Martec Environmental Consultants Ltd.
Waterbrow Wood, Gressingham, LANCASTER LA2 8LX
Tel: 01524 222000
Fax: 01695 768188
Email: info@martecenviro.co.uk Website: www.martecenviro.co.uk

NOISE ASSESSMENT

Laundrette
Fountain Street, Leek, Staffordshire

Report by
M. A. Kenyon, MSc, BSc, MIOA

Report Date:	30th November 2015
Ref:	20151208 7593 Leek Laundrette
Site Visited by:	S B Mellor MA MIOA CMIOSH MIIRSM PGCert
Site Visit:	27th November 2015

Loughborough Office:
8 Bayliss Close, Quorn
Loughborough LE12 8PF

Ormskirk Office:
131 New Court Way, Ormskirk, Lancs L39 2YT

Staffordshire / Cheshire Office:
2, Betley Hall Gardens, Betley, Crewe CW39BB

CONTENTS

1.0 INTRODUCTION

On the instruction of Rob Duncan Planning Consultancy Ltd, Martec Environmental Consultants Ltd carried out a noise assessment which involved establishing the source, ambient and background noise levels around a building in Leek, Staffordshire which operates as a laundrette for John Munroe Hospital.

Acoustic terminology is explained at Appendix 1 of this report and the author's qualifications and experience are described in Appendix 2, references at Appendix 3 and site images at Appendix 4.

2.0 SITE DESCRIPTION

The site at the corner of Fountain Street and Shirburn Road operates as a laundrette as noted above. It is understood that the building was formerly used as a motor vehicle repair shop. There are three washing machines and three dryers in use at any time in the laundrette. There is also associated extraction, air conditioning and a radio in use.

There is a house attached to the laundrette building (No.82) and the garden of the un-attached No.49 adjoins the rear of the building (see figure 1). There are also houses located on the opposite side of both Fountain and Shirburn Road. The next nearest un-attached property is

the elevation of No.67 that contains its front door [see Appendix 4].

3.0 NOISE CRITERIA

3.1 National Planning Policy Guidance - Noise

3.1.1 The Use of Quantitative Standards

The first comment to make about the new guidance, issued in March

2014, is that it is qualitative, lacking quantitative guidance on acceptable noise levels for general industrial or commercial noise. In addition, there is no direct reference to using British (or other) Standards to assess noise; i.e. previously PPG24 directly referred to both BS8233 and BS4142; therefore, the current government guidance does not appear to endorse directly the use of these documents.

At paragraph 10 of the Noise Guidance, it is stated that local plans can include noise standards, which presumably would/could be based upon relevant British Standards. Paragraph 10 states: “Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed.” So that it is clear that current guidance envisages that quantitative standards can be used, provided that there is flexibility in their

application.

3.1.2 The Qualitative Guidance in NPPG - Noise

In paragraph 5 various noise categories and thresholds are set out; up to and including "Noticeable and Intrusive" it seems likely that the intention would be to recognise that whilst the noise levels are not desirable, planning consent should be granted provided that the noise can be mitigated and the intrusion reduced to a minimum. "Noticeable and Intrusive" noise occurs when:

"Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life."

Above the "Significant Observed Adverse Effect Level" threshold, noise becomes "Noticeable and Disruptive" because:

"The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in

difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

Noise which is "Noticeable and disruptive" should be avoided; however, it is the next level of disturbance "Noticeable and very disruptive" that should be prevented.

It can be seen that the NPPG noise guidance envisages that if properties are provided with alternative ventilation and acoustic glazing, designed to ensure "acceptable" internal noise levels, then internal noise levels would not exceed the "Significant Observed Adverse Effect Level" and that planning consent could be granted. The guidance states "If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout."

3.2 BS8233:2014

British Standard 8233:2014

The latest version of BS8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' recently published (February 2014) supersedes the 1999 version and states the following:

"In general, for steady external noise sources, it is desirable that the

internal ambient noise level does not exceed the guideline values in Table 4.

