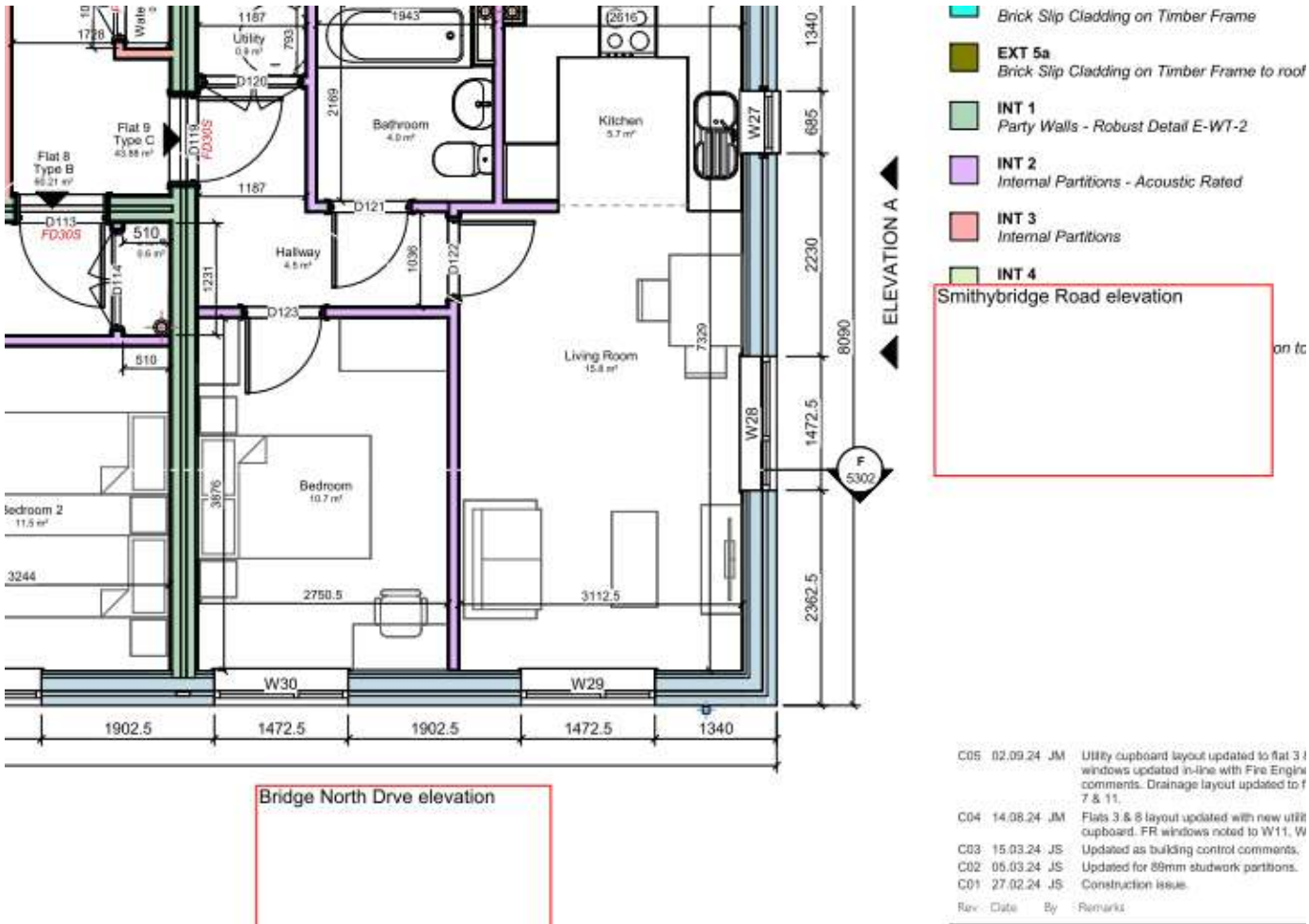
Armstrong Projects Ltd | Co. Reg No: 10437249 | Tel: 0330 117 1418
The Annexe, Rear of 26 Church Street, Altrincham, WA14 4DW | www.armstrong-uk.com

Disclaimer: The information transmitted including any attachments is intended only for the exclusive use of the person(s) or entity to which it is addressed and may contain confidential and privileged material that may be subject to legal privilege. Any perusal, review, retransmission, dissemination, distribution, reproduction or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient without the sender's prior consent is unauthorised and strictly prohibited. If you have received this message in error, please notify the sender immediately and delete the message from your computer without making any copies. Any personal views and opinions expressed in this email message are the sender's own and do not necessarily represent the views and opinions of the Company. This footnote also confirms that this message has been swept for the presence of computer viruses but this does not guarantee that it is virus free.