Table 4: Indoor ambient noise levels for dwellings

Activity	**Location**	**07:00 to 23:00**	**23:00 to 07:00**
Resting	Living Room	35 LAeq,16hr	--
Dining	Dining Room/Area	40 LAeq,16hr	--
Sleeping (daytime resting)	Bedroom	35 LAeq,16hr	30 LAeq,8hr

The footnotes to this table make it clear that the guidance is based on the current WHO recommendations and that the above internal levels can be relaxed by 5dB to achieve "reasonable" internal conditions. The footnotes also make it clear that planning consent can be granted when external levels exceed the WHO guidance targets provided that appropriate internal noise levels are achieved.

With regard to external levels, BS8233:2014 states:

"7.7.3.2 Design criteria for external noise

For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T

which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels

of 55 dB LAeq,T or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space."

From the wording, it is clear that there is no intention for the guideline noise levels to be applied to the general spaces external to apartment blocks and that the limits are only intended to apply to more private amenity spaces such as gardens and patios and larger balconies where residents would be expected to spend some time relaxing.

The wording of BS8233 also makes it clear that the guideline noise levels for gardens, patios, larger balconies etc., are not overriding planning considerations in any event.

3.3 BS4142:2014 & 1997

BS.4142:2014 "Methods for Rating and Assessing Industrial and Commercial Sound" and its predecessor [the 1997 version referred to in planning consent condition No.12], have often used as a basis for assessing similar developments. This British Standard describes a method for assessing the impact of sound produced on industrial and commercial premises.

The Standard requires that the ambient noise (total noise including the "problem" noise) is measured in terms of the equivalent continuous sound level LAeq [see Appendix 1 for acoustic terms], which is then

corrected for the residual noise (total LAeq excluding the “problem” noise) to give the specific noise (from the “problem” noise alone).

A correction for character is made if the noise contains a distinguishable discrete, continuous note [whine, hiss, screech, hum etc.]. If appropriate an addition of 2, 4 or 6 dB can be made to the specific noise.

Similarly, if there are distinct impulses in the noise, such as bangs, clicks, clatters, or thumps, a further correction of 3, 6 or 9dB can be made as appropriate.

If the noise is neither tonal nor impulsive but is otherwise readily distinctive in comparison with the residual acoustic environmental a correction of 3dB can be made.

Finally, if the noise is irregular enough to attract attention another correction of 3dB can be made provided that the intermittency is readily distinctive against the residual acoustic environment.

The main difference of the 1997 version of BS4142 was that it made a +5dB character correction if any, or indeed all, of the tonality, impulsive or irregularity features were present.

The final figure of the Specific Noise level plus any corrections for the character of the noise is known as the Rating level.

This Rating Level is then compared with the measured background [LA90] level. The 2014 version gives the following guidance on the significance of the difference between rating level and background.

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more, is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) 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.

4.0 MEASUREMENT PROCEDURE

The site was visited on Friday 27th November 2015 and measurements were made at the nearest sensitive receptors with internal

measurements at the adjoining house [No.82] and external measurements at the nearest non-attached properties as noted above at No.49 and No.67; to establish the typical ambient and background L90 levels. The meter was mounted on a tripod at an approximate height of 1.4m. Internal measurements were made in six static positions in each room with the source of noise (laundry equipment) switched on and then off.

The external measurements were made at 1m from the façade, again with the laundry equipment on and then off (façade correction not made). **All laundry equipment was operated during the monitoring (worst case).**

The weather conditions during the monitoring period were dry and overcast. There was wind speed of 3-5m/s SW. It is not considered that the weather conditions would have affected the results.

The sound level meter used was a Svan 957 (s/n 12329). The meter calibrated correctly before and after the measurements using a Cirrus calibrator type CR:551E (s/n 039816); all instrumentation had been laboratory calibrated within the preceding 2 years as shown below.

Instrument	Type	Serial No.	Calibration Cert. No.	Date of Due Calibration
Svan 957	Sound Level Meter	23201	Castle 23201/59185	27/03/2017
Svan 12L	Preamp	24265	Castle 23201/59185	27/03/2017
PCB 377B02	Microphone	LW136090	Castle 23201/59185	27/03/2017
Cirrus 511E	Calibrator	39816	Cirrus 167748	15/04/2017

5.0 MEASUREMENT RESULTS

5.1 **Tables** The measurement results are shown in the tables below:

Date & time	Filename	Elapsed	LAFmax [dB]	LAFmin [dB]	LAeq [dB]	L01	L10	L50	L90	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1000 Hz	1250 Hz	1600 Hz	2000 Hz	2500 Hz	3150 Hz
Master Bed - Laundrette Equipment On																									
27/11/2015 08:38	759304	00:00:15	34.2	19.9	23.2	34	25	22	20	33	22.3	20.6	21.7	18.7	18.2	13.5	12.8	13.1	13.3	10.6	8.2	6.5	6.8	8.7	7
27/11/2015 08:38	759305	00:00:15	24.6	19.3	21.7	24	23	22	20	28.9	20.4	23.4	20.1	16.1	22.3	13.4	10.1	10.2	6.7	6.1	7.5	5.3	5.8	8.1	6.8
27/11/2015 08:41	759306	00:00:15	29.7	20.9	24.2	29	26	24	21	26.5	26	24.1	23.3	17.2	25.7	17.8	14.9	12.6	12.3	12.3	9.1	6.5	6.7	8.5	7.4
27/11/2015 08:44	759307	00:00:15	32.4	23.7	26.1	32	28	26	24	33.4	25.5	19.8	20.1	19	26.3	18.1	16	17.3	12.1	10.4	11.2	8.2	7	9	7.3
27/11/2015 08:45	759308	00:00:15	33.6	22.4	26.1	30	28	26	24	35.4	27.8	21.7	20.3	17.8	22.1	21.3	14.9	11.1	10.5	9.3	8	5.3	5.7	7.8	6.5
27/11/2015 08:46	759309	00:00:15	30.3	19	22.8	31	24	21	19	21.9	25.3	20	18.3	17.4	22.7	14	11.8	17.2	12.6	11.7	9.1	5.8	5.8	7.9	6.5
					24.0					**29.9**	**24.6**	**21.6**	**20.6**	**17.7**											
Box Bed - Laundrette Equipment On																									
27/11/2015 08:47	759310	00:00:15	32	24.8	27.5	33	30	27	25	39.8	33.6	24.3	18.2	24.2	25.6	21.5	17.2	13.7	12.4	11.1	11	9.7	9	9.7	8.3
27/11/2015 08:48	759311	00:00:15	28.7	22.6	25.4	29	27	25	23	38.7	28.5	22.4	25.6	24.6	23.8	16.7	13.3	12.4	9.1	8.5	9.1	7.9	8.3	9.1	7.5
27/11/2015 08:48	759312	00:00:15	38.1	23.6	26.5	35	27	25	24	37.5	31.3	25.3	20.8	18.1	25.7	17.5	14.1	12.8	10.5	8.7	9.7	8.5	8.2	9.1	7.4
27/11/2015 08:49	759313	00:00:15	26	22.6	24.1	26	25	24	23	38.1	25.5	23	21.9	20.4	22.3	13.9	12.1	10	8.4	7.7	8	6.3	6.4	8.2	6.5
27/11/2015 08:50	759314	00:00:15	28.1	24.5	26.5	29	28	26	25	40.7	32.3	27.3	23.5	22.4	23.9	21.6	15.9	12.1	9.9	8.7	9.1	7.8	8.8	10.2	8.2
27/11/2015 08:50	759315	00:00:15	29.5	25.4	27.6	30	29	28	26	43.8	33.3	24.9	16.3	23	24.9	17.1	13	10.7	9.5	9.2	9.7	7.1	7.3	8.2	6.7
					26.3					**39.8**	**30.8**	**24.5**	**21.1**	**22.1**											
GF Dining Room - Laundrette Equipment On																									
27/11/2015 09:00	759317	00:00:15	25.9	21.4	24	27	25	24	22	36.2	28.5	18.6	15	16.3	17	13.4	13.3	10.7	8.1	8.2	8.5	5.7	6	7.8	9.9
27/11/2015 09:00	759318	00:00:15	22.9	18.7	20.4	23	22	20	19	27.1	24	21	15	15	15	12.2	9.5	10	8	5.7	7.6	5.3	5.8	8.1	6.7
27/11/2015 09:01	759319	00:00:15	30.4	20.1	22.8	28	24	22	21	32.4	27	15.4	14.3	15.1	14.5	13	11.1	9.1	8.5	7	8.1	6.1	6.1	8.1	7.1
27/11/2015 09:01	759320	00:00:15	27.2	21.3	23.4	27	25	23	22	31.7	25	18.4	13.8	11.6	15.2	11.7	7.1	8.3	6.5	6.9	9.5	7.5	7.4	8.4	7.5
27/11/2015 09:01	759321	00:00:15	29.5	19.3	21.3	27	23	21	20	32.3	24	16.1	13.3	12.7	13.9	10.9	7.1	8.4	6.4	6.3	8.3	6.7	6.8	8.5	7.5
27/11/2015 09:02	759322	00:00:15	24.5	19.9	22.1	25	24	22	20	30.1	25.3	16.7	10.8	8.9	10.3	7.5	5.5	6.7	4.1	4.6	6.9	5.2	5.7	7.7	6.5
					22.3					**31.6**	**25.6**	**17.7**	**13.7**	**13.3**											