Please consider the environment before printing this email

From: Tom Daly
Sent: 10 February 2025 12:12
To: Rachel Carney <Rachel.Carney@Rochdale.Gov.UK>
Cc: Chris Greenall <chris.greenall@armstrong-uk.com>
Subject: Smithy Bridge , noise assessment cond 17

Good morning, Rachel we are booking in the return noise assessment to satisfy condition 17, we are not sure on how extensive this should be but, after consultation with the noise assessment specialist we have proposed Flat 9 to test, based on location/orientation and one that is the most susceptible to external noise. Please see below snap-shot for clarity. Can you please advise if you accept this proposal.



Thank you in advance.

Kind Regards

Tom Daly | Armstrong Projects Ltd

Contracts manager

Email: tom.daly@armstrong-uk.com

Mobile: 07701 387 920

Armstrong Projects Ltd | Co. Reg No: 10437249 | Tel: 0330 117 1418

The Annexe, Rear of 26 Church Street, Altrincham, WA14 4DW | www.armstrong-uk.com

Disclaimer: The information transmitted including any attachments is intended only for the exclusive use of the person(s) or entity to which it is addressed and may contain confidential and privileged material that may be subject to legal privilege. Any perusal, review, retransmission, dissemination, distribution, reproduction or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient without the sender's prior consent is unauthorised and strictly prohibited. If you have received this message in error, please notify the sender immediately and delete the message from your computer without making any copies. Any personal views and opinions expressed in this email message are the sender's own and do not necessarily represent the views and opinions of the Company. This footnote also confirms that this message has been swept for the presence of computer viruses but this does not guarantee that it is virus free.

Please consider the environment before printing this email

This email, its contents and any attachments are intended only for the above named. As the email may contain confidential and/or legally privileged information, if you are not, or suspect that you are not, the above named or the person responsible for delivery of the message to the above named, please delete or destroy the email and any attachments immediately and inform the sender of the error. Unauthorised access, use, disclosure, storage or copying is not permitted and may be unlawful. The views of the author may not necessarily reflect those of Rochdale Borough Council.

Rochdale Borough Council undertakes monitoring of both incoming and outgoing e-mails. You should therefore be aware that if you send an e-mail to a person within Rochdale Borough Council it may be subject to any monitoring deemed necessary by Rochdale Borough Council from time to time. Rochdale Borough Council cannot guarantee that this message or any attachment is virus free or has not been intercepted and amended.

As a public body, Rochdale Borough Council may be required to disclose this email (or any response to it) under the Freedom of Information Act 2000, unless the information in it is covered by one of the exemptions within the Act.

Appendix 2: Standardised Internal Noise Levels

Living room, Flat 9, standardised internal noise levels

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
16:00	34	48	38	16
16:05	34	48	38	19
16:10	37	53	40	24
16:15	35	49	39	19
16:20	34	50	37	17
16:25	33	49	36	18
16:30	36	53	39	21
16:35	36	54	39	20
16:40	35	46	38	22
16:45	34	51	38	16
16:50	34	48	38	16
16:55	35	50	39	17
17:00	31	44	34	17
17:05	35	45	39	18
17:10	31	46	35	17
17:15	33	46	36	20
17:20	39	59	39	16
17:25	33	48	37	17
17:30	32	44	36	17
17:35	34	44	38	16
17:40	35	46	39	20
17:45	34	44	38	19
17:50	35	46	39	17
17:55	35	45	38	19

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
18:00	36	49	39	18
18:05	34	46	38	16
18:10	35	53	39	19
18:15	29	43	33	17
18:20	34	51	38	18
18:25	34	46	38	19
18:30	34	45	38	15
18:35	34	45	38	16
18:40	34	46	37	17
18:45	33	46	38	20
18:50	34	49	38	18
18:55	32	50	37	15
19:00	35	46	39	16
19:05	35	44	39	17
19:10	33	46	37	14
19:15	36	46	40	17
19:20	31	44	35	16
19:25	30	43	34	14
19:30	35	47	39	16
19:35	33	46	37	14
19:40	34	47	38	15
19:45	32	48	36	14
19:50	33	45	37	16
19:55	33	46	38	15