Date & time	Filename	Elapsed	LAFmax [dB]	LAFmin [dB]	LAeq [dB]	L01	L10	L50	L90	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1000 Hz	1250 Hz	1600 Hz	2000 Hz	2500 Hz	3150 Hz
Master Bed - Laundrette Equipment Off																									
27/11/2015 10:09	759325	00:00:15	25.2	15.6	19.1	26	22	18	16	22.7	20.8	20.2	17.6	15.1	15.4	12.8	11.7	10.7	6.3	5.5	7.9	5.7	5.7	7.9	6.8
27/11/2015 10:11	759326	00:00:15	25.1	15.9	17.8	24	20	17	16	25	20.6	18	13.4	13.3	13	8.8	7.6	7.7	6.3	5	7.1	5	5.7	8	6.8
27/11/2015 10:11	759327	00:00:15	28	16.4	18.5	25	20	18	17	15.7	13.1	15.9	17.5	11.1	13.5	9.5	8.9	8.8	8	6.8	8.1	6.4	6.5	8.8	7.6
27/11/2015 10:12	759328	00:00:15	21.9	15.6	17.8	22	20	17	16	18.8	13.6	13	16.7	10.8	13.9	9.7	6.5	7.7	6	5	7.5	5.3	6.4	8.2	7.1
27/11/2015 10:13	759329	00:00:15	21.4	16	17.6	21	19	17	16	21.8	19.8	21.3	14.3	9.4	9.9	6.7	6.4	6.9	4.4	4.6	7.1	5.3	5.7	8.1	6.9
27/11/2015 10:13	759330	00:00:15	19.9	15.6	17	20	18	17	16	14.6	10.3	10	15	10.8	10.3	6.5	5.2	7	5	4.8	7.3	5.3	5.8	8.1	7
					18.0					**19.8**	**16.4**	**16.4**	**15.8**	**11.8**											
Box Bed - Laundrette Equipment Off																									
27/11/2015 10:15	759332	00:00:15	27.1	17	19.7	27	22	19	17	28.5	25.9	19.5	16.4	16.7	12.8	7.5	9.1	9.2	6.8	6.9	8.5	6.8	7	8.8	7.5
27/11/2015 10:16	759333	00:00:15	23.3	16.8	19.3	23	22	18	17	23	21.2	17.7	13.1	14.1	13.2	11.2	9.1	9.4	7.7	6.7	9.5	7.3	8.1	9.7	8.1
27/11/2015 10:16	759334	00:00:15	24.7	17.2	18.9	23	20	19	17	28.3	19.7	13.7	9.2	11.8	15.1	8.9	7.3	8.7	6.7	6.5	8.2	6.1	6.5	8.6	7.5
27/11/2015 10:16	759335	00:00:15	22.4	16.3	18.1	22	19	18	17	21.4	15.6	8.4	6.8	10.7	9.6	8.8	6.8	8.3	6.5	6.8	8.5	6.7	7.1	8.8	7.7
27/11/2015 10:17	759336	00:00:15	21.8	16.3	17.5	22	18	17	16	21.3	16	13.1	8.6	10.8	10.3	8.5	6.4	7.7	6.1	5.7	7.7	5.8	6.4	8.4	7.5
27/11/2015 10:17	759337	00:00:15	25.4	17.9	19.5	24	21	19	18	26.9	24.6	11.3	14	17.1	13.9	10	9.1	9.2	7.8	7.8	8.3	7	7.3	8.8	7.7
					18.8					**24.9**	**20.5**	**14.0**	**11.4**	**13.5**											
GF Dining Room - Laundrette Equipment Off																									
27/11/2015 10:18	759338	00:00:15	22.7	15.6	17.4	22	20	17	16	16.1	6.8	8.1	10	11.8	10.5	6.4	5.2	7.5	5.2	5	7.8	5.7	7.3	8.4	7.6
27/11/2015 10:19	759339	00:00:15	20.8	15.5	17.5	21	19	17	16	13.6	7.6	10	10.8	9.9	10.2	7.6	6.4	8	6	6	7.9	5.8	6.7	8.7	7.8
27/11/2015 10:19	759340	00:00:15	23.5	15.4	17.8	24	20	17	16	13.6	10.7	8.3	7.9	9.2	11.5	9.5	6.8	7.6	5.8	5.8	8	6	7.4	8.8	7.8
27/11/2015 10:20	759341	00:00:15	23	15.6	16.9	20	18	17	16	21.6	9.6	8.7	5.7	4.1	7.4	3.4	3.4	6.7	3.9	4.4	7	5	5.7	8	7
27/11/2015 10:21	759342	00:00:15	22.2	15.5	17.1	21	19	17	16	14.6	7.5	7.4	8.4	6.5	8.8	5.2	5	7.7	5.2	5.3	7.8	6	6.7	8.5	7.7
27/11/2015 10:21	759343	00:00:15	23.7	16.1	17.5	24	18	17	16	16.6	12.6	14	8.8	9.6	11.1	7.3	8.9	8.3	5	5.5	7.7	5.3	5.8	8.2	8.1
					17.4					**16.0**	**9.1**	**9.4**	**8.6**	**8.5**											

Date & time	Filename	Elapsed	LAFmax [dB]	LAFmin [dB]	LAeq [dB]	L01	L10	L50	L90	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1000 Hz	1250 Hz	1600 Hz	2000 Hz	2500 Hz	3150 Hz
External No. 49 Laundrette Equipment On																									
27/11/2015 09:27	759323	00:15:07	61.8	39.1	45.4	53	48	44	41	43.9	41.8	41.6	39	37.2	39.3	36.5	38.3	36.9	35.8	36.8	35.9	34	32	30.6	28.5
External No. 49 Laundrette Equipment Off																									
27/11/2015 10:05	759324	00:15:00	64.7	39.4	46.1	52	48	45	43	46.8	45	45.1	43.8	40.4	39.3	36.2	36.7	36.6	37.2	38.1	36.4	34.6	32.5	30.4	28.4
External - No.67 Dryer Extraction On																									
27/11/2015 10:28	759345	00:00:30	53.7	46.3	49.7	53	52	49	47	51.6	48.9	48	42.3	43	52.1	43	38.8	37.4	38.3	38.9	37.8	36.4	33.5	32.5	27.2
External - No.67 Dryer Extraction Off																									
27/11/2015 10:30	759346	00:00:30	50	43.1	46.2	50	48	46	44	42.6	41.5	36.7	38.5	37	37.5	37.3	36.9	38	38.8	39.1	37.3	35.5	33.1	30.4	27.8

5.2 Subjective Impressions

To the observer, in regard to internal sound, there was a barely perceptible “hum” which was just audible when the laundry was operating. The measured results suggest that it may be the laundry noise relating to this impression. The same impression was also made in the garden of No. 49 where laundry noise was only just discernible by listening very intently, in very close proximity to the laundry building itself; and not at the monitoring position at all. Extraction noise was just audible outside the property "over the road" at No.67.

However, the residents living in the attached property [No.82] stated that at no time are they ever disturbed by any noise, nor do they report hearing any noise associated with the laundrette.

In regard to external noise, the residents living in No.49, the nearest non-attached property, also stated the same. The residents at No.67 were not available for comment, although the observer could just about hear extraction noise at this position (see above and below).

6.0 ASSESSMENT OF RESULTS

6.1 BS8223:2014 Guidelines

It can be seen from the results above for No.82 that the internal noise levels do not exceed 30dB LAeq when the laundry is operating, and therefore the internal levels in the rooms achieve the desirable internal daytime levels from BS8233:2014.