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
20:00	33	45	37	15
20:05	34	45	38	15
20:10	33	46	38	14
20:15	34	48	38	15
20:20	32	45	37	14
20:25	31	48	36	13
20:30	32	44	37	14
20:35	33	47	38	13
20:40	32	49	36	14
20:45	34	49	38	15
20:50	29	43	33	14
20:55	31	45	36	15
21:00	30	44	35	14
21:05	32	43	36	15
21:10	32	44	37	14
21:15	27	43	30	13
21:20	32	46	37	14
21:25	28	43	33	14
21:30	33	49	37	14
21:35	29	44	34	14
21:40	30	45	34	14
21:45	29	43	34	14
21:50	33	49	38	14
21:55	30	46	32	14

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
22:00	31	49	34	14
22:05	28	44	32	14
22:10	33	51	36	15
22:15	30	45	34	14
22:20	29	42	34	13
22:25	26	44	26	13
22:30	27	42	30	13
22:35	28	43	32	14
22:40	27	45	22	13
22:45	31	48	35	13
22:50	28	44	30	13
22:55	29	45	29	13
07:00	35	48	39	15
07:05	32	47	36	15
07:10	34	49	38	13
07:15	36	53	39	16
07:20	34	50	39	15
07:25	32	45	36	15
07:30	35	47	39	17
07:35	33	46	38	17
07:40	34	48	38	15
07:45	35	46	39	14
07:50	34	49	38	15
07:55	35	45	39	18

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
08:00	34	46	38	17
08:05	34	45	39	19
08:10	36	46	39	21
08:15	34	46	39	16
08:20	34	44	37	21
08:25	33	48	37	15
08:30	33	44	37	19
08:35	35	54	36	18
08:40	34	54	36	22
08:45	32	45	35	24
08:50	31	45	33	25
08:55	33	49	36	26
09:00	33	52	37	21
09:05	32	44	37	15
09:10	33	45	38	15
09:15	35	49	38	16
09:20	35	45	39	14
09:25	33	47	37	16
09:30	34	46	39	17
09:35	35	48	39	16
09:40	34	47	39	15
09:45	36	50	39	15
09:50	35	48	39	14
09:55	35	50	39	15

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
10:00	32	45	37	15
10:05	37	53	40	16
10:10	34	46	39	15
10:15	33	49	37	16
10:20	35	45	39	19
10:25	33	46	37	19
10:30	34	45	38	20
10:35	34	51	38	18
10:40	36	57	39	17
10:45	34	51	37	16
10:50	36	55	38	16
10:55	35	48	39	16
11:00	34	45	39	16
11:05	32	46	37	16
11:10	34	45	38	17
11:15	32	45	36	18
11:20	34	45	38	16
11:25	33	48	37	15
11:30	35	47	39	15
11:35	36	49	39	21
11:40	35	47	39	15
11:45	34	44	38	16
11:50	35	47	39	18
11:55	34	47	38	16

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
12:00	33	49	38	15
12:05	33	46	37	15
12:10	30	44	34	18
12:15	34	46	38	16
12:20	34	49	38	17
12:25	33	47	37	18
12:30	34	49	38	20
12:35	34	46	39	19
12:40	35	53	38	18
12:45	35	47	39	20
12:50	31	46	36	18
12:55	35	55	38	20
13:00	30	42	35	17
13:05	37	51	40	21
13:10	36	51	39	21
13:15	34	46	38	17
13:20	37	61	38	18
13:25	35	52	38	17
13:30	33	46	37	16
13:35	32	46	37	16
13:40	38	61	39	14
13:45	33	45	38	18
13:50	30	43	35	18
13:55	35	45	38	18

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
14:00	33	48	37	17
14:05	34	46	38	16
14:10	33	45	37	15
14:15	35	55	38	16
14:20	35	48	39	17
14:25	33	47	37	15
14:30	34	56	38	17
14:35	34	44	38	16
14:40	33	48	37	17
14:45	35	49	38	21
14:50	35	49	39	17
14:55	32	43	36	20
15:00	36	53	39	20
15:05	36	47	39	23
15:10	34	48	38	20
15:15	35	54	38	23
15:20	30	45	34	20
15:25	32	50	35	22
15:30	33	50	36	26
15:35	38	58	37	27
15:40	31	45	34	25
15:45	32	44	36	21
15:50	31	43	35	21
15:55	31	45	35	22