Measured external levels including laundry noise in the garden of No.49 and outside No.67 did not exceed the recommended level from BS8233:2014 of 50dB LAeq where *"it is desirable that the external noise level does not exceed 50 dB LAeq,T".*

6.2 Difference between levels (launderette operating and not)

Internal Levels - No.82

The average range of levels (LAeq) in the three rooms of No.82 was between 22-24dBA with the laundry operating and 17-19dBA without the laundrette operating. A difference of between 5-7dBA which is potentially discernible to some i.e. above 3dBA difference.

External Levels - Nos. 49 & 67

The LAeq levels with the laundrette operating were 45dBA at No.49 and 50dBA at No.67. With the laundrette off, levels were 46dBA for both. A difference of -1 and +4dBA respectively. Noise from the laundrette is not considered to have a significant impact at No.49 especially given the subjective impression as noted above. There is a potential for impact at No.67 which has been assessed below.

6.3 BS4142:2014 - No.67

Based on the measured levels from the laundrette as noted above:

Assessment of Impact (No.67)

Level with extraction operating	49.7 LAeq
Level with extraction off	46.2 LAeq
Specific Noise Level [49.7 - 46.2]	47.1 LAeq
Tonal Character Correction "Hum" - BS4142 Annex C tone @315Hz	+6dB
Impulsive Character Correction	0 dB
Other Sound Characteristics	0 dB
Intermittency Correction	Nil
Correction of % of reference period [assumes constant]	Nil
Rating Level [47 +6 +0 +0 +0 +0] - rounded	53 dB
Background Noise Level LA90 [measurement made at No.49]	43 dB
Excess over Background [Rating – Background = 49-43]	+10 dB
Conclusion – "indication of significant adverse impact, depending on the context"	

Table 3: BS4142:2014 Assessment – No.67

Uncertainty:

The measurements of source noise used in the assessment for No.67 are relatively short [30 seconds]; however, from observation the noise source is constant and therefore the shortness of the measurement period is not considered significant.

The measurements of background noise were made on a single occasion for a 15 minute period; however, the observer was on site for several hours and the measurement period used is considered representative of the quietest time during the observations, which was a weekday mid-morning.

Given the proximity of the measurement locations to the noise source, the observed weather conditions are not considered to have had a significant effect.

The assessment assumes that the laundrette (and all equipment) operates constantly and hence over-estimates the impact for much of the time. Given that most of the uncertainty is conservative, overall it is considered that uncertainty is probably not significant in this assessment.

7.0 DISCUSSION AND CONCLUSIONS

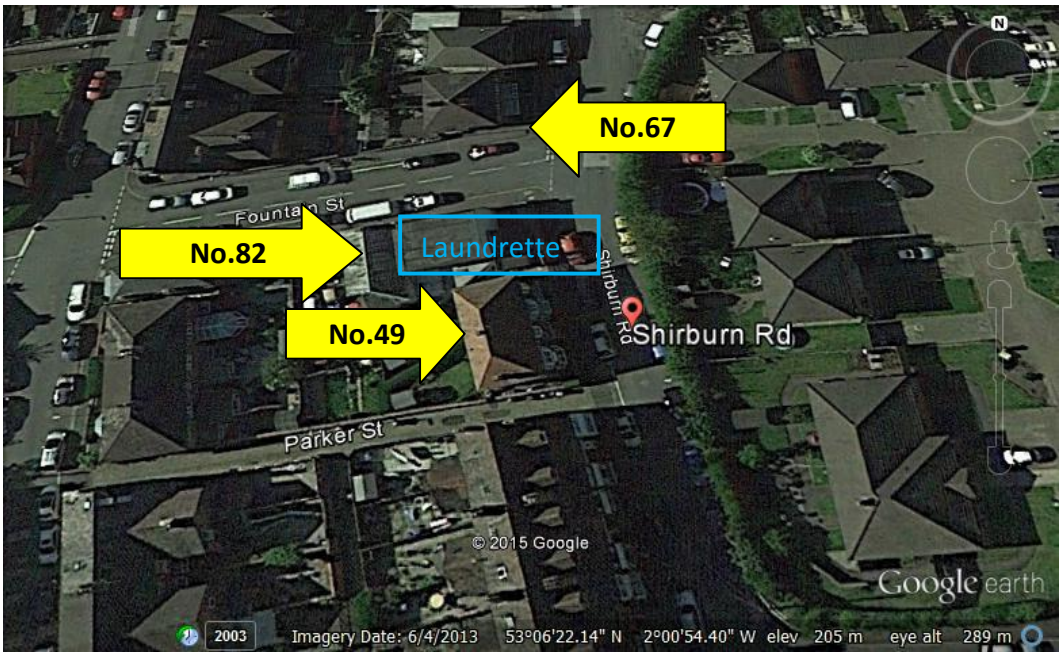
From the measurements, observations on site and discussions with the occupiers on Nos. 49 and 82, it is not considered that noise is an issue at these locations.

Noise levels at No.67, the property over the road were slightly higher and it was possible to perform a BS4142 assessment at this location; the assessment indicated *"...a significant adverse impact, depending on the context."* The context is that the affected location is essentially the front facade of the dwelling with relatively few windows in the facade and the garden off to the side, shielded by buildings and walls and further from the noise source. Given the context, it is not considered that there is an adverse impact is significant.

Given the above conclusions, it is not considered that the noise impact should bar the grant of planning consent for the development.

In the alternative should it be considered that there noise impact is unacceptable, the main noise source is an air extract system, which is generally fairly straightforward to control by means of in-duct attenuators and/or acoustic louvers; it is considered that, if necessary, planning consent could be granted subject to a noise condition.

Figure 1: Site Layout Plan (Monitoring Positions)



APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	30	Very Quiet
Quiet office	40	
Rural background noise	45	
Normal conversational level	60	
Busy restaurant	65	
Typewriter @ 1m	73	
Inside suburban electric train	76	
Alarm clock ringing @ .5m	80	
Hand clap @ 1m	80	
HGV accelerating @ 6m	92	Very Loud

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M.A. KENYON

My full name is Melville Alexander Kenyon. I am the principal of the firm of Martec Environmental Consultants Ltd, a consultancy company that specialises in environmental noise assessment and control. I hold a Bachelor's degree in Engineering and a Master's degree in Environmental Acoustics. I am a member of the professional body for noise and vibration specialists, the Institute of Acoustics and have sat on the British Standards Committee dealing with noise in buildings [BS.8233:1999].

My company is on the panel of noise advisers to the Clay Pigeon Shooting Association and previously I have lectured at Liverpool John Moores University on the Diploma of Acoustics course and at Manchester Metropolitan University on their Environmental Health degree course.

Since 1982, I have had experience of dealing with problems caused by noise and vibration, in the environment, the workplace and the home.

Martec Environmental Consultants Ltd was formed [as a partnership] in the mid 1970's and has been a member of The Association of Noise Consultants since 1996 and is accredited for sound insulation testing via this professional body.

APPENDIX 3

REFERENCES

1 Planning Policy Guidance 24: Planning and Noise. - http://www.communities.gov.uk/publications/planningandbuilding/ppg24

2 BS.8233:2014 “Guidance on Sound Insulation and noise reduction for buildings.”

3 Calculation of Road Traffic Noise (CRTN) – Department of Transport and the Welsh Office, HMSO,1988, ISBN 0-11-550847-3

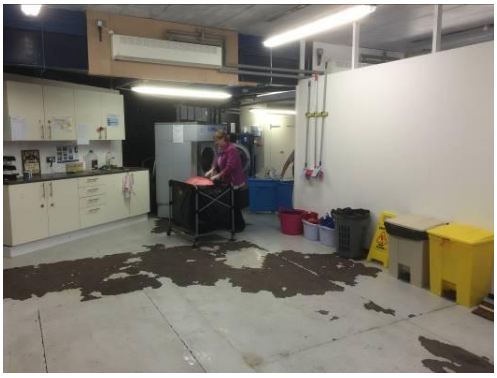
4 Method for Converting the UK Road Traffic Noise Index L to the EU Noise Indices for Road Noise Mapping – TRL/Cassella Stanger http://www.defra.gov.uk/environment/quality/noise/research/crtn/documents/noise-crtn-update2006.pdf

5 BS EN 12354-3:2000 *Building Acoustics-Estimation of Acoustic Performance in buildings from the performance of elements. Part 3 Airborne Sound Insulation against Outdoor Sound.*

6 BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

APPENDIX 4

SITE IMAGES



Loading washing machines

Dryers

Garden of No.49

No.82 adjoined to laundrette building

No.67 on opposite side of road to extraction outlet