Bedroom, Flat 9, standardised internal noise levels

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
16:00	31	49	34	16
16:05	32	46	35	19
16:10	33	49	36	23
16:15	31	46	34	19
16:20	30	43	33	17
16:25	30	46	32	18
16:30	32	48	35	20
16:35	33	52	35	21
16:40	32	43	35	22
16:45	30	48	34	16
16:50	30	43	34	16
16:55	31	47	35	17
17:00	27	42	31	17
17:05	31	41	35	18
17:10	27	42	31	17
17:15	29	43	32	19
17:20	33	54	34	16
17:25	29	43	32	17
17:30	29	42	32	18
17:35	30	42	34	17
17:40	31	43	34	19
17:45	30	42	34	19
17:50	31	42	35	18
17:55	31	43	34	20

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
18:00	32	45	35	19
18:05	31	43	35	16
18:10	31	47	34	20
18:15	26	40	29	16
18:20	30	49	33	17
18:25	30	42	34	19
18:30	30	41	33	15
18:35	29	40	33	16
18:40	29	42	33	16
18:45	29	44	33	18
18:50	30	45	34	17
18:55	30	52	33	14
19:00	30	44	34	15
19:05	30	40	35	16
19:10	31	51	33	15
19:15	32	41	35	17
19:20	27	46	30	15
19:25	26	41	30	13
19:30	31	42	34	16
19:35	29	43	33	14
19:40	29	43	33	16
19:45	28	43	32	14
19:50	31	51	33	18
19:55	29	42	33	16

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
20:00	28	42	32	14
20:05	29	42	33	15
20:10	29	42	33	14
20:15	30	44	33	14
20:20	28	42	32	14
20:25	27	45	31	14
20:30	28	40	32	14
20:35	29	44	33	13
20:40	30	48	33	14
20:45	29	44	34	14
20:50	27	42	30	14
20:55	27	40	31	15
21:00	26	40	30	14
21:05	27	39	32	15
21:10	28	40	33	14
21:15	23	39	26	13
21:20	28	42	31	14
21:25	24	38	27	14
21:30	29	47	32	14
21:35	25	40	29	14
21:40	26	41	29	14
21:45	24	39	28	13
21:50	29	44	34	14
21:55	26	44	29	13

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
22:00	26	44	30	14
22:05	25	42	28	14
22:10	27	43	32	14
22:15	26	41	30	14
22:20	25	38	29	13
22:25	22	40	23	13
22:30	23	40	26	13
22:35	26	41	31	14
22:40	23	40	21	13
22:45	28	48	30	13
22:50	24	40	27	13
22:55	24	42	26	13
23:00	25	43	26	13
23:05	23	40	21	13
23:10	25	43	27	13
23:15	24	39	27	13
23:20	22	38	24	13
23:25	22	38	25	12
23:30	20	36	21	12
23:35	26	40	29	13
23:40	19	36	16	12
23:45	27	49	27	13
23:50	22	36	24	13
23:55	19	37	17	12

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
00:00	26	51	18	12
00:05	18	36	18	12
00:10	23	40	24	12
00:15	22	39	20	12
00:20	17	37	14	12
00:25	22	41	20	12
00:30	20	36	18	12
00:35	18	37	16	12
00:40	13	36	14	12
00:45	25	42	28	12
00:50	16	36	14	12
00:55	13	34	13	12
01:00	18	38	14	12
01:05	15	32	13	12
01:10	20	39	16	12
01:15	20	37	19	12
01:20	21	39	19	12
01:25	20	36	20	12
01:30	20	41	14	12
01:35	18	39	13	12
01:40	19	39	15	12
01:45	25	42	28	12
01:50	13	39	13	12
01:55	12	35	12	12

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
02:00	16	35	13	12
02:05	12	32	12	12
02:10	18	40	15	12
02:15	19	39	13	12
02:20	13	37	13	12
02:25	20	38	20	12
02:30	16	35	13	12
02:35	20	38	20	12
02:40	23	41	24	12
02:45	21	44	14	12
02:50	19	40	14	12
02:55	20	38	17	12
03:00	20	39	13	12
03:05	12	35	12	12
03:10	22	44	17	12
03:15	23	39	14	12
03:20	18	36	15	12
03:25	18	36	19	12
03:30	22	41	15	12
03:35	19	37	17	12
03:40	20	41	15	12
03:45	24	39	22	12
03:50	15	33	12	12
03:55	12	33	12	12

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
04:00	21	39	24	12
04:05	20	39	20	12
04:10	21	34	26	12
04:15	23	41	25	12
04:20	21	38	24	12
04:25	30	50	30	12
04:30	23	39	27	12
04:35	23	39	26	12
04:40	25	43	28	12
04:45	23	39	25	12
04:50	23	40	26	12
04:55	24	38	28	12
05:00	26	43	30	12
05:05	26	42	30	12
05:10	26	43	30	12
05:15	27	43	30	12
05:20	25	42	28	12
05:25	26	44	29	12
05:30	23	43	24	12
05:35	24	45	23	12
05:40	26	42	28	12
05:45	26	41	29	12
05:50	29	42	33	13
05:55	28	41	32	13

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
06:00	27	42	31	12
06:05	24	40	26	12
06:10	30	49	33	13
06:15	26	45	28	13
06:20	25	41	27	13
06:25	26	41	30	13
06:30	29	46	32	13
06:35	28	43	32	13
06:40	29	43	33	13
06:45	28	42	33	13
06:50	29	48	35	14
06:55	28	41	32	14
07:00	30	44	34	15
07:05	27	42	31	14
07:10	30	47	34	13
07:15	31	46	35	15
07:20	30	47	34	15
07:25	27	40	31	14
07:30	31	42	34	17
07:35	29	42	33	16
07:40	30	46	34	15
07:45	30	41	35	14
07:50	30	46	33	15
07:55	31	41	35	17

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
08:00	30	40	33	17
08:05	30	41	35	17
08:10	31	41	35	19
08:15	30	42	34	16
08:20	30	42	33	19
08:25	29	43	32	15
08:30	29	40	33	17
08:35	31	50	32	17
08:40	32	52	33	21
08:45	30	45	32	23
08:50	30	45	32	25
08:55	31	47	33	24
09:00	30	44	33	20
09:05	29	41	33	15
09:10	29	41	34	15
09:15	30	44	33	16
09:20	30	41	34	14
09:25	29	46	33	15
09:30	30	44	34	17
09:35	31	44	34	16
09:40	30	43	34	15
09:45	31	45	35	15
09:50	32	49	34	15
09:55	31	43	35	15

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
10:00	28	40	32	15
10:05	32	50	35	16
10:10	30	43	34	14
10:15	28	45	32	14
10:20	30	40	34	17
10:25	28	40	32	16
10:30	32	50	34	18
10:35	31	49	34	19
10:40	32	51	34	19
10:45	30	47	33	17
10:50	31	47	34	17
10:55	31	45	35	16
11:00	30	40	34	16
11:05	28	43	32	16
11:10	30	41	33	17
11:15	28	41	33	16
11:20	29	41	33	16
11:25	30	47	33	14
11:30	31	44	35	15
11:35	31	46	35	19
11:40	30	43	34	15
11:45	29	40	33	16
11:50	30	43	34	17
11:55	30	44	33	15

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
12:00	29	44	33	14
12:05	28	41	32	14
12:10	26	40	29	17
12:15	29	42	33	16
12:20	31	48	34	17
12:25	29	43	32	19
12:30	30	51	33	19
12:35	30	46	34	20
12:40	31	52	34	19
12:45	31	44	34	21
12:50	29	42	32	19
12:55	31	45	34	21
13:00	26	39	29	18
13:05	32	48	35	21
13:10	32	46	35	21
13:15	30	42	34	16
13:20	33	59	34	17
13:25	31	48	34	17
13:30	29	43	33	15
13:35	28	41	33	16
13:40	34	58	34	14
13:45	30	41	33	17
13:50	26	40	30	17
13:55	31	44	34	17

Start Time	L_{Aeq} 5 mins	L_{Amax} , 5 mins	L_{A10} , 5 mins	L_{A90} , 5 mins
14:00	29	44	33	15
14:05	30	43	33	15
14:10	29	40	33	15
14:15	32	54	34	16
14:20	30	45	34	17
14:25	29	45	32	14
14:30	30	42	34	16
14:35	30	40	33	16
14:40	29	44	33	17
14:45	32	44	35	20
14:50	31	44	35	18
14:55	29	42	32	18
15:00	31	45	35	19
15:05	32	45	34	22
15:10	31	42	34	20
15:15	32	51	34	23
15:20	28	49	31	22
15:25	30	44	33	23
15:30	33	52	35	26
15:35	35	52	35	27
15:40	29	44	31	22
15:45	29	41	32	19
15:50	28	43	32	19
15:55	28	46	31	19